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The compass of violence: prosperity, decline and the ideological orientation of radical movements

Simon Varaine

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THÈSE

Pour obtenir le grade de

DOCTEUR DE L'UNIVERSITE GRENOBLE ALPES

Spécialité : **Science politique**

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Présentée par

Simon VARAINE

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préparée au sein du **Laboratoire Pacte** dans l'**École Doctorale Sciences de l'Homme, du Politique et du Territoire**

**La boussole de la violence.
Prospérité, déclin et orientation idéologique
des mouvements radicaux**

**The compass of violence.
Prosperity, decline and the ideological
orientation of radical movements**

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List of groups and abbreviations

Table 1: Group names and associated abbreviations

Name	Translation	Country	Abbr.
<i>Action Directe</i>	Direct Action	France	AD
<i>Action Française</i>	French Action	France	AF
<i>ad-Dawlah al-Islāmiyah fī 'l-'Irāq wa-sh-Shām</i>	Islamic State of Iraq and the Levant	Iraq	ISIS
<i>al-Jabhah al-Islāmiyah lil-Inqādh</i>	Islamic Salvation Front	Algeria	FIS
<i>al-Jamā'ah al-'Islāmiyyah</i>	the Islamic Group	Egypt	IG
<i>al-Jamā'ah al-'Islāmiyyah al-Musallaha</i>	Armed Islamic Group	Algeria	GIA
<i>al-Jamā'h al-Islāmiyah</i>	Islamic Congregation	Indonesia	JI
<i>al-Qā'idah</i>	The Base	Afghanistan	
<i>Alþýðubandalagið</i>	People's Alliance	Iceland	Ab
<i>Aliança Povo Unido</i>	United People Alliance	Portugal	APU
<i>Alianza Anticomunista Argentina</i>	Argentine Anticommunist Alliance	Argentina	AAA
<i>Alleanza Nazionale</i>	National Alliance	Italy	AN
<i>Alternative für Deutschland</i>	Alternative for Germany	Germany	AfD
<i>Animal Liberation Front</i>		UK	ALF
<i>Anorthotikó Kómma Ergazómenou Laou</i>	Progressive Party of Working People	Cyprus	AKEL
<i>Arm Saoirse Náisiúnta na hÉireann</i>	Irish National Liberation Army	Ireland	INLA
<i>Army of God</i>		US	AOG
<i>Bündnis Zukunft Österreich</i>	Alliance for the Future of Austria	Austria	BZÖ
<i>Batallón Vasco Español</i>	Spanish Basque Battalion	Spain	BVE
<i>Bauernbund</i>	Farmers Union	France	
<i>Black Liberation Army</i>		US	BLA
<i>Black Panther Party</i>		US	BPP
<i>Bloco de Esquerda</i>	Left Bloc	Portugal	BE
<i>Bozkurtlar</i>	Grey Wolves	Turkey	
<i>Brigades internationales</i>	International Brigades	France	BI
<i>Brigate Rosse</i>	Red Brigades	Italy	BR
<i>British National Party</i>		UK	BNP
<i>British Union of Fascists</i>		UK	BUF
<i>Camarades</i>	Comrades	France	
<i>Chega</i>	Enough	Portugal	

List of groups and abbreviations

<i>Chrysí Avgí</i>	Golden Dawn	Greece	
<i>Club Charles Martel</i>	Charles Martel Group	France	
<i>Column 88</i>		UK	
<i>Comité secret d'action révolutionnaire (La Cagoule)</i>	Secret Committee of Revolutionary Action (The Cowl)	France	CSAR
<i>Comités de défense paysanne (Chemises vertes)</i>	Peasants' defense committee (Green shirts)	France	
<i>Comités Malville</i>	Malville Committees	France	
<i>Commandos Delta</i>		France	
<i>Confédération Française du Travail</i>	French Confederation of Labor	France	
<i>Confédération Générale du Travail</i>	General Confederation of Labor	France	CGT
<i>Confédération Générale du Travail Unitaire</i>	United General Confederation of Labor	France	CGTU
<i>Croix-de-Feu</i>	Cross of Fire	France	
<i>Dansk Folkeparti</i>	Danish People's Party	Denmark	DF
<i>Debout la France</i>	France Arise	France	DLF
<i>Demala ñlām vimukti koñi</i>	Liberation Tigers of Tamil Eelam	Sri Lanka	LTTE
<i>Deutschnationale Volkspartei</i>	German National People's Party	Germany	DNVP
<i>Die Linke</i>	The Left	Germany	
<i>Die Republikaner</i>	The Republicans	Germany	REP
<i>Direct Action Against Drugs</i>		UK	
<i>Enhedslisten – De Røde Alliance</i>	Red–Green Alliance	Denmark	Ø
<i>Epanastatiki Organosi dekaefta Noemvri</i>	Revolutionary Organization 17 November	Greece	17N
<i>Epanastatikos Laikos Agonas</i>	Revolutionary People's Struggle	Greece	ELA
<i>Euskadi ta Askatasuna</i>	Basque Homeland and Liberty	Spain	ETA
<i>Exército Guerrilheiro do Povo Galego Ceive</i>	Guerrilla Army of the Free Galician People	Spain	EGPGC
<i>Faire Front</i>	Make Front	France	
<i>Falange Armata</i>	Armed Phalanx	Italy	
<i>Fatah al-Majles al-Thawry</i>	Fatah – The Revolutionary Council (Abu Nidal Organization)	Palestine	ANO
<i>Fédération d'Action Nationale et Européenne</i>	Federation of National and European Action	France	FANE
<i>Fédération des Contribuables</i>	Federation of Taxpayers	France	
<i>Fédération Nationale Catholique</i>	National Catholic Federation	France	FNC
<i>Fédération nationale des syndicats d'exploitants agricoles</i>	National Federation of Agricultural Holders' Unions	France	FNSEA
<i>Fédération Républicaine</i>	Republican Federation	France	FR
<i>Federazione Anarchica Informale</i>	Informal Anarchist Federation	Italy	FAI
<i>Fianna Fáil</i>	Soldiers of destiny	Ireland	
<i>Fine Gael</i>	Family of the Irish	Ireland	
<i>Forças Populares 25 de Abril</i>	Popular Forces 25 April	Portugal	FP-25
<i>Forum voor Democratie</i>	Forum for Democracy	Netherlands	FvD
<i>Fratelli d'Italia</i>	Brothers of Italy	Italy	FdI

List of groups and abbreviations

<i>Freiheitliche Partei Österreichs</i>	Freedom Party of Austria	Austria	FPÖ
<i>Fremskrittspartiet</i>	Progress Party	Norway	FrP
<i>Frente de Libertação dos Açores</i>	Azores Liberation Front	Portugal	FLA
<i>Front National</i>	National Front	France	FN
<i>Front National belge</i>	National Front (Belgium)	Belgium	FNb
<i>Front Populaire</i>	Popular Front	France	
<i>Fuerza Nueva</i>	New Force	Spain	
<i>Fuerzas Armadas Revolucionarias de Colombia</i>	Revolutionary Armed Forces of Colombia	Colombia	FARC
<i>Gauche Prolétarienne</i>	Proletarian Left	France	GP
<i>Génération Identitaire</i>	Generation Identity	France	GI
<i>Groupe Hermann Goering</i>	Hermann Goering group	France	
<i>Groupe Joachim Peiper</i>	Joachim Peiper group	France	
<i>Groupes d'action révolutionnaires internationalistes</i>	International Revolutionary Action Group	France	GARI
<i>Grupos Antiterroristas de Liberación</i>	Antiterrorist Liberation Groups	Spain	GAL
<i>Grupos de Resistencia Antifascista Primero de Octubre</i>	First of October Anti-Fascist Resistance Groups	Spain	GRAPO
<i>Harakat al-Khalifah al-'Islamiyya</i>	Kilafah Islamic Movement	Philippines	
<i>Harakat al-Muqāwamah al-'Islāmiyyah (Hamas)</i>	Islamic Resistance Movement (Courage)	Palestine	
<i>Harakat al-Shabaab al-Mujahideen</i>	Mouvement of the young mujahideen	Somalia	HSM
<i>Hizbu 'llāh</i>	Party of Allah	Lebanon	
<i>Hayasdani Azadakrut'ean Hay Kaghdni Panag</i>	Armenian Secret Army for the Liberation of Armenia	Armenia	ASALA
<i>Izquierda Unida</i>	United Left	Spain	IU
<i>Jabhat Tahṛīr Moro al-'Islāmiyyah</i>	Moro Islamic Liberation Front	Philippines	MILF
<i>Jamā'at Abū Sayyāf</i>	Abu Sayyaf group	Philippines	ASG
<i>Jama'at al-Tawhid wal-Jihad</i>	Organization of Monotheism and Jihad	Jordan	JTJ
<i>Jamā'atu Ahli is-Sunnah lid-Da'wati wal-Jihād (Boko Haram)</i>	Group of the People of Sunnah for Dawa and Jihad (Western education is forbidden)	Nigeria	
<i>Jeune Nation</i>	Young Nation	France	JN
<i>Jeunesses Patriotes</i>	Young Patriots	France	JP
<i>Jewish Defense League</i>		US	JDL
<i>Jobbik Magyarorszáért Mozgalom</i>	Movement for a Better Hungary	Hungary	Jobbik
<i>Jund Ansar Allah</i>	Soldiers of the Supporters' of Allah	Palestine	
<i>Katā'ib Abū Ḥafṣ al-Maṣrī</i>	Abu Hafṣ al-Masri Brigades	Afghanistan	
<i>Katā'ib Shuhadā' al-'Aqṣā</i>	al-Aqsa Martyrs' Brigades	Palestine	
<i>Klu Klux Klan</i>		US	KKK
<i>Kommunistikó Kómma Elládas</i>	Communist Party of Greece	Greece	KKE
<i>Kommunistesch Partei vu Lëtzebuerg</i>	Communist Party of Luxembourg	Luxembourg	KPL

List of groups and abbreviations

<i>Kommunistische Partei Deutschlands</i>	Communist Party of Germany	Germany	KPD
<i>Komunistická strana Slovenska</i>	Communist Party of Slovakia	Slovakia	KSS
<i>Komunistická strana Čech a Moravy</i>	Communist Party of Bohemia and Moravia	Czechia	KSČM
<i>Komunistická strana Československa</i>	Communist Party of Czechoslovakia	Czechia	KSČ
<i>Komunistický svaz mládeže</i>	Communist Youth Union	Czechia	KSM
<i>Kongres Nowej Prawicy</i>	Congress of the New Right	Poland	KNP
<i>La Cause du Peuple</i>	The People's Cause	France	
<i>La France Insoumise</i>	Unbowed France	France	LF
<i>Laikós Orthódoxos Synagermós</i>	Popular Orthodox Rally	Greece	LAOS
<i>Latvijas Komunistiskā partija</i>	Communist Party of Latvia	Latvia	LKP
<i>Le Faisceau</i>	The Fasces	France	
<i>Lega Nord</i>	Northern League	Italy	LN
<i>Liga Polskich Rodzin</i>	League of Polish Families	Poland	LPR
<i>Ligue Antisémitique</i>	Antisemitic League	France	
<i>Ligue Communiste Révolutionnaire</i>	Revolutionary Communist League	France	LCR
<i>Ligue de la patrie française</i>	French Homeland League	France	
<i>Ligue des Patriotes</i>	League of Patriots	France	
<i>Ligue Internationale Contre le Racisme et l'Antisémitisme</i>	International League Against Racism and Anti-Semitism	France	LICRA
<i>Lijst Pim Fortuyn</i>	Pim Fortuyn List	Netherlands	LPF
<i>Lipa</i>	Party Lime Tree	Slovenia	
<i>Lotta Continua</i>	Continuous Struggle	Italy	LC
<i>Lutte Ouvrière</i>	Worker's Struggle	France	LO
<i>Magyar Igazság és Élet Pártja</i>	Hungarian Justice and Life Party	Hungary	MIÉP
<i>Magyar Munkáspárt</i>	Workers' Party	Hungary	
<i>Marge</i>	Margin	France	
<i>Milliyetçi Demokrasi Partisi</i>	Nationalist Democracy Party	Turkey	MDP
<i>Milliyetçi Hareket Partisi</i>	Nationalist Movement Party	Turkey	MHP
<i>Mouvement contre le Racisme et pour l'Amitié entre les Peuples</i>	Movement Against Racism and for Friendship between Peoples	France	MRAP
<i>Mouvement Jeunes Communistes de France</i>	Young Communists Movement of France	France	JC
<i>Mouvement National Républicain</i>	National Republican Movement	France	MNR
<i>Movimento Sociale Italiano</i>	Italian Social Movement	Italy	MSI
<i>Munazzamat at-Taḥrīr al-Fīlasṭīniyyah</i>	Palestinian Liberation Organization	Palestine	PLO
<i>Nacionālā apvienība</i>	National Alliance	Latvia	NA
<i>National Alliance</i>		US	
<i>Nationaldemokratische Partei Deutschlands</i>	National Democratic Party of Germany	Germany	NPD
<i>Nationalist Party of Australia</i>		Australia	NAT
<i>Nationalsozialistische Deutsche Arbeiterpartei</i>	National Socialist German Workers' Party	Germany	NSDAP

List of groups and abbreviations

<i>Noyaux armés pour l'autonomie populaire</i>	Armed Nuclei for Popular Autonomy	France	NAPAP
<i>Nuclei Armati Rivoluzionari</i>	Armed Revolutionary Nuclei	Italy	NAR
<i>Óglaigh na hÉireann</i>	Irish Republican Army	UK / Ireland	IRA
<i>Onofhängeg Nationalpartei</i>	Independent National Party	Luxembourg	PNI
<i>Ordre Nouveau</i>	New Order	France	
<i>Organisation armée secrète</i>	Secret Armed Organisation	France	OAS
<i>Organisation Communiste Libertaire</i>	Libertarian Communist Organization	France	OCL
<i>Partei des Demokratischen Sozialismus</i>	Party of Democratic Socialism	Germany	PDS
<i>Parti Communiste Français</i>	French Communist Party	France	PCF
<i>Parti de l'Unité Proletarienne</i>	Proletarian Unity Party	France	PUP
<i>Parti Radical</i>	Radical Party	France	Rad
<i>Parti Social Français</i>	French Social Party	France	PSF
<i>Parti Socialiste Unifié</i>	Unified Socialist Party	France	PSU
<i>Partido Comunista Português</i>	Portuguese Communist Party	Portugal	PCP
<i>Partido Socialista Revolucionário</i>	Revolutionary Socialist Party	Portugal	PSR
<i>Partidul Poporului - Dan Diaconescu</i>	People's Party - Dan Diaconescu	Romania	PP-DD
<i>Partidul România Mare</i>	Greater Romania Party	Romania	PRM
<i>Partij voor de Vrijheid</i>	Party for Freedom	Netherlands	PVV
<i>Partito Comunista</i>	Communist Party	Italy	
<i>Partito Comunista Italiano</i>	Italian Communist Party	Italia	PCI
<i>Partito della Rifondazione Comunista</i>	Communist Refoundation Party	Italy	PRC
<i>Partiya Karkerên Kurdistanê</i>	Kurdistan Workers' Party	Turkey	PKK
<i>Perussuomalaiset</i>	Finns Party	Finland	PS
<i>Podemos</i>	We Can	Spain	
<i>Política XXI</i>	Politics XXI	Portugal	
<i>Potere al Popolo</i>	Power to the People	Italy	PaP
<i>Prima Linea</i>	Front Line	Italy	
<i>Rød dt</i>	Red Party	Norway	
<i>Republic of Texas</i>		US	
<i>Revolutionäre Zellen</i>	Revolutionary Cells	Germany	RZ
<i>Rietspartei</i>	Party of the Right	Luxembourg	PD
<i>Rote Armee Fraktion</i>	Red Army Faction	Germany	RAF
<i>Sahashakaitō</i>	Leftist Socialist Party of Japan	Japan	LWSP
<i>Sameiningarflokkur alþýðu - Sósíalistaflokkurinn</i>	People's Unity Party - Socialist Party	Iceland	SA-S
<i>sâzmân-e mojâhedîn-e khalq-e îrân</i>	People's Mujahedin Organization of Iran	Iran	PMOI
<i>Schweizerische Volkspartei</i>	Swiss People's Party	Switzerland	SVP
<i>Section Française de l'Internationale Communiste</i>	French Section of the Communist International	France	SFIC

List of groups and abbreviations

<i>Section Française de l'Internationale Ouvrière</i>	French Section of the Workers' International	France	SFIO
<i>Sinn Féin</i>	Ourselves	Ireland	
<i>Slovenská národná strana</i>	Slovak National Party	Slovakia	
<i>Slovenska Nacionalna Stranka</i>	Slovenian National Party	Slovenia	
<i>Socialistes indépendants</i>	Independent Socialists	France	SI
<i>Socialistische Partij</i>	Socialist Party	Netherlands	SP
<i>Socialistisk Folkeparti</i>	Socialist People's Party	Denmark	SF
<i>Solidarité Française</i>	French Solidarity	France	
<i>Sosialistisk Venstreparti</i>	Socialist Left Party	Norway	SV
<i>Sovereign Citizen Movement</i>		US	
<i>Strana demokratickej ľavice</i>	Party of the Democratic Left	Slovakia	SDL
<i>Suomen Kansan Demokraattinen Liitto</i>	Finnish People's Democratic League	Finland	SKDL
<i>Sverigedemokraterna</i>	Sweden Democrats	Sweden	SD
<i>Synaspismós Rizospastikís Aristerás</i>	Coalition of the Radical Left	Greece	SYRIZA
<i>Synaspismós tīs Aristerás tōn Kinīmátōn kai tīs Oikologías</i>	Coalition of the Left, of Movements and Ecology	Greece	SYN
<i>Synomosía ton Pyrínon tis Fotiás</i>	Conspiracy of Fire Nuclei	Greece	SPF
<i>Taliban</i>	Students	Afghanistan	
<i>tanẓūm qā'idat al-jihād fī bilād ar-rāfidayn</i>	Organization of Jihad's Base in Mesopotamia (Al-Qaeda in Iraq)	Iraq	TQJBR
<i>Tautas Kustība Latvijai – Zīgerista Partija</i>	People's Movement for Latvia - Siegerist Party	Latvia	TKL-ZP
<i>Terra Lliure</i>	Free Land	Spain	TLL
<i>UK Independence Party</i>		UK	UKIP
<i>Unabhängige Sozialdemokratische Partei Deutschlands</i>	Independent Social Democratic Party of Germany	Germany	USPD
<i>Uniao Democratica Popular</i>	Popular Democratic Union	Portugal	UDP
<i>Unidas Podemos</i>	United We Can	Spain	
<i>Union Anarchiste</i>	Anarchist Union	France	UA
<i>Union de Défense des Commerçants et Artisans</i>	Union for the Defense of Tradesmen and Artisans	France	UDCA
<i>Union Nationale des Etudiants de France</i>	National Union of Students of France	France	UNEF
<i>Vänsterpartiet</i>	Left Party	Sweden	V
<i>Vasemmistoliitto</i>	Left Alliance	Finland	VAS
<i>Vive la Révolution !</i>	Long live the revolution!	France	
<i>Vlaams Belang</i>	Flemish Interest	Belgium	VB
<i>Vox</i>	Voice	Spain	
<i>Weather Underground</i>		US	
<i>World Church of the Creator (Creativity Movement)</i>		US	

Table 2: Additional abbreviations

Name	Abbr.
Activism and Radicalism Intention Scale	ARIS
Before the Common Era	BCE
Central Intelligence Agency	CIA
Comparative Political Data Set	CPDS
Destructive Capacity	DC
Equal Destructive Capacity	EDC
European Social Survey	ESS
European Union	EU
Global Burden of Disease	GBD
Global Terrorism Database	GTD
Gross Domestic Product	GDP
Inter-group Prisoner's Dilemma	IPD
International Terrorism: Attributes of Terrorist Events	ITERATE
North Atlantic Treaty Organization	NATO
Parliament and government database	ParlGov
Positive and Negative Affects Scale	PANAS
Profiles of Individual Radicalization in the United States	PIRUS
Statistical Classification of Economic Activities in the European Community	NACE
Unequal Destructive Capacity	UDC
United Kingdom	UK
United States	US
Variance Inflation Factor	VIF

Introduction

April the 2nd, 1968, Frankfurt. Explosives detonate in the department stores *M. Schneider* and *Kaufhof*. The bombs were placed here by a bunch of young people, among which Andreas Baader. A few month later, commenting the process of the April bombings, Ulrike Meinhof, redactor of the leftist intellectual review *Konkret*, greets the action through quoting a comrade from the socialist student movement: "It's always better to set a department store on fire than to run a department store". The event is the starting point of a wave of resounding attacks directed by what will be known as the first *Rote Armee Fraktion* (Red Army Faction, RAF) – also called the *Baader-Meinhof* group. After a period of clandestinity, Baader is arrested and placed in jail in April 1970. In May, Meinhof leads an armed commando to free him, which gives birth to the group. Throughout 1970-1972, the *Baader-Meinhof* group commits a series of actions – bank assaults, violent confrontations with the German police and bombings of American military facilities, public institutions and the buildings of the press leader Axel Springer. After their arrest, both Meinhoff and Baader will eventually commit suicide in jail, as well as two other members of the group, leading to the end of the first RAF.

The rise and fall of the *Baader-Meinhof* group could be seen as an anecdotal historical fact, emerging from a hazardous conjunction of individual destinies. It is more than that. The group arose in a period in which revolutionary movements, especially students movements, mobilized a wide faction of the youth in Germany. The *Baader-Meinhof* group received at that time a large popular support: in 1971, around one out of five Germans held a positive image of the activists, and this proportion raised 25% among the youth (Hewitt, 1990, p. 152). After the first wave of actions of the *Baader-Meinhof* group, a varieties of other individuals and groups started to engage in political violence, resulting in the high level of political crimes and violence of the Years of Lead (Della Porta, 2006). Hence, the *Baader-Meinhof* group is reflecting a historical wave of revolutionary violence that passed through Germany.

In contemporary Germany, there is no equivalent of the *Baader-Meinhof* group: no major acts of revolutionary violence with fatalities have been recorded during the past years. Yet, nowadays Germany is struggling with a very different kind of violence. In Hanau, on the 19th of February 2020, Tobias Rathjen enters two shisha bars where he

kills nine people and injures five. In his manifesto, the gunman affirms the superiority of the German culture and his hate of Muslims and non-white people. Just five days before the Hanau massacre, the German police had arrested twelve members of a group called *Der Harte kern* (the Hard Core), which plotted to launch a series of massacres in mosques across Germany to generate a civil war.

As during the *Baader-Meinhof* period, such acts do not emerge in a vacuum. Incidents arising from far-right groups have been on the rise during the last decade (Bundesministerium des Innern, 2020). Crimes motivated by right-wing ideas are more than twice as frequent as crimes motivated by left-wing ideas (Bundesministerium des Innern, 2020). In particular, lethal actions targeting immigrants and foreigners have increased since 2016 (Ravndal et al., 2019). This increase occurs in a context in which far-right votes attain a historical peak (Weisskircher, 2020) and xenophobic sentiments are on the rise among young cohorts (Beller, 2020).

How could such waves of political violence be explained? A widespread opinion is that political violence, whatever its form, is fuelled by *economic misery*. At a first look, the *Baader-Meinhoff* group does not fit with this explanation. Germany of 1968 was experiencing an unprecedented period of prosperity and decrease in poverty (World Inequality Database, 2017a). Economic inequality was at the lowest level than during all the century (World Inequality Database, 2017c). Furthermore, activists of the Red Army Faction were drawn from upper-middle class backgrounds. As observed by Russell and Miller (1977), "Baader himself was the son of a historian, Ulrike Meinhof the daughter of an art historian, Horst Mahler the son of a dentist, Holger Meins the son of a business manager, and Gudrun Ensslin the daughter of a clergyman" (Russell and Miller, 1977, p. 26).

Now, the contemporaneous wave of right-wing violence takes place in a very different context than the *Baader-Meinhof* group. Germany at the beginning of the 2020s is by various aspects in a relatively more deprived context than in 1968. Incomes are no longer experiencing a continuous growth (World Inequality Database, 2017a), inequality has reached its higher level since World War II (World Inequality Database, 2017c) and unemployment is higher. The economic situation is especially worst in Eastern Germany, with higher unemployment rates and lower incomes, and the incidence of right-wing hate crimes is higher there (Rees et al., 2019). Besides, in contrast with members of the RAF, right-wing terrorists in Germany appear to come from disadvantaged backgrounds with low educational attainment (Gambetta and Hertog, 2017, p. 106).

What can we infer from these observations? A first reading would be that economic misery simply has no role to explain political violence. This is the conclusion of most recent empirical studies. The scientific literature on radicalism now generally considers that economy has no role in the emergence of political violence. However, this conclusion seems unsatisfying. In one case – the wave incarnated by the *Baader-Meinhof* group –

economic misery clearly does not stand among the plausible explanations. But in the other case – the wave incarnated by the Hanau massacres – economic misery seems a rather good candidate. Thus, have economic conditions truly no role in understanding waves of political violence? May economic misery explain, rather than the rise of political violence in all its forms, the orientation that it takes? The present dissertation addresses this question. I propose to revisit the connection between economic deprivation and radicalism. I defend the idea that the effect of economic deprivation depends on one crucial element: ideology, or in other words the political ends for which the violence is committed.

1. Defining radicalism

Radicalism is defined as the use of illegal means to achieve political changes (McCauley and Moskalenko, 2008; Tausch et al., 2011). This definition entails two key components. Firstly, a radical behavior involves the use of *illegal* means. This distinguishes *radicalism* from *reformist* behaviors, that aim to achieve political changes through legal channels, such as voting, demonstrating or being member of a political association in democratic countries. The classification of a behavior as radical depends on the legal context within a given society. For instance, demonstrating or creating a political association is prohibited in various countries. Hence, individuals who engage in such behaviors are classified as radical, which captures the fact that they are enduring some potential personal cost for their political action. In virtually all countries, resorting to interpersonal violence is illegal, except when it emerges from governmental forces.¹ For that reason, a typical form of radicalism is *terrorism*, defined as the use of political violence by sub-national actors (Krueger, 2017). Secondly, to be classified as radical, a behavior must aim to achieve *political changes*. This distinguishes radicalism from illegal behaviors that display no political cause, such as common *crimes*.

This definition of radicalism must be distinguished from alternative definitions that focus on the content of political ideas. For instance, various scholars qualify as radical political parties that promote certain ideological positions, such as parties that advocate for the exclusion of non-native individuals (Mudde, 2007) or parties that advocate for the overthrow of capitalism (March, 2012). In the present dissertation, these parties are not classified as radical, except if they resort to illegal actions. If not, I will rather qualify

¹Some cases can be considered as paralegal, such as extra-judiciary executions, or actions lead by paramilitary groups supported by a government. I would classify these cases out the radicalism category – that is, within the category of legal violence, since it originates from the owners of political power within the system.

Table 3: Conceptual definition of radicalism

		Aim to achieve political changes?	
		No	Yes
Use illegal means?	No	<i>Moderation</i>	<i>Reformism</i>
	Yes	<i>Crime</i>	<i>Radicalism</i>

them as *extreme*, to the extent that they advocate to change the system of government *per se* (Funke et al., 2016). Indeed, the present dissertation focuses on the conditions under which individuals choose to change the system without following its rules. Movements advocating for the end of capitalism may or not be radical depending on whether they wish to achieve so by reformist or revolutionary means.

2. The inconsistent effect of collective deprivation on radicalism

In this dissertation, *collective deprivation* is defined as contexts of economic recession and increased inequality. The idea that collective deprivation is a root cause of radicalism is generally based on two mechanisms. According to the *opportunity cost* argument, economic deprivation lowers the cost for individuals to withdraw from economically productive occupations hence increasing the number of potential recruits for radical movements (see for instance Freytag et al., 2011). According to the *grievance* argument, economic deprivation generates a sense of discontent (Gurr, 2015) and reveals the system's contradictions (Marx and Engels, 2012), which fuels the propensity for political violence. Empirically, the two mechanisms both yield the prediction that contexts of economic recession and increased inequality generate more radical mobilization and behaviors. Indeed, low growth and unequal societies have by definition a higher share of poor individuals, which are potential recruits for radical movements according to the opportunity cost argument. Alternatively, according to the grievance argument, economic recessions and increased inequality induce discontent against the political power (or upper classes) and hence motivate radicalism.

However, results on this matter are disputed. While various cross-national studies did find that societies facing economic recessions generate more terrorism (Blomberg et al., 2004; Caruso and Schneider, 2011; Freytag et al., 2011; Ghatak and Gold, 2017; Kis-Katos et al., 2011), others failed to find a significant relationship between economic growth and terrorism (Drakos and Gofas, 2006; Krueger and Laitin, 2008; Kurrild-

Klitgaard et al., 2006; Piazza, 2006). Using Granger-models to analyze domestic terrorism in seven European states from 1951 to 2004, Gries et al. (2011) found that economic growth is causally related to terrorism in three out of seven countries. Recently, Choi (2015) found evidence that industrial (and not agricultural) economic growth is negatively related to domestic and transnational terrorism and positively related to suicide terrorism in a sample of 127 countries for 1970–2007. Regarding the effect of inequality, results are also debated: whilst past research did not find any relationship between inequality and terrorism (Abadie, 2006; Kurrild-Klitgaard et al., 2006; Piazza, 2006) recent research has contested this conclusion and supported the view that inequality is a predictor of domestic terrorism (Krieger and Meierrieks, 2019). In sum, at a collective level, indicators of economic recession and inequality do not appear to be consistent and robust predictors of terrorism. This conclusion does not give much support to both the opportunity cost and grievance arguments.

Individual data on radical activists' backgrounds also cast doubts on the alleged deprivation-terrorism nexus. Indeed, compared to their home countries' population, terrorists are not mostly drawn from the unprivileged. For instance, Krueger and Malečková (2003) found members of lower class to be under-represented and educated individuals over-represented in samples of Hezbollah members in Lebanon, Israeli Jewish terrorists and Palestinian suicide bombers. Similar conclusions have been drawn from samples of transnational jihadists (Sageman, 2004), US homegrown jihadists (Krueger, 2008), Basque separatist terrorists (Clark, 1983), Chechen suicide bombers Speckhard and Ahkmedova (2006) and diverse terrorist groups for the 1966–1976 period (Russell and Miller, 1977). However, some recent studies have found that unemployment was a significant predictor of violence among US extremists (Jensen and LaFree, 2016; LaFree et al., 2018). In sum, there is mixed evidence regarding the opportunity cost argument that most terrorists engage in result of a lack of economic opportunities.² All in all, ideological goals seem to matter more than material considerations to explain terrorism (see Krueger, 2017, p. 146).

²Regarding the grievance argument, it remains possible that people resort to terrorism as the result, not of personal deprivation but on the behalf of economic deprivation experienced at a societal level. Yet, as presented earlier, the inconsistent relationship between collective deprivation and terrorism does not give much support to this alternative grievance argument.

3. Theory: the compass of radicalism

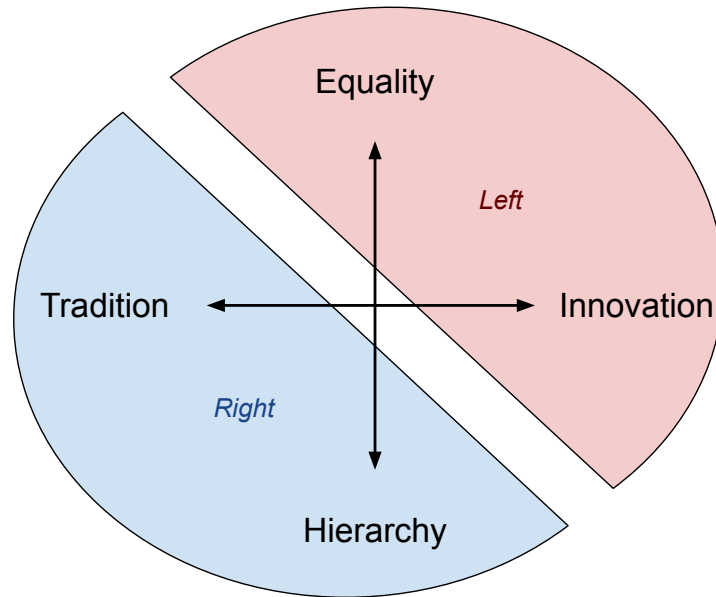
Based on the preceding results, various studies have concluded that collective deprivation does not matter in the explanation of terrorism (Krieger and Meierrieks, 2011; Krueger, 2017; Piazza, 2006). Summing up these inconsistent results, Krueger (2017) affirms that there is "little support for the view that economic circumstances are an important cause of participation in terrorism" (Krueger, 2017, p. 6). Yet, another possibility is that collective deprivation affects participation into terrorism, but in different directions depending on the ideology of terrorists.

3.1. Defining ideology: the cardinal points

Ideologies are the "shared framework of mental models that groups of individuals possess that provide both an interpretation of the environment and a prescription as to how that environment should be structured" (Denzau and North, 2000, p. 24). Classically, ideological positions are labeled following the left-right spectrum, inherited from the French Revolution (Jost et al., 2009). Most empirical analyses of ideology show that the left-right divide entails two key dimensions (see Claessens et al., 2020). On the one hand, the left-right spectrum can be defined as the distinction between the promotion of innovation versus tradition in society (Wilson and Patterson, 1968), which is often labeled as sociocultural conservatism (Feldman and Johnston, 2014) or authoritarianism (Altemeyer, 1996). On the other hand, the left-right spectrum can be defined as the distinction between the promotion of equality versus hierarchy in the society (Bobbio, 1996), which is often labeled as economic conservatism (Feldman and Johnston, 2014) or social dominance (Sidanius and Pratto, 2001). Although there are debates on whether these two dimensions empirically correlate (see for instance Claessens et al., 2020; Jost et al., 2009), the two constructs are theoretically distinct. One can imagine an individual promoting the traditional perpetuation of an egalitarian society or an individual promoting a novel hierarchical state of society. Hence, the two dimensions can theoretically be represented as cardinal points on a compass rose, as in Figure 1.

I argue that each of these two dimensions offers a basis to predict that collective deprivation differently affects left-wing and right-wing radicalism. For each dimension, I here develop two theories linking the economic context and the ideological orientation of radicalism. I respectively call these two frameworks the theory of ideals and the theory of enemies. Those two frameworks are the conceptual foundation of the key hypothesis under investigation in the present dissertation.

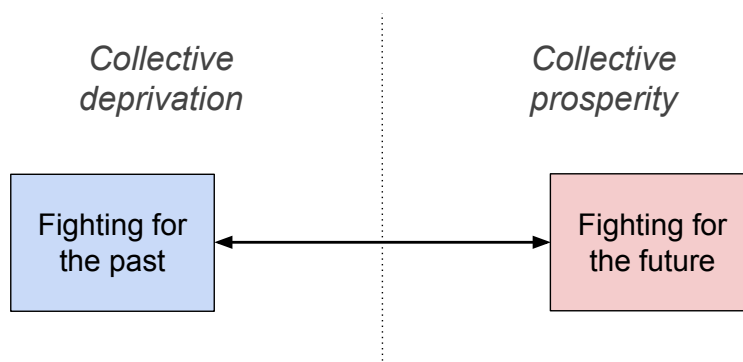
Figure 1: The two dimensions behind the left-right divide



3.2. The theory of ideals

My first theory links collective deprivation and the ideals for which radical behaviors are committed: collective deprivation affects the appeal of traditionalist versus innovative ideologies in the name of which radical movements fight. Stated shortly, the core of the theory of ideals is that contexts of collective deprivation induce the perception among the general population that society used to be a better place in the past, which increases the appeal of right-wing reactionary radical movements, that promote the restoration of a past state of society. In contrast, contexts of economic prosperity generate openness to the end of traditional arrangements, which increases the appeal of left-wing revolutionary radical movements, that promote a new state of society. Figure 2 summarizes my theory of ideals. Contexts of collective deprivation affect the orientation of the ideals of radical movements: whether they fight for the past or for the future.

Figure 2: Collective deprivation and the ideals of radicalism



Before detailing the conceptual foundations of the theory of ideals, I must specify

some key concepts. One may wonder whether a traditionalist radical movement is an oxymoron. Indeed, it could be argued that radical movements are, by definition, innovative, inasmuch as they seek to achieve some political change. From this perspective, a radical traditionalist movement is a nonsense. Nonetheless, I argue that a radical movement may be classified as traditionalist inasmuch as it promotes societal changes in order to restore a past order. As stated by Jost et al. (2008), "Right-wing extremists may also criticize the current state of affairs, but their ideological stake in 'preservationism' often means that the changes they favor are reactionary or retrograde in nature" (Jost et al., 2008, p. 129-131). As previous studies (Lipset and Raab, 1970; Parker and Barreto, 2014), I hence call movements promoting such traditionalist ideologies *reactionary* movements. Conversely, I call radical innovative movements, which advocate for societal changes in order to put an end to a traditional order, *revolutionary* movements.³

Theoretical background. Why would reactionary ideals resonate under contexts of deprivation and revolutionary ideals under contexts of prosperity? My theory of ideals derives from two different approaches of ideology: a rational one and a psychological one.

Rational approach of ideologies. The rational approach of ideology states that individuals are in a blank psychological state and rationally deduce from the information they are exposed to the most accurate set of beliefs about the existing and desirable state of society (see for instance Boudon, 2018; Bronner, 2015). If one starts from the assumption that individuals value economic prosperity (for either egoistic or altruistic reasons), it seems rational that, under contexts of deprivation, individuals have a preference for returning to a previous social order that was more prosperous. In this view, reactionary ideologies are simply the product of an inductive reasoning associating features of a past prosperous social order, from the organization of the economy to customs and cultural norms, with a higher probability to bring prosperity. This reasoning lies on the same logic than economic voting theory. In economic voting theory, individuals infer from the state of the economy the value of the incumbent (Lewis-Beck and Paldam, 2000; Lewis-Beck and Stegmaier, 2013). In the present reasoning, individuals infer from the state of the economy the value of a social organization as a whole.

This rational approach of ideology offers a rationale behind the prediction that reactionary ideologies are more appealing under contexts of collective deprivation. However, it offers no rationale behind the prediction that contexts of collective prosperity increase

³As for the left-wight dimension, the terms reactionary and revolutionary are inherited from the political history: the opposition between revolutionaries and reactionaries characterizing during the French Revolution the promoters of regime change and the supporters of the return to the Old Regime. However, in my approach, these concepts do not designate individuals or groups claiming to belong to one of these categories: they are categories of analysis, not categories of use.

the appeal of revolutionary ideologies. Indeed, one may consider that, under the same assumption that people wish to maximize economic prosperity, individuals should favor the status quo in contexts of prosperity in order to keep the conditions that brought prosperity unchanged. In contrast, the psychological approach offers a rationale behind the prediction that revolutionary ideologies are resonant under contexts of prosperity.

System-justification theory. According to the psychological approach of ideology, individuals "are not merely passive vessels of whatever beliefs and opinions [they] happen to have been exposed to" (see Jost, 2017, p. 168). To be adopted, an ideology must match the psychological needs of an individual. A key framework within the psychological approach of ideologies is system-justification theory. According to system-justification theory, people have motivations to see the social system in which they live as legitimate (Jost and Banaji, 1994), which they satisfy by endorsing politically conservative cognitions that justify the societal status quo. In particular, conservative cognitions are better able than progressive cognitions, that challenge the societal status quo, to address universal existential motivation to reduce threat and epistemic motivation to reduce uncertainty (Hennes et al., 2012; Jost, 2017; Jost et al., 2003b, 2007). These psychological needs vary across chronic and situational conditions, affecting the attractiveness of conservative versus progressive cognitions. For instance, individual variations in existential needs – measured through the perception that the world is a dangerous place – and epistemic needs – measured through the need for cognitive closure – are strongly related to the endorsement of conservative beliefs (see Jost, 2017, for a recent meta-analysis). Similarly, experimentally induced threat and uncertainty have been shown to increase the adherence to conservative beliefs (see for instance Duckitt and Fisher, 2003; Nail et al., 2009; Thórisdóttir and Jost, 2011).

Recently, Jost et al. (2017) proposed integrating system justification theory into the socio-psychological model of collective action (see Van Zomeren et al., 2008). They distinguished two ideological forms of collective action – system-challenging versus system-supporting protest – and argued that these forms have different socio-psychological antecedents. A key prediction of their model is that the occurrence and ideological orientation of collective action should vary with the very factors that have been proven to affect system justification. For instance, Hennes et al. (2012) have found that individual needs to reduce threat and uncertainty, by increasing system justification, were positively related to support for the Tea Party – a conservative political movement – and negatively related to support for Occupy Wall Street – a progressive political movement. Similarly, Jost et al. (2012) found that a manipulation inducing uncertainty reduced collective actions intentions among progressive political activists. Following this logic, contexts of economic decline, through increasing needs to reduce threat and uncertainty, should increase the mobilization potential of radical movements promoting system-supporting

beliefs. In contrast, contexts of economic improvement, through giving a sense of personal security, should increase the mobilization potential of radical movements promoting system-challenging beliefs.

System-justification theory undoubtedly offers a rationale behind the prediction that collective prosperity increases the appeal of revolutionary ideals. Indeed, revolutionary ideologies are inherently system-challenging as they promote the end of a given social order. However, the case of reactionary ideologies is more ambiguous. On the one hand, reactionary ideologies may be considered as system-challenging to the extent that they advocate for some change with the existing status quo, which implies that individuals espousing them should have some openness to change and uncertainty. As stated by Greenberg and Jonas (2003), "in the twentieth century, two of history's most horrifying conservative movements, Hitler's Nazism and Mussolini's fascism, gained power specifically because their leaders promised change" (Greenberg and Jonas, 2003, p. 377). On the other hand, valuing mystified past traditions still offers more reassuring and unambiguous propositions than promoting a social state that never existed. For that reason, Jost et al. (2003a) suggested that, although progressive revolutionaries are highly open to change and status quo conservatives are not at all open to change, reactionaries should stand somewhat in-between. A direct consequence is that system-justification theory asymmetrically predicts reactionary and revolutionary radicalism.

Initial evidence. Existing evidence supports the view, central to the theory of ideals, that innovative versus traditionalist ideologies are affected by collective deprivation. Studies have for long noticed that contexts of economic threat, such as recession periods, are related with behavioral expressions of authoritarian attitudes (Doty et al., 1991; Sales, 1972, 1973). Conversely, cross-national research indicates that citizens hold more progressive attitudes regarding traditions and obedience in countries experiencing secure social and economic contexts (Onraet et al., 2013a). Similarly, studies on public opinion show that the more people are confident that they will not lose their job in the future the more progressive they are (Feldman and Stenner, 1997; Onraet et al., 2013b; Rickert, 1998). Experimental evidence also supports this prediction: people score lower on Right-Wing Authoritarianism – a marker of traditionalist attitudes – if they are primed with a stable or improving socio-economic scenario than if they are primed with a declining socio-economic scenario (Duckitt and Fisher, 2003; Jugert and Duckitt, 2009).

However, evidence is lacking on whether variations in innovative versus traditionalist ideologies induced by collective deprivation affect political behaviors in general, and radicalism in particular. For instance, evidence indicates that far-right votes increase during recession periods (De Bromhead et al., 2013; Funke et al., 2016). Yet, the specific causal mechanism remains unclear. This may be due to a reactionary shift or to other competing mechanisms, such as increased hostility toward immigrants in periods of collective

Evolution as a root cause of time orientation in political ideologies?

System-justification theory insists on the inherent sense of psychological comfort and certainty offered by conservative beliefs in maintaining a stable psychological state under threatening contexts (Jost et al., 2003b). As such, system-justification theory derives from other theories, such as cognitive dissonance theory (Festinger, 1957), according to which the key individual motivation is to reduce psychological stress. However, the framework does not directly explain why individuals would be disposed to experience more comfort with conservative beliefs under threat at the very first place. More anterior explanations can be mentioned, among which life-history theory in evolutionary biology (Roff, 2002).

Life-history theory starts from the view that individual organisms have limited resources that they must invest during their life-course in order to maximize their fitness. Organisms must solve trade-offs in various aspects of life (reproduction, cooperation, etc.) which can be summarized on a slow-fast continuum. On the fast end of the continuum, organisms favor short-term rewards (e.g. early reproduction, low cooperation, risk-taking behaviors); on the slow end of the continuum, individuals favor long-term strategies (e.g. late reproduction, high cooperation, low risk-taking behaviors). The optimal strategy for an organism crucially depends on the environment. In harsh environments, a fast strategy that favors immediate and certain – albeit smaller – benefits is associated with a higher fitness. In contrast, in affluent environments, a slow strategy that favors future and less certain – but potentially higher – benefits is more optimal. Hence, natural selection would have favored organisms that have life strategies adapted to their environment, and that change their motivations and behaviors according to variations in environmental harshness (Roff, 2002).

Empirically, life-history theory has been applied to explain differences across species, but also to account for differences among organisms of a given species, among which humans. For instance, various studies have found that humans which were exposed to harsh environments – early life stress, deaths of close relatives – attain sexual maturity earlier (Chisholm et al., 2005) and have children earlier (Chisholm, 1999; Chisholm et al., 2005; Pepper and Nettle, 2013), albeit these results are disputed (see for instance Sheppard and Van Winkle, 2020). Life-history theory has been extended to account for variations in human cognition favoring present or future rewards (Frankenhuis et al., 2016). For instance, some studies have found that individuals exposed to high mortality environment are more likely to favor short-term over long-term material benefits (Lee et al., 2018; Pepper and Nettle, 2013), although contradictory evidence on this matter has also been reported (Kelley and Schmeichel, 2015).

Based on these findings, it has been proposed that life-history theory could explain historical variations in human preferences and beliefs systems. For instance, Baumard and Chevallier (2015) proposed that life-history theory could help understand the emergence of world religions over archaic religions during the Axial Age between 500 before the common era (BCE) and 300 BCE (see Baumard et al., 2015a). Compared with archaic religions, world religions favor delayed rewards over present orientation, cooperation over materialism and investment in long-term familial relationships over socio-sexuality.

According to Baumard and Chevallier (2015), unprecedented levels of affluence during the Axial Age would have produced a motivation shift toward slower life history strategies, giving resonance to such sets of beliefs. Coherent with this view, results indicate that the emergence of world religions correlates with increased affluence (Baumard et al., 2015b). In a similar vein, Baumard (2019) proposed that increased affluence explains the rise in investment in technologic innovation that gave birth to the Industrial Revolution, through generating a motivation shift toward future-oriented preferences fostering innovative behaviors. Life-history strategy offers a powerful explanation of such historical shifts but insofar remains to be empirically proven, the limited historical evidence being compatible with too many alternative mechanisms (Haushofer, 2019; Hirshleifer and Teoh, 2019).

Thus, life-history theory may offer a root, albeit speculative, causal mechanism behind the prediction for system-justification theory that the resonance of system-challenging ideologies increases in contexts of security and certainty – including contexts of economic prosperity. Indeed, following life-history theory, affluent environment may have been related to future-oriented exploratory motivations. Such motivations may have affinities with the innovative content of system-challenging ideologies.

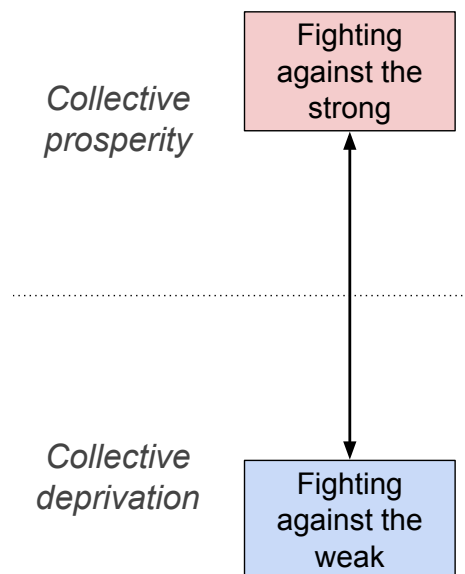
deprivation. Regarding radicalism, to my knowledge, no study has tested whether the increase in traditionalist attitudes during periods of economic decline generates surges of right-wing radicalism, and conversely, whether the increase in innovative attitudes during periods of collective improvement generates surges of left-wing radicalism.

Summary of the theory of ideals My theory of ideals entails two steps. In a first step, collective deprivation increases the resonance of reactionary versus revolutionary ideologies. Contexts of economic decline increase the appeal of reactionary ideologies while contexts of economic improvement increase the appeal of revolutionary ideologies. In a second step, the resonance of these ideologies increases the mobilization level and ultimately the action of right-wing versus left-wing radical movements promoting them. Hence, the theory of ideals is not inherently a theory of radicalism. It is above all a theory of ideologies, which has indirect consequences for radicalism. The theory of ideals derives from two main causal mechanisms: a rational and a psychological one. These mechanisms are asymmetric. The rational version of the theory of ideals specifically predicts that collective deprivation increases the resonance of reactionary ideologies, while the psychological version of the theory of ideals is more suited to predict that collective prosperity increases the resonance of revolutionary ideologies.

3.3. The theory of enemies

My second theory links collective deprivation and the enemies against whom radical behaviors are committed: collective deprivation affects whether radical movements target "strong" social groups (that have higher economic and political resources) or "weak" social groups (that have fewer economic and political resources). Stated shortly, the core of my theory of enemies is that contexts of deprivation for a given social group induces the fear to lose its status – i.e. that an economically weaker social group overpasses its rank –, which motivates its members to engage in right-wing political violence targeting weak social groups. In contrast, contexts of economic prosperity for a given social group offers the opportunity to accede a higher status – i.e. to overpass the rank of an economically stronger social groups –, which motivates its members to engage in left-wing political violence targeting strong social groups. Figure 3 summarizes my theory of enemies. Contexts of collective deprivation affect the enemies of radical movements: whether they fight against the weak or against the strong.

Figure 3: Collective deprivation and the enemies of radicalism



Theoretical background: parochial altruism. The theory of enemies directly derives from the parochial altruism framework. Parochial altruism designates the coexistence of ingroup contribution (altruism) and outgroup aggression (parochialism) (Bernhard et al., 2006; Choi and Bowles, 2007; De Dreu et al., 2014; Rusch, 2014). This concept is particularly suited to account for violent actions lead by radical movements. Indeed, in most radical movements, activists endure a personal cost to hurt the rivals of their political, religious or ethnic group. In particular, suicide-bombers sacrificing their life while perpetrating violence against their target are considered an extreme example of parochial al-

truism (Atran and Sheikh, 2015; Ginges and Atran, 2009; Sheikh et al., 2014). Whilst suicide-bombers may seem extreme cases of irrational behavior, experimental studies have demonstrated that parochial altruism is a widespread human tendency (Abbink et al., 2012; Bernhard et al., 2006; De Dreu et al., 2014; Halevy et al., 2008).

Research have identified several motivations that give rise to parochial altruism. One initial motivation of inter-group conflicts is to gain resources from an outgroup by attacking it (Choi and Bowles, 2007; Lehmann and Feldman, 2008). The theory of enemies lies on another important motivation, arising indirectly from this initial motivation: that is prevention of future attacks from outgroups. Various experimental studies have demonstrated that attacks against outgroups are more frequent when they have a destructive power that they may use in the future against the ingroup - which is called preemptive strikes (Böhm et al., 2016; De Dreu et al., 2010; Halevy, 2017). Fear of future attack seems to be a more important motivation for first strikes in inter-group conflicts than nastiness and outgroup anger (Abbink and de Haan, 2014; Simunovic et al., 2013).

My theory of enemies starts from the pre-emptive strike motivation to predict the conditions under which parochial altruistic individuals target strong or weak outgroups. In a world in which resources are unequally distributed across groups, I argue that a key pre-emptive strategy is to attack outgroups in order to improve the relative rank of the ingroup. Indeed, at a same absolute level of resources, having a high rank puts the ingroup in a dominant position in which it is less likely to be eradicated by the other groups and has better capacities to retaliate or pre-emptively attack other outgroups. To do so, the best strategy is to attack groups either if (1) they are threatening to overpass the ingroup rank or (2) the ingroup may hope to overpass their rank. The above reasoning leads to the predictions that variations in intergroup inequality should affect the individual motivation to attack stronger or weaker outgroups. In the real world, group resources vary in time. Hence, the relative positions of groups are moving, and so their incentive to attack weaker and stronger groups. A group in relative improving condition should be motivated to attack strong outgroups because it can hope to overpass their rank. In contrast, a group in relative declining condition should be more motivated to attack weak outgroups because it can hope to prevent the threat to its rank that the weaker groups pose.

I argue that this variation in motivations for targeting strong or weak outgroups may explain variations in the orientations of radical behaviors targeting strong versus weak social groups. Indeed, the targeting of strong versus weak social groups matches with the conceptualization of the left-right divide as the distinction between preference for equality versus hierarchy. Hostility toward strong outgroups is a core feature of left-wing radical movements, which typically target economically strong outgroups such as governmental or commercial institutions (Ahmed, 2018; Hoffman, 2006; Malkki, 2018). Conversely, preference for hierarchy is a key component of right-wing radical movements (Ravndal, 2016), which justify dominance against outgroups that are considered as weaker (Sidanius

Evolution as a root cause of parochial altruism?

Parochial altruism is a puzzling phenomenon from both economic and evolutionary perspectives. As a costly behavior, parochial altruism should not emerge from individuals seeking to maximize their own utility, and its aggressive component implies that it also decreases collective welfare. From an evolutionary perspective, neither altruism nor parochialism, taken separately, should resist any selection process (Choi and Bowles, 2007). Indeed, both are costly behaviors which reduce the chances to transmit one's genes. Moreover, outgroup aggression reduces one's opportunity for beneficial cooperation with the outgroup members.

Yet, simulation studies reveal that the combination of ingroup contribution and outgroup aggression may have emerged through a natural selection process under times of resource scarcity and weather instability in the late Pleistocene – 125,000 BCE to 8,000 BCE (Choi and Bowles, 2007; Lehmann and Feldman, 2008). Indeed, during this period, humans were organized in small-scale groups offering conditions for repeated cooperation. The existence of parochial altruistic behaviors may have been a key feature allowing some groups to survive and others to disappear under harsh environmental conditions for the access to resources.

According to some research, the motivation for parochial altruistic behaviors would have been embodied during evolution and left traces among humans through hormonal and neurologic processes shaping individual motivations in inter-group interactions (Baumgartner et al., 2012; De Dreu et al., 2010; Reimers and Diekhof, 2015). In this regard, the induction of oxytocin, a neuropeptide implicated in pro-social orientations, has been shown to increase defensive parochial altruism in humans (De Dreu et al., 2010; De Dreu and Kret, 2016). Testosterone, which is mostly known for increasing anti-social and dominant behaviors, has been found to increase in-group cooperation in inter-group conflicts (Diekhof et al., 2014; Reimers and Diekhof, 2015).

and Pratto, 2001). In this line, the theme of minority groups overtaking power is a key mobilizing frame among far-right ideologies (e.g. Hewitt, 2003; McVeigh, 2009), and a recurring pattern of right-wing violence is the targeting of immigrant and minority groups, but also homeless people (Freilich et al., 2018; Ravndal, 2016). Hence, variations in economic conditions are likely to affect the ideological orientation of inter-group violence. Contexts of prosperity for the majority of the population and reduction of inequality are likely to induce more left-wing violence targeting dominant outgroups. In contrast, contexts of economic decline for the majority of the population is likely to generate surges of right-wing violence targeting dominated outgroups.

Initial evidence. Early evidence is compatible with the theory of enemies. Regarding attacks against strong outgroups, various historical cases illustrate the view that uprisings

targeting dominant groups may occur under contexts of relative prosperity and reduction of inequality. For instance, the classical account of the French Revolution of 1789 both by Marx and Engels (2012) and de Tocqueville (1859) is that the rising economic capabilities of the French bourgeoisie gave rise to the desire to contest the privileges of the formerly dominant Nobility and Clergy classes. For that reason, the French Revolution paradoxically took place after a period of prosperity and decreasing inequality (de Tocqueville, 1859). Similar accounts have been made of other revolutionary episodes. According to Brinton (1938), economically improving groups that found the obligations from the old regimes to be unsuitable for their raising economic power were key actors in the onset of the Puritan, American and Russian Revolutions (Brinton, 1938, p. 54; see also Soule, 1934, p. 20-27). For instance, the Puritan Revolution of 1640-60 in England has been interpreted as arising from the unsatisfied desire of the raising middle class of townsmen, yeomen and country squires to expand their rising political power in a context in which the Stuart kings rather reinforced their royal prerogatives (Merriman, 1938, p. 27-50).

Regarding attacks against weak outgroups, the theory of enemies are close to predictions from backlash theory (Blalock, 1967). This theory has mainly been developed in criminology and the social movements literature to account for inter-group conflicts. According to this theory, threats to their status experienced by traditional majority groups lead them to hostility toward minority groups. Majority threatened groups fear that minority groups eventually challenge and overtake their dominant position, which motivates pre-emptive strikes against minorities. This framework is particularly used to explain waves of far-right mobilization and violence (see Freilich et al., 2015). Supporting this framework, some studies indicate that demographic increases in minority and immigrant populations are a determinant of far-right violence and hate crimes (Boutcher et al., 2017; Green et al., 1998b; Lyons, 2007).

This also converges with results from psychological research on the effect of resource scarcity on prejudice. Various studies highlight that contexts of competition about resources strengthen ethnocentrism, ingroup bias and outgroup prejudice. Evidence indicates that white US citizens primed with scenarios of economic scarcity are more likely to categorize individuals on the behalf of their race (Rodeheffer et al., 2012), which increases discriminatory behaviors (Krosch and Amodio, 2014). In this line, people primed with an declining economic condition are less likely to support solidarity programs with minorities than people primed with an improving economic scenario (King et al., 2010; Morrison et al., 2009). Besides, Filindra and Pearson-Merkowitz (2013) found that the perception of immigrant presence was related to anti-immigration preferences only when people are pessimistic about the national economy.

Summary of the theory of enemies My theory of enemies is a more direct explanation of radicalism than the theory of ideals. Collective deprivation affects the individual

motivation to attack strong versus weak outgroups, which directly produces acts of inter-group violence. Contexts of economic improvement for the majority and of reduction of inequality increase the motivation to attack strong groups. In contrast, contexts of economic decline increase the motivation to attack weak groups. In this view, the ideological contents and political discourses associated with these acts – i.e. egalitarian versus hierarchical beliefs justifying violence against dominant versus dominated social groups – may be conceived as a secondary effect of the initial motivations that lead to inter-group violence.

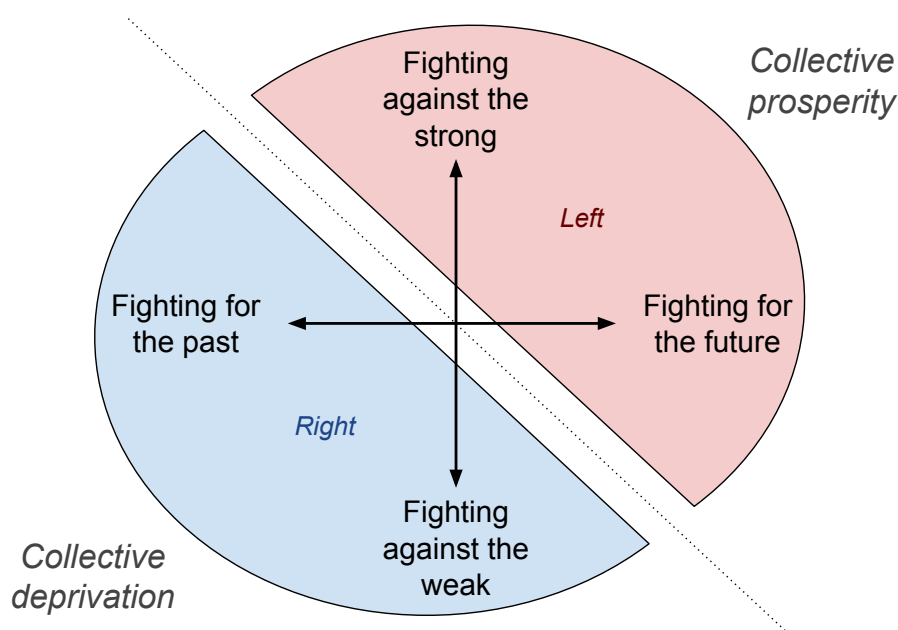
3.4. General hypothesis: collective deprivation as the magnetic field

In sum, both the theory of ideals and the theory of enemies predict that collective deprivation increases right-wing radicalism and decreases left-wing radicalism. This is the central hypothesis investigated in the present dissertation. The two theories rely on different causal mechanisms. The theory of ideals predicts that collective deprivation affects the appeal of reactionary versus revolutionary ideologies. The theory of enemies predicts that collective deprivation affects the motivation to target weak versus strong groups. Overall, the general hypothesis takes the form of a compass (Figure 4): collective deprivation is the magnetic field that drives the orientation of the ideals and enemies of radicalism at a given historical period, generating either right-wing or left-wing radicalism.

Such differential effect of collective deprivation would offer a powerful explanation of the historical and geographical variations in the ideological motives of radicalism. For instance, the 1929 financial crisis is likely to be a key cause of the level of mobilization and violence of right-wing violent leagues in the 1930s in various European countries. In the opposite direction, the left-wing wave of terrorism in the 1970s – incarnated for example by the *Brigate Rosse* (Red Brigades, BR) in Italy, the RAF in Germany, *Action Directe* (Direct Action, AD) in France, the *Weather Underground* in the United States (US) and the *Nihon Sekigun* (Japanese Red Army, JRA) in Japan – occurred after an unprecedented period of economic prosperity. Nowadays, the re-emergence of right-wing xenophobic violent groups in Western countries coincides with economic stagnation and rise of inequality.

Why long-term collective deprivation matters? Empirically, this prediction meets a new body of research investigating the determinants of distinct terrorist ideologies. This research generally demonstrates the heterogeneity in the causes of different ideologies of terror groups (Brockhoff et al., 2016; Kis-Katos et al., 2014; Robison et al., 2006). Yet, these studies have so far either focused on absolute economic indicators (e.g. unemployment rate or GDP) and/or short-term economic indicators (e.g. 1-year growth), leading to mixed empirical findings. For instance, Soule and Dyke (1999) found that state-level job

Figure 4: The compass of radicalism



losses are related to black church arson in the US. Similarly, Falk et al. (2011) found that far-right extremist crimes in Germany are related to regional unemployment rate (Dustmann et al., 2011, see also). In contrast, other studies did not find short-term economic conditions to be consistent predictors of hate crimes and far-right offenses (Freilich et al., 2015; Green et al., 1998a; Piazza, 2017a).

I argue that long-term collective deprivation should especially matter. Indeed, absolute levels of deprivation and conjuncture variations are not likely to shape a perception of collective decline (or improvement), which is central in both the theory of ideals and the theory of enemies. In this line, studies demonstrating a link between collective deprivation and right-wing ideological shifts typically analyze long-term declining economic periods (Doty et al., 1991; Sales, 1972, 1973) or long-term recession scenarios (Duckitt and Fisher, 2003; Jugert and Duckitt, 2009). For instance, Funke et al. (2016) analysis of the political effect of recessions in Europe for 140 years demonstrates that economic recessions generate strong delayed increases in the share of far-right votes – the peak being around 5 years after the beginning of the recession. In the same vein, De Bromhead et al. (2013) found that long-term cumulative recessions, rather than short-term contractions, were related to support for right-wing extremist parties in the 1920–1930s. Importantly, both studies found no general effect of recessions on the support to communist parties.

Collective deprivation as the variation of wealth and inequality. As stated previously, *collective deprivation* designates two elements in the present dissertation: (a) the evolution of the level of wealth per capita and (b) the evolution of economic inequality. Regarding (a), I predict that the lower the growth of the wealth per capita the higher the

mobilization and activism of right-wing radical movements, and the higher the growth of the national wealth the higher the mobilization and activism of left-wing radical movements. The expected effect of the variation of inequality (b) is the opposite: I predict that the higher the growth of inequality the higher the mobilization and activism of right-wing radical movements, whilst the reduction of inequality should increase the mobilization and activism of left-wing radical movements. This last prediction may seem paradoxical since right-wing ideologies are generally in favor of economic disparities, whilst left-wing ideologies are in favor of equality (Bobbio, 1996). For that reason, one could expect that high inequality satisfies right-wing preferences and generates grievances from the left (and conversely). However, both the theory of ideals and the theory of enemies indicate that increases in economic inequality should reduce the mobilization and activism of left-wing radical movements.

Economic decline for the majority in a society is especially central in the theory of ideals. Such decline is best captured by the evolution of the level of wealth per capita. However, the evolution of inequality also captures the evolution of the standards of living for the majority of the population, which affects the perception of a collective decline. Indeed, at a constant level of variation of the wealth per capita, an increase in inequality means that the majority is experiencing a loss of living standard. Hence, following the theory of ideals, periods of increasing inequality should induce a sense of collective decline, which increases the resonance of reactionary ideologies; in contrast, periods of decreasing inequality should give a sense of collective improvement, which increases the resonance of revolutionary ideologies.

In contrast, inter-group economic inequality is especially central in the theory of enemies. Indeed, the theory of enemies states that the targets of political violence are dependent upon the relative position of social groups. Such relative position is best captured within a given society by economic inequality. Following the theory of enemies, periods of decreasing inequality give hope for previously economically dominated social groups to challenge the rank of economically dominant groups and hence motivate left-wing attacks targeting them. Yet again, the evolution of the level of wealth per capita may also capture the relative position of social groups conceptualized at a more global level. Indeed, at a constant level of variation of the wealth per capita for other societies, a recession in wealth per capita in a given society means that the society is experiencing a loss of relative position. Following the theory of enemies, periods of recession are likely to result in right-wing violence targeting representatives of other societies that are perceived as threatening for the society's status. In contrast, periods of prosperity are likely to result in left-wing violence targeting representatives of other societies that are economically dominant.

4. Overview of the dissertation

The dissertation is composed of four parts. Part I aims at testing the general hypothesis linking collective deprivation and left-wing versus right-wing radicalism. Do we actually observe that right-wing radicalism mobilizes in periods of economic deprivation and that left-wing radicalism mobilizes in periods of economic prosperity, as expected by the compass of radicalism? The part contains two case studies allowing a longitudinal analysis of variations in radicalism. Chapter 1 analyses the mobilization of radical movements in France from 1882 to 1980. From a compilation of historical works, I built a database gathering information on the number of members, ideology and actions of organizations involved in illegal political actions. By combining these data with macroeconomic trends, I analyze whether the number of members of right-wing and left-wing radical movements correlates with long-term economic growth and variations of inequality.

Chapter 2 analyses the ideological orientation of radical activists in the United States since the end of World War II. While the first study focused on an inclusive definition of radical mobilization, including all organizations of which some members were involved in radical action, the second study narrows the focus on individuals directly involved for radical action. I rely on the Profiles of Individual Radicalization in the United States (PIRUS) database, the largest dataset compiling systematic information on radical activists. I analyze whether the probability for radical activists to be right-wing or left-wing at a given period depends on long-term economic growth and variations of inequality. In addition, the analysis allows to learn more about the level at which the effect of collective deprivation occurs: it tests whether economic deprivation operates at the national level, the regional level or the individual level.

The following two parts of the dissertation are devoted to the analysis of the causal mechanism explaining the relationship between collective deprivation and left-wing versus right-wing radicalism described in Part I. Part II focuses on the theory of ideals while Part III focuses on the theory of enemies.

As mentioned, the theory of ideals entails two steps. In a first step, economic decline affects the appeal of reactionary versus revolutionary ideologies. In a second step, the popular success of these ideologies motivates acts of radicalism in their name. To investigate this whole causal mechanism, Part II is composed of four chapters. Chapter 3 tests the first part of the theory of ideals. I analyze whether contexts of economic decline affect the resonance of reactionary versus revolutionary ideologies. Hence, the chapter does not focus on radicalism, but rather on ideological preferences. A key political marker of ideological preferences in democratic countries are votes, at least to the extent that the political supply is pluralistic and includes parties with different agendas. In the chapter, I thus test whether economic decline affects the resonance of right-wing versus left-wing ideologies as measured by votes for extreme right and extreme left parties. I rely on electoral data

covering 37 countries from 1900 to 2016. I then test the individual causal mechanism by which economic recessions affect extreme votes based on the European Social Survey (ESS) covering 21 countries from 2002 to 2014.

Chapter 4 offers an alternative test of the first part of the theory of ideals, by relying on a different measure of economic decline. Indeed, the theory of ideals is a candidate to explain the link between economic recessions and right-wing versus left-wing radicalism, but it may be applied to other forms of economic decline. I here analyze the effect of decline in relative employment across economic sectors on the ideological preferences of members of these sectors. Empirically, I rely on the same design than in Chapter 3, based on the ESS data, but instead of national economic recession, I investigate the effect of variations in sector employment.

Chapter 5 goes one step further in the test of the theory of ideals. It tests the micro causal chain as a whole: from economic deprivation to individual intentions to engage in radical behaviors. The chapter is based on two psychological experiments in which subjects were assigned to fictional news stories regarding the economic context. Following the manipulation, their radical intentions were measured by a series of items capturing the individual readiness to engage in illegal or violent actions on the behalf of one's social group. The first experiment was carried out in a lab in Grenoble with 280 students and directly tests the effect of an immersive manipulation of economic threat on radical intentions. The second experiment, included in the Popeuropa survey, gathering representatives samples from six European countries, tests whether the economic decline condition has an effect on right-wing versus left-wing radicalism, through affecting reactionary attitudes.

Chapter 6 is devoted to the analysis of the second step of the theory of ideals. I analyze whether the spread of right-wing and left-wing ideologies generates surges of right-wing and left-wing radicalism. To do so, I investigate whether right-wing and left-wing extreme votes are related with right-wing and left-wing radicalism. I first investigate this relationship at the micro-level by using the Popeuropa survey presented in Chapter 5. I test whether individual voting records correlate with one's radical intentions. Second, based on the database on French radical movements from Chapter 1, I analyze whether extreme right and extreme left vote shares in France correlate with the mobilization of right-wing and left-wing radical movements. Third, I analyze whether extreme right and extreme left vote shares correlate with the occurrence of right-wing and left-wing terrorist attacks in 33 countries from 1972 to 2016, based on electoral data presented in Chapter 3 and the Global Terrorism Database (GTD), currently the most comprehensive dataset on terrorist attacks worldwide.

Part III is devoted to the investigation of the theory of enemies. As mentioned, the theory of enemies is a more direct explanation of radical behaviors than the theory of ideals. Variations in inter-group inequality directly affect the occurrence of parochial altruistic violence targeting weak or strong groups. The ideological justifications asso-

ciated with these behaviors are an indirect effect of the initial motivation to target weak or strong groups. Part III investigates this theory in two chapters. These two chapters are adapted from a collective research conducted with my colleagues Ismaël Benslimane, Raul Magni-Berton and Paolo Crosetto. Chapter 7 introduces an economic experiment that analyzes the effect of economic conditions on the targeting of weak or strong groups. Our experiment is a revised version of the Inter-group Prisoner Dilemma (IPD), a classic experiment in which individuals may engage in costly attacks against an outgroup to contribute to their ingroup welfare. In the revised version of the experiment, we introduce multiple groups and inequality in resources between groups. The experiment took place in a lab in Grenoble with 300 subjects. We analyze whether variations in inter-group inequality affects the subjects' investments in attacks against outgroups that have fewer or more resources than the ingroup.

Chapter 8 is a tentative to assess the generalizability of the results from the economic experiment presented in Chapter 7 to political radicalism. I first analyze whether subjects' level of attacks against strong or weak outgroups in the experiment correlates with their political ideologies. In a second step, I test whether the effect of inequality on attacks against strong and weak outgroup observed in the experiment generalizes to historical linkages between economic inequality and radicalism. The analysis focuses on 24 countries from 1972 to 2016, relying again on data on right-wing and left-wing terrorist attacks derived from the GTD presented in Chapter 6.

Part IV offers a step aside to investigate some limits and blind spots of the compass of radicalism: that is, the conditions under which collective deprivation alone does no longer allow to predict radical behaviors. First, I argue that collective deprivation may well explain individual parochial altruistic behaviors, but such effect has limits and cannot explain extreme self-sacrifices such as suicide bombings. I illustrate this view in Chapter 9. This chapter offers a new investigation of the hypothesis that the self-sacrifice of suicide terrorists is due to personal suicidal tendencies. According to this hypothesis, suicide terrorism is not an extreme form of terrorism but rather the simple conjunction of terrorism and suicidal tendencies. I test this hypothesis based on two studies. In the first study, I test whether suicide terrorists in the PIRUS database, presented in Chapter 2, are more likely to exhibit common suicide risk factors than non-suicide terrorists. In a second study, I test whether cross-national variations in suicidal tendencies are related to the occurrence of suicide and non-suicide terrorist attacks in 137 countries from 1991 to 2014, based on the GTD, presented in Chapter 6.

Second, I argue that collective deprivation may explain the mobilization of radical activists, and their radical behaviors in the case in which their political cause is domestic, but that it cannot explain the occurrence of radical acts of transnational radicalism that enter a global political strategy in which radical activists commit their action abroad. I illustrate this view in Chapter 10, adapted from a collective research conducted with my

colleagues Clara Egger and Raul Magni-Berton. We analyze the cross-national causes of diverse forms of political violence in the name of *ad-Dawlah al-Islāmiyah fī 'l-'Irāq wa-sh-Shām* (Islamic State of Iraq and the Levant, ISIS). We hypothesize that domestic socio-economic conditions affect the number of foreign fighters departing from a country to join ISIS and the number of lone wolves terrorist attacks, but not attacks directed by ISIS. In contrast military interventions should predict the occurrence of both lone wolves attacks and attacks directed by ISIS. To do so, we rely on data about ISIS related violence in the 2014-2016 period from the GTD, presented in Chapter 6, and other sources. In a second study, we assess the generalizability of our findings on Islamist terrorism in 156 countries from 1992 to 2006, based on the GTD.

PART I

Collective deprivation and radical
movements. A story through the lens of
ideology

1

Collective deprivation and the mobilization level of French radical movements (1882-1980)

"Measurably with the increase of prosperity in France, men's mind grow more restless and uneasy ; public discontent is embittered ; the hatred of the old institutions increases. The nation visibly tends toward revolution."

The Old Regime and the Revolution
ALEXIS DE TOCQUEVILLE

The present chapter tests the key prediction that the effect of collective deprivation on the mobilization of radical movements depends on their ideology: right-wing movements should mobilize more in times of collective deprivation, whereas left-wing movements should mobilize more in times of collective improvement. I test this hypothesis via a new database measuring the level of mobilization of French radical organizations from 1882 to 1980. Statistical analyses confirm that collective deprivation, operationalized by long-term economic recession and long-term growth of inequality, has no general effect on the mobilization of radical movements, but has a differential effect depending on their ideology. These results contradict the view that economic conditions have no role in triggering radical movements.

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This chapter is adapted from the following paper: Varaine, S. (2018). Bad times are not good times for revolutions: Collective deprivation and the mobilization level of French radical movements (1882–1980). *Journal of Community & Applied Social Psychology*, 28(4), 258-271. <https://doi.org/10.1002/casp.2356>

The present Chapter offers a first empirical investigation of the relationship linking collective deprivation – i.e. as contexts of long-term recession and increase of inequalities – and radicalism. More precisely, I analyze the correlation between collective deprivation and the number of members of movements using illegal means to achieve political changes. As detailed in the Introduction, the literature on radicalism generally finds no relationship between economy and the mobilization of radical movements. Hence, my first hypothesis is:

Hypothesis 1.1 *Collective deprivation does not affect the mobilization level of radical movements.*

As presented in the Introduction, the general hypothesis of the present dissertation is that the absence of general effect of collective deprivation on radical movement hides differential effects depending on the ideology of radical movements: collective deprivation increases right-wing radicalism and decreases left-wing radicalism. I presented in the Introduction two mechanisms that lead to this hypothesis. The theory of ideals states that collective deprivation differently affects the resonance of reactionary and revolutionary ideologies motivating right-wing and left-wing radicalism. The theory of enemies states that collective deprivation differently affect the motivation to commit violence against weak or strong outgroups, which result in variable levels of right-wing and left-wing radicalism. Before investigating these specific mechanisms in Parts II and III, it is worth having a first empirical look at the general hypothesis. Do contexts of collective deprivation differently affect the mobilization of right-wing versus left-wing radical movements? In this Chapter, I test the following formulation of the general hypothesis:

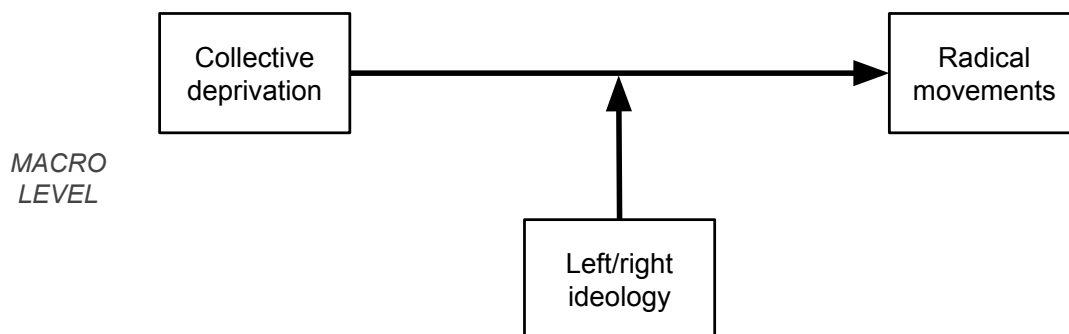
Hypothesis 1.2 *Ideology moderates the relationship between collective deprivation and the mobilization level of radical movements.*

- A. Collective deprivation increases the mobilization level of right-wing radical movements.*
- B. Collective deprivation decreases the mobilization level of left-wing radical movements.*

The causal paths analyzed in this chapter are summarized in Figure 1.1. The present chapter situates at the macro level: I analyze whether the relationship between collective

deprivation and the mobilization of radical movements is moderated by their ideology. I provide here the first empirical test of this hypothesis using new data on the mobilization level of French radical social movement organizations between 1882 and 1980.

Figure 1.1: Causal paths analyzed in Chapter 1



1. Method

1.1. Case selection

I selected the French case and the study period to ensure the concomitant presence of both right-wing and left-wing national-level radical organizations and to control for relevant variables. Indeed, some concurrence among radical organizations is necessary to ensure that I measure the mobilization in the name of one radical ideology instead of some general radical affinity. Moreover, the French metropolitan case (excluding colonies and overseas territories) during this period allows for keeping relatively constant various factors that affect the use of radical actions, such as the decentralization level, that is, the existence of local centres of decision making (Dreher and Fischer, 2011), and the state capacity, that is, the share of resources controlled by the government (Li and Schaub, 2004).

I chose the starting year-1882-because of the reformation of both right-wing and left-wing radical organizations at the national level. On the left-wing side, the 1879 and 1880 amnesty laws allowed for the coming back of activists who were deported after the Commune. Although union chambers – ancestries of the *Confédération Générale du Travail* (General Confederation of Labor, CGT) – grew in size after 1871, pursuing a moderate agenda, a few started to radicalize in 1878 by adopting a collectivist ideology and defying prefectural decisions. Moreover, the first high-scale anarchist attack occurred in 1882 in Lyon at the “Assomoir” and the anarchist movement may be estimated at this

time to gather a thousand activists. On the right-wing side, the first French nationalist and authoritarian mass movement carrying out street demonstrations and activism – the *Ligue des Patriotes* (League of Patriots) – was created in 1882.

I stopped the study period in 1980 because important changes in radical social movement organizations would require further investigation. For instance, most of the radical events recorded during the 1980s are related to regionalist groups, which are hard to qualify on the left–right distinction without systematic content analysis methods.

I excluded organizations that were directly linked to the First and Second World War and to the Algerian Independence War since the level of state repression, the mobilization into war, and the conflict escalation among radical organizations were aberrant in comparison to the rest of the study period.

1.2. Database constitution and analysis

1.2.1. Sources selection: Historical research

There are several ways to gather systematic information on radical movements such as analyzing public records or press contents. Nevertheless, these types of sources, although useful for recording protest events, do not systematically contain information on the mobilization level and ideological position of radical movement. To combine these three pieces of information, I chose to use historical research as a source of data. Given that it was impossible to exhaustively review historical research for the study period, I proceeded by a snowball sampling of documents in a defined period of 3 months, starting with a general book on the history of French social movements (Pigenet and Tartakowsky, 2014). At the end of this phase, I had analyzed 118 documents.

Using historical research as a source of generalizability implies potential biases that I tried to neutralize via the coding procedure and method of analysis. I distinguish two types of biases: representativeness and reliability problems. Representativeness bias means that the sources under or over represent some kind of organizations compared with their frequency in the real population, leading to incorrect generalization. To address this issue, I controlled for variables that could account for systematic biased representation in the historical sources such as the historical period, the organizations' ideological orientation, and organization type¹. Reliability bias means that the quality of information differs from one group to another, leading to an under or overestimation of their characteristics, especially their number of adherents and level of radicalization. In the next section, I explain the method I used to deal with this issue.

¹I distinguished seven types of organizations: generalist labor union, small group, political party, generalist association or league, sub-group, specific issue group, specific population group

1.2.2. Organization-level variables

The unit of observation is a radical organization in a given year. The minimal requirement for social movement organizations to be considered as radical and therefore included in the database is if the sources indicate that (a) they promoted a societal (not only sectorial) political change and (b) they have ever used or promoted illegal protest activity through their discourse. Indeed, many observations would have been lost by limiting the sample to solely the years in which an organization actually engaged in/promoted radical activity.²

Mobilization level. The dependent variable – the number of radical organization members – has been coded thanks to the information provided by the sources. To ensure reliability, I generated a variable – *source* – indicating the origin of the information provided by the authors, in order to control for systematic misestimating due to some primary sources. I distinguished six types of sources mobilized by historical research: the first, which is undoubtedly the most reliable, is information internal to organizations such as treasury documents mentioning the number of contributions or the number of cards sent to members³; then, the membership estimates from comparisons between different internal sources - that only indirectly measure membership - such as the number of subscriptions to the organization's journal, the number of participants in the organization's events, the membership of previous and following years⁴; the cross-comparison of different external sources – i.e. that do not relate to data internal to the organization⁵; an unsourced asser-

²However, I also tested the statistical models under this constraint to check the robustness of the results on a narrower definition of radical organizations. The conclusions are unchanged. Results can be sent by the author upon request.

³This was the case, for instance, for membership estimates regarding the CGT and the *Confédération Générale du Travail Unitaire* (United General Confederation of Labor, CGTU) between 1921 and 1936 in the data gathered by Prost (1964), then for the 1947-1980 period from the number of stamps sold by the organization (Andolfatto and Labbé, 1997, p. 233); a similar type of source was used for the number of members of the *Section Française de l'Internationale Communiste* (French Section of the Communist International, SFIC) – then the *Parti Communiste Français* (French Communist Party, PCF): from 1921 to 1970, the number of members was deduced from the number of cards sent by the central office to the confederations (Kriegel, 1970, p. 52).

⁴I have not encountered such type of estimation in the historical research I used, however I made estimates in this way myself, namely for the anarchist movement and for *Action Française* (French Action, AF). In fact, in both cases, I only had very punctual estimates in terms of number of militants, but I had access to information on the evolution of the circulation of anarchist newspapers (Maitron, 1992, p. 140) and of subscriptions to AF (Weber, 1990, p. 212, p. 294, p. 408-409). I therefore estimated changes in the numbers of members by assuming that the ratio between the number of members and the number of prints (or number of subscribers) remained constant. In both cases, my estimates were close to unsourced estimates of the changes in numbers of activists made by the authors.

⁵For instance, it is by crossing information from the interior ministry, statements from the organization, attendance at its demonstrations and the relative success of another organization that Sternhell (1984) produced an estimate of the number of members of the *Ligue de la Patrie Française* (French Homeland League): "In February 1899, its leaders claimed 40,000 members. The services of the interior ministry do not have other figures; they know, however, that given the too large number of members, they cannot be called to public meetings all at once, and are divided into series called in turn. However, the public

tion by an author⁶; data from state services – police in particular⁷; finally, a claim from the organization itself⁸. When several figures were put forward for the same organization, I favored the most reliable information (according to the classification I just described) and if the type of data sources was the same, I computed an average and coded the corresponding "source" as a cross-comparison of different external sources. As I obtained many punctual estimates of the number of radical organization members, I calculated linear interpolations (or, if I had only one referring point, extrapolations) for the missing values. I obtained the number of members for 70 organizations, with a total of 715 observations. As the variable was not normally distributed (*skewness* = 4.10, *kurtosis* = 26.71), I log transformed it (*skewness* = -0.55, *kurtosis* = 2.52).

Ideology. On the basis of the analyses provided by my sources and their empirical material, I generated a binary variable indicating the organizations' ideology (0 = left-wing, 1 = right-wing). When building the database, I relied on the definition of left-wing versus right-wing ideologies following the reactionary-revolutionary divide (see the Introduction). I defined an organization as right-wing if it (a) values a return to what it describes as a traditional way of life and (b) expresses a perception of societal decline. I defined an organization as left-wing if it (a) values a change to what it describes as novelty and (b) criticizes the past social order. Of the 70 radical organizations for which I determined the number of adherents, I classified 36 as left-wing and 34 as right-wing (48% of the 715 observations).

This classification of the left-right divide primarily maps with the innovation versus tradition conception of the left-right divide (see for instance Altemeyer, 1996; Wilson and Patterson, 1968), rather than onto the social-hierarchy versus egalitarianism conception of the left-right divide (Bobbio, 1996). One could then consider that the study is more directly a test of the theory of ideals – stating that contexts of collective deprivation affects the resonance of revolutionary versus reactionary ideologies – than the theory of enemies – stating that contexts of collective deprivation affects whether radical movements target strong versus weak social groups. Nonetheless, it is worth noticing that the classification

demonstrations of the *Ligue de la Patrie Française* gathered, between 1900 and 1904, from 2,000 to 5,000 people, and it is rare that the threshold of 2,000 is not reached. This allows us to get an idea of its numerical power: the other nationalist movements, including the *Ligue des Patriotes*, with its 20,000 members, are making considerable efforts to fill their meetings, and it would never occur to them to split the workforce. The figures put forward at the beginning of 1899 must therefore be fairly close to reality" (Sternhell, 1984, p. 168).

⁶This case is the most common: for example, Paxton (1996) mentions six thousand members of the *Bauernbund* (Farmers Union) – a far-right Alsatian peasant movement during the 1930s – without specifying the origin of the information.

⁷For example, the police estimated the number of activists of *Action Directe* (Direct Action, AD) at 180 (Sommier, 2008, p. 105).

⁸For example, "*Faire Front* (Make Front) claimed to have in its ranks '2000 militants throughout France (...)'". No clue confirms these data which seem rather inflated." (Algazy, 1984, p. 199).

in the database also empirically matches with the egalitarian versus hierarchical divide. A large majority of left-wing organizations in the database are supporting socialist, anarchist or communist ideologies, and a minority is formed of ecologist organizations, whose members generally identify with egalitarian positions. In contrast, a majority of right-wing organizations are advocating for a hierarchical system such as monarchy – e.g. in the case of the royalist AF and associated organizations –, fascist-like systems – e.g. in the case of the *Le Faisceau* (The Fasces) –, or more generally a strong executive leadership – e.g. such as the plebiscite republic in the case of the *Ligue des Patriotes* –, and most of them have ethno-nationalist positions, affirming the superiority of the French "nation" or "culture" over others. Hence, the conclusions about the link between collective deprivation and the mobilization of left-wing and right-wing radical movements in this study may well be due to both mechanisms of the theory of ideals and the theory of enemies. Importantly, note that in Chapter 2, which investigate similar hypotheses than the present Chapter, relies on a classification primarily based on the egalitarianism versus social-hierarchy conception of the left-right divide, and hence provide an alternative test.

Radicalization. As the radicalization level of organizations greatly vary in my dataset – from political organizations that sometimes used non-violent illegal action to terrorist organizations – I included measures of radicalization as controls in order to analyse the effect of collective deprivation on their mobilization level at a constant level of radicalization. To do this, I first created a set of dummy variables indicating whether the organization used specific types of action, targets, and discourse during a given year.⁹ Following previous empirical studies on radicalism (Moskalenko and McCauley, 2009; Tausch et al., 2011), I then applied a multidimensional analysis – here, a multiple correspondence analysis – on these variables to extract a radicalization dimension. I comment results from the multiple correspondence analysis at the beginning of the result section.

1.2.3. Year-level variables

Long-term collective deprivation. I measured collective deprivation in a given year t by two indicators: the annual variation of the national wealth, captured by the growth in GDP per capita (Bolt et al., 2018) and the annual variation of inequality, captured by the variation in the share of the national wealth owned by the 10% richest (Piketty, 2013).

⁹This set includes: Ambiguous justification of illegal actions, Ambiguous justification of violent actions, Attempted coup, Depredations, Disobedience, Illegal gathering in public space, Interpersonal violence, Larceny, Manifest justification of illegal actions, Manifest justification of violent actions, Non-violent aggressions, Occupation of buildings, Premeditated interpersonal violence, Premeditated violence against properties, Underground activities, Underground organization, Violence against civilians, Violence against competitor groups, Violence against opponent groups, Violence against public personalities, Violence against the police, Violence causing death, Violence causing injury.

As I am interested in the long-term collective deprivation experienced in a given year t , I calculated the mean of these indicators between t and $t-10$ years. For example, for 1936, my two indicators respectively refer to the mean annual growth in GDP per capita between 1926 and 1936 and the mean annual growth of inequality between 1926 and 1936. Because I am agnostic on what long-term precisely means, I performed alternative models with other temporal specifications – between t and $t-5$ years, between t and $t-15$ years, and between t and $t-20$ years – to check the consistency of the results. I will accept my hypotheses if I (a) find a robust relationship in the expected direction for some temporal specifications and (b) do not find a robust opposite relationship in any of the other temporal specifications.

Control variables. I controlled for macrolevel variables that have been proven relevant in previous studies: the level of democracy (Abadie, 2006), measured by the “polity index” (Center for Systemic Peace, 2018b), going from -10 (autocratic regime) to 10 (democratic regime); the unemployment rate (Caruso and Schneider, 2011), which was 1-year lagged; and the population size (Kis-Katos et al., 2011; Krueger, 2017). I also controlled for the ideological position of the government, coded on a right–left scale from -2 (both government and assembly hold by right-wing parties) to 2 (both government and assembly hold by left-wing parties). Indeed, one can expect that left-wing organizations are more appealing under a right-wing administration (and conversely for right-wing organizations).

2. Results

2.1. The radicalization dimension

Before analyzing the mobilization level of radical organizations, let’s have a look at the radical characteristics of the organizations under study. As detailed in the previous section, I used an inductive method to analyze how radical characteristics of organizations in the database are organized. More specifically, I computed a multiple correspondence analysis on the set of dummy variables indicating whether organizations used specific types of action, targets, and discourse during a given year. The analysis yielded two main dimensions. The first dimension (explaining 59.56% of the variance) classically captures the probability for a given characteristic to be associated with other radical characteristics in general. Indeed all radical characteristics are positively associated with this dimension,

albeit more or less.¹⁰ The second dimension (explaining 14.62% of the variance) is more interesting, as it seemingly captures a radicalization continuum.

Figure 1.2: Radicalization dimension among French radical organizations

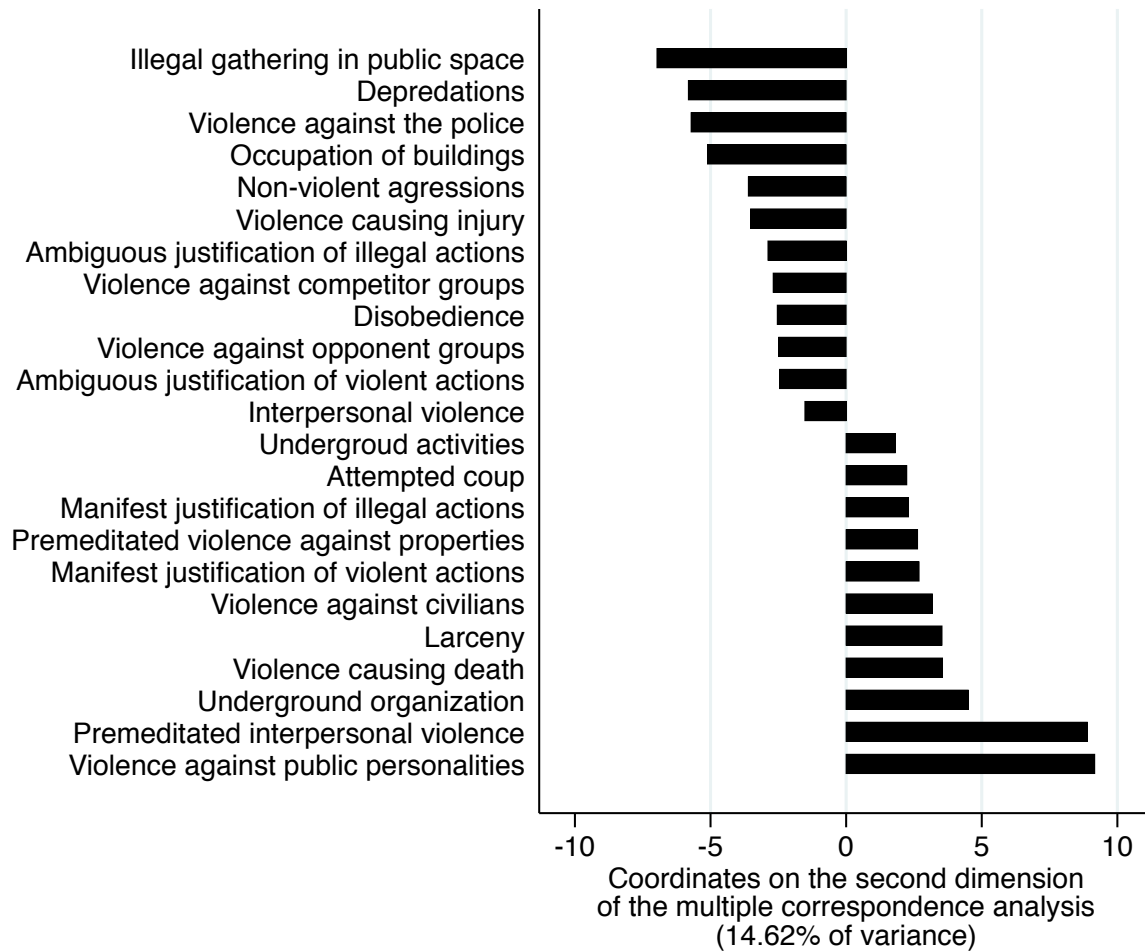


Figure 1.2 plots the coordinates on the second dimension of all radical characteristics. At the negative end of the dimension, we find non-premeditated depredations, violence against the police, ambiguous speeches concerning the use of illegal means and illegal occupation of public space – which are generally used by organizations involved in demonstrations and actions that, albeit illegal, are not very intense, not premeditated and not targeted (that is, targeting public authorities in general). At the opposite end, we find characteristics corresponding to organizations using radical means in a planned, targeted and intense way: namely premeditated interpersonal violence, clandestinity, un-

¹⁰For instance, the use of violence is strongly associated with this dimension, and actually, the use of violence is very often associated with other radical repertoires in the database. In contrast, the ambiguous justification of illegal actions is weakly associated with this dimension since it is often unrelated with other radical characteristics in the database.

ambiguous justification of the use of illegal means of action, violence targeting public figures, and speeches justifying violence. This clearly suggests that organizations in the database can be distinguished following a radicalization continuum that goes from relatively moderate illegal action and discourse to extreme illegal action and discourse, in line with Della Porta (2006) assessment of the degree of radicalization by the magnitude, premeditation, and targeting of political violence.

Radical curiosities. The positions of several characteristics might surprise the observer, but are explainable by the cases present in our data: that is, if our basis were based on a larger set of contexts and eras, these characteristics would probably not have the same position. For instance, one may be surprised that attempted coups are weakly associated with the radicalization dimension. One would have expected attempted coups to be among the most radical characteristics. This has to be explained by the fact that we have only two cases of organizations having attempted a coup in the database¹¹. The first is the aborted putsch of the *Comité secret d'action révolutionnaire* (Secret Committee of Revolutionary Action, CSAR) – often called *La Cagoule* (The Cowl) – in 1937. The CSAR was a strongly radical right-wing organization - plotting premeditated assassinations and indisputably justifying the use of radical means. The second is the hardly credible and ill-prepared attempted coup fomented in 1899 by different leagues (foremost among which the *Ligue des Patriotes* and its leader Paul Déroulède)¹². Those leagues were generally characterized by weakly radical actions, mainly street agitation, and hence do not match with the classic set of characteristics associated with strongly radical organizations. That is the reason why attempted coups do not appear among the most radical characteristics in our study period.

Conversely, one may be surprised that the category of larceny is positively associated with the radicalization dimension. However, here again, only a small number of organizations entered this category, which generally were quite strongly radical organizations otherwise. In particular, the anarchist movement during the 1880-1890s frequently resorted to theft, robberies or rent fraud (Bouhey, 2008), in parallel with strongly radical

¹¹To which should be added the one fomented by the *Organisation Armée Secrète* (Secret Armed Organisation, OAS) in 1961 Dard (2011), that is excluded from our study.

¹²Here is a description of the attempted coup by Monier (2013): "On February 23, the attempt, poorly organized, poorly executed, was a fiasco. Dropped by most of the other opponents of the regime, including Guérin [leader of the *Ligue Antisémitique* (Antisemitic League)], assisted by a small part of the leaguers, Déroulède tried in vain to drag General Roget and his troops towards the Elysee. Hanging on the bridle of the officer's horse, Déroulède followed him from Place de la Nation to the Reuilly barracks where he tried, one last time, to harangue the soldiers. Wasted effort: what will be remembered as the Reuilly attempt is a failure. Asked by General Roget to leave the scene, Déroulède and Habert demanded to be arrested, which a police commissioner did a few hours later, indicting the two men for a derisory reason, unlawful entry into a military compound. Déroulède, outraged by this leniency, immediately explained that he tried 'to train the troops in an insurrectionary movement and to overthrow the parliamentary republic to replace it with the plebiscite republic'." (Monier, 2013, p. 52).

actions (bombings in particular). Besides, the group *Gauche Prolétarienne* (Proletarian Left, GP), which looted the *Fauchon* store in 1970 and redistributed its luxury items (Sommier, 2008, p. 94), also used rather radical means of action (plastic bombings, sabotages, etc.). Similarly, one may be surprised that disobedience is only weakly, rather than strongly negatively, associated with the component. Again, this is explained by the fact that acts of disobedience were used by groups that are very disparate in terms of radicalization in the database: from the *Fédération des Contribuables* (Federation of Taxpayers) – generally moderate (Berstein, 1975) but whose executive officer called for a tax strike in 1934 (Milza, 1987, p. 125) – to the anarchist movement during the 1890s - various anarchist militants refusing conscription (Bouhey, 2008) – through tax strikes supported by moderately radical organizations such as the *Comités de défense paysanne* (Peasants' defense committee) – also called *Chemises vertes* (Green shirts) – of Henri Dorgères in 1932-1933 or the *Union de Défense des Commerçants et Artisans* (Union for the Defense of Tradesmen and Artisans, UDCA) of Pierre Poujade between 1953 and 1955.

Hard and soft radical means. From the coordinates of each dummy on the dimension, represented in Figure 1.2, I generated two independent variables respectively indicating the degree of use of moderately radical and extremely radical repertoires. To compute the *soft radicalization level* of a given organization at a given year, I summed the absolute value of coordinates of each of its characteristics that are negatively associated with the dimension. Similarly, to compute the *hard radicalization level* of a given organization at a given year, I summed the absolute value of coordinates of each of its characteristics that are positively associated with the dimension.¹³

Tables A.1 and A.2 in Appendix A respectively display the ten organizations with the highest annual level of hard and soft radicalization. Table A.1 reveals that groups having recourse to intense, premeditated and targeted radical activities, are generally very small groups¹⁴. Besides, Table A.1 suggests that the presence of strongly radical groups is especially pronounced in certain historical periods, foremost among them the 1970s – with the radical activism of far-left groups such as the *Brigades Internationales* (International Brigades, BI)¹⁵ or the *Noyaux armés pour l'autonomie populaire* (Armed Nuclei

¹³I chose to create two variables rather than extracting a single radicalization score from the dimension because the latter option would result in putting all organizations that do not display radical characteristics (and hence have a null score) at the middle of the radicalization dimension, while they should be at the lowest level of the dimension.

¹⁴In this regard, I estimated, in a deliberately broad sense, the membership of the anarchist movement in 1894 at less than a thousand (estimates made from Bouhey, 2008; and Maitron, 1992), of the CSAR at around 2,700 members (estimates made from Monier, 2013, p. 262; and Philippet, 2011, p. 65), of *Jeune Nation* (Young Nation, JN) at 950 members (estimate based on Algazy, 1984, p. 167-168).

¹⁵Who "launched attacks against foreign diplomats from 1974: the military attaché of the Uruguayan embassy on December 19, 1974, that of the Spanish embassy on October 8, 1975, the Bolivian ambassador on October 11, May 1976." (Sommier, 2008, p. 81)

for Popular Autonomy, NAPAP)¹⁶ and far-right attacks such as those perpetrated by the *Club Charles Martel* (Charles Martel Group)¹⁷ or by small groups that are difficult to identify¹⁸. It is interesting to note that strongly radical groups are made roughly equal of right-wing groups – including at the "top" the CSAR, JN at the end of the 1960s¹⁹ and extreme right-wing groups of the 1970s – and left-wing groups – including at the "top" anarchists, the NAPAP and BI.²⁰

Conversely, Table A.2 in appendix suggests that soft radical means are more often used by large political structures – such as the CGT²¹, the PCF²² on the left-wing side, or the *Croix-de-Feu* (Cross of Fire)²³ and the UDCA²⁴ on the right-wing side. Moreover, unlike hard radicalization, the Table A.2 suggests that soft radicalization more often result from left-wing than right-wing organizations. Over the "top five" organizations with the highest score of soft radicalization, four are left-wing.²⁵ This difference is in line with the observation from Tartakowsky (1998) that in France the relationship of right-

¹⁶"The NAPAP were officially born with their first action: the assassination, on March 23, 1977, of Jean-Antoine Tramoni, the *Renault* vigilante guilty of the assassination in 1972 of Pierre Overney, as a sign of continuity with the history of GP. They stepped up their actions despite arrests of group members, by continuing with the demonstrative repertory of their predecessors (attack of the far-right union *Confédération Française du Travail* (French Confederation of Labor) in April, bombing of *Usinor* in Thionville on June 6, etc.), while former members of the BI did the same by targeting diplomats." (Sommier, 2008, p. 82)

¹⁷"On December 14, 1973, a bomb exploded at the Algerian Consulate in the center of Marseille. There were 4 dead and 12 seriously injured among the members of the Consulate. The attack was claimed by a small group made up of former members of the OAS and nostalgic of French Algeria called the *Club Charles Martel*." (Gastaut, 1993, p. 67)

¹⁸"Actions against the [*Mouvement contre le Racisme et pour l'Amitié entre les Peuples* (Movement Against Racism and for Friendship between Peoples, MRAP) and the *Ligue Internationale Contre le Racisme et l'Antisémitisme* (International League Against Racism and Anti-Semitism, LICRA)] and against civilians (sometimes resulting in the death of a man, like that of Henri Curiel for example in May 1978) perpetrated by the *Groupe Joachim Peiper* (Joachim Peiper group) and the *Groupe Hermann Goering* (Hermann Goering group), or by isolated individuals, most often anonymous." (Milza, 1987, p. 354).

¹⁹"In principle, it was erased from the map of small extremist groups by the decree of the Pflimlin government which, in May 1958, pronounced its dissolution. (...) Going underground, JN will continue to play an important role within the activist movement, both in metropolitan France and in Algeria. With its three or four thousand militants, it engages in terrorist activities of all kinds - burning of the offices of the PCF and CGT, plastic bombings of private dwellings, attacks against leftist meetings, reprisals against workers North Africans (...) In June 1959, in Chateaufort-le-Rouge, near Marseille, six thugs close to JN kidnapped and tortured to death a Tunisian worker." (Milza, 1987, p. 319)

²⁰Action Directe, the most violent left-wing group of French modern history (see Chapter 6), does not appear in Table A.1 since its most violent attacks took place in the 1980s after the end of the study period.

²¹The CGT had more than one million union members in 1920 (Lefranc, 1967, p. 220) and nearly five million in 1947 (Andolfatto and Labbé, 1997, p. 205).

²²With nearly 900,000 members in 1947 (Kriegel, 1970, p. 52).

²³If the *Croix-de-Feu* had nearly 30,000 members in 1932, this movement became a mass movement bringing together about 300,000 members in 1935 (Milza, 1987, p. 135; Vavasseur-Desperriers, 2006, p. 81) before becoming the *Parti Social Français* (French Social Party, PSF) – which peaked at around 900,000 members in 1938 (estimate from Soucy, 2004, p. 181; and Milza, 1987, p. 139)

²⁴In 1956, at its peak, the Poujadist movement had nearly 360,000 members (Tristram, 2014, p. 447; and Souillac, 2007, p. 38).

²⁵Actually, the highest scores are all found for CGT in 1947, 1906, 1920 and 1919.

wing movements to demonstrations and street actions²⁶ is more ambiguous than for left movements.²⁷

This over-representation of left-wing movements among softly radical organizations is also apparent when we look at the number of people injured due to right-wing and left-wing movements, as represented in Figure A.1. Episodes causing many injuries – which correspond to violent demonstrations – are much more linked to left-wing organizations, except the demonstration of the leagues the 6th of February 1934. I counted a total of 3337 wounded caused by left-wing organizations in the database, while the total is 1005 for right-wing groups: the ratio is therefore less than one out of three. As regards to the deaths, which correspond more generally to a hard radicalization, the part caused by right-wing groups compared to revolutionaries is more "balanced", as shown by Figure A.2. I counted a total of 23 deaths caused by right-wing groups and 43 caused by left-wing groups. The ratio is more than one out of two. Moreover, it should be noted that among this number of 43, I counted the 16 deaths resulting from the derailment of the Paris-Arras train in 1947, caused by militants of the PCF (Girard, 2011, p. 102), whose desire to provoke such a drama can be questioned.

Radicalization and violence are not synonyms. The results from the multiple correspondence analysis allows making two observations that inform the study of radicalization in a broader way. First of all, the analysis did not reveal a distinction between violent and non-violent repertoires. Indeed, if strongly radical actions can be violent – namely pre-meditated interpersonal violence, and violence targeting public personalities – different types of political violence are found all along the radicalization dimension. For instance, it appears that violence against the police is associated with softly radical means of action; violence against rival or competing groups corresponds to a higher degree; and violence against members of civil society is at an higher level of radicalization. This means, on the one hand, that political violence should not be seen as an unified radical phenomenon, but that it is necessary to distinguish, as Della Porta (2006) does, different levels of violence – in particular according to the degree of premeditation, intensity and targeting²⁸. On the

²⁶The demonstrations – for those with an illegal dimension – are linked to soft radicalization indicators in the database: depredations, violence against the police, violence resulting in injuries, illegal occupations of public space.

²⁷"The right has neither Gavroche, nor Delacroix, nor emblematic image of the demonstration: the mythology of the street remains working-class and of the left" (Tartakowsky, 1998, p. 191). She adds: "since the turn of the century, right-wing demonstrations have been fewer but often more massive than those of the workers' movement" (Tartakowsky, 1998, p. 191). For instance, the *Fédération Nationale Catholique* (National Catholic Federation, FNC) was the first demonstrating force during the 1920s (Tartakowsky, 1998, p. 81) – but its demonstrations were generally very moderate, with the exception of clashes between Communist and Catholic opponents in 1925 (Lalouette, 2014, p. 309).

²⁸In this respect, Della Porta (2006) refers to the level (intensity) and the planned dimension to distinguish the levels of violence implemented in Italy and Germany during the years of lead.

other hand, the observation that other types of characteristics are found on both sides of the dimension – such as premeditated attacks on goods at a high level of radicalism and unpremeditated depredations at a low level – maps with the broad definition of radicalism, as the use to illegal means to achieve political aims, rather than to the specific use of violence (Borum, 2011; Crossett and Spitaletta, 2010; McCauley and Moskaleiko, 2008; Wilner and Dubouloz, 2010).

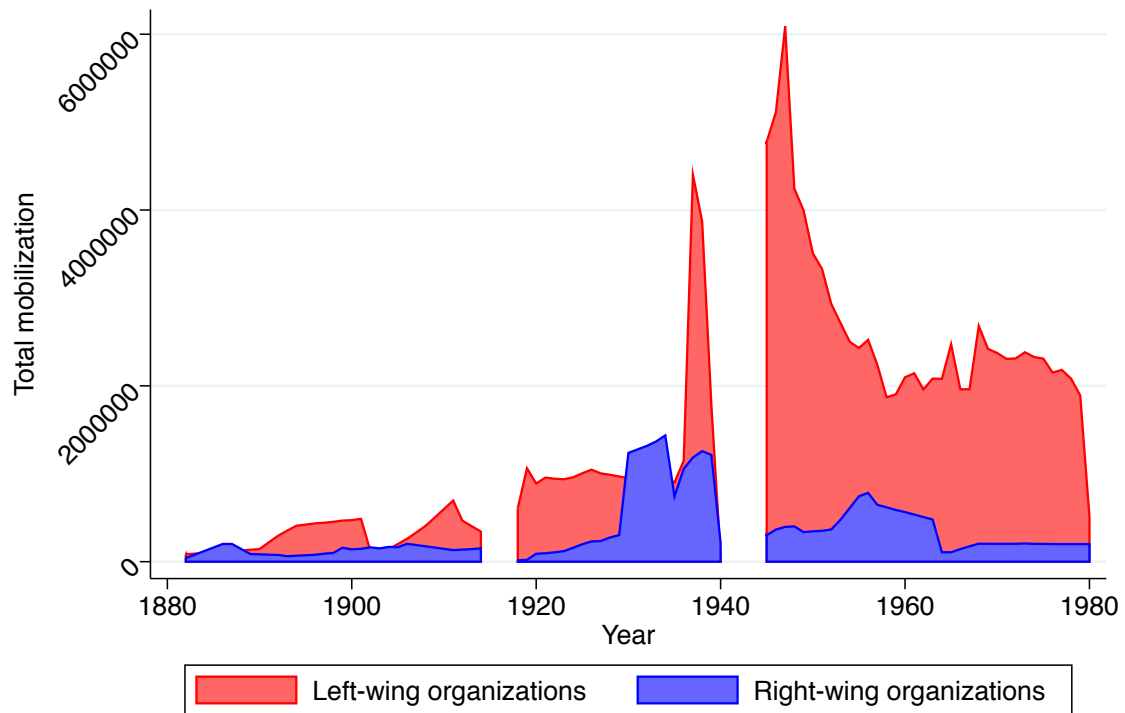
Besides, one can notice that radical discourses of organizations are predictive of the use to radical means of action, and therefore, can enter a general measure of radicalization. Indeed, the justification for resorting to illegal and violent means of action is positively associated with the dimension, with coordinates close to that of actions such as premeditated violence against properties. On the other hand, ambiguous discourses regarding the use of violence and illegality are negatively correlated with the dimension, with coordinates close to that of violence against competitor or opponent groups. This allows to infer that radical discourses are not an entirely separate object from radical actions. Here again, this consideration is supported by the fact that no dimension resulting from the multiple correspondence analysis yielded the distinction between "in deed" radicalism and "in word" radicalism.

2.2. A historical look at the mobilization of French radical movements

Before commenting the confirmatory analyses, let's have a general look at the overall level of mobilization of left-wing and right-wing radical organizations during the study period. Figure 1.3 plots the sum by year of the number of members of all left-wing and right-wing organizations in the database. The first observation that can be made is that the total membership of all left-wing organizations is much higher than those of right-wing organizations – which is due to the fact that the database includes unions, insofar as they present a minimal degree of radicalization, such as the CGT, which has no right-wing equivalent in terms of membership. I control for this asymmetry in mobilization capacity across organization types in the confirmatory analyses.

The second observation is that there are variation over time in the success of right-wing and left-wing radical movements. Albeit Figure 1.3 may be biased in terms of absolute membership, and must be interpreted with caution, it nevertheless shows that, depending on the period, the relative mobilization of right-wing and left-wing movements vary. The success of right-wing and left-wing radical movements presents different dynamics: the periods of success of right-wing movements correspond schematically to the mid-1880s, the beginning of the 1900s, the 1930s – with the main peak within during the first half of the 1930s – and finally the mid-1950s. Regarding left-wing radical movements, their share is stronger in the mid-1890s, in the 1910s, at the end of the First World

Figure 1.3: Historical evolution of the mobilization of radical movements in France



War, in the second half of the 1930s, at the end of the Second World War and at the beginning of the 1970s. Still, these relative variations may solely reflect variations in the membership of large organizations, that are given more weight in Figure 1.3, and that typically resort to softly radical means. To tackle this issue, the confirmatory analyses tests the effect of contextual variables on the mobilization level of each individual radical organization, controlling for its type and its radicalization level.

2.3. Confirmatory analyses

In this section, I present the results of multilevel log-linear regression analyses of the mobilization level (number of members) of radical organizations. I computed random effect at the year-level to correct the coefficients and associated confidence intervals of the year-level variables. First, I provide general comments about the models; second, I detail the main results about the relationship between the mobilization level of radical organizations and indicators of collective deprivation over 10 years, I then analyze the consistency of the findings across different temporal specifications.

2.3.1. General comments

I present the regression analyses in hierarchical steps in Table 1.1 and in the additional Tables A.3, A.4 and A.5 in appendix. The first five steps include the independent variables of interest: Model (1) only includes GDP growth, and Model (2) includes the interaction between this variable and the organizations' ideology; Models (3) and (4) perform the same test with the variation of inequality; and Model (5) includes all those variables together. The last three steps include the control variables in distinct steps to test whether their inclusion affects the coefficients of the variables of interest: Model (6) includes the organization-level control variables; Model (7) includes the year-level control variables; and Model (8) includes both organization-level and year-level control variables. To improve readability, I do not detail estimates for the fixed effects of organization type, information source, and decade.²⁹ Note that the number of observations decreases from Models (2) to (3) because the information on the share of national wealth owned by the richest 10% starts in 1908, thus narrowing the sample.

Before detailing the results, I shall have a quick look at the control variables. First, Table 1.1 confirms that the use of moderately radical repertoires is positively related to the mobilization level, whereas the use of strongly radical repertoires displays an opposite relationship, albeit at a low level of significance. Besides, the year-level controls have nonsignificant or inconsistent effects on the level of mobilization of radical organizations across the models.

2.3.2. Collective deprivation and mobilization level

In line with Hypothesis 1.1, the results from Table 1.1 show that indicators of collective deprivation do not have any general relationship with the mobilization level of radical organizations. Indeed, Model (1) shows that growth of GDP over a period of 10 years does not significantly affect the mobilization level of radical organizations, and Model (3) shows that a growth in inequality over 10 years does not affect the mobilization level either.

In contrast, results from Table 1.1 strongly support the hypothesis that collective deprivation affects the mobilization of radical organizations differently depending on their ideology (Hypothesis 1.2). Indeed, in Model (2), the coefficient of the interaction term between the growth of GDP and the organizations' ideology is significant and larger in absolute value than that of the main effect of the growth of GDP. This indicates that the relationship between the economic growth over 10 years and the mobilization of organizations is opposite for right-wing organizations compared with left-wing organizations. The negative sign of the coefficient is in line with the first part of Hypothesis 1.2: The

²⁹Results can be sent by the author upon request.

lower the economic growth for the past 10 years, the higher the mobilization of right-wing organizations. This result is confirmed when adding indicators of inequality in model (5) and the control variables in models (6), (7), and (8).

The main effect of the growth of GDP over 10 years, which must be interpreted as its effect on the mobilization level of left-wing radical organizations, is not significant in Model (2) but attains significance in the subsequent models (5) to (8). Analyses do not support the idea that this change in significance is due to collinearity issues, in particular between GDP growth and the growth of inequality; actually, these variables are not highly correlated ($r = 0.28, N =$), variance inflated factors yielded from model (5) are acceptable (mean $VIF = 2.8$), and the coefficient remains significant when running models (6) to (8) without including the growth of inequality. This rather supports the idea that, when taking into account relevant control variables, the past 10 years' economic growth is positively related to the mobilization level of left-wing radical organizations, in line with the second part of Hypothesis 1.2.

With regard to the evolution of inequality, the estimates of all models in Table 1.1 support Hypothesis 1.2. In model (4), the coefficient of the interaction between the evolution of inequality and ideology is positive, significant, and larger in absolute value than the main effect of the evolution of inequality, which indicates that the higher the growth of inequality for the past 10 years, the higher the mobilization level of right-wing organizations, in line with the first part of Hypothesis 1.2. Conversely, the coefficient of the main effect of the evolution of inequality is significantly negative: the higher the growth of inequality for 10 years, the lower the mobilization level of left-wing radical organizations, in line with the second part of Hypothesis 1.2. These coefficients remain significant and the interaction term larger in absolute value than the main effect in the subsequent models (5) to (8), which confirms these opposite relationships. Note that the estimates for both the variations of GDP and inequality and their interaction with ideology are identical when mean centering the variables.

Table 1.1: Effect of collective deprivation (over 10 years) on the mobilization level of French radical organizations (unstandardized coefficients from log linear multilevel regression analyses)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GDP growth (over 10 years)	-0.0361 (0.0458)	0.0695 (0.0617)			0.135* (0.0542)	0.262*** (0.0375)	0.148*** (0.0413)	0.147*** (0.0415)
Right-wing organization		-0.508** (0.188)		-1.245*** (0.151)	-0.237 (0.159)	-0.314+ (0.188)	0.824*** (0.221)	0.802*** (0.215)
Right-wing × GDP growth (over 10 years)		-0.214*** (0.0516)			-0.317*** (0.0364)	-0.319*** (0.0488)	-0.235*** (0.0493)	-0.210*** (0.0528)
Inequality growth (over 10 years)			-0.135 (0.108)	-0.352*** (0.107)	-0.462*** (0.109)	-0.391*** (0.118)	-0.364*** (0.0863)	-0.237* (0.111)
Right-wing × Inequality growth (over 10 years)				0.613*** (0.163)	0.851*** (0.135)	0.714*** (0.155)	0.634*** (0.119)	0.497*** (0.114)
Democracy score						0.0185 (0.0950)		-0.0943+ (0.0527)
log unemployment rate						0.0274 (0.120)		0.127 (0.111)
Gouvernement orientation (right to left)						-0.0987 (0.0908)		0.0207 (0.0738)
Right-wing × Gouvernement orientation (right to left)						0.201** (0.0681)		0.201** (0.0717)
Population						-0.351*** (0.0692)		0.00790 (0.0459)
Hard radicalization level							-0.0462+ (0.0260)	-0.0455+ (0.0240)
Soft radicalization level							0.0409*** (0.00813)	0.0386*** (0.00772)
Constant	10.33*** (0.122)	10.55*** (0.178)	10.23*** (0.109)	10.79*** (0.123)	10.36*** (0.172)	24.57*** (3.512)	13.23*** (0.196)	14.11*** (2.197)
Decade fixed effects	No	No	No	No	No	Yes	No	Yes
Organization type fixed effect	No	No	No	No	No	No	Yes	Yes
Source fixed effect	No	No	No	No	No	No	Yes	Yes
Observations	715	715	539	539	539	530	539	530
Number of years	92	92	59	59	59	56	59	56
R ²	0.000948	0.0551	0.00256	0.0675	0.0838	0.157	0.766	0.783

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

2.3.3. Tests on different temporal specifications

I applied similar regression models to other temporal specifications regarding the variables of interest: the growth of GDP and inequality for the past 5, 15, and 20 years (see Tables A.3, A.4 and A.5 in appendix). In line with Hypothesis 1.1, most of these alternative indicators of collective deprivation do not have a significant relationship with the mobilization level of radical organizations in general. When, in some cases, there is a general significant relationship between an indicator of collective deprivation and the mobilization level of radical organizations, the inclusion of the interaction effect indicates that the effect is in fact significantly different for left-wing versus right-wing organizations.

Besides, I find the expected differential effects of collective deprivation, similar to the one presented in Table 1.1, in other temporal specifications. Interestingly, the growth of the GDP per capita has the expected differential effect on the mobilization level of left-wing versus right-wing organizations in middle-term specifications (when I specify the growth of GDP for the past 5 or 10 years), and it has either nonsignificant or inconsistent effects in the other specifications. In contrast, the growth of inequality has the expected differential effect in long-term specifications (when I specify the growth of inequality for the past 10, 15, or 20 years), and it has either nonsignificant or inconsistent effects in the 5 years specification. This may be due to the fact that the societal consequences of GDP growth are more readily visible and may provoke social reactions faster than inequality, whose effects might emerge in a delayed and indirect manner.

On the basis of these models, I calculated linear marginal effects to estimate, at average values for all other variables, the predicted level of mobilization of radical organizations across the distribution of the variables of interest (going from the mean - 2 standard deviations to the mean + 2 standard deviations). Figures 1.4 and 1.5 plot these estimates and the corresponding confidence interval for the temporal specifications that produced the most salient results: the variation for 5 years of GDP (Figure 1.4) and the variation for 15 years of the level of inequality (Figure 1.5). These estimates clearly support Hypothesis 1.2, showing inverse relationships for left-wing and right-wing organizations. The higher the GDP growth for the past 5 years, the higher the mobilization of left-wing organizations and the lower the mobilization of right-wing organizations. The higher the increase of inequality for the past 15 years, the lower the level of mobilization of left-wing organizations and the higher the level of mobilization of right-wing organizations.

Figure 1.4: Marginal effect of GDP growth over 5 years on the mobilization level of French radical organizations depending on their ideology (with 95% confidence interval)

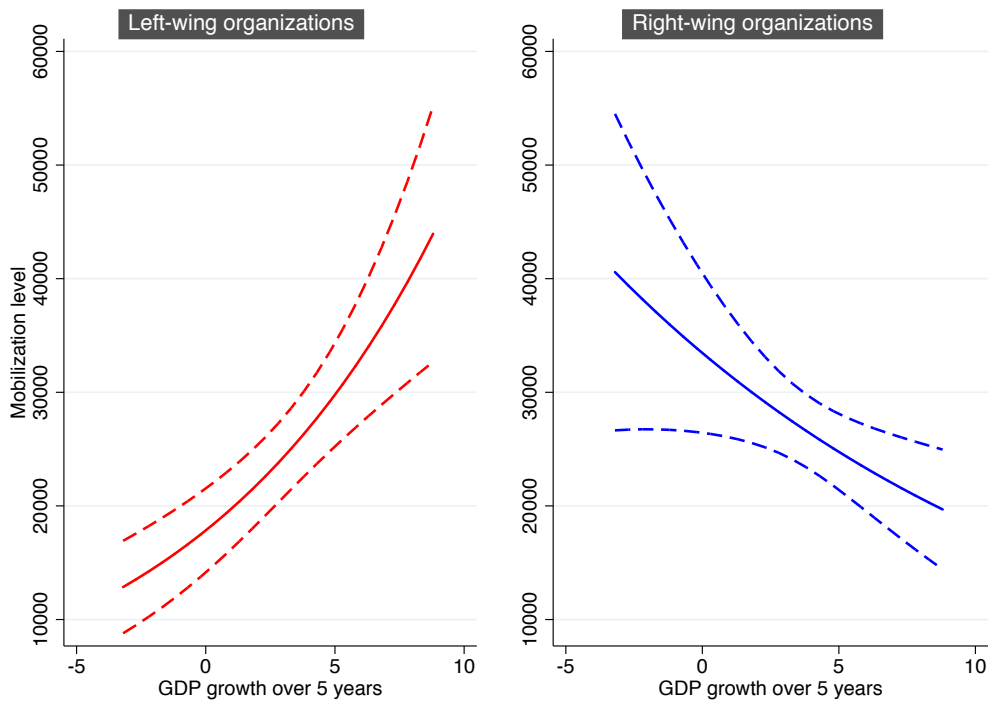
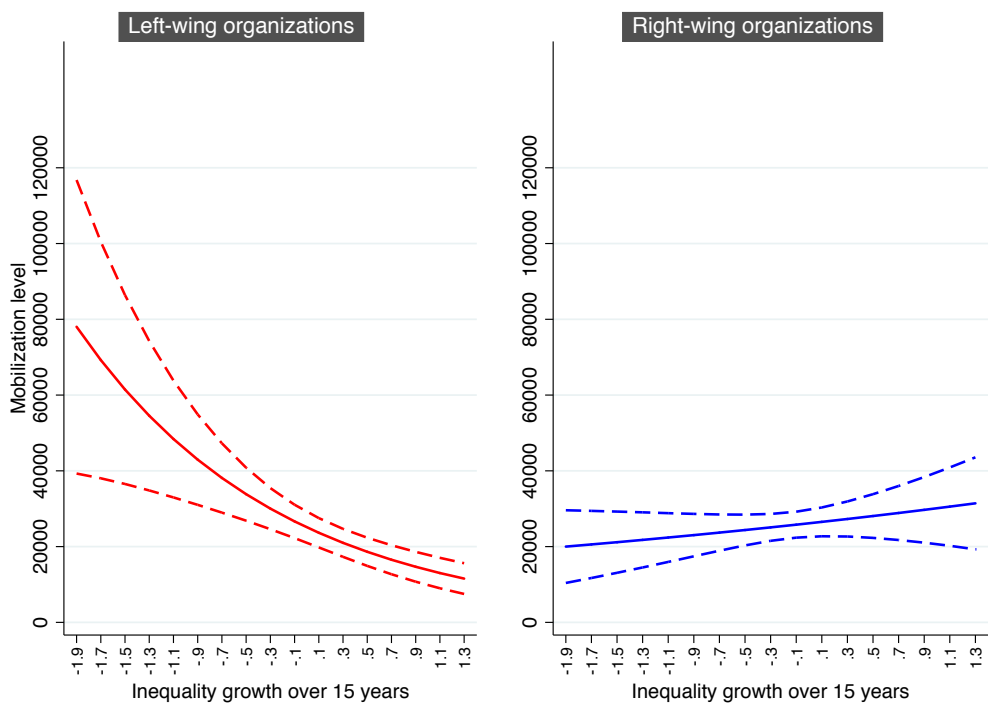


Figure 1.5: Marginal effect of Inequality growth over 15 years on the mobilization level of French radical organizations depending on their ideology (with 95% confidence interval)



3. Discussion

Although it is popularly assumed that political radicalism is fuelled by collective deprivation, empirical research has mostly rejected this idea and concluded that economic context plays a minor role with regard to the emergence of radical movements (Krieger and Meierrieks, 2011; Krueger, 2017; Piazza, 2006). This Chapter challenges this conclusion. I have proposed that collective deprivation in fact has a substantive effect on the rise of radical movements but that the direction of this effect depends on their ideology. My empirical analyses of French radical organizations between 1882 and 1980 support this claim, demonstrating that opposing economic conditions are related to the mobilization of two distinct radical ideologies: right-wing radical movements mobilize during long-term episodes of collective deprivation, whereas left-wing radical movements mobilize under periods of improving economic conditions.

Besides, the present results have implications for how political radicalization should be understood. Indeed, I observed that the use or the absence of use of violence does not count among the distinctive dimensions of the radical organizations that I studied. Actually, different forms of political violence – more or less premeditated, intense and targeted – are found at the different stages of a continuum that may call “radicalization”, in the same way than other repertoires of actions. This implies that limiting the study of radicalism through the sole prism of the use of political violence (Borum, 2011; Crossett and Spitaletta, 2010; McCauley and Moskalenko, 2008; Wilner and Dubouloz, 2010) may not be empirically justified. Rather, it seems preferable to define radicalism more broadly, as in the Introduction of the present dissertation, through the prism of use of illegal means within a given legal system.

Finally, the results support the idea of reintegrating economic conditions in particular and macrosocietal determinants in general into the explanation of social movements. Indeed, literature about social movements has mostly forsaken structural theories such as relative deprivation (Gurr, 2015) to focus on theories of resource mobilization, political opportunity structure, or microtheory of frame processes (Walder, 2009). The present analysis proves that macrodeterminants do matter in the dynamics of social movements. This result means that the mobilization capacity of social movements is not only dependent on the political entrepreneurs’ ability to communicate but also on macrocontexts that make some discourses inherently more attractive to potential recruits.

Limitations and future direction. This study has two kinds of limitations: relative to the data itself and relative to the design of the test. The dataset is first limited in its historical and geographical scope, thus limiting historical and cross-sectional generalization. Also, I could not totally eliminate potential problems of representativeness and reliability. Although I controlled for the most obvious factors of over-representation/under-

representation (decade, ideology, and organization type) that could produce incorrect generalization, representativeness biases remained irreducible because we do not know the characteristics of the overall population of radical organizations. Furthermore, although the method used limited reliability biases, the reliability of the sources remains questionable because there is no comparable measure on the study period to test for convergent validity. For that reason, Chapter 2 replicates the test of the present hypothesis in another case study, based on more reliable data.

Second, the study design provides no empirical cues to determine the individual-level causal mechanism. A crucial question is whether collective deprivation affects individual radicalization through the perception of a collective threat or through individual experience of deprivation. The literature suggests a sociotropic mechanism. Indeed, a core finding from the relative deprivation literature is that although group relative deprivation may foster collective action in some circumstances, individual relative deprivation only predicts individual behavior – such as stealing or using drugs (Smith et al., 2012). Besides, research on ideology indicates that collective economic threat is related to increased right-wing attitudes whereas individual deprivation is not (Feldman and Stenner, 1997). Chapter 2 offers an investigation of this question through comparing the effect of deprivation experienced at the national, regional and individual level on radical activists' ideological orientation.

2

Collective deprivation and the ideological orientation of radical activists in the United States (1948-2016)

"Who could feel revolutionary when the sun shone so pleasantly on one's face? The city instead was full of desire. The day before the greatest, most spectacular, most violent protest of 1968, the city was saturated with *want*."

The Nix
NATHAN HILL

The present chapter further investigates the general hypothesis that the effect of collective deprivation on radical movements depends on their ideology. I rely the PIRUS database about radical activists (N=1295) in the United States from 1948 to 2016. I analyze whether the proportion of right-wing (versus left-wing) terrorists in a given year depends on collective deprivation in the US, operationalized through long-term recession of the income and long-term growth of inequality. Hierarchical logistic regression analyses confirm that right-wing radicalism mobilizes more under periods of long-term economic deprivation, while left-wing radicalism mobilizes more under improving economic conditions. Besides, the effect of collective deprivation appears to be of socio-tropic nature: it is especially determinant at the national level, rather than at the state or individual level. In contrast, results do not support the view that Islamist radicalism is affected by collective deprivation.

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This chapter is adapted from the following paper: Varaine, S. (2020). Revisiting the Economics and Terrorism Nexus: Collective Deprivation, Ideology and Domestic Radicalization in the US (1948–2016), *Journal of Quantitative Criminology*, 36, 667–699. <https://doi.org/10.1007/s10940-019-09422-z>

In Chapter 1, I found supportive evidence that the effect of collective deprivation on the mobilization of radical movements depends on their ideology: long-term recession and long-term elevation of inequality are positively related to the number of members of right-wing radical movements and negatively related to the number of members of left-wing radical movements. The present chapter further investigates this hypothesis with three main objectives. Firstly, I provide a new test, based on a new historical case, with a different design and a more restrictive definition of radicalism. Secondly, I start investigating the individual mechanism through which collective deprivation affects the ideological orientation of radical movements, by testing whether the effect is ego-tropic or socio-tropic. Thirdly, I analyze whether the hypothesis generalizes to Islamist radicalism.

A new empirical test of the effect of collective deprivation on radical activists. The first aim of the present chapter is to provide a new test of the hypothesis that the effect of collective deprivation on radical movements depends on their ideology. Indeed, Chapter 1 is based on an ad hoc database suffering from reliability and representativeness issues, thus requiring replication on other historical cases. In this chapter, I test the hypothesis on a new historical case, based on reliable data. Besides, the database analyzed in Chapter 1 relies on a broad definition of radical activism, including all members of organizations that ever used or promoted illegal protest activity through their discourse. In the present chapter, I focus on a stricter definition by analyzing the ideological orientation of individuals that were involved themselves in ideologically motivated crimes.

Chapter 1 focused on the effect of collective deprivation on the absolute number of adherents of right-wing and left-wing radical movements. Another empirical formulation of the hypothesis is that collective deprivation affects the main ideological orientation of radical movements, which is the share of right-wing versus left-wing radical activists at a given historical period. That is, under conditions of collective deprivation, radical activists should be mainly motivated by right-wing ideologies, while they should be mainly motivated by left-wing ideologies under times of collective prosperity. Hence, the main hypothesis of this chapter is:

Hypothesis 2.1 *Collective deprivation increases the share of right-wing radical activists and decreases the share of left-wing radical activists.*

The socio-tropic effect of economic deprivation on radicalism. The second aim of this chapter is to illuminate the individual causal mechanism by which collective deprivation affects the ideology of radical movements. A crucial question is whether collective deprivation affects radicalization through the activist's own experience of economic deprivation or through the activist's perception of a collective decline. In other words, it is worth ascertaining whether the individual mechanism by which collective deprivation affects right-wing versus left-wing radicalism is of ego-tropic or socio-tropic nature.

The classic opportunity-cost argument according to which poverty produces more radicalism implies an ego-tropic mechanism: collective deprivation increases the mobilization of radical movements because the higher share of deprived people enjoys a lower opportunity cost of quitting economically productive occupations (Freytag et al., 2011). In contrast, the general hypothesis of this dissertation should imply a socio-tropic mechanism. Indeed, studies on social movements indicate that self-categorization as a group member is a key pre-requisite to collective action (Simon and Klandermans, 2001; Van Zomeren et al., 2008), and that the perception of shared grievances matters more than personal grievances in the participation to collective action (Abrams and Grant, 2012; Smith et al., 2012). Individuals with high level of social capital are central in this mobilization process, through their capacity to politicize shared grievances and to generate a sense of common identity and destiny (Hogg, 2001). Regarding participation into terrorism, Jensen et al. (2020) recently found that perceptions of community grievances and deprivation were necessary conditions for violence among US extremists, whilst individual deprivation was not. Hence, it is likely that collective deprivation affects participation into radical movements through a socio-tropic mechanisms, nor through the activist's own experience of deprivation.

This converges with findings from the literature on political ideologies showing that collective threats – including collective deprivation – are far more determinants than individual threats in shaping individual ideological orientations (Feldman and Stenner, 1997; Stenner, 2005). For instance, the meta-analysis of Onraet et al. (2013b) shows that situations and perceptions of collective threats, including economic threat, relate strongly to conservative attitudes, while the relationship is weak for personal threats: they conclude that “threat on the level of society, rather than anxiety originating from one's private life, is the key factor in explaining the relationship between threat and right-wing attitudes” (Onraet et al., 2013b, p. 245).

Regarding the hypothesis, this means that collective deprivation should affect the ideological orientation of radical activists independently from their own experience of economic deprivation:

Hypothesis 2.2 *The effect of collective deprivation on the ideology of radical activists is not mediated by the activists' experience of economic deprivation.*

Importantly, it is worth defining what “collective” means in collective deprivation. Indeed, the socio-tropic mechanism may operate at different level. In particular, it could operate at the national or at the regional level. As I have not specific predictions on whether collective deprivation experienced at the regional or at the national level is more determinant, I performed empirical analyses at both levels to analyze which level matters the most.

Economic deprivation and Islamist radicalism. The general hypothesis of this dissertation directly aims at accounting for the mobilization of right-wing versus left-wing radical movements. However, the question remains open whether it may account for the mobilization of radical ideologies that do not directly enter the left–right dimension. The issue is especially sensible for Islamist radicalism, which is nowadays one of the most prevalent form of political violence (Kis-Katos et al., 2014; LaFree and Dugan, 2016). I argue that my hypothesis may contribute to explaining the mobilization of Islamist radicalism to the extent that most Islamist ideologies share definitional traits of right-wing ideologies: that is, reactionary ideals and (to a certain extent) group-based dominance.¹

Firstly, salafi jihadism, nowadays the most common Islamist radical ideology (Moghadam, 2009), has a conservative – or more precisely reactionary – agenda in the sense that it advocates to a societal change to return to a mythicized golden age (Khosrokhavar, 2015; Moghadam, 2009; Torres et al., 2006). Yet, one could wonder whether the theory of ideals may explain the mobilization of these reactionary beliefs in the case of non-majority Muslim societies. On the one hand, salafi jihadism advocates for an Islamic based theocracy which never was the system of those societies. Thus, the change salafi jihadists fight for could hardly be defined as a restauration. On the other hand, various aspects of the system promoted by jihadist ideologies are close to ancient social systems of non-Muslim societies, and may resonate with feelings of nostalgia, even among non-Muslim individuals. For instance, salafi jihadist beliefs value obedience, social hierarchy, gender-based divisions, moral purity and punitiveness against deviance (Hegghammer, 2017; Khosrokhavar, 2015), which are also key components of right-wing reactionary ideologies (Lipset and Raab, 1970; Parker and Barreto, 2014). Hence, one could expect that those reactionary components of Islamist radical beliefs are more appealing under periods of collective deprivation, following the theory of ideals.

Secondly, Islamist radical ideologies share with right-wing radical ideologies the belief of in-group superiority. Whilst the in-group boundaries and definition differ (the Umma for Islamists, the nation, white and/or Christian people for Western right-wing

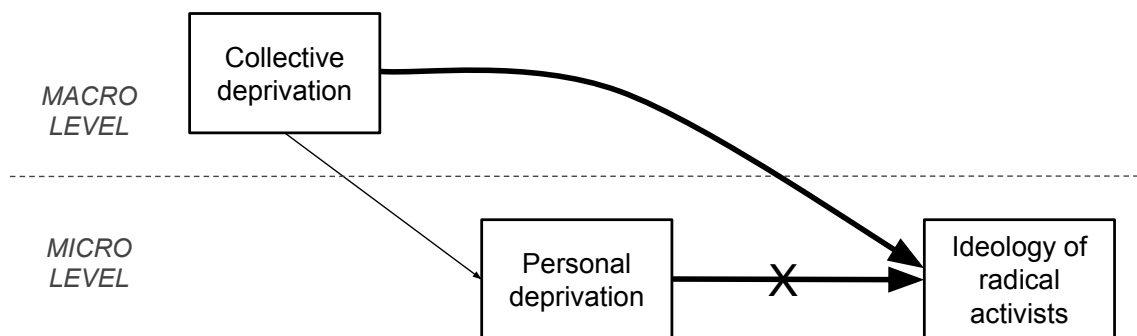
¹For a deeper analysis of the shared elements of Islamist ideologies with right-wing and left-wing ideologies, see Gambetta and Hertog (2017). They conclude that: "the overlap of *weltanschauung* [world views] between radical Islamism and right-wing extremism and the near complete lack of overlap with left-wing extreme ideology are striking" (Gambetta and Hertog, 2017, p. 99)

groups) there is a common perception that the in-group is superior and should be socially dominant. This contrasts with universalistic beliefs from left-wing ideologies, advocating for equality between social or ethnic groups. Besides, as noticed by Michael (2006), there are also close similarities between Islamists' and right-wingists' enemies. Indeed, both ideologies share common hostility toward feminists, gay minorities and Jews. The case of Michael Collins Piper, a right-wing anti-Semitist ideologue who reached a significant audience in the Muslim world, illustrates how these ideological proximities might even lead to convergences between both agendas (Michael, 2008). Regarding collective deprivation, resource scarcity is likely to increase ethnocentrism and group-based hostility, whilst collective improvement increase universalist feelings and inter-group solidarity (King et al., 2010; Krosch and Amodio, 2014; Morrison et al., 2009; Rodeheffer et al., 2012). For that reason, one could expect that collective deprivation increases ethnocentric feelings among Muslims, and eventually bolsters the mobilization potential of Islamist terror groups.

Hypothesis 2.3 *Collective deprivation increases the share of Islamist radical activists.*

Alternatively, one could also argue that Islamist radical movements have anti-imperialistic components and target strong enemies, which echoes left-wing radicalism, and hence that Islamist radicalism should increase in periods of relative prosperity. Indeed, Islamist terrorist groups typically target governments involved in military interventions in Muslim majority countries (see Chapter 10). Besides, the best predictor of justification of terrorism among European Muslims is low trust in the North Atlantic Treaty Organization (NATO) (Egger and Magni-Berton, 2019). Hence, following the theory of enemies, Islamist radicalism should emerge under periods of relative prosperity for Muslim populations, allowing Islamist radical activists to hope to overthrow the existing system of dominance.

Figure 2.1: Causal paths analyzed in Chapter 2



Summary. Figure 2.1 summarizes the causal paths analyzed in the present chapter. The main causal path – relative to Hypotheses 2.1 and 2.3 – relies the level of collective deprivation at the macro level and the ideology of radical activists at the micro level. According to Hypothesis 2.1, collective deprivation is related to a higher share of right-wing radical activists. According to Hypothesis 2.3, collective deprivation is related to a higher share of Islamist radical activists. The second causal path – relative to Hypothesis 2.2 – relies the activist’s experience of deprivation at the micro level and her ideological orientation. According to Hypothesis 2.2, the activist’s experience of deprivation should not mediate the effect of collective deprivation.

1. Method

To test the hypotheses, the present chapter focuses on the ideological orientation of a representative sample of domestic radical activists in the US from 1948 to 2016. I analyze whether the probability for activists to be left-wing, right-wing and Islamist depends on the level of collective deprivation experienced in the US during their radicalization process.

1.1. Data

Analyses are based on the Profiles of Individual Radicalization in the United States (PIRUS) dataset, collected by the National Consortium for the Study of Terrorism and Responses to Terrorism (START) (2017b). The 2017 version of this dataset gathers systematic information on 1867 radical activists in the US from 1948 to 2016. To my knowledge, this is currently the only attempt to capture data on a large representative sample of individual radical activists in a country for such a long period, thus providing sufficient historical variation to test the effect of year-level variables. Moreover, the historical and geographical focus of the dataset fortunately allows keeping relatively constant variables that have proven to affect radical movements, such as the centralization level (Dreher and Fischer, 2011), the state capacity (Li and Schaub, 2004), long-term cultural features (Wiedenhaefer et al., 2007), and the level of democracy (Abadie, 2006).

Individuals are included in the dataset if they meet one of the following criteria: (1) they were arrested/indicted/killed by public forces as a result of an ideological crime, (2) they were members of an organization that was designated as terrorist by the US, or (3) they were members of an organization whose leader has been indicted as a result of an ideological crime. These criteria map onto the definition of radicalism as the use of illegal means, including violence, by sub-national actors to achieve political ends. Importantly,

the data allow distinguishing individuals who eventually committed violence against people from those who did not (LaFree et al., 2018). I used this subsample to test whether the findings are robust to the narrower definition of radicalism including only terrorism – i.e. political violence against people (Krueger, 2017).

The dataset focuses on domestic radicalism, which refers to individuals who were in the US during most of the duration of their radicalization process. This focus on domestic radicalism is convenient for testing the present hypotheses. Indeed, collective deprivation in a country should affect the ideological orientation of people belonging to the national group, nor of people coming from abroad.

The PIRUS database is a collective effort based on publicly available sources. An inter-coder reliability test performed on 10% of the cases yielded an alpha score of .76 (LaFree et al., 2018), indicating that the dataset respects common standards of reliability (> 0.70). The use of publicly available sources of information surely implies multiple biases, which are hard to evaluate as the dimension of the population of interest is unknown. Nonetheless, I do not see major reasons to expect that the under- or over-reporting of some activists would deeply alter the conclusions of my analyses. There are indeed good reasons to expect that the historical period and the ideology of the activists respectively imply reporting biases: for example, past events are likely to be under-reported because archival press records are more limited and less easy of access than current press contents; similarly, right-wing activists may be differently reported in public sources because their actions often target minority groups (Freilich et al., 2018; Ravndal, 2016) while left-wingers generally attack governmental and private company targets (Ahmed, 2018; Hoffman, 2006; Malkki, 2018). But, such biases should not affect my analyses since I compare the temporal evolution of the relative frequency of ideological orientations. In other words, there is no major reason to expect that the reporting biases of certain ideologies would systematically vary across time, in parallel to the level of collective deprivation.

However, other historical factors may possibly induce over-reporting of right-wing and left-wing radical activism. For instance, it is possible that periods of foreign wars induce more media coverage about left-wing anti-military milieus and in consequence more reporting of left-wing radical activists. For that reason, and because foreign involvement also constitutes a potential grievance mobilizing left-wing activists, I controlled for this variable. Similarly, one may conjecture that counter-terrorist services scrutinize more deeply left-wing terror organizations under Republican administration (and conversely under Democrat presidency) which may induce reporting biases in the archival records. Again, this factor may also be a determinant of the activists' actual mobilization. Thus, I also controlled for this variable. Besides, some reporting biases may affect the results regarding variables other than the left-right dimension. In particular, the investigators of the PIRUS database indicate that Islamist radical activists are likely to be over-represented

in the post-9/11 period because of intense media scrutiny (Jensen and LaFree, 2016, p. 11). I controlled for this period effect in the analyses.

1.2. Individual-level variables

1.2.1. Ideology

The dependent variable is the ideological orientation of radical activists. The PIRUS dataset divides activists into four kinds of ideology: left-wing, right-wing, Islamist and single-issue. I excluded single-issue activists from the sample because it gathers very distinct political goals (e.g. anti-abortion, Puerto Rican independence, etc.) so it was difficult to assert whether those activists were leftists or rightists.

The PIRUS classification of right-wing and left-wing radical activists generally maps onto the social-hierarchy versus egalitarianism conception of the left-right divide (Bobbio, 1996). Indeed, according to the database, "the ideology of the far right is generally exclusivist and favors social hierarchy, seeking an idealized future favoring a particular group, whether this group identity is racial, pseudo-national (e.g., the *Republic of Texas*) or characterized by individualistic traits (e.g., survivalists)" (National Consortium for the Study of Terrorism and Responses to Terrorism (START), 2017b).² In contrast, "far left extremists generally seek the overthrow of the capitalist system, including the United States government, and seek to replace it with a new, anti-imperialist economic order that empowers members of the 'working class'" (National Consortium for the Study of Terrorism and Responses to Terrorism (START), 2017b).³

Nonetheless, one can notice that this division also generally matches with the reactionary versus revolutionary divide. Indeed, most of right-wing terror groups in the PIRUS database can be defined as reactionary, although with various reactionary ideals: through the valorisation of the ethnical origins of the nation – e.g. white supremacist groups such as the *Klu Klux Klan* (KKK), *National Alliance*, the *World Church of the Creator* –, the defense of traditional values and way of life – e.g. religious fundamentalist groups such as the *Army of God* (AOG) –, the demise of the current institutions to return to a past

²The resulting category includes "radical individuals linked to extremist religious groups (e.g., Identity Christians), non-religious racial supremacists (e.g., *Creativity Movement*, *National Alliance*), tax protesters, sovereign citizens, militias, and militant gun rights advocates" (National Consortium for the Study of Terrorism and Responses to Terrorism (START), 2017b).

³The PIRUS includes in this category ideologies that advocate for racial equality as well as ecologist movements: "While there are some far left extremist groups that maintain a distinct racial identity (e.g., *Black Panther Party*), the far left differs from the far right in that its identity is grounded in economic grievances and not race-based issues. Although not all animal-rights and environmental extremists are inherently leftist in orientation (for instance, there are Green Fascists), the vast majority of eco- and animal rights extremists identify with leftist political positions and have thus been included in the far left category for the purposes of this project" (National Consortium for the Study of Terrorism and Responses to Terrorism (START), 2017b).

state of freedom – e.g. anti-federalist groups such as the *Sovereign Citizen Movement*. In contrary, most of left-wing terror groups can be considered as revolutionary to the extent that they advocate for ending-up with traditional societal arrangements to create a new system: through advocating of end of the capitalist economic system – e.g. anti-capitalist groups such as the *Weather Underground* –, the end of ethnical and identity-based discriminations – e.g. Black power groups such as the *Black Panther Party* (BPP), the *Black Liberation Army* (BLA) –, the re-definition of moral and legal rights – e.g. animal rights groups such as the *Animal Liberation Front* (ALF).

To test Hypotheses 2.1 and 2.2, I analyze the probability for radical activists to be right-wing compared to left-wing, which narrows the sample to N=1070. The dependent variable is thus coded 0=left-wing (30.28% of the sample) and 1=right-wing (69.72% of the sample). One may wonder if left-wing and right-wing mobilizations are related to each other, and whether this affects the analyses regarding the effect of collective deprivation on the share of right-wing versus left-wing radicalism. Indeed, research has demonstrated that, in certain cases, direct conflict between right-wing and left-wing groups may lead to the radicalization of groups of both ideologies (see for instance Della Porta, 2006). In the present case, such escalation mechanism would induce common increases in both left-wing and right-wing radicalism at the same historical periods. In other terms, this would reduce the historical variation in the share of right-wing radicalism relative to left-wing radicalism. As the test of our hypothesis precisely takes advantage of the historical variations of the share of right-wing radicalism relative to left-wing radicalism, this means that such mechanism would only make the test of our hypothesis harder by reducing variance in the dependent variable.

To test Hypothesis 2.3, instead of right-wing orientation, I analyse the probability for radical activists to be Islamists compared to left-wing, which narrows the sample to N=781. The Islamist category in the PIRUS database refers to jihadism, defined as "a militant methodology practiced by Sunni Islamist-Salafists who seek the immediate overthrow of incumbent regimes and the non-Muslim geopolitical forces which support them, in order to pave the way for an Islamist society which would be developed through martial power" (National Consortium for the Study of Terrorism and Responses to Terrorism (START), 2017b).⁴ The dependent variable is thus coded, 0=left-wing (41.49% of the sample) and 1=Islamist (58.51% of the sample).

⁴More specifically, the individuals classified "as 'jihadists' are most commonly connected to, or inspired by, violent Islamist-Salafist groups that have their roots in the onset of 'global jihadism' of the 1980s, including al-Qaeda and its affiliated movements." (National Consortium for the Study of Terrorism and Responses to Terrorism (START), 2017b).

1.2.2. Individual deprivation

To test whether the effect of collective deprivation affects the ideological orientation of radical activists through individual deprivation (Hypothesis 2.2), I used measures of the activists' level of deprivation. The first is the social class of the activist when she was adult which is coded 0=low, 1=middle and 2=high. The second variable, using the same coding, is about the activists' childhood. The first variable measures individual absolute deprivation, while the second, when included as a covariate of the first in the regression model, allow measuring the effect of the individual deprivation relative to her past status. Moreover, I included two variables measuring the individual's working achievements, used by Jasko et al. (2017): the employment status at the time of exposure (0=employed and 1=unemployed) and the work history before the time of exposure (0 = regularly employed, 1 = serially employed, 2 = underemployed, 3 = long-term unemployed).

1.2.3. Control variables

Previous studies found that several socio-economic characteristics are distinctive of right-wing versus left-wing radicalism (Chermak and Gruenewald, 2015; Russell and Miller, 1977; Smith and Morgan, 1994): compared to leftists, right-wing radical activists are generally less educated and older; they are also more likely to be male and to have a criminal record. I controlled for these variables and for other variables included in the PIRUS dataset that could also affect the dependent variable such as military experience, immigrant status, and the geographical region in which the individual spent most of her life in the US.

1.3. Macro-level variables

I performed analyses at two different levels for the macro variables: the national and the state level. This allows testing which collective level is the more determinant in the ideological orientation of domestic radicalism.

1.3.1. Collective deprivation

As in Chapter 1, I used two indicators of collective deprivation: the long-term variation of the national wealth, measured by the growth of the mean fiscal income of the population (World Inequality Database, 2017a), and the long-term variation of inequality, measured by the growth of the share of the pre-tax income owned by the 10% richest (World Inequality Database, 2017c). As in Chapter 1, I mean by long-term the variation over 10 years of the economic indicators. However, I am agnostic on what long-term precisely mean – e.g., whether it is 6 or 14 years. For that reason, I computed supplementary analyses using different temporal specifications of the economic variables (see the appendix).

I tested the effect of the growth of the wealth and inequalities over 1, 5, 10, 15 and 20 years. I also tested the effects of the absolute level of deprivation: that is, I used the 1-year lagged absolute levels of inequality, wealth, and unemployment (Bureau of Labour, 2018). This allows gauging whether the long-term variation matters more than the short-term absolute level of deprivation. I comment the outcomes in the section relative to the robustness checks.

1.3.2. Control variables

I included other macro variables to control for alternative explanations of the share of right-wing versus left-wing ideology among domestic radical activists at different historical periods and locations. As mentioned earlier, I controlled for the effect of external military interventions, using the annual number of deployed troops derived from Kane (2016). Besides, I included a measure of the ideological position of the government coded 0 = Republican (right-wing) presidency, 1=Democrat (left-wing) presidency. There are two competing hypotheses regarding the effect of the political context (Hewitt, 2003, p. 23-25). The first argument states that terrorism emerges among political opinions that are excluded from the government.⁵ According to this, terrorist groups are more likely to mobilize under an unsympathetic government: that is, under Democrat presidency for right-wing terrorism, and under Republican presidency for left-wing terrorism. In contrast, the second argument states that terrorism is encouraged by the messages from sympathetic governments. To date, results have been mostly supportive of the exclusion hypothesis that terrorism emerges under unsympathetic governments (Hewitt, 2003; Piazza, 2017a).⁶

Whilst my focus is on economic collective threat, various studies found that other kinds of threat are related to surges of conservatism, and may thus increase the probability for the radical activists of a given period to be right-wing oriented. Firstly, various studies indicate that existential threat increases conservatism (Jost et al., 2003b). Consistent with this view, Onraet et al. (2013a) found that a composite indicator including the national homicide rate was positively related with conservative views on cross-national surveys. Thus I included the 1-year lagged homicide rate as a control variable. Data was taken from the Federal Bureau of Investigation (2018) for both the national level and state level. Secondly, some studies indicate that authoritarian attitudes crystallize under conditions of threat affecting the perceived homogeneity of the in-group (Stenner, 2005), in particular the share of ethnic minorities (McCann, 2008; Velez and Lavine, 2017). Backlash theory also predicts that the share of ethnic minorities and/or immigrants increases right-wing radicalism because traditional majority groups are afraid that minorities may overtake

⁵Note that this hypothesis is analyzed more systematically in Chapter 6.

⁶See Chapter 6 for further analyses of the effect of government orientation on terrorism.

their position (Blalock, 1967). To capture this, I used the 1-year lagged immigration rate as a proxy. For the national level, I used data from the United Nations (2017b); and for the US states, I used the decennial estimates of the Census Bureau (2018).⁷

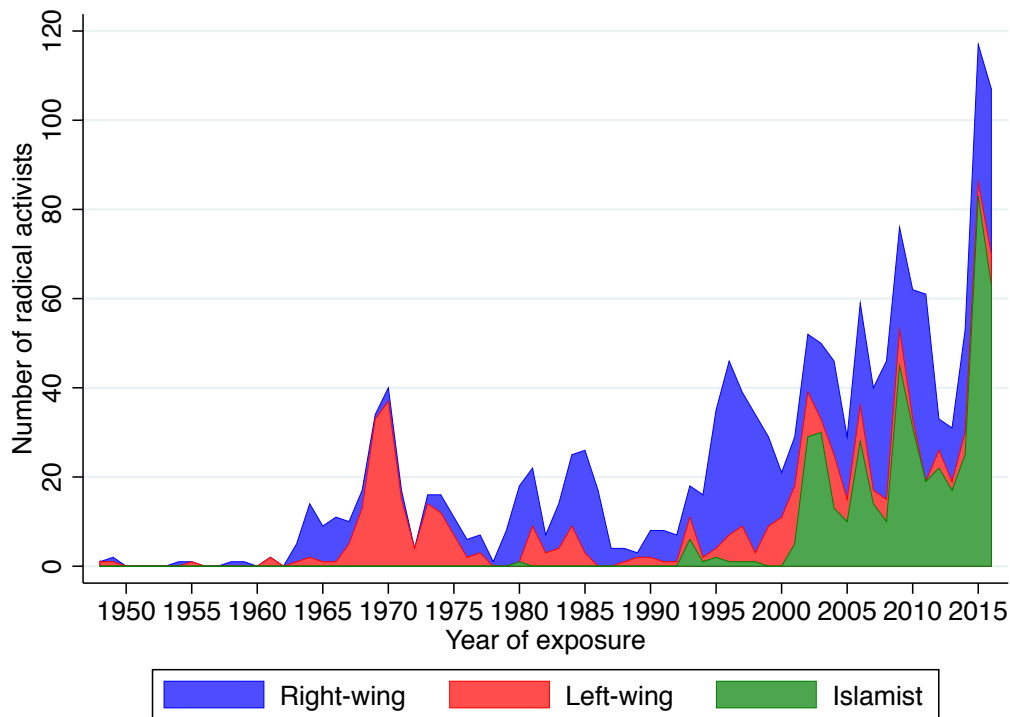
1.4. Temporal connection between individual radicalization and macro-level variables

To test the effect of the macro-level variables on the probability for a given radical activist to be right-wing versus left-wing, I had to determine for each individual the year in which she became radical. Hopefully, the PIRUS dataset includes information on each radical activist's date of exposure, which refers to her earliest mention by the sources as radical (see the inclusion criteria): for example, it may be the day the activist carried out her first illegal action or the earliest day the sources reveal that she was part of a designated terrorist organization. I used this information to merge year-level indicators with the PIRUS dataset: that is, for each activist, year-level variables refer to the year the activist became radical. Figure 2.2 plots the number of radical activists by year of exposure and ideology. Similarly, for the analyses at the state-level, I merged the state-level macro variables with the PIRUS dataset using the year of exposure and the US state in which the activist spent most of her life.

One may oppose that using the year of exposure of the activist is not the best choice on theoretical grounds. Indeed, collective deprivation is likely to affect the radicalization process at an early phase: it is likely to trigger cognitive and emotional disposability to the extremist ideology, eventually easing mobilization into radical groups. But it should have a more limited effect on the pathway from radical groups to violence (Koomen and Van Der Pligt, 2015, p. 7-8). During this second phase, factors such as the political opportunity structure (Della Porta, 2006), small-group interactions (McCauley and Moskalko, 2008), and strategic considerations around the target selection (Newman and Hsu, 2012) should be of greater influence. Hopefully again, the PIRUS dataset includes a variable estimating the radicalization duration. The variable includes three categories: less than a year, between one and 5 years, more than 5 years. I produced analyses using this information to estimate the level of collective deprivation at the start of the individual radicalization. The information on the radicalization duration was only available for a limited number of activists (N=782), narrowing the analysed sample of right-wing and left-wing activists to N=346. In consequence, the analyses based on this procedure, presented in the appendix, simultaneously provide an alternative test and a robustness check on a sub-sample of activists. I will produce comments about the outcomes in the section

⁷I also performed analyses using interpolated values between decennial estimates—which yield similar results. The author can send these analyses upon request.

Figure 2.2: Number of radical activists in the PIRUS dataset by year of exposure and ideology



on robustness checks.

1.5. Handling missing values

The main issue with the PIRUS dataset is that various variables include a non-trivial number of missing values, due to the lack of public information for some characteristics of radical activists. Table 2.1 summarizes the share of missing values among the variables that I previously described. The share of missing values is not of concern for both the dependent variable (ideology) and the main explanatory variables (the growth of wealth and inequalities). On the contrary, the amount of missing values is of concern for some control variables (education, previous criminal activity and military experience) and the measures of individual deprivation (especially childhood deprivation).

Jasko et al. (2017) faced the same issue when using the PIRUS dataset, and handled it by using a multiple imputation procedure.⁸ This method is particularly suited for the

⁸This method generates multiple datasets in which the missing values are filled with various predicted values based on multiple regression models including other variables from the dataset. That is, the method maximises all the available information in the dataset to estimate predictions of the missing cases. Contrarily to other methods imputation (such as interpolation or simple imputation), it does not fill the missing cases with one specific value, but with a chosen number of estimations which reflect the degree of uncertainty about the true value.

Table 2.1: Share of missing values among the variables for the sample of US right-wing and left-wing radical activists

	Valid N	% missing
Year-level variables		
Income growth over 10 years	1026	4,1%
Inequality growth over 10 years	1026	4,1%
Left-wing government	1057	1,2%
Net migration rate t_{-1}	1067	0,3%
Homicide rate t_{-1}	1023	4,4%
Troop deployment	1025	4,21%
Individual-level variables		
Ideology	1070	0,0%
Education	328	69,3%
Age	1022	4,5%
Gender	1070	0,0%
Military experience	611	42,9%
Previous criminal activity	534	50,1%
Ethnicity	971	9,3%
Social stratum (adulthood)	451	57,9%
Social stratum (childhood)	214	80,0%

present case because listwise deletion would dramatically reduce the sample, despite the fact that the main variables have almost no missing values. In consequence, I used the same procedure as Jasko et al. (2017) to impute multiple values only for my secondary variables: that is individual indicators of deprivation and individual control variables, except the activist's region of living. Missing values of the other independent variables (the region of living and the macro-level variables) were not imputed, which results in a reduction of the analyzed sample to $N = 1,295$ (i.e. 265 leftists, 642 rightists and 388 Islamists) because of listwise deletion.

2. Results

In this section, I present the analyses of the ideology of domestic radical activists. I first detail the results about the relationship between collective deprivation at the national level and activists' ideology (Hypothesis 2.1). Secondly, I comment the results regarding the socio-tropic mechanism (Hypothesis 2.2), testing whether the relationship is mediated by individual deprivation and which level is more determinant between the national-level

and state-level. Thirdly, I detail the results regarding Islamist radicalism (Hypothesis 2.3). Finally, I present robustness checks.

2.1. National deprivation and right-wing versus left-wing radicalization

2.1.1. General comments about the models

To test the effect of national-level macro variables, I performed hierarchical logistic regression models, nesting individual activists into years with random effects. As in Chapter 1, hierarchical modeling is strongly recommended for this kind of data because the macro-level variables violate the assumption of independence between observations. Indeed, as groups of individuals are given the same macro-level values, a simple regression model would treat the macro-level variables as individual-level variables. This would artificially inflate their number of observations, resulting in under-estimating the standard errors around their coefficients. In the present case, I had enough groups (Nb of years=58) to respect common standards for hierarchical modeling.

Table 2.2: Effect of collective deprivation (over 10 years) on the right-wing orientation of US radical activists (Unstandardized coefficients from hierarchical logistic regression analyses)

	(1)	(2)	(3)	(4)	(5)	(6)
Nation-level variables						
Wealth growth over 10 years		-7.922*** (1.663)		-7.965*** (1.382)	-7.641*** (1.734)	-7.784*** (1.757)
Inequality growth over 10 years			8.227* (3.443)	9.305*** (2.549)	7.429* (2.895)	7.579* (2.974)
Democrat presidency					0.400 (0.365)	0.378 (0.373)
Net migration rate t_{-1}					0.171 (0.217)	0.180 (0.218)
Homicide rate t_{-1}					-0.0840 (0.0968)	-0.0892 (0.0997)
Troop deployment					0.00118 (1.448)	0.0947 (1.479)
Individual-level variables						
Social stratum, adulthood (low as reference)						
Middle						0.407 (0.617)
High						0.991 (0.783)
Social stratum, childhood (low as reference)						

2. Results

Middle						0.201 (0.570)
High						-0.190 (0.858)
Unemployed						0.765 (0.634)
Work history (regularly employed as reference)						
Serially employed						0.151 (0.446)
Underemployed						0.0761 (0.780)
Long-term unemployed						-1.025 (0.803)
Education (less than high school as reference)						
High school	-0.333 (0.473)	-0.333 (0.472)	-0.306 (0.469)	-0.276 (0.463)	-0.299 (0.464)	-0.354 (0.481)
More than high school	-1.926*** (0.504)	-1.888*** (0.506)	-1.871*** (0.498)	-1.753*** (0.496)	-1.747*** (0.499)	-1.721** (0.560)
Age	0.0773*** (0.0123)	0.0764*** (0.0122)	0.0756*** (0.0122)	0.0728*** (0.0119)	0.0735*** (0.0120)	0.0801*** (0.0131)
Male (female as reference)	1.252** (0.402)	1.249** (0.398)	1.248** (0.400)	1.232** (0.388)	1.277** (0.390)	1.377*** (0.410)
Military experience (none as reference)	0.612 (0.415)	0.671 (0.420)	0.644 (0.415)	0.736 ⁺ (0.421)	0.748 ⁺ (0.424)	0.667 (0.424)
Previous criminal activity (none as reference)						
Previous (nonviolent) minor activity	0.373 (0.385)	0.376 (0.382)	0.377 (0.386)	0.380 (0.381)	0.352 (0.381)	0.284 (0.405)
Previous (nonviolent) serious activity	0.387 (0.524)	0.327 (0.515)	0.396 (0.526)	0.322 (0.512)	0.359 (0.513)	0.239 (0.543)
Previous violent crime	0.992* (0.432)	0.957* (0.430)	1.006* (0.432)	0.958* (0.427)	0.967* (0.429)	0.809 ⁺ (0.485)
Immigrant	0.544 (0.949)	0.524 (0.950)	0.512 (0.944)	0.382 (0.942)	0.367 (0.946)	0.250 (0.974)
Region (East North Central as reference)						
East South Central	3.627*** (0.958)	3.847*** (0.962)	3.653*** (0.951)	3.948*** (0.941)	3.851*** (0.959)	3.848*** (0.979)
Middle Atlantic	-1.464** (0.466)	-1.526*** (0.461)	-1.458** (0.464)	-1.524*** (0.453)	-1.474** (0.455)	-1.553** (0.477)
Mountain	0.184 (0.466)	0.165 (0.458)	0.0897 (0.464)	-0.00593 (0.451)	-0.0203 (0.451)	-0.0393 (0.467)
New England	-0.731 (0.669)	-0.817 (0.668)	-0.704 (0.667)	-0.794 (0.660)	-0.755 (0.659)	-0.866 (0.679)
Pacific	-0.826* (0.407)	-0.864* (0.402)	-0.833* (0.405)	-0.866* (0.395)	-0.858* (0.396)	-0.910* (0.415)
South Atlantic	0.364 (0.471)	0.312 (0.463)	0.390 (0.470)	0.340 (0.458)	0.386 (0.461)	0.356 (0.479)

West North Central	0.457 (0.646)	0.367 (0.649)	0.405 (0.645)	0.273 (0.645)	0.286 (0.643)	0.279 (0.661)
West South Central	1.478* (0.653)	1.412* (0.643)	1.481* (0.655)	1.404* (0.639)	1.449* (0.643)	1.468* (0.662)
Constant	-1.706* (0.751)	-0.458 (0.779)	-2.323** (0.790)	-1.150 (0.772)	-2.110 (1.671)	-2.908 (1.775)
$\ln(\sigma)$	0.843** (0.324)	0.194 (0.378)	0.659+ (0.336)	-0.462 (0.529)	-0.610 (0.561)	-0.679 (0.624)
Observations	907	907	907	907	907	907
Number of groups (years)	58	58	58	58	58	58

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2.2 presents the unstandardized coefficients from regression models of the right-wing orientation of radicalism (the reference is left-wing orientation). Model (1) of Table 2.2 only includes individual-level control variables. This model confirms that there is considerable year-level variance in the dataset, and thus strongly justify the hierarchical modeling strategy. Indeed, the log of the group-level variance is significantly different from zero ($\ln(\sigma) = .84, p < .01$) and the Intra-class correlation (ICC) indicates that 41.39% of the total variance of the ideology in the sample is accounted by the year-level variance. This proportion is considerable: this means that nearly half of the variation in the probability for the activists of the sample to be right-wing depends on the year in which they became radical. In other words, historical factors are of great matter to explain the ideological orientation of radical activists.

Models (2) to (5) test the effect of the collective deprivation variables in ascendant steps: model (2) and (3) respectively include the collective deprivation indicators (growth of wealth and growth of inequalities), model (4) includes these variables together, and model (5) includes the macro-level control variables. I used this ascendant method because there is a potential collinearity between the collective deprivation indicators and the other macro variables. Indeed, bivariate analyses of the macro variables show that the collective deprivation indicators are in some cases correlated with other macro variables. More precisely, correlation levels are of concern between the variation of wealth and US troop deployment (Pearson's $r = 0.50, p < .001$) and between the variation of inequality and the migration rate ($r = 0.47, p < .001$) and US troop deployment ($r = -0.45, p < .001$). The other correlations levels are not of concern ($r < 0.20, p < .10$), except between the variation of wealth and homicide rate which is intermediary ($r = -0.23, p = .066$). In consequence, it is worth checking that the effects of the collective deprivation indicators are not impacted by the inclusion or exclusion of these variables.

2.1.2. Main results

In line with Hypothesis 2.1, results from models (2) to (5) in Table 2.2 consistently show that indicators of long-term collective deprivation at the national level affect the ideological orientation of radical activists. Both the growth of wealth and the growth of inequalities over 10 years display the expected significant relationship with the probability for a radical activist to be right-wing. In line with Hypothesis 2.1, model (2) shows that the higher the growth of wealth over 10 years, the lower the probability for radical activists to be right-wing. In line with Hypothesis 2.1, model (3) shows that the higher the growth of inequality over 10 years the higher the probability for radical activists to be right-wing.

Those relationships remain significant when including both variables in the same model (4). Interestingly, the coefficient of the variation of inequality increases in both size and significance when controlling for the variation of wealth. This is unlikely to reflect collinearity issues since the variables are not correlated ($r = -0.06, p = .62$). Moreover, estimates from model (5) show that the coefficients of these variables are not deeply affected by the inclusion of the year-level control variables.

Importantly, the collective deprivation indicators have a considerable explanatory power: the inclusion of these variables reduces the share of variance accounted by the year-level from 41.39% in model (1) to 16.08% in model (4). In particular, the long-term growth of the national wealth has a substantive explanatory power: the inclusion of this variable withdraws the significance of the log of the year-level variance (in model (2): $\ln(\sigma) = 0.19, p > .10$). This means that, when taking into account the long-term growth of national wealth, the remaining year-level variance in the share of right-wing radical activists is likely to be due to chance. In contrast, the log of the year-level variance is still significant, albeit at the low threshold of 10%, when the variation of inequality is included (in model (3): $\ln(\sigma) = 0.66, p < .10$).

Before commenting the results from model (6) (related to Hypothesis 2.2), I shall comment the outcomes relative to the control variables. Regarding the individual-level control variables, results show that having completed a higher degree than high school decreases the activists' probability to be right-wing compared to left-wing. Being a man, relatively old and having been previously involved in violent non-political crimes increase one's likelihood to be right-wing compared to left-wing. This is in line with prior finding from studies comparing left-wing and right-wing radical activists in the US (Chermak and Gruenewald, 2015; Handler, 1990; Hewitt, 2003; Smith and Morgan, 1994). Besides, right-wing radical activists are more likely than leftists to live in the East South and West South Central regions, whilst left-wing radical activists are more likely than rightists to come from the Middle Atlantic and Pacific regions. In contrast, none of the coefficients of the nation-level control variables are significant in model (5). In some cases, it may be partially due to collinearity issues between these variables and the economic variables. I

discuss the general outcomes related to these variables Appendix B.

2.2. The socio-tropic effect of collective deprivation

Is the effect of the collective deprivation variables due to a socio-tropic or ego-tropic mechanism (Hypothesis 2.2)? To address this question, I first analyzed whether higher levels of individual deprivation among right-wing radical activists mediate the effect of the national deprivation indicators. I then performed analyses to investigate which collective level is more determinant between the national-level and the state-level.

2.2.1. Individual versus collective deprivation

Model (6) of Table 2.2 includes the indicators of individual-level deprivation. If the relationship between collective deprivation and the ideological orientation of radical activists was mediated by individual deprivations (the ego-tropic mechanism), the coefficients of these indicators would be significant and their inclusion would reduce the absolute value of the coefficients of the collective deprivation indicators. This is clearly not the case. Both the activist's social class as an adult and as a child, her employment status and work history do not significantly affect her probability to be right-wing, and the inclusion of those variable has no effect on the coefficients of the collective deprivation indicators—that is, the growth of wealth and the growth of inequality. Thus the evidence strongly supports Hypothesis 2.2 that the effect of collective deprivation on radicalization is of socio-tropic nature.

Based on model (6), I predicted the probability for a radical activist to be right-wing depending on the level of long-term national deprivation, at average value for other covariates. Figures 2.3 and 2.4 respectively plot those predictions depending on the growth of the national wealth and the growth of national inequality for 10 years. These predictions clearly support Hypothesis 2.1. The predicted probability for a radical activist to be right-wing (compared to left-wing) goes from 97% when the average American fiscal income has decreased of 10% in 10 years, such as in 2010, to 45% when the average American fiscal income has increased of 40%, such as in 1968. Conversely, the predicted probability for a radical activist to be right-wing (compared to left-wing) goes from 69% when the share of the American pre-tax income owned by the 10% richest has decreased of 5%, such as in 1960, to 94% when it has increased of 20%, such as in 1988.

2.2.2. What does "collective" means? National versus states deprivation

I have insofar presented analyses on collective deprivation in the US as a whole. Yet, one may wonder whether the various levels of collective deprivation experienced across different subnational locations may also explain the variation in the ideology of domestic

Figure 2.3: Marginal effect of the variation of the national wealth on the ideological orientation of US radical activists (with 95% confidence interval)

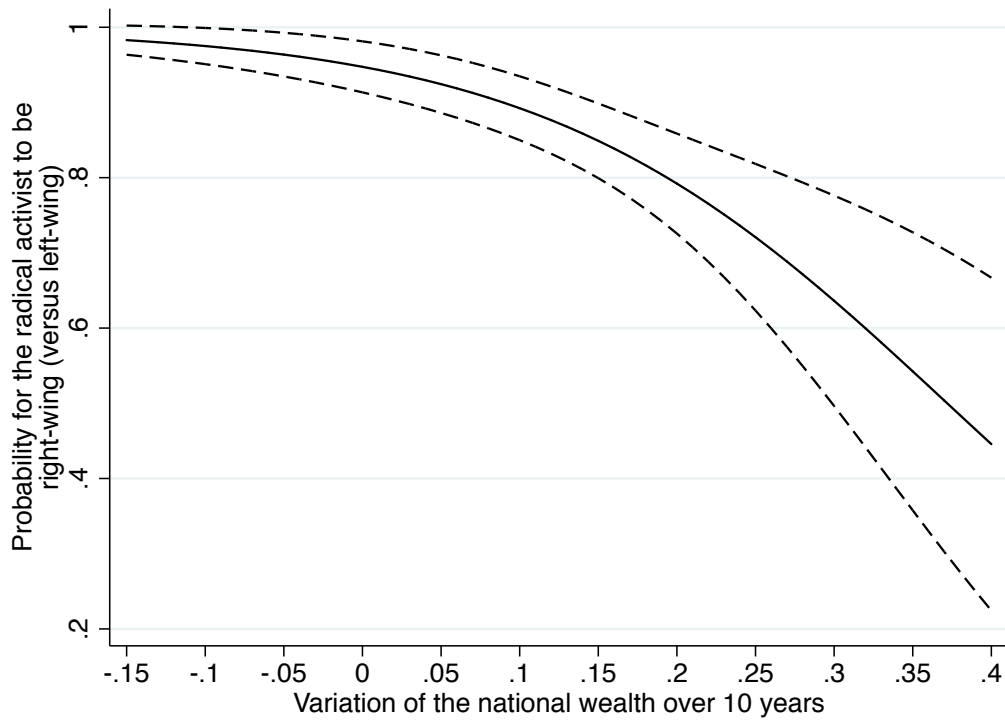
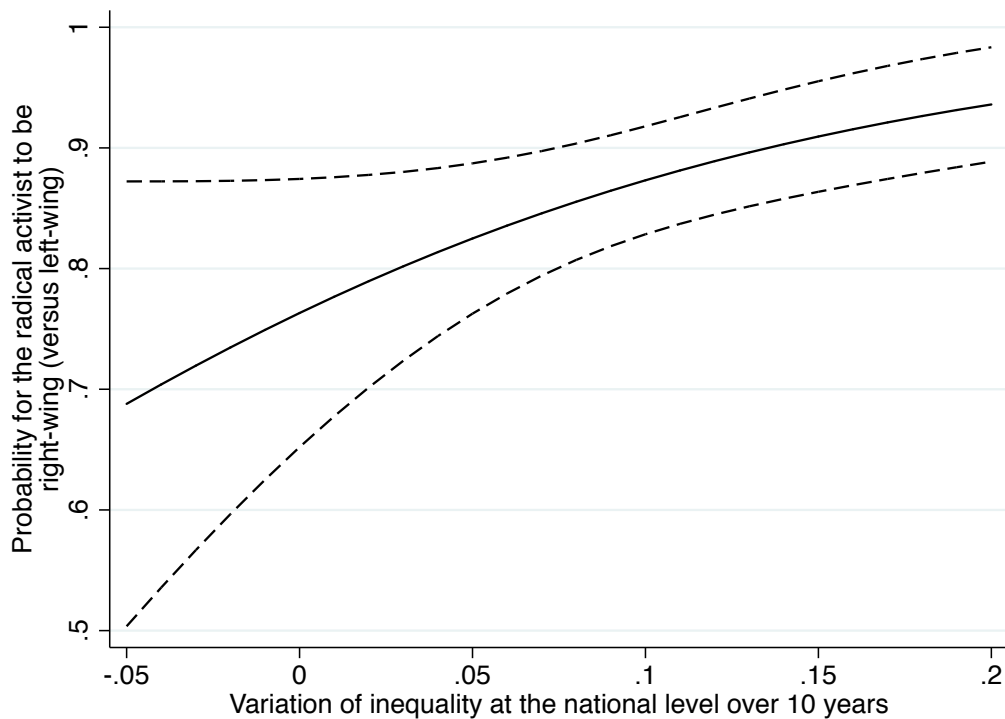


Figure 2.4: Marginal effect of the variation of inequality on the ideological orientation of US radical activists (with 95% confidence interval)



radical activists. To address this question, I compared the effect of collective deprivation at the state-level to the national-level.

A preliminary question is: to what extent do levels of collective deprivation vary across the US states? Bivariate analyses show that there is a considerable subnational symmetry regarding our indicators of collective deprivation. More specifically, the variation of wealth over the past 10 years across the different states is closely correlated to the national variation of wealth ($r = 0.85, p < .001$), meaning that the national level determines around 72% of the variance of this indicator for a given state at a given year. This proportion is a bit smaller regarding the variation of inequality ($r = 0.68, p < .001$): the national level determines around 46% of the variance of this indicator for a given state at a given year.

Then, is state-level collective deprivation related to the ideology of radical activists? It is worth gauging whether state-level indicators perform better, as well or less well than national indicators. To answer this question, I computed models analyzing the relevant macro variables at the state-level, using the same ascendant method than Table 2.2, including both individual indicators of deprivation and controls. Table 2.3 presents estimates from hierarchical logistic regression models in which individual activists are nested into states and years with random effects.⁹ The number of macro-level groups is much higher (Nb of states \times years = 484) than in the nation-level models, and thus the number of observation by groups is much lower. This is not a problem as hierarchical models are robust to small group sizes.

Table 2.3: Effect of state- versus national-level collective deprivation (over 10 years) on the right-wing orientation of US radical activists (Unstandardized coefficients from hierarchical logistic regression analyses)

	(1)	(2)	(3)	(4)	(5)	(6)
Nation-level variables						
Wealth growth over 10 years						-23.93*** (6.521)
Inequality growth over 10 years						22.60** (7.820)
Democrat presidency					0.665 (0.595)	0.418 (0.559)
Troop deployment					-5.933** (2.117)	-0.751 (1.874)
State-level variables						
Wealth growth over 10 years		-10.07***		-10.36***	-6.809**	8.398*

⁹For convenience reasons, I do not detail in Table 2.3 the estimates related to the individual-level variables, which are mostly similar to those of model (6) in Table 2.2. The author can send the results upon request.

	(2.781)		(2.831)	(2.549)	(4.110)	
Inequality growth over 10 years	4.882 (3.592)		6.413 ⁺ (3.664)	0.667 (3.717)	-5.305 (4.506)	
Foreign born population t_{-1}				-0.00611 (0.0562)	-0.0237 (0.0521)	
Homicide rate t_{-1}				-0.102 (0.0688)	-0.111 ⁺ (0.0634)	
Individual-level variables	Yes	Yes	Yes	Yes	Yes	
Constant	-4.447* (2.056)	-2.920 (2.002)	-4.761* (2.086)	-3.279 (2.015)	-1.852 (2.616)	-2.304 (2.554)
$\ln(\sigma)$	2.785*** (0.446)	2.735*** (0.449)	2.773*** (0.446)	2.717*** (0.453)	2.620*** (0.474)	2.351*** (0.510)
Observations	868	868	868	868	868	
Number of groups (years)	484	484	484	484	484	

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Results cast first doubts on the fact that state-level deprivation may explain the ideological variation among radical activists. Indeed, indicators at the state-level either perform as well or less well than the national indicators presented in Table 2.2. Model (2) in Table 2.3 confirms that the higher the growth of wealth in a state, the lower the share of right-wing radical activists; this effect is still significant at the 1% threshold when adding the macro control variables. However, models (3) to (5) show that the growth of inequality in a state is positively but insignificantly related to the share of right-wing radical activists. In sum, the variation of wealth does not appear to perform better at the state-level than at the national level, and the variation of inequality clearly perform less well at the state-level.

The final question is: does the variation of state-level deprivation that does not capture the national context affect the ideological orientation of radical activists? To answer this question, model (4) in Table 2.3 includes both national-level and state-level indicators. Regarding the state-level indicators, the variation of wealth is still related to the ideology of radical activists but is now in the opposite direction. The relationship between ideology and the variation of inequality is still insignificant. This implies that at a constant level of national deprivation, state-level deprivation has no impact on the ideology of radical activists or even has an opposite impact to what was expected. Still, there are strong reasons to believe that the significant positive coefficient of the state-level variation of wealth is simply due to collinearity issues with the national level indicator. In contrast, the effects of the national level indicators are in the same direction than in the previous models in Table 2.2, and both are significant. Again, albeit the interpretation of the coefficients is cautious since there are obvious collinearity issues in this model¹⁰, this supports the

¹⁰One could argue that even more caution is required in the interpretation of the nation-level standard

view that collective deprivation at the national level matters more than deprivation at the state-level.

2.3. The effect of collective deprivation on Islamist domestic radicalism

To test Hypothesis 2.3, I performed similar hierarchical logistic regression analyses than for Hypothesis 2.1 and Hypothesis 2.2, except that the dependent variable is now the probability for a radical activist to be Islamist (compared to left-wing). To gain space, Table 2.4 directly presents models including all covariates.

At a first look, results seem to give some support to Hypothesis 2.3. In line with expectations, model (1) of Table 2.4 indicates that the higher the growth of national wealth for the past 10 years the lower the probability for radical activists to be Islamist (versus left-wing). Yet, contrary to expectations, the variation of inequality has no significant effect.

Table 2.4: Effect of collective deprivation (over 10 years) on the Islamist orientation of US radical activists (Unstandardized coefficients from hierarchical logistic regression analyses)

	Islamist (1)	(2)	Right-wing (3)
Nation-level variables			
Wealth growth over 10 years	-11.82*** (3.392)	-0.764 (3.278)	-7.123*** (1.928)
Inequality growth over 10 years	10.99 (7.257)	0.173 (5.651)	7.617** (2.923)
Democrat presidency	-1.186 (0.725)	1.087 (0.803)	0.494 (0.403)
Net migration rate t_{-1}	0.0103 (0.376)	0.286 (0.314)	0.188 (0.214)
Homicide rate t_{-1}	-1.071*** (0.204)	0.367 (0.323)	0.00356 (0.162)
Troop deployment	-5.458+ (3.290)	-5.805* (2.365)	0.249 (1.476)
Post 9/11		6.143*** (1.326)	0.441 (0.604)
Individual-level variables			
Social stratum, adulthood (low as reference)			
Middle	0.0914 (0.781)	0.0963 (0.776)	0.405 (0.619)

errors in this model since random effects are now at the level of years and states. Yet, I also tested a similar model with year random effects, which yields similar results.

High	0.222 (1.015)	0.346 (1.019)	0.990 (0.782)
Social stratum, childhood (low as reference)			
Middle	0.670 (0.658)	0.718 (0.650)	0.196 (0.571)
High	0.560 (1.055)	0.647 (1.064)	-0.196 (0.858)
Unemployed	0.162 (0.858)	-0.0680 (0.873)	0.767 (0.634)
Work history (regularly employed as reference)			
Serially employed	0.471 (0.601)	0.439 (0.597)	0.150 (0.445)
Underemployed	1.145 (1.097)	0.999 (1.091)	0.0692 (0.776)
Long-term unemployed	0.670 (1.085)	0.560 (1.147)	-1.026 (0.802)
Education (less than high school as reference)			
High school	0.452 (0.724)	-0.0437 (0.764)	-0.365 (0.482)
More than high school	-0.473 (0.673)	-0.713 (0.732)	-1.721** (0.560)
Age	0.0155 (0.0220)	0.0141 (0.0221)	0.0798*** (0.0131)
Male (female as reference)	1.352* (0.587)	1.381* (0.584)	1.366*** (0.410)
Military experience (none as reference)	1.323+ (0.707)	1.431+ (0.736)	0.665 (0.423)
Previous criminal activity (none as reference)			
Previous (nonviolent) minor activity	-0.284 (0.574)	-0.350 (0.575)	0.290 (0.404)
Previous (nonviolent) serious activity	-0.348 (0.812)	-0.209 (0.862)	0.237 (0.542)
Previous violent crime	0.130 (0.935)	0.181 (1.020)	0.805+ (0.483)
Immigrant	4.093*** (0.757)	3.715*** (0.696)	0.198 (0.968)
Region (East North Central as reference)			
East South Central	1.371 (1.582)	1.296 (1.682)	3.879*** (0.975)
Middle Atlantic	-0.303 (0.604)	-0.299 (0.609)	-1.538** (0.476)
Mountain	-2.037* (0.793)	-2.064** (0.778)	-0.0306 (0.466)
New England	-0.117 (1.245)	-0.00139 (1.189)	-0.861 (0.678)

Pacific	-1.297*	-1.359*	-0.909*
	(0.587)	(0.588)	(0.414)
South Atlantic	0.124	-0.0544	0.377
	(0.619)	(0.621)	(0.480)
West North Central	-0.236	-0.286	0.287
	(0.912)	(0.912)	(0.659)
West South Central	0.617	0.616	1.479*
	(0.954)	(0.983)	(0.663)
Constant	9.506**	-9.968*	-4.169 ⁺
	(3.292)	(4.934)	(2.512)
$\ln(\sigma)$	0.290	-3.991	-0.767
	(0.660)	(17.11)	(0.668)
Observations	653	653	907
Number of groups (years)	50	50	58

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Nonetheless, model (2) of Table 2.4, which includes a dummy variable controlling for the post 9/11 period, contradicts this view. Indeed, estimates from model (2) indicate that the share of Islamists is significantly higher since 9/11. This effect may be real and/or reflect an over-reporting bias since this event. Now, controlling for this simple period effect entirely captures the previous effects of the collective deprivation variables, which are no longer significant. This means that the statistical relationships in model (1) simply reflected the fact that both the share of Islamist activists, and the level of collective deprivation are higher in the post 9/11 period. In sum, the analyses do not confirm that collective deprivation increases the share of Islamists among domestic radical activists (Hypothesis 2.3). I will discuss this result in the final part of the chapter. On the contrary, model (3) of Table 2.4 indicates that controlling for the post 9/11 period does not alter the previous results regarding the share of right-wing (versus left-wing) domestic radical activists. Indeed, the estimates are similar to the coefficient of model (4) in Table 2.2.

Interestingly, results from the individual control variables indicate that Islamist domestic radical activists display mostly similar socio-demographic features to left-wingers. The only differences are that men are more represented among Islamists, as for rightists, and that immigrant backgrounds are much more frequent among Islamists than among leftists and rightists. Besides, Islamists are less likely to live in the Mountain region and, as in the case of rightists, the Pacific region.

2.4. Robustness checks

Finally, I performed robustness checks using different specifications and samples. The detailed results are presented in Appendix B. Analyses first show that the main results are generally valid for both violent and non-violent activists (see Table B.1). Second, tests on

different temporal specifications of the collective deprivation variables demonstrate that, although absolute indicators of deprivation – absolute mean income, inequality and unemployment – do generally not affect the ideology of radical activists, long-term variations matter (see Table B.2). The effects of the variation in wealth and inequality are especially strong when calculated over 5 to 10 years before the radical exposure, and over 1 to 5 years before the beginning of the radicalization process (see Table B.3). Finally, analyses without multiple-imputed values show that the main conclusions are not impacted by the multiple- imputation of missing individual values (see Table B.4).

3. Discussion

The present chapter offers novel evidence challenging the conclusion that economic conditions do not matter in the explanation of terrorism (Krieger and Meierrieks, 2011; Krueger, 2017; Piazza, 2006). I found that the ideological orientation of domestic radical activists in the US since World War II is closely related to the level of economic deprivation experienced at the national level: periods of recession and increasing inequality are related to a right-wing orientation of domestic radicalism, whilst left-wing radicalism mobilizes more under times of economic development and decreasing inequality. These results converge with findings from Chapter 1 relative to French radical movements.

Besides, the present study gives new insights on the spatial and temporal levels at which this differential effect operates. First, results suggest that the effect of collective deprivation is socio-tropic: it is not mediated through the activist's own level of deprivation. Furthermore, results show that the national economic context matters more than state-level context. A possible interpretation of this finding is that the national level is the main political arena and the primary level of political identification in the US (Hopkins, 2018). This seems obvious for most right-wing radical activists, who directly praise national identity, but less obvious in the case of left-wing radical activists. Nonetheless, one may observe that most major terror groups in the US, both from the left and the right, are ultimately structured at the national level, nor at the state-level, meaning that, even if they are not nationalistic, their main targeted audience and mobilizing population is national. Another interpretation is that economic variations at the national level are more determinant in shaping future economic perspectives than state-level variations: first, state-level variations are mostly dependent upon national economy, and second, economic compensation mechanisms exist between states—either through economic redistribution, and through individual mobility across the states—that are not operating between countries.

At the temporal level, results show, in perfect line with findings from Chapter 1, that

long-term economic variations matter more than short-term variations or absolute conditions. Indeed, in contrast to economic variations, most indicators of absolute deprivation (income, unemployment and inequality) are unrelated to the ideological orientation of radicalism. Besides, economic variations are especially determinant over 5 to 10 years before the activist's first radical behaviour, and over 1 to 5 years before the beginning of radicalization. This converges with findings from studies linking right-wing votes to economic recession. As noticed by De Bromhead et al. (2013) in their analysis of the 1920s and 1930s, "cumulative growth over the three previous years [] is robustly related to the fascist vote, rather than growth in the previous period alone" (De Bromhead et al., 2013, p. 396). In a larger cross-national comparison, Funke et al. (2016) similarly found that right-wing votes peak around 5 years after financial crises. This may be interpreted as showing that long-term perspectives of decline (or improvement) are more crucial in shaping ideological orientations than short-term conjunctures.

Taken together, these results may explain why studies investigating the effect of economic conditions on right-wing terrorism and hate crimes have insofar found mixed evidence (Dustmann et al., 2011; Falk et al., 2011; Freilich et al., 2015; Green et al., 1998a,b; Piazza, 2017a; Soule and Dyke, 1999). Indeed, most of this research has focused on short-term or absolute indicators of deprivation at the state-level, instead of long-term national variations. Moreover, these studies have mostly focused on right-wing offenses. The present results suggest that economic conditions are especially determinant at an early phase or radicalization, relative to the openness to the radical ideology, rather than at the offending phase. Hence, research looking at right-wing mobilization rather than offenses may find stronger effects of economic conditions. In this line, studies on patriot movements and militia have found supporting evidence that contexts of declining job opportunities increase mobilization (Freilich and Pridemore, 2005; Van Dyke and Soule, 2002).

This chapter has two main limitations. The first is that it does not allow concluding on the individual causal mechanism. Survey and experimental data are necessary to directly assess the individual mechanism linking collective deprivation and the ideology of radical activists, which is the focus of Parts II and III. Secondly, cross-sectional research would be needed both in general to assert the robustness of the findings and in particular to test whether the theory accounts for Islamist radicalism. Indeed, whilst the empirical analyses do not support it, it would be premature to entirely reject the hypothesis that collective deprivation drives Islamist domestic radicalism. Actually, the data are insufficient to conclude because Islamist radicalism is a too recent phenomenon in the case under study to properly test the effect of historical factors.

Moreover, there are reasons to believe that the results about Islamist radicalism are hardly generalizable to countries other than the US. First, Muslim citizens constitute a small minority in the US—about 1% of the population (Cooperman, 2017). Hence, in-

dicators of collective deprivation experienced by the majority may not be relevant to explain Islamist mobilization. In other words, the absence of effect of collective deprivation is possibly due to the fact that the reference group of potential Islamist recruits does not map onto the American national group. Besides, the situation of American Muslims is specific, even when compared to non-Muslim majority countries. Muslims' levels of education, income and employment are quite similar to the general public in the US (Cooperman, 2017) whilst, for instance, Muslims are significantly more deprived in Western Europe (Pauly, 2016). This economic marginalization partly explains the higher levels of religious fundamentalism and out-group hostility among West European Muslims (Koopmans, 2015). In contrast, American Muslims are mostly similar to their fellow citizens regarding religious beliefs and views on extremism and violence (Cooperman, 2017). For these reasons, it would be interesting for future research to analyse the effect of collective deprivation on Islamist radicalism in the case of Muslim-majority countries, or to compare levels of deprivation experienced by Muslim minorities in the case non-Muslim majority country. In this line, recent results indicate that foreign fighters in Syria and Iraq were more likely to come from countries with high Muslim youth unemployment and deprivation (Gouda and Marktanner, 2019; Verwimp, 2016). This question is further explored in Chapter 10.

PART II

Fighting for the past or fighting for the future? Economic decline and the ideals of radical movements

3

A ballot for the past. Economic decline and extreme votes

"The secret doctrine of the far right: the polemic use of history, its transformation into a weapon of war."

Land use planning
AURÉLIEN BELLANGER

This chapter aims to test the first part of the theory of ideals linking economic decline and radical mobilization. I analyze the effect of economic decline on the appeal of right-wing and left-wing ideology expressed by conventional political behavior, i.e. extreme right and extreme left votes. I test the mediating role of reactionary attitudes compared to a range of other plausible mediators: political trust, support for redistribution and anti-immigration attitudes. Empirical analyses are based on (1) aggregate election results in 37 countries from 1900 to 2016 and (2) individual data from the European Social Survey in 21 countries from 2002 to 2014. I consistently find that economic decline increases votes for extreme right parties, but not for extreme left parties. In line with my expectations about reactionary attitudes, the level of economic decline enhances citizens' traditionalist attitudes, and traditionalist attitudes increase the propensity to vote for the extreme right. Besides, evidence indicates that economic decline specifically increases support for redistribution in former Socialist Republics and anti-immigration attitudes in countries of the Western Bloc, in line with a reactionary mechanism.

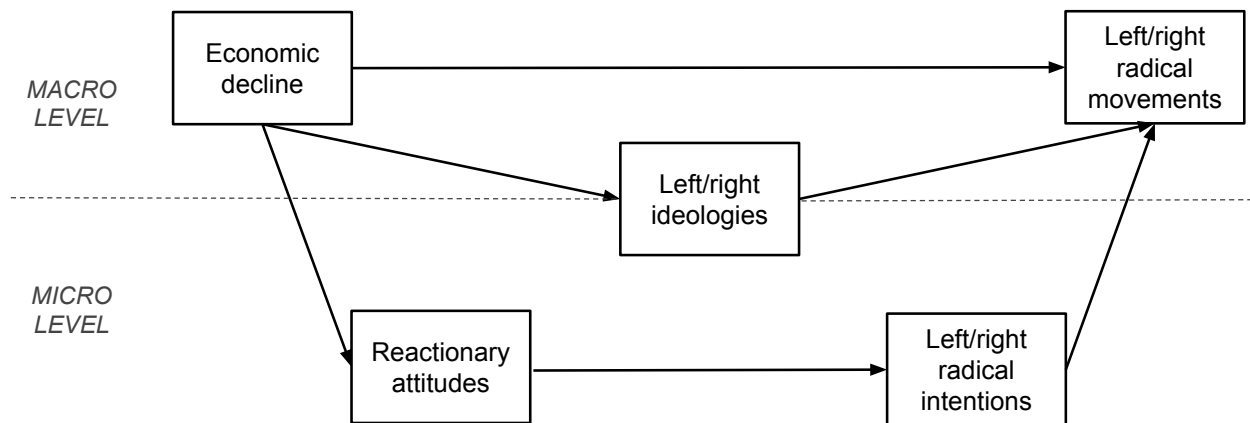
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In Part I, I found that the mobilization of left-wing and right-wing radical movements is differently affected by the economic context: radical right movements mobilize in contexts of collective deprivation while radical left movements mobilize in contexts of collective improvement. Why do we observed such a differential effect? In this part of dissertation, I investigate one line of explanation: the theory of ideals. The theory of ideals is primarily about the effect of the economic context on the appeal of political ideologies. Contexts of economic decline affect the psychological resonance of left-wing and right-wing ideologies. Then, these attitudes eventually translate into radical behaviors.

Figure 3.1 summarizes the whole causal chain of the theory of ideals. The causal chain starts from contexts of economic decline at the macro-level and ends at the mobilization and action of left-wing and right-wing radical movements at the macro level. The entire causal process follows a macro-micro-macro path. Macro-level contexts of economic decline enhance reactionary attitudes at the micro-level, i.e. the individual wish to return to a past political system. In contrast, contexts of economic prosperity enhance revolutionary attitudes, i.e. the individual wish to put an end to traditional arrangements. In a second step, reactionary attitudes increase the individual intention to engage in right-wing radical behaviors – conversely, revolutionary attitudes increase the individual intention to engage in left-wing radical behaviors. These radical intentions finally increase the mobilization of right-wing versus left-wing radical movements at the macro-level.

Figure 3.1: Diagram of the theory of ideals



Interestingly, the spread of right-wing versus left-wing ideologies, which lies at the core of the theory of ideals, may be measured at the macro-level by conventional political behaviors: through the share of votes for extreme right and extreme left parties – at least in democratic countries in which such parties take part in the political competition. Hence, the causal chain of the theory of ideals may be modeled in a shorter fashion at the macro-level. In a first step, contexts of economic decline increase the share of extreme right votes – capturing the spread of right-wing ideologies. In a second step, the

share of extreme right votes increases the mobilization of right-wing radical movements. Conversely, contexts of economic prosperity increase the share of extreme left votes – capturing the spread of right-wing ideologies – which eventually translates in higher mobilization of left-wing radical movements. Thus, votes for extreme parties offer an intermediary behavioral measure of the spread of right-wing and left-wing ideologies to test the theory of ideals.

In the present chapter, I focus on the first part of the causal chain of theory of ideals. I analyze the effect of economic decline on the resonance of right-wing and left-wing ideologies, as measured through votes for extreme right and extreme left parties. I investigate this general hypothesis:

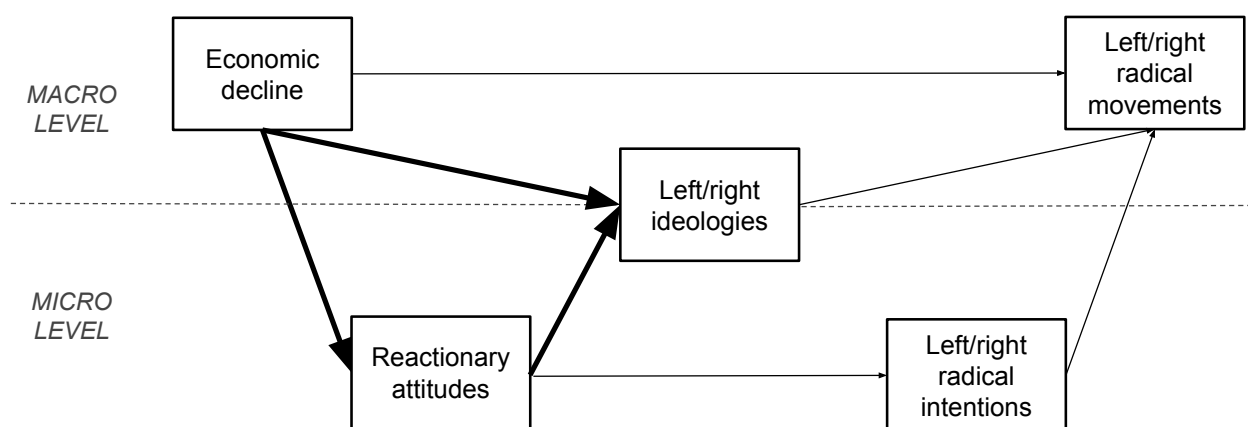
Hypothesis 3.1 *Economic decline differently affects extreme right and extreme left votes.*

A. Economic decline increases extreme right votes.

B. Economic decline decreases extreme left votes.

Figure 3.2 highlights the causal paths analyzed in this chapter. The key causal path connects economic decline at the macro level and the appeal of right-wing and left-wing ideologies at the macro and micro level, i.e. as measured by aggregated and individual votes for extreme right and extreme left parties. At the micro-level, I investigate in this chapter the mediating role of reactionary attitudes, as compared to other political attitudes. I hypothesize that economic decline enhances reactionary attitudes and that reactionary attitudes in turn positively affect the individual propensity to vote for extreme right parties and negatively affect the propensity to vote for extreme left parties.

Figure 3.2: Causal paths of the theory of ideals analyzed in Chapter 3



1. Why do extreme right parties benefit from economic decline?

Previous evidence based on aggregate voting records have already shown that contexts of economic decline are related to significant increases in extreme right votes (De Bromhead et al., 2013; Funke et al., 2016). However, the causal mechanism insofar remains unclear. Contexts of economic decline could affect the demand for extreme right parties through various channels. I distinguish four main explanations.

First, economic hardship may affect *political trust* toward existing institutions and politicians: lowering confidence in mainstream parties, enhancing a demand for changing the system, and eventually generating more appeal for extreme parties. This mechanism is a simple extension of the economic voting theory. In the classic formulation, the individual probability to vote for the incumbent party is a direct function of economic performances during the term (Duch and Stevenson, 2008; Hibbs, 2000; Lewis-Beck and Paldam, 2000; Lewis-Beck and Stegmaier, 2013). Following this logic, long-term economic decline should have a positive effect on extreme votes for two reasons. On the one hand, evidence indicates that when economic hardship is prolonged,

voters not only punish the incumbent party, but also mainstream opposition parties that governed in the past and did not perform better (Hernández and Kriesi, 2016; Perrella, 2005).¹ Hence, prolonged economic hardship is likely to increase votes for non-mainstream parties, among which extreme parties that have typically less access to power. On the other hand, prolonged economic hardship is likely to decrease confidence in the ability of existing institutions to promote prosperity, and hence increase votes for extreme parties that advocate for changing the governing system. In this line, survey-based studies show that bad economic conditions are related to increased preferences for a radical system change (MacCulloch, 2004; MacCulloch and Pezzini, 2010). Altogether, these mechanisms imply that economic hardship boosts support for non-mainstream and anti-

Extreme or radical vote?

From now on, I refer to *extreme* voting in the following sense: voting for anti-system parties, i.e. that promote changing the system of government per se (Funke et al., 2016). Studies generally refer to such parties as *radical* and/or *populist* (March, 2012; Mudde, 2007; Rooduijn and Burgoon, 2018; Rooduijn et al., 2017). I entirely rely on such existing party classifications. Yet, I choose to avoid the term *radical* for the sake of internal clarity as *radicalism* refers in the present dissertation to the use of *illegal* means to change the system (see the Introduction).

¹This finding contradicts the view that voters are typically myopic, i.e. with a short-term memory of the past economic records (Lewis-Beck and Stegmaier, 2013).

system parties, whatever their ideological orientation. Yet, existing evidence on aggregate vote records does not fully support this prediction: economic hardship does increase extreme right votes, but is not related to extreme left votes (De Bromhead et al., 2013; Funke et al., 2016). Hence, the only possibility for the mechanism of political trust to be the main driver of extreme right votes would be that only extreme right parties benefit from low political trust:

Hypothesis 3.2 *Economic decline decreases extreme right votes through political trust.*

A. Economic decline decreases political trust.

B. Political trust decreases extreme right votes but does not decrease extreme left votes.

Second, economic hardship may affect *support for redistribution*: enhancing demand for social welfare, generating a shift of traditional right-wing electorate toward extreme right parties, that generally promote more protective social policies (Röth et al., 2018; Schumacher and Van Kersbergen, 2016). Some studies indicate that individual who experienced societal contexts of economic hardship are more likely to support redistribution (Blekesaune, 2007; Giuliano and Spilimbergo, 2014). Moreover, panel-survey data indicate that individuals who suffered economic difficulties generally became more supportive of social welfare (Gidron and Mijs, 2019; Naumann et al., 2016). Yet, this mechanism is unlikely to explain the overall relationship between economic hardship and extreme right votes. Indeed, if this mechanism were true, we should also observe that contexts of economic decline increase votes for extreme left parties, which strongly favor redistribution (March, 2012, p. 40). As mentioned, such association is not empirically supported (De Bromhead et al., 2013; Funke et al., 2016). Hence, the only (unlikely) possibility for the mechanism of support for redistribution to be the main driver would be that only extreme right parties benefit from high support for redistribution:

Hypothesis 3.3 *Economic decline decreases extreme right votes through support for redistribution.*

A. Economic decline increases support for redistribution.

B. Support for redistribution increases extreme right votes but does not increase extreme left votes.

Third, economic hardship may affect *attitudes toward immigrants*: enhancing demand for anti-immigrant policies, at the core of extreme right platforms (Mudde, 2007).² Two

²Funke et al. (2016, p. 228) somewhat interpret this way the increase in extreme right votes after financial crises: “voters seem to be systematically lured by the political rhetoric of the far right, with its frequently nationalistic or xenophobic tendencies”.

potential mechanisms may be identified. Firstly, attitudes toward immigrants are sensitive to competition in the labor market. Evidence shows that individuals are more likely to oppose immigration when they work in economic sectors that attract immigrant workers: low-skilled workers are more likely to oppose immigration in rich countries that attract low-skilled immigration, whilst high-skilled workers are more likely to oppose immigration in poor countries that attract high-skilled immigration (Mayda, 2006; Scheve and Slaughter, 2001). Since economic hardship is likely to increase competition in the labor market, it may result in more fear among native workers of wage and job losses due to the oncoming of immigrant workers. Secondly, attitudes toward immigrants are sensitive to fiscal policy: evidence shows that high income natives are more hostile to immigration in states with high fiscal exposure (Facchini and Mayda, 2009; Hanson et al., 2007). Since economic hardship may increase needs for social welfare (such as unemployment benefits), it may result in more fear from natives of the fiscal burden from oncoming immigrants in needs of social welfare. In this line, people primed with an improving economic condition are more likely to support solidarity programs with minorities than people primed with a declining economic scenario (King et al., 2010). Potentially compatible with both mechanisms, Filindra and Pearson-Merkowitz (2013) found that the perception of immigrant presence was related to anti-immigration preferences only when people are pessimistic about the national economy. Consistent with this micro-level result, Golder (2003) analyzed election results from 19 European countries for the 1970-2000 period and found that unemployment rate was positively related to extreme right votes only in countries with high immigration. Yet, other studies did not replicate this finding (see Golder, 2016, p. 483-484, for a discussion). For instance, using data from the Eurobarometer survey, Arzheimer (2009) found that national unemployment and immigration rate had an independent positive impact on individual extreme right votes, but that their combination rather diminished their influence on extreme right votes. Other studies based on different samples even found a negative impact of unemployment rate on extreme right votes (Arzheimer and Carter, 2006; Knigge, 1998). Overall, meta-analytic results confirm that unemployment rate has a general (very small) positive impact on extreme right votes, but find no evidence of a significant interaction between unemployment and the size of immigrant population (Sipma and Lubbers, 2020). In sum, there is currently limited evidence that economic hardship may increase extreme right votes through enhancing anti-immigrant attitudes.

Hypothesis 3.4 *Economic decline decreases extreme right votes through anti-immigration attitudes.*

A. Economic decline increases anti-immigration attitudes.

B. Anti-immigration attitudes increase extreme right votes but do not increase extreme left votes.

My aim here is to investigate a fourth alternative channel: that economic decline increases extreme right votes through enhancing *reactionary attitudes*. I expect economic decline to generate a reactionary opinion shift: that is, under conditions of economic decline, individuals are more likely to be nostalgic about the past system, which is seen as more able to promote prosperity (see the Introduction of the present dissertation). In turn, this opinion shift increases votes for extreme right parties, that generally advocate for restoring traditional arrangements, and lowers votes for extreme left parties, that generally advocate for putting an end to traditional arrangements. In this line, various studies have highlighted that nostalgia of a past golden age is a key frame in the rhetoric of extreme right parties in Europe (Betz and Johnson, 2004; Elgenius and Rydgren, 2019). Moreover, individual feelings of nostalgia appear to be a key driver of extreme right votes. Using data from the European Social Survey on eight West European countries, Steenvoorden and Harteveld (2018) found that the perception that life is going for the worst is related to higher propensity to vote for the extreme right (see also Gest et al., 2018). In a survey across 28 European states, de Vries and Hoffmann (2018) found in 2018 that individuals who think that the society used to be a better place are more likely to self-position at the extreme right than people who do have such views. Yet, we do not know much about the antecedents of such individual feelings of nostalgia. I here argue that economic decline may be a key driver.

Hypothesis 3.5 *Economic decline decreases extreme right votes through reactionary attitudes.*

A. Economic decline increases reactionary attitudes.

B. Reactionary attitudes increase extreme right votes but do not increase extreme left votes.

Importantly, if the reactionary mechanism is true, the specific nature of the past arrangements should not be relevant. This means that a reactionary shift will differently affect citizens' policy preferences depending on the political history of a given society. This consideration has important empirical consequences. For instance, under conditions of economic decline, individuals will favor more economic redistribution if policies used to be more redistributive in the past, whilst they will favor less economic redistribution if policies used to be less redistributive in the past. Similarly, under conditions of economic decline, individuals will display higher anti-immigration attitudes if immigration used to be lower in the past, whilst they will favor immigration if immigration used to be higher in the past. In this chapter and in Chapter 4, I take advantage of the divide between former Socialist Republics and countries of the former Western Block. This provide a quasi-natural experimental design to test whether differences in past policies (e.g.

In any case, it is likely to be socio-tropic

All four channels that I have detailed (namely, *political trust*, *attitudes toward redistribution*, *attitudes toward immigrants* and *reactionary attitudes*) may theoretically affect extreme votes through an ego-tropic or socio-tropic process. It may be that the personal experience of economic decline, more likely under context of economic hardship, affects voters' political attitudes and behaviors. Or it may be that what matters is the individual perception of the very collective context, and not the personal experience of economic decline. This question is not directly in the scope of this chapter. Yet, as in Chapter 2, one can guess that the explanation is likely to be socio-tropic.

Gidron and Mijs (2019) analyzed the change in political attitudes and votes following individual experiences of economic decline, based on panel survey data collected before and after the Great Recession in Netherlands (2007-2015). They found that individuals who experienced economic decline became more supportive of redistribution (see also Naumann et al., 2016) and more likely to vote for the extreme left *Socialistische Partij* (Socialist Party, SP). In contrast, the experience of economic decline had a very slight effect on nativist attitudes and no effect on the probability to vote for the extreme right *Partij voor de Vrijheid* (Party for Freedom, PVV). These results give insights on how the world would look like if only ego-tropic effects mattered. In such a world, we should observe at the aggregated level that contexts of economic hardship foster votes for the extreme left and do not affect votes for the extreme right. As already mentioned, the reality is the opposite: at the aggregated level, economic hardship benefits to the extreme right and not to the extreme left. This strongly suggests that the explanation does not lie in personal economic experiences.^a

^aThis echoes micro-level evidence on the mainly socio-tropic nature economic voting: evidence shows that individual evaluation of the national economy is more important than the evaluation of the household situation to predict the probability to vote for the incumbent (Lewis-Beck and Stegmaier, 2013).

level of redistribution and immigration) affect the effect of economic decline on political attitudes in the direction expected by the reactionary mechanism.

2. Overview of studies

The chapter proceeds in two times. In a first short study, I test Hypothesis 3.1 at the macro-level by analyzing the link between economic decline and extreme votes based on aggregated electoral data about parliamentary elections. The study replicates previous analyses from Funke et al. (2016) and De Bromhead et al. (2013) based on different samples and classifications of extreme right and extreme left parties. In the second and

main study, I investigate the micro-level mechanism based on survey data following a threefold empirical design. I first replicate the test of Hypothesis 3.1 at the micro-level by analyzing the effect of economic decline on the individual probability to vote for extreme right and extreme left parties. I then test the effect of economic decline on political trust (Hypothesis 3.2), attitudes toward redistribution (Hypothesis 3.3), and attitudes toward immigrants (Hypothesis 3.4) and reactionary attitudes (Hypothesis 3.5). Finally, I assess the effect of these attitudes on extreme votes.

3. Study 1. Economic decline and aggregated extreme votes

3.1. Method

In this study, I rely on aggregated voting records to test Hypothesis 3.1. Previous analyses from Funke et al. (2016) and De Bromhead et al. (2013) have already shown that economic decline, as measured by mid-term GDP growth, increases the share of votes for extreme right parties, while it has no effect on the share of votes for extreme left parties. In this short study, I replicate their result based on different samples and alternative measures of extreme right and extreme left votes.

3.1.1. Extreme votes

My main measure of the share of votes for the extreme left and extreme right parties by year of election is based on the Parliament and government database (Parlgov; Döring and Manow, 2019). I coded parties as extreme right when they are classified as "Right-wing" by the Parlgov database and extreme left when classified as "Communist/Socialist". To give an overview of the parties classified as extreme left and extreme right, Tables C.1 and C.2 respectively summarize the twenty extreme right and left parties with the highest historical share of votes according to the Parlgov classification.³ I generated two dependent variables: the total share of votes for extreme right parties, and the total share of votes for extreme left parties. When multiple extreme left or extreme right parties contest the same election, I summed their shares of votes.⁴

To assess the robustness of the findings resorting to an alternative classification, I

³The complete list of parties classified as "Right-wing" and "Communist/socialist" by the Parlgov database can be found here.

⁴Note that when multiple elections took place during the same year in a given country, I computed the average of share of votes across elections.

computed additional analyses deriving the share of votes for extreme left and extreme right parties from Comparative Political Data Set (CPDS; Armingeon et al., 2018). The classification of the CPDS is based on early work from Lane et al. (1992). The CPDS team created a new party family, named "Right", which gathers ultra-right parties according to Lane et al. (1992) and populist radical right parties according to Mudde (2007). I coded parties as extreme right when they entered this family and as extreme left when classified as either "Left-socialist" or "Communist".⁵

Figures C.1a and C.1b in Appendix C respectively describe the distribution of extreme right and extreme left votes according to ParlGov and the CPDS. Since my theory is that economic decline affects the *demand* for extreme parties, rather than the *supply* in extreme parties, I excluded from the main analyses election years in which the share of extreme right votes was null (and similarly for extreme left votes). I refer to elections with non-null votes for extreme right parties as "elections *with* extreme right parties" (and similarly, "elections *with* extreme left parties"). Indeed, null votes are a proxy for the absence of credible extreme options on the *supply* side of the political competition. Null vote shares may reflect either the absence of extreme right (or extreme left) parties in the political competition, or that such parties have a negligible score. In the ParlGov database, political parties are systematically included if they won seats in an election, meaning that some minor parties may not appear in the database. The criteria for inclusion is more tight in the CPDS: only parties that reached 2% of the vote share in an election are included. To assess the robustness of the findings, I will also comment analyses including election without extreme right parties (and similarly for extreme left parties).

3.1.2. Economic decline

To measure economic decline, I relied on the Maddison Project Database (Bolt et al., 2018, see Chapter 1). Economic decline is captured by *GDP growth*, i.e. the variation in percentage of the GDP by year and country. I computed analyses based on two temporal specifications of the variable: short-term growth of the GDP (over one year) and mid-term growth of the GDP (over five years). Given my theory (see the Introduction) and previous results (see Chapters 1 and 2), I expect mid-term economic decline to be especially determinant. Figure C.2 in the appendix shows the distribution of short-term and mid-term economic decline.

3.1.3. Control variables

To control for potential confounding factors, I rely on the macro factors used by Rooduijn and Burgoon (2018) in their analysis of extreme right and extreme left votes:

⁵The complete list of parties in the CPDS can be found here.

- *GDP*. I included GDP per capita, in millions of current US dollars, from the World Bank (2017b).
- *Gini*. To measure economic inequality, I relied on estimates of Gini coefficient from the Standardized World Wealth and Income Database (Solt, 2014).
- *Social welfare expenditure*. I included the public social expenditures in percentage of the GDP (Armingeon et al., 2018).
- *Unemployment rate*. I measured the share of unemployed people among the labor force (Armingeon et al., 2018).
- *Net migration*. I measured the net migration rate per 1,000 inhabitants based on data from the population division of the United Nations (2017b).

3.1.4. Sample and empirical strategy

All variables are described in Table C.3. Each observation is an election in a given country. The main sample based on ParlGov data initially gathers a total of 757 elections in 37 countries in a period ranging from 1900 to 2016.⁶ This sample contains 269 elections with extreme right parties and 453 elections with extreme left parties. The secondary sample based on CPDS initially gathers a total of 483 election years in 36 countries in period ranging from 1960 to 2016.⁷ This sample contains 260 elections with extreme left parties and 151 elections with extreme right parties.

All independent variables are one-year lagged. The size of the sample decreases due to listwise deletion with the inclusion of independent variables. In particular, data on various control variables are only available until the 1960s / 1970s. For that reason, I performed analyses in multiple steps. I first analyze the simple correlation between economic decline and extreme right / extreme left votes. I then compute regression models testing the effect of economic decline controlling for country and year fixed effects, and finally I compute models including the control variables.

⁶This sample includes Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Latvia, Lithuania, Luxembourg, Malta, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, UK.

⁷The sample of countries is slightly different for analyses based on the CPDS for shares of extreme votes: the sample excludes Israel and Turkey but includes US.

3.2. Results

3.2.1. Bivariate analyses

What are the relationships between the different measures of extreme right and extreme left votes? Table 3.1 display the Pearson's bivariate correlations between the various indicators of extreme votes and economic decline based on all elections. There is a strong positive correlations between the measures of extreme left votes from Parlgov and CPDS. Measures of extreme right votes of Parlgov and CPDS also positively correlate, but the correlation is imperfect. This indicates that both measures are not merely redundant and that testing both measures allows for a proper robustness check. Besides, there is no significant correlation between extreme right and extreme left votes, whatever the data source. This suggest that, as expected, extreme right and extreme left votes rise in different contexts.

Table 3.1: Cross-correlation table for extreme votes (all elections)

Variables	Extreme left votes (Parlgov)	Extreme left votes (CPDS)	Extreme right votes (Parlgov)	Extreme right votes (CPDS)	GDP growth over 5 years	GDP growth over 1 years
Extreme left votes (Parlgov)	1.000					
Extreme left votes (CPDS)	0.825***	1.000				
Extreme right votes (Parlgov)	-0.022	-0.005	1.000			
Extreme right votes (CPDS)	-0.026	0.018	0.639***	1.000		
GDP growth over 5 years	0.031	0.055	-0.134***	-0.263***	1.000	
GDP growth over 1 years	0.056	0.059	-0.116**	-0.188***	0.436***	1.000

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

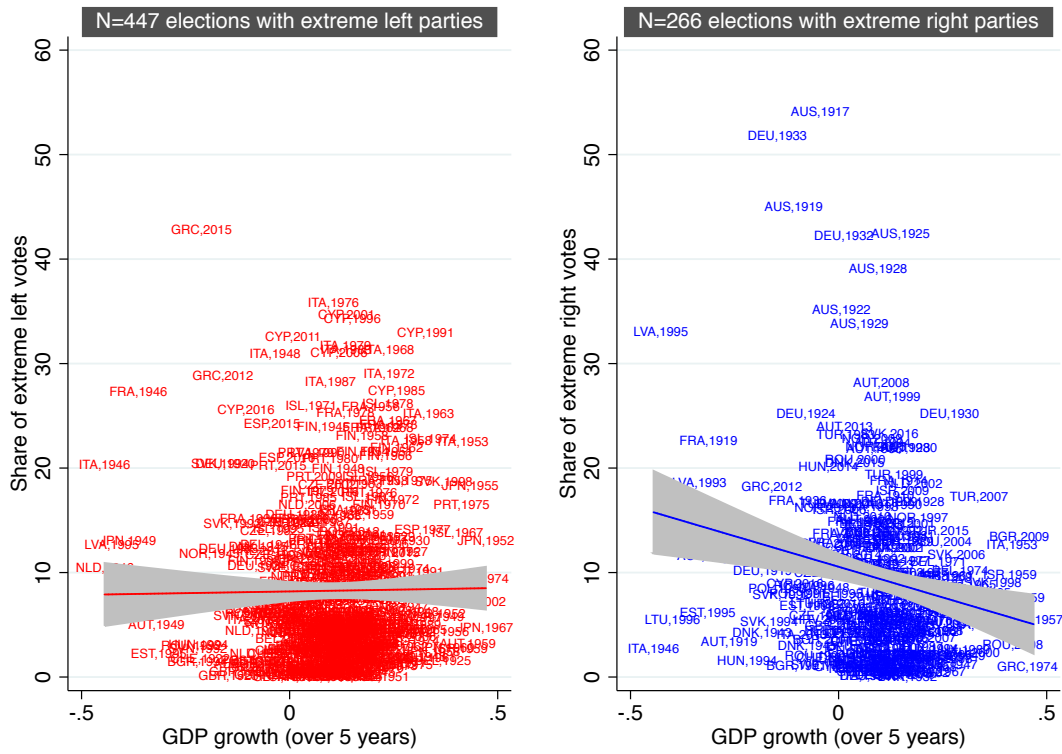
Economic decline correlates with extreme right votes and does not correlate with extreme left votes. What are the relationships between economic decline and extreme right and extreme left votes? As expected by Hypothesis 3.1, Table 3.1 indicates that both short-term and mid-term GDP growth are negatively and significantly related with extreme right votes, both according to Parlgov and CPDS. As expected, the intensity of the correlation is stronger when computed with mid-term rather than short-term economic decline. In contrast, and contrary to the expected positive relationship, there is no significant correlation between GDP growth (both short-term and long-term) and extreme left votes, both according to Parlgov and CPDS.⁸

Do we obtain similar results when focusing on elections with extreme right / extreme left supply? The answer is yes. Figures 3.3a and 3.3b plot the level of extreme left

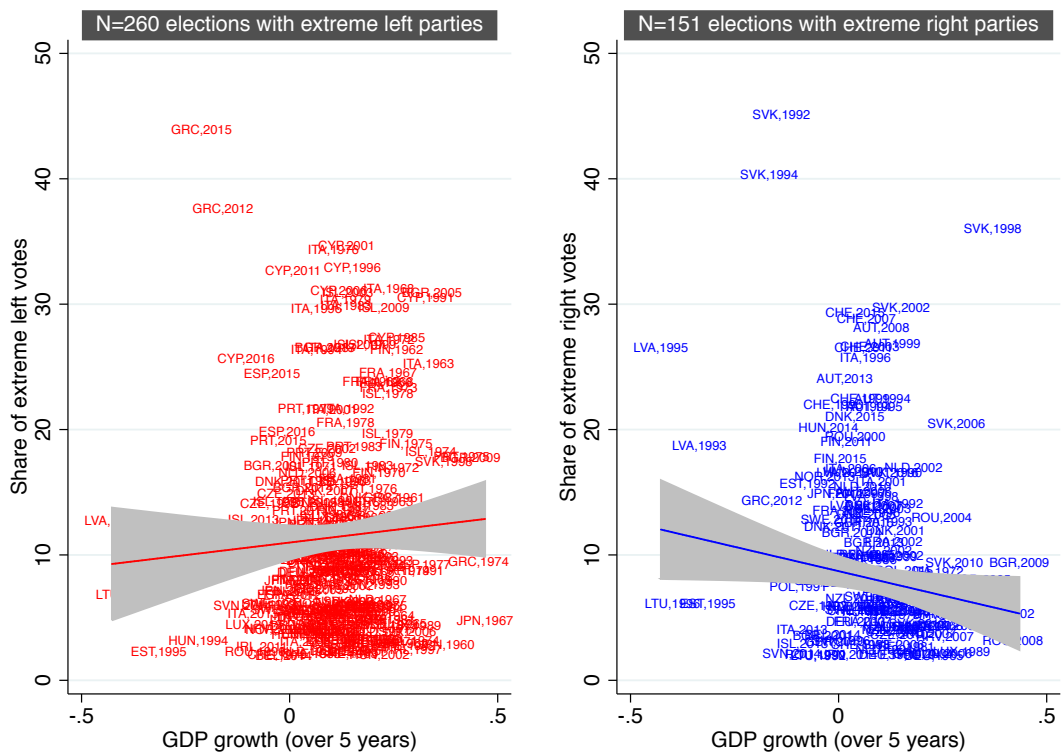
⁸Figures C.3a and C.3b allows for a better look at this differential correlation by plotting the level of extreme left and extreme right votes in all elections depending on the mid-term growth of the GDP.

Figure 3.3: Share of extreme votes depending on mid-term economic decline

(a) ParlGov



(b) CPDS



and extreme right votes in elections with non-null votes for extreme right / left parties, depending on mid-term growth of the GDP before the elections. Each dot represents an election. We see that there is no correlation between mid-term growth of the GDP prior to an election and extreme left votes during this election while there is a negative correlation for right-wing votes.⁹

3.2.2. Multivariate analyses

Are these results confirmed when controlling for potential confounding factors?

Short-term economic decline has a non-robust effect on extreme right votes. Table C.4 present estimates from linear regression analyses of the effect of short-term economic decline on extreme right votes, according to ParlGov. Model (1) confirms that short-term GDP growth has a negative effect on extreme right votes. The effect is still significant in model (2) controlling for country fixed effects. However, the effect becomes insignificant when controlling for year fixed effects (3), adding control variables (4) and including all factors (5). Table C.4 presents results from similar analyses based on the CPDS estimation of extreme right votes. No significant effect of short-term GDP growth is found in any model. In sum, the effect of short term economic decline on extreme right votes is not robust.

Mid-term collective decline increases extreme right votes. Table 3.2 presents similar analyses with mid-term (instead of short-term) economic decline. Model (1) confirms that mid-term GDP growth has a negative effect on extreme right votes, according to ParlGov. The effect remains significant when including country fixed effects (2), year fixed effects (3), control variables (4) and all factors (5). Table C.6 present results from similar analyses based on the CPDS estimation of extreme right votes. Results point to a similar direction but are less robust than when computed with the ParlGov dataset. The effect of mid-term GDP growth is significantly negative in models (1) to (3), but the coefficient becomes insignificant when including control variables in models (4) and (5). In sum, mid-term economic decline has a relatively robust effect on extreme right votes.

Economic decline has no robust effect on extreme left votes. Table C.7 presents estimates from linear regression analyses of the effect of short-term economic decline on extreme left votes, according to ParlGov. GDP growth has no significant effect in any model. Similar results are found with the CPDS classification, as shown by Table C.8.

⁹Figures C.4a and C.4b are the same plots with short-term GDP growth instead of mid-term GDP growth. They confirm that the correlation is less robust when computed with short-term economic decline. Indeed, while the correlation remains significantly negative based on ParlGov, no correlation is found using CPDS data.

Table 3.2: Effect of mid-term GDP growth on the share of extreme right votes (Parlgov) (unstandardized coefficients from linear regression)

	(1)	(2)	(3)	(4)	(5)
GDP growth (over 5 years)	-11.73** (3.592)	-12.91*** (3.435)	-11.88* (4.924)	-20.77** (6.828)	-23.51* (10.40)
GDP				4.232*** (1.170)	-4.355 (3.956)
Gini				-0.525 (0.367)	-0.0750 (0.486)
Social welfare expenditure				-0.889** (0.282)	-1.017* (0.400)
Unemployment rate				0.156 (0.305)	0.203 (0.392)
Net migration				-0.157 (0.242)	0.128 (0.324)
Constant	10.55*** (0.631)	27.34*** (2.472)	22.76** (8.272)	-1.224 (12.30)	63.58 (40.40)
Country fixed effects	No	Yes	Yes	Yes	Yes
Year fixed effects	No	No	Yes	No	Yes
Observations	266	266	266	116	116
R ²	0.0389	0.302	0.617	0.679	0.781

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3.3: Effect of mid-term GDP growth on the share of extreme left votes (Parlgov) (unstandardized coefficients from linear regression)

	(1)	(2)	(3)	(4)	(5)
GDP growth (over 5 years)	0.656 (2.691)	-2.105 (1.859)	-5.645* (2.590)	-3.437 (5.009)	-5.121 (6.929)
GDP				1.287 (0.858)	4.358+ (2.501)
Gini				-0.0599 (0.205)	0.0717 (0.239)
Social welfare expenditure				-0.332+ (0.186)	-0.181 (0.215)
Unemployment rate				0.235 (0.172)	0.169 (0.206)
Net migration				-0.308* (0.140)	-0.257 (0.168)
Constant	8.192*** (0.468)	2.098 (2.458)	-12.28* (5.907)	-1.422 (7.604)	-35.44 (24.87)
Country fixed effects	No	Yes	Yes	Yes	Yes
Year fixed effects	No	No	Yes	No	Yes
Observations	447	447	447	166	166
R ²	0.000134	0.628	0.758	0.693	0.758

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3.3 present similar analyses with mid-term (instead of short-term) economic decline. Results indicate that mid-term GDP growth has no significant effect on extreme left-votes, according to ParlGov, except in model (3) in which the effect is significantly negative. When using CPDS classification, no significant effect is found in any model, as shown by Table C.9. In sum, economic decline has no robust effect on extreme left votes.

3.2.3. A preliminary test of the political trust hypothesis

The present aggregated data does not allow to confront Hypotheses 3.2, 3.3, 3.4 and 3.5 about the individual mechanism by which economic decline differently affects extreme right and extreme left votes. However, the data may offer preliminary evidence regarding the plausibility of the *political trust* mechanism (Hypothesis 3.2). As detailed in the theoretical part, this hypothesis rests on economic voting: individuals are more likely to punish incumbents parties in times of economic hardship by voting for opposition parties. Following this logic, prolonged economic hardship may generate defiance relative to both incumbent and mainstream opposition parties, and result in higher votes for non-mainstream parties. If this hypothesis is true, we should observe that the negative effect of mid-term economic decline is moderated by the access to power of extreme parties. In other terms, extreme right votes should increase when (a) mid-term economic decline is high and when (b) extreme right parties have not participated in government.

To test this prediction, I generated two binary variables – *extreme left in government* and *extreme right in government* – indicating whether the government included members of extreme left or extreme right parties over the past 5 years¹⁰, according to cabinet composition data from the ParlGov (Döring and Manow, 2019). Extreme parties' participation is relatively rare in the sample: 12.13% of the elections in the sample occurred after a period in which extreme right parties were in government, and 9.32% for extreme left parties.

The effect of mid-term economic decline on extreme right votes is not due to an economic voting mechanism. Table 3.4 presents estimates from regression analyses of the interaction between mid-term economic decline and extreme right participation in government on extreme right votes. Results confirm that mid-term GDP growth has a negative effect on extreme right votes in all models, except in the final model (5) in which the coefficient does not attain the conventional level of significance. Contrary to the expectation of economic voting, there is no significant interaction between extreme right parties participation in government and mid-term growth of the GDP. The coefficient of the interaction term, albeit insignificant in all models, is actually opposite to the expectations

¹⁰I used this temporal specification to match with that of the mid-term economic decline indicator. Note that, as for other independent variables, I one-year lagged these variables.

of economic voting theory. This indicates that economic voting does not account for the effect of economic decline on extreme right votes: votes for the extreme right are not lower when economic decline occurred under an extreme right government.

Economic voting works for extreme left parties. Table 3.5 presents similar regression analyses for extreme left votes. In this case, results are in line with the predictions of economic voting theory. Models (2) to (5) indicate that economic decline has a significantly different effect on extreme left votes depending on whether extreme left parties were in government. The main effect of mid-term GDP growth is significantly negative in models (3) to (5), indicating that extreme left parties receive more votes under recessions when they did not participate in government. The positive interaction term in models (2) to (5) indicates that, in contrast, extreme left parties receive more votes under economic prosperity when they participated in government.

Table 3.4: Effect of mid-term GDP growth and extreme right participation into government on the share of extreme right votes (Parlgov) (unstandardized coefficients from linear regression)

	(1)	(2)	(3)	(4)	(5)
GDP growth (over 5 years)	-13.30* (5.181)	-16.49** (5.302)	-14.75* (6.788)	-20.85* (8.338)	-20.52 (12.41)
Extreme right in government (over 5 years)	8.350*** (1.489)	6.718*** (1.636)	3.131 (2.142)	-1.422 (1.821)	-0.229 (2.514)
Extreme right in government (over 5 years) × GDP growth (over 5 years)	-9.095 (8.344)	-3.441 (8.694)	-5.477 (11.09)	-3.770 (11.90)	-11.03 (14.52)
GDP				4.272*** (1.205)	-4.262 (3.991)
Gini				-0.555 (0.369)	-0.0964 (0.502)
Social welfare expenditure				-0.863** (0.293)	-0.913* (0.416)
Unemployment rate				0.104 (0.314)	0.0980 (0.411)
Net migration				-0.194 (0.252)	0.123 (0.344)
Constant	9.186*** (0.865)	24.27*** (2.553)	21.91** (8.056)	-0.663 (12.34)	62.22 (40.94)
Country fixed effects	No	Yes	Yes	Yes	Yes
Year fixed effects	No	No	Yes	No	Yes
Observations	239	239	239	115	115
R ²	0.203	0.394	0.682	0.685	0.785

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

3.3. Discussion

Results from aggregated electoral data partly support Hypothesis 3.1: economic decline increases extreme right votes while it does not directly affect extreme left votes. Besides,

Table 3.5: Effect of mid-term GDP growth and extreme left participation into government on the share of extreme left votes (Parlgov) (unstandardized coefficients from linear regression)

	(1)	(2)	(3)	(4)	(5)
GDP growth (over 5 years)	0.233 (3.336)	-4.294 ⁺ (2.376)	-8.401* (3.335)	-12.86* (5.287)	-15.00* (7.333)
Extreme left in government (over 5 years)	6.658*** (1.451)	-3.054** (1.097)	-3.755** (1.188)	-5.563*** (1.468)	-5.233** (1.656)
Extreme left in government (over 5 years) × GDP growth (over 5 years)	-0.827 (7.442)	13.01* (5.196)	15.52** (5.447)	34.62*** (8.534)	31.09** (9.726)
GDP				1.528 ⁺ (0.811)	4.451 ⁺ (2.386)
Gini				-0.00511 (0.194)	0.177 (0.231)
Social welfare expenditure				-0.418* (0.176)	-0.298 (0.208)
Unemployment rate				0.204 (0.163)	0.169 (0.197)
Net migration				-0.366** (0.136)	-0.340* (0.165)
Constant	7.269*** (0.553)	2.356 (2.412)	-6.973 (5.795)	-2.220 (7.175)	-35.79 (23.72)
Country fixed effects	No	Yes	Yes	Yes	Yes
Year fixed effects	No	No	Yes	No	Yes
Observations	414	414	414	166	166
R ²	0.0818	0.643	0.774	0.731	0.785

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

as in Chapters 1 and 2 relative to radical movements as well as in studies from Funke et al. (2016) and De Bromhead et al. (2013) relative to extreme votes, the effect of economic decline is especially determinant at mid-term temporal specification.

The present study does not allow to test the individual mechanism by which mid-term economic decline increases extreme right votes. The second study specifically addresses this question. However, initial evidence does not support the logic behind Hypothesis 3.2 that economic decline increases extreme right votes through an economic voting mechanism. Such mechanism does occur for extreme left parties: they are electorally punished if they participated in government under economic recession and rewarded if they were in the opposition. In contrast, I found no evidence of a similar mechanism for extreme right parties. This not only indicates that economic voting does not explain the overall effect of economic decline, but also, which is more surprising, that extreme right parties are somewhat immune to economic voting.

One possible interpretation of this finding is that extreme right parties are better able to achieve blame avoidance when governing in times of recession (Weaver, 1986). On the one hand, extreme right parties may be more likely to participate in coalition governments. Previous evidence suggest that parties are less punished under economic recession if they are part of a coalition, because they share the blame with their allies (Giuliani and Massari, 2019). Nonetheless, this explanation does not explain the difference in economic voting between extreme right and extreme left parties because the ParlGov data indicates that both parties have on average the same rate of participation in coalition governments. On the other hand, extreme right parties may be more able to avoid the blame due to their key mobilizing frames. For instance, in the European Union, extreme right parties are among the most eurosceptic parties (Pirro and van Kessel, 2018; Vasilopoulou, 2018; Werts et al., 2013). Euroscepticism is both a mobilizing frame in times of recession (Giuliani and Massari, 2019) and a potentially successful blame avoidance strategy (Hobolt and Tilley, 2014; Magni-Berton et al., 2020). Besides, following the logic of Hypotheses 3.4 and 3.5, extreme right parties may be able to frame economic decline in cultural terms that attract voters – for instance, by blaming national decay and/or immigrants.

4. Study 2. Economic decline and individual extreme votes

4.1. Method

In this study, I rely on survey data to investigate the causal process linking economic decline and extreme votes. The advantage of using survey data is that it enables to measure political attitudes that may mediate the effect of economic decline on extreme votes. As previous studies analyzing individual and contextual antecedents of individual extreme votes (Burgoon et al., 2019; Rooduijn and Burgoon, 2018; Rooduijn et al., 2017), I use seven waves (2002-2014) of the European Social Survey (ESS; NSD - Norwegian Centre for Research Data, 2018).

4.1.1. Individual data on extreme voting behavior in Europe

I followed the procedure of Rooduijn and Burgoon (2018) to generate the main dependent variables on individual extreme voting behavior. Respondents of the ESS were asked which party they voted for during the last national general election. Based on this information, I identified respondents that voted for an extreme right party, for an extreme left party or for a mainstream party (either a Liberal, Social democratic, Christian democratic or Conservative party). Table 3.6 displays all parties coded as extreme right and extreme left in the 21 European countries under study based on Rooduijn and Burgoon (2018), actualizing classifications from Mudde (2007) and March (2012). I generated two main dependent variables. The first – *extreme right vote* – is coded 1 for individuals who voted for an extreme right party and 0 for individuals who voted for a mainstream party. The second – *extreme left vote* – is coded 1 for individuals who voted for an extreme left party and 0 for individuals who voted for a mainstream party.

Figure 3.4 shows the relative share of respondents who voted for extreme left, extreme right and mainstream parties by country and wave. Note that, as in the previous study, I excluded waves in which none of the respondents from a country voted for an extreme right or left party. Indeed, as the number of respondents by wave and country is high¹¹, the absence of any voter for an extreme party is a proxy for the absence of extreme options on the supply side of the political competition.

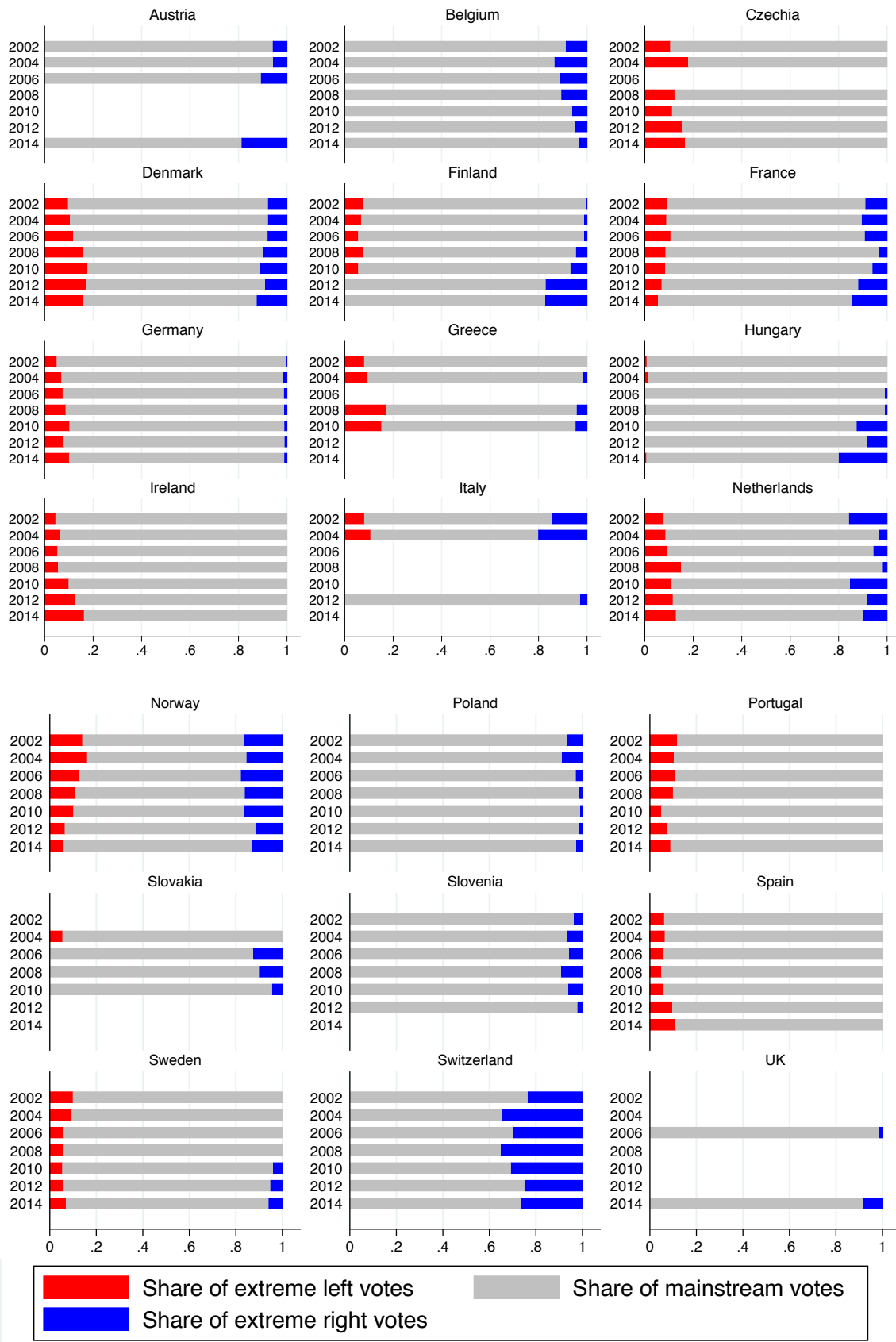
Interestingly, the overall correlation between the share of respondents who voted for extreme right and left parties in a given country and wave is significantly negative in the present data ($r = -0.230, p = 0.009, N = 127$). This suggests that the rise of these parties occurred in opposite contexts. However, this is insufficient to conclude that the

¹¹The mean number of respondents that either voted for a mainstream or an extreme party by country and wave is $n = 903$.

Table 3.6: Extreme parties in the ESS based on Rooduijn and Burgoon (2018)

Country	Extreme right party	Extreme left party
Austria	<i>Freiheitliche Partei Österreichs (FPÖ)</i> <i>Bündnis Zukunft Österreich (BZÖ)</i>	
Belgium	<i>Vlaams Belang (VB)</i> <i>Front National belge (FNb)</i>	
Czechia		<i>Komunistická strana Čech a Moravy (KSČM)</i>
Denmark	<i>Dansk Folkeparti (DF)</i>	<i>Socialistisk Folkeparti (SF)</i> <i>Enhedslisten – De Rød-Grønne (Ø)</i>
Finland	<i>Perussuomalaiset (PS)</i>	<i>Vasemmistoliitto (VAS)</i>
France	<i>Front National (FN)</i> <i>Mouvement National Républicain (MNR)</i>	<i>Parti Communiste Français (PCF)</i> <i>Lutte Ouvrière (LO)</i> <i>Ligue Communiste Révolutionnaire (LCR)</i>
Germany	<i>Die Republikaner (REP)</i> <i>Nationaldemokratische Partei Deutschlands (NPD)</i>	<i>Die Linke</i> <i>Partei des Demokratischen Sozialismus (PDS)</i>
Greece	<i>Laikós Orthódoxos Synagermós (LAOS)</i>	<i>Kommounistikó Kómma Elládas (KKE)</i> <i>Synaspismós (SYN)</i>
Hungary	<i>Jobbik Magyarorszáért Mozgalom (Jobbik)</i> <i>Magyar Igazság és Élet Pártja (MIÉP)</i>	<i>Magyar Munkáspárt</i>
Ireland		<i>Sinn Féin</i>
Italy	<i>Lega Nord (LN)</i> <i>Alleanza Nazionale (AN)</i>	<i>Partito della Rifondazione Comunista (PRC)</i> <i>Partito Comunista</i>
Netherlands	<i>Lijst Pim Fortuyn (LPF)</i> <i>Partij voor de Vrijheid (PVV)</i>	<i>Socialistische Partij (SP)</i>
Norway	<i>Fremskrittspartiet (FrP)</i>	<i>Rødt</i> <i>Sosialistisk Venstreparti (SV)</i>
Poland	<i>Liga Polskich Rodzin (LPR)</i> <i>Kongres Nowej Prawicy (KNP)</i>	
Portugal		<i>Partido Comunista Português (PCP)</i> <i>Bloco de Esquerda (BE)</i>
Slovakia	<i>Slovenská národná strana</i>	<i>Komunistická strana Slovenska (KSS)</i>
Slovenia	<i>Slovenska Nacionalna Stranka</i> <i>Lipa</i>	
Spain		<i>Izquierda Unida (IU)</i>
Sweden	<i>Sverigedemokraterna (SD)</i>	<i>Vänsterpartiet (V)</i>
Switzerland	<i>Schweizerische Volkspartei (SVP)</i>	
UK	<i>British National Party (BNP)</i> <i>UK Independence Party (UKIP)</i>	

Figure 3.4: Share of votes for extreme parties by country and wave in the ESS



ideologies of these parties attract voters in opposite contexts. Indeed, this correlation may either reflect differences in demand for extreme right and left policies or in supply of extreme right and left parties. When considering only countries and waves that include both extreme right and left political supply, the correlation becomes insignificant ($r = 0.110, p = 0.427, N = 54$). This means that in countries in which both parties take part in the political competition, their electoral gains are independent, but do not occur in opposite contexts. In sum, the overall negative correlation mostly reflects the fact that the supply in parties that defend extreme right and extreme left positions emerge in opposite contexts.¹²

4.1.2. Political attitudes

To disentangle the causal mechanism linking economic decline and extreme voting, I used ESS questions to measure the four attitudes that potentially mediate the effect of economic decline on extreme votes.

Political trust ESS respondents were asked to indicate their trust in various institutions on a 11-point scale. Based on Rooduijn and Burgoon (2018), I generated a scale based on the respondents' declared trust in the country's *parliament* and *politicians*. The resulting *political trust* scale goes from 0 (no trust at all) to 10 (complete trust) (Cronbach's $\alpha = 0.84$).

Attitudes toward redistribution Based on Rooduijn and Burgoon (2018), I measured *support for redistribution* based on the level of the respondent's agreement that "The government should take measures to reduce differences in income levels". The variable goes from 1 (disagree strongly) to 5 (agree strongly).

Attitudes toward immigrants Based on Rooduijn and Burgoon (2018), I generated a scale using three questions: 1) "Would you say it is generally bad or good for [country]'s economy that people come to live here from other countries?", 2) "would you say that [country]'s cultural life is generally undermined or enriched by people coming to live here from other countries?", 3) "Is [country] made a worse or a better place to live by people coming to live here from other countries?". For each question, respondents could indicate their position using a 11-point scale. The resulting *anti-immigration* scale goes from 0 (immigration is positive) to 10 (immigration is negative) (Cronbach's $\alpha = 0.85$).

¹²Nonetheless, this variation in supply could itself be due to the variation in demand: that is, the absence of potential electorate for extreme right or left parties deter political entrepreneurs from investing in such political supply.

Reactionary attitudes Unfortunately, the ESS does not include survey questions that properly measure reactionary attitudes. For instance, a proper measurement of reactionary attitudes would be the individuals' acquiescence regarding the proposition: "The society used to be a much better place" (de Vries and Hoffmann, 2018).¹³ One first possibility would be to rely on the measure of societal pessimism of Steenvoorden and Harteveld (2018). Using the ESS, they analyzed the individual perception that "For most people in [country] life is getting worse rather than better". Yet, this indicator has two problems. First, the question was asked only in two waves (2006 and 2012), which makes very difficult multi-level analyses on the effect of national economic contexts. Second, the variable does not capture reactionary attitudes per se. Indeed, individuals who think that life is currently getting worse may either advocate a change to come back to a previous situation (reaction) or a change to build a new society (revolution). Alternatively, one may consider a range of attitudinal variables, such as attitudes toward gender equality, as a proxy for reactionary attitudes. Again, a first issue is that gender-equality questions were not asked in every waves, and more problematically, they do not match the imperative of a content-free measure of reactionary attitudes, i.e. capturing the wish to go back to the past whatever the past.

To proxy reactionary attitudes, I chose to rely on an item derived from the Schwartz human values scale (Bilsky et al., 2011; Davidov et al., 2008). In the ESS human values battery, respondents are told about characteristics of some people and are asked how much they feel that the person is or is not like them on a 6-point scale: from 1 (very much like me) to 6 (Not like me at all). The battery includes 21 items, among which one measures the importance of tradition: "Tradition is important to her/him. She/he tries to follow the customs handed down by her/his religion or her/his family.". Based on this variable, I generated a 6-point *traditionalism* indicator. This indicator has two advantages: first, the question is asked in every waves, second, it respects the content-free imperative to measure reactionary attitude. Indeed, it assesses the individual's valuation of traditions, whatever their content.

One may oppose that studies using the human values scale generally extract factors based on the combination of multiple items. In particular, studies generally measure a so-called *tradition* value by combining items on the importance of tradition and modesty (Bilsky et al., 2011; Davidov et al., 2008; Knoppen and Saris, 2009). However, in the present case, I prefer to use only the tradition item because there is no conceptual relationship between reaction and the valuation of modesty. Herein, I favor construct validity over scale reliability. In doing that, I follow the same logic exposed by Stenner (2005), who extracted from international surveys a measure of authoritarianism with low scale reliability (I changed the mentions of *authoritarianism* by *traditionalism*):

¹³This question is analyzed from another survey in Chapters 5 and 6.

"The validity of a measure (the extent to which it reflects what we mean for it to reflect, rather than some other attribute) is distinct from its reliability (the consistency or precision with which it reflects the attribute in question). There is no suggestion here that the [traditionalism] scale is invalid (that it is systematically measuring something other than [traditionalism]), only that it is unreliable (that scores are reflecting much random variation, in addition to systematic variation in true levels of [traditionalism]). Invalidity of the measure would leave us in danger of drawing inappropriate conclusions about the impact of [traditionalism] (...), perhaps spuriously attributing to [traditionalism] effects that are truly due to some other attribute our measure is unwittingly reflecting. The manifest unreliability of the [traditionalism] measure, by contrast, should only enhance our confidence in the size and "truth" of the relationships we are nevertheless able to discern despite the high ratio of random to systematic variation in the scores." (Stenner, 2005, p. 119)

Besides, one may oppose that the human values scale captures apolitical values, close to personality traits, which do not constitute fair measures of political attitudes. I consider that this is not problematic to the extent that my hypothesis rely on a psychological mechanism that primarily involve non-political cognition: economic decline generates a general tendency toward looking backward which, then, results in politically reactionary outcomes.

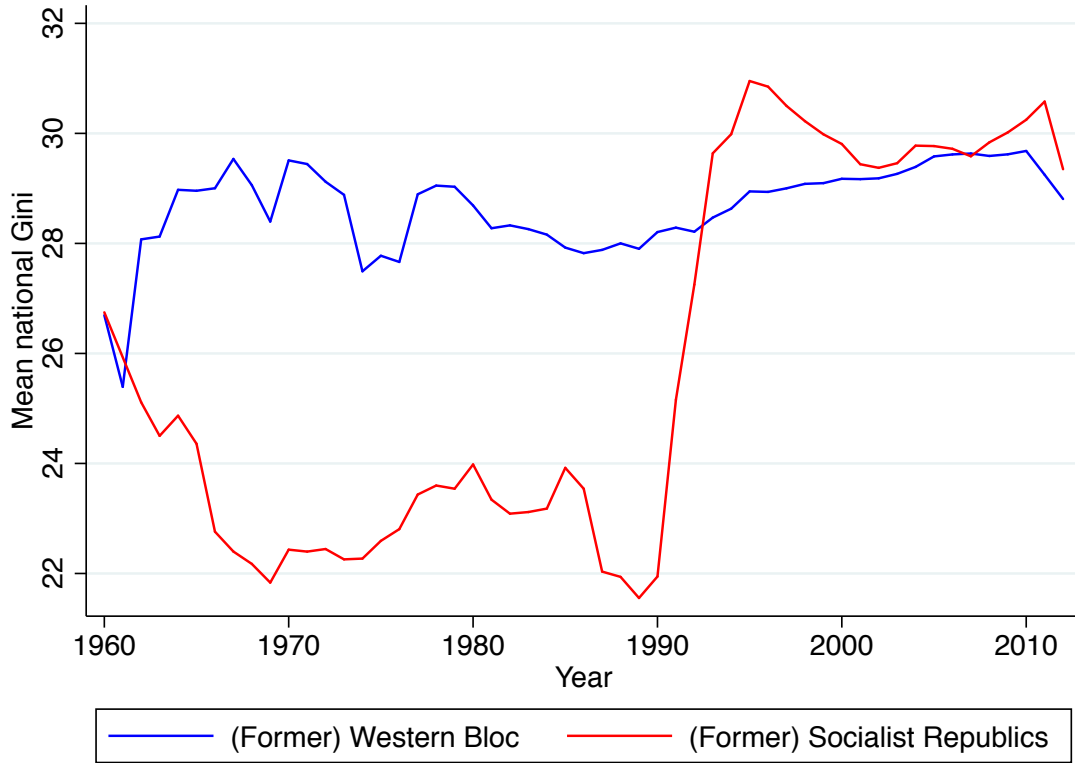
My golden age may not be yours. Correlations between traditionalism and various political attitudes among ESS countries prove that it is a fair indicator of reactionary attitudes. Let's take a few examples.

First, it is common knowledge that countries in the ESS experienced very different levels of economic inequality and redistribution in the past, as compared to nowadays. Countries of the Western Bloc have for long adopted free-trade regimes with fluctuating levels of redistribution. In contrast, before adopting free-trade regimes, the former Socialist Republics all used to be state-based economies with high degrees of redistribution and low inequalities. Figure 3.5a illustrates these very different pasts. It shows the historical evolution of the mean national level of inequality for ESS countries of the former Western Bloc compared to former Socialist Republics.¹⁴ The mean national level of economic inequality is measured as the mean of national Gini coefficients, based on data from the Stan-

¹⁴Former Socialist Republics among ESS participating countries are: Bugaria, Croatia, Czechia, Estonia, Hungary, Lithuania, Poland, Russia, Slovakia, Slovenia and Ukraine. Most other ESS participating countries were part of the Western Bloc: Belgium, Cyprus, Denmark, France, Germany, Greece, Iceland, Israel, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Turkey and the United Kingdom. I include within the Western Bloc the last ESS participating countries that were neutral during the cold war: Austria, Finland, Ireland, Sweden and Switzerland.

Figure 3.5: Historical trends in economic inequality and traditionalist support for redistribution in former Western Bloc countries and Socialist Republics

(a) Evolution of the mean national Gini coefficient



(b) Effect of traditionalism on support for redistribution (with 95% confidence interval)

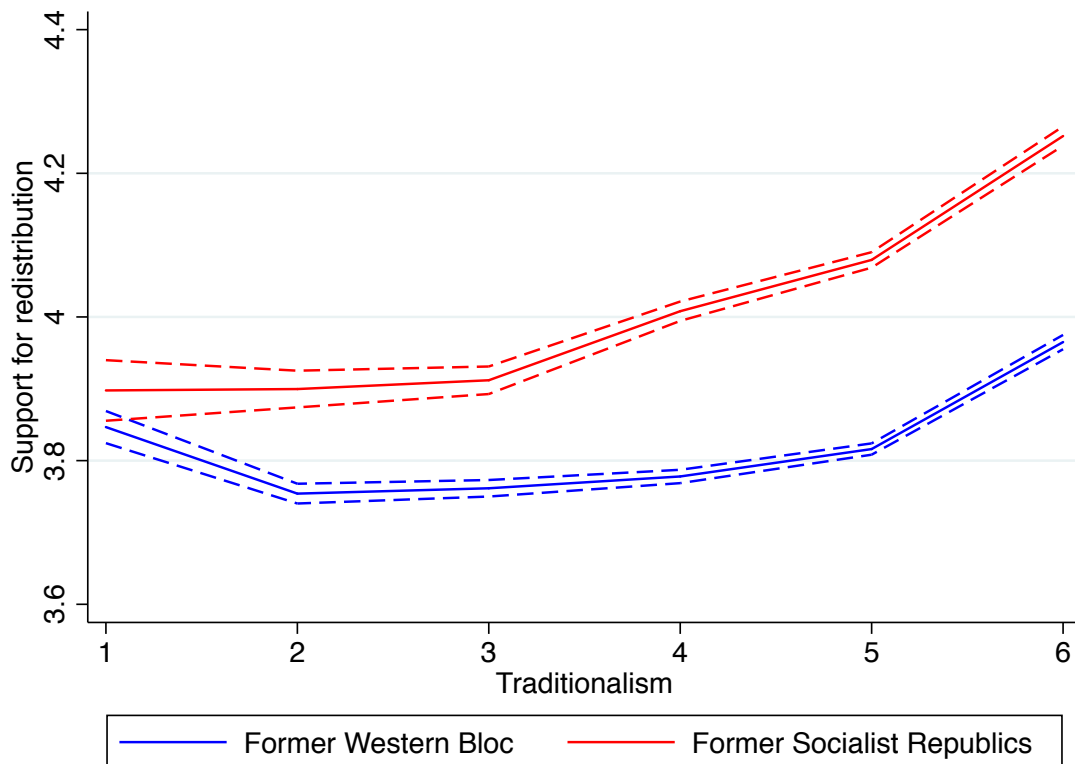
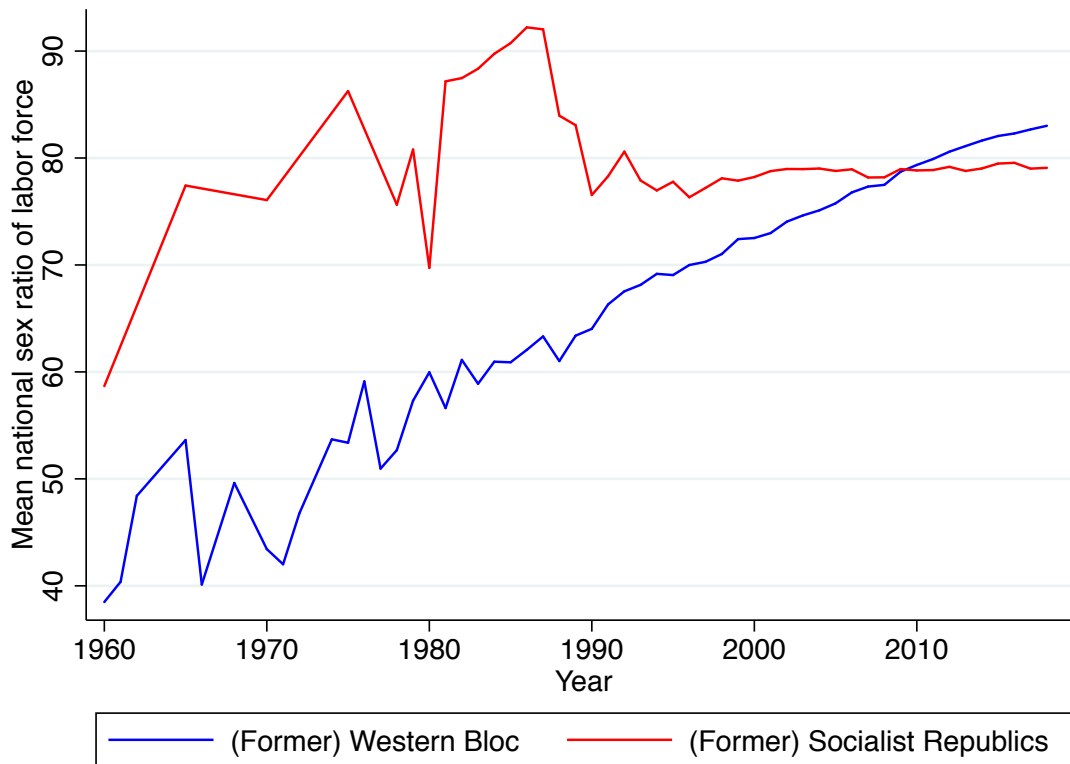


Figure 3.6: Historical trends in female participation in the labor force and traditionalist rejection of gender equality in former Western Bloc countries and Socialist Republics

(a) Evolution of the mean national sex ratio in labor force



(b) Effect of traditionalism on rejection of gender equality in the labor market (with 95% confidence interval)

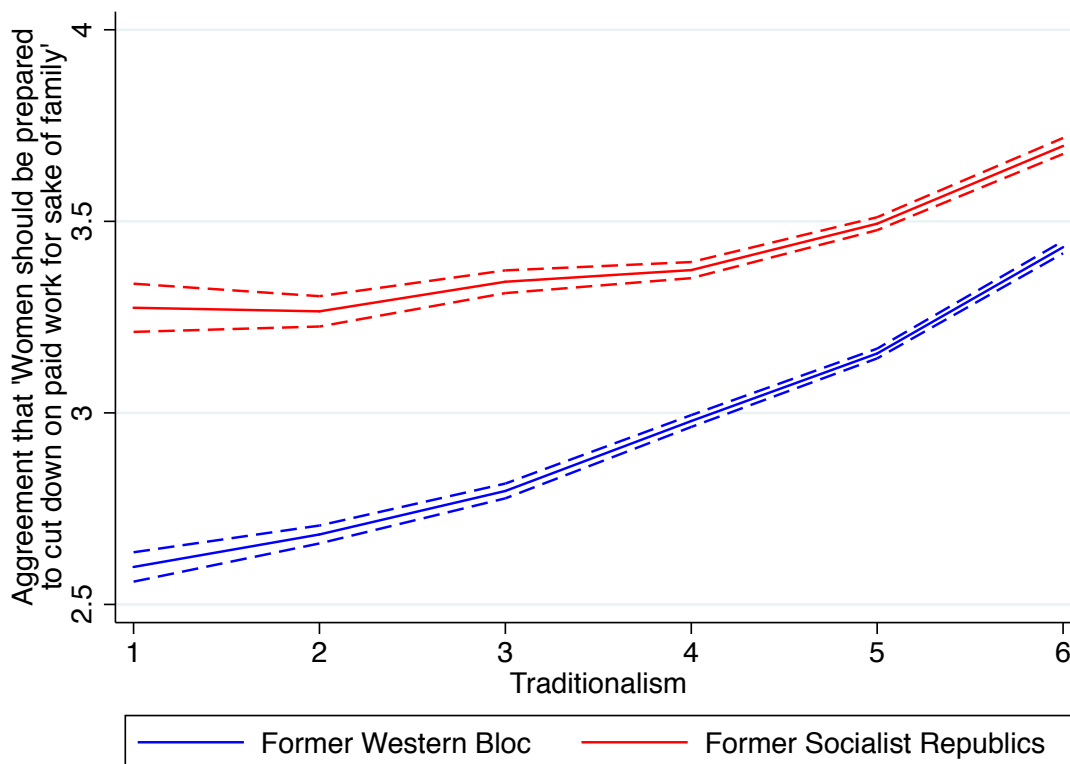
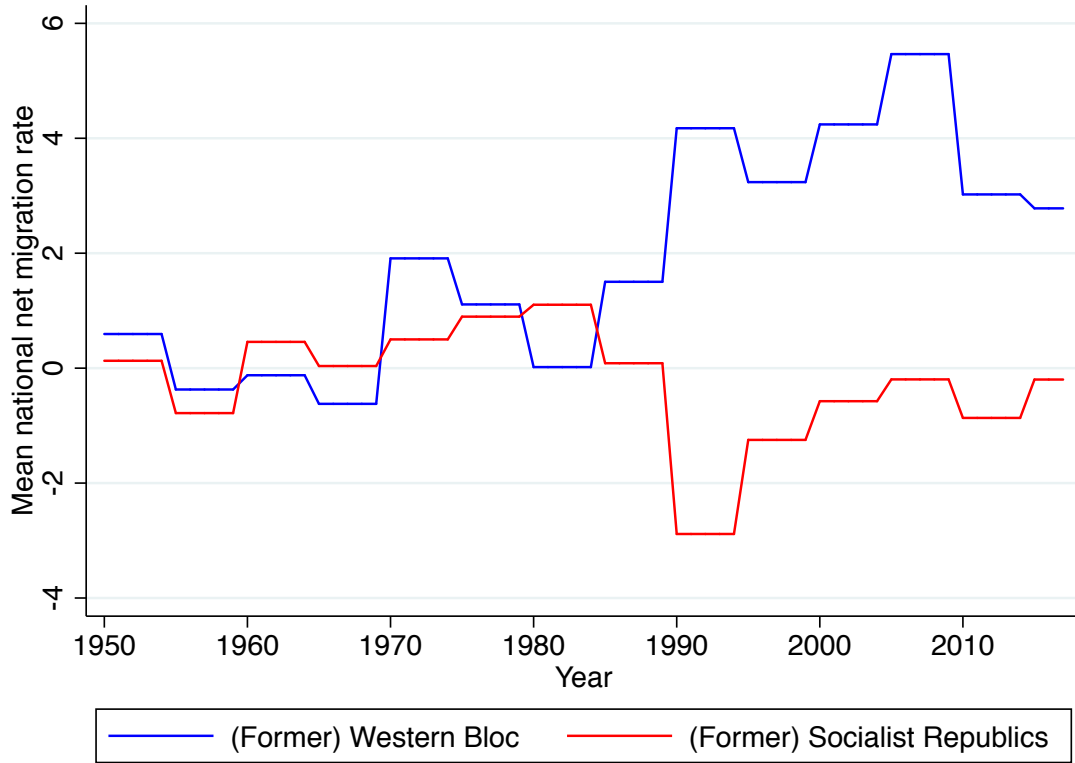
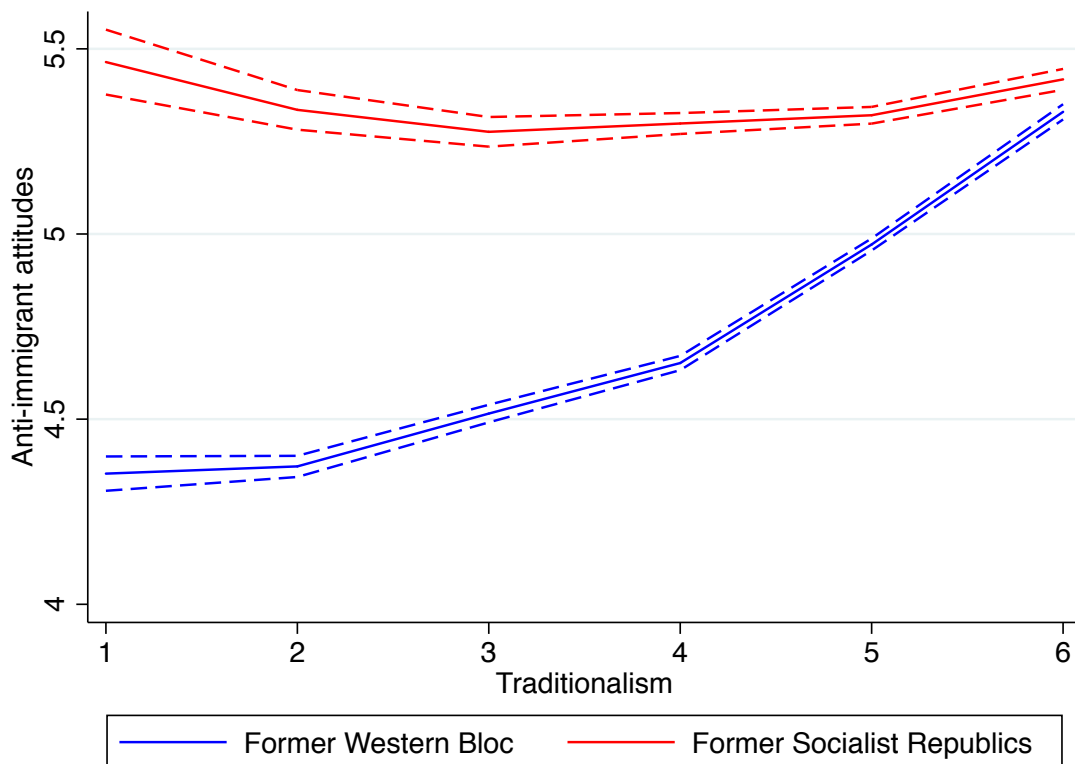


Figure 3.7: Historical trends in migration rates and traditionalist rejection of immigration in former Western Bloc countries and Socialist Republics

(a) Evolution of the mean national net migration rate (per 1,000 inhabitants)



(b) Effect of traditionalism on anti-immigrant attitudes (with 95% confidence interval)



standardized World Wealth and Income Database (Solt, 2014). From the 1960s to the 1980s, Socialist Republics were much more egalitarian than countries of the Western Bloc. During the post-socialist transition, Eastern European countries experienced a sharp increase in inequalities and now reach similar levels of inequality than former Western Bloc countries. Hence, we should observe that traditionalists are more supportive of redistribution in former Socialist Republics, which used to be more egalitarian, than in Western Bloc countries. And indeed, the correlation between traditionalism and support for redistribution is stronger in former Socialist Republics ($r = 0.110, p < 0.000, N = 98,873$) than in former Western Bloc countries ($r = 0.050, p < 0.000, N = 212,990$).¹⁵ Figure 3.5b computes the effect of each degree of traditionalism. We see that there is a non-monotonic relationship between traditionalism and support for redistribution in former Western Bloc countries whilst there is a strong monotonic relationship in former Socialist Republics.

Second, countries in the ESS experienced very different levels of female labor force participation in the past, as compared to nowadays. Under communism, Eastern Europe had the higher female labor force participation in the world (Avlijas, 2016). Since the post-communist transition, gender equality in labor participation has not progressed overall (Jacobs, 2006), or even decreased (Metcalf and Afanassieva, 2005), the situation diverging depending on national contexts (Avlijas, 2016). In contrast, the progression of female labor participation is more recent in Western European countries (Jacobs, 2006). Figure 3.6b shows the evolution of gender inequality in labor market for ESS countries of the former Western Bloc compared to former Socialist Republics. The indicator, derived from the World Bank (2019a), is the mean national sex ratio in labor force: a score of 50 meaning 1 women for 2 men in the labor force, and a score of 100 meaning equal participation of women and men. Even though data points are missing for many countries before the 1990s, we can see a sharp difference: over the past decades, former Socialist Republics experienced a stagnation or even a decrease in gender equality in the labor market, whilst former Western Bloc experienced a linear progression in gender equality in the labor market. Hence, we should observe that traditionalism is more strongly correlated with rejection of gender equality in the labor market in former Western Bloc countries than in former Socialist Republics. And indeed, the correlation between traditionalism and rejection of gender equality in the labor market¹⁶ is stronger in former Western Bloc countries ($r = 0.209, p < 0.000, N = 95,693$) than in former Socialist Republics ($r = 0.118, p < 0.000, N = 49,590$).¹⁷ Figure 3.6b computes the effect of each

¹⁵Estimates from simple linear regression analyses of support for redistribution confirm that the positive interaction between traditionalism and living in a former Socialist Republic is significant at the 0.1% threshold.

¹⁶Rejection of gender equality in the labor market is measured by the agreement on 6-point scale that "A woman should be prepared to cut down on her paid work for the sake of her family".

¹⁷Estimates from simple linear regression analyses of rejection of gender equality confirm that the negative interaction between traditionalism and living in a former Socialist Republic is significant at the 0.1%

degree of traditionalism. We see that the slope of relationship between traditionalism and rejection of gender equality in the labor market is much steeper in former Western Bloc countries than in former Socialist Republics.

Third, countries in the ESS experienced very different levels of immigration in the past, as compared to nowadays. Figure 3.7a plots the historical evolution of the mean national net migration rate for ESS countries of the former Western Bloc compared to former Socialist Republics, based on data from the population division of the United Nations (2017b). Both Eastern and Western European countries generally used to be low-immigration countries from the 1950s to the 1980s whilst their situation have sharply diverged since the 1990s. In the recent decades the net migration rate of former post-communist countries tended to decrease, most of them becoming net emigration countries. In contrast, countries of the Western Bloc overall experienced an increase in on-coming migrations over the past decades. Hence, we should observe that traditionalism is more strongly correlated with rejection of immigration in former Western Bloc countries, in which immigration recently increased, than in former Socialist Republics, in which immigration rate was the same or even higher in the past. And indeed, traditionalism strongly correlates with anti-immigration attitudes in former Western Bloc countries ($r = 0.145, p < 0.000, N = 214,629$) whilst there is little correlation in former Socialist Republics ($r = 0.011, p = 0.001, N = 97,592$).¹⁸ Figure 3.7b computes the effect of each degree of traditionalism. We see that there is a strong monotonic effect of traditionalism on rejection of immigration in former Western Bloc countries, whilst the effect is slight and non-monotonic in former Socialist Republics.

4.1.3. Economic decline

I relied on the same measures of economic decline than in the first study, i.e. short-term growth of the GDP (over one year) and mid-term growth of the GDP (over five years), based on the Maddison Project Database (Bolt et al., 2018). I again expect that mid-term growth in particular should influence traditionalism and voting behaviors. The expected relationship is negative for traditionalism and extreme right voting: the higher the growth of the GDP, the lower the intensity of traditionalism and the share of extreme right votes. In contrast, the expected relationship is positive for extreme left voting: the higher the growth of the GDP, the higher the share of extreme left votes. Figure C.5 in the appendix shows the distribution of short-term and mid-term economic decline.

threshold.

¹⁸Estimates from simple linear regression analyses of anti-immigration attitudes confirm that the negative interaction between traditionalism and living in a former Socialist Republic is significant at the 0.1% threshold.

4.1.4. Control variables

Macro-level As in the first study, I controlled for the macro factors identified by Rooduijn and Burgoon (2018): *GDP*, *Gini*, *Social welfare expenditure*, *unemployment rate* and *net migration*.¹⁹

Individual-level Similarly, I control for the same individual-level variables and coding used by Rooduijn and Burgoon (2018):

- *Economic well-being*. Respondents were asked their feelings about their household's income. I measure the subjective feeling of economic well-being on a 4-point scale from 1 ("Very difficult on present income") to 4 ("Living comfortably on present income").
- *Education*. I measure the respondent's educational level based on a categorical scale: 1 ("Less than lower secondary"), 2 ("Lower secondary"), 3 ("Upper secondary"), 4 ("Postsecondary"), and 5 ("Tertiary").
- *Unemployed*. I rely on the respondent's main activity during the last seven days. I generate a binary variable coded 1 for respondents that are unemployed (either looking or not for a job) and 0 otherwise.
- *Age*.
- *Gender*. Coded 1 for male and 2 for female.
- *Religiosity*. Respondents were asked how religious they are. I rely on the 11-point scale from 0 ("Not at all religious") to 10 ("Very religious").
- *Rural/urban*. I include a binary variable coded 0 for rural respondents (either living in a "Farm or home in countryside" or a "Country village") and 1 for urban respondents (either living in a "Town or small city", "Suburbs or outskirts of big city" or "A big city").

4.1.5. Empirical strategy

To assess the effect of contextual factors on extreme voting and political attitudes, I merged macro variables with individual survey data based on the respondent's country and year of interview. There is substantial variation in the timing of the ESS fieldwork

¹⁹The sources for the macro-level controls are the same than in the first study, except for *social welfare expenditure* (Organisation for Economic Co-operation and Development, 2017) and *unemployment rate* (World Bank (2017d)), because the time and geographic coverage of the data could be improved by using other sources.

across countries and waves.²⁰ Fortunately, the ESS includes information on the year in which each individual interview took place, which is more accurate to merge macro variables than the official year of the ESS wave. Meanwhile, relying on the year of interview allows for greater variation in the macro variables. For instance, an individual has not experienced the same level of economic decline if she was interviewed in 2008 compared to 2009. As the aim is to assess the causal effect of contextual factors, all macro-level variables (i.e. economic decline and control variables) are one-year lagged.

The resulting database has a multilevel structure, in which individuals (level 1) are nested in groups of country-year (level 2). All variables are described in Table C.10 in Appendix C. To test the effect of macro variables on individual extreme vote and political attitudes, I estimated a range of multi-level regression models, with random effects computed on countries-years.²¹ I proceed in three steps. First, I analyze the effect of economic decline on extreme vote based on multi-level logistic regression models of individual extreme right and extreme left vote. Second, I analyze the effect of economic decline on political attitudes, based on multi-level linear regression models of individual political attitudes. Third, I analyze the effect of political attitudes on extreme vote, based again on multi-level logistic regression models of individual extreme right and extreme left vote. To account for potential country and period effects that would not have been captured by the macro controls, I analyze models including country and year fixed effects.

Samples vary depending on the outcome: extreme right vote, extreme left vote and political attitudes. In all cases, I excluded from the sample individuals with missing values for at least one individual-level predictor (i.e. individual political attitudes and individual controls). As previously detailed, to ensure that I am predicting the demand for (nor supply in) extreme parties, I excluded from the analyses of extreme right votes countries and waves in which no respondent voted for an extreme right party. Similarly, I excluded from the analyses of extreme left votes countries and waves in which no respondent voted for an extreme left party.²² For extreme right votes, the baseline sample is $N_{level\ 1} = 80,330$, $n_{level\ 2} = 151$ (mean N by group = 532.0). For extreme left votes, the baseline sample is $N_{level\ 1} = 82,029$, $n_{level\ 2} = 141$ (mean N by group = 581.8). In analyses of the effect of economic decline on political attitudes, I kept all countries and waves to maximize the

²⁰In our data, around two thirds of the national data collection phases took place astride two calendar years.

²¹Note that in some countries, only a few respondents were interviewed on a given year. For instance, 2 people were interviewed in Poland in 2007; 4 people were interviewed in Slovenia in 2009. As a result some country-year groups include a very low number of individual observations whilst other include more than a thousand observations. This is not an issue for our subsequent analyses as, when a sufficient number of level 2 units are included, the presence of low size groups have not been found to affect estimates of multi-level models (Bell et al., 2010).

²²The resulting samples of countries and waves is shown in Figure 3.4. Countries and waves displaying extreme right votes constitute the samples analyzed in models of extreme right votes. Countries and waves displaying extreme left votes constitute the samples analyzed in models of extreme left votes.

number of observations. The baseline sample is $N_{level\ 1} = 248,712$, $n_{level\ 2} = 274$ (mean N by group = 907.7). Note that in all models, the sample size decreases with the inclusion of macro variables for which information is not available for all countries and years.²³

4.2. Results

4.2.1. Economic decline and extreme vote

Tables 3.7 and 3.8 respectively display estimates from multilevel regression of extreme right and extreme left votes. To assess the robustness of the relationship between economic decline and extreme vote, I estimated a range of models: a first including only economic decline, a second with individual controls, a third with macro controls, a fourth with country fixed effects and a fifth with year fixed effects. Results presented in Tables 3.7 and 3.8 are relative to mid-term economic decline (the variation of GDP over 5 years). Results relative to short-term economic decline (the variation of GDP over 1 year) are presented in Tables C.11 and C.12 in the appendix.

Short-term economic decline has no distinguishable effect on individual extreme right votes. Estimates from model (1) in Table C.11 indicate that the GDP growth over 1 years is negatively related to the individual probability to vote for an extreme right party. Yet, this relationship is only significant at the 10% threshold. The relationship remains unchanged in the models including individual (2) and macro controls (3), and becomes insignificant, even at the 10% threshold, when including country (4) and year fixed effects (5).

Mid-term economic decline increases individual extreme right votes. Estimates from model (1) in Table 3.7 indicate that the GDP growth over 5 years is significantly related to the individual probability to vote for an extreme right party in the expected direction: the higher the growth of GDP the lower the probability to vote for the extreme right. This negative relationship is robust to the inclusion of the whole range of controls: individual controls (2), macro controls (3), country fixed effects (4) and year fixed effects (5). The relationship is significant at the 1% threshold in the full model.

²³In any case, the higher-level sample size $n_{level\ 2} > 100$, respecting high standards for multi-level modeling (Maas and Hox, 2005).

4. Study 2. Economic decline and individual extreme votes

Table 3.7: Effect of mid-term GDP growth on individual extreme right vote compared to mainstream vote (unstandardized coefficients from multilevel logistic regression)

	(1)	(2)	(3)	(4)	(5)
<i>Macro-level predictors</i>					
GDP growth (over 5 years)	-3.741*** (1.019)	-4.285*** (1.065)	-4.215** (1.379)	-3.619* (1.545)	-6.373** (2.113)
GDP			7.095 (7.779)	-20.43* (9.584)	-26.13+ (14.80)
Gini			-0.0771* (0.0343)	-0.0500 (0.0645)	-0.0451 (0.0691)
Social welfare expenditure			-0.145*** (0.0306)	0.0918 (0.0850)	0.0870 (0.104)
Unemployment rate			0.0223 (0.0352)	0.0221 (0.0433)	0.00385 (0.0533)
Net migration			0.149** (0.0473)	0.164* (0.0649)	0.208** (0.0680)
<i>Individual-level predictors</i>					
Economic well-being		-0.179*** (0.0190)	-0.157*** (0.0210)	-0.158*** (0.0211)	-0.158*** (0.0211)
<i>Education</i>					
Lower secondary		0.145* (0.0603)	0.125+ (0.0675)	0.127+ (0.0674)	0.128+ (0.0674)
Upper secondary		-0.116* (0.0579)	-0.151* (0.0653)	-0.148* (0.0653)	-0.148* (0.0653)
Postsecondary		-0.220** (0.0840)	-0.283** (0.0965)	-0.272** (0.0965)	-0.273** (0.0965)
Tertiary		-1.077*** (0.0635)	-1.098*** (0.0717)	-1.094*** (0.0717)	-1.094*** (0.0717)
Unemployed		0.211** (0.0678)	0.165* (0.0765)	0.165* (0.0765)	0.165* (0.0765)
Age		-0.0113*** (0.000870)	-0.0115*** (0.000970)	-0.0115*** (0.000970)	-0.0115*** (0.000970)
Gender		-0.408*** (0.0275)	-0.415*** (0.0305)	-0.414*** (0.0305)	-0.415*** (0.0305)
Religiosity		-0.0521*** (0.00500)	-0.0511*** (0.00557)	-0.0517*** (0.00557)	-0.0517*** (0.00557)
Rural/urban		-0.101*** (0.0276)	-0.0939** (0.0305)	-0.0895** (0.0305)	-0.0896** (0.0305)
Constant	-2.385*** (0.127)	-0.0266 (0.169)	4.482** (1.390)	-1.252 (2.416)	-0.604 (3.189)
Insig2u	0.202 (0.132)	0.293* (0.131)	-0.208 (0.146)	-1.131*** (0.161)	-1.199*** (0.162)
Country fixed effects	No	No	No	Yes	Yes
Year fixed effects	No	No	No	No	Yes
Observations	80325	80325	68193	68193	68193
Number of Country × Year	150	150	127	127	127
ICC	0.271	0.290	0.198	0.0894	0.0840

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3.8: Effect of mid-term GDP growth on individual extreme left vote compared to mainstream vote (unstandardized coefficients from multilevel logistic regression)

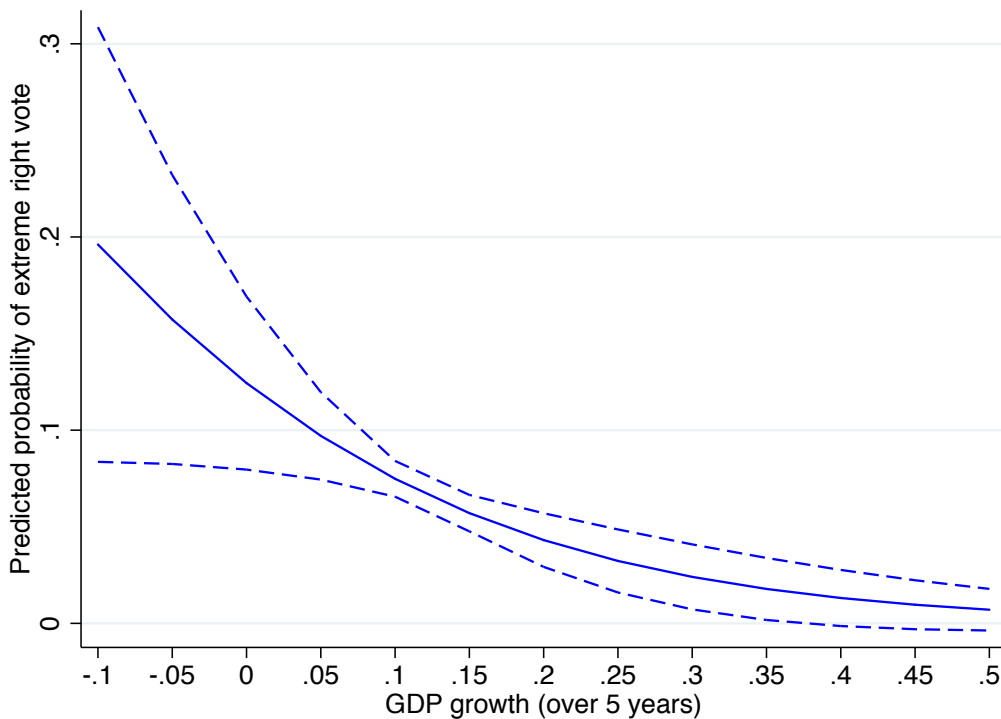
	(1)	(2)	(3)	(4)	(5)
<i>Macro-level predictors</i>					
GDP growth (over 5 years)	-1.733* (0.807)	-1.555+ (0.903)	-0.523 (1.175)	0.456 (0.590)	0.600 (0.685)
GDP			21.21*** (5.486)	-3.808 (3.581)	-8.095 (5.561)
Gini			0.0824*** (0.0230)	0.160*** (0.0254)	0.162*** (0.0235)
Social welfare expenditure			-0.0132 (0.0224)	0.0286 (0.0316)	0.0402 (0.0356)
Unemployment rate			-0.0681** (0.0245)	-0.0594*** (0.0180)	-0.0560** (0.0175)
Net migration			-0.0488* (0.0227)	-0.0558*** (0.0153)	-0.0517*** (0.0148)
<i>Individual-level predictors</i>					
Economic well-being		-0.359*** (0.0168)	-0.367*** (0.0183)	-0.373*** (0.0183)	-0.373*** (0.0183)
Education					
Lower secondary		0.256*** (0.0534)	0.248*** (0.0577)	0.257*** (0.0577)	0.256*** (0.0577)
Upper secondary		0.211*** (0.0511)	0.240*** (0.0550)	0.247*** (0.0551)	0.247*** (0.0551)
Postsecondary		0.225** (0.0772)	0.262** (0.0862)	0.277** (0.0860)	0.276** (0.0861)
Tertiary		0.379*** (0.0520)	0.426*** (0.0561)	0.433*** (0.0561)	0.433*** (0.0561)
Unemployed		0.339*** (0.0520)	0.283*** (0.0579)	0.276*** (0.0578)	0.274*** (0.0578)
Age		-0.00192* (0.000832)	-0.00176+ (0.000903)	-0.00170+ (0.000903)	-0.00174+ (0.000903)
Gender		0.191*** (0.0249)	0.202*** (0.0270)	0.201*** (0.0269)	0.201*** (0.0269)
Religiosity		-0.188*** (0.00482)	-0.189*** (0.00523)	-0.190*** (0.00523)	-0.190*** (0.00523)
Rural/urban		0.214*** (0.0273)	0.210*** (0.0295)	0.210*** (0.0295)	0.212*** (0.0295)
Constant	-2.323*** (0.0865)	-1.092*** (0.133)	-3.290*** (0.991)	-5.212*** (0.804)	-5.455*** (0.806)
Insig2u	-0.609*** (0.154)	-0.370* (0.150)	-0.763*** (0.167)	-3.437*** (0.245)	-3.838*** (0.303)
Country fixed effects	No	No	No	Yes	Yes
Year fixed effects	No	No	No	No	Yes
Observations	82027	82027	70520	70520	70520
Number of Country × Year	140	140	119	119	119
ICC	0.142	0.174	0.124	0.00969	0.00650

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 3.8 allows gauging the size of the effect. It shows the marginal effect of mid-term growth of GDP on the individual probability to vote for an extreme right party (compared to mainstream parties) based on the full model (5) of Table 3.7. The effect is sizable: the predicted probability to vote for the extreme right goes from nearly 20% in case of hard recession (10% decrease in GDP over 5 years) to about less than 2.5% in case of economic boom (more than 30% increase in GDP over 5 years).

Figure 3.8: Marginal effect of mid-term economic decline on individual extreme right vote (with 95% confidence interval)



Economic decline has no effect on individual extreme left votes. Estimates from Table C.12 show no significant effect of GDP growth over 1 year on the probability to vote for an extreme left party in any specification. Contrary to the expected positive relationship, estimates from model (1) in Table 3.8 indicate that the GDP growth over 5 years is negatively and significantly related to the individual probability to vote for an extreme left party: the higher the growth of GDP the lower the probability to vote for an extreme left party. Yet, the relationship only attains the 10% significance threshold when including individual controls (2) and is no longer significant when including macro controls (3), country (4) and year fixed effects (5).

I tested the inclusion of the interaction between economic decline and the respondent living in a former Socialist Republic. Following the reactionary hypothesis, one could expect that economic decline increases votes for extreme left parties in countries in which

the extreme left used to be in power in the past. The interaction term is insignificant both with short-term ($OR = 18.6692$, $p = 0.531$) and mid-term economic decline ($OR = 1.1709$, $p = 0.880$) based on model (5) of Tables C.12 and 3.8. However, this may be due to a lack of observations. The sample relative to extreme left votes only includes two former Socialist Republics: Czechia and Slovakia, extreme left votes being reported in only one wave for the latter. Hence, the present data does not allow to properly test the differential effect of economic decline on extreme left votes depending of the East-West divide.²⁴

Overall, results perfectly replicate findings from the first study on aggregated votes: economic decline affects differently extreme right and extreme left votes. As expected by Hypothesis 3.1, mid-term economic decline increases extreme right votes. Contrary to the expectation that economic decline decreases extreme left votes, GDP variation has no effect on extreme left votes.

Control variables Table 3.7 shows that most macro controls have no robust effects on extreme right votes, except the net migration rate, which has a positive and significant effect across model specifications. Notably, the unemployment rate has no significant effect on extreme right votes in all models. This suggests that increased competition in the labor market, or the expected fiscal burden due to unemployment, is not responsible for extreme right votes.²⁵ Regarding individual controls, results converge with Rooduijn and Burgoon (2018). The individual probability to vote for the extreme right is higher among subjectively deprived, unemployed, young, male, and rural individuals. The probability decreases with the level of education and religiosity.

As shown by Table 3.8, votes for the extreme left have different contextual antecedents than extreme right votes. The level of inequality has a robust positive effect on the propensity to vote for the extreme left. Both the unemployment rate and the net migration rate are negatively related to extreme left votes. Regarding individual controls, results again converge with Rooduijn and Burgoon (2018). The individual probability to vote for the extreme left is higher among subjectively deprived, educated, unemployed, young, female, and urban individuals. The probability decreases with the level of religiosity.

²⁴Chapter 4 provides evidence supportive of this effect by analyzing sector employment growth instead of GDP growth, which implies more variation within countries.

²⁵I also tested model (5) of Table 3.7 including an interaction term between unemployment and net immigration rate. The interaction coefficient is insignificant ($OR = .979$, $p = 0.236$), in line with previous findings from ?.

4.2.2. Economic decline and political attitudes

Tables 3.9, 3.10, 3.11 and 3.12 respectively report estimates from multilevel linear regression on the four political attitudes: political trust, support for redistribution, anti-immigration attitudes and traditionalism. For each dependent variable, I computed three different model specifications in an ascendant order: a first model including economic decline, individual and macro controls, a second model with country fixed effects and a third model with year fixed effects. Results presented in Tables 3.9, 3.10, 3.11 and 3.12 are relative to mid-term economic decline (the variation of GDP over 5 years). Results relative to short-term economic decline (the variation of GDP over 1 year) are presented in Tables C.13, C.14, C.15 and C.16 in the appendix. For convenience reason, I removed from the manuscript estimates related to macro and individual controls, which are essentially similar to estimates presented in the appendix.

Table 3.9: Effect of mid-term GDP growth on individual political trust (unstandardized coefficients from multilevel linear regression)

	(1)	(2)	(3)
GDP growth (over 5 years)	0.853 ⁺ (0.474)	-0.00568 (0.407)	0.0687 (0.503)
Constant	4.273*** (0.557)	7.333*** (0.939)	6.329*** (1.137)
Individual controls	Yes	Yes	Yes
Macro controls	Yes	Yes	Yes
Country fixed effects	No	Yes	Yes
Year fixed effects	No	No	Yes
Observations	187383	187383	187383
Number of Country × Year	208	208	208
ICC	0.0732	0.0215	0.0219

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Political trust

Economic decline only has a short-term negative impact on political trust. Estimates from Table C.13 indicate that the GDP growth over 1 years is significantly related to political trust in the expected positively direction in all specifications. In the full model (3), the relationship is significant at the 0.1% threshold. However, political trust is not related to mid-term economic decline. The relationship does not reach the 5% conventional significance threshold in any specification of Table 3.9. Altogether, this gives limited support to the first part of Hypothesis 3.2 that economic decline decreases political trust.

Table 3.10: Effect of mid-term GDP growth on individual support for redistribution (unstandardized coefficients from multilevel linear regression)

	(1)	(2)	(3)	(4)
GDP growth (over 5 years)	-0.0185 (0.198)	-0.225 ⁺ (0.124)	0.0678 (0.154)	0.756** (0.232)
Former Socialist Republics				0.476*** (0.0919)
Former Socialist Republics × GDP growth (over 5 years)				-0.780*** (0.204)
Constant	3.369*** (0.233)	3.853*** (0.282)	4.183*** (0.341)	3.721*** (0.349)
Individual controls	Yes	Yes	Yes	Yes
Macro controls	Yes	Yes	Yes	Yes
Country fixed effects	No	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes
Observations	187383	187383	187383	187383
Number of Country × Year	208	208	208	208
ICC	0.0523	0.00676	0.00695	0.00629

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3.11: Effect of mid-term GDP growth on individual anti-immigration attitudes (unstandardized coefficients from multilevel linear regression)

	(1)	(2)	(3)	(4)
GDP growth (over 5 years)	-0.656 ⁺ (0.375)	0.244 (0.293)	0.158 (0.324)	0.270 (0.329)
Former Western Bloc				-0.318 (0.204)
Former Western Bloc × GDP growth (over 5 years)				-0.940* (0.449)
Constant	6.160*** (0.441)	5.986*** (0.670)	5.047*** (0.722)	5.929*** (0.643)
Individual controls	Yes	Yes	Yes	Yes
Macro controls	Yes	Yes	Yes	Yes
Country fixed effects	No	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes
Observations	187383	187383	187383	187383
Number of Country × Year	208	208	208	208
ICC	0.0509	0.0113	0.00884	0.00891

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3.12: Effect of mid-term GDP growth on individual traditionalism (unstandardized coefficients from multilevel linear regression)

	(1)	(2)	(3)
GDP growth (over 5 years)	-0.211 (0.171)	-0.528*** (0.0721)	-0.278** (0.0943)
Constant	3.538*** (0.201)	3.242*** (0.158)	3.536*** (0.201)
Individual controls	Yes	Yes	Yes
Macro controls	Yes	Yes	Yes
Country fixed effects	No	Yes	Yes
Year fixed effects	No	No	Yes
Observations	187383	187383	187383
Number of Country × Year	208	208	208
ICC	0.0247	0.000510	0.000710

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Support for redistribution

Economic decline only increases support for redistribution in former Socialist Republics. In contradiction with Hypothesis 3.3, estimates from Table C.14 and 3.10 indicate that neither short-term nor mid-term economic decline has a significant effect on support for redistribution in any model specification. As detailed, if the reactionary hypothesis is true, economic decline should affect policy preferences depending on past policies. In the case of redistribution, we should observe that economic decline has a different effect on support for redistribution in former Socialist Republics than in countries of the former Western Bloc as these countries have experienced very distinct level of economic inequality in the past. More specifically, economic decline should be related to higher support for redistribution in former Socialist Republics since they used to be more egalitarian in the past. To investigate this possibility, I tested an additional model (4) of support for redistribution including an interaction between economic decline and living in a former Socialist Republics (compared to countries of the former Western Bloc). Indeed, the effect of economic decline is significantly different in former Socialist Republics in the expected direction. In model (4) of Table 3.10, the interaction term indicates that the relationship between GDP growth over 5 years and support for redistribution is significantly lower in former Socialist Republics. The interaction term is also significant, albeit only at the 5% threshold, for short-term GDP variation (see Table C.14). This is consistent with the assumption that economic decline generates a reactionary shift.

Anti-immigration attitudes

Economic decline only has a short-term negative impact on anti-immigration attitudes. Results from Table C.15 show that GDP growth over 1 years has a positive effect on anti-immigration attitudes. The effect is not very robust: it is significant at the 5% threshold in model (1), no longer significant in model (2) and significant at the 1% threshold in the full model (3). This gives some support to the first part of Hypothesis 3.4 that economic decline increases anti-immigration attitudes. However, estimates from Table 3.11 show that the relationship between economic decline and anti-immigration attitudes is not significant at mid-term specification.

Again, it is worth noticing from Table C.15 that unemployment rate has no significant effect (or even a slight negative effect in the simple model) on anti-immigrant attitudes, which would be expected from the labor competition hypothesis.²⁶

Mid-term economic decline only increases anti-immigration attitudes in countries of the former Western Bloc. As for support for redistribution, the reactionary hypothesis implies that economic decline differently affects anti-immigration attitudes depending on the society's history of migrations. We should observe that economic decline is related to enhanced anti-immigration attitudes in countries of the former Western Blocs, which used to experience less immigration in the past compared to former Socialist Republics. Again, to test for this prediction, I tested an additional model (4) including an interaction term between economic decline and living in countries of the former Western Bloc. Results from Table 3.11 confirm the expectations: the effect of GDP growth over 5 years is significantly lower in countries of the former Western Bloc. Again, this is consistent with the assumption that economic decline generates a reactionary shift. Yet, this interaction effect is less robust than for support for redistribution: the interaction term only attains the 5% significance threshold, and is insignificant when computed with short-term economic decline (see Table C.15).

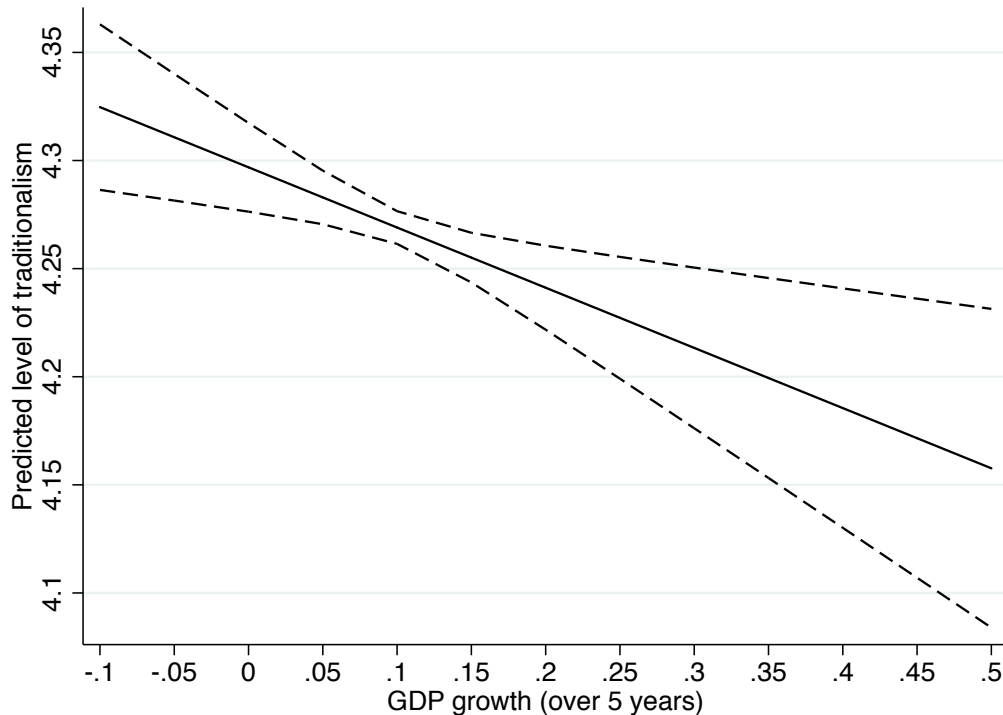
Traditionalism

Economic decline increases traditionalism. Results from Table C.16 show that GDP growth over 1 years has a significant negative effect on traditionalism in all specifications. In the full model (3), the coefficient is significant at the 1% threshold. The relationship between traditionalism and GDP growth over 5 years is slightly less robust.

²⁶Here again I tested for a potential interaction effect between unemployment and the net migration rate, based on model (3) of Table C.15. The interaction term is insignificant ($b = -0.00202$, $p = 0.278$).

As shown by Table 3.12, the effect is not significant in the model (1) but reaches significance threshold in the model including country fixed effects (2) and the full model (3) including year fixed effects. Figure 3.9 shows the marginal effect of mid-term growth of GDP on individual traditionalism based on the latter model. Overall the results are consistent with the first part of Hypothesis 3.4 that economic decline increases traditionalism.

Figure 3.9: Marginal effect of mid-term economic decline on individual traditionalism (with 95% confidence interval)



Overall, the strongest effects of economic decline are short-term for political attitudes and mid-term for votes. A general look on the up mentioned results suggest that economic decline operates in a two-step process, as one could expect from our different theoretical mechanism. Significant effects of economic decline on political attitudes are generally short-term, while significant effects on votes are only mid-term. Interestingly, effects related to the reactionary shift mechanism appear to be in-between short-term and mid-term. Indeed, economic decline affects traditionalism both at short-term and mid-term specifications, and the differential effects of economic decline for former Socialist Republics and Western Bloc countries are stronger at mid-term specifications. This suggests that contrary to the other effects of GDP variation, the reactionary shift is increased in case of prolonged decline.

4.2.3. Political attitudes and extreme votes

Tables 3.13 and 3.14 respectively display estimates from multilevel regression of extreme right and extreme left votes. I estimated five models to test the effect of the four political attitudes separately and then simultaneously. All models include mid-term economic decline, individual and macro controls as well as country and year fixed effects.

Table 3.13: Effect of political attitudes on individual extreme right vote compared to mainstream vote (unstandardized coefficients from multilevel logistic regression)

	(1)	(2)	(3)	(4)	(5)
<i>Macro-level predictors</i>					
GDP growth (over 5 years)	-6.166** (2.227)	-6.353** (2.114)	-6.428** (2.174)	-6.402** (2.111)	-6.316** (2.251)
<i>Individual-level predictors</i>					
Political trust	-0.265*** (0.00802)				-0.179*** (0.00848)
Support for redistribution		-0.0560*** (0.0144)			-0.0627*** (0.0148)
Anti-immigration			0.410*** (0.00865)		0.357*** (0.00899)
ESS_traditionnalisme				0.0835*** (0.0125)	0.0407** (0.0128)
Constant	1.348 (3.364)	-0.393 (3.191)	-2.920 (3.285)	-0.935 (3.187)	-1.187 (3.404)
Insig2u	-1.070*** (0.160)	-1.197*** (0.162)	-1.134*** (0.161)	-1.201*** (0.162)	-1.050*** (0.160)
Individual controls	Yes	Yes	Yes	Yes	Yes
Macro controls	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	68193	68193	68193	68193	68193
Number of Country × Year	127	127	127	127	127
ICC	0.0944	0.0841	0.0891	0.0838	0.0961

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Political trust

Political trust decreases both extreme right and extreme left votes. Results from model (1) of Table 3.13 show that political trust has a significant strong negative effect on extreme right vote. However, as shown by model (1) of Table 3.14, political trust is

Table 3.14: Effect of political attitudes on individual extreme left vote compared to mainstream vote (unstandardized coefficients from multilevel logistic regression)

	(1)	(2)	(3)	(4)	(5)
<i>Macro-level predictors</i>					
GDP growth (over 5 years)	0.785 (0.686)	0.234 (0.697)	0.416 (0.681)	0.553 (0.690)	0.156 (0.700)
<i>Individual-level predictors</i>					
Political trust	-0.127*** (0.00708)				-0.143*** (0.00748)
Support for redistribution		0.633*** (0.0162)			0.613*** (0.0162)
Anti-immigration			-0.112*** (0.00754)		-0.132*** (0.00785)
ESS_traditionnalisme				-0.135*** (0.0105)	-0.128*** (0.0107)
Constant	-4.927*** (0.809)	-8.176*** (0.826)	-4.564*** (0.802)	-4.857*** (0.814)	-5.920*** (0.834)
Insig2u	-3.841*** (0.306)	-3.798*** (0.302)	-3.867*** (0.306)	-3.809*** (0.298)	-3.795*** (0.302)
Individual controls	Yes	Yes	Yes	Yes	Yes
Macro controls	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	70520	70520	70520	70520	70520
Number of Country × Year	119	119	119	119	119
ICC	0.00649	0.00677	0.00632	0.00670	0.00679

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

also negatively and significantly related to extreme left vote. The results remain similar when including other political attitudes as covariates in model (5). The evidence thus suggests that political trust is not responsible for the increase in extreme right votes under economic decline, as if this logic was true we should observe enhanced extreme votes in contexts of economic decline. Hypothesis 3.2 does not receive full empirical support.

Support for redistribution

Support for redistribution decreases extreme right votes and increases extreme left votes. Results from model (2) of Table 3.13 show that support for redistribution has a significant negative effect on extreme right vote. The direction of the relationship is opposite to Hypothesis 3.3 expectations. Furthermore, model (2) of Table 3.14 shows that support for redistribution is positively and significantly related to extreme left votes. The results remain similar when including other political attitudes as covariates in model (5). Hence, we can definitively reject Hypothesis 3.3 that economic decline increases right-wing votes through increasing support for redistribution.

Anti-immigration attitudes

Anti-immigration attitudes increase extreme right votes and decrease extreme left votes. As expected by Hypothesis 3.4, results from model (3) of Table 3.13 show that anti-immigration attitudes have a significant strong positive effect on extreme right vote. Anti-immigration attitudes have the opposite effect on extreme left votes: model (3) of Table 3.14 shows that anti-immigration attitudes are negatively and significantly related to extreme left votes. The results remain similar when including other political attitudes as covariates in model (5). This strongly supports the second part of Hypothesis 3.4 that anti-immigration attitudes specifically increase extreme right votes.

Traditionalism

Traditionalism increases extreme right votes and decreases extreme left votes. As expected by Hypothesis 3.5, results from model (4) of Table 3.13 show that traditionalism has a significant positive effect on extreme right vote. Traditionalism has the opposite effect on extreme left votes: model (4) of Table 3.14 shows that anti-immigration attitudes are negatively and significantly related to extreme left votes. The size of the coefficient is lower when including other political attitudes as covariates in model (5) of Table 3.13 relative to extreme right votes. The relationship nevertheless remains significant. Further analyses show that anti-immigration attitudes partly captured the effect of traditionalism on extreme right votes.

Figure 3.10a and 3.10b respectively plot the marginal effect of traditionalism on extreme right and extreme left votes based on model (5).²⁷ Overall, the results confirm the second part of Hypothesis 3.5 that traditionalism increases extreme right votes and does not increase (it actually decreases) extreme left votes.

5. General discussion

Results from the two studies shed some light on the general relationship linking economic decline and extreme votes, as well as the underlying individual mechanism. First, the results perfectly replicate previous findings on the effects of cumulative economic recession on aggregated votes in Europe during the 1920s and 1930s (De Bromhead et al., 2013), and the electoral effects of financial crises before and after World War II (Funke et al., 2016). Economic decline is related to enhanced individual probability to vote for extreme right parties and has no effect on extreme left votes.

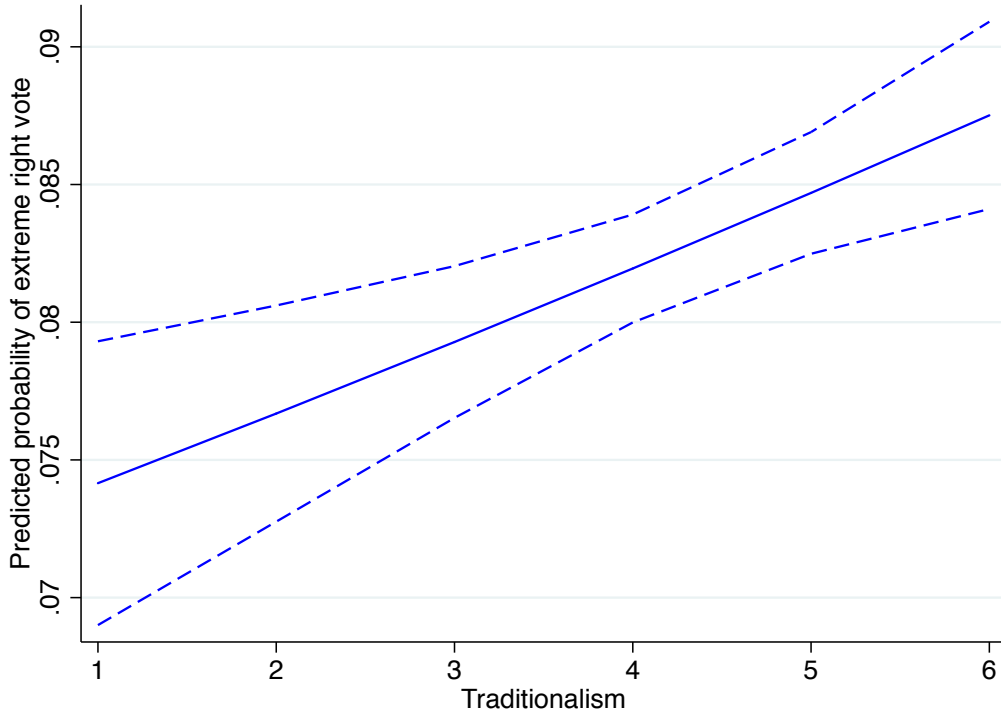
The results also converge with De Bromhead et al. (2013) and Funke et al. (2016) regarding the timing of the effect of economic variations on extreme right votes. I consistently found that the variation in GDP matters at mid-term (over five years) rather than short-term (over one year) specification. De Bromhead et al. (2013) similarly found that three years cumulative growth had a strong effect on extreme right voting in the between-war period, while one-year GDP growth had not. Analyses from Funke et al. (2016) show that financial crises have a delayed effect on extreme right votes: their projections show that extreme right parties linearly gain votes over the five year period following a financial crisis. One first interpretation is that economic variations are not immediately visible, they have delayed material effects and thus affect people afterwards. However, this does not fit with the data from the second study: short-term economic variations have stronger effects than mid-term variations on political attitudes, which means that individuals somehow perceived them. Hence, the most credible interpretation is economic recession needs to be prolonged to affect the individual propensity to vote for the extreme right.

This consideration directly relates to the second implications of the results: regarding the individual mechanism linking economic decline and extreme right votes. Results indicate that, among the four political attitudes under study, two can be ruled out and two are plausible candidates to explain the relationship between economic decline and extreme right votes. Evidence clearly contradict Hypothesis 3.4, that economic decline

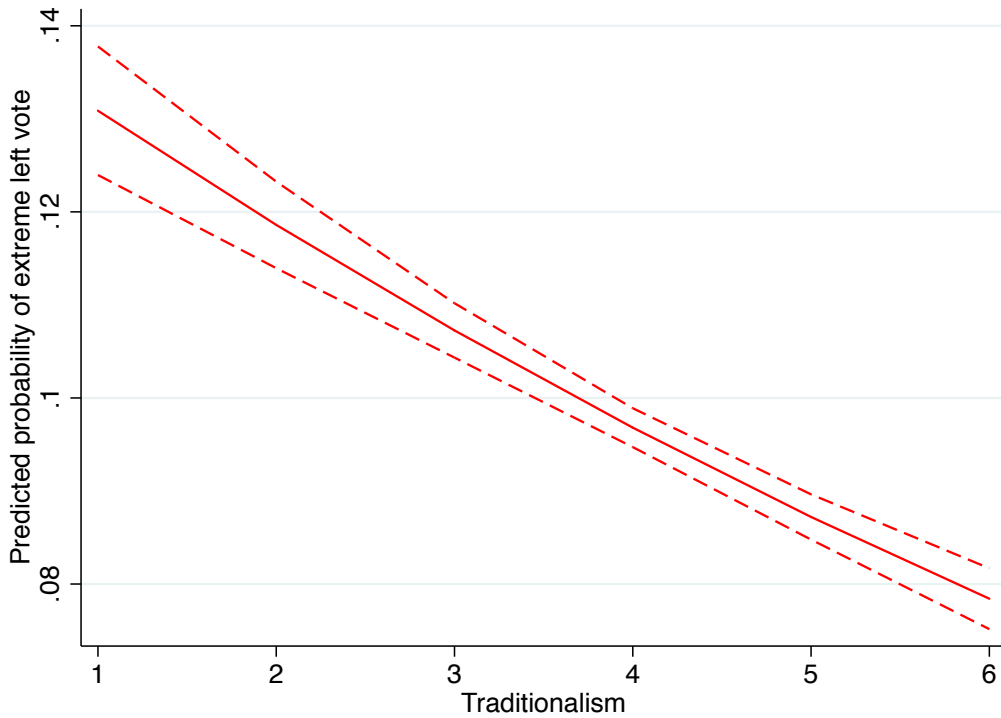
²⁷Note that the marginal effects were computed based on simple logistic regressions (not including random effects at the country-year) which does not significantly affect the coefficients of individual-level variables.

Figure 3.10: Marginal effect of traditionalism on individual extreme vote

(a) Marginal effect of traditionalism on individual extreme right vote (with 95% confidence interval)



(b) Marginal effect of traditionalism on individual extreme left vote (with 95% confidence interval)



increases extreme right votes through increasing *support for redistribution*. Economic decline does not affect support for redistribution, and support for redistribution is not positively related to extreme right votes, while it is positively related to extreme left votes. Besides, results are generally unsupportive of Hypothesis 3.2, that economic decline increases extreme right votes through decreasing *political trust* due to an economic voting mechanism. In the first study, I found that extreme right parties electorally benefit from economic decline, regardless of whether they participated in government. In the second study, I found a negative effect of economic decline on political trust but this effect is only short-term. Besides, low political trust is associated with both higher probability to vote for the extreme right and the extreme left. Hence, if this mechanism was the main driver, we should observe that both extreme right and extreme left party mobilize voters in times of economic decline, which is not the case.

Results suggest that both *anti-immigration attitudes* (Hypothesis 3.4) and *reactionary attitudes* (Hypothesis 3.5) may play a role in the process linking economic decline and extreme right votes. In both cases, there is evidence (a) that economic decline affects the attitude in the expected direction and (b) that the attitude is related to extreme votes in the expected direction. However, the level of evidence differs at the two steps of the process. Regarding *anti-immigration attitudes*, results moderately support (a) and strongly support (b). At the first step, I found a positive effect of economic decline on anti-immigration attitudes but this effect is only short-term, which casts some doubts on the assumption that it explains the electoral effect of mid-term economic decline. Besides, I found that mid-term economic decline only increases anti-immigration attitudes in countries of the Former Western Bloc, which rather points toward a reactionary mechanism. Moreover, additional results are not supportive of the underlying mechanism by which economic decline is supposed to connect with anti-immigration attitudes. Indeed, the unemployment rate has no effect of anti-immigrant attitudes, even when in interaction with the immigration rate. This contrasts with the rational interpretation that labor market competition and the fear of fiscal burden due to incoming immigrants explain the relationship between economic decline and anti-immigration attitudes.²⁸ Unsurprisingly, at the second step, the effect of anti-immigration attitudes on extreme right votes is sizable.

Regarding *reactionary attitudes*, results strongly support (a) but moderately support (b). Economic decline is positively related to traditionalism, both at short-term and mid-term specifications. Furthermore, additional results confirm that economic decline (especially mid-term) generates a reactionary shift. Economic decline specifically increases support for redistribution in former Socialist Republics, in line with their past higher level

²⁸A plausible alternative mechanism would derive from theory of enemies examined in Part III. The mechanism is that economic decline generates a sense of fear for the in-group position, which results in a tendency of in-group members to target weaker out-groups, which include immigrants in case of low-skilled immigration countries. This specific mechanism is analyzed in Chapter 7.

of redistribution ; and, as mentioned, mid-term economic decline specifically increases anti-immigration attitudes in countries of the former Western Bloc, in line with their past lower level of immigration. Altogether, this provides strong support for the first step of the reactionary hypothesis. At the second step, traditionalism is positively related to extreme right votes, but it is a rather slight effect. Nonetheless, one may guess that the low effect size is partly due to the fact that the traditionalism indicator imperfectly captures reactionary attitudes. As we will see in Chapter 6, there is a strong connection between reactionary attitudes and extreme right vote once reactionary attitudes are measured in the appropriate way.

Unfortunately, I can hardly prove here that the effect of economic decline is mediated by any political attitude. As shown by Table 3.13, the inclusion of political attitudes in models of extreme right vote do not alter the coefficient of the GDP growth. If one attitude explained a large part of the effect of mid-term economic decline, we would have expected that the inclusion of the variable measuring the attitude to significantly lower the effect of the variation of GDP. The fact that it is not the case in any model means that none of the political attitudes captures a large part of the effect. Here nonetheless, "the absence of proof is not the proof of absence": this result should not be interpreted as the proof that none of the mechanisms I have put forward actually explains the relationship. Indeed, large surveys such as ESS imply a huge amount of random variation and, especially in the case of my measure of traditionalism, there are good reasons to think that the variable captures only a small part of the true variance in reactionary attitudes.²⁹ Rather, the result means that I cannot give a final proof here that one or both of the mechanisms actually explains why extreme right parties benefit from economic decline.

What about radical movements? The results provide initial support to my theory of ideals regarding right-wing ideologies. As much as we can infer from conventional voting behaviors, economic decline breeds attraction to extreme right ideologies. There seems to be a reactionary shift under times of economic decline that attract people toward political supply that promotes past arrangements such as extreme right parties. Now, the question remains whether such fertile ground for reactionary ideologies eventually translates into unconventional political behaviors and increases the mobilization of right-wing radical movements.

On the left-wing side, results are more ambiguous. Contrary to my expectations, collective prosperity does not lead to more votes to extreme left parties. There is not something like a revolutionary shift in times of prosperity, at least in voting behaviors.

²⁹For instance, I will show in Chapter 6 that, when properly measured, reactionary attitudes have a stronger correlation with extreme right voting behavior than when measured with the traditionalism scale.

This result may be interpreted in two ways. On the one hand, it is possible that economic decline breeds reactionary ideologies but that collective prosperity does not lead to the equivalent attraction toward revolutionary ideologies. To be clear, these ideologies do not have to be communicating vessels: someone who is not reactionary is not necessarily revolutionary (and conversely). People who do not promote a social change in normal times may become supportive of a reactionary social change in times of economic decline and remain un-supportive of any social change in times of collective improvement. If this is the case, my theory of ideals would potentially account for the mobilization of right-wing radical movements, but would not for left-wing radical movements. These movements' mobilization in times of prosperity would have to be explained by other factors than the revolutionary content of their ideology. Part III explores another line of explanation through the theory of enemies. On the other hand, it is possible that the vote for extreme left parties reflects two contradictory trends: in times of prosperity, people may be more attracted by revolutionary ideals, but at the same time, they may be less likely to punish mainstream parties for their economic performances and vote for extreme left parties – as found in the first study. In other words, the revolutionary shift may not be visible through voting behaviors. If this is true, it remains possible that the theory of ideals have some relevance for left-wing radical movements. To decide this question, Chapter 5 directly tests the causal effect of economic decline and prosperity on the mobilization potential of right-wing and left-wing radical movements.

4

Another shade of decline. Sector employment change and extreme votes

"The work that occupied the last years of Jed Martin's life can thus be seen—and this is the first interpretation that springs to mind—as a nostalgic meditation on the end of the Industrial Age in Europe, and, more generally, on the perishable and transitory nature of any human industry."

The Map and the Territory
MICHEL HOUELLEBECQ

This chapter tests the same set of hypotheses than Chapter 3 based on a different measure of economic decline. I here analyze the effect of historical variations in relative employment across economic sectors on extreme right and extreme left votes. Using ESS data from Chapter 3, I find that employees of declining sectors have a higher propensity to vote for extreme right parties. Variations in sector employment entirely explain the over-representation of Industry workers among extreme right voters. I provide clues that this effect is due to a reaction mechanism: sector employment decline increases individual traditionalism, has no effect neither on political trust nor on anti-immigration attitudes, and specifically increases support for redistribution in former Socialist Republics. Besides, sector employment decline increases votes for extreme left parties with reactionary characteristics (e.g. in Czechia, Finland and Ireland) while it reduces votes for extreme left parties with revolutionary characteristics (e.g. in Norway, Denmark, Portugal and Greece).

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In this short chapter, I test the same set of hypotheses than in Chapter 3 based on a different measure of economic decline. Instead of focusing on GDP growth, I here analyze the effect of historical variations in relative employment across economic sectors (e.g. industry, agriculture, services, etc.). Hence, as for Hypothesis 3.1 relative to economic decline, I test this general hypothesis:

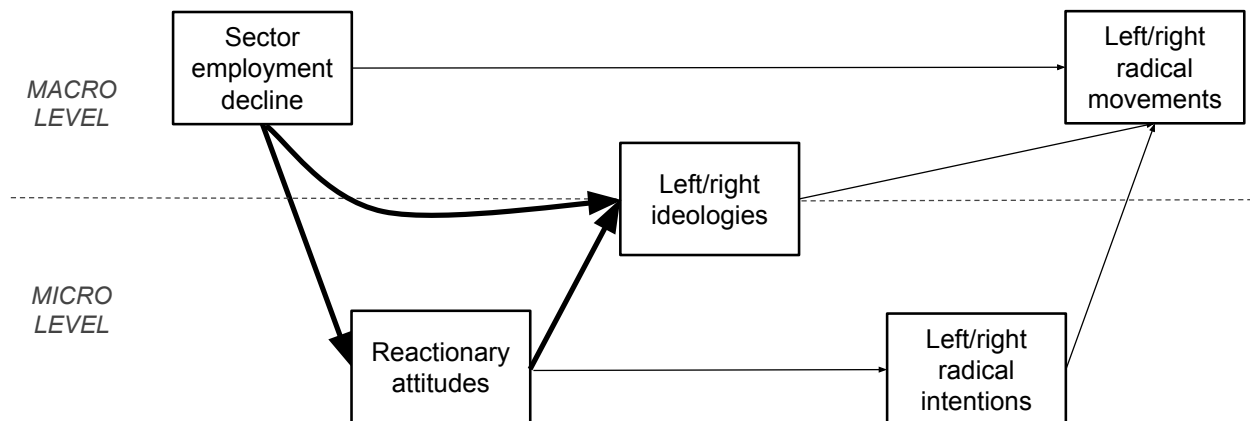
Hypothesis 4.1 *Sector employment decline differently affects extreme right and extreme left votes.*

A. *Sector employment decline increases extreme right votes.*

B. *Sector employment decline decreases extreme left votes.*

Following the reactionary hypothesis, individuals who are part of an economic sector in relative decline in a society should be more likely to favor the return to a past state of society in which their sector was relatively more important, and hence should be more likely to vote for extreme right parties. In contrast, being part of a declining sector should decrease the propensity to vote for extreme left parties, that generally advocate for ending up with traditional arrangements.

Figure 4.1: Causal paths of the theory of ideals analyzed in Chapter 4



1. Why should extreme right parties benefit from sector employment decline?

1.1. Material versus psychological effects

There are several reasons why individuals may feel nostalgic about a period in which their economic sector was relatively more flourishing (see Kurer, 2017; Kurer and Palier, 2019). First, from a *material* perspective, decline in one's sector employment is likely to induce stress on the individual's economic welfare. Second, from a *psychological* perspective, to the extent that one's economic activity is part of the personal identity and entails some degree of sameness with people of one's economic sector, being part of a relatively large economic sector may be appreciable since various aspects of an individual "way of life" are relatively widespread and respected. As stated by Kurer (2017) for the case of routine workers in the context of automation:

"Being traditionally respected members of the lower middle class, routine workers increasingly find themselves in an environment of structural decline. As a consequence of a decreasing demand for routine jobs and sensational media reporting on their soon extinction, the importance and esteem of this kind of work has strongly suffered in the age of automation. The familiar sense of linear progress in the past clashes with insecure future prospects and shatters the idea of ever-ongoing social upward mobility (...). While for some, the liberation of the more rigid social and economic rules might be empowering, for others, the departure from inherited traditions and beginning of a new era of technological innovation rather creates a sense of isolation, alienation and discomfort" (Kurer, 2017, p. 7)

Related to both *material* and *psychological* perspectives, relatively large economic sectors are likely to have more power on policies, through electoral weight and collective action (e.g. unions), and hence individuals of large economic sectors may be more represented in their country's policies.¹ Both the *material* and *psychological* mechanisms should increase reactionary attitudes. At the same times, the mechanisms should have distinct effects on other political attitudes. As suggested by Kurer (2017), the *material* mechanism should specifically increase demand for economic protective economic policies, hence increasing support for redistribution, while the *psychological* mechanism should have an effect on non-economic political issues.

Various studies have specifically analyzed the effect of economic changes due to technological innovations on extreme right votes. Im et al. (2019) found that individuals who

¹In this line, decrease in employment among industrial sectors is a major cause of decline in union membership (Dickens and Leonard, 1985).

1. Why should extreme right parties benefit from sector employment decline?

belong to an economic occupation with high risk of automation are more likely to vote for the extreme right. Similarly, Kurer (2017) analyzed the effect of decline in routine works on extreme votes in Germany, Switzerland and the United Kingdom. Interestingly, Kurer (2017) found that "survivors", i.e. individuals who maintain their economic position in routine work in context of structural decline due to technological change, are more likely to vote for the extreme right, while "dropouts", i.e. former routine workers who lost their job due to automation, were not. This supports the *psychological* mechanism, that sector employment decline generates a feeling of nostalgia due to the past social status, over the *material* mechanism. However, to my knowledge, no study analyzed the effect of variation in sector employment in general - i.e. not only due to technological change.

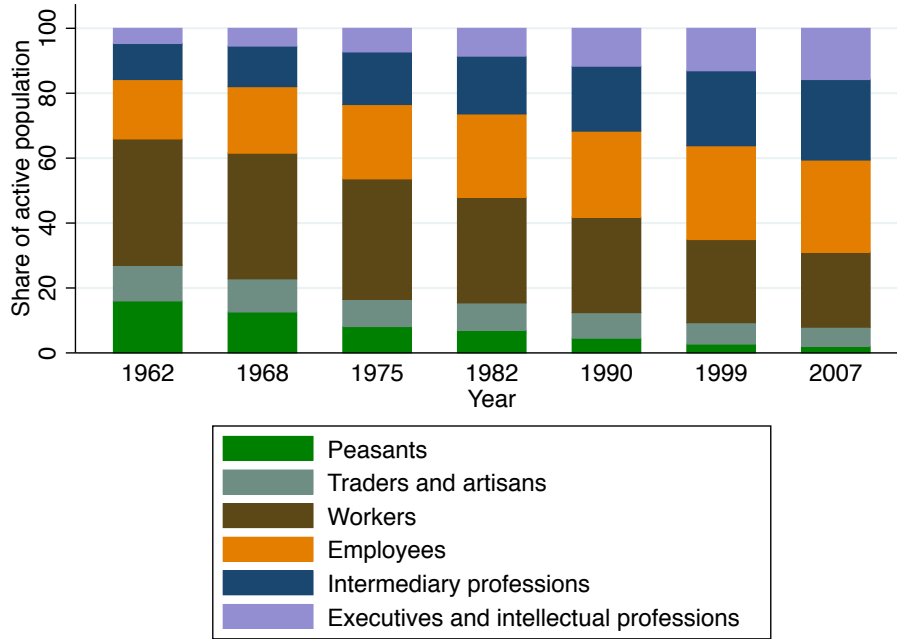
1.2. Narrative and preliminary evidence

Altogether, the hypothesis that sector employment decline increases extreme right votes could shed light on the significant variation of electoral success of extreme right parties across economic sectors. For instance, taking the French case, share of votes for the *Front National* (National Front, FN) vary greatly across economic activities. This variation seems to be closely correlated to the relative evolution of economic activities. Figure 4.2a shows the evolution of the share of active population by economic activity in France from 1962 to 2007 (Marchand, 2010). Among declining categories, the share of peasants fell from 16% to 2%, traders and artisans were divided by two (from 11% to 5.9%) and workers decreased from 38.9% to 23.1%. Among flourishing categories, the share of employees increased from 18.3% to 28.4%, intermediary professions more than doubled (from 11.1% to 24.8%) and executives and intellectual professions tripled (from 4.7% to 15.8%). As shown by Figure 4.2b the rank of relative evolution across economic activities closely matches with the rank in shares of votes for the FN estimated in the 1984-1995 period (Bihr, 1998, p. 18), except for peasants as discussed below. Overall, it seems that professions in long-term decline are more likely to vote for the FN.

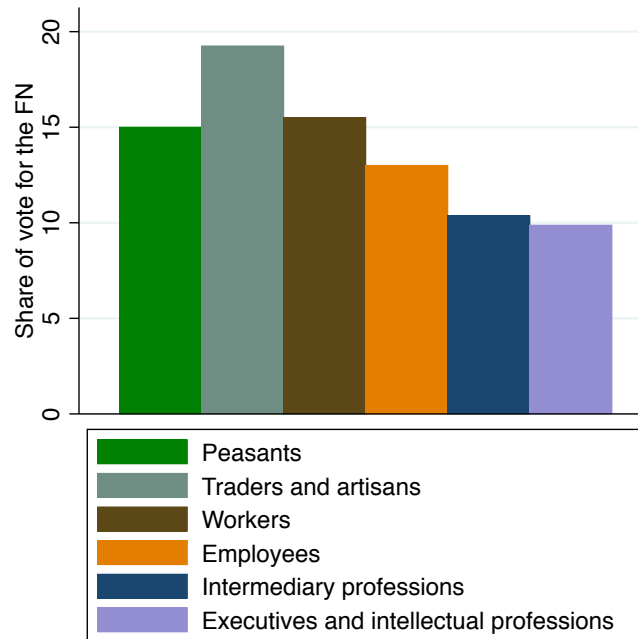
Besides, the hypothesis could account for historical variation of the electoral success of extreme right parties among given economic sectors. Looking at workers, it is well established that over recent decades, extreme right votes in Europe have been especially high among blue collar workers (Lubbers et al., 2002; Rydgren, 2012). The over-representation of workers among voters of the FN was already visible in the 1980s-1990s, as shown in Figure 4.2b, but it is more pronounced today (Gougou, 2015). Now, a simple historical look shows that blue collar workers are not inherently predisposed to voting for the extreme right. In the 1950s-1970s for instance, blue collar workers were disproportionately voting for communist and socialist parties in France (Gougou, 2007) and Europe in general (Dogan, 1960; Korpi, 1971). The electoral shift correlates with the evolution of the industrial sector in Europe. Since the nineteenth century, Europe was experiencing

Figure 4.2: Evolution of economic activities in France and vote for the Front National (FN)

(a) Share of the active population by economic activity in France



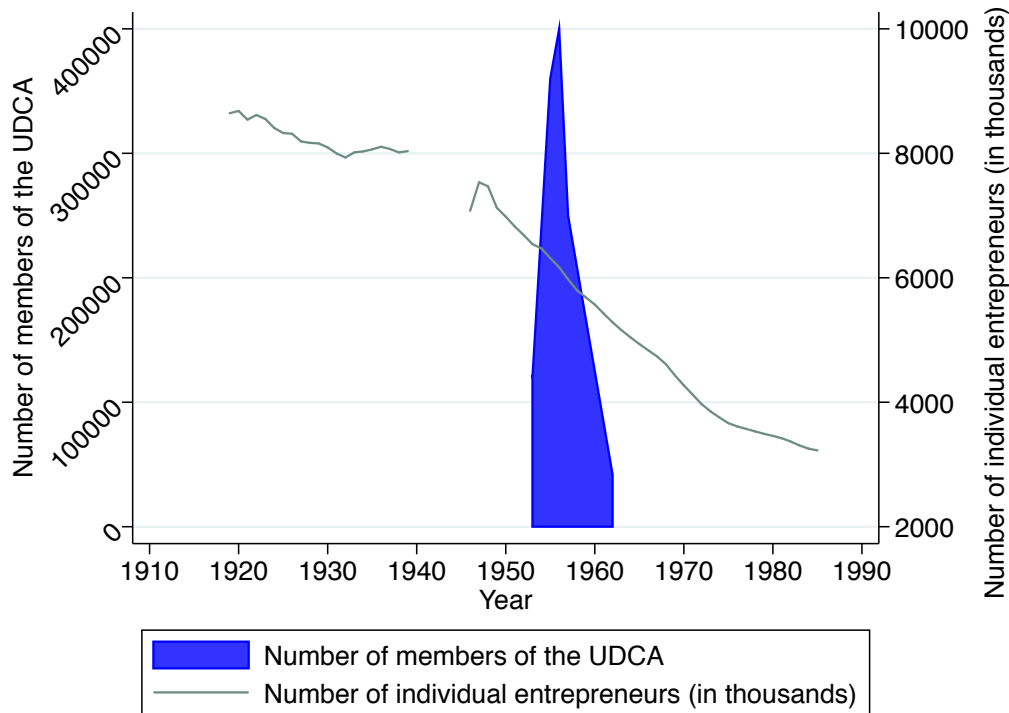
(b) Mean share of vote for the Front National (FN) by economic activity in the 1984-1995 period, average values computed from Bihr (1998)



1. Why should extreme right parties benefit from sector employment decline?

an increase in manufacturing jobs, which peaked in the 1970s (Felipe et al., 2019), and then experienced a deindustrialization trend (Rowthorn and Ramaswamy, 1997).

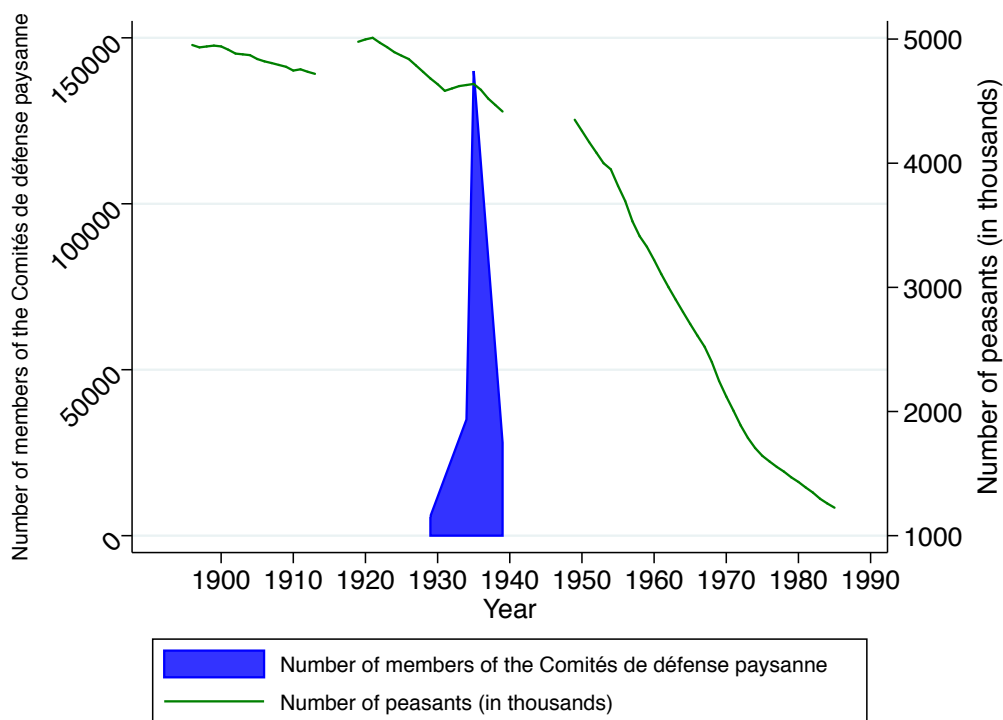
Figure 4.3: Number of individual entrepreneurs in France and emergence of the Union de Défense des Commerçants et Artisans (UDCA)



The same correlation may be observed for other economic sectors. For instance, let's have a look at the small traders and artisans in France. In the inter-war period, the sector experienced small variations, while since the 1950s, it experienced a net decline (Jacques, 2018). Figure 4.3 illustrates this trend by displaying the evolution of the number of individual entrepreneurs in France according to the CEPII (1997). Politically, during the interwar period, small shopkeepers were rather supportive of the "republican compromise" and constituted the electoral basis of the Parti Radical (Radical Party, Rad) at the center-left (Berstein, 1980; Zalc, 2012). Since the 1950s, artisans and small traders have become overrepresented in extreme right electorates. Notably, the Poujadist *Union de Défense des Commerçants et Artisans* (Union for the Defense of Tradesmen and Artisans, UDCA), an extreme right movement born in 1953, experienced an important electoral success in France in 1956 among small shopkeepers and artisans in a period this economic sector did not experience the same growth than the other economic sectors and faced the early beginnings of discount stores (Borne, 1977; Jacques, 2018). Figure 4.3 plots the number of members of the UDCA according to the database of Chapter 1. The UDCA had a clear reactionary agenda (Fitzgerald, 1970) which was characterized by "anti-parliamentary ideas, naive anti-capitalism, hatred of "metics", intellectuals, "ped-

erasts", etc. - and reactionary or traditionalist ideas closer to the ideology of the national revolution" (Milza, 1987, p. 307-308). After the end of the Poujadist movement, artisans and small businessmen have been over-represented in the electorate of the FN since its early electoral successes (Ivaldi, 2005), as show by Figure 4.2b. For instance, in 1988, around one out of three artisans and small businessmen voted for the FN (Bihr, 1998, p. 22). Interestingly, Mayer (1993) observed that, in 1987, it was in departments facing the more economic modernization that merchants and artisans were most likely to vote at the right of the political spectrum.

Figure 4.4: Number of peasants in France and emergence of the *Comités de défense paysanne*



One sector seems to be an exception regarding the reactionary hypothesis: peasantry. The employment in agriculture sector has been continuously falling over the past decades in developed countries (Dorin et al., 2013). Hence, peasants should disproportionately vote for extreme right parties. However, this is not the case. French peasants should vote for the FN more than any other economic activity given their declining trend, yet they vote for the FN less that traders and artisans or workers, as shown by Figure 4.2b. This is also true in other European countries: on average, farmers are not more likely to vote for the extreme right in recent elections (Harteveld, 2016). Does this contradict the reactionary hypothesis? Most probably yes. Yet, one alternative explanation is that, for peasants, it is "too late". Relative employment in agriculture has been constantly declining for two centuries in most developed countries. Hence, it may be that the decline

1. Why should extreme right parties benefit from sector employment decline?

now seems inexorable, and that a reaction toward a past agricultural society has simply become unrealistic.

To be sure, this has not always be the case. It has been times in which the constant decline in agriculture employment did not seem inexorable. In the French case, this moment may well have occurred during the inter-war period and culminated with the Chemises Vertes movement in the 1930s. The *Comités de défense paysanne* (Peasants' defense committee) – commonly known as *Chemises vertes* (Green shirts) – lead by Henry Dorgères, was an extra-parliamentary movement born in 1929 which experienced a popular mobilization from peasants peaking in 1935. The *Comités de défense paysanne* had a clear reactionary agenda (Paxton, 1996).

"In the book he published in 1935, "Forks up" [*Haut les fourches*], the leader of the *Comités de défense paysanne* sets out the broad outlines of his doctrine, which relates directly to the corporatist and traditionalist ideals of ancient France (...). Dorgères is making the trial of the bureaucratic state and its liberal policy, favorable to the interests of urban capitalism and to speculators. He denounces the educational work of the Third Republic and the role of the teacher who helped dechristianize the countryside and deprived the land of its best elements, making them republican scholarship holders, and then bureaucrats cut off from their rural roots (here we recognize certain ideas of Barrès). In line with the ideas of Maurras and the doctrine of social Catholicism, he calls for the establishment of a strong state - monarchy or "family corporate republic" - both decentralized and respectful of traditional structures. A state which is capable of restoring to the peasant world, savior of the nation during the Great War, the privileged place which had been its in the past."(Milza, 1987, p. 127)

Figure 4.4 shows the mobilization of the *Comités de défense paysanne* based on the database of Chapter 1 along with the evolution of the number of peasants in France over the twentieth century (CEPII, 1997). One can see that the *Comités de défense paysanne* emerged after a decade of slow decline in the number of peasants following World-War I, at a period in which peasantry still constituted a large fraction of the labor and in which it could be reasonable to think that France could remain strongly peasant country. In contrast, to my knowledge, no significant peasant reactionary movement emerged after World War II, in a context of sharp fall in the number of peasants.² Hence, it may be

²One can identify various peasant mobilizations in France after World War II, but such movements are typically relatively issue-oriented and sectoral, such as farmer unions as the *Fédération nationale des syndicats d'exploitants agricoles* (National Federation of Agricultural Holders' Unions, FNSEA), in contrast to the highly ideologically committed *Comités de défense paysanne*.

that the *Comités de défense paysanne* were the expression of the last hope for a truly reactionary change before the very last hours of French peasantry.

2. Method

I tested similar models than in Chapter 3, except that I tested the effect of the variation in employment of the respondents' sector of activity.

2.1. Sector employment growth

The ESS includes an item positioning respondents according to the Statistical Classification of Economic Activities in the European Community (NACE). I relied on data on the number of employees by economic activity in European countries from Eurostat (2020a,b). The coding of the NACE changed in 2008, resulting in a different structure of data before and after 2008. To have comparable categories in these two periods, I assembled data relative to the number of employees by country in the five main sectors of activity: Industry, Alimentation production, Public sector and community, Services, and Other. I computed the variation in employment in a given sector as the variation in percentage points of the share of the active population working in this sector.

The economic sector in which the individual is employed (e.g. industry) does not precisely map onto the individual's occupational position (e.g. blue-collar worker). For instance, individuals in our study may be executives from the Industry sector. Nonetheless, this does not reduce the construct validity of our measure of decline. Both the evolution in employment in one's occupation and sector of activity should theoretically affect one's attitudes and voting behavior. One can even argue that the evolution of the employment in their economic sector is more meaningful for individuals. Indeed, people may be more aware of the conjuncture of their sector as a whole than of the conjuncture for employees of the same qualification but in very different sectors than them (e.g. intermediary professions in the Industry versus in Services or Alimentation Production sectors).

As in Chapter 3, I computed to main independent variables: short-term sector employment growth (over one year) and mid-term sector employment growth (over five years). Given previous results (see Chapter 1, 2 and 3), I expect that mid-term growth in particular should influence traditionalism and voting behaviors. Here again, the expected relationship is negative for traditionalism and extreme right voting: the higher the growth of employment in the respondent's sector, the lower the intensity of traditionalism and the share of extreme right votes. In contrast, the expected relationship is positive for extreme left voting: the higher the growth of employment in the respondent's sector, the higher the

share of extreme left votes. Figure D.1 in Appendix D shows the distribution of short-term and mid-term variation of sector employment.

2.2. Empirical strategy

I use the same micro and macro control variables than in Chapter 3 - including mid-term GDP growth. I merged the sector employment growth with individual survey data based on the respondent's country, year and sector of employment. This variable is one-year lagged, as well as all macro-level variables. The resulting database has a multilevel structure, in which individuals (level 1) are nesting in groups of country-year-sector (level 2). As in Chapter 3, I estimated a range of multi-level regression models, with random effects computed on countries-years-sectors. I proceed in three times. First, I analyze the effect of sector employment growth on extreme vote based on multi-level logistic regression models of individual extreme right and extreme left vote. Second, I analyze the effect of sector employment growth on political attitudes, based on multi-level linear regression models of individual political attitudes. Third, I compare the effect of sector employment growth on the share of extreme votes according to the ESS by country.

3. Results

3.1. Sector employment decline and extreme votes

Tables 4.1 and 4.2 respectively display estimates from multilevel regression of extreme right and extreme left votes. I tested the effect of sector employment growth, controlling for individual and macro controls as well as country and year fixed effects. In a second model, I tested the effect of sector employment growth, controlling by sector fixed effects. This allows disentangling whether sector employment growth affects extreme votes independently of the average voting characteristics of certain sectors (e.g. Industry).

Results presented in Tables 4.1 and 4.2 are relative to mid-term sector employment growth. Results relative to short-term sector employment growth are presented in Tables D.1 and D.2 in the appendix.

Sector employment decline increases individual extreme right votes. Estimates from model (1) in Table D.1 indicate that the sector employment growth over 1 years has a significant negative effect on the individual probability to vote for an extreme right party. The relationship remains unchanged in the model (2) including sector fixed effects. Estimates from model (1) in Table 4.1 indicate that the sector employment growth over 5

Table 4.1: Effect of mid-term sector employment growth on individual extreme right vote compared to mainstream vote (unstandardized coefficients from multilevel logistic regression)

	(1)	(2)
Sector employment growth (over 5 years)	-4.013* (1.955)	-6.077* (2.725)
Sector (Industry as reference)		
Alimentation production		-0.766*** (0.193)
Public Sector and community		-0.106 (0.114)
Services		0.102 (0.120)
Other		0.114 (0.161)
Constant	-0.924 (2.088)	-1.031 (2.034)
Insig2u	-1.285*** (0.126)	-1.390*** (0.130)
Individual controls	Yes	Yes
Macro controls	Yes	Yes
Country fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	57861	57861
Number of Sector × Country × Year	460	460
ICC	0.0776	0.0704

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4.2: Effect of mid-term sector employment growth on individual extreme left vote compared to mainstream vote (unstandardized coefficients from multilevel logistic regression)

	(1)	(2)	(3)
Sector employment growth (over 5 years)	0.513 (1.087)	-0.631 (1.448)	-0.533 (1.430)
Former Socialist Republics			-0.0304 (0.388)
Former Socialist Republics × Sector employment growth (over 5 years)			-17.64** (5.491)
Sector (Industry as reference)			
Alimentation production		-0.355** (0.112)	-0.359** (0.111)
Public Sector and community		0.261*** (0.0783)	0.285*** (0.0778)
Services		-0.0662 (0.0829)	-0.0273 (0.0828)
Other		-0.137 (0.139)	-0.115 (0.138)
Constant	-4.357*** (0.965)	-4.478*** (0.882)	-4.502*** (1.120)
Insig2u	-2.301*** (0.151)	-2.648*** (0.182)	-2.701*** (0.185)
Individual controls	Yes	Yes	Yes
Macro controls	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	59077	59077	59077
Number of Sector × Country × Year	441	441	441
ICC	0.0296	0.0211	0.0200

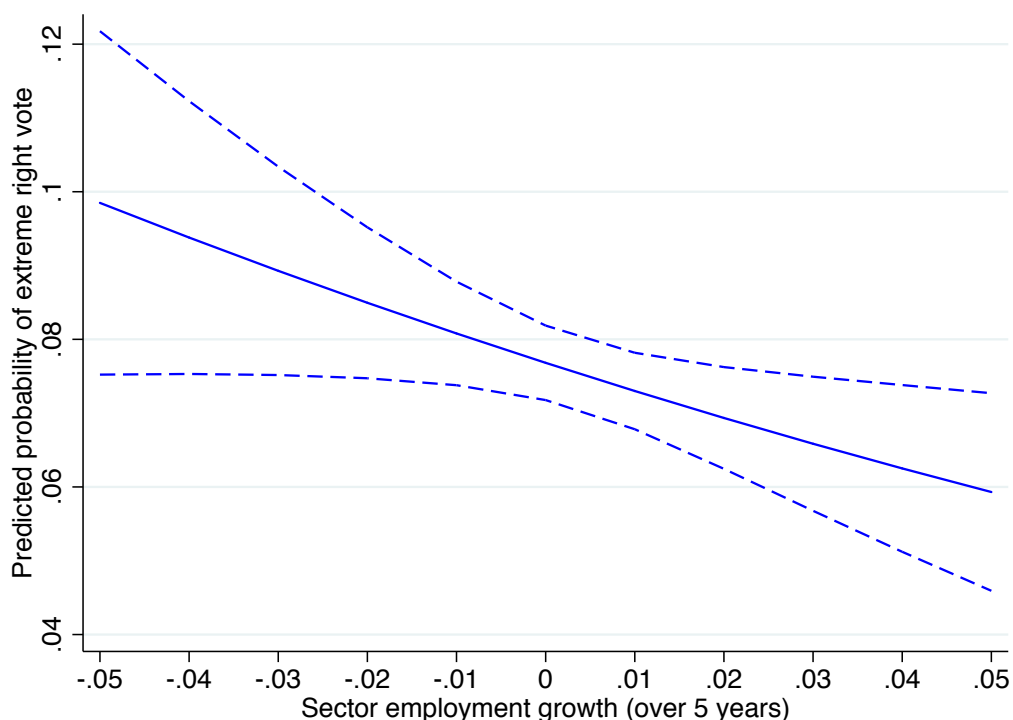
Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

years is also significantly related to the individual probability to vote for an extreme right party in the expected direction: the higher the growth of sector employment the lower the probability to vote for the extreme right. This negative relationship is robust to the of sector fixed effects in model (2). The relationship is significant at the 5% threshold in the full model.

Figure 4.5 allows gauging the size of the effect. It shows the marginal effect of mid-term sector employment growth on the individual probability to vote for an extreme right party (compared to mainstream parties) based on the full model (2) of Table 4.1. The effect is slight: the predicted probability to vote for the extreme right is more than 9% in case of sharp decline (decrease of less than 4 points of the share of active population from the sector over 5 years) such as for the Danish or Dutch Industrial sectors in 2011 and 2012. The predicted probability is around 6% in case of economic boom (increase of more than 4 points of the share of active population from the sector over 5 years) such as for the Slovenian and Slovakian Services sectors in 2010-2011.

Figure 4.5: Marginal effect of mid-term sector employment growth on individual extreme right vote



Variation in sector employment decline partly explains differences in the share of extreme right votes across economic sectors. Model (2) of Table 4.1 shows little variation in the mean share of extreme right votes across sectors. Employees of the Public sector and community, Services and Other sectors are not significantly more likely to vote

for the extreme right that individuals working in the Industry sector. Yet, excluding sector employment growth from model (2) of Table 4.1 reveals different findings. In such a model, employees of Public sector and community sector are significantly less likely to vote for the extreme right than employees of the Industry sector ($b = -0.2559, p = 0.006$). Hence, results indicate that differences in votes for the extreme right between these two sectors are entirely explained by the fact that the Industry sectors in the study sample experienced more decline in employment than the Public sector and community sectors, increasing the propensity of employees of the Industry sectors to vote for the extreme right. In the same vein, one can note that, albeit the difference is insignificant in both models, employees of the Services sector are on average more likely to vote for the extreme right in model (2) of Table 4.1 while they are on average less likely once excluding sector employment growth ($b = -0.0858, p = 0.323$). Hence, our results support the view that employees of the Industry are not inherently more likely to vote for the extreme right but that their higher propensity may be explained by the fact that industrial sectors recently experienced strong employment decline. In contrast, employees in the Alimentation production sector are significantly less likely to vote for the extreme right than employees of the Industry sector in both model (2) including or excluding sector employment growth ($b = -0.7955, p < 0.000$). This aligns with the above consideration that workers in the agriculture sector are an exception to the theory, which may possibly be due to the fact that decline in the agriculture sector is perceived as natural and inexorable, and hence that the return to a previous state of flourishing agriculture does not seem realistic.

Sector employment decline only increases individual extreme left votes in former Socialist Republics. Estimates from Table D.2 show no significant general effect of sector employment growth over 1 year on the probability to vote for an extreme left party both in model (1) and model (2) controlling for sector fixed effects. Estimates from models (1) and (2) in Table 4.2 confirm that sector employment growth over 5 years is not significantly related to the individual probability to vote for an extreme left party.

Model (3) of Tables D.2 and 4.2 tests the interaction between sector employment growth and the respondents living in a former Socialist Republic. The interaction term with short-term sector employment growth is insignificant but in the expected negative direction in model (3) of Table D.2. The interaction term with mid-term sector employment growth is also negative and reaches the 1% significance threshold in model (3) of Table 4.2. This indicates that sector employment decline over 5 years increases extreme left votes in former Socialist Republics.

Overall, as observed for economic decline in Chapter 3, results support Hypothesis 4.1: sector employment growth differently affect extreme right and extreme left votes. As expected, sector employment decline increases extreme right votes. Contrary to the

expectation that sector employment growth increases extreme left votes, the variable has no general on extreme left votes. However, sector employment decline is found to increase extreme left votes in former Socialist Republics. This result is coherent with the reactionary mechanisms: sector employment decline favor votes for extreme left parties in countries in which the extreme left used to be in power in the past.

3.2. Sector employment decline and political attitudes

Tables 4.3, 4.4, 4.5 and 4.6 respectively report estimates from multilevel linear regression of the effect of mid-term sector employment growth on the four political attitudes studied in Chapter 3: political trust, support for redistribution, anti-immigration attitudes and traditionalism. For each dependent variable, I again computed two models, controlling or not for sector fixed effects.

Table 4.3: Effect of mid-term sector employment growth on individual political trust (unstandardized coefficients from multilevel linear regression)

	(1)	(2)
Sector employment growth (over 5 years)	0.800 (0.639)	-0.815 (0.814)
Constant	6.195*** (0.697)	5.989*** (0.640)
Individual controls	Yes	Yes
Macro controls	Yes	Yes
Country fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Sector fixed effects	No	Yes
Observations	144865	144865
Number of Sector × Country × Year	728	728
ICC	0.0218	0.0174

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

3.2.1. Political trust

Sector employment decline has no effect on political trust. Estimates from model (1) of Table 4.3 indicate that sector employment growth over 5 years is not significantly related to political trust. The results are unchanged when controlling for sectors fixed effects in model (2). This does not support to Hypothesis 3.2, when applied to sector employment growth (instead of GDP growth), that sector employment decline decreases political trust.

Table 4.4: Effect of mid-term sector employment growth on individual support for redistribution (unstandardized coefficients from multilevel linear regression)

	(1)	(2)	(3)
Sector employment growth (over 5 years)	-0.0840 (0.181)	0.460* (0.195)	0.614** (0.203)
Former Socialist Republics			0.200*** (0.0382)
Former Socialist Republics × Sector employment growth (over 5 years)			-0.845* (0.352)
Constant	4.764*** (0.200)	4.833*** (0.153)	4.840*** (0.151)
Individual controls	Yes	Yes	Yes
Macro controls	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Sector fixed effects	No	Yes	Yes
Observations	144865	144865	144865
Number of Sector × Country × Year	728	728	728
ICC	0.00364	0.000702	0.000605
Standard errors in parentheses			
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$			

Table 4.5: Effect of mid-term sector employment growth on individual anti-immigration attitudes (unstandardized coefficients from multilevel linear regression)

	(1)	(2)	(3)
Sector employment growth (over 5 years)	-2.491*** (0.593)	-0.523 (0.806)	0.397 (1.376)
Former Western Bloc			-0.453** (0.163)
Former Western Bloc × Sector employment growth (over 5 years)			-1.194 (1.447)
Constant	4.658*** (0.647)	4.765*** (0.633)	5.222*** (0.536)
Individual controls	Yes	Yes	Yes
Macro controls	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Sector fixed effects	No	Yes	Yes
Observations	144865	144865	144865
Number of Sector × Country × Year	728	728	728
ICC	0.0206	0.0195	0.0195
Standard errors in parentheses			
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$			

Table 4.6: Effect of mid-term sector employment growth on individual traditionalism (unstandardized coefficients from multilevel linear regression)

	(1)	(2)
Sector employment growth (over 5 years)	-0.576*** (0.154)	-0.496* (0.217)
Constant	3.294*** (0.170)	3.306*** (0.170)
Individual controls	Yes	Yes
Macro controls	Yes	Yes
Country fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Sector fixed effects	No	Yes
Observations	144865	144865
Number of Sector × Country × Year	728	728
ICC	0	0

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

3.2.2. Support for redistribution

Economic decline only increases support for redistribution in former Socialist Republics. In contradiction to the negative effect expected by Hypothesis 3.3, when applied to sector employment growth (instead of GDP growth), model (1) of Table 4.4 indicates that mid-term sector employment growth has no significant general effect on support for redistribution. Sector employment growth even has a significant positive effect on support for redistribution when controlling for sector fixed effects in model (2). This does not support the *materialist* mechanism exposed above that variation in employment affects political attitudes through the inducing stress on the individual's economic welfare. Indeed, if this mechanism were true, we should observe that employees of declining sectors are more supportive of protective social policies, as suggested by Kurer (2017). Our results are the opposite: employees of declining sectors are, if any, less likely to support welfare redistribution. This aligns with findings from Kurer (2017) that structural decline in routine works increases votes for the extreme right through a *psychological* rather than a *material* mechanism.

As in Chapter 3, we should observe that decline in sector employment is related to higher support for redistribution in former Socialist Republics since they used to be more egalitarian in the past. To investigate this possibility, model (3) of Table 4.4 includes an interaction between sector employment growth and the respondent's living in a former Socialist Republics (compared to countries of the former Western Bloc). As expected, the effect of sector employment growth is significantly different in former Socialist Republics in the expected negative direction: the effect of sector employment growth is positive in

countries of the former Western Bloc and negative in former Socialist Republics. This is consistent with the assumption that sector employment decline generates a reactionary shift.

3.2.3. Anti-immigration attitudes

Sector employment decline has no robust effect on anti-immigration attitudes. Model (1) of Table 4.5 indicates that mid-term sector employment growth has a significant negative effect on anti-immigration attitudes. However, the effect becomes statistically insignificant once controlling for sector fixed effects in model (2). This gives little support to Hypothesis 3.4, when applied to sector employment growth (instead of GDP growth), that sector employment decline increases votes for extreme right parties through increasing anti-immigrant attitudes.

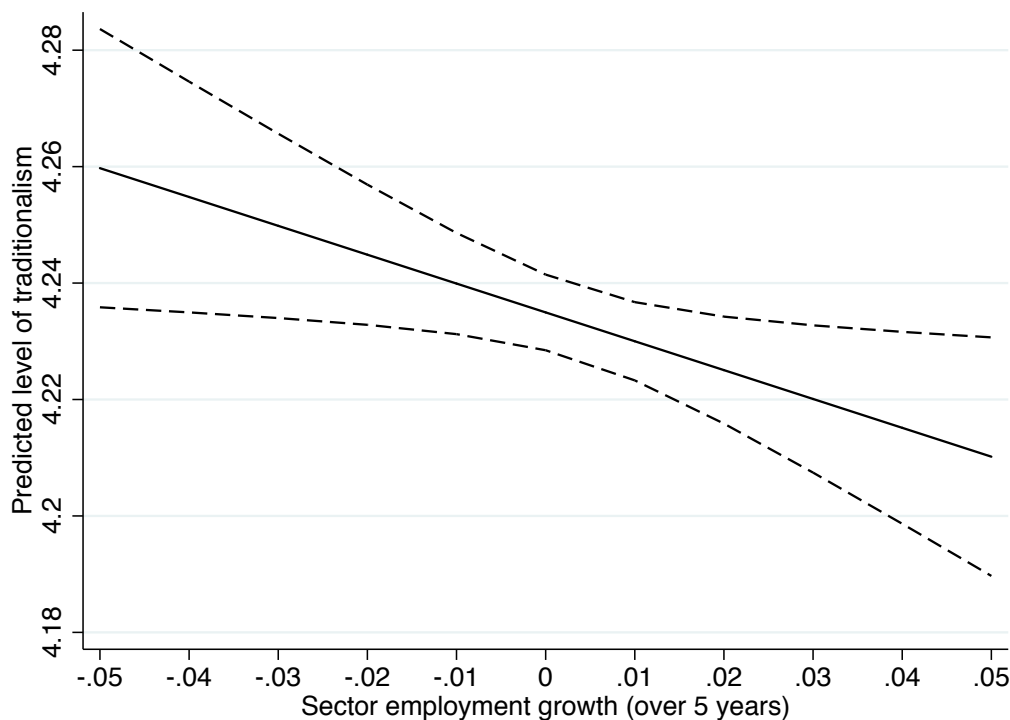
As in Chapter 3, we should observe that decline in sector employment is related to higher anti-immigration attitudes in countries of the former Western Bloc since they used to experience less immigration in the past. Model (3) of Table 4.5 includes an interaction between sector employment growth and the respondent's living in a country of the former Western Bloc (compared to former Socialist Republics). The effect of sector employment growth is in the expected negative direction but does not reach statistical significance. This does not give additional support to the reactionary hypothesis.³

3.2.4. Traditionalism

Sector employment decline increases traditionalism. Model (1) of Table 4.5 show that sector employment growth over 5 years has a significant negative effect on traditionalism. The effect is still significant at the 5% threshold in model (2) including sector fixed effects. Figure 4.6 shows the marginal effect of mid-term growth of GDP on individual traditionalism based on the latter model. Overall the results are consistent with Hypothesis 3.4, when applied to sector employment growth (instead of GDP growth), that sector employment decline increases votes for extreme right parties through increasing traditionalism.

³One may note that this result is actually relatively coherent with the overall findings from Chapter 3. Indeed, I found in Chapter 3 that economic decline had a clearly different effect on support for redistribution in former Socialist Republics compared to countries of the former Western Bloc. The difference in effect was less robust regarding anti-immigration attitudes, which is relatively similar to the present findings. This may be interpreted as reflecting the fact that the major difference between past political systems between the East and the West relates to communism, and hence, economic redistribution. Differences in immigration levels are important, as shown in Figure 3.7a in Chapter 3, but they may be perceived as more contingent, i.e. non inherent to the past political system (communist versus capitalist).

Figure 4.6: Marginal effect of mid-term sector employment growth on individual traditionalism



3.3. Sector employment decline and extreme votes across countries

Limited variations in national economic indicators did not allow to compare the effect of economic decline across countries in Chapter 3. Interestingly, there is sufficient variations within countries in sector employment growth to perform such comparison. The aim is to analyze whether the effect of sector employment growth on extreme votes is homogeneous across countries or if the effects contrast depending on national contexts. To do so, I generated a new dataset on economic sectors by aggregating data from the ESS. Each observation is an economic sector in a given country and year. For each sector, I used the dependent variable on extreme votes to estimate the share of respondents who declared having voted for an extreme right (or extreme left) party compared to mainstream parties.

Figure 4.7 plots the share of extreme right votes by sector and country. Each circle represents a sector at a given year.⁴ The color of the circle represents the broad category of the sector (i.e. Industry, Alimentation Production, Public Sector and Community, Services).⁵ The size of the circle represents the number of valid respondents⁶ from the

⁴Note that, for visual convenience, I excluded outlier sectors for which the share of extreme right votes was above 40%. Yet, the fitted values in the plots are computed including these cases.

⁵Note that I chose to exclude here the "Other" category as it gathers employees from distinct activities that are unlikely to feel any common sense of belonging.

⁶By "valid respondents", I mean the number of respondents who indicated that they voted either for an

sector in the ESS, and is a good indicator of the accuracy of the estimation of the share of votes from the sector. Indeed, sectors with a low number of respondents are more likely to display extreme values. The horizontal axis represents the mid-term relative employment growth in the sector. Fitted values represent the linear relationship between the sector employment growth and the share of extreme right votes in the country.⁷ Figure 4.7 represents the same plot with the share of extreme right votes by sector and country.

Sector employment decline has relatively homogeneous effects on extreme right votes. As shown by Figure 4.7, the effect of sector employment growth on extreme right votes is relatively similar across countries. The slope is negative in most (14/17) countries. In contrast, the relationship is positive in three countries (Greece, Italy and Slovakia) but in all these cases, the number of observations is low, which suggests that the effect is due to chance. Figure 4.9a allows comparing the regression coefficients and associated confidence intervals for the linear relationship between mid-term sector employment growth and extreme right votes across countries. Overall, the effect of sector employment is negative and significant ($b = -0.5958, p = 0.015, N = 480$). The effect attains the 5% level of significance for two countries, Denmark ($b = -1.0290, p = 0.019, N = 36$) and Norway ($b = -3.3179, p = 0.000, N = 43$), and the 10% level for Netherlands ($b = -1.4483, p = 0.070, N = 51$).⁸ None of the positive relationships attains conventional levels of significance, which suggest that they reflect chance: for Greece ($b = 0.3782, p = 0.194, N = 12$), Italy ($b = 1.2010, p = 0.446, N = 12$) and Slovakia ($b = 0.6886, p = 0.259, N = 18$).

Sector employment decline has contrasted effects on extreme left votes. In contrast, Figure 4.8 shows that the effect of mid-term sector employment growth on extreme left votes greatly vary across national contexts. The slope is positive in eight countries and negative in seven countries, which could indicate that effects are simply random. As for extreme right votes, Figure 4.9b allows comparing the regression coefficients and associated confidence intervals for the linear relationship between mid-term sector employment growth and extreme left votes across countries. Figure 4.9b confirm that there is no significant general effect of mid-term sector employment growth on extreme left votes ($b = 0.1332, p = 0.313, N = 492$). However, Figure 4.9b contradicts the view that differences in effects across countries simply reflect random variations. Indeed, coefficients attain conventional levels of significance in nearly half of the countries (7/15). The effect

extreme right or mainstream party.

⁷Fitted values are computed based on simple linear regressions in which each observation (i.e. a sector in a given year) is weighted by the number of valid respondents from the sector.

⁸The p-values of the regression coefficients are between 10% and 20% for three countries: Austria ($b = -1.9290, p = 0.132, N = 17$), France ($b = -1.3706, p = 0.160, N = 39$) and Switzerland ($b = -1.3566, p = 0.137, N = 42$).

Figure 4.7: Share of extreme right votes by sector and country

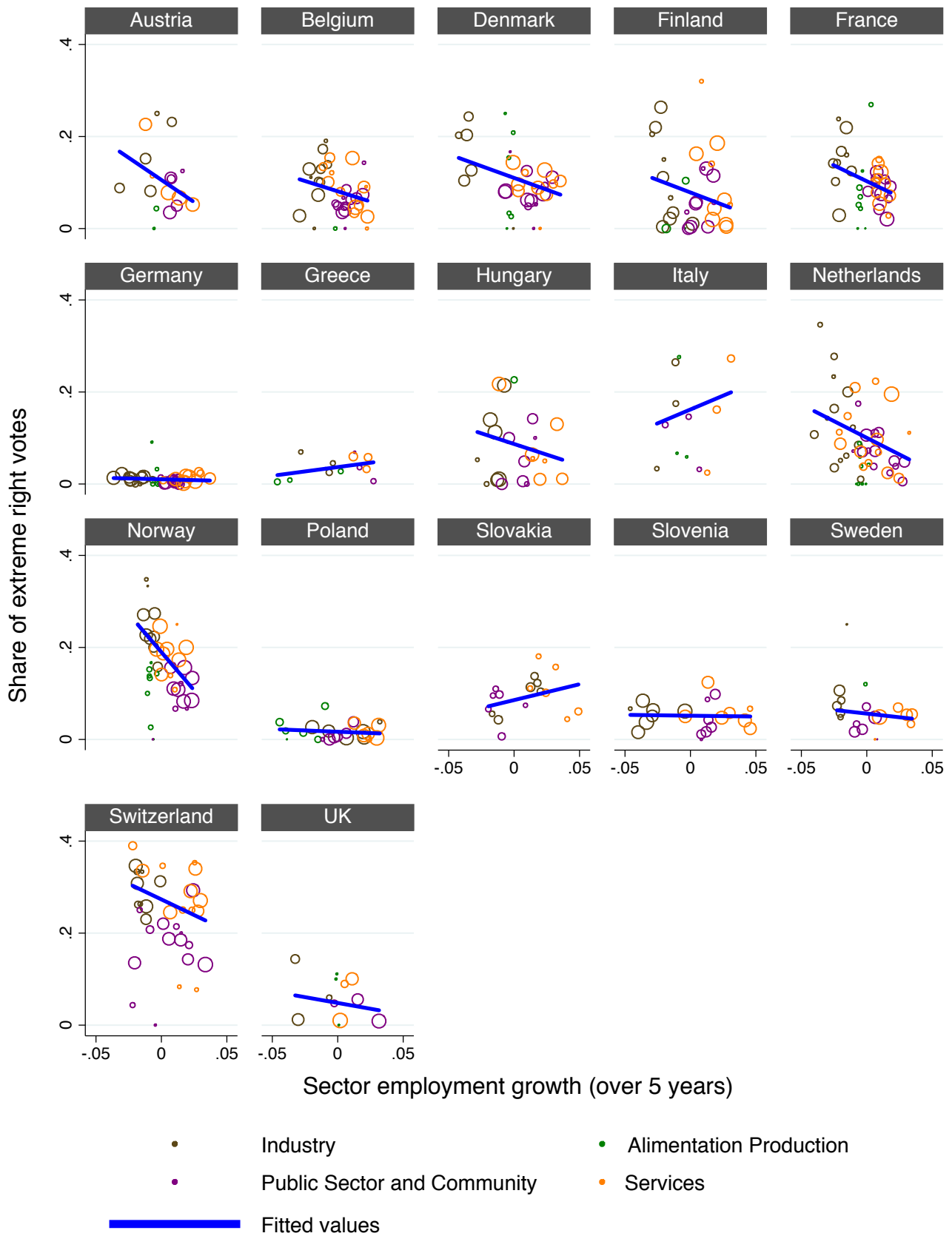


Figure 4.8: Share of extreme left votes by sector and country

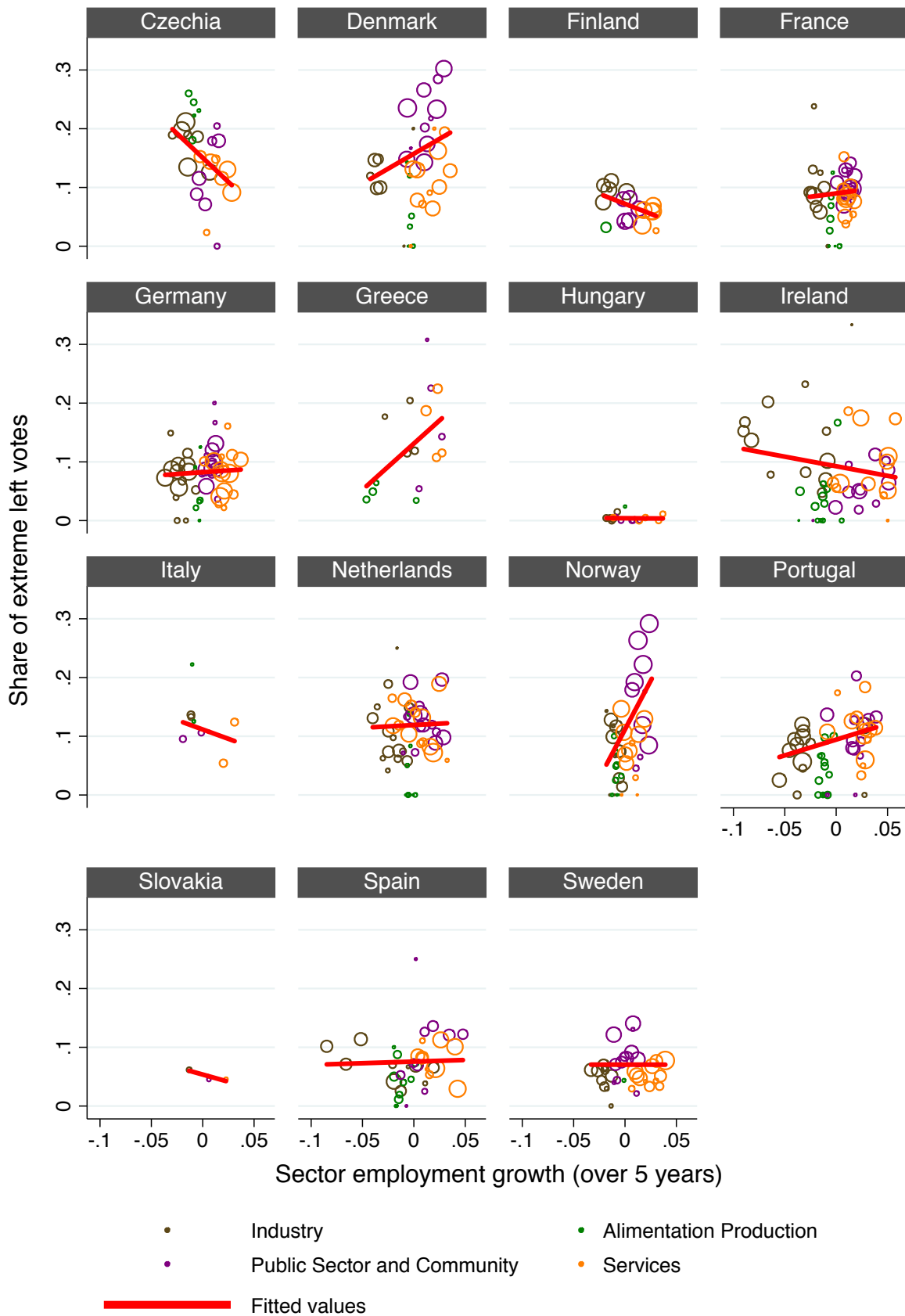
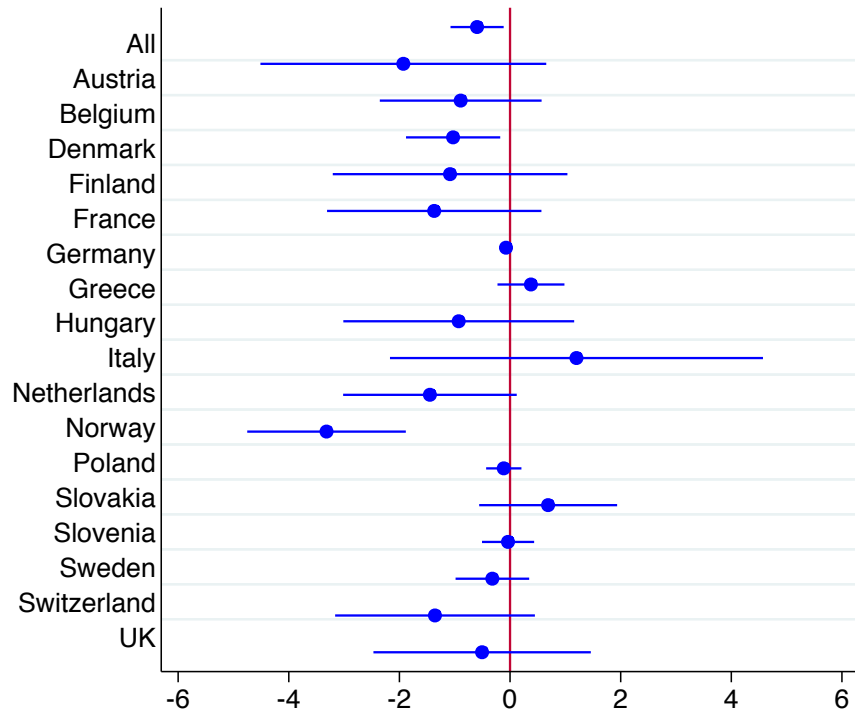
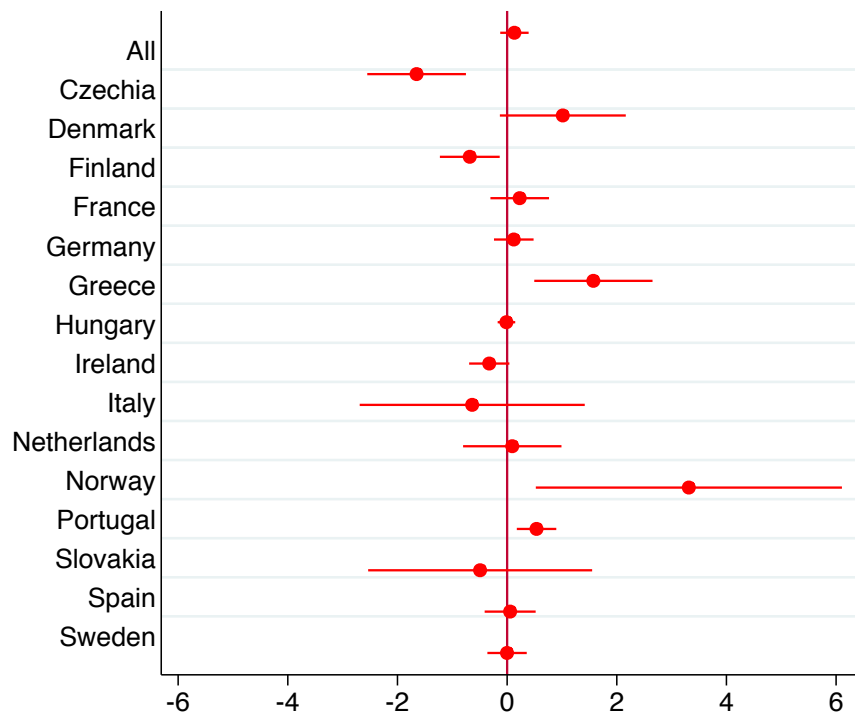


Figure 4.9: Effect of mid-term sector employment growth on extreme votes by country

(a) Effect of mid-term sector employment growth on extreme right votes by country (with 95% confidence intervals)



(b) Effect of mid-term sector employment growth on extreme left votes by country (with 95% confidence intervals)



is significantly negative in three countries (Czechia, Finland and Ireland) and significantly positive in four countries (Denmark, Norway, Greece and Portugal).

3.3.1. Reactionary extreme left parties (Czechia, Finland and Ireland)

How can we explain these contrasted effects of sector employment growth on extreme left votes across Europe? If the reactionary mechanism is true, we should observe that sector employment decline increases votes for extreme left parties that represent a reactionary political option, i.e. that used to be in power in the past and/or advocate for the restoration a past system. A closer look to the history and positions of extreme left parties in countries in which sector employment growth has a significant negative effect gives clues in favor of this view. The effect is significantly negative in Czechia ($b = -1.6512, p = 0.001, N = 28$), Finland ($b = -0.6807, p = 0.017, N = 19$) and Ireland ($b = -0.3257, p = 0.081, N = 48$). In all three cases, the extreme left parties used to be in power in the past and encompass reactionary tendencies.

Czechia. The *Komunistická strana Čech a Moravy* (Communist Party of Bohemia and Moravia, KSČM) took place of the *Komunistická strana Československa* (Communist Party of Czechoslovakia, KSČ) that used to rule in times of the Soviet Union, and its electorate closely maps onto the former KSČ (March, 2012, p. 221). Although the party encompasses diverse streams, "the conservatives, allied to the majority of nostalgic traditionalists (including Leninists and Stalinists) have tended to dominate in a 'leftist-retreat coalition' that seeks to reinforce traditional identity and discourse. Symptomatically, the KSČM's small youth wing (c. 600 people) the *Komunistický svaz mládeže* (Communist Youth Union, KSM) is Stalinoid (and does use the hammer and sickle)" (March, 2012, p. 226). The party has a clear reactionary orientation that expresses toward nostalgic references to the socialist era and nationalism. The KSČM advocates for a "nationally authentic socialism" and is especially critical against Western influences on the Czech national culture (March, 2012, p. 225-226).

Finland. *Vasemmistoliitto* (Left Alliance, VAS) was founded in 1990 as the successor of the *Suomen Kansan Demokraattinen Liitto* (Finnish People's Democratic League, SKDL), a communist party founded with the support from Moscow after World War II. The SKDL used to be a major party in the neutral Finland during the Cold War. The party often participated in government (in 1944–1948, 1966–1971, 1975–1976 and 1977–1982), which made it "part of the political establishment and a legitimate government partner" (Dunphy, 2007, p. 140). According to Dunphy (2007), VAS is still largely influenced by its communist past. VAS includes a stream of former pro-Soviet partisans, appealing to the older communist generation, that "tends to be strongly opposed

to EU membership and North Atlantic Treaty Organization (NATO) membership, in favor of protectionist economic policies in the struggle against globalization, and anxious to win back older voters who have deserted VAS for the extreme right *Perussuomalaiset* (Finns Party, PS) party, which preaches a policy of ‘preferential treatment’ of ‘native-born Finns’. In the eyes of some party members, they do so by flirting with xenophobia and show a lack of concern for immigrants’ or minority rights" (Dunphy, 2010, p. 77). This internal division between nostalgic and progressist tendencies in VAS was publicly visible when Suvi-Anne Siimes quit her chairman position in 2006, arguing that "VAS’ modernization was a façade, and declar[ing] it was unfit for government office unless it shed the allegedly ‘evil’ pro-Moscow unreconstructed communist ‘nostalgia movement’ (...) allegedly behind the parliamentary group’s reflex opposition to government participation, European Union (EU) integration and NATO" (March, 2012, p. 283-284).

Ireland. *Sinn Féin* is undoubtedly a special case compared to the other extreme left parties in Europe, according to the classification of Rooduijn and Burgoon (2018). The party’s main aim is to achieve a united Ireland. *Sinn Féin* was founded in 1905 and acceded power in Ireland in the aftermath of World War I. The party won a huge majority of seats during the Irish general election in 1918, as a part of the UK general election. Elected members of *Sinn Féin* refused to attend the British parliament and declared Irish independence, which resulted in the Irish civil war (1918-1921). The *Sinn Féin* government lead Irish republican forces during the Irish civil war. At the end of the civil war, *Sinn Féin* experienced various splits, due to internal divisions regarding the Anglo-Irish treaty establishing the partition of Ireland between the Irish free state and the British held Northern Ireland. These splits resulted in the foundation of *Fine Gael* and *Fianna Fáil*. Since then, *Sinn Féin*, that remained a fierce partisan of Irish unity, did not acceded government again in Ireland (except in 2020). *Sinn Féin* was associated with the *Óglaigh na hÉireann* (Irish Republican Army, IRA), which used terrorism to fight for a united Ireland from 1969 to 2005. Regarding its positions, *Sinn Féin* associates Irish nationalism with a left-wing economic orientation. According to O’malley (2008), the party matches with defining characteristics of extreme right parties, including nationalism, populism and authoritarianism, except that it is not anti-immigration. O’malley (2008) even argued that the absence of any extreme right party in Ireland has to be explained by the atypical position of *Sinn Féin*, which concentrates votes from individuals who would vote for extreme right parties otherwise.

3.3.2. Revolutionary extreme left parties (Norway, Denmark, Portugal and Greece)

Following the reactionary mechanism, sector employment decline should decrease votes for extreme left parties that represent revolutionary options, i.e. that did not used to

accede power in the past and/or advocate for innovative ideals. Sector employment growth has a significantly positive effect on extreme left votes in four countries - Norway ($b = 3.3148, p = 0.021, N = 45$), Denmark ($b = 1.0159, p = 0.081, N = 39$), Greece ($b = 1.5735, p = 0.007, N = 16$) and Portugal ($b = 0.5366, p = 0.004, N = 52$). In all these cases, a closer look confirms that extreme left parties that attract voters from flourishing sectors are indeed non-mainstream and progressist.

Norway. Extreme left votes represented in Figures 4.8 and 4.9b gather votes for the *Sosialistisk Venstreparti* (Socialist Left Party, SV) and *Rødt* (Red Party), but mostly reflect votes for the SV (with 865 respondents, 90.1%, for the SV versus 95 for *Rødt*). SV was founded in 1975 and did not participate into government (or even been a support party for the governing coalition) until 2004. SV is clearly part of the progressist left: "SV was really a product of the New Left of the early 1970s and represented a break with the traditional, 'materialist' politics of an older left, giving priority to issues – such as anti-militarism, grassroots democracy, solidarity with the third world, and green politics – beyond the traditional class cleavage" (Olsen, 2010, p. 16).

Denmark. Extreme left votes represented in Figures 4.8 and 4.9b gather votes for the *Sosialistisk Folkeparti* (Socialist People's Party, SF) and the *Enhedslisten – De Røde-Grønne* (Red–Green Alliance, Ø), but mainly reflect votes for the SF (with 934 respondents, 76.1%, for the SF versus 293 for the Ø). The SF is very similar to the SV in Norway, both in terms of history and ideology. The SF first enjoyed parliamentary presence in 1960, and did not entered government until 2011. The party "has traditionally been considered non-coalitionable" (Christensen, 2010, p. 121). As the SV, the party is part of the progressist New Left movement born in the 1960s: "the SF represented a break with what until then had been labeled leftist politics. (...) Anti-militarism, anti-hierarchy, solidarity with the Third World and opposition towards the developments in the socialist states of central and eastern Europe became the ideological backbone of the movement" (Christensen, 2010, p. 122-123).

Portugal. Extreme left votes represented in Figures 4.8 and 4.9b are made equal of votes for the *Bloco de Esquerda* (Left Bloc, BE) and the *Partido Comunista Português* (Portuguese Communist Party, PCP) (with 279 respondents, 49.8%, for the BE versus 281 for the PCP). The BE and the PCP have a very distinct profile: the BE represents the revolutionary and the PCP the reactionary extreme left. The BE was founded recently, in 1999, as a coalition "originating from the revolutionary left" of three marginal left parties, the Maoist *Uniao Democratica Popular* (Popular Democratic Union, UDP), Trotskyist *Partido Socialista Revolucionário* (Revolutionary Socialist Party, PSR) and communist *Política XXI* (Politics XXI) (March, 2012, p. 306). The BE never acceded government.

According to March (2012), the BE resulted from "the Portuguese revolutionary tradition which the increasingly ossified PCP has been unable to articulate" (March, 2012, p. 306). Indeed, in contrast to BE, the PCP is one of "the most 'Stalinist' of contemporary communist parties": it has become "an ageing and defensive party rooted in a declining male working class, and ill-prepared to engage with structural changes engendered by Portugal's post-1986 EU membership" (March, 2012, p. 307). Following the reactionary mechanism, the positive effect of sector employment growth on extreme left votes in Portugal should reflect the appeal of the revolutionary left: voters from flourishing sectors should be attracted by the BE but not by the PCP. Additional analyses spitting votes for the BE and the PCP confirm that this is the case: sector employment growth has a significantly positive effect on votes for the BE ($b = 0.5215, p = 0.007, N = 52$) while the effect is not significant for the PCP ($b = 0.0197, p = 0.909, N = 32$)

Greece. As in Portugal, extreme left votes represented in Figures 4.8 and 4.9b are made roughly equal of votes for very distinct extreme left parties: the *Synaspismós tīs Aristerás tōn Kinīmátōn kai tīs Oikologías* (Coalition of the Left, of Movements and Ecology, SYN) and the *Kommounistikó Kómma Elládas* (Communist Party of Greece, KKE) (with 234 respondents, 38.2%, for SYN versus 379 for BE). SYN represents the revolutionary and KKE the reactionary extreme left. SYN was "the successor to the Greek Left and the Coalition of 1989–9, which became a party in 1992 following the inclusion of ex-KKE dissidents. Since 2004 it has itself moved further leftwards by participating in the *Synaspismós Rizospastikís Aristerás* (Coalition of the Radical Left, SYRIZA) with ten smaller communist, eco-socialist, Maoist and Trotskyist groups" (March, 2012, p. 161–162). SYN did not participate in government until 2015, when its leader Alexis Tsipras became prime minister. Ideologically, SYN is part of the progressist New Left: "SYN has developed a post-communist new left platform supportive of democratic socialism, minority rights, ecology and further EU integration (albeit with the aim of a more harmonious, democratic and more egalitarian EU)" (March, 2012, p. 162). In contrast, the KKE "received the reputation of being one of the most Moscow-loyal and rigidly 'orthodox' parties of all". The KKE never acceded government, except for in a short coalition government in 1989. Since the end of the Cold-War, the KKE has a clear nostalgic look to the Soviet era, the collapse of the USSR being conceived as "a temporary defeat 'in the era of the transition from capitalism to socialism'. (...) The KKE continues to analyse the world through ideological prisms now abandoned by much of the radical left; especially Brezhnev-era 'scientific' Marxist-Leninism, proletarian internationalism and strict democratic centralism" (March, 2012, p. 156–157). As for Portugal, the reactionary mechanism implies that the positive effect of sector employment growth should be specifically due to the appeal of SYN. And this is indeed the case. Additional analyses spitting votes for SYN and KKE confirm that sector employment growth has a significantly positive effect

on votes for SYN ($b = 1.0652, p = 0.000, N = 16$) while the effect is not significant for KKE ($b = 0.7151, p = 0.115, N = 16$).

Table 4.7: National cases of contrasted effect of sector employment growth on extreme left votes

Country	Party	Governed in the past?	Reactionary tendencies?	Effect of sector employment growth on votes
Czechia	KSČM	++	++	Negative**
Finland	VAS	+	+	Negative*
Ireland	<i>Sinn Féin</i>	+	+/-	Negative ⁺
Denmark	SF	-	--	Positive ⁺
Norway	SV	--	--	Positive*
Portugal	BE	--	--	Positive**
	PCP	--	++	Not significant
Greece	SYN	--	--	Positive***
	KKE	-	++	Not significant

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4.7 summarizes the above information about the seven countries in which sector employment growth has a significant effect on extreme left votes. In line with the reactionary hypothesis, evidence suggests that extreme left parties benefit from sector employment decline when they used to governed in the past and have reactionary tendencies, such as for the KSČM (Czechia), and to a lesser extent VAS (Finland) and *Sinn Féin* (Ireland). In contrast, extreme left parties benefit from sector employment when they did not participated in the past and have progressist tendencies, such as for SF (Denmark), SV (Norway), BE (Portugal) and SYN (Greece). Somewhat in-between, votes for the PCP (Portugal) and KKE (Greece), that did not govern in the past but encompass reactionary tendencies are not significantly related to sector employment decline.

4. Discussion

Based on the same design than Chapter 3, the present chapter offers new evidence that contexts of collective decline, here measured by the decrease in relative employment of one's economic sector, foster votes for extreme right parties. Importantly, I found that decline in sector employment entirely explains the over-representation of Industry workers among extreme right voters, a fact that has been noticed by many scholars (Lubbers et al., 2002; Rydgren, 2012) but remained partly unexplained. Overall, the main results are

very close to those of Chapter 3 relative to GDP growth, and hence raise similar general conclusions.

The analyses shed light on the mechanism linking sector employment decline and extreme votes. First, the results suggest that sector employment decline affects votes through a *psychological* rather than a *material* mechanism, in line with findings from Kurer (2017) relative to decline in routine works due to automation. As for economic decline in Chapter 3, I found that sector employment decline has no (or even a negative) general effect on individual support for redistribution, while it has a positive effect on traditionalist attitudes. This suggests that sector employment decline does not affect votes though inducing stress on the individual's economic welfare, but rather through the perception that one's relative position is declining in society.

Second, the analyses provide fine-grained evidence that sector employment decline affects extreme votes through a reactionary mechanism. In short, employees of declining sectors vote in order to go back to a past state of society, and such reactionary supply is primarily incarnated by extreme right parties. Besides the above-mentioned effect of sector employment decline on traditionalist attitudes, a wide range of clues confirms this view. First, the main analyses show that sector employment decline specifically increases support for redistribution in former Socialist Republics, in which redistribution used to be higher in the past. Second, I found that sector employment decline has very different effect on extreme left votes across national contexts, which closely map with the reactionary or revolutionary orientation of extreme left supply. Sector employment decline increases extreme left votes in countries in which extreme left parties used to govern in the past and encompass reactionary tendencies, such as the KSČM in Czechia, and to a lesser extent VAS in Finland and *Sinn Féin* in Ireland. In contrast, sector employment decline decreases votes for non-mainstream progressist parties, such as SF in Denmark, SV in Norway, BE in Portugal and SYN in Greece. This clearly shows that reaction is not an inherently right-wing phenomenon, and that extreme left options may sometimes benefit from reaction.

The main difference with results from Chapter 3 relative to economic decline is the absence of effect of sector employment decline on political trust and anti-immigration attitudes. In Chapter 3, I found some evidence that economic decline decreases political trust and increases anti-immigration attitudes, which could play an additional role in fostering extreme right votes. In the present chapter, sector employment decline seems to generate a purely reactionary mechanism, without affecting political trust and anti-immigration attitudes. This may explain why the effect of sector employment decline on extreme right votes, albeit significant, is less substantial than for economic decline - which may also generate other mechanisms favorable to extreme right parties.

5

A Bullet for the past. Experimental approach of radical intentions

"We are able to find everything in our memory, which is like a dispensary or chemical laboratory in which chance steers our hand sometimes to a soothing drug and sometimes to a dangerous poison."

The Prisoner
MARCEL PROUST

This chapter tests the whole micro chain of causation of the theory of ideals. I draw on two experiments in which participants randomly received information according to which the economic context was in decline or prosperity following which their level of radical intentions was measured. The first study is a lab experiment carried out in Grenoble with 280 students. Economic decline was manipulated via a fictional program produced with a radio journalist. Contrary to the hypothesis, the treatment had no direct effect on radical intentions of either the right or the left. The second experiment was carried out via an online survey carried out online with representative samples in France, the Netherlands, Denmark, Germany, Italy and Spain (N=7200). Economic decline was manipulated via a fictitious press extract inserted in the questionnaire. In line with the hypothesis, the treatment increased right-wing subjects' level of nostalgia, indirectly increasing their radical intentions. In contrast, no effect was observed among left-wing subjects.

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This chapter is adapted from the following publication: Varaine, S. (2020). *Misère collective, peur individuelle. Approche expérimentale des intentions radicales et de l'attraction du mouvement d'extrême-droite Génération identitaire*. In Walter, J. and Fleury, B., editors, *Violences et radicalités militantes dans l'espace public. En France, des années 1980 à nos jours*, pages 151-168. Riveneuve, Paris.

According to the theory of ideals, the differential effect of collective deprivation on right-wing and left-wing radicalism observed in Part I is explained by a two-step process at the micro level. In a first step, economic decline increases individual reactionary attitudes. In a second step, reactionary attitudes foster right-wing radical intentions, versus decrease left-wing radical intentions, i.e. the individual propensity to use illegal/violent means to achieve political aims. Chapters 3 and 4 provided evidence supportive of the first part of the mechanism of the theory of ideals: I found that economic decline increases the appeal of right-wing ideologies, as expressed by conventional political behaviors, and that this effect is, at least partly, explained by a reactionary mechanism. The present chapter goes one step further in the causal path of the theory of ideals at the micro level. I investigate the causal effect of economic decline on individual left-wing and right-wing radical intentions. The general hypothesis investigated in this chapter is hence:

Hypothesis 5.1 *Economic decline differently affects right-wing and left-wing radical intentions.*

- A. *Economic decline increases right-wing radical intentions.*
- B. *Economic decline decreases extreme-left radical intentions.*

Figure 5.1: Causal paths of the theory of ideals analyzed in Chapter 5

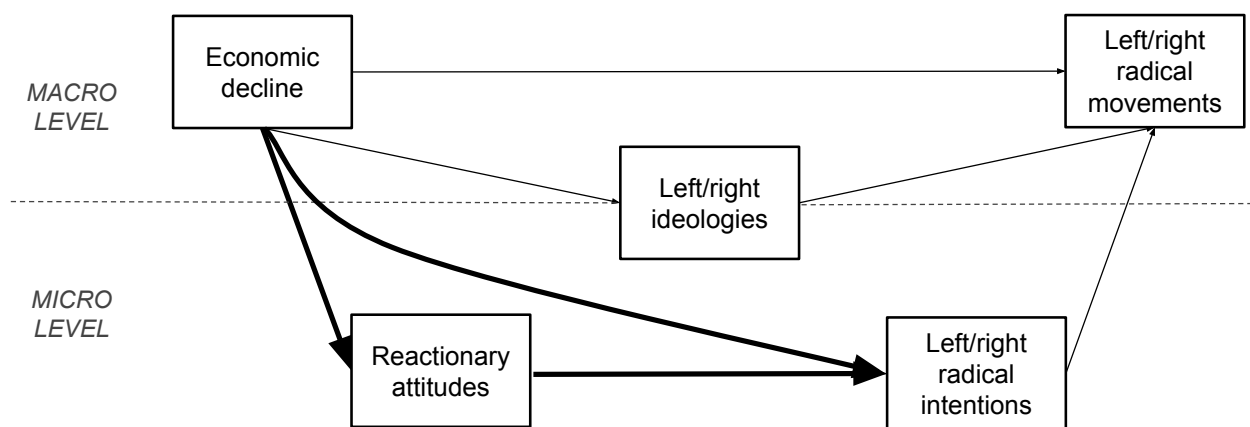


Figure 5.1 summarizes the causal paths analyzed in this chapter. The key causal path connects economic decline and individual left-wing and right-wing radical intentions.

More specifically, I investigate the mediating role of reactionary attitudes in this causal path. I hypothesize that economic decline increases reactionary attitudes and that reactionary attitudes in turn positively affect individual right-wing radical intentions and decrease individual left-wing radical intentions:

Hypothesis 5.2 *Economic decline differently affects right-wing and left-wing radical intentions through reactionary attitudes.*

A. Economic decline increases reactionary attitudes.

B. Reactionary attitudes increase right-wing radical intentions and decrease left-wing radical intentions.

1. Overview of experiments

To test these hypotheses, the present chapter relies on an experimental approach. The experiments presented here enter the category of *psychological* experiments (Bol, 2019). Such type of experiment typically analyzes attitudes of individual subjects in a realistic design, that aims at reproducing at best a social situation (here, economic decline). In contrast, *economics* experiment, such as the experiment presented in Chapters 7 and 8, analyze behavioral interactions between subjects in an abstract design, i.e. that aims at reproducing the structural monetary incentives of a situation.

The interest of the experimental approach is its capacity to demonstrate causal relationships (Bol, 2019). Analyses presented in previous chapters are purely correlational. As a result, even if I tried to control for all confounding factors, it is impossible to exclude that the effect of the economic decline actually captures other historical factors which would not have been taken into account in the analysis. To judge the causal influence, it would be necessary to have an authentic counterfactual element - that is, to be able to compare a context of economic deprivation with an identical social context in all aspects except the level of economic decline. This is of course impossible. Following the model of the natural sciences, the experimental approach allows to detect, thanks to the comparison to a "control" treatment, the reactions properly induced by a specific experimental treatment. In the present chapter, my objective is to analyze the specific effect of a treatment inducing a perception of economic deprivation on individual radical intentions.

The ability of the experimental approach to reveal causal relationships goes hand in hand with an artificial character. Induced situations are not as they happen in reality, and it is not possible to observe real social behaviors in them – such as engaging in a radical

movement. In *psychological* experiments, the whole methodological issue therefore consists in making the induced contexts credible to the participants, and in ensuring that the variables measured have a satisfactory level of external validity – that is to say that they are effectively linked to the phenomena that they are supposed to measure in the "real world". The artificiality of the experimental approach therefore requires thinking about it in close relation to empirical observations from the "real world".

I here present results from two experiments. The first experiment specifically tests Hypothesis 5.1: the direct effect of a treatment inducing a perception of economic deprivation on radical intentions. The second experiment replicates the test of Hypothesis 5.1, based on a different sample and design, and includes a measure of reactionary attitudes to test Hypothesis 5.2: the mediating role of reactionary attitudes.

The two experiments are of different and complementary types. The first is a *lab* experiment, i.e. in a controlled laboratory setting. This type of experiment has a main advantage: the full control over the experimental situation. Subjects are in the laboratory for a relatively long time, which allows to create an immersive and complex experimental design and use multiple measures for variables of interest. In the first experiment, subjects were primed with a long fictional audio news story about the economic context and filled multiple measures of radical intentions, including questions about their perception of a right-wing radical group presented in a video. However, the main limitation of such type of experiment is, for material reasons, the typically low-size of the sample and its potential lack of representativeness.

The second experiment is a *survey* experiment, i.e. included in a population-based survey. The main advantage here is the high sample size and representativeness. However, this goes in hand with a lesser control over the experimental situation. Here, respondents of an online survey were primed with a short fictional news story about the national economy, which is less immersive than the treatment of the first experiment, and completed one general measure of radical intentions. They did so in a context unknown of the researcher, which is likely to induce a lot of noise in the data.

2. Study 1. Lab experiment

2.1. Objectives and theoretical background

The main objective of the first experiment is to test the direct effect of the induction of a perception of economic decline on right-wing and left-wing radical intentions (Hypothesis 5.1). A secondary objective is to teach us more about the nature of the underlying psychological mechanism, and more specifically the moderating role of individual psy-

chological predispositions.

A large amount of literature in the field of political psychology has explored the link between collective threat contexts, including economic threat, and individual ideological orientation. Many studies on experimental (Duckitt and Fisher, 2003; Stenner, 2005) and societal (De Bromhead et al., 2013; Funke et al., 2016; Onraet et al., 2013a,b; Sales, 1973) data indicate that situations of collective threat provoke a marked rise in individual right-wing attitudes. Recent psychological evidence also demonstrates that ideological orientation plays a key role in individual mobilization into right-wing versus left-wing collective action (Becker, 2020; Choma et al., 2020; Jost et al., 2017), including mobilization into radical movements (Pauwels and Heylen, 2020). Hence, as suggested by Jost et al. (2017), both participation in collective action and its ideological orientation should critically depend upon the factors that have proven to affect ideological orientation — including collective threat. Coherent with this view, Pauwels and Heylen (2020) found that perceived in-group threat, through increasing right-wing attitudes, was correlated with participation in right-wing violence in a sample of young Belgians. The present experiment enters this general framework by analyzing the effect of collective economic threat on right-wing and left-wing radical intentions.

However, the political psychology literature is divided on the potential moderating role of certain individual psychological predispositions, which one could compare to relatively stable personality traits in the course of life. The first hypothesis put forward by the literature is that situations of collective threat activate, in a relatively similar way in all individuals, the expression of right-wing attitudes, whatever their ideological predispositions. This option is embodied mainly by system-justification theory (Jost et al., 2003b). This theory links individual adherence to right-wing ideologies to increased needs for security, stability, coherence and order, which are both the product of individual predispositions (personality weakly open to experiences and highly conscientious, low level flexibility and cognitive complexity) and, independently, of situations generating fear and uncertainty - such as situations of economic threat.

The second hypothesis put forward by the literature is that situations of collective threat interact with the ideological predispositions of individuals to lead to the expression of radical attitudes and behaviors. This option is embodied in particular by the theory of authoritarian dynamics of Stenner (2005). This theory predicts that threatening situations specifically reinforce the expression of right-wing attitudes in individuals with authoritarian predispositions. Several studies suggest that this mechanism is indeed likely to explain the justification for radical political means. Thus, the induction of an existential threat increases support for violence against the out-group among individuals with a conservative predisposition (Pyszczynski et al., 2006). Likewise, Rieger et al. (2017) have shown that the level of receptivity to far-right propaganda increases among people with authoritarian predispositions faced with a collective threat.

In sum, the political psychology literature tells us that contexts of collective threat, whether or not interacting with individual authoritarian predispositions, are likely to amplify the mobilization capacity of right-wing ideologies. The experiment aims to analyze to what extent these theories have an explanatory force to account for adherence to radical forms of collective action.

2.2. Method

2.2.1. Sample

A total of 280 subjects participated in our experiment. The sample was entirely made of students. The choice of a study on a population of students calls for caution in generalizing the results. However, this focal point is not absurd from the point of view of the object of study knowing that students are a social category strongly over-represented among many radical movements (e.g. Krueger, 2017; Russell and Miller, 1977). 70.00% of subjects were female. The mean age was 21 ($SD = 2.03$), 60.71% of subjects had a highschool diploma, 33.21% a bachelor's and 4.29% a master's degree. A majority of students studied in social and behavioral science (54.64%), followed by sciences and technology (28.21%), law, economy and management (8.57%), arts and languages (7.86%), and health (0.71%).

2.2.2. Procedure and Materials

The experiment was carried out at the Screen platform of the *Maison des Sciences de l'Homme – Alpes* (Saint-Martin d'Hères, Isère). The experimental software was written using Inquisit®. Subjects were recruited via social network platforms and communication services of the different faculties of the Grenoble Alpes University. To maximize the size and diversity of the sample, subjects were recruited in two waves. The first wave ($N = 150$) was made of paid subjects, that received a 10 euros fee. The second wave was made of voluntary subjects ($N = 130$), mostly from the psychology unit of the Grenoble Alpes University, obtaining compensation in points as part of their studies. In order to conceal the true purpose of the experiment, it was presented to the subjects as investigating the link between memory and politics.

Upon entering the lab, subjects were randomly assigned to individual computers. To feed the cover scenario of the experiment, subjects first carried out a task consisting in memorizing a series of numbers, and filled in a "memory questionnaire".

Authoritarianism. Subjects then completed a "political questionnaire", aimed at measuring ideological predispositions. As in previous studies (see Stenner, 2005), I measured authoritarian predispositions by a series of items on the values of child rearing, in

which 10 qualities that a child must have are evaluated by the participants on a scale of 7 points. Authoritarian educational values were "obedience", "good manners" and "religious faith" and non-authoritarian values were "independence", "imagination", "tolerance and respect for others".

Lab treatment. Subjects then received the following instruction: "To test your memory in the medium term, we will offer you a test to memorize an audio extract. You will hear an excerpt from the France Info newspaper broadcast on the morning of September 4, 2017. Please try to memorize as much information as possible. You will be asked about the content." Subjects listened, at random, to an interview on the radio describing 1) a threat situation (*deprivation*), 2) a stable situation (*neutral*) or 3) a situation of improvement (*prosperity*) for French students. The manipulation was double-blinded: until the end of the experiment, the researcher did not know what treatment was received by each subject, and the subject did not know, in theory, that she listened to a different program from other subjects.

The fictitious audio recordings were produced by a professional journalist and an actress. The three files have the same duration (6:27, 6:22, 6:17). In all three cases, the journalist announces the release of a public report on the economic and social integration of French students and interviews the director of the report. In the *deprivation* scenario, the investigator claims that French students are finding it increasingly difficult to find a job, are in more precarious occupations and have lower incomes than in the past, and are therefore more likely to endure psychological, physical and relationship difficulties. The investigator states that this situation is common to all academic fields and that it will probably persist in the future. The *prosperity* and *neutral* scenarios follow the same structure with respectively opposite or attenuated considerations - except that in all the scenarios, the situation of students is described as common to all academic fields in order to avoid any effect of comparison.¹

After listening, participants were asked to answer a memory quiz about the radio program. This questionnaire allowed to maintain the coverage of the experiment on the theme of memory, and to check that subjects understood the information presented in the fictitious program.

Affective state. At this stage, subjects filled a French version of short-form of the Positive and Negative Affects Scale (PANAS) (Thompson, 2007).² The scale includes 10 items (for example, "angry", "alert", "frightened", etc.) evaluated on a 5-point scale.

¹The French scripts are presented in Appendix 1.1. and the audio files are accessible online using the following links: deprivation, neutral and prosperity.

²The French translation was made using the corresponding items from the French long-form of the PANAS from Gaudreau et al. (2006)

This allows to analyze the effect of the manipulation on the emotional state of subjects – in particular on their level of fear.

Left-right orientation. Participants then completed a second "political questionnaire". This first included a classic question of self-positioning on the left-right axis from 0 (left) to 9 (right). This measure – combined with the measure of radical intentions – allows to analyze the radical intentions of the left-wing versus right-wing subjects.

Radical intentions. Subjects then filled a French translation of the Activism and Radicalism Intention Scale (ARIS), which measures the individual *activism*, i.e. intention to participate in legal collective actions, and *radicalism*, i.e. intention to participate in illegal / violent collective actions, to defend the rights of their group (Moskalenko and McCauley, 2009).³ The scale includes 8 items, assessed on a 7-point scale. The ARIS has been validated on various populations - diverse samples in the United States (Decker and Pyrooz, 2019; Ellis et al., 2015; Moskalenko and McCauley, 2009), Spain (Trujillo et al., 2016), Ukraine (Moskalenko and McCauley, 2009), Brazil (Gloria Filho and Modesto, 2019), Hong Kong (Wong et al., 2019) - and is correlated with measures of actual activism and radicalism (Moskalenko and McCauley, 2009; Trujillo et al., 2016). In the present experiment, to ensure the comparability of the subjects' responses and the reactivity of the scale to the experimental manipulation, I chose to restrict the focus group to "students". For instance, subjects indicated their level of agreement with statements such as "I would continue to support an organization that fights for the political and legal rights of students even if that organization sometimes resorts to violence."

I used a secondary measure of radical intentions based on items following the visioning of a radical right propaganda video. This type of measure has already been used to measure radical intentions by studies using both fictitious and real propaganda (Frischlich et al., 2015; Hogg et al., 2010; Rieger et al., 2017). Using such a measure in addition to ARIS has advantages: asking subjects about their appreciation of political group presented in a video is both more concrete and less explicit than asking them if they would perform specific actions for an abstract group, such as with the ARIS. In addition, communication via online video content occupies an increasing place in the recruitment strategies of radical movements, in particular of the far right, in France (Bouron, 2017) as in other Western European countries (Iost, 2012; Rieger et al., 2013).

In the present experiment, subjects watched two videos, presented in random order. The first video, from the ethno-nationalist group *Génération Identitaire* (Generation Identity, GI), allows to gauge the receptivity of the subjects to a radical right movement. This video, titled "*Déclaration de guerre*" ("Declaration of war"), consists of a sequence of

³The French translation of the ARIS used in the experiments is presented in Appendix 1.2..

brief individual testimonies of members of the group facing the camera, with dramatic music in the background. The protagonists criticize immigration, insecurity, solidarity with non-French people, the values of sexual liberation and the destruction of school authority by the previous generation, and call for a return to the "roots" of French identity.⁴

The second video is from the *Mouvement Jeunes Communistes de France* (Young Communists Movement of France) – more commonly called *Jeunesses Communistes* (Communist Youth, JC). It also consists of a series of testimonies from members of the group facing the camera with a musical background. In the video, titled "*Parce que...*" ("Because..."), the protagonists call for free education, the end of income inequality between men and women, the right to vote for all foreign residents and the end of wars.⁵ Of course, the two groups do not have the same level of radicalism: GI is a branch of a semi-underground movement whose members are regularly called to justice for their illegal actions; the JC are a branch of a legal political party which overwhelmingly uses legal repertoires of action. Nevertheless, it seemed interesting to have an element of comparison concerning the receptivity to a left-wing group – in order to make sure that one does not measure a general receptivity to the mode of communication, but indeed to the ideas of GI. Unfortunately, I have not found a comparable video from a properly radical left-wing group. The JC video presented formal similarities – a succession of individual testimonies vis-a-vis the camera, same length (2:06) – making it possible to provide an element of comparison.

The two videos were immediately followed by a series of items, rated on a 7-point scale, inspired by previous studies on extremist propaganda (Frischlich et al., 2015; Hogg et al., 2010; Rieger et al., 2017). In particular, I measured the desire to join the group by the following item: "I would like to join the group featured in the video".

Follow-up questions and debriefing. Before being debriefed and thanked, the participants answered a series of questions about the perceived purpose of the experience, their doubts and their previous experiences in experimental settings. This allows to exclude from the analyzes participants who had suspicions about the actual purpose of the experiment - which could affect their reaction to the experimental manipulation. Finally, I included socio-demographic questions on the gender, age, nationality and education level of the participants, as well as their academic specialization.

⁴The video is accessible online using the following link: "Déclaration de guerre". Note that, in the experiment, we only presented the clip from 0:15 to 2:21, excluding the preceding and following parts as well as the avoiding the appearance of the name and logo of GI, in order to limit the effects of pre-existing subjects' political knowledge about the group.

⁵The video is accessible online using the following link: "Parce que...". Note that, in the experiment, we only presented the clip from 0:58 to 3:04, excluding the preceding and following parts as well as the name and logo of JC, in order to limit the effects of pre-existing subjects' political knowledge about the group.

2.3. Results

2.3.1. Manipulation check and effectiveness

Before analyzing the effect of the experimental treatment on the radical intentions of the participants, it is worth assessing the extent to which the experimental manipulation was credible and effective.

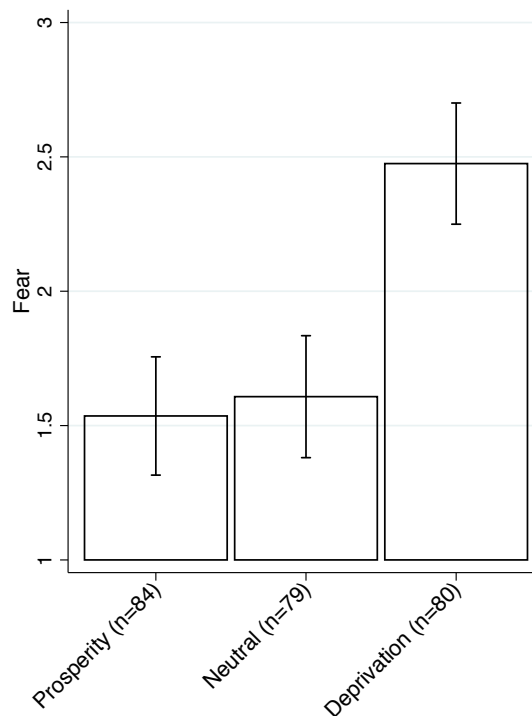
The manipulation was understood and credible. First, the majority of participants understood the content of the radio program: 94% responded that the situation was improving, remained relatively stable or worsened in accordance with their experimental treatment. The other participants were excluded from the analyzes. Then, the responses to the pre-debriefing questionnaires show that a large majority of participants did not perceive the real purpose of the experiment, most of the participants formulating incorrect hypotheses. I identified 7 participants who expressed doubts about the veracity of the radio program, and excluded them from the analyzes. In addition, I excluded 13 participants who were not of French nationality. Indeed, the non-French participants risked not being concerned by the manipulation – which emphasizes the situation of French students – and could react differently to the viewing of the video of GI, which glorifies the "French identity". As a consequence, the analyzed sample is $N = 243$.

The deprivation treatment induced fear. Second, the results indicate that the manipulation did have an effect on the emotional state of the participants. Indeed, there is a significant variation in negative affects measured by the PANAS ($\alpha = 0.7059$) across treatments, $F(2, 240) = 11.39$, $p = .000$. In particular, the level of fear, measured by the rating of the state "frightened", is markedly increased among the participants who listened to the program evoking a decline in the economic situation of the students. As shown in Figure 1, the 84 subjects in the prosperity treatment have an average level of fear of 1.54 ($SD = 0.86$); the 79 subjects in the neutral treatment have a mean of 1.61 ($SD = 0.95$), and the 80 subjects in the deprivation treatment have a mean of 2.48 ($SD = 1.23$). The effect of the lab treatment, therefore, is significant, $F(2, 240) = 21.03$, $p = .000$.

2.3.2. Description of radical intentions

What is the level of radical intentions in the sample? First, most students indicated that they did not wish to participate in radical collective actions. The average level of radicalism ($\alpha = 0.7146$), as measured by the four last items (RIS) of the ARIS, was 2.41 ($SD = 1.14$) on a scale ranging from 1 to 7. Only about 10% of students were overall in favor of illegal / violent means to defend the rights of students (with an average level of radicalism over 4.0). In contrast, as illustrated by Figure E.1 in Appendix E, the average

Figure 5.2: Effect of the lab treatment on fear (with 95% confidence interval)



level of activism ($\alpha = 0.8366$), as measured by the four first items (AIS) of the ARIS, was 3.38 ($SD = 1.36$), $t(242) = 11.58$, $p = .000$. Around 30% of students were overall in favor of using legal means to defend the rights of students (with an average level of activism over 4.0).

As shown by Table E.1, radicalism strongly correlates with activism ($r = 0.456$, $p < 0.000$, $N = 243$). The strength of the correlation is similar than found in previous studies ($0.4 \leq r \leq 0.5$) (Moskalenko and McCauley, 2009; Trujillo et al., 2016). Besides, the two dimensional structure of the original ARIS (Moskalenko and McCauley, 2009) is replicated in the sample. A principal component analysis yields three components with eigenvalues > 1.0 . Computing an oblimin rotation produces two dimensions (respectively accounting for 37% and 26% of the total variance). The four first items measuring activism (AIS) show high loadings (> 0.7) with the first dimension and the four last items measuring radicalism (RIS) show high loadings (> 0.7) with the second dimension.

Now, what are the levels of right-wing and left-wing radical intentions in the sample? To measure right-wing and left-wing radicalism with the ARIS, I split the sample depending on the positions of subjects on the left-right axis.⁶ This variable is described in Figure E.2. I here define left-wing subjects as those at 5 or less on the left-right axis

⁶Splitting the sample is convenient for the interpretation of the results, yet it raises statistical concerns. For that reason, in the following analyses, I always present, in addition to results based on split samples, interaction effects with the left-right position based on the entire sample.

($n = 167$) and right-wing subjects at 6 or more ($n = 76$). I chose this inclusive definition due to the low sample size. Indeed, a more strict definition would result in a very low subsample of right-wing subjects.⁷ In the sample, the average level of radicalism is lower among right-wing subjects ($M = 1.84, SD = 0.87$) than left-wing subjects ($M = 2.66, SD = 1.15$), $t(241) = 5.53, p = .000$. This is confirmed by results from Table E.1: radicalism is significantly and negatively correlated with the left-right position in the sample ($r = -0.3894, p < 0.000, N = 243$).

What about the secondary measure of right-wing radical intentions? The desire to join GI is described in Figure E.3. The average level of desire to join GI was 2.62 ($SD = 1.68$) on a scale ranging from 1 ("not at all") to 7 ("very strongly"). About 17% of students declare that they desire (from 5 to 7) to join GI after viewing the video. The average level of desire to join the JC ($M = 3.15, SD = 1.61$) is significantly higher than the desire to join GI, $t(242) = 4.74, p = .000$. Around 25% of students declare they desire to join the JC after viewing the video.⁸

The two measures of right-wing radical intentions only imperfectly correlate. The desire to join GI slightly correlates with radicalism among right-wing subjects ($r = 0.199, p = .0848, N = 76$), while it is uncorrelated with radicalism among left-wing subjects ($r = -0.060, p = .443, N = 167$).⁹ The desire to join GI is more closely correlated with activism than radicalism: both among right-wing subjects ($r = 0.383, p = .0006, N = 76$) and left-wing subjects ($r = -0.200, p = .0096, N = 167$). Hence, it seems that GI, through the short video watched by subjects, is not perceived as a radical group, but rather as an activist group.

In the same vein, there is a surprisingly high level of correlation between the desire to join GI and the JC in the sample ($r = 0.4440, p < 0.000, N = 243$), as shown by Table E.1. This suggests that the responses mostly reflect a general receptivity to social movements' political communication or a desire to be part of a group, rather than an ideological adherence. Nonetheless, results from a simple linear regression reveal that, when controlling for the desire to join the JC, subjects who desire to join GI are significantly more on the right of the political spectrum ($b = 0.1979, p = .000$), which confirms that the responses concerning the videos capture some ideological affinities.

⁷Note that the following results are however similar when using a narrower definition of left-wing ($\leq 4, n = 158$) and right-wing ($\geq 7, n = 59$) subjects excluding values of the center.

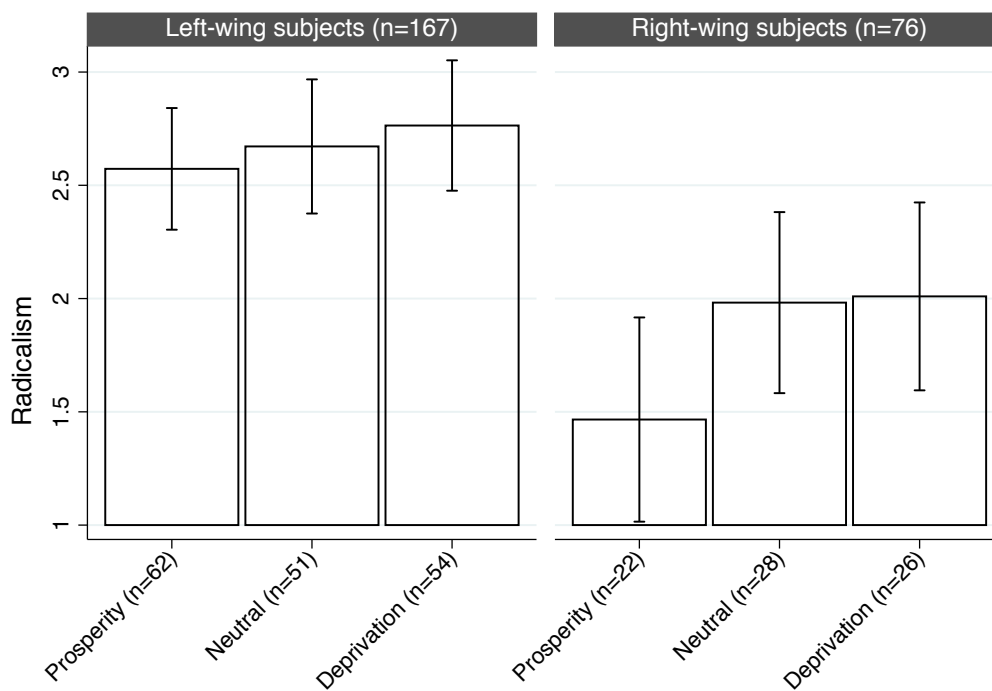
⁸There was no significant order effect. The desire to join GI is not different for subjects who watched the GI's video first ($n = 119$), compared to subjects who watched the JC video first ($n = 124$), $t(241) = 0.16, p = .875$. The same is true for the desire to join the JC, $t(241) = 1.23, p = .221$.

⁹A simple linear regression reveals a positive interaction effect between radicalism and the left-right position on the desire to join GI ($b = 0.0947, p = .040$).

2.3.3. Effect of the lab treatment on radical intentions

The lab treatment had no direct effect on radical intentions. As a reminder, Hypothesis 5.1 predicts that the deprivation condition increases right-wing radical intentions and decreases left-wing radical intentions. Hence, the deprivation condition should not affect the overall level of radical intentions. In line with this expectation, results indicate that the manipulation did not have any general effect on the radical intentions of the participants, as shown by Figure E.4. A one-way Anova reveals no significant differences in the mean level of radicalism across lab treatments, $F(2, 240) = 0.90$, $p = .409$. Similarly, the level of activism does not differ across lab treatments, $F(2, 240) = 0.33$, $p = .721$.

Figure 5.3: Effect of the lab treatment on radicalism depending on the left-right position (with 95% confidence interval)



The lab treatment had no effect on left-wing radical intentions. I now split the sample depending on whether respondents self position as left-wing or right-wing. As illustrated by the left side of Figure 5.3, among left-wing subjects ($n=167$), the 62 subjects in the prosperity treatment have an average level of radicalism of 2.57 ($SD = 1.11$); the 51 subjects in the neutral treatment have a mean of 2.67 ($SD = 1.17$), and the 54 subjects in the deprivation treatment have a mean of 2.76 ($SD = 1.21$). The effect of the lab treatment, therefore, is not statistically significant among left-wing subjects, $F(2, 164) = 0.39$, $p = .674$.

The deprivation and neutral treatments had a slight positive effect on right-wing radical intentions. As shown by the right side of Figure 5.3, among left-wing subjects ($n=167$), the 22 subjects in the prosperity treatment have an average level of radicalism of 1.47 ($SD = 0.64$); the 28 subjects in the neutral treatment have a mean of 1.98 ($SD = 0.90$), and the 26 subjects in the deprivation treatment have a mean of 2.01 ($SD = 0.95$). Consistent with Hypothesis 5.1, the effect of the lab treatment, therefore, is significant at the 10% threshold among right-wing subjects, $F(2, 73) = 3.03$, $p = .055$.

Table 5.1: Effect of the lab treatment on radicalism depending on the left-right position (unstandardized coefficients from linear regression)

	(1)	(2)	(3)	(4)
Experimental treatment (Prosperity as reference)				
Neutral	0.144 (0.179)	0.0990 (0.219)	0.516* (0.243)	-0.333 (0.387)
Deprivation	0.236 (0.178)	0.191 (0.216)	0.544* (0.247)	0.101 (0.395)
Left-right position				-0.271*** (0.0601)
Experimental treatment (Prosperity as reference) × Left-right position				
Neutral × Left-right position				0.117 (0.0791)
Deprivation × Left-right position				0.0487 (0.0800)
Constant	2.283*** (0.124)	2.573*** (0.147)	1.466*** (0.182)	3.462*** (0.285)
Subjects	All	Left-wing	Right-wing	All
Observations	243	167	76	243
R^2	0.00742	0.00479	0.0766	0.172

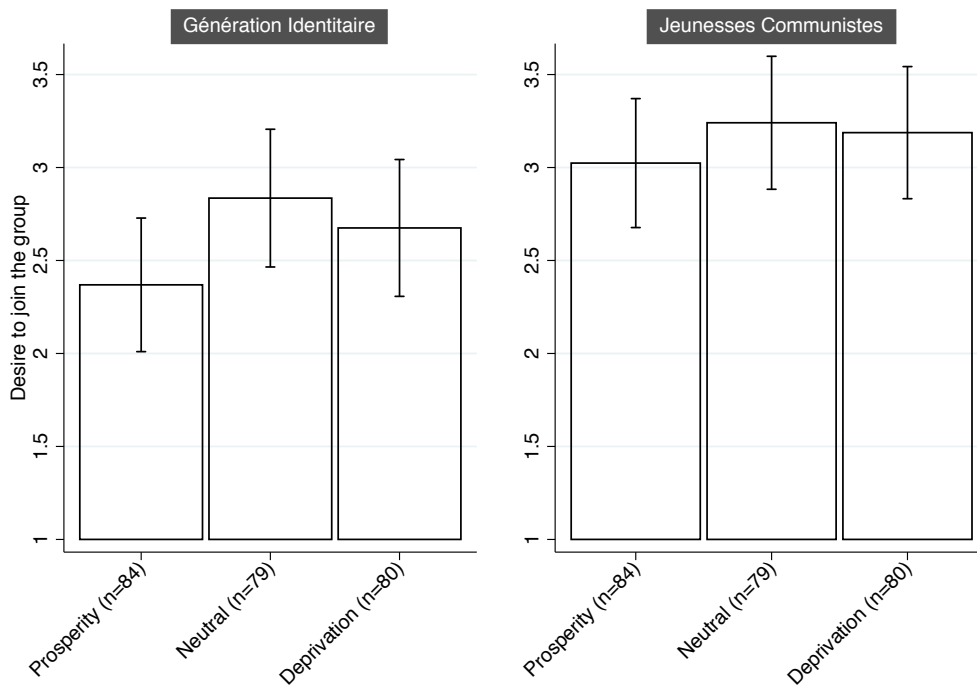
Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The lab treatment had not a robust differential effect on right-wing versus left-wing radical intentions. Table 5.1 present estimates from linear regression of the level of radicalism. Model (1), including all subjects, confirms that the neutral and deprivations treatments had no significant effect on the overall level of radicalism compared to the prosperity treatment. Model (2) also confirm the absence of significant effect in the sub-sample of left-wing subjects. In contrast, model (3) shows that compared to the prosperity treatment, both the neutral and deprivation treatments had a significant positive effect on radicalism in the sub-sample of right-wing subjects. However, this effect is small and

model (4) – including all subjects – fails to show a significant interaction between the subjects’ left-right position and the lab treatments on radicalism. In sum, the results fail to show a robust differential effect of the lab treatment on left-wing versus right-wing radicalism, contrary to Hypothesis 5.1.¹⁰

Figure 5.4: Effect of the lab treatment on the desire to join a political group (with 95% confidence interval)



I reach a similar conclusion when analyzing the desire to join GI. As shown by Figure 5.4, the lab treatment did not affect the desire to join both GI and JC. A one-way Anova confirms that there is no significant differences in the mean level of desire to join Generation Identitaire across lab treatments, $F(2, 240) = 1.65$, $p = .195$. Similarly, the level of desire to join the JC does not differ across lab treatments, $F(2, 240) = 0.40$, $p = .669$. This result is confirmed by regression results presented in Table ??.

These results are confirmed when controlling for the level of authoritarianism and sociodemographic characteristics of subjects, as shown by Table E.4. The results therefore do not verify the implications of system-justification theory (Jost et al., 2003b). Indeed,

¹⁰Besides, as illustrated by Figure E.5, no significant differences are found in the mean level of activism across lab treatments, both among left-wing subjects, $F(2, 164) = 0.18$, $p = .836$, and right-wing subjects, $F(2, 73) = 0.60$, $p = .553$. This absence of effect is confirmed by regression models presented in Table E.2: model (4) shows no significant interaction between the lab treatment and the subjects’ left-right position on the level of activism.

by applying this theory to cases of radical ideologies, we should observe that situations of collective threat generate a rise in right-wing radicalism and receptivity to conservative radical groups, which is not the case.

The lab treatment had not any interaction effects with subjects' authoritarian predisposition. According to the hypothesis of authoritarian dynamics (Stenner, 2005), contexts of collective threat interact with authoritarian predispositions to generate right-wing versus left-wing radicalization. In contradiction with this view, results from Table E.5 show no significant interaction effects between the lab treatments and authoritarianism on radicalism (both of the left and the right), and on the desire to join GI or the JC.

2.3.4. The mediating effect of fear?

If the experimental manipulation did not have a direct effect on the level of radical intentions of subjects, is it possible that it influenced it indirectly, via fear? Indeed, as presented, the experimental manipulation had a very marked effect on the level of fear of the participants. In this line, the theory of Jost et al. (2003b) is based on the premise that right-wing ideologies are more resonant among individuals who feel threatened. As a result, it is possible that the experimental manipulation had an indirect differential effect on left-wing and right-wing radical intentions, via the feeling of fear that it aroused in the subjects.

Fear increased radical intentions. Table E.6 presents results from regression models analyzing the effect of fear on radical intentions. Model (1) shows that fear is positively and significantly related to radicalism.

Fear increased radical intentions, whatever their ideological orientation. Models (2) to (4) of Table E.6 test whether the effect of fear on radicalism is different for right-wing versus left-wing subjects. Model (2) shows that fear has a positive effect on radicalism among left-wing subjects, albeit the coefficient only attains the 10% significance threshold. Model (3) shows that fear has a significant positive effect on radicalism among right-wing subjects. Model (4) reveals no significant interaction between fear and the left-right position on radicalism. I obtain similar results when analyzing the desire to join a political group instead of radicalism in Table E.6. Model (5) shows that fear is positively and significantly related to the desire to join GI and model (6) shows a similar effect for the JC. Hence, results indicate that fear generally increases radicalism and the desire to join a political group, whatever its ideological orientation, in contradiction with the theory of Jost et al. (2003b).

The deprivation treatment had a slight indirect effect on both right-wing and left-wing radicalism through increasing fear. I computed structural equation models to test whether fear mediates the effect of the lab treatment on radicalism and activism. Figures E.6a and E.6a present estimates from such models respectively for left-wing and right-wing subjects. The results are similar for both left-wing and right-wing subjects. Decomposing the effects from the mediation models presented in Figure E.6a reveals that the deprivation treatment (compared to the neutral and prosperity treatments) had an indirect positive effect, through fear, on radicalism among left-wing subjects, significant at the 10% threshold (indirect effect: $\beta = 0.154, p = .068$). Similarly, the deprivation treatment had an indirect positive effect, through fear, on radicalism among left-wing subjects, significant at the 10% threshold (indirect effect: $\beta = 0.180, p = .080$).

2.4. Discussion

What have we learned from this first experiment? In contradiction with Hypothesis 5.1, results do not support the view that situations of economic decline have a differential causal effect on left-wing versus right-wing radical intentions. As expected, I did find a slight increase in radical intentions among right-wing subjects in the deprivation treatment, but the effect was not statistically distinguishable from that among left-wing subjects. In fact, the results rather suggest that, if situations of economic decline have any causal effect on individual radical intentions, it is that of strengthening, via the feeling of fear, the attraction of radical collective actions, without favoring certain ideological orientations.

This result stands in contradiction with implications of certain political psychology theories for radical forms of actions, i.e. system-justification theory (Jost et al., 2003b) and the authoritarian dynamic (Stenner, 2005). Those theories predict that situations of collective threats create a specific adhesion to right-wing ideologies, and should hence favor right-wing forms of collective action and radicalization (Jost et al., 2017). The analyzes suggest that these theories, albeit well-established to explain political attitudes (Duckitt and Fisher, 2003; Jost et al., 2003b; Onraet et al., 2013b), have little explanatory force to account for the attraction of radical forms of collective action.

Results are more supportive of uncertainty-entitativity theory (Hogg, 2014), which predicts that contexts of uncertainty favor the desire to belong to entitative social groups, i.e. offering a well-defined group identity and clear and disciplined standards of behavior, whatever their ideological orientation. In a study close to the present experiment, Hogg et al. (2010) observed that the induction of a threat favored identification with radical political groups with hierarchical norms rather than moderate groups with flexible norms. The present results go in a similar direction, indicating that the fear induced by a context of collective decline tends to favor identification and the desire to engage in a collective

action group, whatever its ideology.

Then, how does this interpretation would fit with the results of the historical analyzes? As a reminder, in Part I, I observed that right-wing radical movements mobilize in times of deprivation while left-wing radical movements mobilize in times of prosperity. A first interpretation is that these differences cannot be explained directly by a mechanism linked to individual psychology: in other words, it would be a question of formulating alternative explanatory tracks linked to group dynamics. Such possibility is explored in Part III (Chapters 7 and 8). Another track, based on the theory of Hogg (2014), is that right-wing radical groups in the historical cases have on the whole been marked by a stronger entitativity – a more strongly hierarchical system and a more firmly group identity demarcated - than left-wing groups, explaining that they were more able to capitalize on individual fears in times of collective misery.

Replication and further investigation is needed. Great caution is required in generalizing the present results and it is necessary to replicate this experiment on other populations before rejecting the theory of ideals. Actually, the present results are not overwhelmingly unresponsive of Hypothesis 5.1. The data revealed a slight (unsignificant) difference in the effect of the deprivation treatment between right-wing and left-wing subjects, in the direction predicted by Hypothesis 5.1. It is not excluded that such difference would become significant in other samples. In particular, the present sample of students is characterized by a marked under-representation of right-wing subjects. Such under-representation is particularly problematic since results from previous Chapters (3 and 4) suggest that economic decline actually has an asymmetric effect: a strong positive effect on right-wing ideologies and a limited effect on left-wing ideologies.

Finally, the present experiment did not include measure of reactionary attitudes to test the causal mechanism of Hypothesis 5.2 linking economic decline and radical intentions. Following the hypothesis of ideals, one may guess that the economic decline treatment does not directly affect radical intentions, but firstly increases reactionary attitudes. In a second step, which may require some delay, reactionary attitudes translate into right-wing radical intentions. The next experiment includes a measure of reactionary attitudes to test this two-step process.

3. Study 2. Survey experiment

The aim of the second experiment is twofold. First, it aims at replicating the lab experiment based on a wider and more representative sample. To do so, it takes advantage

of a representative online survey carried out in six European countries in 2019 by a team of researchers and Phd students of the Pacte laboratory. We implemented in this survey an experimental design aimed at replicating, in a lighter fashion, the lab experiment presented above to test Hypothesis 5.1. The second aim is to further investigate the alleged causal mechanism linking economic decline and radical intentions by including a measure of reactionary attitudes. The aim is here to test Hypothesis 5.2: that economic decline increases reactionary attitude, which in turn increase right-wing radical intentions.

3.1. Method

3.1.1. Sample

The Popeuropa survey was fielded online during April 2019 in six European countries selected for the variety of their national socio-political configurations (Denmark, France, Germany, Italy, the Netherlands, Spain). We relied on national samples of remunerated online respondents from the polling organization Dynata®. To ensure representativity, we used a quota sampling method, filtering participants in the survey to proportionally represent the characteristics of the national populations. We relied on the following quotas: gender, age (18-24, 24-34, 35-44, 45-54, 55+ categories), education (0-3, 4-5, 6-9 levels according to the International Standard Classification of Education), income (third lowest deciles, four middle decline, third highest deciles), and place of living (Big city, suburb and middle sized cities, small cities and rural).¹¹ The number of respondents is around 1300 for each country, raising the total sample to $N = 7,752$.

3.1.2. Procedure and materials

Subjects filled the online questionnaire on the Qualtrics® website. They first answered a series of socio-political questions.

Left-right orientation. The pre-experimental questionnaire included a classic question of self-positioning on the left-right axis on a 11-points scale from 0 (left) to 10 (right).

Survey treatment. To induce a perception of economic decline, we relied on a social threat manipulation used by Stenner (2005). Subjects received the following instruction: "We are interested in what people can recall about major news stories; We are going to present you a summary of a major news story and then we will ask you how you feel

¹¹We eventually relaxed some quotas at the end of the data collection when we were unable to find respondents with very specific characteristics. This implies that the data needs to be weighted to compensate sampling biases. The following results were produced without using weights, but conclusions are unchanged when weighting data (by gender, age, education; by income; or by place of living). Results can be sent by the author upon request.

about it." Subjects were then randomly assigned to one of four short fictional news stories about the national context respectively depicting 1) an economic improving situation (*prosperity*), 2) an economic declining situation (*deprivation*), 3) a situation of growing agreement between citizens' opinions (*consensus*), or 4) a situation of growing disagreements in citizens' opinions (*dissensus*). All four news stories are presented in Figure 5.5.

Figure 5.5: Survey treatments

Prosperity. “The news story was that the [Country] economy might improve dramatically over the next year. The article suggested that the [Country] may enjoy a period of rapid economic growth. According to some of the indicators, the national economy might show considerable gains over the next year or so, with a big drop in inflation and unemployment. The conclusion was that the [Country] may look forward to strong economic growth in the year to come.”

Deprivation. “The news story was that the [Country] economy might worsen dramatically over the next year. The article suggested that the [Country] may suffer a period of rapid economic decline. According to some of the indicators, the national economy might show considerable deterioration over the next year or so, with a sharp rise in inflation and unemployment. The conclusion was that the [Country] may be facing a severe economic recession in the year to come.”

Consensus. “The news story was that the [Country] public opinion on a wide range of issues – from how children should be raised to how the political system should be run – is becoming increasingly united. The [Country] people are starting to agree about more things, and agree much more strongly. It seems that public consensus is growing. And best of all, this consensus in the [Country] society looks certain to improve in the future, with more and more agreement about what is right and wrong.”

Dissensus. “The news story was that the [Country] public opinion on a wide range of issues – from how children should be raised to how the political system should be run – is becoming increasingly divided. The [Country] people are starting to disagree about more things, and disagree much more strongly. It seems that public consensus is deteriorating. And worst of all, this disunity in the [Country] society looks certain to worsen in the future, with more and more disagreement about what is right and wrong”

I chose to include the additional *consensus* and *dissensus* treatments for two reasons. First, from a methodological point of view, this offers a control group of subjects who did not face information about the economic context. Indeed, it is possible that the evocation of economy generates in itself some effect, and hence, given the high size of the sample, it was interesting to compare the effect of economic news stories to that of non-economic news stories. Secondly, some scholars have argued that normative threats, and especially the perception of societal ideological diversity, play a more important role than economic

threat in fostering right-wing extreme attitudes (Feldman and Stenner, 1997; Stenner, 2005). I hence included these treatments to analyze whether they affected right-wing and left-wing radical intentions in a different fashion than the economic treatments.

To increase the likelihood that subjects would read the news story, we implemented a timer forcing respondents to spend at least 15 seconds on the page. Directly after the manipulation, subjects answered a manipulation check question.

Nostalgia. We then measured subjects' reactionary attitudes based on the item used by de Vries and Hoffmann (2018). Subjects indicated on a 5-point scale from "strongly disagree" to "strongly agree" to what extent they agreed with the following statement: "The society used to be a much better place".

Radical intentions. I relied on the ARIS, as in the previous experiment. In the present case, I did not specify a specific group in the formulation of the items. Before filling the ARIS, respondents were asked to choose one social group to which they identify. Subjects were asked the following question: "People often define themselves as belonging to different groups. Which of the following groups is most important to you?". Subjects had the following choices: "my economic-professional group / my gender identity / my age class / my language-ethnic community / my religious community / my political identity". Subjects were then asked to fill the ARIS by thinking about the group they just named, following the method of Moskalenko and McCauley (2009).

3.2. Results

3.2.1. Description of radical intentions

What is the level of radical intentions in the sample?¹² The average level of radicalism ($\alpha = 0.8943$)¹³, as measured by the four last items (RIS) of the ARIS, is 2.83 ($SD = 1.51$).¹⁴ Around 20% of subjects are overall in favor of using illegal means

¹²In the following analyses, I excluded respondents who spent an excessively short time (less than five minutes) or long time (more than one hour) on the survey. In the first case, it is likely that the respondent filled the questionnaire quasi automatically and did not pay attention to the fictitious news story. In the second case, it is likely that the respondents left the survey and came later, which may interfere with the experimental manipulation. The number of excluded respondents is $n = 536$ (6.91%). Note, however, that including all respondents does not alter the results.

¹³Unfortunately, the high value of the α , superior to the one observed in the lab experiment, is unlikely to reflect a higher internal validity. Most likely, it reflects the facts that respondents in the survey completed the ARIS quickly, using similar answers to all items, as the ARIS does not include reverse items. Indeed, if we split the sample at the median duration spent in the survey, the α of the RIS is a bit higher among subjects who spent lower time on the survey ($\alpha = 0.9040$ versus $\alpha = 0.8657$ for subjects who spent a larger time on the survey).

¹⁴This level of is higher than in the lab experiment. However, it would be premature to conclude that the present sample is more radical than the previous sample. As a reminder, subjects of the lab experiment

"Double-check or don't check." Why I chose not to drop subjects who failed the manipulation check in the survey experiment.

Manipulations checks are post-experimental measures aiming at "ensuring that an experiment actually has been conducted (i.e., that the Independent Variable has been effectively manipulated)" (Sansone et al., 2003, p. 244). The inclusion of manipulation checks in experimental studies enters standards of best practices in experimental political science (Mutz and Pemantle, 2015). They are particularly important to avoid Type II error, i.e. rejecting the hypothesis while the hypothesis is true, in case of null results, that are common in experimental studies. They allow to verify that null results are not simply due to the fact that the manipulation failed and hence that the hypothesis was not properly tested.

Manipulation checks typically take the form of comprehension questions immediately following the experimental treatment to check that subjects paid attention and understood the treatment (Kane and Barabas, 2019; Wilson et al., 2010). In the lab and survey experiments presented in this Chapter, I followed Kane and Barabas (2019) by including a manipulation check in the form of factual questions about the content of the fictional news contents presented to the subjects.

In the lab experiment, I asked a series of questions, presented as "memorization question", about various elements in the radio program. This included the following question used as a manipulation check: "In the program you just listened, according to the interviewed, how does the economic and human situation of students evolve? It deteriorates very strongly / It remains relatively stable / It improves very strongly". Results revealed that 94% provided the correct answer relatively to their experimental treatment (deprivation, neutral or prosperity). This suggests that a huge majority of students understood correctly the program.

Unfortunately, the story is different in the survey experiment. Following the treatment, respondents answered to the following question: "According to the news story, the national economic situation [or public consensus on various issues] is: Worsening / Stable / Improving". Here, results revealed that only 57% of respondents provided the correct answer regarding their experimental treatment (prosperity, deprivation, consensus, dissensus). This suggests that many respondents did not pay attention to (or understood) the survey treatment.

Then, the question is what do we make of subjects who failed the manipulation check? A widespread practice is to exclude participants who failed in order to limit the analyses to subjects who understood the experimental prompt (see political sciences experiments surveyed by Aronow et al., 2019). In the analyses of the lab experiment, I used this approach as the number of subjects who failed the manipulation check was low. Furthermore, additional analyses yielded similar results without dropping those subjects. However, the problem becomes more urgent when the number of subjects who failed the manipulation check increases, as in the survey experiment. In particular, some studies have shown that dropping subjects who failed the manipulation check may lead to serious biases in the analyses by creating asymmetry across experimental treatments (Aronow et al., 2019; Berinsky et al., 2014; Montgomery et al., 2018). I here provide an archetypal example of such an issue with the survey experiment.

There are several ways for respondents who did not pay attention to the manipulation to fill the manipulation check question asked in the survey. On the one hand, inattentive respondents may provide an answer totally at random. In that case, dropping subjects is not problematic, since it reduces the number of subjects that did not pay attention to the manipulation. To be clear, it does not eliminate all inattentive respondents, because some have randomly chosen the correct answer. Second, inattentive respondents may provide an answer that somewhat capture some personal characteristics. In that case, dropping subjects may lead to serious biases, because it may over-represent participants with certain characteristics among certain experimental arms.

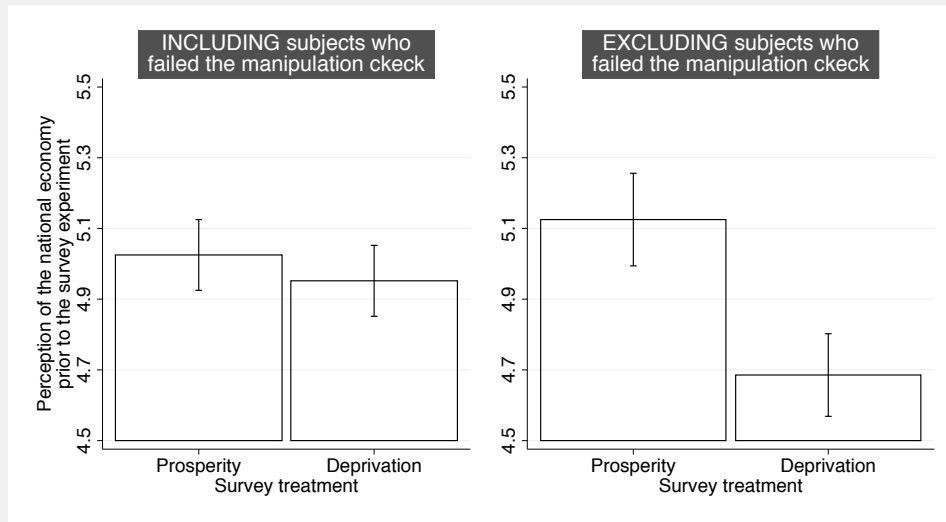
A quick look at the data reveals that the latter possibility was (at least partly) true in the survey experiment. Among subjects economic treatment, exactly a half (49.81%) of subjects were randomly assigned to the deprivation story and the other half (50.19%) to the prosperity story. Now, if we look at responses following the experimental treatment, 30% of respondents declared that, according to the news story, the economic situation is improving, 27% that it is stable and 43% that it is worsening. It is obvious here that 1) many subjects did not correctly understand the manipulation, and 2) that among subjects who did not understand the manipulation (or the manipulation check question) many did not respond at random to the manipulation question. If not, the share of respondents would have been around one third (33%) for each answer. Here, an unexpectedly high number of respondents declared that, according to the news story, the economic situation is worsening.

The manipulation check question actually captured respondents' own beliefs about the current economic situation, a majority feeling that the situation is deteriorating. This becomes clear if we correlate this answer to a question asked earlier in the survey about the perception of the state of the national economy. The question was the following: "Would you say that the economic situation now is better or worse to how it was 5 years ago?". Subjects responded with a 11-point scale from 0 ("Much worse") to 10 ("Much better"). Results indicate that responses to this question are significantly related with responses to the manipulation check, $F(2, 3477) = 48.75, p < .000$.

Why is this a problem? Because if we drop participants that failed the manipulation check, we generate a self-selection asymmetry between arms. That is, as inattentive participants are more likely to respond that the economic situation has deteriorated, dropping failed manipulation check results in a higher proportion of such individuals in the deprivation treatment. And indeed, when dropping subjects who failed the manipulation check, we obtain the following frequency of economic treatments: 56% in the deprivation treatment and 44% in the deprivation treatment. This does no longer looks like a randomized trial. Here, dropping subjects alters the randomization of experimental treatments by self-selecting participants in certain experiment arms. The assignation of a given individual in a given treatment is no longer random, but depends on certain individual characteristics.

In sum, it ruins the experiment.

Let's take a concrete example. The question about the perception of the national economy was asked prior to the survey experiment. Hence, it is perfectly impossible that the experimental treatment had a causal effect on responses to this question. Now, let's look at the effect of the treatment on this question with or without dropping subjects who failed the manipulation check. The following figure presents the average perception of the national economy for subjects of the deprivation versus prosperity treatments.



As shown by the left-side of the figure, when including all respondents, there is no significant difference across treatments in the perception of the national economy prior to the survey experiment, $t(3499) = -1.0123, p = .3115$. This is exactly what we expect from randomization. In contrast, when excluding subjects who failed the manipulation check, as shown by the right-side of the figure, there is a significant difference across treatments in the perception of the national economy prior to the survey experiment, $t(2253) = -4.9128, p = .0000$.

This concretely means that dropping subjects who failed the manipulation check avoid the possibility to identify a true *causal* effect of the treatment, since this causal effect is mixed with effects of the personal characteristics of respondents. This is unfortunate as the very aim of an experiment is to demonstrate causal effects.

The problem here is that the use of the single manipulation check question leads to a lack of *sensitivity*: it leaves out some false negative, i.e. inattentive respondents who nonetheless (by chance) correctly completed the manipulation check.^a A good manipulation check would hence require multiple factual questions that allow detecting all inattentive respondents. Unfortunately, such battery was not included in the present survey. For that reason, I chose not to drop subjects who failed the manipulation check. This decision is conservative. It is likely to greatly increase noise in the data and reduce effect sizes – with increased risk of Type II error. Nonetheless, this implies that if some treatments' effects are observed, they are of truly causal nature.

^aIn contrast, the *specificity* of the manipulation check seems satisfactory: subjects who answered incorrectly were evidently inattentive.

to defend the rights of their group (with an average level of radicalism over 4.0). As in the lab experiment, and as illustrated by Figure E.7, the average level of activism ($\alpha = 0.8713$), as measured by the four first items (AIS) of the ARIS, is significantly higher ($M = 3.79, SD = 1.39$), $t(7127) = 58.07, p = .000$. Around 41% of subjects are overall in favor of using legal means to defend the rights of their group (with an average level of activism over 4.0).

As in the lab experiment, radicalism strongly correlates with activism ($r = 0.5345, p < .000, N = 7128$) as shown by Table E.7, and the two dimensional structure of the original ARIS is again replicated. A principal component analysis yields two components with eigenvalues > 1.0 . Computing an oblimin rotation produces two dimensions (respectively accounting for 39% and 35% of the total variance). The four last items measuring radicalism (RIS) show high loadings (> 0.7) with the first dimension and the four first items measuring activism (AIS) show high loadings (> 0.7) with the second dimension.

Now, what are the levels of right-wing and left-wing radical intentions in the sample? As in the lab experiment, I split the sample depending on the positions of subjects on the left-right axis.¹⁵ This variable is described in Figure E.8. As the number of subjects in the survey experiment is higher, I chose to use a stricter definition of left-wing and right-wing subjects, excluding subjects positioned at the center. I here define left-wing subjects as those at 3 or less on the left-right axis ($n = 1703$) and right-wing subjects at 7 or more ($n = 2623$), which leaves a subsample of subjects at the center, i.e. at 4 to 6 ($n = 2802$). In contrast with the sample of the lab experiment, the average level of radicalism is *higher* among right-wing subjects ($M = 3.01, SD = 1.63$) than left-wing subjects ($M = 2.76, SD = 1.44$), $t(4324) = 5.11, p = .000$. This is confirmed by results from Table E.7: radicalism is positively correlated with the left-right position in the sample ($r = 0.0882, p < 0.000, N = 6383$).

3.2.2. Effect of the survey treatment on radical intentions

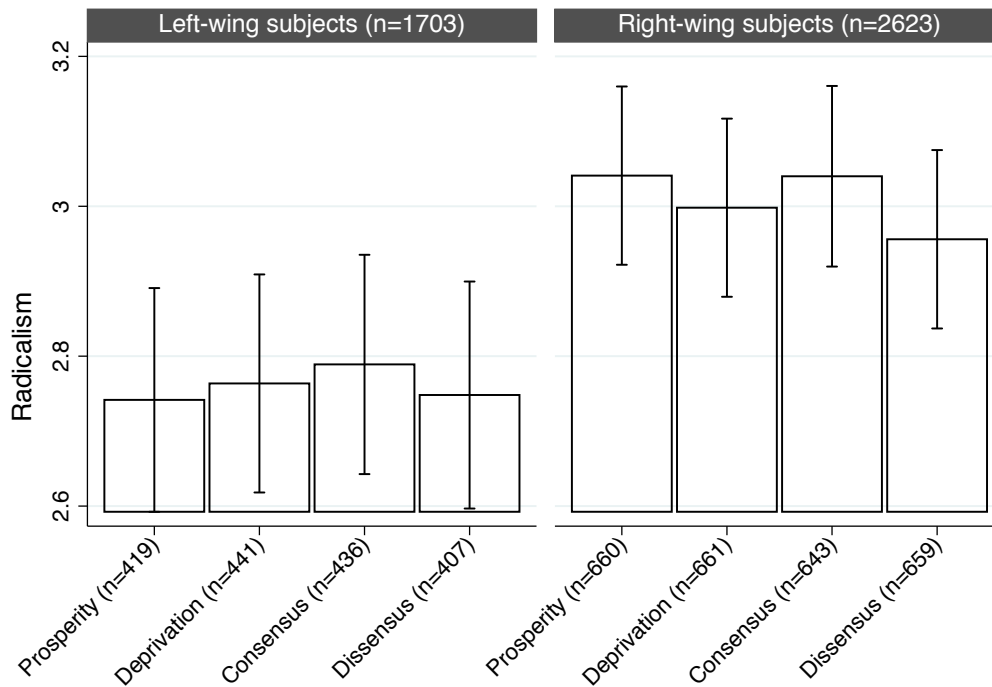
The survey treatment had no direct effect on radical intentions. As a reminder, Hypothesis 5.1 predicts that the deprivation condition strengthens right-wing radical intentions and decreases left-wing radical intentions, which means that the deprivation condition should not affect the average level of radical intentions. In line with Hypothesis 5.1 and with results from the lab treatment, the manipulation did not have any general effect on radical intentions, as shown by Figure E.10. A one-way Anova reveals no significant differences in the mean level of radicalism across survey treatments, $F(3, 7124) = 1.06$,

were asked to think about the group of "students" when filling the ARIS. It is possible that they would have been more radical if they filled the ARIS thinking about a social group they felt closer to, such as one of the social groups presented in the survey experiment before the ARIS.

¹⁵Again, to ensure the robustness of the results, I always present in addition to analyses based on split samples interaction effects with the left-right position computed based on the entire sample.

$p = .366$. Similarly, the level of activism does not differ across survey treatments, $F(3, 7124) = 1.05, p = .367$.

Figure 5.6: Effect of the survey treatment on radicalism depending on the left-right position (with 95% confidence interval)



The survey treatment had no differential effect on right-wing versus left-wing radical intentions. I now split the sample depending on whether the respondents self position as left-wing or right-wing. As illustrated by the left side of Figure 5.6, among left-wing subjects ($n=1703$), the 419 subjects in the prosperity treatment have an average level of radicalism of 2.74 ($SD = 1.49$); the 441 subjects in the deprivation treatment have a mean of 2.76 ($SD = 1.36$); the 436 subjects in the consensus treatment have a mean of 2.79 ($SD = 1.45$) and the 407 subjects in the dissensus treatment have a mean of 2.75 ($SD = 1.49$). The effect of the survey treatment, therefore, is not statistically significant among left-wing subjects, $F(3, 1699) = 0.09, p = .965$. As shown by the right side of Figure 5.6, among right-wing subjects ($n=2623$), the 660 subjects in the prosperity treatment have an average level of radicalism of 3.04 ($SD = 1.64$); the 661 subjects in the deprivation treatment have a mean of 3.00 ($SD = 1.64$); the 643 subjects in the consensus treatment have a mean of 3.04 ($SD = 1.64$) and the 659 subjects in the dissensus treatment have a mean of 2.96 ($SD = 1.59$). The effect of the lab treatment, therefore, is also not statistically significant among right-wing subjects, $F(3, 2619) = 0.41, p = .749$.

Table 5.2 presents estimates from linear regression of the level of radicalism. Model

Table 5.2: Effect of the survey treatment on radicalism depending on the left-right position (unstandardized coefficients from linear regression)

	(1)	(2)	(3)	(4)
Experimental treatment (Prosperity as reference)				
Deprivation	0.00903 (0.0501)	0.0220 (0.0986)	-0.0428 (0.0895)	0.129 (0.123)
Consensus	0.0499 (0.0505)	0.0473 (0.0989)	-0.000862 (0.0902)	0.131 (0.125)
Dissensus	-0.0407 (0.0506)	0.00651 (0.101)	-0.0849 (0.0896)	0.0644 (0.126)
Left-right position				0.0710*** (0.0157)
Survey treatment (Prosperity as reference) × Left-right position				
Deprivation × Left-right position				-0.0245 (0.0219)
Consensus × Left-right position				-0.0148 (0.0223)
Dissensus × Left-right position				-0.0231 (0.0222)
Constant	2.821*** (0.0353)	2.742*** (0.0706)	3.041*** (0.0633)	2.477*** (0.0890)
Subjects	All	Left-wing	Right-wing	All
Observations	7128	1703	2623	6383
R^2	0.000445	0.000160	0.000464	0.00864

Standard errors in parentheses

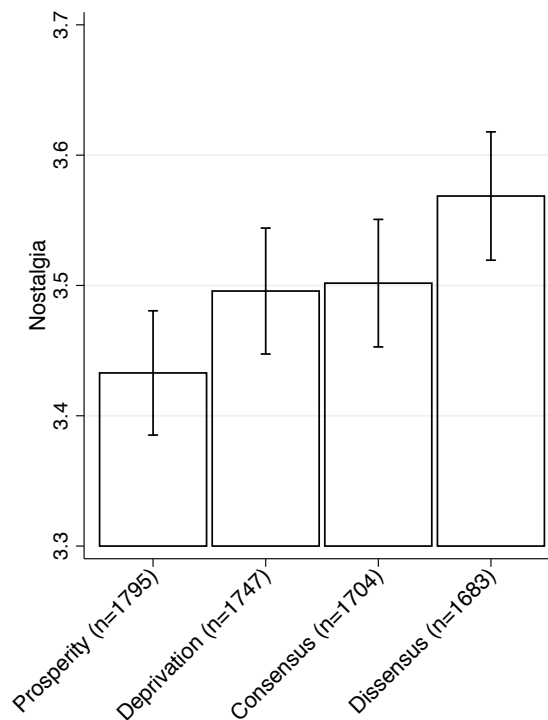
+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

(1), including all subjects, confirms that the deprivation treatment, as well as the consensus and dissensus treatments, has no significant effect on the overall level of radicalism compared to the prosperity treatment. Models (2) and (3) also confirm the absence of significant effects respectively in the sub-samples of left-wing and right-wing subjects. Model (4), including all subjects, fails to show a significant interaction between the subjects' left-right position and the lab treatments on radicalism. In sum, as in the lab experiment, the results fail to demonstrate a differential effect of the lab treatment on left-wing versus right-wing radicalism, contrary to Hypothesis 5.1.¹⁶

3.2.3. Effect of the survey treatment on nostalgia

Hypothesis 5.2 predicts that the deprivation treatment increases nostalgia and, then, that nostalgia increases right-wing radical intentions and reduces left-wing radical intentions. Is the first part of the mechanism supported by the data?

Figure 5.7: Effect of the survey treatment on nostalgia (with 95% confidence interval)



¹⁶Besides, as illustrated by Figure E.11, no significant differences is found in the mean level of activism across lab treatments, both among left-wing subjects, $F(3, 1699) = 1.22, p = .302$, and right-wing subjects, $F(3, 2619) = 0.48, p = .693$. This absence of effect is confirmed by regression models presented in Table E.8: model (4) shows no significant interaction between the lab treatment and the subjects' left-right position on the level of activism.

The survey treatment affected nostalgia. As shown by Figure 5.7, the 1795 subjects in the prosperity treatment have an average level of nostalgia of 3.43 ($SD = 1.05$); the 1747 subjects in the deprivation treatment have a mean of 3.50 ($SD = 1.02$); the 1704 subjects in the consensus treatment have a mean of 3.50 ($SD = 1.03$) and the 1683 subjects in the dissensus treatment have a mean of 3.57 ($SD = 1.02$). A one-way anova rejects the Null that the level of nostalgia does not differ across survey treatments, $F(3, 6925) = 5.03$, $p = .002$.

The prosperity treatment had a negative effect on nostalgia. As expected by Hypothesis 5.2, the level of nostalgia is indeed higher in the deprivation treatment compared to the prosperity treatment, but the difference only attains the 10% significance threshold under the assumption of a two-tailed test, $t(3540) = -1.81$, $p = .0704$.¹⁷ Actually, as suggested by Figure 5.7. Actually, as illustrated by Figure 5.7, it seems that the prosperity rather than the deprivation treatment affected the subjects' level of nostalgia. Indeed, when compared to subjects of the dissensus and consensus treatments taken together as a baseline group, subjects of the deprivation treatment do not exhibit a significant difference in nostalgia, $t(5132) = -1.30$, $p = .1928$, while subjects of the prosperity treatments exhibit a significantly lower level of nostalgia, $t(5182) = -3.38$, $p = .0007$. The direction of the relationship is essentially the same than predicted by Hypothesis 5.2, but the data suggests that it is collective prosperity that reduces reactionary attitudes rather than economic decline that increases reactionary attitudes.

The prosperity treatment specifically reduced nostalgia among right-wing subjects. Hypothesis 5.2 predicts that economic decline increases the level of reactionary attitudes in general. Now, I computed exploratory analyses to test whether the effect of economic decline differed depending on the ideological orientation of subjects, splitting the sample depending on whether the respondents self positioned as left-wing or right-wing. As illustrated by the left side of Figure 5.8, the survey treatment has no significant effect on the level of nostalgia among left-wing subjects, $F(3, 1655) = 0.35$, $p = .7878$. In contrast, as shown by the right side of Figure 5.8, the level of nostalgia significantly differs across survey treatments among right-wing subjects, $F(3, 2514) = 6.10$, $p = .0004$. The level of nostalgia is higher in the deprivation treatment compared to the prosperity treatment among right-wing subjects, $t(1272) = 2.2985$, $p = .0217$.¹⁸ This indicates that the first part of Hypothesis 5.2 is specifically true for right-wing subjects.

¹⁷Note that the difference is significant at the 5% threshold ($p = .0352$) under the assumption of a one-tailed test, which is actually appropriate for a directional hypothesis such as Hypothesis 5.2.

¹⁸When compared to the consensus and dissensus treatments pooled together, the deprivation treatment has no significant effect among right-wing subjects, $t(1877) = -1.630$, $p = .1033$, while the prosperity treatment has a significant negative effect, $t(1883) = -4.2416$, $p = .0000$.

Table 5.3: Effect of the survey treatment on nostalgia depending on the left-right position (unstandardized coefficients from linear regression)

	(1)	(2)	(3)	(4)	(5)
Experimental treatment (Prosperity as reference)					
Deprivation	0.0628 ⁺ (0.0346)	-0.0637 (0.0733)	0.0738 (0.0518)	0.135* (0.0585)	-0.102 (0.0843)
Consensus	0.0689* (0.0349)	-0.00700 (0.0732)	-0.0168 (0.0522)	0.214*** (0.0590)	-0.125 (0.0854)
Dissensus	0.136*** (0.0350)	-0.00132 (0.0749)	0.131* (0.0523)	0.219*** (0.0585)	-0.0377 (0.0862)
Left-right position					0.0223* (0.0107)
Survey treatment (Prosperity as reference)					
× Left-right position					
Deprivation × Left-right position					0.0336* (0.0149)
Consensus × Left-right position					0.0385* (0.0151)
Dissensus × Left-right position					0.0327* (0.0152)
Constant	3.433*** (0.0243)	3.381*** (0.0524)	3.384*** (0.0358)	3.523*** (0.0412)	3.297*** (0.0607)
Subjects	All	Left-wing	Centrists	Right-wing	All
Observations	6929	1659	2752	2518	6266
R ²	0.00218	0.000638	0.00357	0.00723	0.0164

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 5.8: Effect of the survey treatment on nostalgia depending on the left-right position (with 95% confidence interval)

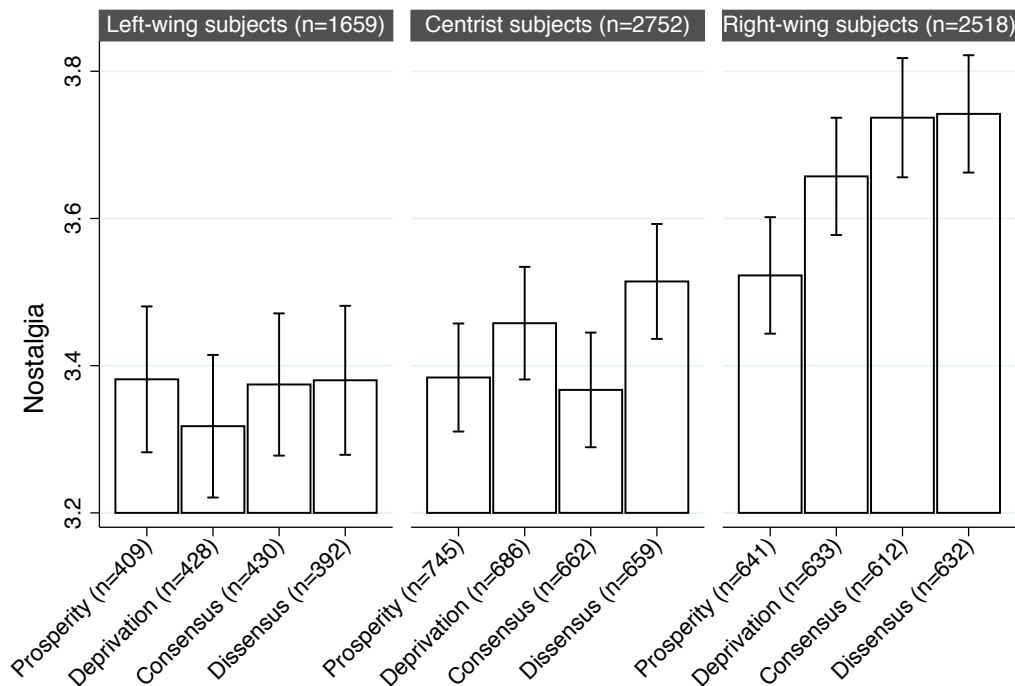


Table 5.2 presents estimates from linear regression of the level of nostalgia. Results from model (1), including all subjects, are equivalent to the previously commented results presented in Figure 5.7. Similarly, results from models (2), (3) and (4), respectively about right-wing, centrist and left-wing subjects, map with results described in Figure 5.8. Model (5), including all subjects, confirm that, compared to the prosperity treatment, all treatments have a significant interaction effect with the subjects' left-right position. In sum, the results demonstrate a differential effect of the survey treatment on nostalgia among right-wing versus left-wing subjects: put shortly, the prosperity treatment reduced nostalgia among right-wing subjects, while it did not among left-wing subjects.

The dissensus treatment specifically increased nostalgia among centrists. What about the effect of the dissensus versus consensus treatments? Figure 5.7, suggests that the dissensus treatment has an overall positive effect on nostalgia. Indeed, compared to the consensus treatment, subjects of the dissensus treatment have a higher level of nostalgia, albeit the relationship is only significant at the 10% threshold under the assumption of a two-tailed test, $t(3385) = 1.8928, p = .0585$. When compared to the prosperity and deprivation treatments pooled together, the dissensus treatment has a highly significant positive effect on nostalgia, $t(5223) = 3.4354, p = .0006$. However, as suggested by Figure 5.8, the effect of the dissensus treatment is entirely explained by centrist subjects.

Indeed, there is a significant difference in the level of nostalgia between the dissensus and consensus treatments among centrist subjects, $t(1319) = 2.8022, p = .0052$, while no significant difference is found in the level of nostalgia between the consensus and dissensus treatments neither among left-wing subjects, $t(820) = -0.0763, p = .9392$, nor among right-wing subjects, $t(1244) = -0.0872, p = .9305$. I will comment this result in the discussion section.

3.2.4. Effect of nostalgia on radical intentions

Hypothesis 5.2 predicts that nostalgia increases right-wing radical intentions and reduces left-wing radical intentions. Is this second part of the mechanism supported by the data?

Table 5.4: Effect of nostalgia on radicalism depending on the left-right position (unstandardized coefficients from linear regression)

	(1)	(2)	(3)	(4)	(5)
Nostalgia	0.0985*** (0.0176)	0.0397 (0.0334)	0.0620* (0.0277)	0.136*** (0.0311)	-0.0337 (0.0409)
Left-right position					-0.0466 ⁺ (0.0266)
Nostalgia × Left-right position					0.0270*** (0.00710)
Constant	2.478*** (0.0643)	2.632*** (0.118)	2.481*** (0.0988)	2.502*** (0.118)	2.712*** (0.149)
Subjects	All	Left-wing	Centrists	Right-wing	All
Observations	6902	1654	2739	2509	6243
R^2	0.00451	0.000853	0.00183	0.00764	0.0151

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Nostalgia increases radicalism. Table 5.4 presents estimates from linear regressions of radicalism. Model (1) shows that nostalgia has a significant general effect on radicalism. This does not support Hypothesis 5.2, as we would have expected no general effect.

Nostalgia specifically increases radicalism among right-wing subjects. I now split the sample depending on the subjects position on the left-right axis. Model (2), (3) and (4) are respectively based on subsamples of left-wing, centrist and right-wing subjects. Contrary to the expected negative effect, model (2) shows that nostalgia has no significant effect on radicalism among left-wing subjects. Model (3) shows that nostalgia has a significant positive effect on radicalism among centrists. In line with expectations, model

(4) shows the nostalgia has a highly significant positive effect on radicalism among right-wing subjects. As expected, model (5) confirms that there is a significant positive interaction effect between nostalgia and the left-right position on participants' radicalism.

Figure 5.9: Effect of nostalgia on radicalism depending on the left-right position (with 95% confidence interval)

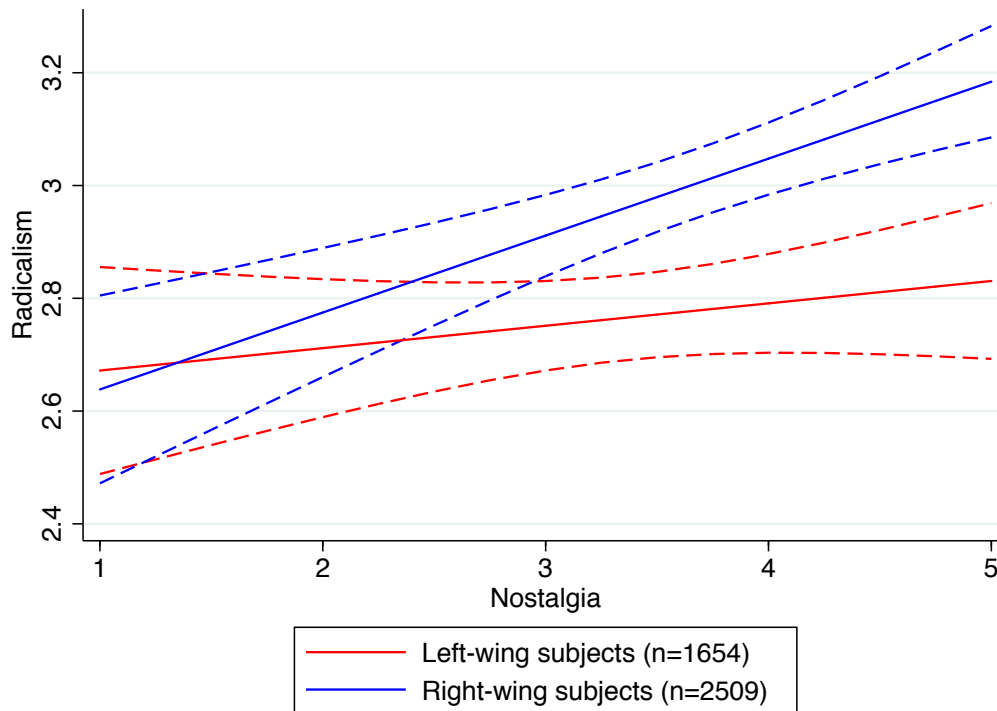


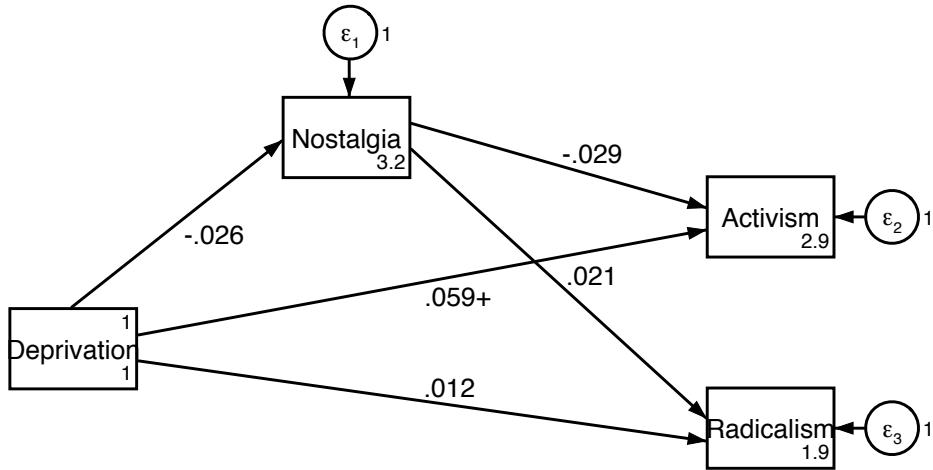
Figure 5.9 plots the predicted levels of radicalism depending on nostalgia among left-wing versus right-wing subjects. Overall, results give partial support to Hypothesis 5.2. There is indeed a differential effect of nostalgia on radical intentions depending on the ideological orientation. However, this effect is asymmetric. As expected, nostalgia increases right-wing radical intentions, but contrary to the expectation, nostalgia does not reduce left-wing radical intentions. These results are confirmed when controlling for personality traits and sociodemographic characteristics of subjects, as shown by Table E.9.

3.2.5. The mediating effect of nostalgia

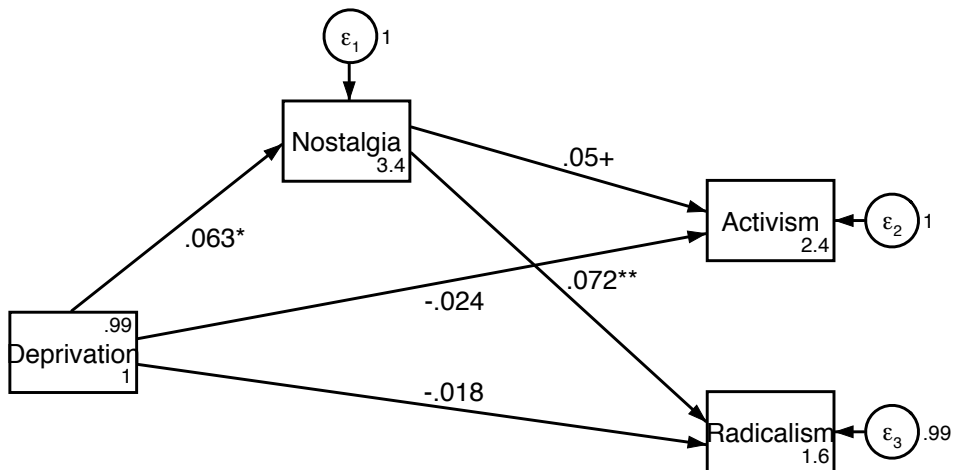
The prosperity treatment had an indirect negative effect on right-wing radicalism through decreasing nostalgia. I computed structural equation models to test whether nostalgia mediates the effect of the deprivation treatment (compared to the prosperity treatment) on radicalism and activism. Figures 5.10a and 5.10b present estimates from such models respectively for left-wing and right-wing subjects. As expected by Hypothesis 5.2, the results are different for left-wing and right-wing subjects. Decomposing the effects from the mediation models reveals that the deprivation treatment (compared to the

Figure 5.10: Standardized coefficients from structural equation models linking the survey treatment (deprivation versus prosperity), nostalgia and radicalism

(a) Left-wing subjects (n=833)



(b) Right-wing subjects (n=1269)



prosperity treatment) had no significant indirect effect, through nostalgia, on radicalism among left-wing subjects (indirect effect: $\beta = -.0015, p = .640$). In contrast, and in line with Hypothesis 5.2, the deprivation treatment had an indirect positive effect, through nostalgia, on radicalism among left-wing subjects, significant at the 10% threshold (indirect effect: $\beta = 0.015, p = .089$).

As previous results suggested that the prosperity treatment (rather than the deprivation treatment) had a distinctive effect on nostalgia, I also tested the structural equation models replacing the deprivation treatment variable by the prosperity treatment (compared to the consensus and dissensus treatments pooled together). In line with previous results, such a model reveals that the prosperity treatment had no significant indirect effect, through nostalgia, on radicalism among left-wing subjects (indirect effect: $\beta = 0.00007, p = .975$), while it had a significant indirect negative effect, through nostalgia, on radicalism among right-wing subjects, significant at the 1% threshold (indirect effect: $\beta = -0.0275, p = .006$).

4. General discussion

What have we learned from these two experiments? The first finding is that, in both experiments, the deprivation treatment did not have a robust effect on right-wing versus left-wing radical intentions, in contradiction with Hypothesis 5.1. The replication of this null effect in different designs (students' versus representative sample, controlled versus uncontrolled conditions, immersive versus soft manipulation) points toward the conclusion that situations of economic decline have no *direct* immediate causal effect on individual radical intentions, both of the left and the right. Moreover, results from the survey experiment suggest that this absence of effect is not due to the alternative possibility that economic threat is a minor cause of radicalization compared to other threats, such as normative threat (Feldman and Stenner, 1997; Stenner, 2005). Indeed, the dissensus versus consensus treatments included in the survey experiment did not either affect radical intentions of the left and the right.

Retrospectively, the absence of direct effect of economic decline on radical intentions may not be such a surprise. Radicalization is generally a long-term process (Moghadam, 2005), and the theory of ideals predicts that economic decline primarily affects the resonance of right-wing versus left-wing extreme ideologies. In a second time, these ideological preferences offer a fertile soil for radical intentions, that eventually activate due to external radicalizing factors. And indeed, the second finding from the survey experiment is that the economic treatment had an indirect effect on right-wing radical intentions,

through affecting subjects' reactionary attitudes. In line with Hypothesis 5.2, I found that, among right-wing subjects, the economic condition significantly affected nostalgia, which in turn increased radical intentions. In contrast, no such effects were found among left-wing subjects. Hence, results support the key mechanism from the theory of ideals that economic decline has an indirect differential effect on right-wing versus left-wing radical intentions through affecting reactionary attitudes.

One could observe that the effect size of the economic treatment in the survey experiment is very small. Nonetheless, it is hard to draw considerations about the effect from such an empirical design, in which a Type II error (not detecting true effects) is much more likely than a Type I error (detecting false effects). Indeed, the experiment treatment implemented in the survey was very light, the data collection conditions implied a huge amount of noise, and evidence from the manipulation check indicates that a very high proportion of respondents did not pay any attention to the news story. Hence, it is rather encouraging to detect any effect in such a design, and it would be premature to extrapolate that the effect size of economic conditions in the "real world" is small.

However, contrary to the prediction of the theory of ideals, the differential effect of economic decline is clearly asymmetric: nostalgia increases right-wing radicalization, while it does not affect left-wing radicalization. This aligns with findings from Chapter 3 and 4 that collective decline increases extreme right votes but has no clear-cut effect on extreme left votes. Results from the survey experiment may hence be compatible with the view, supported by Chapter 4, that reactionary attitudes have ambivalent effects on left-wing ideologies, that may be sometimes reactionary and sometimes revolutionary.

Results from the survey experiment may even shed an additional light on this asymmetry. Unexpectedly, I found that the economic treatments affected nostalgia among right-wing subjects while it did not among left-wing subjects. One possible interpretation is that right-wing individuals pay more attention to economic issues (Newport, 2018) and are more fervently supportive of economic growth (e.g. right-wing people are more likely to prioritize economic growth over environment, see Neumayer, 2004). Hence, they may be more prone to display positive reaction to the evocation of a future economic boom, with decreased reactionary attitudes. It would yet be premature to extrapolate this interpretation to the "real world": it is possible that left-wing subjects are not affected by the announcement of an economic boom, but they may be affected as well by perceptible negative social effects that generally occur under recessions.¹⁹

In the same vein, I found that the normative threat treatment only had an effect on nostalgia among centrist respondents. This result is rather unsupportive the theory of (Stenner, 2005), that normative threat is especially sensitive for authoritarian people, which

¹⁹In this line, additional analyses based on the data from Chapter 3 reveal that GDP growth affects traditionalism both among right-wing and (or even more among) left-wing individuals.

are generally at the right of the political spectrum. An interpretation is that centrists are especially looking for consensus, and hence more likely to feel threatened by situations in which opinions are diverging. For instance, Brandt et al. (2015) found that individuals at the center of the left-right spectrum are more likely to adapt their beliefs to experimenter-generated anchors, while people at the extreme-right or extreme-left of the political spectrum are more likely to perceive their belief as superior and reject anchors.

On a more general stand, the results from the experiments do not support the view that contexts of threat are inherently related to right-wing attitudes, as predicted by system-justification theory (Jost et al., 2003b). In the lab experiment, I found that fear induced by the economically threatening scenario could lead to radicalization of both the left and the right, which more closely maps with uncertainty-entitativity theory (Hogg, 2014), that contexts of uncertainty favor the desire to belong well-defined and hierarchical social groups (Hogg et al., 2010). In the survey experiment, results suggest that different kind of threat generate attitudinal responses among different political groups. This last finding has some similarities with recent results from Eadeh and Chang (2020). Eadeh and Chang (2020) proposed that a threat affects political attitudes in favor of political groups that are typically perceived as relevant to solve the problem. According to the authors, the observed general effect of threatening situations on right-wing attitudes (see Jost, 2017, for a recent meta-analysis) may be explained by the fact that most studies analyzed the effect of threatening situations involving terrorism, an issue about which right-wing parties are perceived as more competent (e.g. Newport, 2014). In this line, Brouard et al. (2018) found that the positive effect of terrorist attacks on right-wing attitudes is specifically due to the fact that attacks increase right-wing attitudes relative to security, while they do not affect other attitudinal components of right-wing ideologies. In the same vein, Eadeh and Chang (2020) found that threatening scenarios related to health-care, pollution and corporate misconduct - issues that, in contrast to security, are typically owned by left-wing parties (Seeberg, 2017) - fostered left-wing attitudes. My own results point toward a close interpretation: that threat entails more reaction among individuals for whom the issue in question is salient.

Finally, an interesting finding from the survey experiment is that the prosperity treatment, rather than the deprivation treatment, had a marked effect on nostalgia among right-wing subjects. One interpretation is that, among respondents of the present survey, deprivation was perceived as the "normal" situation, while prosperity was a "novel" situation, that hence affected the respondents' average level of nostalgia. This view is quite coherent with the relatively lower levels of economic prosperity experienced in recent years in the surveyed countries (see Figure 6.9 in Chapter 6).

6

From ballots to bullets. Linkages between extreme votes and radicalism

"Every opinion is of force enough to cause itself to be espoused at the expense of life."

Essays

MICHEL DE MONTAIGNE

This chapter tests the final part of the theory of ideals linking the spread of ideologies and radicalism. I analyze the effect of the spread of right-wing and left-wing ideologies, as expressed by extreme votes, on radicalism in three separate studies. The first study, at the micro level, analyses the link between past individual votes and radical intentions based on the online survey from Chapter 5. The second study, at the macro level, investigates the relationship between extreme right and left vote shares and the mobilization level of French radical movements, based on the data from Chapter 1. Finally, the last study tests the effect of extreme vote shares on right-wing and left-wing terrorist attacks in 33 countries from 1972 to 2016. Results are all consistent with the theory of ideals: extreme left votes are positively related with left-wing radical intentions, mobilization and terrorist attacks, while extreme right votes are positively related with right-wing radical intentions, mobilization and terrorist attacks. This supports the mobilization argument that the spread of extreme ideologies offers a fertile soil for radicalism, over the opportunity argument that radicalism occurs when one's ideology is in political minority.

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This chapter tests the second and final part of the theory of ideals linking extreme ideologies and radical behaviors. In Chapter 3, I found partial support for the first part of the theory of ideals: economic decline differently affects the resonance of extreme ideologies of the left and the right, as measured by extreme votes. I found that economic decline increases extreme right votes while it has no effect on extreme left votes. Now, the second part of the theory of ideals predicts that the spread of extreme ideologies, as measured by extreme votes, provides a fertile ground for radical movements using illegal means and violence to promote these ideologies. This chapter tests whether this last prediction is true.

Figure 6.1: Causal paths of the theory of ideals analyzed in Chapter 6

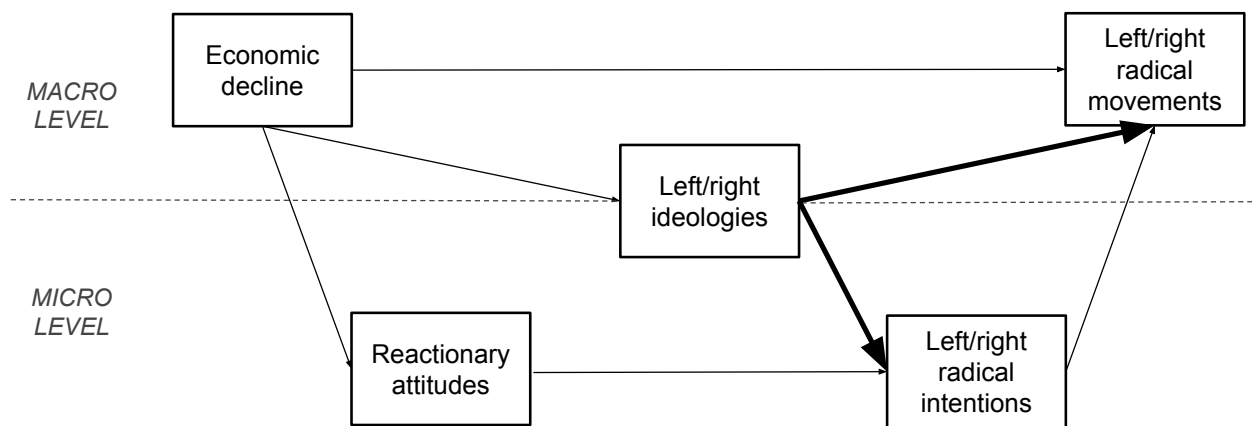


Figure 6.1 summarizes the causal paths analyzed in this chapter. I test the correlation between extreme votes and radicalism at both the micro and macro level. The first causal path situates at the micro level. It predicts that radical intentions are higher among people who vote for extreme parties.

Hypothesis 6.1 *Individuals who vote for extreme parties have higher radical intentions.*

The second causal path situates at the macro level. If the spread of extreme ideologies favors radical movements, we should observe that radical behaviors are more widespread in societies that display high votes for extreme parties, and the ideological orientation of these behaviors should map with the ideological orientation of extreme votes. Hence, the second hypothesis tests the effect of extreme votes on radical behavior at an aggregated macro level.

Hypothesis 6.2 *The share of extreme votes in a country is positively related to its level of radicalism.*

A. The share of extreme left votes in a country is positively related with the level of left-wing radicalism.

B. The share of extreme right votes in a country is positively related with the level of right-wing radicalism.

1. Theoretical and empirical background

1.1. Mobilization versus opportunity argument

Two competing predictions on the relationship between extreme votes and radical behaviors may be distinguished. On the one hand, the *mobilization* argument predicts that extreme votes positively correlate with radical behaviors. On the other hand, the *opportunity* argument predicts that extreme votes should negatively correlate with radical behaviors.

1.1.1. Mobilization argument

The logic of the *mobilization* argument is that the spread of extreme opinions, as expressed by extreme votes, increases the mobilization potential of radical movements. Hypotheses 6.1 and 6.2 of the theory of ideals are based upon this argument. It rests on the assumption that an individual adherence to an extreme ideology is an antecedent of radical behaviors (Moghaddam, 2005; Silber et al., 2007; Wiktorowicz, 2004). Empirically, various studies highlight a correlation between extreme opinions and behaviors. At the micro level, evidence shows that most perpetrators of terrorism are disproportionately likely to be deeply committed to an extreme ideology (Sawyer and Hienz, 2017). Survey data reveal correlations between self-reported involvement in right-wing political violence and right-wing extremist beliefs (Pauwels and Heylen, 2020). At the macro level, various studies found that indicators of extreme opinion correlate with aggregated levels of political violence. Krueger and Malečková (2009) found that countries with higher share of population disapproving the leadership of other countries are more likely to be the origin of transnational terrorism. Similarly, Malečková and Stanišić (2011) found that the level of public justification of suicide bombing in a country correlates with the number of terrorist attacks originating from this country. Comparing the outbreaks of various forms of terrorism in the US and indicators of citizens' opinions, (Hewitt, 2003, p. 45) found that "the timing of each outbreak of terrorism coincides (...) with the rise of extremist sentiments and extremist mobilization".

In the same vein, there are theoretical affinities between extreme votes and radical behaviors that suggest that they should emerge in similar contexts. As proposed by Krueger (2017), "rather than street crime, I argue that a better analogy [of being involved in terror-

ism] is to voting".¹ In this line, similar theoretical models are often used to explain radical behaviors and extreme votes. For instance, right-wing political violence has been explained by theories of economic relative deprivation (Dyer, 1997; Pridemore and Freilich, 2006), decline of white population (Boutcher et al., 2017; Durso and Jacobs, 2013), decline in manufacture employment (Durso and Jacobs, 2013), cultural backlash against the empowerment of women and minorities (Piazza, 2017a), lack of education and unemployment (Chermak and Gruenewald, 2015; Durso and Jacobs, 2013). Essentially similar explanations have been applied to extreme right votes: economic relative deprivation (Burgoon et al., 2019; Rooduijn and Burgoon, 2018), ethnic competition (Rydgren and Ruth, 2011), decline in routine works (Im et al., 2019; Kurer, 2017), cultural backlash against the silent revolution (Norris and Inglehart, 2019) and the political successes of minorities (Bustikova, 2014), lack of education and unemployment (Rydgren and Ruth, 2011). This implies that extreme votes and radical behaviors of a similar ideology should emerge in similar social contexts and mobilize similar individual profiles, as predicted by the theory of ideals.

1.1.2. Opportunity argument

The logic of the *opportunity* argument is that extreme votes negatively affect the strategic incentive to resort to political violence. Indeed, numerous scholars argue that citizens resort to political violence when their opinions are not well represented within the political system (Cohen, 1997; Dahl, 1989; Popper, 2014; Powell, 1982). In this line, various studies reveal that outbreaks of terrorism of a certain ideology are more likely under an unsympathetic administration (Hewitt, 2003; Piazza, 2017a). Similarly, Aksoy and Carter (2014) found that intra-system terrorist groups are more likely to emerge in non-proportional electoral system, that restrict access to power to minority opinions.² This aligns with studies indicating that social movements resort to political violence when there is no possibility of alliance with legal parties and institutionalized actors (Della Porta, 2006; Tilly and Tarrow, 2015). Hence, one could expect that partisans of a given extreme ideology are more likely to use violence when votes in favor of this ideology are low, because they have fewer chances to accede power by legal means. In this line, François et al. (2019) found that supporters of opposition parties are more likely to support a revolution when their share of votes (and hence their likelihood to accede power in the next election) is low. This suggests that the occurrence of political violence may negatively correlate with the share of votes for parties that represent their political options.

¹In contrast to voting, many studies have analyzed the relationship between crime and terrorism (e.g. LaFree et al., 2018; Liem et al., 2018; Makarenko, 2004; Mullins, 2009; Pyrooz et al., 2018).

²Note, however, that Foster et al. (2013) found the opposite effect when analyzing the number of terrorist attacks. Their results show that countries with proportional systems experience higher levels of domestic terrorism, which does not support the *opportunity* argument.

1.2. Limits of existing evidence

While many studies have analyzed the correlation between extreme *opinions* and radical behaviors, the correlation between extreme *votes* and radical behaviors has not been systematically investigated. Existing evidence is limited and does not point toward a clear conclusion. De la Calle and Sánchez-Cuenca (2013) analyzed the relationship between *Euskadi ta Askatasuna* (Basque Homeland and Liberty, ETA) terrorist activities and votes for its electoral branch in Spanish municipalities. They found no effect of votes on the overall level of terrorism, but different effects depending on targets of attacks (security forces or civilians). However, it is hard to draw conclusions from this study about the effect of the spread of extreme ideologies on political violence, since the synchronic variation of attacks across municipalities is likely to reflect only strategic considerations, and not to capture mobilization capacities. At the cross-national level, early evidence rather supports the *opportunity* argument. Descriptive statistics from Koopmans (1996) indicate no positive link between aggregates right/racist violence and votes in eight European countries. Besides, qualitative comparative analysis from Ravndal (2018) suggests that support for extreme right parties may in some condition be negatively correlated with right-wing political violence.

2. Overview of studies

In this chapter, I analyze the relationship between extreme votes and radical intentions and behaviors in three short studies. The first study tests the *mobilization* argument at the micro level, by analyzing the relationship between individual voting behavior and radical intentions (Hypothesis 6.1). I rely on the Popeuropa survey, presented in Chapter 5. The second and third studies test Hypothesis 6.1 based on aggregated measures of extreme votes and radical behaviors. The second study tests the *mobilization* argument at the macro level by analyzing the link between the share of extreme votes and the mobilization level of French radical movements, based on the data from Chapter 1. Finally, the third study compares the empirical validity of the *mobilization* and *opportunity* arguments by analyzing the relationship between aggregated extreme votes and the occurrence of radical actions, based on the Global Terrorism Dataset, measuring the incidence of terrorist attacks worldwide.

3. Study 1. From ballots to intentions: extreme votes and radical intentions in the Popeuropa survey

3.1. Method

I rely on the Popeuropa survey (see Chapter E for details). To measure radical intentions, I rely on the ARIS (see Chapter E for details). The survey also includes a question about the respondent's voting choice during the last general election. Based on this question, the Popeuropa team classified parties in six usual categories: extreme left, social democratic, green, liberal, conservatives / christian democratic and extreme right parties. Table 6.1 presents parties classified as extreme right and extreme left in the Popeuropa survey.

Table 6.1: Extreme parties in the Popeuropa survey

Country	Extreme right party	Extreme left party
Denmark	<i>Dansk Folkeparti</i> (DF)	<i>Socialistisk Folkeparti</i> (SF) <i>Enhedslisten – De Rød-Grønne</i> (Ø)
France	<i>Front National</i> (FN) <i>Debout la France</i> (DLF)	<i>La France Insoumise</i> (LFI)
Germany	<i>Alternative für Deutschland</i> (AfD)	<i>Die Linke</i>
Italy	<i>Lega Nord</i> (LN) <i>Fratelli d'Italia</i> (FdI)	<i>Potere al Popolo</i> (PaP)
Netherlands	<i>Partij voor de Vrijheid</i> (PVV) <i>Forum voor Democratie</i> (FvD)	<i>Socialistische Partij</i> (SP)
Spain	<i>Vox</i>	<i>Unidas Podemos</i>

3.2. Results

Activist intentions are higher among left-wing voters. Figures 6.2a and 6.2b respectively plot the mean level of activism and radicalism based on the ARIS depending on the past voting choice of respondents in the Popeuropa survey. A one-way Anova revealed significant differences in the mean level of activism across voting choices, $F(5, 4717) = 9.21, p = .000$. As shown by Figure 6.2a, the level of activism is generally higher among respondents who vote for left-wing parties. Compared to individuals who voted for non-extreme parties (social democrats, greens, liberals and conservatives / christian democrats), individuals who voted for extreme left parties have a significantly higher level of activism, $t(4557) = 3.2650, p = .001$. The level of activism of individuals who voted for extreme right parties is not significantly different from the one of individuals

who voted for non-extreme parties, $t(4998) = 1.6383, p = .101$, but is significantly lower than the one of individuals who voted for extreme left parties, $t(1929) = 3.7348, p = .000$.

Radical intentions are higher among extreme voters. A one-way Anova also revealed significant differences in the mean level of radicalism across voting choices, $F(5, 4717) = 9.21, p = .000$. As shown by Figure 6.2a and in line with Hypothesis 6.1, radicalism is higher among people who voted for extreme parties. Compared to individuals who voted for non-extreme parties (social democrats, greens, liberals and conservatives / christian democrats), individuals who voted for extreme left parties have a significantly higher level of radicalism, $t(4557) = 2.8653, p = .004$. The level of radicalism of individuals who voted for extreme right parties is also significantly higher compared to individuals who voted for non-extreme parties, $t(4998) = 2.9051, p = .004$. Besides, there was no significant difference in the level of radicalism of individuals who voted for extreme left and extreme right parties, $t(1929) = 0.3711, p = .711$. This clearly supports Hypothesis 6.1 that individuals who vote for extreme parties, either of the left or the right, have higher radical intentions.

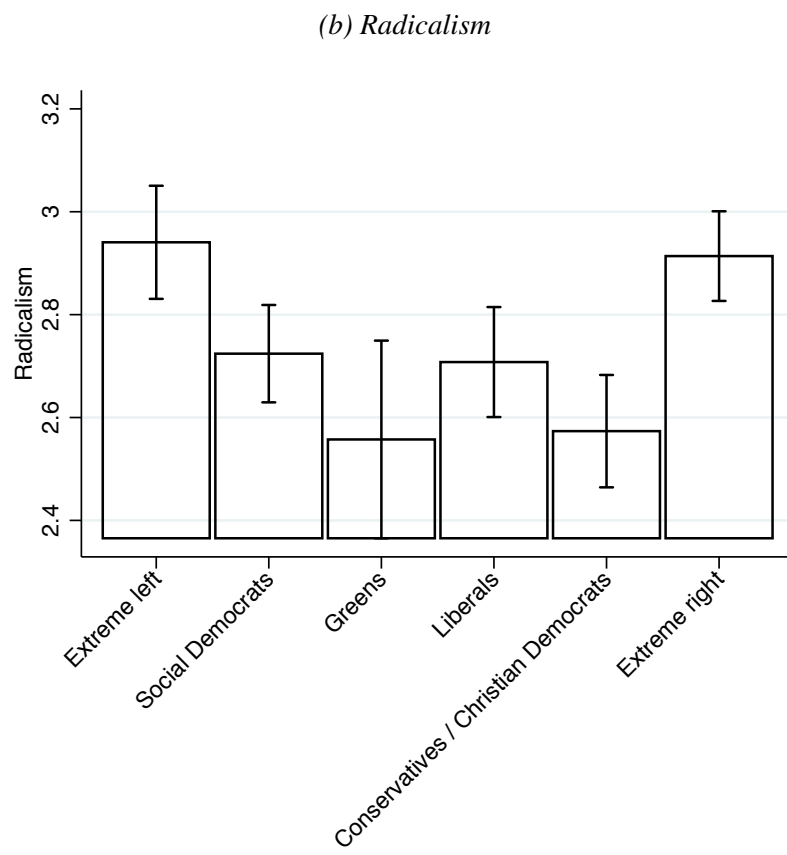
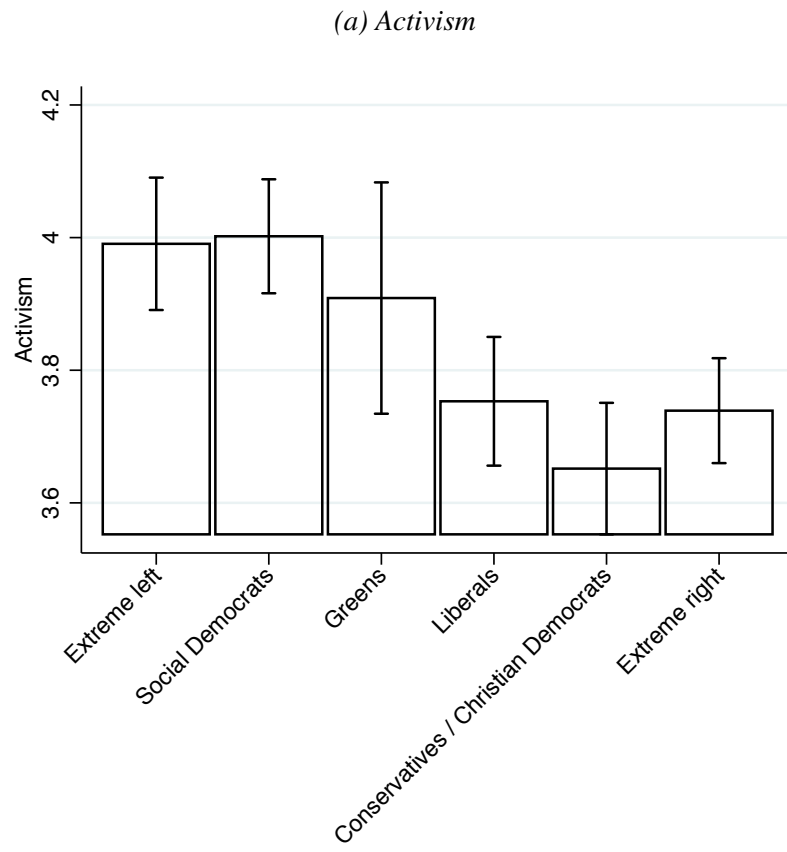
These results hold when controlling for personality traits and sociodemographic characteristics of respondents. Table F.2 presents results from linear regressions of activism and radicalism. Estimates confirm that activism is significantly lower among individuals who voted for right-wing parties. No significant differences are found between voters of extreme left, social democratic and green parties. In contrast, radicalism is significantly higher among voters of extreme left and extreme right parties.

3.3. Discussion

Results from the Popeuropa survey confirm that there is a correlation between individual votes for extreme parties, both of the left and the right, and radical intentions, as predicted by Hypothesis 6.1. Individuals are more likely to justify the use of illegal or violent means to defend their group when they vote for extreme parties. Interestingly, results are very different when analyzing activism, even though we noticed in Chapter 5 that both dimensions closely correlate. Activism is higher among left-wing voters compared to right-wing voters, and results indicate no specific effect of voting for extreme parties. This result is coherent with the fact that conventional collective action tools, such as demonstrations, are traditionally associated with left-wing social movements (Torcal et al., 2016; Van der Meer et al., 2009).

The present results bring micro evidence in favor of the *mobilization* argument that the spread of extremist opinions increase the mobilization capacity of movements using illegal / violent means. However, it is necessary to test whether this translates into actual mobilization. Indeed, the present results are about radical *intentions* rather than *behaviors*.

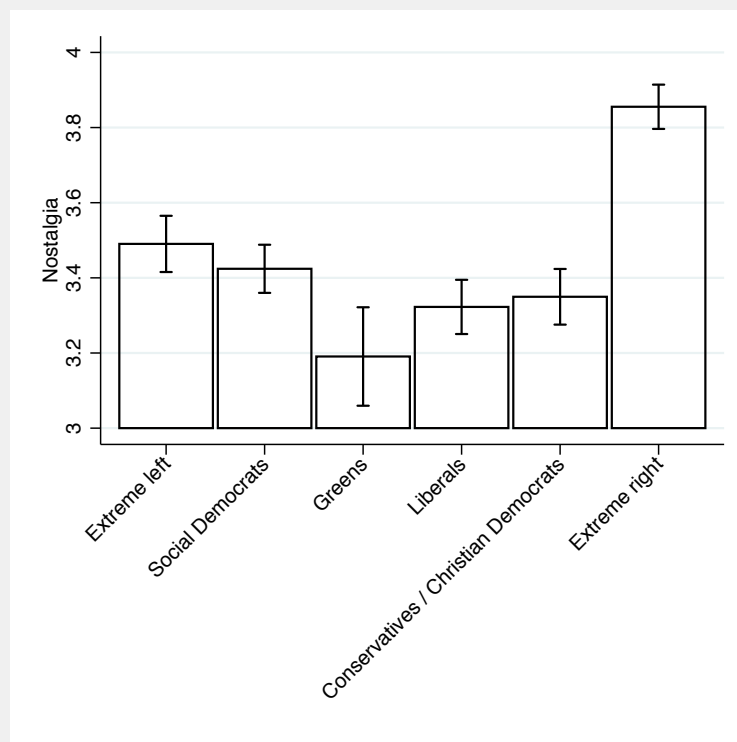
Figure 6.2: Mean level of activism and radicalism by voting choice (with standard errors)



Let's backtrack a little bit. Nostalgia and extreme votes.

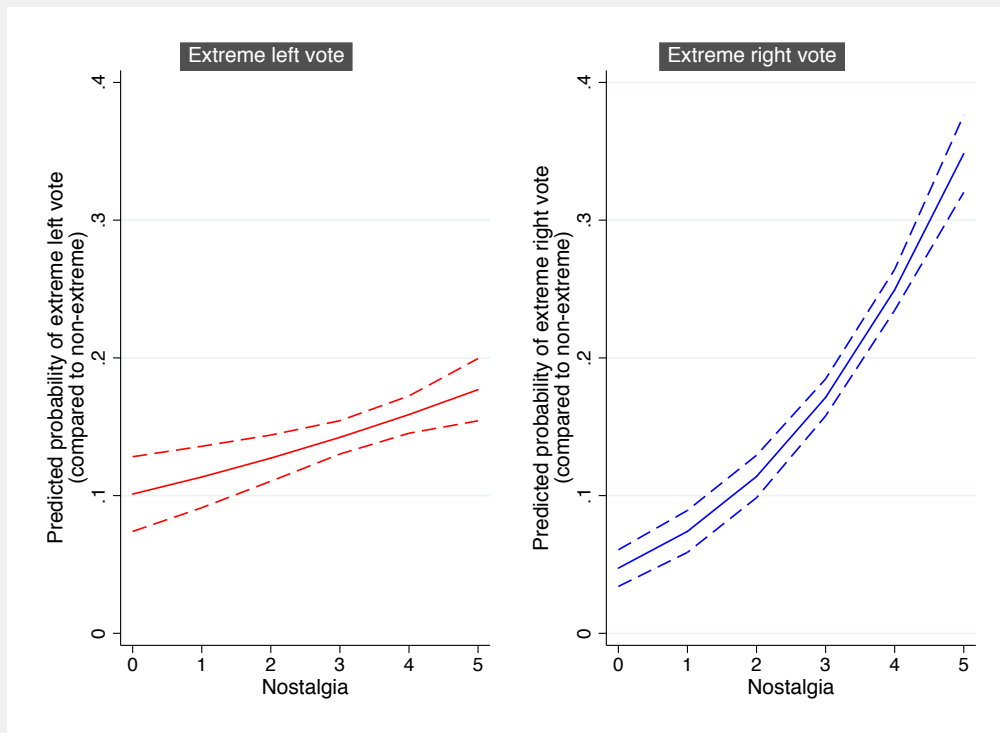
While the main focus of the present chapter is the relationship between extreme votes and radical intentions, I here shortly present additional results about the link between extreme votes and reactionary attitudes. As a reminder, the theory of ideals predicted that reactionary attitudes are higher among votes of the extreme right and lowers among voters of the extreme left. In Chapter 3, I showed that traditionalist attitudes were on average higher among extreme right voters and lowers among extreme left voters, compared to mainstream voters. The effect was nonetheless of limited size. Nonetheless, as discussed at the end of Chapter 3, traditionalism was a imperfect measure of reactionary attitudes.

I here take advantage of a more appropriate measure of reactionary attitudes included in the Popeuropa survey. The *nostalgia* item (see Chapter 5), derived from de Vries and Hoffmann (2018), asks respondents about the extent to which they agree on 5-points scale that the "the society used to be a much better place".



The Figure represents the mean level of nostalgia of respondents depending on their past voting choice (with the standard error of the mean). As expected, results clearly indicate that individuals who voted for extreme right parties have a higher level of nostalgia than individuals who voted for non-extreme parties (social democrats, greens, liberals and conservatives / christian democrats), $t(4848) = 14.4405, p = .000$. Contrary to expectation, individuals who voted for extreme left parties do not have a lower level of nostalgia but rather a higher level of nostalgia than voters of non-extreme parties, $t(4404) = 2.9858, p = .003$. In any case, as expected nostalgia is significantly higher among voters of the extreme right compared to the extreme left, $t(1890) = 7.6367, p = .000$.

This result holds when controlling for personality traits and sociodemographic characteristics of respondents. Table F.1 presents results from logistic regression analyses of individual extreme left vote (compared to non-extreme) and individual extreme right vote (compared to non-extreme). The following Figure computes the marginal effect of nostalgia on the individual probability to vote for the extreme left and the extreme right based on models presents in Table F.1.



We see that nostalgia has a slight positive effect on the individual probability to vote for the extreme left, and it has a strong positive effect on the individual probability to vote for the extreme right. This result aligns with other findings from Chapters 3 and 4 indicating that contexts of decline have a clearly positive effect on extreme right votes while they have contradictory effects on extreme left votes. In particular, this result clearly maps with findings from 4 showing that extreme left parties are not inherently revolutionary but may be revolutionary in some cases and reactionary in other cases. In the latter case, they are able to attract nostalgic voters. Now, it seems that extreme left voters in the Popeuropa survey are slightly more enclined to nostalgia than the average. In sum, this points again to the conclusion that the theory of ideals was partly wrong: collective decline may increase the appeal of extreme right ideologies due to a feeling of nostalgia, but it does not *per se* decrease the appeal of extreme left ideologies, which do not inherently exclude nostalgic components.

Hence, the second study tests whether extreme votes correlate at the macro level with mobilization level of radical movements.

Besides, the results do not directly contradict the *opportunity* argument. Indeed, the spread of extreme votes may correlate with a larger set of people ready to perpetrate radical actions, but who may strategically abstain from doing so if their opinion is legally represented. To properly test the *opportunity* argument, the third study analyses the effect of the share of extreme votes on the use of radical actions.

Finally, the main limit of the present results is that they do not allow to assess the direction of the causality. It remains possible that individuals who justify the use of radical means, for non-ideological reasons, are more likely to vote for extreme parties. A similar issue is raised by micro-level studies linking extreme opinions and behaviors: it is not obvious that the personal commitment to extreme opinions actually precedes the use of radical means (McCauley and Moskalenko, 2017). As stated by Horgan (2012),

"A lingering question in terrorism studies is whether violent beliefs precede violent action, and it seems to be the case that while they often do, it is not always the case. In fact, the emerging picture from empirical studies of terrorists (including over a hundred terrorists I have interviewed from multiple groups) is repeatedly one of people who became gradually involved with a terrorist network, largely through friends, family connections, and other informal social pathways but who only began to acquire and express radical beliefs as a consequence of deepening involvement with a network".³

The third study, linking aggregated votes and radical actions perpetrated by a minority, is more suited to confirm the expected direction of the causality.

³For that reason, McCauley and Moskalenko (2017) proposed to distinguish radicalization of action and radicalization of beliefs, which are often uncritically mixed by scholars in the same concept.

4. Study 2. From ballots to mobilization: extreme votes and the mobilization level of French radical movements

4.1. Method

4.1.1. Mobilization level of left-wing and right-wing radical movements

In this study, I analyze the correlation between the share of votes for extreme left and extreme right parties and the level of mobilization of left-wing and right-wing radical movements. I rely on the database about French radical movements presented in Chapter 1. As in Chapter 1, the dependent variable is the number of adherents of a given radical organization at a given year.

4.1.2. Extreme votes

I measured the share of votes for the extreme left and extreme right by year based on the the share of votes during the last election using the classification of the ParlGov dataset (see Chapter 3). As in Chapter 3, I coded as extreme left parties classified as "Communist / Socialist", which include the *Parti Communiste Français* (French Communist Party, PCF), *Socialistes indépendants* (Independent Socialists, SI), *Parti Socialiste Unifié* (Unified Socialist Party, PSU), *Lutte Ouvrière* (Worker's Struggle, LO), *Parti de l'Unité Proletarienne* (Proletarian Unity Party, PUP). I coded as extreme right parties classified as "Right-wing", which include only the Republican Federation and "other far-right parties".

While the classification of extreme left parties is relevant, the classification of extreme right parties in the ParlGov dataset is more questionable. First, the *Fédération Républicaine* (Republican Federation, FR) could be defined somewhat as in-between conservatism and extreme right. Before WWI, the party was composed of moderate Republicans, and hence could hardly be considered part of the extreme right; however, during the inter-war period, the party moved to the right, under the influence of Leagues - among which the *Jeunesses Patriotes* (Young Patriots, JP), and adopted a nationalist ideology (Passmore, 2013; Vavasseur-Desperriers, 1999). Second, the classification does not include among extreme right parties the Poujadist *Union de Défense des Commerçants et Artisans* (Union for the Defense of Tradesmen and Artisans, UDCA), which had undoubtedly extreme right stands (see Chapter 4). Hence, an alternative classification would be to exclude from the extreme right the FR before WWI and to include the vote share for the UDCA. I will comment results based both on this alternative classification and the ParlGov initial classification.

4.2. Results

4.2.1. Historical look

Figures 6.3a and 6.3b plot the historical evolution of extreme votes and the total mobilization of radical movements in France, i.e. the sum of the members of all recorded radical organizations. Figure 6.3a shows that there is a very strong correlation between the evolution of the share of extreme left votes and that of the total mobilization of left-wing radical movements ($r = 0.7283, p < .000, N = 72$). Figure F.1 is the same plot with extreme right votes, based on the alternative classification, and the total mobilization of right-wing radical movements. There is also a positive, albeit weaker, correlation ($r = 0.2842, p = .016, N = 72$). However, as shown by Figure F.1 in Appendix F, when using the Parlgo original classification of extreme right parties, no correlation is found ($r = 0.1108, p = .354, N = 72$).

In contrast, there is no correlation between the total mobilization of right-wing radical movements and the share of extreme left votes ($r = 0.1108, p = .354, N = 72$) and between the total mobilization of left-wing radical movements and the share of extreme right votes based on the alternative classification ($r = -0.1918, p = .1065, N = 72$). The correlation is even negative between the total mobilization of left-wing radical movements and the share of extreme right votes according to the Parlgo original classification ($r = -0.3509, p = .003, N = 72$). Overall, these descriptive results give some initial support to Hypothesis 6.2 that extreme votes of a given ideology correlate with the level of radical mobilization in the name of a similar ideology.

4.2.2. Confirmatory analyses

To rigorously test Hypothesis 6.2, I analyze the effect of the share of extreme left and right votes on the mobilization level of a given French radical organization at a given year depending on its ideology based on multilevel log-linear regression models. I computed the same models than described in Chapter 1, including the same macro-level and organizational-level controls. The only difference is that I analyze the share of extreme votes instead of the indicators of collective deprivation (variation of GDP and inequality). I here present separate models of the effect of extreme left votes and extreme right votes, but the results are unchanged when including both variables and their interaction with the ideology or radical organizations in the same models.

Extreme left votes increase the mobilization of left-wing radical movements and have no effect on right-wing radical movements. Table 6.2 presents estimates from regression analyses of the effect of the share of extreme left votes on the mobilization of radical organizations. Model (1) shows that extreme left votes have an overall negative effect

4. Study 2. From ballots to mobilization: extreme votes and the mobilization level of French radical movements

Figure 6.3: Historical evolution of extreme votes and the mobilization of radical movements in France

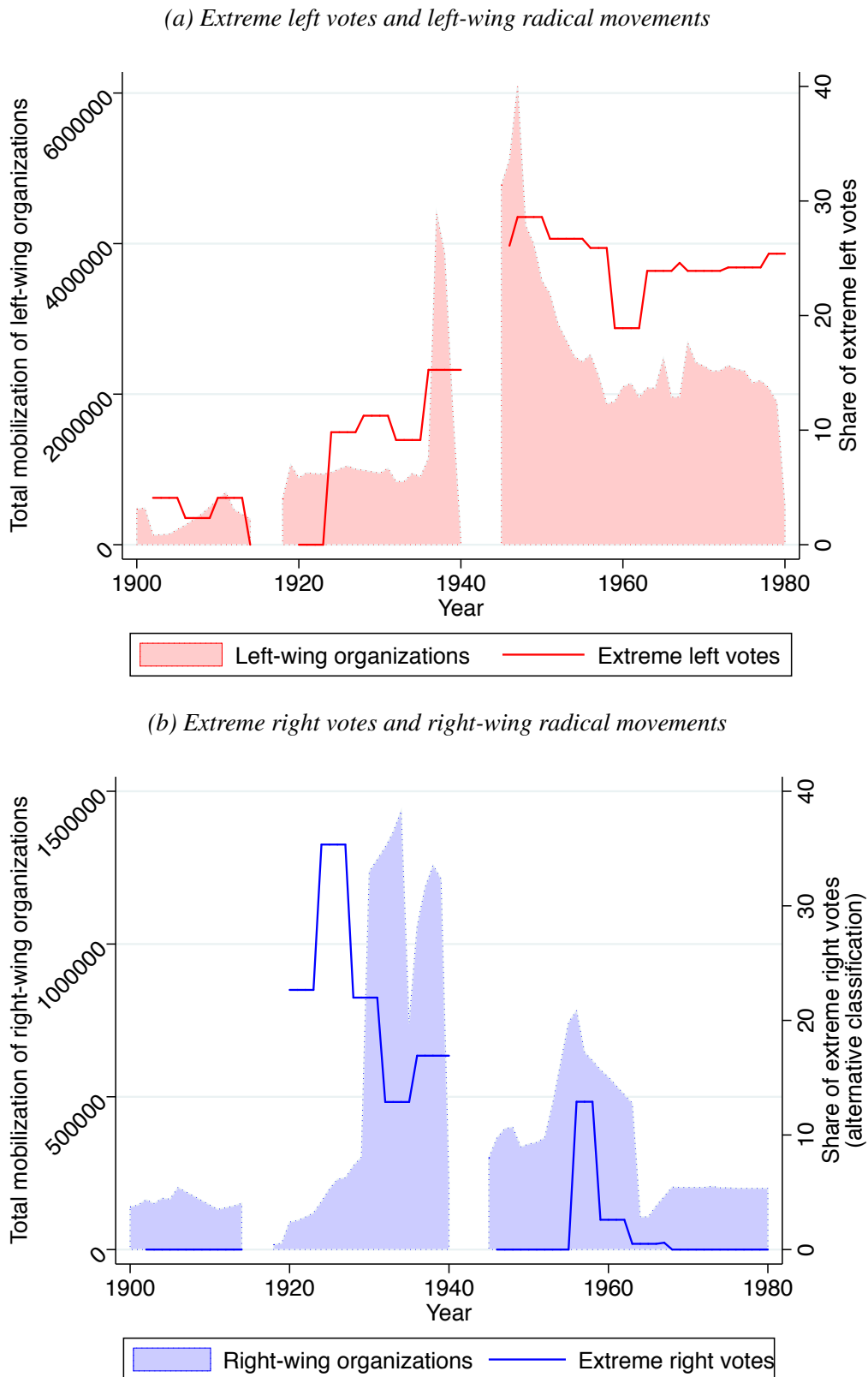


Table 6.2: Effect of extreme left votes on the mobilization level of radical organizations (unstandardized coefficients from log linear multilevel regression analyses)

	(1)	(2)	(3)	(4)	(5)
Extreme left votes	-0.0197* (0.00973)	0.0186 (0.0125)	0.0622** (0.0207)	0.0477*** (0.00906)	0.0618*** (0.0183)
Right-wing organizations		0.281 (0.206)	0.355 (0.224)	1.109*** (0.305)	1.110*** (0.312)
Right-wing × Extreme left votes		-0.0913*** (0.0120)	-0.101*** (0.0140)	-0.0720*** (0.0133)	-0.0729*** (0.0134)
Democracy score			0.102 (0.0861)		-0.0630+ (0.0372)
log Unemployment rate			-0.0805 (0.123)		0.156 (0.104)
Government orientation			-0.113 (0.0812)		0.0344 (0.0665)
Right-wing × Government orientation			0.0806 (0.0757)		0.00404 (0.0743)
Population			-0.347*** (0.0769)		-0.0452 (0.0553)
Hard radicalization level				-0.0335 (0.0221)	-0.0376+ (0.0226)
Soft radicalization level				0.0385*** (0.00846)	0.0346*** (0.00815)
Constant	10.56*** (0.112)	10.48*** (0.134)	22.44*** (3.673)	12.97*** (0.200)	16.16*** (2.497)
Decade fixed effects	No	No	Yes	No	Yes
Organization type fixed effects	No	No	No	Yes	Yes
Source fixed effects	No	No	No	Yes	Yes
Observations	610	610	596	610	596
Number of years	72	72	68	72	68
R ²	0.00447	0.0804	0.149	0.746	0.762

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4. Study 2. From ballots to mobilization: extreme votes and the mobilization level of French radical movements

Table 6.3: Effect of extreme right votes (alternative classification) on the mobilization level of radical organizations (unstandardized coefficients from log linear multilevel regression analyses)

	(1)	(2)	(3)	(4)	(5)
Extreme right votes	0.0230** (0.00704)	-0.000626 (0.00804)	-0.00908 (0.0124)	-0.0462*** (0.00657)	-0.0197+ (0.0114)
Right-wing organizations		-1.660*** (0.171)	-1.727*** (0.179)	-0.512*** (0.119)	-0.603*** (0.121)
Right-wing × Extreme right votes		0.0550*** (0.00996)	0.0512*** (0.0102)	0.0636*** (0.0123)	0.0728*** (0.0133)
Democracy score			0.115 (0.0857)		-0.0604+ (0.0315)
log unemployment rate			-0.0526 (0.150)		0.235+ (0.143)
Government orientation			-0.161+ (0.0891)		0.0929 (0.0675)
Right-wing × Government orientation			0.250*** (0.0734)		0.0303 (0.0743)
Population			-0.327*** (0.0662)		-0.0128 (0.0448)
Hard radicalization level				-0.0398+ (0.0232)	-0.0401+ (0.0217)
Soft radicalization level				0.0354*** (0.00839)	0.0284*** (0.00807)
Constant	10.04*** (0.134)	10.80*** (0.175)	22.92*** (3.227)	14.24*** (0.0779)	16.56*** (2.176)
Decade fixed effects	No	No	Yes	No	Yes
Organization type fixed effect	No	No	No	Yes	Yes
Source fixed effect	No	No	No	Yes	Yes
Observations	610	610	596	610	596
Number of years	72	72	68	72	68
R ²	0.00886	0.0725	0.139	0.751	0.768

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

on the mobilization of radical organizations. However, model (2) shows that there is a significant interaction between extreme left votes and the ideology of radical organizations. More precisely, the effect of the share of extreme left votes is significantly lower for right-wing radical organizations. This interaction effect is confirmed when controlling for macro-level factors in model (3), organization-level factors in model (4) and all controls in model (5). To give a better view of this interaction effect, Figure 6.4a plots the marginal effect of extreme left votes depending on the ideology of radical movements based on the final model (5). The results clearly support Hypothesis 6.2: the higher the share of extreme left votes, the higher the mobilization of left-wing radical movements, while extreme left votes have no effect on the mobilization of right-wing radical movements.

Extreme right votes increase the mobilization of right-wing radical movements and have no effect on left-wing radical movements. Table 6.3 presents estimates from regression analyses of the effect of the share of extreme right votes (based on the alternative classification) on the mobilization of radical organizations. Model (1) shows that extreme right votes have an overall positive effect on the mobilization of radical organizations. However, as for extreme left votes, model (2) shows that there is a significant interaction between extreme right votes and the ideology of radical organizations. More precisely, the effect of the share of extreme right votes is significantly higher for right-wing radical organizations - which is exactly the opposite than found for extreme left votes. Again, this interaction effect is confirmed when controlling for macro-level factors in model (3), organization-level factors in model (4) and all controls in model (5). Figure 6.4b plots the marginal effect of extreme right votes depending on the ideology of radical movements based on the final model (5). The results are exactly the opposite of those presented in Figure 6.4a and clearly support Hypothesis 6.2: the higher the share of extreme right votes, the higher the mobilization of right-wing radical movements, while extreme right votes have no effect on the mobilization of left-wing radical movements. Importantly, essentially similar results are found when computing analyses based on the ParlGov classification of extreme right parties, as shown by Table F.3 and Figure F.2.

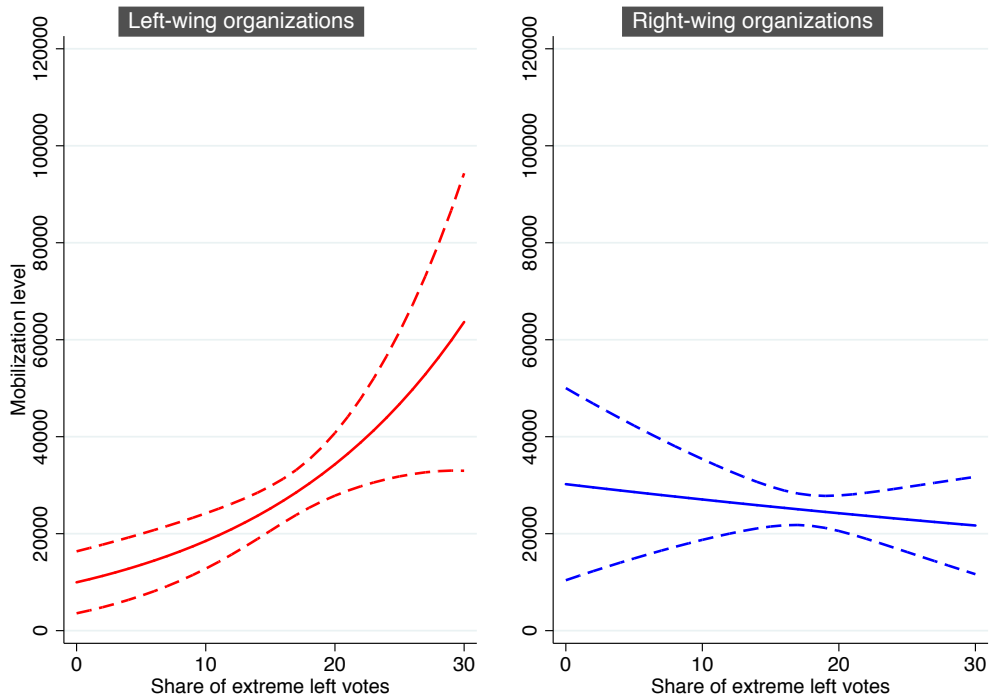
4.3. Discussion

Results offer macro-level evidence supporting of the *mobilization* argument that radical organizations of a given ideology mobilize more during periods in which extreme votes of the same ideology are high, in line with Hypothesis 6.2. However, as in the previous study, the results do not directly contradict the *opportunity* argument. Indeed, the dependent variable is the mobilization of radical movements, which does not necessarily implies the use of radical actions. Following the *opportunity* argument, it remains possible that

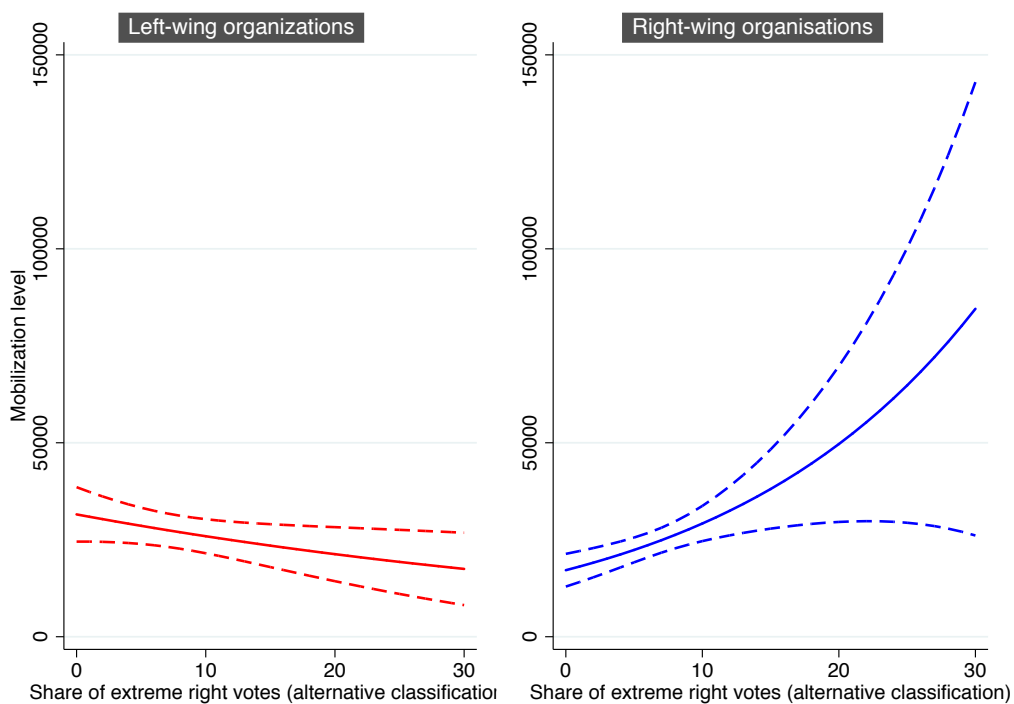
4. Study 2. From ballots to mobilization: extreme votes and the mobilization level of French radical movements

Figure 6.4: Marginal effect of extreme votes on the mobilization level of French radical movements depending on their ideology

(a) Marginal effect of the share of extreme left votes (with 95% confidence interval)



(b) Marginal effect of the share of extreme right votes (with 95% confidence interval)



radical movements mobilize more when extreme votes are high but that they strategically abstain from using radical actions. In this line, results from the regression indicate that the relationship between radical mobilization and the use of radical actions is not linear: as detailed in Chapter 1, organizations with high mobilization are more likely to resort to "soft" radical actions but less likely to resort to "hard" radical actions. This is consistent with results from social movements studies indicating that mobilization periods are related to the use of moderate means, whereas radicalization is more likely to occur during periods of demobilization (Beissinger, 2002; Della Porta, 2006; Tarrow, 1989). The third study properly tests the *opportunity* argument by investigating the relationship between extreme votes and radical *actions*.

Besides, as in the previous study, the direction of the causality remains questionable. Indeed, the database includes mass political organizations, that only occasionally resort to illegal means, and have direct links with some of the extreme parties under study. For instance, the database includes the *Confédération Générale du Travail* (General Confederation of Labor, CGT) and *Jeunesses Communistes* (Communist Youth, JC) in periods in which they were involved in illegal collective actions. Those organizations were closely related to the *Parti Communiste Française* (French Communist Party, PCF), which is the main extreme left party in the study period. Similarly, the database includes right-wing leagues such as the JP, which were closely related to the FR during the inter-war, and the militant wing of the UDCA. Hence, one can imagine a reverse causality mechanism: that parties gained more votes in contexts in which they had a great militant network. More generally, the present data raises a serious endogeneity issue: the dependent and independent variable measure political phenomenon that are not clearly distinct. The third study allows for a better test of Hypothesis 6.2 by analyzing the link between extreme votes and the occurrence of violent political actions led by small groups formally independent from political parties.

5. Study 3. From ballots to action: extreme votes and terrorist attacks

5.1. Method

5.1.1. Left-wing and right-wing terrorist attacks

In this study, I analyze the correlation between the share of votes for extreme left and extreme right parties and the occurrence of left-wing and right-wing terrorist attacks. To

measure terrorist attacks, I relied on the Global Terrorism Database (National Consortium for the Study of Terrorism and Responses to Terrorism (START), 2017a). It is the most comprehensive database covering terrorist attacks worldwide from 1970 to 2018. A terrorist attack is defined as “the threatened or actual use of illegal force and violence by non-state actors to attain a political, economic, religious, or social goal through fear, coercion, or intimidation” (LaFree et al., 2014, p. 13). I identify left-wing and right-wing terrorist attacks based on the coding of terrorist groups constructed by Kis-Katos et al. (2014). According to their classification, left-wing terrorist groups have a socialist, communist, or anarchist ideology, while right-wing terrorist groups are inspired by national-socialist or fascist ideologies, that actively promote racial or national supremacy, hatred, or xenophobic ideas. I generated two dependent variables counting the number of left-wing and right-wing terrorist attacks by country-year.

5.1.2. Extreme votes

As in the previous study, I measure the share of votes for the extreme left and extreme right by year based on the the share of votes during the last election using the classification of the Parliament and government database (Parlgov; Döring and Manow, 2019, see Chapter 3). As in Chapter 3, to assess the robustness of the findings, I computed additional analyses using extreme left and extreme right vote share based on the alternative classification of the Comparative Political Data Set (CPDS; Armingeon et al., 2018).

5.1.3. Control variables

I controlled for a range of factors that have proven to affect terrorist attacks in general. A country’s population mechanically increases the number of terrorist attacks (Choi and Piazza, 2016; Freytag et al., 2011; Kis-Katos et al., 2011; Krieger and Meierrieks, 2019; Piazza, 2017b). I computed the *log population* size based on data from the World Bank (2017c). Moreover, since terrorists are mostly young individuals, I controlled for the *youth population share* (Urdal, 2006), as measured by the share of total population aged 20-29 based on quinquennial estimates from the United Nations (2017a). There is conflicting evidence about the effect of economic development - captured by the *log GDP per capita* (World Bank, 2017b): some studies find a negative effect (Abadie, 2006; Caruso and Schneider, 2011), while others rather find a positive effect (Freytag et al., 2011; Kis-Katos et al., 2011). I also controlled for political-institutional variables. Various studies show that *ethno-political exclusion* is a main driver of terrorism (Choi and Piazza, 2016; Krieger and Meierrieks, 2019). Following these studies, I controlled for the share of discriminated population, derived from the Ethnic Power Relations database (Vogt et al., 2015). The level of *democracy*, captured by a composite scale from -10 (autocracy) to 10 (democracy) from the Polity dataset (Center for Systemic Peace, 2018b), is generally

positively associated with terrorist attacks (Freytag et al., 2011; Kis-Katos et al., 2011; Piazza, 2017b). Among other variables, *regime durability*, also derived from the Polity dataset, has been found to reduce terrorism (Freytag et al., 2011; Piazza, 2017b). There is also evidence that *government expenditures*, as percentage of the GDP (World Bank, 2017a), have a positive effect on terrorism (Freytag et al., 2011). Finally, studies generally find *civil war* to be positively associated with terrorist attacks (Freytag et al., 2011; Kis-Katos et al., 2011; Krieger and Meierrieks, 2019; Piazza, 2017b). Civil war was measured by a magnitude score based on data from the Center for Systemic Peace (2018a).

5.1.4. Sample

All variables are described in Table F.4. I merged all variables by country and year. Independent variables were one-year lagged. I limited my analyses to countries with valid observations for the independent variables.⁴ The final sample gathers 1,014 observations from 33 countries⁵ in a period ranging from 1972 to 2016.⁶

5.2. Results

5.2.1. Historical look at the whole theory of ideals

Before commenting confirmatory analyses, let's have a look at the historical variations in terrorist attacks along with variations in extreme votes. Figures 6.5 to 6.9 plot the geographical location of left-wing and right-wing terrorist attacks by decade from the 1970s to the 2010s. I here focus on Europe, as most countries in the sample are in Europe (except Australia, Canada, Israel, New Zealand and Turkey). The background colors of countries represents the mean decennial growth of the GDP, based on data from Chapter 3, the diagrams represent the mean share of votes for extreme left and extreme right parties compared to other parties according to the ParlGov database, and finally the dots represent terrorist attacks. Hence, the maps give a historical and geographical overview of the whole theory of ideals linking economic decline, extreme votes and acts of political violence.

⁴Note that the civil war variable was excluded from the analyses as no country of the sample experienced civil war.

⁵The main sample of countries includes Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Japan, Latvia, Lithuania, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, UK. The sample of countries is slightly different for analyses based on the CPDS for shares of extreme votes: the sample excludes Israel and Turkey but includes US.

⁶The exact number of years varies across countries depending on valid observations for the dependent variables.

Figure 6.5: Extreme left and extreme right votes and terrorist events in Europe, 1970s

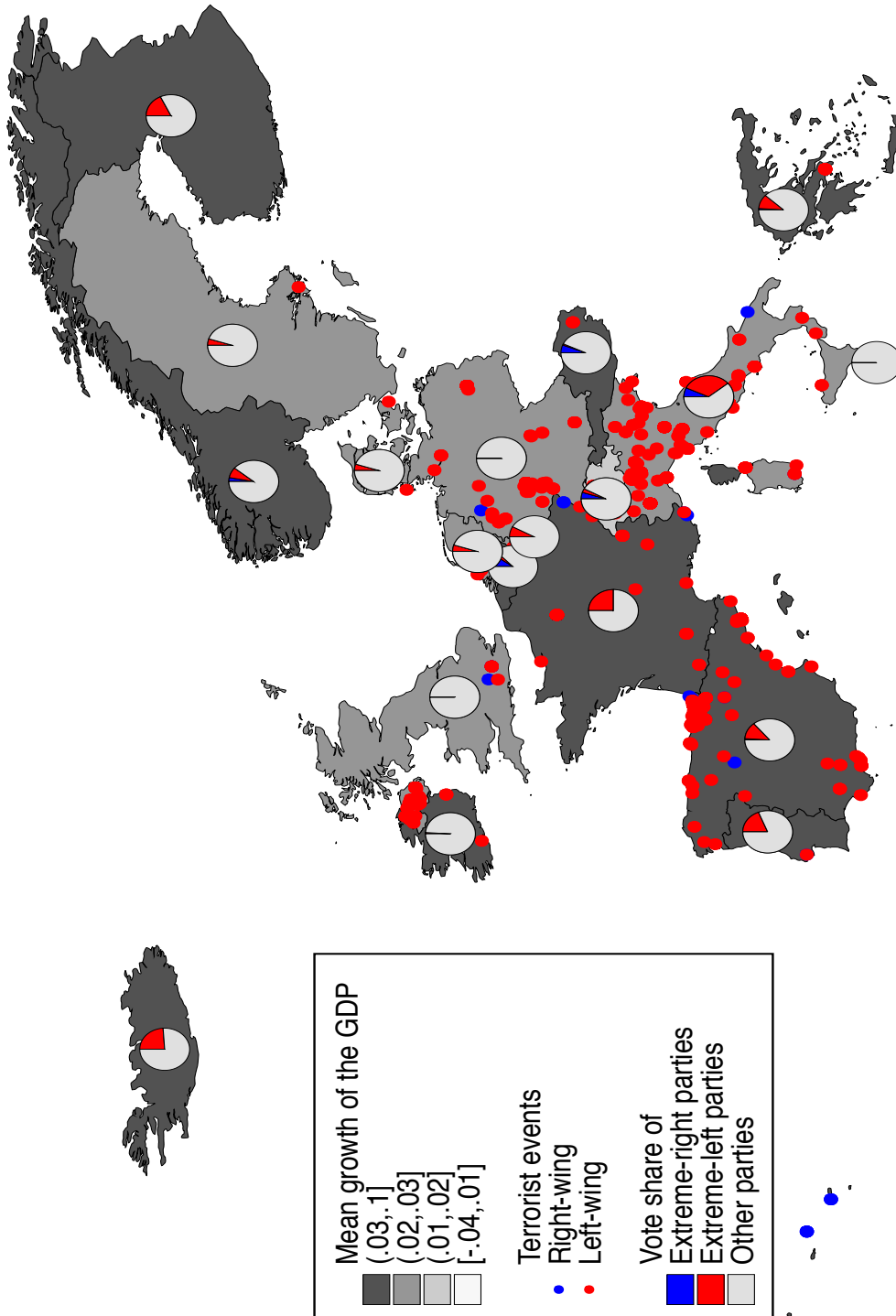


Figure 6.6: Extreme left and extreme right votes and terrorist events in Europe, 1980s

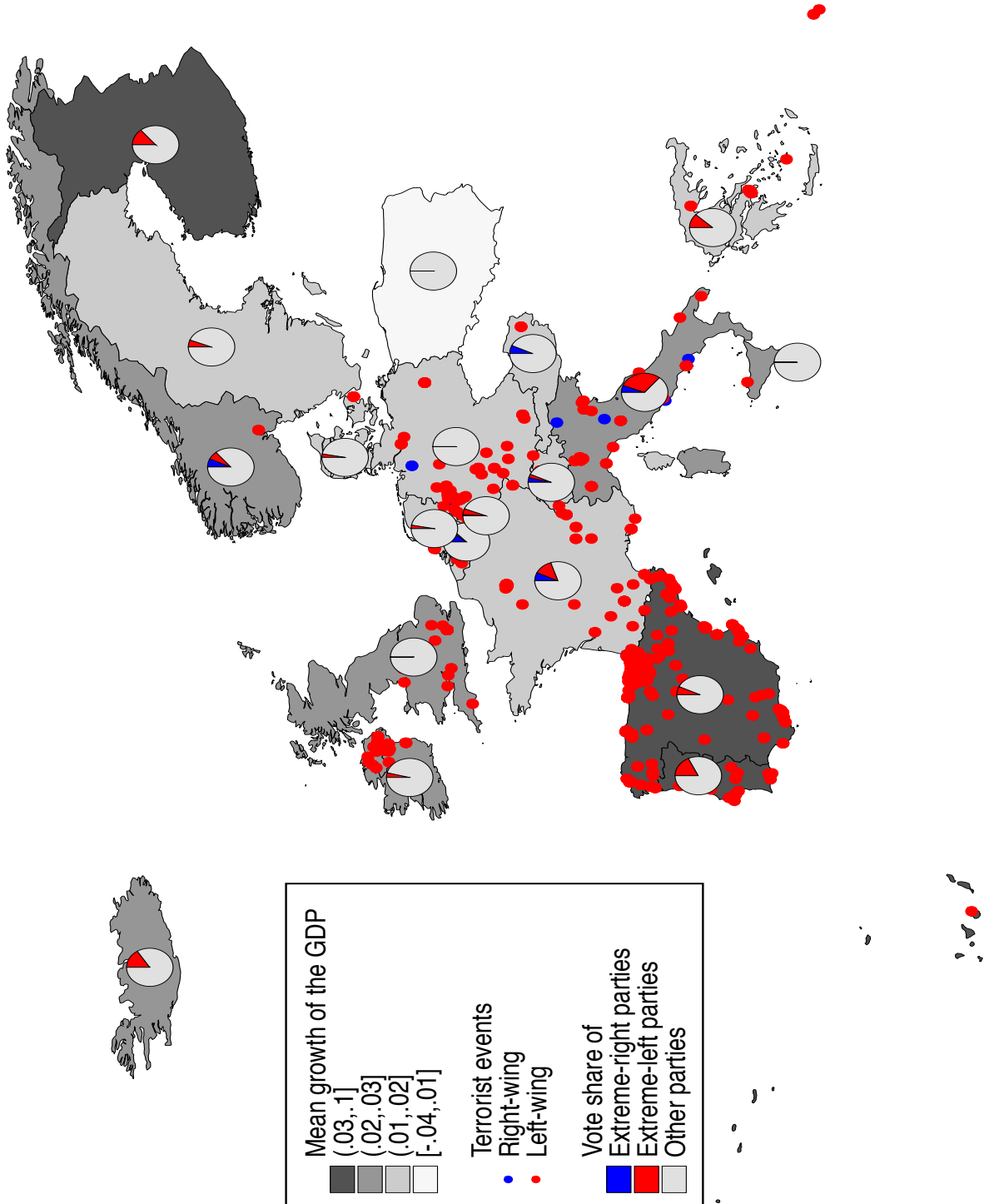


Figure 6.7: Extreme left and extreme right votes and terrorist events in Europe, 1990s

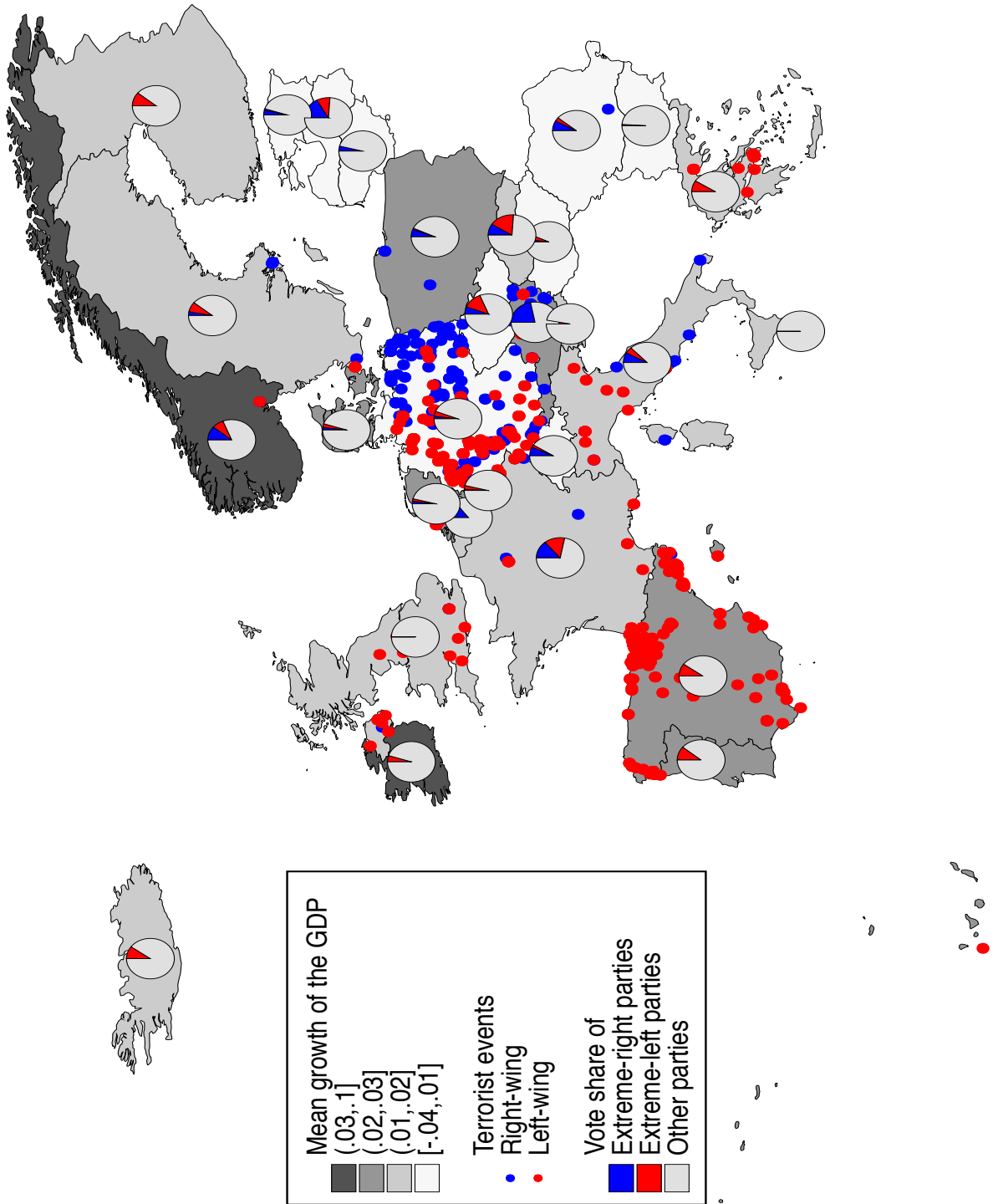


Figure 6.8: Extreme left and extreme right votes and terrorist events in Europe, 2000s

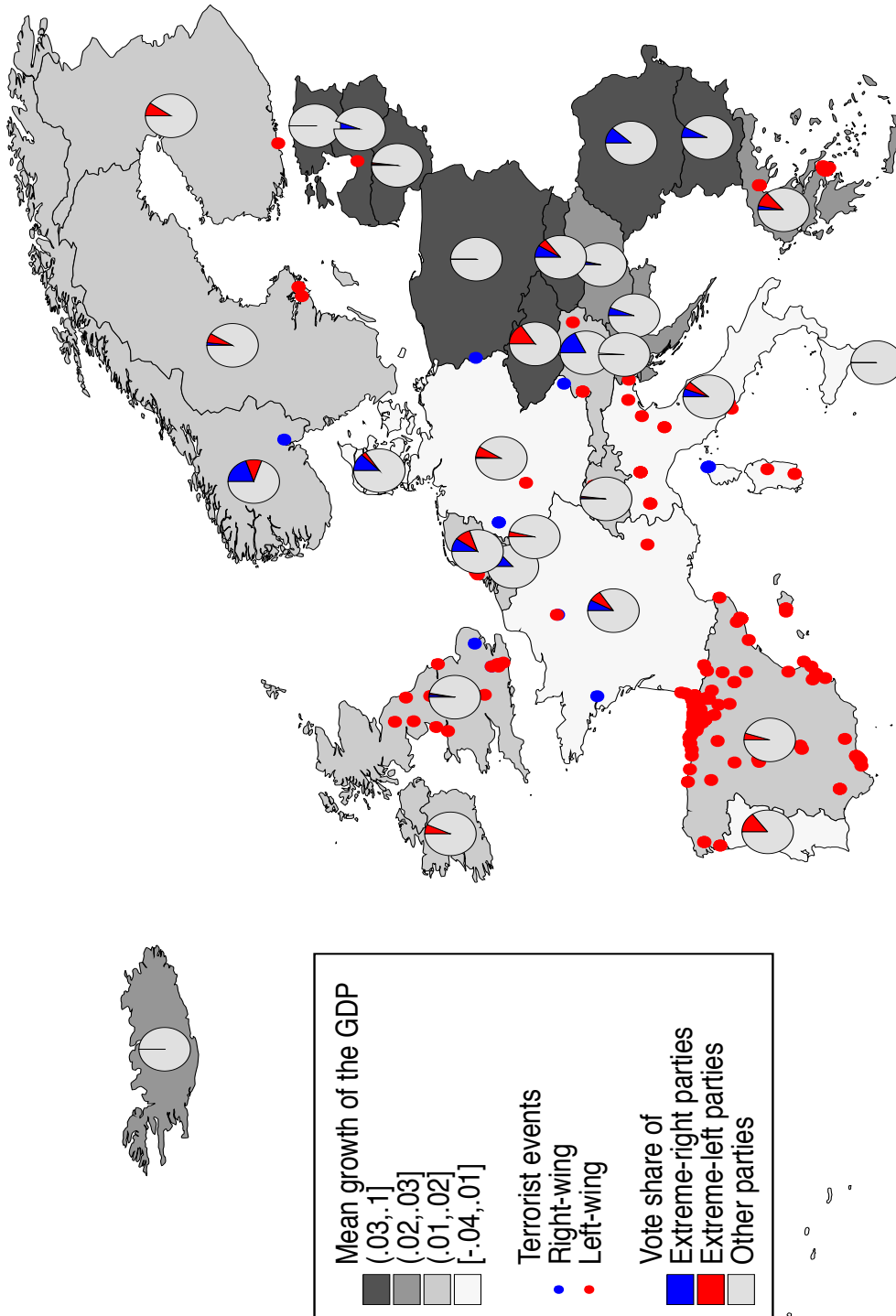
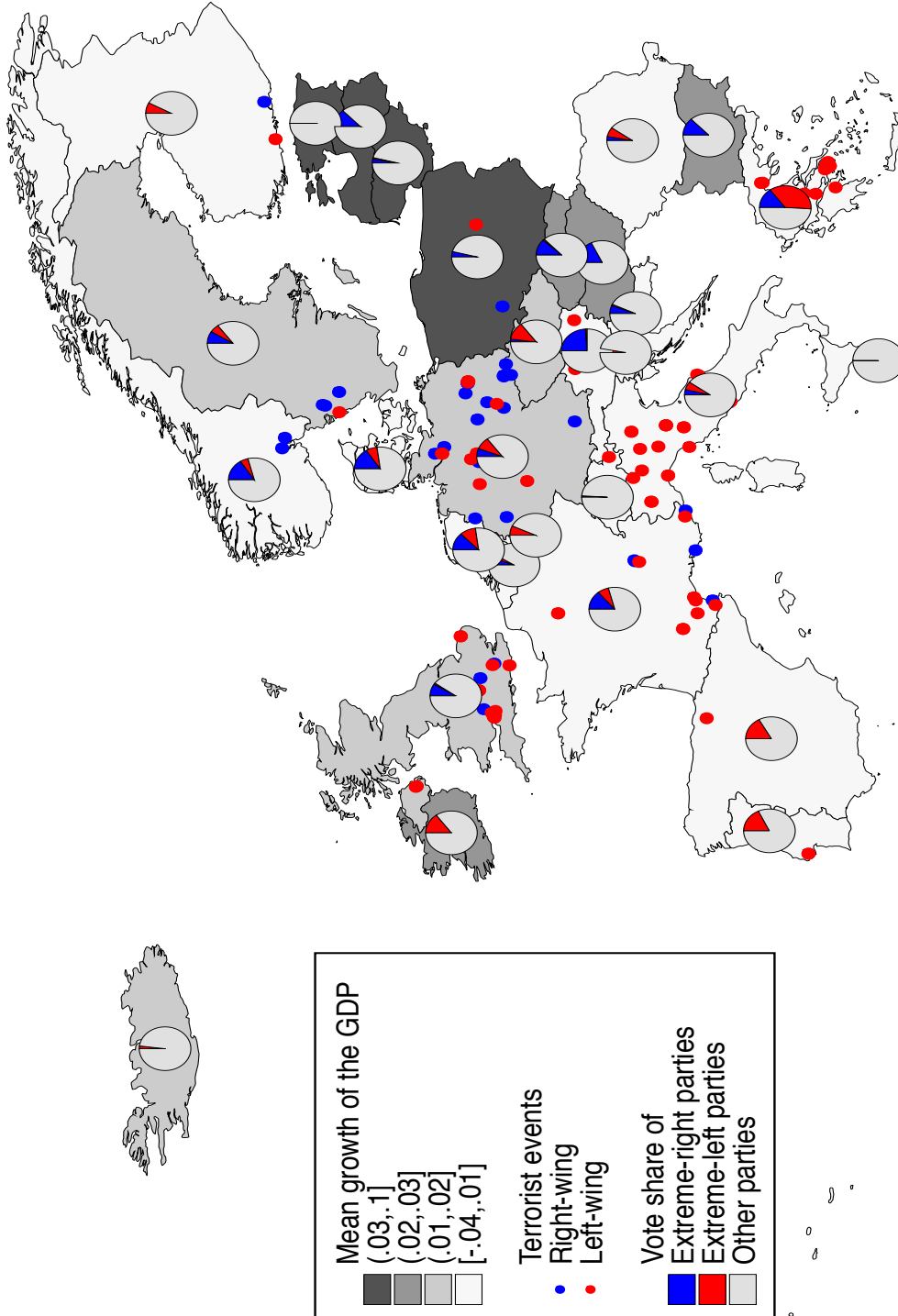


Figure 6.9: Extreme left and extreme right votes and terrorist events in Europe, 2010s



From economic decline to extreme votes. In accordance with the first part of the theory of ideals and results from Chapter 3, a quick look throughout the consecutive maps suggests that extreme right votes (represented in blue in the diagrams) became more and more widespread in Europe, along with the historical slowing of economic growth. In the 1970s, most West European countries were experiencing economic prosperity, and extreme right votes were very low or null in most cases. In contrast, in the 2010s, in a context of economic stagnation or recession, extreme right votes became much more common. The maps reveal an opposite pattern for extreme left votes, becoming less and less widespread with the slowing of economic growth in Western Europe.

Eastern European countries are a clear exception to this trend: as shown by Figure 6.8, most experienced high economic growth during the 2000s but at the same time very low or null share of extreme left votes. This aligns with the result from Chapter 4 that collective improvement does not increase extreme left votes in countries in which extreme left parties represent a reactionary option. Mediterranean countries such as Greece, Spain and Portugal also seem to be an exception with the general mechanism: experiencing low levels of economic growth, they nonetheless recorded high shares of extreme left votes and no extreme right supply in the early 2010s – except *Chrysi Avgí* (Golden Dawn) in Greece, which was the European country the most hardly affected by the Great recession of 2008. This Mediterranean exception may be interpreted in different ways. On the one hand, those countries only recently extracted from dictatorship, hence the opportunity structure were unfavorable to extreme right parties. On the other hand, this may reflect the delayed effect of the economic context: in contrast with other Western European countries, Spain and Greece (and to a lesser extent Portugal) experienced relatively high levels of economic growth in the 1990s and 2000s. The absence of extreme right parties in Spain and Portugal in the early 2010s may hence reflect the fact that recession was not prolonged enough to generate a reactionary shift and to have electoral consequences - as shown in Chapter 3. In this line, extreme right parties were founded recently in these countries: *Vox* in Spain in 2013 (receiving more than 15% of the votes in 2019) and *Chega* (Enough) in Portugal in 2019 (receiving 1.29% of the vote during its first parliamentary election).

From extreme left votes to left-wing terrorist attacks? (Greece, Italy and France)

Regarding terrorist attacks, the maps suggest that left-wing terrorist attacks are more widespread in countries with high share of extreme left votes, which supports the *mobilization* argument over the *opportunity* argument. A quick look reveals that the three countries that experienced the highest decennial share of votes for the extreme left also experienced high levels of left-wing terrorism. Greece experienced the highest decennial share of extreme left votes in 2010s with on average 35.9% of votes – mostly for *Synaspismós Rizospastikís Aristerás* (Coalition of the Radical Left, SYRIZA). During the

same decade, it was the European country with the most numerous left-wing terrorist attacks (60) - followed by Italy (26) and UK (18). Most terrorist attacks were perpetrated at that time in Greece by informal anarchist groups and the *Synomosía ton Pyrínon tis Fotiás* (Conspiracy of Fire Nuclei, SPF), an anarchist-revolutionary group, in many ways similar to left-wing terrorist groups of Western Europe during the 1970s-1980s, using bombing campaigns against banks and luxury car dealerships as well as targeting European leaders and embassies (Kassimeris, 2012).

The second country with the highest decennial share of extreme votes was Italy in 1970s with on average 32.3% of votes – mostly for the *Partito Comunista Italiano* (Italian Communist Party, PCI). During the same decade, Italy was experiencing the most active left-wing terrorist campaign of European modern history with 441 attacks, putting aside the Spanish case, in which most attacks were perpetrated by the Marxist ETA, which main goal was Basque independence.⁷ A majority of attacks in Italy were perpetrated by the Marxist-leninist Brigade Rosse (Red Brigades, BR), as well as other revolutionary groups such as *Prima Linea* (Front Line) – issued from the workerist *Lotta Continua* (Continuous Struggle, LC) (Della Porta, 2006).

The third country with the highest decennial share of extreme votes was France in 1970s with 24.8% of votes – mainly for the *Parti Communiste Français* (French Communist Party, PCF). France experienced a relatively high level of left-wing terrorism at that time, ranking third with 80 attacks in the 1970s – after Italy (441 attacks) and Germany (89 attacks) – and first in the 1980s with 155 attacks (still putting aside Spain). Note, however, that the French case gathers both revolutionary domestic groups, such as the marxist-autonomist *Action Directe* (Direct Action, AD) in the 1980s (Sommier, 1998), as well as groups potentially unrelated to domestic extreme left tendencies. Indeed, many events were transnational terrorist attacks perpetrated by the *Hayasdani Azadkrut'ean Hay Kaghdni Panag* (Armenian Secret Army for the Liberation of Armenia, ASALA), an ethnic terrorist group of Marxist inspiration founded by the Armenian diaspora, responsible for the 1983 Orly Airport attack killing eight people at the Turkish Airlines check-in counter (Minassian, 2002).⁸ I will comment the issue of mixing domestic and transnational terrorism in the discussion.

Germany is an exception to this trend: it experienced sustained level of left-wing terrorism throughout the 1970s-1990s but very low extreme left votes. This can be seen as supportive of the *opportunity* argument. Nonetheless, Germany undoubtedly constitutes

⁷See Table F.5 for a summary of the most active left-wing terrorist groups in Europe since the 1970s. Note that, contrary to the ETA which was classified as both ethnic/separatist and left-wing by Kis-Katos et al. (2014), the *Óglaigh na hÉireann* (Irish Republican Army, IRA) in Northern Ireland was only classified as ethnic/separatist and hence is not included in our analyses.

⁸Besides, many left-wing terrorist attacks in France in the early 1970s were perpetrated by the *Groupes d'action révolutionnaires internationalistes* (International Revolutionary Action Group, GARI), a marxist-autonomist group founded by in Toulouse by French and Spanish refugees fighting against franquism.

a special case regarding extreme left votes due to the separation of Germany between the communist East and the capitalist West. The main extreme left party of West Germany in the 1970s and 1980s, the German Communist Party – a refoundation of the *Kommunistische Partei Deutschlands* (Communist Party of Germany, KPD) banned in 1956 due to its opposition to the West German constitution (Major, 1998) – always remained marginal in West German politics (with electoral scores always below 0.5%). Hence, the low extreme left scores may reflect, rather than a low spread of extreme left opinions, the absence of credible extreme left political supply. Besides, it is worth noticing that, as in France, the high level of left-wing terrorism in Germany mixed very diverse kind of groups: mainly domestic revolutionary groups in the 1970s and 1980s with the *Baader-Meinhof* group / *Rote Armee Fraktion*, and the *Revolutionäre Zellen* (Revolutionary Cells, RZ) (Della Porta, 2006); while most events of the 1990s were transnational terrorist attacks perpetrated by Kurdish German under the banner of the *Partiya Karkerên Kurdistanê* (Kurdistan Workers' Party, PKK) (Lyon and Uçarer, 2001).

From extreme right votes to right-wing terrorist attacks? (Austria and Norway)

On the right-wing side, the picture is less clear. First of all, a lower number of terrorist attacks were recorded in the database by Kis-Katos et al. (2014) for the right compared to the left. Then, which countries did experience the higher decennial share of extreme right votes? Austria experienced the highest decennial share of extreme right votes, with 24.0% in 2010s – mainly for the *Freiheitliche Partei Österreichs* (Freedom Party of Austria, FPÖ). During the same decade, no right-wing terrorist attacks were recorded in the data in Austria, which does not align with Hypothesis 6.2 and is rather coherent with the *opportunity* argument that radical movements do not need to use violence when they can achieve their political aims through legal means. However, Austria also experienced the second highest decennial share of votes for the extreme right in the 1990s, with 22.0% (mainly for the FPÖ), and it was at that time the third European country with the highest number of right-wing terrorist attacks (15 attacks, mainly by Neo-Nazis), after Germany (168) and Italy (19).⁹

The third highest decennial share of extreme right votes was recorded in Norway in 2000s with 19.9% of votes – mainly for the *Fremskrittspartiet* (Progress Party, FrP). During that decade Norway experienced only one right-wing attack. However, the deadliest right-wing terrorist attacks of modern European history was carried out in Norway in 2011 by the ultra-nationalist / Islamophobic lone-wolf Anders Breivik – killing 77 people in Oslo and Utøya (Berntzen and Sandberg, 2014). The attack took place in a period in which the Norwegian extreme right had the highest scores of its history (22.9% of votes for the FrP in the 2009 parliamentary elections).

⁹See Table F.6 for a summary of the most active right-wing terrorist groups in Europe since the 1970s.

Germany is again a clear exception. Germany was the country the most heavily impacted by right-wing terrorist attacks in Europe. The most significant wave was carried out by Neo-Nazi groups in the aftermath of the German reunification in 1992-1993 (Anderson, 1995; Hoehl, 1995; Krueger and Pischke, 1997; Lewis, 1996; McGowan, 2006). However, contrary to Hypothesis 6.2, Germany experienced very low votes for extreme right parties until the end of 2010s and the foundation of the *Alternative für Deutschland* (Alternative for Germany, AfD). The main extreme right party – the *Nationaldemokratische Partei Deutschlands* (National Democratic Party of Germany, NPD) – always remained politically marginal (with scores always below 2% in parliamentary elections). The German case may be seen as supportive of the *opportunity* argument. Alternatively, one can argue that extreme right votes in Germany did not perfectly reflect the spread of extreme right opinions since the Nazi past of Germany was for long preventing on the supply side the emergence of a strong extreme right party.

5.2.2. Confirmatory analyses

To rigorously confront the *mobilization* and *opportunity* arguments, I used negative binomial regression models, which are standard in analyses of counts of terrorist attacks (Caruso and Schneider, 2011; Choi and Piazza, 2016; Freytag et al., 2011; Kis-Katos et al., 2011; Krieger and Meierrieks, 2019; Urdal, 2006). For each dependent variable (i.e. left-wing and right-wing terrorist attacks), I report a first model including all independent variables, a second model including country fixed effects, a third model including country and year fixed effects and a fourth model including the lagged dependent variable. I present results from regressions including both the share of extreme left and extreme right votes.¹⁰

Extreme left votes have a positive effect on left-wing terrorist attacks. Table 6.4 presents results from regression of the number of left-wing terrorist attacks. Model (1) shows that the share of extreme left votes (according to ParlGov) is positively and significantly related to the number of left-wing terrorist attacks. The effect is still significant when including country fixed effects in model (2), year fixed effects in model (3) and the lagged dependent variable in model (4). In contrast, the share of extreme right votes (according to ParlGov) has no significant effect on the number of left-wing terrorist attacks in any model. I obtained similar results when measuring extreme votes based on the CPDS. As shown by Table F.7, the share of extreme left votes (according to CPDS) is positively and significantly related to the number of left-wing terrorist attacks while the share of extreme right votes is not. This supports the *mobilization* over the *opportunity* argument

¹⁰However, the results are unchanged when computing the analyses separately.

Table 6.4: Effect of extreme votes (Parlgov) on the number of left-wing terrorist attacks (unstandardized coefficients from negative binomial analyses)

	(1)	(2)	(3)	(4)
Extreme left votes (Parlgov)	0.102*** (0.0179)	0.0545*** (0.0141)	0.0470*** (0.0143)	0.0341* (0.0141)
Extreme right votes (Parlgov)	-0.0214 (0.0166)	-0.0223 (0.0197)	-0.0213 (0.0196)	-0.0123 (0.0188)
log GDP per capita	-0.292* (0.124)	-0.233 (0.243)	-0.374 (0.429)	-0.317 (0.415)
log Population	1.326*** (0.0897)	3.060** (1.014)	5.537*** (1.234)	4.231*** (1.212)
Youth population share	38.53*** (7.353)	17.26** (6.540)	11.68+ (7.051)	18.32** (6.954)
Ethno-political exclusion	4.581** (1.402)	-6.145* (3.070)	-4.341 (3.210)	-6.497* (3.158)
Government expenditures	0.606 (0.653)	0.805 (1.017)	1.436 (1.022)	0.361 (1.016)
Democracy	-0.0650 (0.0944)	0.221* (0.0883)	0.126 (0.101)	0.0660 (0.0994)
Regime durability	-0.00465 (0.00307)	-0.0464** (0.0144)	-0.00121 (0.0210)	0.00489 (0.0205)
Lagged dependent variable				0.0154*** (0.00363)
Constant	-24.40*** (2.317)	-51.30** (16.03)	-95.49*** (21.30)	-75.09*** (20.80)
Inalpha	1.580*** (0.0763)	0.412*** (0.0930)	0.183+ (0.0975)	0.105 (0.102)
Country fixed effects	No	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes
Observations	1014	1014	1014	992
Pseudo R^2	0.108	0.251	0.281	0.287

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

to explain left-wing radical actions: as predicted by the first part of Hypothesis 6.2, the share of extreme left votes in a country increases left-wing radical actions.

Extreme right votes have a positive effect on right-wing terrorist attacks. Table 6.5 presents results from regression of the number of right-wing terrorist attacks. Model (1) shows that the share of extreme right votes (according to ParlGov) is positively related to the number of right-wing terrorist attacks. However, the coefficient only attains the 10% significance threshold. Conventional significance thresholds are attained in subsequent models (2) to (4). As shown by Table F.8, the share of extreme right votes (according to CPDS) is positively and significantly related to the number of right-wing terrorist attacks in all models. Again, this supports the *mobilization* over the *opportunity* argument to explain right-wing radical actions: as predicted by the second part of Hypothesis 6.2, the share of extreme right votes in a country increases right-wing radical behaviors.

Extreme left votes have a (non robust) positive effect on right-wing terrorist attacks. Contrary to expectation, Table 6.5 reveals that the share of extreme left votes (according to ParlGov) also has a positive effect on the number of right-wing terrorist attacks. The coefficient of the share of extreme left votes only is significant in models (1) and (2) but only attain the 10% significance threshold in models (3) and (4) including country and year fixed effects and the lagged dependent variable. Besides, the effect of the share of extreme left votes does not attain conventional significance threshold when computed based according to the CPDS classification, as shown by Table F.8. This indicates that the share of extreme left votes have a non robust positive effect on right-wing terrorist attacks. This result can be interpreted as supportive of the *opportunity* argument that right-wing terrorist groups resort to violence when their opinions are not well represented enough. Indeed, high levels of extreme left votes are likely to result in governments that promote policies opposite to the views of right-wing extremist. I will comment this result in the discussion.

5.2.3. Further test of the opportunity argument: extreme parties' participation in government and terrorist attacks

Overall, the previous results clearly give higher support to the *mobilization* than the *opportunity* argument: the share of extreme votes of a given ideology positively correlates with radical actions of the same ideology. However, the logic behind the *opportunity* argument may not be entirely wrong, and may interact with the *mobilization* argument. It is possible that radical movements mobilize more, and hence are more likely to perpetrate radical actions, when extreme votes are high but that they also limit the use of radical actions when their opinions are politically represented. In this case, we should observe

Table 6.5: Effect of extreme votes (Parlgov) on the number of right-wing terrorist attacks (unstandardized coefficients from negative binomial analyses)

	(1)	(2)	(3)	(4)
Extreme left votes (Parlgov)	0.0747*** (0.0199)	0.0730** (0.0271)	0.0446+ (0.0246)	0.0441+ (0.0244)
Extreme right votes (Parlgov)	0.0475+ (0.0255)	0.105** (0.0365)	0.0852** (0.0316)	0.0693* (0.0315)
log GDP per capita	0.536** (0.178)	-0.226 (0.461)	0.107 (0.880)	-0.374 (0.871)
log Population	1.363*** (0.144)	2.747 (1.845)	5.185* (2.103)	3.903+ (2.049)
Youth population share	48.98*** (10.58)	45.68*** (11.75)	-2.131 (11.79)	-4.244 (11.51)
Ethno-political exclusion	3.695* (1.849)	9.048 (6.418)	7.562 (5.518)	5.613 (5.409)
Government expenditures	0.885 (1.477)	0.0808 (2.588)	-1.882 (2.575)	-1.680 (2.447)
Democracy	-0.359* (0.152)	-0.570* (0.271)	-0.732* (0.289)	-0.581* (0.243)
Regime durability	-0.00368 (0.00415)	-0.00894 (0.0296)	0.107* (0.0503)	0.0888+ (0.0459)
Lagged dependent variable				0.104** (0.0388)
Constant	-34.29*** (3.599)	-47.42 (30.08)	-105.0 (1175.4)	-80.89 (2263.4)
Inalpha	1.979*** (0.138)	1.185*** (0.159)	0.215 (0.221)	0.0841 (0.239)
Country fixed effects	No	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes
Observations	1014	1014	1014	992
Pseudo R^2	0.138	0.246	0.351	0.362

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

that terrorist events are more likely when (a) extreme votes of the same ideology are high (high *mobilization*) and (b) extreme parties do not enter government (low *opportunity*).

To test for this possibility, I generated two binary variables – *extreme left in government* and *extreme right in government* – indicating whether the government includes members of extreme left or extreme right parties, according to cabinet composition data from the ParlGov (Döring and Manow, 2019). Note that I did not lagged this variable as the participation in government affect the strategic incentive to use violence at a given time.¹¹ Extreme parties' participation is rare in the sample: 6.21% of the the sample of countries-years had a government including extreme left parties and 10.4% for extreme right parties. Extreme left and extreme right participation in government do not correlate ($r = 0.0466, p = .138, N = 1014$). Unsurprisingly, extreme parties participation in government correlate with the share of extreme votes, but the correlation is imperfect: for the extreme left, $r = 0.2679, p = .000, N = 1014$, for the extreme right, $r = 0.3438, p = .000, N = 1014$. This suggests that the *mobilization* and *opportunity* arguments may actually interact: there is a non-trivial number of cases in which high votes for extreme parties did not result in government participation, potentially due to non-proportionality of some electoral systems and extreme parties' exclusion from some coalitions.

I present results in two steps. First, I test the simple effect of extreme parties participation in government on terrorist attacks. I computed similar models than in Tables 6.4 and 6.5 except that I replaced the share of votes for extreme parties by their participation in government. Secondly, I present models testing for the interaction between the share of votes for extreme parties and their participation in government.

Extreme parties participation in government does not affect left-wing terrorism.

Table 6.6 presents results from regression of the number of left-wing terrorist attacks. There is no significant effect of both extreme left and extreme right participation in government in any model. This does not support the *opportunity* argument regarding left-wing terrorism.

Extreme right participation in government slightly reduces right-wing terrorism while extreme left participation in government slightly increases it.

Table 6.7 presents results from regression of the number of left-wing terrorist attacks. Results are more in line with the *opportunity* argument. Extreme right participation in government is negatively related to the number of right-wing terrorism attacks. The coefficient is insignificant in model but attains conventional levels of significance in models (2) and (3), and is significant at the 10% threshold in model (4). Besides, extreme left participation

¹¹Note that I obtained similar results when computing analyses with a lagged variable.

Table 6.6: Effect of extreme parties' participation in government (Parlgov) on the number of left-wing terrorist attacks (unstandardized coefficients from negative binomial analyses)

	(1)	(2)	(3)	(4)
Extreme right in government	0.313 (0.407)	-0.378 (0.318)	-0.0507 (0.324)	0.266 (0.328)
Extreme left in government	-0.0260 (0.351)	0.132 (0.315)	-0.00540 (0.319)	-0.129 (0.308)
log GDP per capita	-0.465*** (0.126)	-0.485* (0.236)	-0.373 (0.436)	-0.358 (0.417)
log Population	1.405*** (0.0957)	3.147** (0.998)	5.932*** (1.227)	4.575*** (1.201)
Youth population share	24.01** (7.376)	17.40** (6.609)	11.69 (7.259)	19.06** (7.085)
Ethno-political exclusion	1.656 (1.471)	-6.264* (3.172)	-3.431 (3.285)	-5.633+ (3.192)
Government expenditures	1.694* (0.707)	0.880 (1.037)	1.548 (1.050)	0.567 (1.025)
Democracy	-0.0455 (0.0773)	0.127* (0.0561)	0.0884 (0.0588)	0.0269 (0.0612)
Regime durability	-0.0125*** (0.00301)	-0.0424** (0.0130)	0.00230 (0.0181)	0.00924 (0.0178)
Lagged dependent variable				0.0165*** (0.00359)
Constant	-21.40*** (2.293)	-49.77** (15.70)	-101.8*** (21.24)	-80.47*** (20.68)
Inalpha	1.674*** (0.0752)	0.465*** (0.0907)	0.232* (0.0953)	0.140 (0.0997)
Country fixed effects	No	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes
Observations	1019	1019	1019	997
Pseudo R ²	0.0955	0.247	0.278	0.285

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6.7: Effect of extreme parties' participation in government (Parlgov) on the number of right-wing terrorist attacks (unstandardized coefficients from negative binomial analyses)

	(1)	(2)	(3)	(4)
Extreme right in government	-0.347 (0.622)	-1.825* (0.711)	-1.293* (0.642)	-1.547+ (0.863)
Extreme left in government	0.171 (0.648)	0.363 (0.592)	1.264* (0.522)	1.192* (0.512)
log GDP per capita	0.327* (0.160)	-0.401 (0.439)	-0.0610 (0.840)	-0.415 (0.829)
log Population	1.390*** (0.137)	3.044+ (1.816)	5.404** (2.060)	3.837+ (2.017)
Youth population share	30.69** (10.35)	37.32** (11.39)	-2.114 (11.44)	-5.621 (11.30)
Ethno-political exclusion	4.390* (2.110)	6.476 (6.450)	6.332 (5.531)	4.856 (5.417)
Government expenditures	2.059 (1.465)	-0.679 (2.537)	-2.440 (2.581)	-2.524 (2.485)
Democracy	-0.285* (0.122)	-0.444* (0.193)	-0.350* (0.141)	-0.271* (0.127)
Regime durability	-0.0102* (0.00430)	0.00175 (0.0269)	0.0769+ (0.0412)	0.0638 (0.0395)
Lagged dependent variable				0.124** (0.0399)
Constant	-29.99*** (3.387)	-51.29+ (29.09)	-108.7 (1143.1)	-79.75 (1722.1)
Inalpha	2.097*** (0.136)	1.215*** (0.161)	0.163 (0.229)	0.0615 (0.239)
Country fixed effects	No	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes
Observations	1019	1019	1019	997
Pseudo R^2	0.120	0.241	0.348	0.361

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

in government is positively and significantly related to the number of right-wing terrorist attacks in model (3) and (4). Hence, results suggest that the *opportunity* argument has some validity for right-wing terrorist attacks.

There is no interaction effect between extreme votes and participation in government on terrorist attacks. Tables F.9 and F.10 respectively present results from regression of the number of left-wing and right-wing terrorist attacks. Estimates from Table F.9 confirm that the share of extreme left votes have a positive effect on left-wing terrorist attacks in all models. Contrary to the *opportunity* argument, extreme left participation in government has no significant main effect or interaction effect with the share of extreme left votes. Estimates from Table F.9 point toward similar results for right-wing terrorism. Similarly, the share of extreme right votes has a significant effect on right-wing terrorist attacks in all models and extreme right participation in government has no significant main effect or interaction effect with the share of extreme right votes. One may nonetheless observe that the coefficient of the interaction has the expected negative sign in all models, and attains the 10% significance threshold in model (3): this suggests that extreme right participation in government might slightly attenuate the positive effect of extreme right votes on right-wing terrorism, in line with the *opportunity* argument.

5.3. Discussion

Results offer strong support to the *mobilization* argument and weak support for the *opportunity* argument regarding the relationship between extreme votes and radical actions. As expected by Hypothesis 6.2, left-wing terrorist attacks are more numerous when extreme left votes are high and right-wing terrorist attacks are more numerous when extreme right votes are high.

Two potential limitations deserve discussion. Firstly, the data on terrorist attacks gather both domestic attacks – perpetrated by nationals – and transnational attacks – perpetrated by foreigners (Enders et al., 2011). For instance, I mentioned the cases of attacks perpetrated by the ASALA in France and the PKK in Germany. Transnational attacks fall outside of the scope of the theory of ideals because the effect of the spread of extreme opinions in a given country should only affect the mobilization of nationals.¹² Unfortunately, the GTD does not identify the perpetrators' nationality. However, this issue is not highly problematic regarding the validity of the present results since the inclusion of attacks perpetrated by foreign citizens should only result in additional noise in the data. Indeed, there is no reason to expect that foreign terrorists attack more countries with

¹²This limitation of the theory of ideals to explain cases of transnational terrorist attacks is investigated by Chapter 10, which analyzed the conditions under which domestic conditions matter or not to explain the occurrence of terrorist attacks in the case of Islamist terrorism.

higher shares of extreme votes. Besides, studies based on different estimation methods suggest that around 75% to 85% of terrorist attacks recorded in the GTD are domestic (Enders et al., 2011; Kis-Katos et al., 2011; LaFree et al., 2014).

Secondly, the present results are purely correlational, which does not allow to exclude a reverse causality mechanism. One possibility is that terrorist attacks of a given ideology increase the share of votes for the same ideology. For instance, Sharvit et al. (2015) found that variations in public justification of suicide bombing in Palestine both predicts and is predicted by the number of suicide attacks. Hence, in cases such as Palestine in which terrorist have a high level of popular approval, it seems that terrorism may have a mobilizing effect on the public support for terrorism. Nonetheless, except rare cases in which terrorist groups have a wide popular support, such a reverse causality mechanism seems very unlikely for votes. For instance, terrorist attacks of the ETA were either found to have no electoral impact (Balcells and Torrats-Espinosa, 2018) or reduce electoral support for its electoral branch (De la Calle and Sánchez-Cuenca, 2013), even though ETA was the most popular of European terrorist groups in recent history (Hewitt, 1990). In Turkey, attacks of the marxist PKK have been found to increase votes for right-wing parties that are more repressive against terrorism (Kibris, 2011). More generally, studies on the electoral effect of terrorist attacks suggest that terrorism generates *negative* reactions, either increasing votes for right-wing parties that are more harsh in dealing with terrorism (Berrebi and Klor, 2008; Getmansky and Zeitzoff, 2014; Hersh, 2013) or reducing votes for incumbent parties that are perceived as unable to deal with terrorism (Bali, 2007; Gassebner et al., 2008; Montalvo, 2010). In both cases, this suggests that, if terrorism has any electoral effect, it is not to lead to an increase in votes for parties that are close to the ideology of terrorists. As a consequence, the observed positive correlation is more likely to reflect the fact that the spread of extreme ideologies increases terrorism, than the opposite.

Finally, it is worth discussing an additional finding. Interestingly, some of the present results are compatible with the *opportunity* argument, but only in the case of right-wing terrorist attacks. More precisely, albeit the results have a low robustness, I found evidence that right-wing terrorist attacks increase when extreme left votes are high and extreme left parties accede government, while they may decrease when extreme right parties accede government. In contrast, no such effects are found for left-wing terrorism. This difference between right-wing and left-wing terrorism is hard to interpret based on *opportunity* arguments relative to terrorist groups taken in isolation.

One possible interpretation of this finding relies on the funding of terrorist organizations. Right-wing terrorist organizations may benefit from increased financial support from rich donators, who fear a socialist revolution, in periods in which extreme left parties are on the rise. This would result in higher capacity for recruitment and action of right-wing terrorist groups. While the present data do not allow to detect such mechanism, various historical records align with this view. For instance, there are many examples

from the inter-war period in France of the funding of far right anti-communist movements by rich businessmen: such as the perfumer François Coty funding the *Action Française* (French Action, AF) (Soucy, 1989; Weber, 1990), *Le Faisceau* (The Fasces) (Sternhell, 1976) and creating *Solidarité Française* (French Solidarity) in 1933 (Lahousse, 1998), as well as the industry leader Pierre Taittinger funding the *Jeunesses Patriotes* (Young Patriots, JP) (Philippet, 2000). After the victory of the socialist *Front Populaire* (Popular Front) in 1936, the *Comité secret d'action révolutionnaire* (Secret Committee of Revolutionary Action, CSAR), a right-wing terrorist organization, was founded to counter a "communist plot", with financial support and connections with famous French businessmen such as the leader of the Lesieur oils company (Collombat and Servenay, 2009). In Germany, Ferguson and Voth (2008) found that one out of seven firms of the German industry, accounting for more than half of the Berlin stock market's capitalization, had substantive connections with the Nazi party in early 1933 (i.e. either financial contributors or political support). Interestingly, the authors found that German regions with higher shares of votes for the Communist party also had more Nazi affiliated firms. As noted by (Ferguson and Voth, 2008, p. 128): "One of the key messages sent by the *Nationalsozialistische Deutsche Arbeiterpartei* (National Socialist German Workers' Party, NSDAP) in its dealings with business leaders was its commitment to defeat Communism and protect private property. Where local conditions suggested that this threat was grave, more executives and directors had links with the NSDAP".¹³ The question of the relationship between left-wing and right-wing violence and the destructive capacity of economically dominant groups is analyzed in more detail in Part III - especially in Chapter 8.

6. Conclusion

The present results clearly support the final part of the theory of ideals, that the spread of extreme ideologies, as measured by extreme votes, provide a fertile soil for the rise of individual radical intentions, the mobilization of radical movements, and ultimately the perpetration of terrorist attacks. Consistent with the *mobilization* argument, I found that extreme left votes positively correlate with left-wing radical mobilization and terrorist attacks, while extreme right positively correlate with right-wing radical mobilization and terrorist attacks. In other terms, the results show that "terrorism does not occur in a

¹³More recent examples come to mind such as the financing of right wing paramilitary groups in South American regimes, as Chiquita Brands International and the Fuerzas Armadas Revolucionarias de Colombia (Revolutionary Armed Forces of Colombia, FARC) (Evans, 2007), or the active complicity of some firms (Acindar, Astarsa, Dálmine Siderca, Ford, Ledesma and Mercedes Benz) in the repression of left-wing opponents in Argentina's last dictatorship (Basualdo, 2006).

vacuum" (Krueger, 2017, p. 23). Terrorism is more likely to happen in societies in which extreme opinions, as incarnated by extreme political parties, encounter a large popular support.

As studies linking public opinion and terrorist attacks (Hewitt, 2003; Krueger and Malečková, 2009; Malečková and Stanišić, 2011; Sharvit et al., 2015), results of the third study alone does not disentangle the specific causal mechanism by which the spread of extremist opinions translate into terrorist attacks. As highlighted by Krueger and Malečková (2009), two mechanisms are plausible. On the one hand, terrorists may be drawn from the growing pool of individuals with extremist opinions. In this view, there is a some higher probability for extremists to become terrorists, which means that the spread of extremist opinions "increase[s] the number of people willing to join terrorist cells and carry out terrorist acts themselves" (Krueger and Malečková, 2009, p. 1536). On the other hand, there may be a relatively constant number of potential terrorists in a given society. In this view, the spread of extremist opinions offers favorable conditions for them to take action, as it "increase[s] the number of people in a society who provide material support and encouragement for terrorist cells" (Krueger and Malečková, 2009, p. 1536). Both mechanisms are compatible with the theory of ideals: in both cases, the spread or reactionary ideologies translate into increase right-wing radicalism, which finally closes the loop.

However, results from the first and second study are rather supportive of the first mechanism. In the first study, I found that individuals who vote for extreme parties are also more likely to declare that they would personally use illegal an violent means to defend their group. In the second study, I found that the spread of extremist votes is related to a rise in the number of adherent of radical movements, which are susceptible to use radical action repertoires. Hence, results are more in line with the view that the spread of extremist opinions generate a larger pool of potential terrorists. Consequently, the results align with the classic view that an individual's extremist opinions may be antecedents of radical action (Moghaddam, 2005; Silber et al., 2007; Wiktorowicz, 2004). Such view was recently put in question, given the growing body of evidence that individuals may develop extremist ideas as the result of their involvement into radical networks (Horgan, 2012; McCauley and Moskalenko, 2017). Nonetheless, the present results show that the initial view still has some validity: in at least some cases, extremist beliefs matter to explain radical action.

PART III

Fighting against the weak or fighting
against the strong? Economic inequality
and the enemies of radical movements

This part is adapted from the following manuscript under review: Varaine, S., Benslimane, I., Berton, R. M., & Crosetto, P. (2019). Attacking the weak or the strong? An experiment on the targets of parochial altruism. <https://hal.univ-grenoble-alpes.fr/hal-02391578>

7

Class struggle in the lab. An experiment on the targets of parochial altruism

"The fight *for* is inseparable from the fight *against* and, during the fight, the fighters always forget the preposition *for* in favor of the preposition *against*."

Immortality
MILAN KUNDERA

Studies on parochial altruism have insofar focused on the causes leading individuals to attack any outgroup on the behalf of one's group. Yet, we lack clues to understand why parochial altruists target specific groups, such as dominant groups in some contexts and minority groups in others. The present chapter introduces an experiment to analyze the conditions under which individuals costly attack strong versus weak outgroups. In our study, 300 participants played a repeated Inter-group Prisoner Dilemma involving multiple groups and inter-group differences in resources. Results show that individuals have a preference for targeting strong outgroups, but that attacks decrease when the inequality in destructive capacity between groups is high. In such case, attack against strong outgroups increase when the ingroup is experiencing favorable economic mobility. In contrast, individuals target weak outgroups when they are threatening their ingroup status. Implications to understand historical variations in the targets of political violence are discussed.

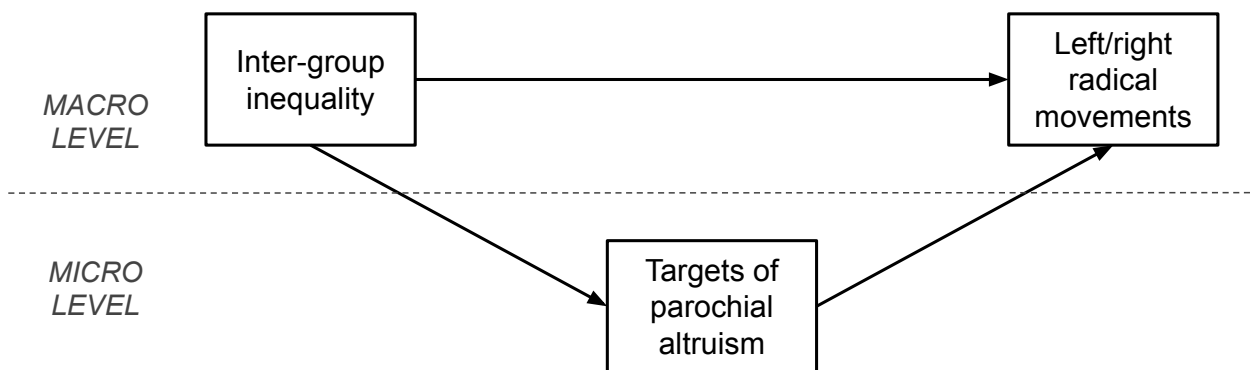
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In Part II, I have investigated one possible explanation of the differential effect of collective deprivation on left-wing and right-wing radicalism. Results support the view that the theory of ideals has some explanatory power to account for the rise of right-wing radicalism, but not for left-wing radicalism. Hence, one part of the puzzle of Part I remains unsolved: why do we observe that left-wing radicalism increases in times of collective improvement? In the present part, I investigate a second theoretical framework: the theory of enemies.

The theory of enemies is primarily about the targeting of parochial altruism – i.e. the decision of an individual to inflict cost to a specific outgroup in order to help her ingroup. The economic context affects the distribution of economic resources across social groups in a given society, which in turn affects the incentive for parochial altruistic individuals to attack specific outgroups. In certain conditions, parochial altruists are more likely to target strong outgroups (i.e. with more resources than the ingroup) while in other contexts, parochial altruists are more likely to target weak outgroups (i.e. with fewer resources than the ingroup). In a second step, this variation in the targets of parochial altruism explains the variation in the ideological orientation of radical movements across economic contexts – left-wing political violence mostly targeting dominant social groups and right-wing political violence mostly targeting dominated social groups. Figure 7.1 summarizes the whole causal chain of the theory of enemies.

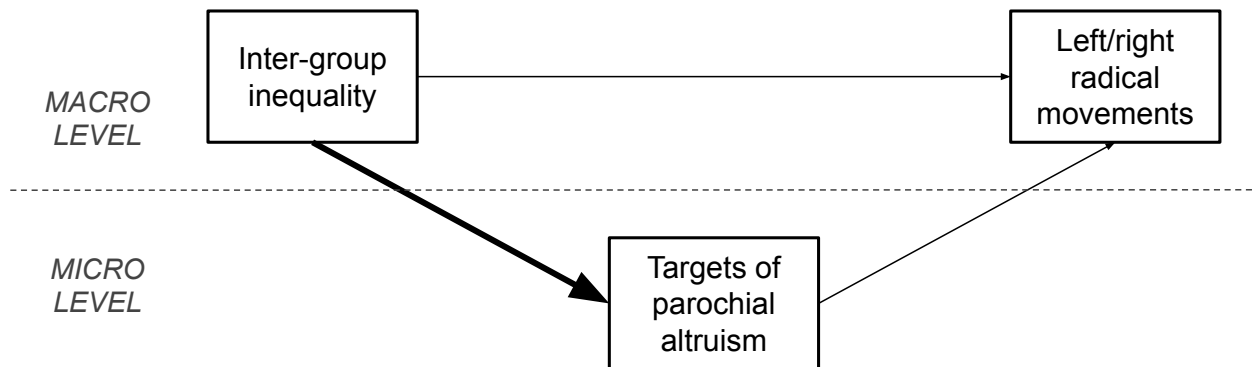
Figure 7.1: Diagram of the theory of enemies



The present chapter focuses on the first step of the theory of enemies. As shown by the causal path highlighted in Figure 7.2, I analyze the effect of variations in inter-group economic inequality on the targets of parochial altruism at the micro level. More precisely, I present results from an economic experiment conducted with my colleagues Ismaël Benslimane, Raul Magni-Berton and Paolo Crosetto. In this experiment, subjects were divided in multiple groups with varying level of resources and could costly attack outgroups for the benefit of the ingroup. Then, chapter 8 is devoted to the second step of the theory of enemies, by analyzing whether findings from the lab experiment may

explain the ideological orientation of political violence in the "real world".

Figure 7.2: Causal paths of the theory of enemies analyzed in Chapter 7



1. Theoretical background

1.1. Why investigating the targets of parochial altruism?

A large body of research has investigated parochial altruism - i.e. the coexistence of ingroup contribution (altruism) and outgroup aggression (parochialism) (Bernhard et al., 2006; Choi and Bowles, 2007; De Dreu et al., 2014; Rusch, 2014). As detailed in the Introduction of the dissertation, the concept of parochial altruism captures a recurring pattern of inter-group relationships: that is, the costly attack of members of an outgroup on behalf of one's ingroup. "Attack" means here inflicting a loss to someone. This concept is applied to many forms of modern conflict, such as suicide-bombers sacrificing themselves to hurt their group's rivals (Atran and Sheikh, 2015; Ginges and Atran, 2009; Sheikh et al., 2014), and to inter-ethnic interactions (Jeon et al., 2017). While the relevance of parochial altruism is also criticized (Yamagishi and Mifune, 2016, see also Chapter 9), many experimental studies demonstrate that parochial altruism is a widespread tendency (Abbink et al., 2012; Bernhard et al., 2006; De Dreu et al., 2014).

Most experimental studies on parochial altruism have investigated the motivation for aggression toward any outgroup on behalf of the ingroup. Yet, in the real world, there is a great diversity of potential targets for parochial altruists. This may be illustrated by the heterogeneous targets of terrorist groups: depending on time and space, terrorism has been used against very different groups such as immigrants, minorities (Freilich et al., 2018; Ravndal, 2016), political authorities and large firms (Hoffman, 2006; Malkki, 2018). Understanding the conditions under which parochial altruists choose different targets may

help to predict why certain groups receive more or less hostility in the real world and illuminate the drivers of terrorist groups' targeting choices. My colleagues and I distinguish two types of parochial altruism, depending on whether attacks target outgroups with more vs. fewer resources than the ingroup.

1.2. Rationales behind the targets of parochial altruism

In an environment with multiple groups, parochial altruists cannot attack all outgroups. This would be too costly and may dilute the effect of each attack. Moreover, this shooting-in-the-dark strategy may generate vindictive coalitions of outgroups against the ingroup. For a given constant incentive to attack, parochial altruists have to choose which outgroup(s) to target. The core of our argument is that the individual decision to target specific outgroups depends on the distribution of resources across the different groups (Abbink et al., 2018; Halevy et al., 2010). We identify two channels. First, insofar as inequality in resources across groups does not affect groups' safety, the literature on parochial altruism does not provide clear lines to choose to attack a specific group. In this case, the literature on social comparison provides a relevant framework. Second, when inequality in resources affects groups' safety, the literature on parochial altruism predicts that the target of attacks is chosen to maximize the ingroup's safety.

1.2.1. Social comparison and parochial altruism against strong outgroup

Studies on social comparison suggest that individuals should be motivated to achieve the best relative position for their ingroup compared to outgroups. Many studies show that individuals evaluate their own payoff relatively to others rather than in absolute terms (Boyce et al., 2010; Card et al., 2012; Solnick and Hemenway, 1998). For instance Solnick and Hemenway (1998) find that most individuals preferred a lower absolute to a higher relative income. Similarly, Boyce et al. (2010) find that relative income predicted life satisfaction, while absolute income did not once controlling for the first.

According to some research, this so-called "positional bias" may have resulted from natural selection (Hill and Buss, 2006, 2008). The reason is that in a context of concurrence of resources, individual genetic success through evolution does not only depend on their access to an absolute level of resources and mates, but on their ability to access to more resources and mates than their genetic rivals. This ability in turn directly depends on the individuals' capacity to evaluate their position relatively to others. Coherent with the view that the positional bias has biological underpinnings, neurologic evidence indicates that higher relative payments and lower relative losses compared to other individuals are related to the activation of the ventral striatum - indicating reward-related brain activity (Dvash et al., 2010; Luo et al., 2018).

The same reasoning may apply to groups, to the extent that being part of a relatively successful group should increase individual evolutionary fitness. Some evidence indicates that inter-group comparison elicit similar mechanisms to inter-individual comparison. For instance, a study based on football teams shows that fans being presented with the failures of the rival team experienced higher ventral striatum activity (Cikara et al., 2011). Individuals displaying high ventral striatum responses to the rivals' failures are also more willing to harm fans of the other team (see also Hein et al., 2010).

This means that at a constant incentive for engaging in parochial altruism, parochial altruists should attack outgroups in order to advance their ingroup relative level of resources. In this line, economic experiments show that people are willing to pay to burn the money of richer individuals (Zizzo, 2003; Zizzo and Oswald, 2001). This aligns with experimental research indicating that humans have a strong preference for inter-individual equality (Dawes et al., 2007). At the group level, Halevy et al. (2010) analyze the effect of between-group relative deprivation on parochial altruism in a version of Inter-group Prisoner Dilemma in which individuals can use money either to benefit the ingroup or reduce the income of the outgroup without benefits for the ingroup (see Halevy et al., 2008). They find that players from relatively deprived groups are more likely to costly attack the outgroup, thus reducing the ingroup absolute welfare but increasing its relative level of resources.

Hence, we predict that, in general, parochial altruists have a preference to target outgroups with higher resources.

Hypothesis 7.1 *The higher the resources of an outgroup the higher the level of attacks.*

1.2.2. How destructive capacity affects the targets of parochial altruism

Destructive capacity (DC) refers to the amount of harm that a group can inflict on another group. When DC is equally distributed, the groups differ only by their level of resources and their behavior. In this case, attacks only reflect individual preferences regarding the distribution of resources across groups. However, in real life DC is not equally distributed. The unequal level of resources introduces an inequality in harmfulness capabilities. Attacking an outgroup is then not only an act of aggression to adjust the relative level of resources, but also an act of preemptive self-defense. In this line, experimental studies show that fear of future attacks is a major motivation for first strikes against an outgroup (Böhm et al., 2016; De Dreu et al., 2010), more than nastiness and outgroup anger (Abbink and de Haan, 2014; Simunovic et al., 2013). This aligns with findings from social psychology indicating that outgroup derogation increases when outgroups are threatening the ingroup (Branscombe and Wann, 1994).

DC reduces the incentive to attack strong outgroups. In an economic contest between two groups, Abbink et al. (2018) find that in a setting with increased inter-group

inequality, the level of attacks from the disadvantaged group significantly decrease. They highlight a resignation effect: if the advantage of the outgroup is far too high, the effect of an attack may be too small to alter the relative position of the ingroup. This effect explains the reduction in attacks under huge inequalities. This reduction, however, may also be explained by DC: if richer groups have higher DC, targeting a richer outgroup may be dangerous because the latter may retaliate and cause great harm to the ingroup in the future. Hence, DC modifies the incentives provided by envy in a symmetrical game.

Hypothesis 7.1.1 *The effect of the outgroup resources (Hypothesis 7.1) is reduced under unequal destructive capacity.*

Besides, under unequal destructive capacities, considerations about the ingroup rank should become prominent in order to prevent future attacks. A key strategy aimed at preventing future attack consists of targeting out-groups in order to secure the rank of the in-group across the ordering of the different groups. Indeed, having a high rank is beneficial for the group because it is then less likely to be destroyed by the other groups (which have less DC than it) and has better capacities to retaliate or pre-emptively attack other out-groups. Conversely, letting a group overtake one's rank is dangerous since the outgroup will be able to destroy the ingroup in the future.

To advance or secure its rank, the best strategy for a group is to attack other groups that are close to its level of resources. Indeed, attacking a group with very low resources does not advance its rank and attacking a group with very high resources is highly dangerous (see Hypothesis 7.1.1). In contrast, the closer the level of resources of the outgroup to the level of resources of the ingroup, the more useful the attack may be: a group may hope gaining a rank when attacking an outgroup which has a bit more capacities than it; and it may hope securing its rank when attacking an outgroup which has a bit less resource but present a potential rival.

This last conjecture allows some predictions about the contexts in which parochial altruism target strong or weak outgroups. Indeed, in the real world, group resources vary in time. Hence, the relative positions of groups are moving, and so their incentive to attack weak and strong groups. From the last conjecture, one direct prediction is that the higher the relative elevation of a group's resources in time, the higher the probability for its parochial altruists to attack strong outgroups. Indeed, when a group's level of resource increases, at a constant level of resources for the other groups, it gets closer to the group which is above him - and hence more likely to attack it - and more distant from the group which is below him - and hence, less likely to attack it. Thus:

Hypothesis 7.2 *The growth of resources of the ingroup affects the targets of parochial altruism.*

- A. The higher the growth of resources of the ingroup the higher the level of attacks against strong outgroups.*
- B. The higher the growth of resources of the ingroup the lower the level of attacks against weak outgroups.*

As a pre-emptive strike strategy, this effect should only take place when richer groups have higher DC.

Hypothesis 7.2.1 *The effect of the ingroup growth of resources is enhanced under unequal destructive capacity.*

Symmetrically, parochial altruists should attack strong outgroups when their resources are declining, because they can hope to overpass their rank, while they should attack weak outgroups when their resources are increasing, because they pose a threat to the ingroup rank. Hence:

Hypothesis 7.3 *The growth of resources of the outgroup affects the targets of parochial altruism.*

- A. The higher the growth of resources of the strong outgroup the lower the level of attacks.*
- B. The higher the growth of resources of the weak outgroup the higher the level of attacks.*

Again, this effect should only take place when richer groups have higher DC.

Hypothesis 7.3.1 *The effect of the outgroup growth of resources is enhanced under unequal destructive capacity.*

2. Method

2.1. Measuring parochial altruism in the lab. The Inter-group Prisoner's Dilemma

Parochial altruism is commonly captured through the Inter-group Prisoner's Dilemma (IPD) paradigm (Bornstein, 1992; Halevy et al., 2008). In a standard version of this game, subjects are divided in 2 groups of 3 players. Each subject receives a fixed initial amount of resources in points p_0 that the subject either chooses to keep (k) or to contribute to

attack the outgroup (a). $p_0 = k + a$. For each point kept, the subject gains 1 point. For each point contributed to attack the outgroup, each subject of the ingroup gains 0.5 point and each subject of the outgroup loses 0.5 point. Decisions are made simultaneously.

The payoff of a given subject is determined by the number of points p gained at the end of the round. It is a function of the number of points k kept, the number of points a_i contributed in attacks by the subjects i of the ingroup and the number of points a_j contributed in attacks by the subjects j of the outgroup:

$$p = k + 0.5 \times \sum_{i=1}^3 a_i - 0.5 \times \sum_{j=1}^3 a_j$$

This game consists of two prisoner's dilemmas embedded into each other, one at the individual level and the other at the group level. Table 7.1 details the actions and payoffs for a given subject. It shows that at the individual level, the Nash equilibrium is for each subject to keep. Indeed, a subject loses 0.5 points when attacking.

Table 7.1: Actions and payoffs in the IPD

Action	Effect on					
	Ingroup member			Outgroup member		
	1 (self)	2	3	1	2	3
Keep	+1	0	0	0	0	0
Attack	+0,5	+0,5	+0,5	-0,5	-0,5	-0,5

Note. The table is adapted from Weisel and Böhm (2015). It illustrates the effect of the subject decision to contribute one point to attack another out-group on the subject payoff, the payoff of each of two other ingroup members, and that of the three out-group members.

However, at the group level, the dominant group strategy is to contribute all points to attack. Indeed, total ingroup gains are 1.5 points if the subject attacks whilst it is 1 point if she keeps. Yet, the dominant collective strategy is for all subjects to keep their points. Indeed, if all subjects attack, no subject gains any points as the gains from the ingroup's attacks are offset by the losses from the outgroup's attacks. In short, the optimal strategy is the same for selfish subjects who do not cooperate with anyone and for universalist subjects who cooperate with everyone: to keep. Only parochial altruists, who cooperate with ingroup and not with outgroup members choose to attack.

The game captures core features of parochial altruism. From a purely individual perspective, it is costly to engage in attacks on behalf of one's group. Yet, the group would be better off if all its members engaged in such attacks. However, at the aggregate social

level, attacks have negative consequences.

2.2. Design of the experiment

My colleagues and I designed a new version of the IPD to distinguish the targets of parochial altruism. Subjects play a repeated IPD game over T rounds (Bornstein et al., 1994; Halevy et al., 2012). Subjects stay in the same group for all rounds. We keep the payoff structure unchanged. Yet, we bring three new elements to test our hypotheses.

Firstly, we increase the number of groups. Each subject may attack different outgroups simultaneously. When deciding to contribute, subjects have to choose which outgroups to attack. The consequences for the ingroup stay the same.

Secondly, we introduce inequality across groups. This allows us to test the conditions under which subjects attack richer or poorer outgroups. Before playing the IPD game, subjects perform a word-creation task akin to a Scrabble game (for details, see Benslimane et al., 2020). Differences in skill generate considerable variance. Each subject starts the IPD game with resources p_0 proportional to the results of the word-creation game. The groups for the IPD are created based on the subjects' earlier performance: the three best subjects form a group, the three second best another, and so on. This generates endogenous inter-group inequality in the IPD. Moreover, inequalities are (loosely) meritocratic, inducing feelings of entitlement.

To test Hypotheses 7.2 and 7.3, we exogenously manipulate the variation of resources of each group. At each round, each subject receives a random endowment in points α . This allows us to impose exogenous variation in group resources, independently from the variation that is due to the attacks across groups. The random endowment α is determined by three economic conditions. Every five rounds, each group is randomly assigned to one of three conditions with equal probabilities: in the improving condition, subjects have an endowment α of 6% of their resources in points p_0 by round; in the stable condition, subjects have an endowment α of 2% of their resources in points p_0 by round; in the declining condition, subjects have a negative endowment α of -2% of their resources in points p_0 by round. Groups draw a new economic condition every five rounds. This low-frequency draws allow groups to form expectations on the future resources of the outgroups and hence has a higher chance to affect the attacking strategies of groups than higher frequency draws.

Hence, at the end of a given round, the number of points p of a subject is a function of the number of points k the subject kept, the number of points a_i contributed in attacks by the subjects i of the ingroup, the number of points $a_{j \rightarrow ingroup}$ invested in attacks against the ingroup by the subjects j of the $n - 1$ outgroups, and the subject's random endowment α :

$$p = k + 0.5 \times \sum_{i=1}^3 a_i - 0.5 \times \sum_{j=1}^{3 \times (n-1)} a_{j \rightarrow \text{ingroup}} + \alpha$$

The number of point p of a subject at the end of each round determines the resources in points p_0 with which the subject will start the next round. This also allows inequality to endogenously vary during the course of the game.

The payoff of each subject is determined by the number of points p the subject gained at the end of the last round of the game.

Finally, in our version of the game, subjects have a limit β on the number of points a they can contribute to attack outgroups at each round. $a \leq \beta$. To test Hypotheses 7.1.1, 7.2.1 and 7.3.1, we use two between-subjects treatments. In the equal destructive capacity (EDC) treatment, subjects face an absolute limit to the number of points a they can contribute to attack. That is, β is fixed. In the unequal destructive capacity (UDC) treatment, the limit β is proportional to the subjects' resources in points p_0 at the beginning of each round. In the EDC treatment, a rich subject can attack as much as a poor subject ; in the UDC treatment, a rich subject can attack more than a poor subject. In both treatments, the rich have an advantage over the poor: the opportunity cost for attacking is lower for the rich subjects because contributing a point is relatively less costly for them. Yet, the UDC treatment enhances this advantage. If Hypothesis 7.1.1 is correct, subjects should diminish their attacks against richer groups in the UDC treatment.

2.3. Dominant strategies

An important question is whether our game keeps unchanged the dominant strategies from the original IPD capturing parochial altruism. Two features of our game could affect dominant strategies. Firstly, our version is an iterated game, in which subjects play the IPD for multiples rounds. However, this feature does not per se affect the Nash equilibrium to the extent that our game has a commonly known finite number of rounds. Finite sequential games, among which finitely repeated games, can be solved by backward induction - i.e. deducing dominant strategies based on the last subgame. Here, the last round is essentially a one-shot IPD game in which the dominant individual strategy is to keep all points, regardless of the game history. Since subjects' decisions at the antepenultimate round have no consequence on other subjects' decisions during the last round, the antepenultimate round can now be considered as a one-shot IPD game in which the dominant strategy is to keep all points, and so on until the first round. As a consequence, the Nash equilibrium is to keep all points during all rounds.

Secondly, our version of the game entails path-dependency in subjects' payoffs across rounds. This implies that our game is actually not a genuine repeated game, as subjects' actions during previous rounds may affect the available actions during next rounds - here,

the number of points that a subject can keep or contribute in attacks. Yet, backward induction again proves that this second feature does not affect the Nash equilibrium. During the last round, whatever the resources in points of the subject, the subgame dominant individual strategy is still to keep all points, which implies that it is also the subgame dominant strategy during the antepenultimate round, and so on until the first round. This path-dependency does not either affect the purely altruistic strategy: one can easily see that the dominant collective strategy in the whole game is still to keep all points since any contribution in attacks can only decrease the net collective payoff.

However, the path-dependency may entail more uncertainty about the dominant group strategy. What do we get if we apply backward induction to the case of a parochial altruistic subject? Whatever the subject's resources in points and the game history, the subgame dominant group strategy is undoubtedly for the parochial altruist to contribute all points to attack in the last round. Again, this implies that the subjects' decisions during the antepenultimate round have no consequence on the other subjects' decisions during the last round. Then, is contributing all points in attacks still the subgame dominant group strategy at the antepenultimate round? The answer is yes. The only alternative strategy for the parochial altruist is to keep points that will be available to contribute in attacks during the next round - what we can call a "saving" subgame strategy.¹ Now, even if we assume that subjects want to save points for later attacks, the attack decision outperforms the keep decision in the antepenultimate round. Indeed, whatever the decision of the subjects of outgroups, subjects of the ingroup save more points if they contribute their points in attacks, since each point contributed in attacks generates a net gain for the ingroup of 0.5 points distributed among ingroup subjects.² Hence, the subgame dominant group strategy

¹Such "saving" subgame strategy has some plausibility due to the parameterization of the random endowment α which implies that subjects' resources in points will on average increase through the game if no attacks occur. Hence, parochial altruists would actually have more points in the next round to contribute in attacks if they would all keep rather than attack. At the same time, one can notice that the limit β on the number of points subjects can contribute in attacks during a given round implies that subjects should not wait until the last round if they want to maximize the number of points they will contribute in attacks during the whole game.

²This rests on the basic assumption that parochial altruistic subjects consider that the other ingroup subjects are also parochial altruists. The alternative option is that subjects consider that (one or both) the other ingroup subjects are not parochial altruists. That is, subjects, even though aiming at increasing the welfare of the ingroup, consider that the other ingroup subjects do not aim in the game at increasing the welfare of the ingroup. This option is paradoxical but theoretically possible. What does it imply? This gives back some plausibility to the "saving" subgame strategy. Indeed subjects now consider that they take better decisions on the allocation of a given point for the welfare of the ingroup than other ingroup subjects.

We did not solve whether a "saving" subgame strategy actually emerges among the dominant group strategy in the whole game under this alternative assumption. But let's assume that it is true and that keeping decisions may emerge among genuinely parochial altruistic subjects. What are the implications for the game? This does not fundamentally alter our analysis for two reasons. Firstly, the contributions of points in attacks still can only reflect parochial altruism - i.e. as already shown, it can never reflect an egoistic or purely altruistic strategy. Secondly, the dominant group strategy inevitably implies the contribution of some points in attacks over the game. This can simply be proven by contradiction. As already shown, the group dominant strategy during the last round is to contribute all points in attacks. The only possibility that could

at the antepenultimate round is to contribute all points to attack. We deduce that the dominant group strategy in the whole game is to contribute all points to attack.

2.4. Participants

We recruited 300 subjects from the GAEL subject pool in Grenoble, France. 59% of subjects were female. A majority was students (68.33%) the rest being workers (25.33%) or unemployed (6.33%). The mean age was of 27 (SD=9.85), 18.67% of subjects completed less than high school, 28% had a high school diploma, 19.33% completed a bachelor's degree, 17% completed a master's degree and 17% a Phd.

2.5. Procedure and parameterization

The experiment took place at the GAEL experimental laboratory in Grenoble, France. The experimental software was written in Python using the oTree platform (Chen et al., 2016) – see the source codes G.1 and G.2 in Appendix G. We ran 20 sessions of 15 subjects, divided in 5 groups in the IPD game. Upon entering the lab, subjects were randomly assigned to individual computers. Instructions were read aloud and presented on overhead and individual screens. Clarification questions were answered collectively. Subjects received a 10€ show-up fee, which was not at stake during the game.

Subjects first took part in the word-creation task (for details, see Benslimane et al., 2020). After completing the task, subjects were informed about their individual gains. Based on pre-tests, we estimated that subjects would start the IPD game with around 500 points on average. Subjects were then divided in groups labeled with colors - yellow, red, purple, blue and green - to be easily identified. Subjects played the IPD game for 15 rounds, putting at stake their individual gains from the first task.

We implemented a 2×3 design. Half of the subjects played in the EDC treatment, with the limit β fixed at 50 points; the other half in the UDC treatments, the limit β fixed at 10% of their points at the beginning of each round. Besides, every 5 rounds, each group was randomly assigned to one of the three economic conditions determining the subject random endowment. Table 7.2 summarizes the experimental conditions and the actual share of subjects that were assigned to a given condition.

Figures 7.3a and 7.3b show a screenshot of the interface. During each round, subjects had information on: their economic condition, their individual number of points, the total number of points of each group - identified by their color - and a line plot of their variations during the past rounds. During the round, the subjects decided how much of

avoid such contribution would be that the subject has no more resources to contribute during the last round, which can only be due to attacks in previous rounds. Thus, whatever the specific dominant group strategy in the whole game, it entails some contributions in attacks.

Table 7.2: Summary of the 2×3 experimental conditions

Name	Effect	Assignment
Experimental treatment	The subject cannot contribute more than β in attacks	Each experimental session is randomly assigned to a given treatment (for all 15 subjects during all the game)
<i>EDC</i>	$\beta = 50$ points	50.00%
<i>UDC</i>	$\beta = 10\%$ of subject resources	50.00%
Economic condition	The subject resources vary of α at each round	Every 5 round, each group is randomly assigned to a given condition
<i>Declining</i>	$\alpha = -2\%$ of subject resources	35.70% ^a
<i>Stable</i>	$\alpha = +2\%$ of subject resources	30.08% ^a
<i>Improving</i>	$\alpha = +6\%$ of subject resources	34.22% ^a

^aExpresses the share of subjects assigned to the condition by round (a given subject may have been assigned to different conditions throughout the game).

their points to keep or to contribute to attack each outgroup, being blinded to the other subjects' decisions. After each round, subjects had information on the variation of their individual resources, the number of points gained by the ingroup due to the attacks made by them and the other members of the ingroup, the number of points lost by the ingroup due to the attacks of the different outgroups - identified by their color - and the number of points gained/lost by the ingroup due to the economic condition.

2.6. Sample size and power analysis

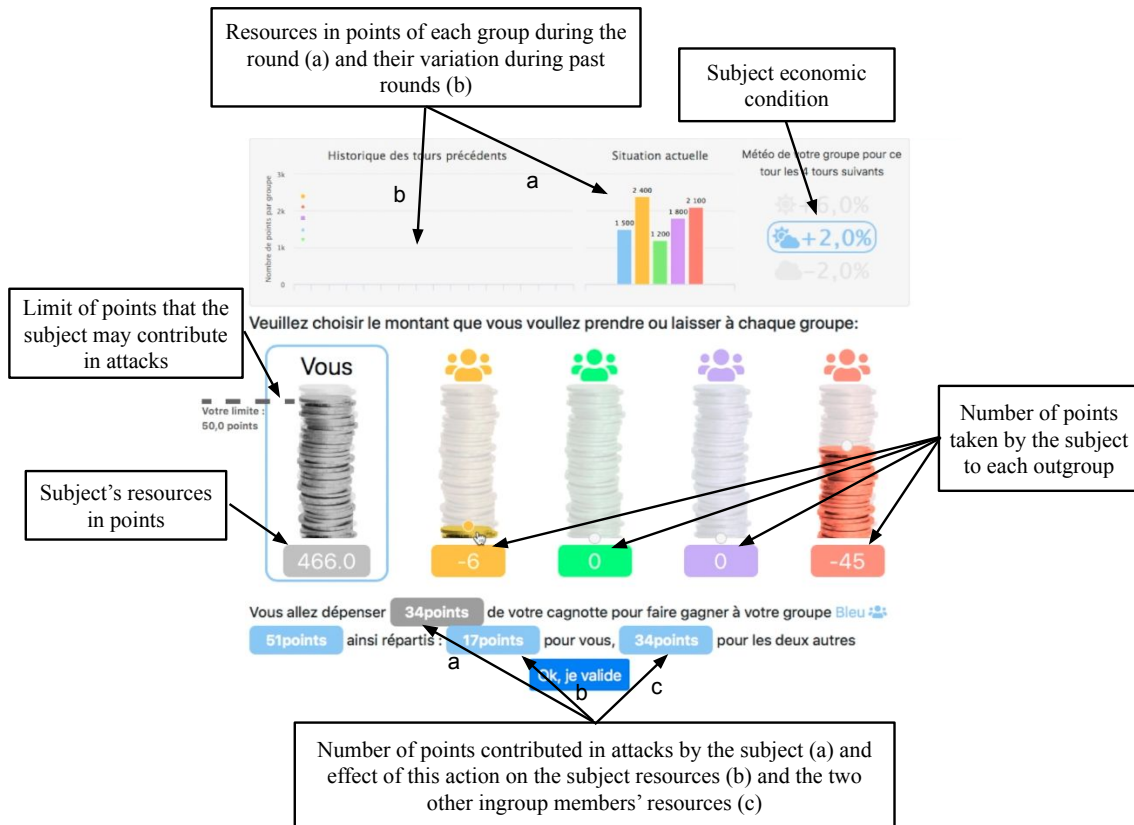
To test our hypotheses, our main analyses are based on subject-outgroup dyads by round. As we analyze 300 subjects who face 4 outgroups for 15 rounds, the total number of subject-outgroup dyads is $N=18,000$. We exclude observations of subjects that had no more resources to contribute in a round and of all subjects in rounds in which one group or more was dead, in order to alleviate potential biases in the comparisons.³ The final sample is $N=17,728$. This large sample allows detecting of very small effects.⁴ For instance, assuming a two-tailed test, we can detect with 80% power and $\alpha = 0.05$ a correlation between the outgroup resources and the number of points contributed in attacks to the outgroup as small as $\rho = 0.021$.

³Including all observations in the analyses does not alter our conclusions. The authors can send results upon request.

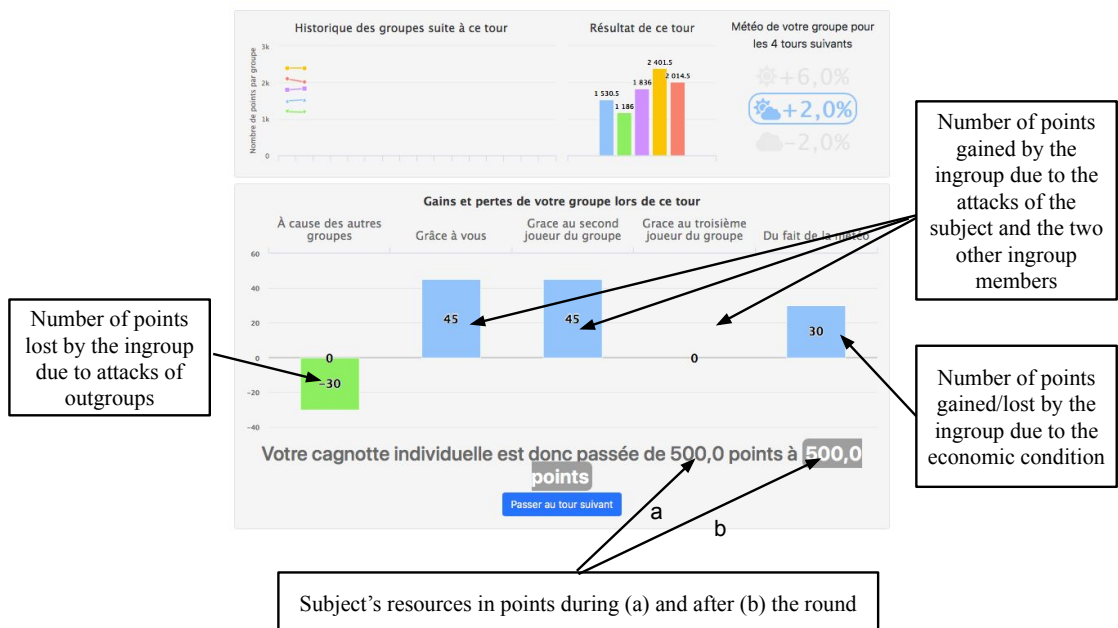
⁴The statistical power is slightly lower when we analyze ingroup-outgroup dyads ($N=5,920$) in the online appendix.

Figure 7.3: Screenshots of the interface

(a) During the round



(b) After the round



3. Results

3.1. Gameplay and learning in the game

Consistent with the IPD literature, subjects engage in a considerable level of attacks. On average, subjects contribute over the whole course of the game 390 points in attacks ($SD = 181$), which represent around 75% of their resources in points at the beginning of the game ($M = 522, SD = 156$). As a result, subjects lose a significant amount of money because of their mutual attacks. The mean payment at the end of a session was 6.35 € ($SD = 4.22$). If no subject ever attacked, the mean payment would have been of 17.55 €. Subjects on average lost 65% of their payoff because of their mutual attacks. There is a significant difference in mean payoffs between the treatments: 5.28 € ($SD = 3.67$) in the EDC treatment and 7.42 € ($SD = 4.47$) in the UDC treatment, $t(298) = -4.537, p < .001$.

Subjects could attack in the first rounds but then learn in time to attack less. Figure 7.4 plots the distribution of our main dependent variable: the level of individual attacks against an outgroup, i.e. the number of points contributed by a given subject to attack a given outgroup, by round. A first general observation is that the level of individual attacks is overdispersed, with around half subjects (44.64%) contributing no points, and a few subjects contributing many points: the upper quartile of the level of individual attacks against an outgroup is 10 points and the upper decile 19 points. To be clear, this distribution does not mean that the overall level of attack is low: it means that subjects do not equally attack all outgroups during a given round but rather concentrate their attacks against some outgroups while not attacking others.

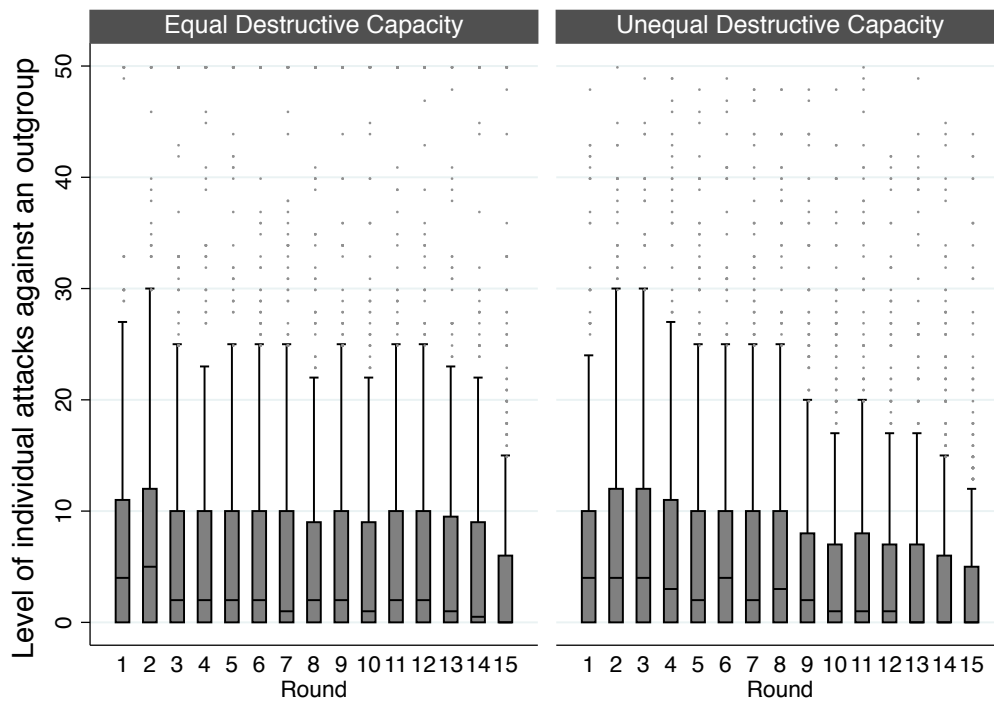
Regarding the evolution of attacks, there is little convergence toward the dominant individual strategy. In both treatments the median absolute level of individual attacks decreases through the game. However, this mainly reflects the fact that subjects have fewer resources, as the points contributed in attacks as a percentage of available resources increase through the game (see Table G.1 and Figure G.4).

Figure 7.5 plots the mean resources of the five groups, i.e. the sum of the resources in points of the subjects of each group, across rounds. We see that in both the UDC and EDC treatments, group resources decrease for all groups because of mutual attacks. We see different patterns by treatment. In EDC rich groups lose relatively more resources than poor groups, leading to close levels of resources for all groups at the end of the last round. In contrast, in UDC the slopes are quite similar from the richer to the poorer groups, leading to a higher level of inter-group inequality in the last rounds.

3.2. Confirmatory analyses

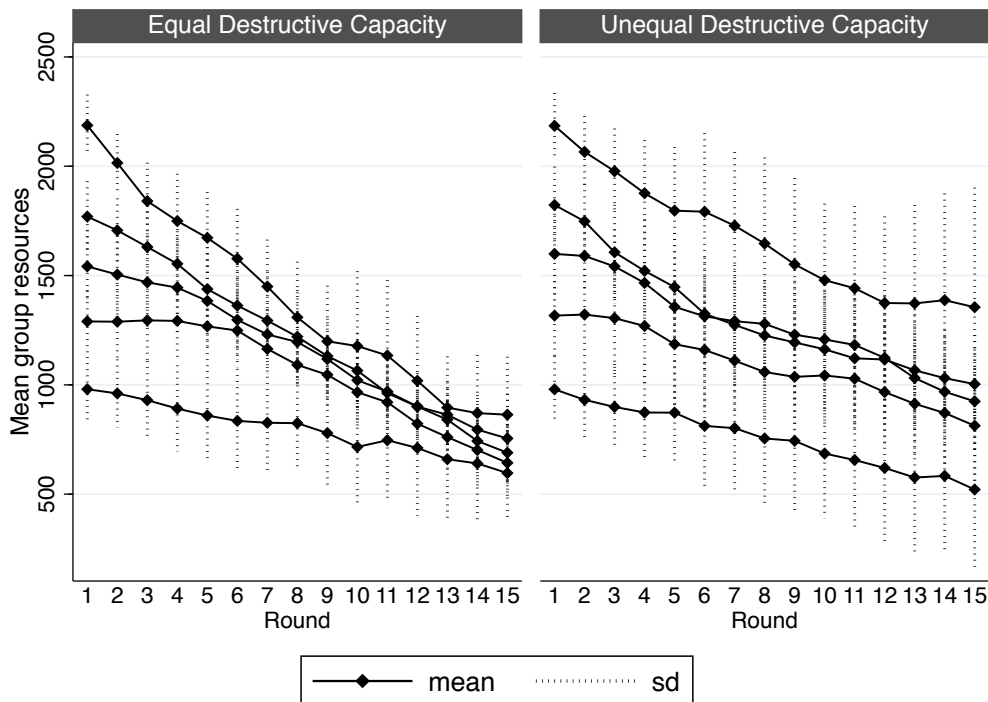
Table 7.3 describes the mean level of individual attacks against an outgroup depending on the experimental treatment and the ingroup economic condition. Table 7.3 decom-

Figure 7.4: Distribution of the level of individual attacks against an outgroup by treatment and round



Note. For visual readability, outliers with more than 50 points contributed in attacks against an ingroup do not appear in the figure (45 observations in the UDC treatment, i.e. 0.26% of the sample)

Figure 7.5: Mean resources of the groups by treatment and round

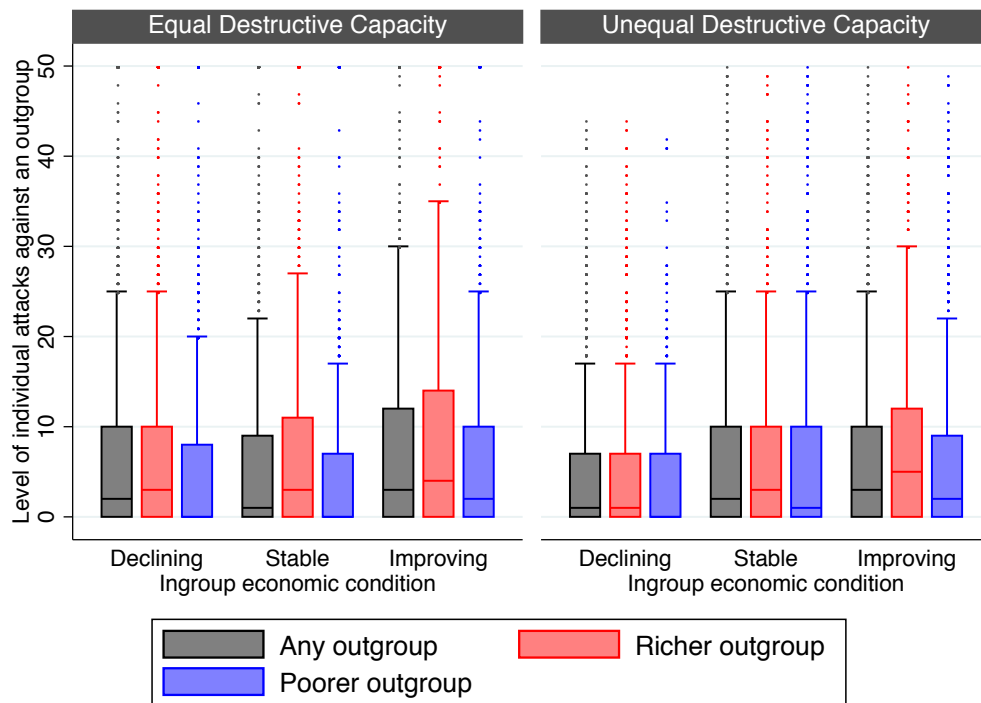


poses the level of individual attacks depending on whether the outgroup is richer - i.e. the outgroup has more resources than the ingroup - or poorer - i.e. the outgroup has fewer resources than the ingroup. Note that the high standard deviations reflect the above mentioned overdispersion of the level of individual attacks. Boxplots presented in Figure 7.6 give a better view of the distribution of the level of individual attacks against an outgroup across conditions.

Table 7.3: Mean level of individual attacks against an outgroup (and SD) by experimental treatment and ingroup economic condition

Experimental treatment	EDC treatment				UDC treatment			All	All
Ingroup economic condition	Declining	Stable	Improving	All	Declining	Stable	Improving	All	All
Any outgroup	6.73	6.33	7.52	6.84	4.66	6.79	7.21	6.24	6.54
	(10.2)	(10.4)	(10.9)	(10.5)	(7.37)	(10.1)	(10.5)	(9.55)	(10)
Richer outgroup	7.44	7.87	9.19	8	4.92	6.69	8.23	6.33	7.15
	(10.7)	(11.3)	(12.3)	(11.3)	(7.68)	(9.41)	(10.1)	(9.01)	(10.2)
Poorer outgroup	5.77	4.85	6.4	5.7	4.14	6.89	6.63	6.16	5.93
	(9.55)	(9.3)	(9.6)	(9.51)	(6.66)	(10.8)	(10.7)	(10.1)	(9.79)

Figure 7.6: Distribution of the level of individual attacks against an outgroup depending on the experimental treatment and the ingroup economic condition

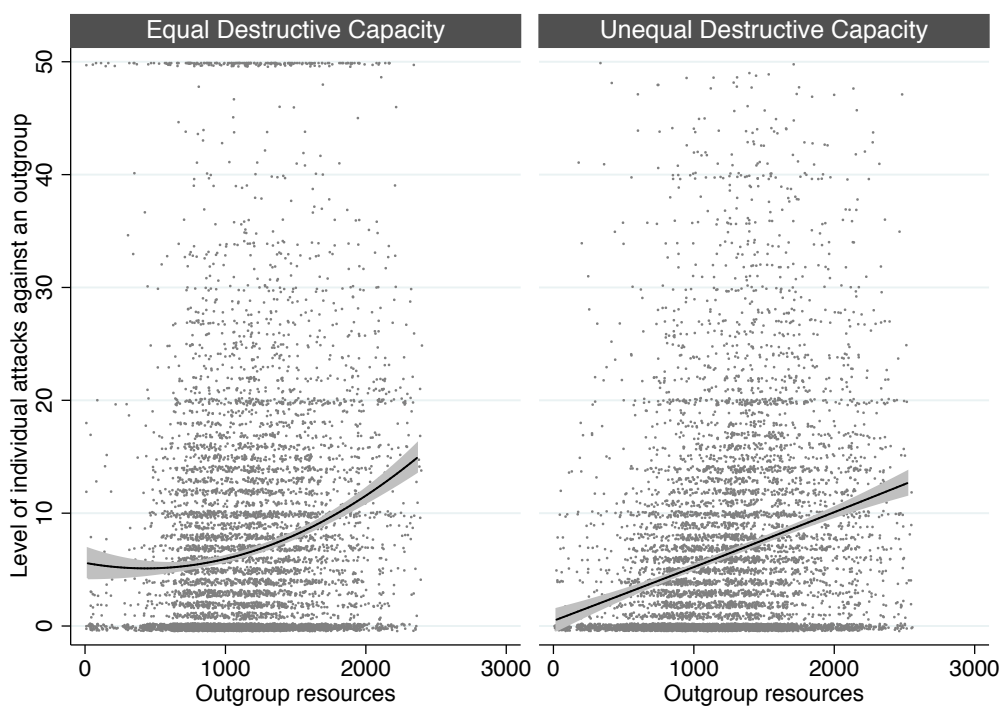


Note. For visual readability, outliers with more than 50 points contributed in attacks against an ingroup do not appear in the figure (45 observations in the UDC treatment, i.e. 0.26% of the sample)

3.2.1. Hypothesis 7.1: effect of the outgroup resources

Do subjects contribute more points to attack strong outgroups (Hypothesis 7.1)? Table 7.3 and Figure 7.6 suggest that the level of attack is generally higher against richer outgroups (in red) compared to poorer outgroups (in blue). A Mann-Whitney U Test confirms that the level of individual attacks is significantly higher against richer outgroups ($Mdn = 3$) compared to poorer outgroups ($Mdn = 0$), $Z = 12.68, p < .001$. To further investigate this relationship, Figure 7.7 plots the level of individual attacks against an outgroup depending on the outgroup resources, i.e. the sum of the resources in points of the subjects of the outgroup. Results of the Spearman correlation indicate that there is a significant positive association between the level of individual attacks against an outgroup and the outgroup resources, $r_s(17626) = 0.23, p < .001$. This supports Hypothesis 7.1: the higher the resources of an outgroup the higher the level of attacks.

Figure 7.7: Level of individual attacks against an outgroup depending on the experimental treatment and the outgroup resources, quadratic fit (with 95% CI)



Note. For visual readability, outliers with more than 50 points contributed in attacks against an ingroup do not appear in the figure (45 observations in the UDC treatment, i.e. 0.26% of the sample)

To assess the robustness of this results, we ran a range of regression models of the level of attacks - see Tables G.3 and G.4. We tested negative binomial regression models⁵

⁵Such model is appropriate for our dependent variable, which is an observed count (of the number of

based on ingroup-outgroup dyads, and subject-outgroup dyads with subject fixed effects. The models control for the subject (or ingroup) resources and previous attacks from the outgroup. All models confirm that the higher the resources of an outgroup the higher the level of attacks against it.

Does the UDC treatment moderate the effect of the outgroup resources (Hypothesis 7.1.1)? Table 7.3 and Figure 7.6 indicate that in both the EDC and UDC treatment, subjects attack richer outgroups more than poorer outgroups, but the difference between these levels of attack is lower in the UDC treatment. A negative binomial regression of the level of individual attacks against an outgroup confirms that there is a significant negative interaction between the outgroup being richer and the UDC treatment (model (1) of Table 7.4). This gives initial support to Hypothesis 7.1.1, that the higher destructive capacity of richer groups reduces the attacks targeting them.

We tested the interaction between the UDC treatment and the outgroup level of resources in various regression models presented in the appendix. Contrary to our expectation, the interaction is insignificant in most models. To further investigate the potential interaction effect, we tested whether the shape of the effect of the outgroup resources differ across treatments, by including a quadratic term of the outgroup resources. Results indicate significant differences in the shape of the effect of the outgroup resources across treatments, as illustrated by the quadratic fit of Figure 7.7. Overall, as illustrated by Figures G.6b and G.7b, regression results show that the effect of the outgroup resources is exponential in the EDC treatments - i.e. the subjects concentrate their contributions in attacks against the very richest outgroups - while the effect of the outgroup resources is linear in the UDC treatments. This gives support to the view that subjects refrain from attacking the richest outgroups when they have a higher destructive capacity, in line with Hypothesis 7.1.1.

3.2.2. Hypothesis 7.2: effect of the growth of resources of the ingroup

Do subjects differently attack richer and poorer outgroups depending on the growth of resources of the ingroup (Hypothesis 7.2)? If Hypothesis 7.2 is true, subjects should attack richer outgroups more when the ingroup is in improving condition while they should attack poorer outgroups more when the ingroup is in declining condition. In line with the first prediction, Table 7.3 and Figure 7.6 suggest that the more favorable the economic condition of the ingroup the higher the level of attacks against richer outgroups. A Kruskal-Wallis H Test rejects the Null that the level of individual attacks against a poorer outgroup is equal across outgroup economic conditions, $\chi^2(2, N = 8747) = 83.318, p < .001$. Looking more specifically at the effect of the improving condition, a Mann-Whitney

points contributed in attacks) with overdispersion ($M = 6.54, Var = 100.61$).

Table 7.4: Effect of the experimental treatment and ingroup economic condition on the level of individual attacks against an outgroup (standardized coefficients from negative binomial regression)

Dependent variable	(1) Any outgroup	(2) Any outgroup	(3) Poorer outgroup	(4) Richer outgroup	(5) Any outgroup
UDC treatment	0.0782 ⁺ (0.0410)	-0.147*** (0.0359)	0.0756 (0.0594)	-0.308*** (0.0435)	0.0756 (0.0540)
Richer outgroup	0.339*** (0.0413)				0.361*** (0.0494)
UDC treatment × Richer outgroup	-0.312*** (0.0581)				-0.384*** (0.0721)
Improving ingroup condition		0.138** (0.0451)	0.186** (0.0669)	0.188** (0.0619)	0.186** (0.0608)
UDC treatment × Improving ingroup condition		0.105 ⁺ (0.0616)	-0.0403 (0.0921)	0.198* (0.0851)	-0.0403 (0.0836)
Improving ingroup condition × Richer outgroup					0.00190 (0.0912)
UDC treatment × Richer outgroup × Improving ingroup condition					0.238 ⁺ (0.125)
Constant	1.740*** (0.0292)	1.879*** (0.0247)	1.670*** (0.0400)	2.030*** (0.0305)	1.670*** (0.0363)
Inalpha	1.268*** (0.0133)	1.270*** (0.0133)	1.464*** (0.0194)	1.068*** (0.0183)	1.263*** (0.0133)
Observations	17616	17616	8869	8747	17616
Pseudo R ²	0.000828	0.000573	0.000370	0.00191	0.00149

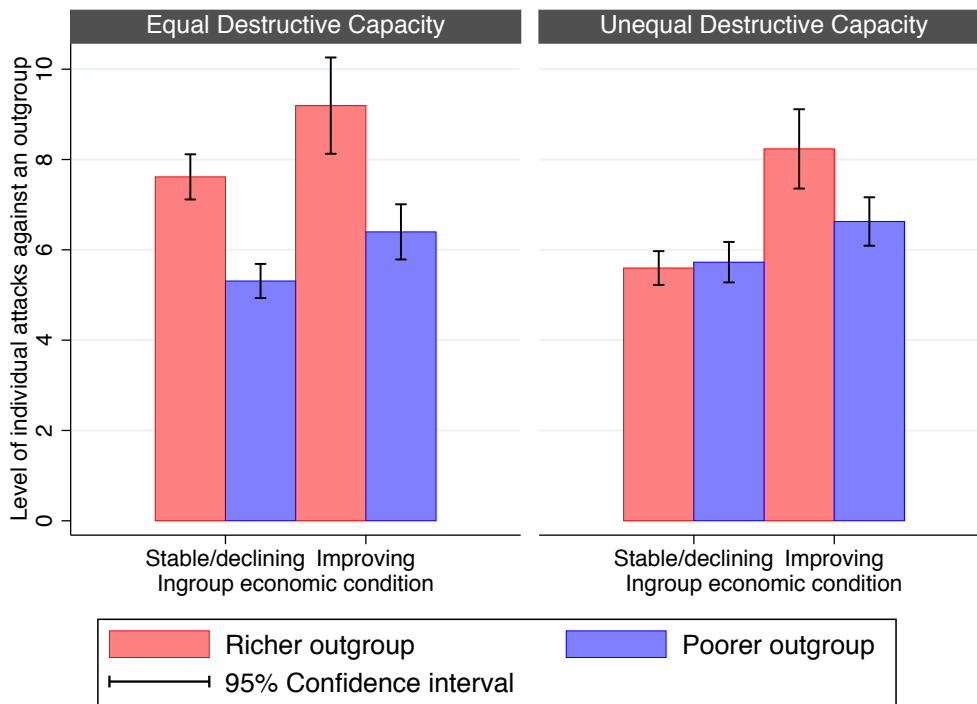
Standard errors in parentheses

⁺ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Observations are all subject-outgroup dyads for each round of the game. Rounds in which at least one group died are excluded.

Four ingroup-outgroup dyads are excluded because they had the same level of resources, meaning that there was no richer / poorer group. As each ingroup gathers three subjects, twelve subject-outgroup dyads are excluded from the models.

Figure 7.8: Mean level of individual attacks against an outgroup depending on the treatment and the ingroup economic condition, predicted by model (4) of Table 7.4



U Test confirms that the level of individual attacks against a richer outgroup is significantly higher when the ingroup is in improving economic condition ($Mdn = 5$) compared to the declining and stable economic conditions ($Mdn = 3$), $Z = 8.262, p < .001$.

However, contrary to the second prediction of Hypothesis 7.2, poorer outgroups are also attacked more when the ingroup is in improving economic condition. A Kruskal-Wallis H Test rejects the Null that the level of individual attacks against a poorer outgroup is equal across ingroup economic conditions, $\chi^2(2, N = 8869) = 41.465, p < .001$. Looking more specifically at the effect of the improving condition, a Mann-Whitney U Test confirms that the level of individual attacks against a poorer outgroup is significantly higher when the ingroup is in improving economic condition ($Mdn = 2$) compared to the declining and stable economic conditions ($Mdn = 0$), $Z = 6.892, p < .001$. This does not support Hypothesis 7.2: subjects attack more outgroups when the ingroup is in improving economic condition irrespective of whether they are poorer or richer.

This result is confirmed in a range of robustness check models presented in Tables G.5 and G.6 in the appendix, based on ingroup-outgroup dyads, and subject-outgroup dyads with subject fixed effects, and controlling for previous attacks from the outgroup. Overall, as shown by Figures G.8 and G.9, the more favorable the ingroup economic condition the higher the level of attacks against both strong and weak outgroups, which clearly contradicts Hypothesis 7.2.

How may this effect be interpreted? One possibility is that subjects in improving economic conditions have mechanically more resources to contribute in attack and hence attack more. This should be especially true in the UDC treatment, in which the amount of resources that subjects can contribute to attack is proportional to their resources. To test for this possibility, model (2) of Table 7.4 indicates that the UDC treatment has a positive interaction effect with the ingroup being in improving economic condition on the level of attacks. However, the interaction term is only significant at the 10% significance threshold. This gives limited support to the view that the positive effect of the economic improving condition on the level of attack is due to a mechanic increase in attack capacity. Rather, one can guess that subjects in improving economic conditions have a lower opportunity cost of engaging in parochial altruism: as they have more resources, they are more inclined to contribute a part of their extra resources to help the ingroup. I will comment this result in the discussion.

Does the UDC treatment moderate the effect of the ingroup economic condition on attacks against weak and strong outgroups (Hypothesis 7.2.1)? Table 3 and Figure 4 suggest that the richer outgroups are attacked more when the ingroup is in improving condition and in the UDC treatment, in line with Hypothesis 7.2.1. To have a first look, we now split the sample, focusing separately on the level of individual attacks against a poorer or a richer outgroup. Model (3) of Table 7.4, analyzing solely the level of attacks against a poorer outgroup, reveals no significant interaction between the UDC treatment and the ingroup improving economic condition (compared to the declining and stable economic conditions). In contrast, model (4) of Table 7.4, analyzing solely the level of attacks against richer outgroups only, reveals a significant positive interaction between the UDC treatment and the outgroup improving economic condition (compared to the declining and stable economic conditions). Model (5) tests whether the interaction effect of the UDC treatment and the ingroup improving condition is actually different for richer and poorer outgroups, by testing a three-way interaction in the whole sample. The three-way interaction term is significant at the 10% threshold, indicating that there is indeed a difference in the conjoint effect of the UDC treatment and the ingroup improving conditions for richer versus poorer outgroups. Figure 7.8 gives a better view of this effect. In line with Hypothesis 7.2.1, subjects attack significantly more richer outgroup when the ingroup is in improving condition and that destructive capacities are unequal. In contrast, no such interaction is observed for poorer outgroups. This suggests that subjects tend to attack pre-emptively attack more richer outgroups in contexts in which they can hope to overpass their rank, in line with the logic of Hypothesis 7.2.1. However, contrary to Hypothesis 7.2.1, the opposite effect is not found for poorer outgroups.

3.2.3. Hypothesis 7.3: effect of the growth of resources of the outgroup

Do subjects differently attack richer and poorer outgroups depending on the growth of resources of the outgroup (Hypothesis 7.3)? If Hypothesis 7.3 is true, poorer outgroups should be attacked more when they are in an improving economic condition - i.e. they are getting closer to the ingroup - while richer outgroups should be attacked more when are in a declining economic condition. Table 3 and Figure 4 suggest that the more favorable the economic condition of the poorer outgroup the higher the level of individual attacks it receives. A Kruskal-Wallis H Test rejects the Null that the level of individual attacks against a poorer outgroup is equal across outgroup economic conditions, $\chi^2(2, N = 8869) = 106.83, p < .001$. Looking more specifically at the effect of the improving condition, a Mann-Whitney U Test confirms that the level of individual attacks against poorer outgroups is significantly higher for outgroups in improving economic condition ($Mdn = 3$) compared to the declining and stable economic conditions ($Mdn = 0$), $Z = 11.01, p < .001$.

However, this effect is also found for richer outgroups. A Kruskal-Wallis H Test also reveals significant differences in the level of individual attacks against a richer outgroup across outgroup economic conditions, $\chi^2(2, N = 8747) = 35.24, p < .001$. Looking at the effect of the improving condition, a Mann-Whitney U Test shows that the level of individual attacks against poorer outgroups is significantly higher for outgroups in improving economic condition ($Mdn = 4$) compared to the declining and stable economic conditions ($Mdn = 2$), $Z = 7.262, p < .001$. This does not support H2: subjects attack more outgroups in improving economic condition irrespective of whether they are poorer or richer.⁶

Does the UDC treatment moderate the effect of the outgroup economic condition on attacks against weak and strong outgroups (Hypothesis 7.3.1)? Table 3 and Figure 4 suggest that the poorer outgroups in improving condition are attacked more in the UDC treatment. To have a first look, we now split the sample, focusing separately on the level of individual attacks against a poorer or a richer outgroup. Model (1) of Table 7.5, analyzing solely the level of attacks against a poorer outgroup, confirms that there is a significant positive interaction between the UDC treatment and the outgroup improving economic condition (compared to the declining and stable economic conditions). In contrast, model (2) of Table 7.5, analyzing solely the level of attacks against richer outgroups only, reveals a significant negative interaction between the UDC treatment and the outgroup improv-

⁶Note however that the effect of the outgroup improving economic condition on the level of individual attacks is smaller for richer outgroups. A negative binomial regression of the level of individual attacks against an outgroup confirms that there is a significant negative interaction between the outgroup being richer and the improving economic condition (compared to the declining and stable economic conditions), $Z = -3.05, p = .002$.

Table 7.5: Effect of the experimental treatment and outgroup economic condition on the level of individual attacks against an outgroup (standardized coefficients from negative binomial regression)

Dependent variable	(1)	(2)	(3)
	Poorer outgroup	Richer outgroup	Any outgroup
UDC treatment	-0.0372 (0.0523)	-0.167*** (0.0495)	-0.0372 (0.0476)
Richer outgroup			0.272*** (0.0494)
UDC treatment × Richer outgroup			-0.130 ⁺ (0.0721)
Improving outgroup condition	0.189* (0.0742)	0.298*** (0.0555)	0.189** (0.0676)
UDC treatment × Improving outgroup condition	0.308** (0.102)	-0.199** (0.0765)	0.308*** (0.0928)
Improving outgroup condition × Richer outgroup			0.109 (0.0909)
UDC treatment × Richer outgroup × Improving outgroup condition			-0.507*** (0.125)
Constant	1.690*** (0.0368)	1.963*** (0.0332)	1.690*** (0.0335)
Inalpha	1.456*** (0.0194)	1.071*** (0.0183)	1.260*** (0.0133)
Observations	8869	8747	17616
Pseudo R^2	0.00144	0.00146	0.00190

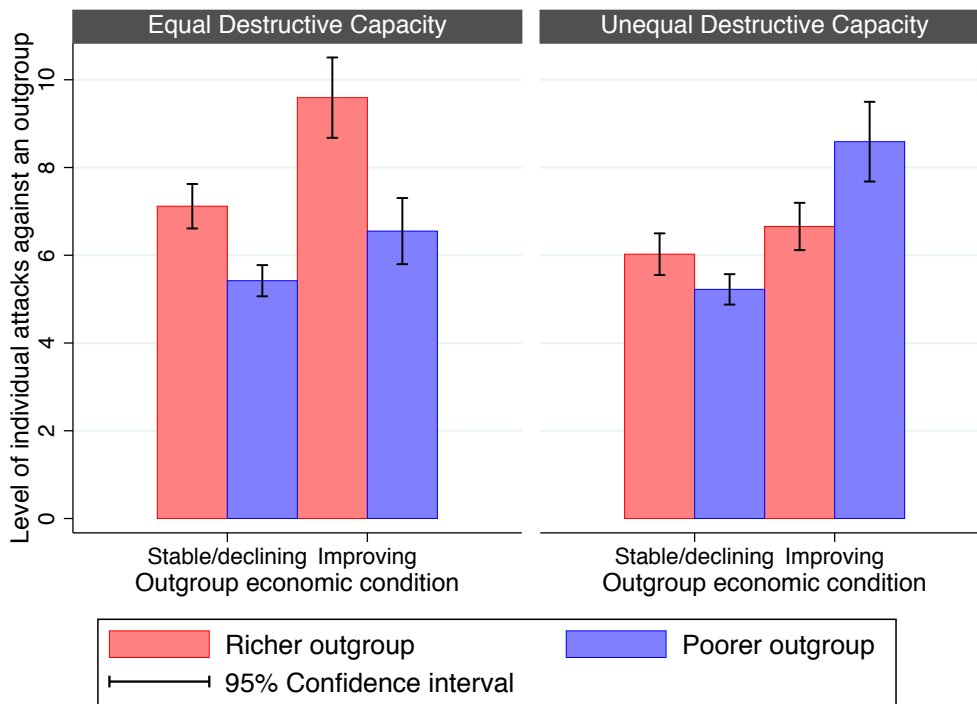
Standard errors in parentheses

⁺ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Observations are all subject-outgroup dyads for each round of the game. Rounds in which at least one group died are excluded.

Four ingroup-outgroup dyads are excluded because they had the same level of resources, meaning that there was no richer / poorer group. As each ingroup gathers three subjects, twelve subject-outgroup dyads are excluded from the models.

Figure 7.9: Mean level of individual attacks against an outgroup depending on the treatment and the outgroup economic condition, predicted by model (3) of Table 7.5



ing economic condition (compared to the declining and stable economic conditions). To confirm this finding over the whole sample, Model (3) of Table 7.5 includes a three-way interaction between the UDC treatment, the outgroup improving condition (compared to the declining and stable economic conditions) and the outgroup being richer. To give a better view of the interaction effect, Figure 7.9 plots the mean level of individual attacks by outgroup economic condition based on model (3). It confirms that the treatment moderates the effect of the outgroup improving condition on attacks against richer and poorer outgroups.

This result is confirmed in a range of robustness check models presented in Tables G.7 and G.8 in the appendix, based on ingroup-outgroup dyads, and subject-outgroup dyads with subject fixed effects, controlling for previous attacks from the outgroup and the ingroup rank (which mechanically affects the number of poorer and richer outgroups that a subject faces).

Overall, this result suggests that when all groups have the same destructive capacity, subjects are envious: they tend to attack more richer outgroups that have prospects to become even richer. In contrast, the poorer outgroups with prospects to become richer are attacked significantly more in the UDC treatment, while this effect diminishes for richer outgroups. Overall, our results suggest that if the groups' destructive capacity depends on their resources, subjects attack more the poor outgroup who gets richer than the rich

outgroup who gets richer.

4. Discussion

What are the implications of our experiment to understand historical variations in political violence? A first implication relates to the effect of inequality on the targets of political violence. We found that individuals have a preference for targeting strong outgroups, but that attacks decrease when the inequality in destructive capacity between groups is high. One implication of this finding is that political violence targeting strong groups should be more widespread than political violence targeting weak outgroups, but that violence targeting strong outgroups should decrease with the level of economic inequality. Indeed, if we start from the realistic assumption that the destructive capacity of individuals is associated with their wealth in the real world⁷, this capacity is equally distributed across individuals in equal societies, while it is unequally distributed in unequal societies. Therefore, our theory implies that political violence targeting strong outgroups should decrease under high inequality. Chapter 8 specifically assesses whether our experimental results generalizes to the historical linkages between inequality and the ideological orientation of political violence.

A second implication relates to the effects of the economic mobility of social groups on the targets of political violence. We found that overall, subjects tend to engage more in parochial altruism when their ingroup is experiencing upward economic mobility. One explanation is that economic prosperity brings individuals with a lower opportunity cost of engaging in altruistic behaviors, including parochial altruism.⁸ As subjects have a preference for targeting strong outgroups, upward economic mobility results in especially high level of attacks against strong outgroups. This result may bring light on the correlation, observed in Chapter 1, between economic growth and the mobilization of left-wing radical movements. For instance, the late 1960s political mobilizations in Western countries – that were marked with high level of left-wing radical activism against targeting dominant groups, but also (to a lesser extent) by right-wing radical activism (see for instance Della Porta, 2006; Sommier, 1998) – occurred in a period in which the youth experienced high gains in living conditions, enabling a growing number of individuals to enjoy more free time to engage in political activism. This in line with findings from other

⁷In unequal societies, economically powerful groups have a higher political influence on policies (Gilens, 2012).

⁸We will show in Chapter 8 that parochial altruistic behaviors in the experiment do correlate with subjects' self perception as altruistic.

studies showing that relatively affluent individuals are more likely than poor individuals to engage both in conventional protest (Martinez, 2008; Van der Meer et al., 2009) and violent collective action (Krueger, 2017; Krueger and Malečková, 2003; Russell and Miller, 1977; Sageman, 2004).

Besides, we found that, in context of unequal destructive capacity, groups experiencing upward economic mobility are more likely to attack strong outgroups. This suggests that individuals attack strong outgroups when their economic condition allows them to overpass the outgroup's rank. This is in line with historical interpretations of various violent uprisings, such as the French Revolution. In the classic view of both Marx and Engels (2012) and de Tocqueville (1859), the French Revolution was produced by the growing economic power of the French bourgeoisie, which became materially able to contest the enduring political privileges of the nobility and clergy. Somewhat similar behaviors are observed in our experiment: subjects are more likely to attack dominant outgroups, with higher destructive capacity, in contexts in which the growing resources of the ingroup increase their probability to overthrow their dominant status.

However, contrary to our expectation, we did not find, as a converse effect, that groups in declining condition target more poorer outgroups. This suggests that the theory of enemies is not a good candidate to explain the higher incidence of right-wing violence targeting weak outgroups in context of economic decline. Yet, this is not to say that the present experiment brings no information relevant to understand variations in political violence targeting weak outgroup. For instance, we found that, in context of unequal destructive capacity, groups are more likely to attack weak outgroups that are experiencing upward economic mobility. This finding resonates with comparative studies indicating that increases in the demographic and economic status of minority groups are related to increases in right-wing violence targeting them (Boutcher et al., 2017; Green et al., 1998b). Results from our experiment suggest that a logic of jealousy may be at play here, leading members of strong groups to target weaker groups with high prospects of prosperity, as a preemptive self-defense attack.

All these implications lie on the assumption that behaviors observed in the experiment have some external validity. Chapter 8 addresses this question by analyzing the relationship between behaviors in the game and subjects' actual political attitudes. To use the words from this Chapter's epigraph, we will assess whether the fight *against* in the game is indeed related with the fight *for* in reality.

8

From the lab to reality. Inequality and the opportunity for left-wing violence

"When inequality is the common law of a society, the strongest inequalities do not strike the eye; when everything is nearly on a level, the least of them wound it. That is why the desire for equality always becomes more insatiable as equality is greater."

Democracy in America
ALEXIS DE TOCQUEVILLE

This chapter investigates whether results from the experiment presented in Chapter 7 may explain the ideological orientation of radical movements. We first test whether the behaviors of subjects in the experiment relate with their political attitudes. Results from the post-experimental survey confirm that individuals at the left of the political spectrum spend more money to target strong outgroups. Besides, Social Dominance Orientation is positively associated with attacks against weak outgroups. Then, we analyze the implications of the experiment regarding the relationship between economic inequality and the ideological orientation of radicalism. We show that overall inequality in the game, through increasing the retaliation capacity of economically dominant groups, reduces the level attacks against strong outgroups. In a second study on terrorist attacks in 24 countries from 1972 to 2016, we provide evidence that this finding may generalize to historical linkages between economic inequality and left-wing political violence.

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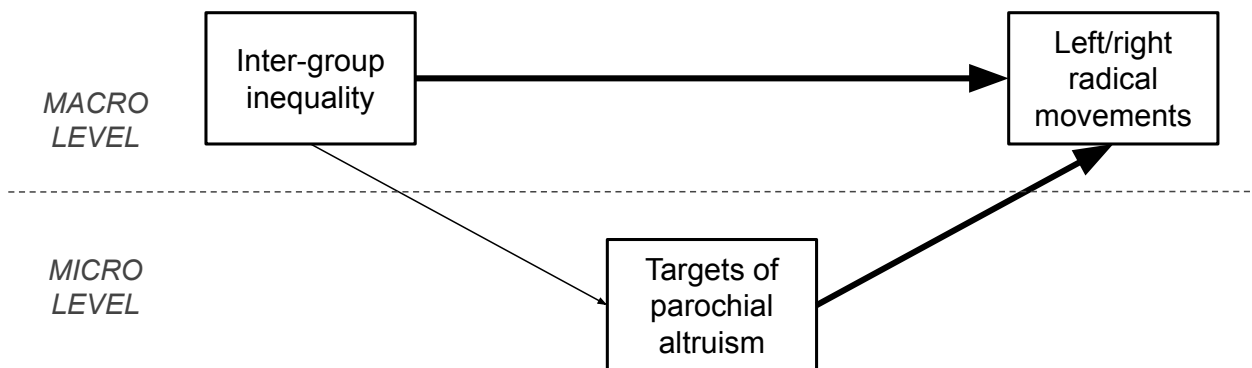
In this chapter, I test the second part of the theory of enemies, according to which variations in the targets of parochial altruism explain variations in the ideological orientation of radical movements. More specifically, my colleagues and I have analyzed whether results from the lab experiment presented in Chapter 7 may help understanding the orientation of political violence in the "real world".

The demonstration proceeds in two steps, as illustrated the causal paths of Figure 8.1. In a first step, we analyze at the micro-level the correlation between behaviors in the game and the ideological orientation of subjects. We predict that left-wing subjects are more likely to attack strong outgroups while right-wing subjects are more likely to target weak outgroups.

Hypothesis 8.1 *The targets of parochial altruism correlate with individual political attitudes.*

- A. Left-wing individuals target more strong outgroups than right-wing individuals.*
- B. Right-wing individuals target more weak outgroups than left-wing individuals.*

Figure 8.1: Causal paths of the theory of enemies analyzed in Chapter 8



In a second step, we test at the macro level a key implication of the results from the experiment: that the level of economic inequality affects the targets of political violence. As detailed in the conclusion of Chapter 7, results from the experiment revealed that attacks against strong outgroups decrease when the groups' destructive capacity increases with their wealth, because individuals pre-emptively avoid attacking dominant groups. If we assume that the destructive capacity of economically dominant groups increases with their wealth in the real world, we should observe that political violence targeting dominant groups diminish in contexts of high inequality. This would illuminate the correlation observed in Chapters 1 and 2 between historical periods of equalization of economic conditions and the left-wing orientation of political violence.

Hypothesis 8.2 *Economic inequality decreases political violence targeting economically dominant groups.*

1. Study 1. The fight against and the fight for: individual attitudes and behaviors in the lab

In this study, we explore the link between attacking behaviors in the IPD game (see Chapter 7) and subjects characteristics. In particular, we test 8.1 by analyzing the relationship between subjects' political attitudes their targets in the game. In a second step, we start the investigation of Hypothesis 8.2, by testing whether aggregated level of economic inequality in the game correlates with the level of attacks against richer outgroups.

1.1. Method

At the end of the experiment, subjects filled out a short questionnaire. We asked both socio-demographic (age, gender, education level, working status) and attitudinal questions.

Perceived cooperation. We asked subjects whether they found themselves cooperative during the game. This allows us to check whether attacking outgroups is perceived as a cooperative behavior, in line with results from the literature on the IPD (Halevy et al., 2008, 2012; Weisel and Böhm, 2015). Perceived self cooperation was measured based on a 4-items scale from "not at all", "not very", "fairly" to "very" cooperative.

Left-right orientation. To test Hypothesis 8.1, we asked subjects to indicate their political self-placement on a scale from 1 (left) to 10 (right).

Social Dominance Orientation. To further investigate Hypothesis 8.1, we also included a psychometric measure of ideological orientation. Subjects filled out the French short version of the Social Dominance Orientation (SDO) scale in 8 items (Bizumic et al., 2009).

According to most research in political psychology, political attitudes are generally organized along two ideological dimensions (Claessens et al., 2020; Duckitt, 2001; Duckitt and Sibley, 2009, 2010), which are usually captured by Right-Wing Authoritarianism (RWA) – measuring the preference for obedience and cultural conservatism (Altemeyer, 1996) – and SDO – measuring the view that some groups are inferiors and that other groups should dominate in society (Sidanius and Pratto, 2001). SDO is close to the key dimension of the theory of enemies: i.e. whether individuals feel hostility toward strong outgroups – favoring inter-group equality – or toward weak outgroups – favoring hierarchical inter-group relations. We hence expected this dimension to negatively correlate with attacks against economically strong outgroups, and to positively correlate with attacks against weak outgroups. In this line, previous studies have found that SDO predicts

1. Study 1. The fight against and the fight for: individual attitudes and behaviors in the lab

support for inter-group violence in asymmetric inter-group conflicts: Henry et al. (2005) found SDO to correlate with support for violence against the Middle-East in an American sample, while it was negatively related to support for violence against the West in a Lebanese sample.

1.2. Results

Are behaviors in the game correlated with subjects' characteristics? Table 8.1 presents results from negative binomial regressions of the level of individual attacks against an outgroup with subject random effects. The models include at the first level independent variables related to the game, and at the second level subjects' characteristics – including attitudinal and socio-demographic variables.¹ Model (1) explains the level of individual attack against any outgroup, while models (2) and (3) specifically explain the levels of individual attacks against a richer outgroup and models (4) and (5) a poorer outgroup.²

Table 8.1: Effect of game and individual factors on the individual level of attacks against an outgroup (standardized coefficients from mixed effects negative binomial regression)

Dependent variable	(1) Any outgroup	(2) Richer outgroup	(3)	(4)	(5)
Subject-level variables					
Perceived self cooperation	0.123*** (0.0288)	0.0700* (0.0340)	0.0719* (0.0333)	0.156*** (0.0445)	0.156*** (0.0447)
Left right self position	-0.0738* (0.0328)	-0.0982** (0.0377)	-0.0898* (0.0371)	-0.0314 (0.0509)	-0.0270 (0.0512)
Social dominance orientation	0.0624+ (0.0330)	-0.00234 (0.0383)	-0.0000452 (0.0376)	0.116* (0.0512)	0.117* (0.0517)
Male (female as reference)	-0.0454 (0.0600)	0.00800 (0.0700)	0.00464 (0.0688)	-0.0727 (0.0908)	-0.0755 (0.0912)
Age	0.0816+ (0.0465)	0.0648 (0.0548)	0.0354 (0.0547)	0.105 (0.0691)	0.0979 (0.0707)
Education (less than highschool as reference)					
Highschool	0.0532 (0.0973)	0.0914 (0.111)	0.0525 (0.110)	-0.102 (0.152)	-0.109 (0.153)
Bachelor	0.0825 (0.0957)	0.188+ (0.110)	0.149 (0.109)	-0.129 (0.146)	-0.140 (0.147)
Master	0.0768 (0.107)	0.104 (0.123)	0.0636 (0.121)	-0.101 (0.163)	-0.115 (0.165)
Phd	-0.0804	-0.0212	-0.0260	-0.285+ (0.163)	-0.295+ (0.165)

¹Descriptive statistics and bivariate analyses of the level of individual attacks by subjects' characteristics are presented in Tables H.1, H.2 and H.3 in Appendix H.

²Combined models on the whole sample including interaction effects with the outgroup being richer (versus poorer) are presented in Table H.4.

	(0.0970)	(0.112)	(0.110)	(0.150)	(0.151)
Working status (student as reference)					
Working	-0.106 (0.144)	0.0211 (0.166)	0.0489 (0.164)	-0.213 (0.216)	-0.206 (0.217)
Not working	-0.0947 (0.110)	0.0252 (0.132)	0.0604 (0.130)	-0.216 (0.165)	-0.210 (0.166)
Game-level variables					
Out-group resources	0.311*** (0.0192)	0.262*** (0.0298)	0.266*** (0.0297)	0.420*** (0.0384)	0.426*** (0.0386)
Out-group variation due to economic condition	0.0741*** (0.0153)	0.0365* (0.0182)	0.0374* (0.0182)	0.101*** (0.0275)	0.0987*** (0.0276)
Inequality	-0.0724*** (0.0209)	-0.194*** (0.0289)	-0.0754 (0.0619)	0.0451 (0.0333)	0.127 ⁺ (0.0744)
UDC treatment			-0.217** (0.0710)		-0.0615 (0.0916)
UDC treatment × Inequality			-0.128 ⁺ (0.0678)		-0.0979 (0.0814)
Attacks by the subject against the outgroup at t-1	0.342*** (0.0159)	0.239*** (0.0211)	0.240*** (0.0212)	0.365*** (0.0238)	0.365*** (0.0238)
Attacks by the outgroup against the ingroup at t-1	0.245*** (0.0154)	0.225*** (0.0197)	0.226*** (0.0197)	0.242*** (0.0246)	0.242*** (0.0246)
Attacks by other ingroup subjects at t-1	0.254*** (0.0231)	0.296*** (0.0315)	0.284*** (0.0316)	0.210*** (0.0336)	0.209*** (0.0337)
Subject resources	-0.0836** (0.0263)	-0.107* (0.0462)	-0.0929* (0.0462)	-0.0744 ⁺ (0.0390)	-0.0742 ⁺ (0.0394)
Ingroup rank					
Richest	ref			ref	ref
Second	-0.0890 ⁺ (0.0530)	ref	ref	-0.328*** (0.0649)	-0.326*** (0.0650)
Third	-0.141* (0.0560)	-0.157* (0.0710)	-0.151* (0.0708)	-0.461*** (0.0745)	-0.458*** (0.0746)
Fourth	-0.0802 (0.0578)	-0.310*** (0.0721)	-0.298*** (0.0719)	-0.297** (0.0947)	-0.298** (0.0948)
Poorest	-0.228** (0.0712)	-0.441*** (0.0834)	-0.428*** (0.0830)		
Constant	1.720*** (0.125)	1.748*** (0.149)	1.889*** (0.153)	2.110*** (0.190)	2.167*** (0.201)
Inalpha	1.018*** (0.0149)	0.806*** (0.0212)	0.805*** (0.0212)	1.142*** (0.0223)	1.141*** (0.0223)
var(subjects)	0.173*** (0.0235)	0.188*** (0.0349)	0.177*** (0.0344)	0.325*** (0.0483)	0.328*** (0.0487)
Observations ^a	16428	8147	8147	8269	8269
Number of subjects ^b	300	276	276	267	267

Standard errors in parentheses

⁺ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Observations are all subject-outgroup dyads for each round of the game (excluding the first round). Rounds in which at least one group died are excluded.

^aFour ingroup-outgroup dyads were excluded because they had the same level of resources, meaning that there was no richer / poorer group. As each ingroup gathers three subjects, twelve subject-outgroup dyads are excluded from models (2) to (4).

^bThe number of subjects is not 300 in models (2) to (5) because some subjects did not face richer / poorer outgroups during the game (they were part of the richest / poorest group all along the game).

1.2.1. Cooperation and parochial altruism

Results based on the post-experimental survey indicate that behaviors in the game correlate with subjects' attitudes. Firstly, in line with previous studies on parochial altruism, attacks are perceived as altruistic behavior. Model (1) shows that subjects who perceive themselves as cooperative during the game actually contribute significantly more points to attacks.³ Interestingly, the effect of perceived cooperation on the level of attacks against a richer outgroup (2) seems lower than against a poorer outgroup (4). Model (2) of Table H.4, based on the whole sample, confirms that there is significant negative interaction between perceived cooperation and the outgroup being richer on the level of individual attacks against it. We comment this finding in the general conclusion of the chapter.

1.2.2. Political attitudes and the targets of parochial altruism

Secondly, we test for the relationship between the targets of parochial altruism and the political attitudes of subjects. In line with the first part of Hypothesis 8.1, model (2) shows that the more the subjects are at the right of the left-right scale the less they attack richer outgroups in the game. In contrast, contrary to the second part of Hypothesis 8.1, model (4) shows that subjects' left-right self-position has no significant effect on the level of attacks against poorer outgroups. Figure 8.2a plots the marginal effect of left right orientation on the level of attacks against richer and poorer outgroups at average values for other covariates, based on model (3) from Table H.4 testing for the interaction between left-right orientation and the outgroup being richer (versus poorer) on the whole sample. Overall, Hypothesis 8.1 receives partial support: political orientation does correlate with the targets of parochial altruism. Left-wing political orientation is related to increased attacks against richer outgroups, however right-wing orientation is unrelated to attacks against poorer outgroups.

Results relative to SDO are the opposite. Model (2) reveals that SDO (Cronbach's $\alpha = 0.73$) has no effects on the level of attacks against richer outgroups, while model (4) shows that it has a significant positive effect on the level of attacks against poorer

³In this line, additional analyses reveal that the higher the level of attacks from the other ingroup players, the more cooperative the other players are rated in general.

outgroups. To give a better view, Figure 8.2b plots the marginal effect of SDO on the level of attacks against richer and poorer outgroups at average values for other covariates, based on model (4) from Table H.4.

The final model (9) of Table H.4 includes together all interaction terms with the outgroup being richer. The interaction term between SDO and the outgroup being richer is still significant in the final model (9), while the interaction term with the left-right self position is no longer significant. Further analyses reveal that this loss of significance is due to the inclusion of the interaction term with SDO. This indicates that SDO (at least partly) mediates the correlation between left-right orientation and the targets of parochial altruism.

Finally, the models in Table 8.1 include socio-demographic variables. None of these variables are statistically related to any form of attacks.

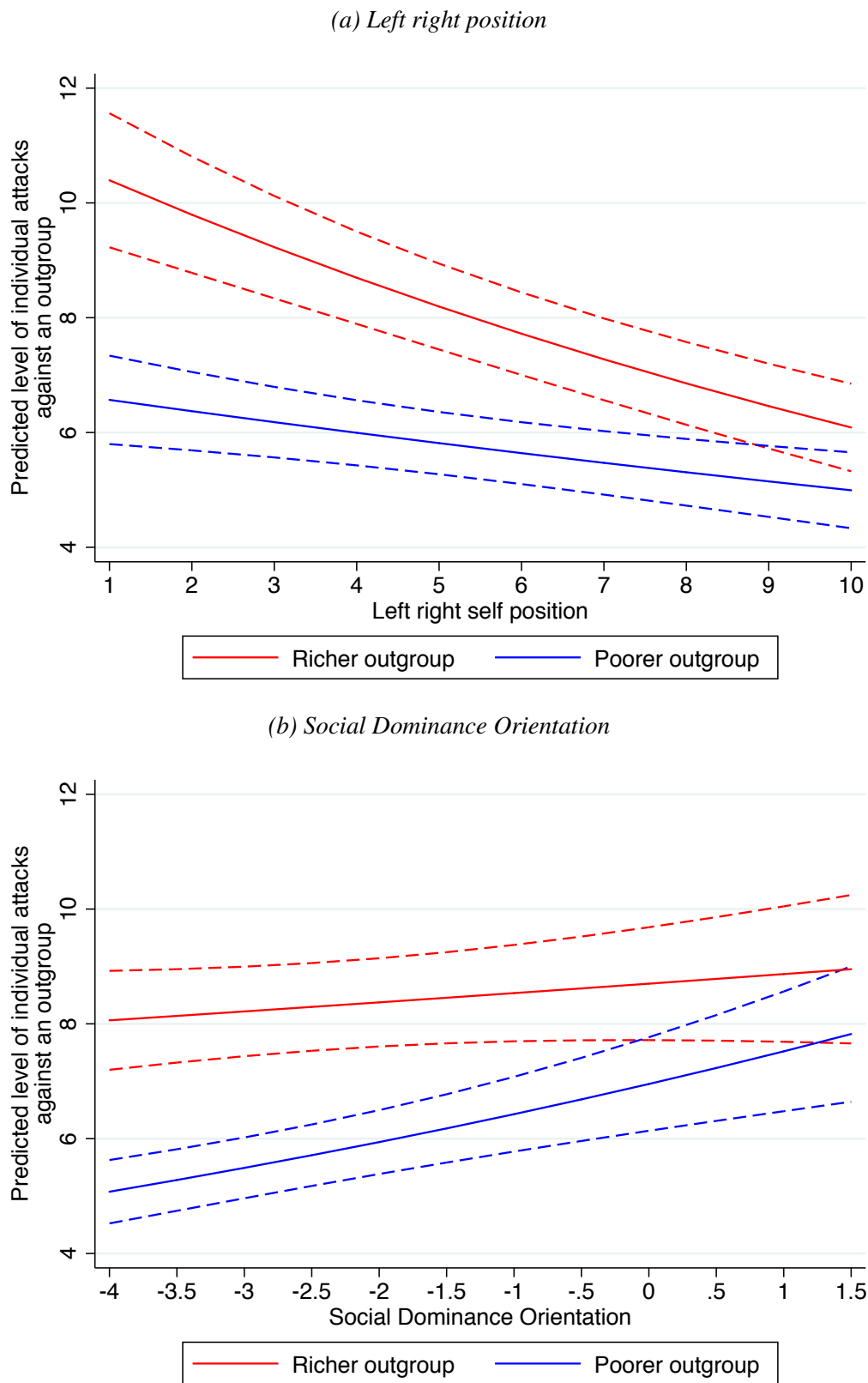
1.2.3. Game variables and the effect of inequality

Results relative to game variables first confirm the previous analyses. An outgroup is attacked more when it has large resources. An outgroup is also attacked more when its resources are growing because of its economic condition, especially when it is poorer than the ingroup (as confirmed by the interaction term in model (5) of Table H.4). Moreover, the results show that subjects tend to attack in retaliation of previous attacks by the outgroup and to attack more when members of the ingroup contributed in attacks during the previous round.

We included an indicator of inequality across groups in the models. Inequality is measured, using a fractionalization index, as the sum of the squared share of resources respectively owned by the five groups.⁴ Results from model (1) show that, overall, attacks decrease when inequality is high. Models (2) to (5) show that this effect of inequality is actually different when we distinguish between attacks against richer versus poorer outgroups. Indeed, model (2) shows that attacks against richer outgroups are lower when inequality is high while model (4) shows that this is not the case for attacks against poorer outgroups. Model (6) in Table H.4 confirms that there is a significant negative interaction between inequality and the outgroup being richer. Model (3) shows that inequality has a significant effect on attacks against richer outgroups only in the UDC treatment. Indeed, the main effect of inequality is no longer significant once we include an interaction term between inequality and the UDC treatment. In contrast, model (5) shows that there is no interaction effect between inequality and the UDC treatment on the attacks against poorer outgroups.

⁴The variable theoretically goes from 20% (perfect equality across the five groups) to 100% (perfect concentration of the resources among the richest group). Empirically, the variable goes from 20.0% to 34.2%.

Figure 8.2: Marginal effect of political attitudes on the individual level of attacks against richer and poorer outgroups



Note. Marginal effects were respectively computed based on models (3) and (4) of Table H.4.

1.3. Discussion

Our experiment partly confirms previous results on parochial altruism and partly introduces new evidence. We found that investments in the game mainly emerge from altruistic motivations, which corroborate the finding from previous IPD studies that attacks are motivated by “in-group love” rather than “out-group hate” (Abbink et al., 2018; Halevy et al., 2008, 2012). Indeed, participants in our game that view themselves as cooperative are more heavy parochial altruists. Moreover, participants reduce their investments when other members from their in-group make low investments. This is in line with results from Abbink et al. (2018), who show that individual investments in inter-group conflict resemble public good games in which individuals cease contributions when other ingroup members do not contribute.

Besides, our results show, in line with Hypothesis 8.1, that the targets of parochial altruism correlate with subjects’ political attitudes: left-wing subjects contribute significantly more money to attack richer outgroups, while subject high in SDO contribute significantly more money to attack poorer outgroups. This is an important finding since evidence on the relationship between political variables and actual behaviors in economic games has so far mostly been inconclusive (see Grünhage and Reuter, 2020). Recently, Grünhage and Reuter (2020) found that left-wing political orientation is related to more cooperative behavior in public good and trust games. Our results suggest that political orientation may have different effects on cooperative behaviors in specific cases in which cooperation implies damages for outgroups: left-wing political orientation may increase ingroup cooperation that harms richer outgroups, while SDO increases ingroup cooperation that harms poorer outgroups. This confirms the usefulness of distinguishing between the two forms of parochial altruism that may have distinct psychological and social antecedents.

This last finding also suggests that our experimental setting is an effective measure of the ideological orientation of individuals in inter-group interactions, and that the results may be extrapolated to inter-group conflicts. In this regard, results offer preliminary support to Hypothesis 8.2 that economic inequality reduces the level of violence targeting strong outgroups, through increasing the retaliation capacity of economically dominant groups. In the next study, we explore whether this effect generalizes to linkages between inequality and left-wing terrorist attacks.

2. Study 2. Inequality and terrorist attacks

In this study, we assess the implications of the previous results regarding political violence, by analyzing the link between inequality and terrorist attacks. Terrorism can be considered an archetypal form of parochial altruism. As other forms of inter-group conflict, terrorism is characterized by individuals inflicting costs to outgroups for the (expected) benefit of the ingroup. Crucially, in contrast with other forms of inter-group conflict, evidence indicates that most terrorists behave on altruistic motives: most terrorists behave by their own volition and do not benefit personally from their involvement (Atran and Sheikh, 2015; Ginges et al., 2009; Sheikh et al., 2014). This distinguishes terrorism from both constrained involvement in violence, such as conscript armies in state-based wars (Poutvaara and Wagener, 2011) or forced involvement in civil wars (e.g. see Zack-Williams, 2001), and from involvement in violence due to selective incentives, which prevails for professional armies and is a main factor in civil wars (Collier and Hoeffler, 2004).

According to Hypothesis 8.2, terrorism targeting strong outgroups should decrease under high inequality. In contrast, terrorism targeting weak outgroups should remain stable under high inequality, or even increase due to the increased destructive capacity of economically dominant groups. The targeting of strong versus weak outgroups partly matches with the divide between left-wing and right-wing terrorism. According to the classification of Kis-Katos et al. (2014), left-wing terrorist groups have a socialist, communist, or anarchist ideology. Hostility toward strong outgroups is a key feature of these ideologies, whose defining goal is to reduce social inequalities (Kis-Katos et al., 2014). In particular, the rejection of economic-based dominance is central in left-wing ideologies: “a common feature of left-wing terrorism is its opposition to capitalism and support for a revolution that would lead to a profound alteration of power relations and a society governed according to communist principles” (Malkki, 2018, p. 88). This typically translates into the targeting of economically strong outgroups: their attacks are “typically directed against governmental or commercial institutions, or specific individuals who they believe represent capitalist exploitation and repression” (Hoffman, 2006, p. 231).

Conversely, right-wing terrorism is inspired by national-socialist or fascist ideologies, who actively promote racial or national supremacy, hatred, or xenophobic ideas (Kis-Katos et al., 2014). The common feature of these ideologies consists in targeting outgroups which are not defined along economic divides, even though homeless people are common targets of right-wing terrorists (Freilich et al., 2018; Ravndal, 2016). Right-wing terrorist groups do not target the rich. Among a multitude of non-rich people, they target those who can be identified as outgroups. For example, a recurring pattern is the targeting of immigrant and minority groups (Freilich et al., 2018; Ravndal, 2016). This means that economic inequality should have less impact on right-wing terrorism. Yet, one

can argue that immigrants and minority groups targeted by right-wing terrorism are often disadvantaged economically, especially in developed countries.

Summing up, our theory implies that inequality decreases left-wing terrorism, while it rather increases right-wing terrorism. This effect is paradoxical since left-wing terrorism precisely fights against inequality. However, following our experimental results, we predict that inequality decreases terrorism targeting the rich because it increases the destructive capacity of rich groups. Rich groups in unequal societies have a higher capacity to deter and retaliate against left-wing terrorists (Acemoglu and Robinson, 2006), leading to a reduction of left-wing terrorism. The aim of this second study is to test this relationship based on historical data on terrorist attacks.

2.1. Method

2.1.1. Left-wing and right-wing terrorist attacks

To measure terrorist attacks, we relied on the Global Terrorism Database from the National Consortium for the Study of Terrorism and Responses to Terrorism (START) (2017a) (see Chapter 6). As in Chapter 6, we identified left-wing and right-wing terrorist attacks based on the coding of terrorist groups constructed by Kis-Katos et al. (2014). We generated two dependent variables counting the number of left-wing and right-wing terrorist attacks by country-year.

2.1.2. Independent variables

Inequality. We measured inequality as the share of the pre-tax national income owned by the 1% richest, based on the World Inequality Database (2017b). In contrast to the other measures of inequality (such as the Gini coefficient) capturing the general distribution of wealth, this variable directly measures the relative wealth of the richest economic group in a given society. As country data on inequality include gaps, we interpolated values for years with missing values.⁵

Control variables. We controlled for a range of factors that have proven to affect terrorist attacks in general, or left-wing versus right-wing terrorism in particular. These include, as in Chapter 6: population size, share of youth, ethno-political exclusion, level of democracy, regime durability, government size, civil war, GDP per capita. We also included long-term economic growth, since results from Part II indicate that long-term economic decline may foster right-wing terrorism.

⁵The results are robust to dropping interpolation, robustness checks are available upon request.

2.1.3. Sample and empirical strategy

We merged all variables by country and year. We limit our analyses to countries with valid observations for the independent variables that experienced at least one left-wing or right-wing terrorist attack in the GTD. The final sample gathers 652 observations from 24 countries⁶ in a period ranging from 1972 to 2016.

As in Chapter 6, our confirmatory analyses are based on negative binomial regression models. For each dependent variable (i.e. left-wing and right-wing terrorist attacks), we report a first model including all independent variables, a second including country fixed effects, and a third including year fixed effects. This allows assessing the robustness of our findings. All independent variables are one-year lagged.

2.2. Results

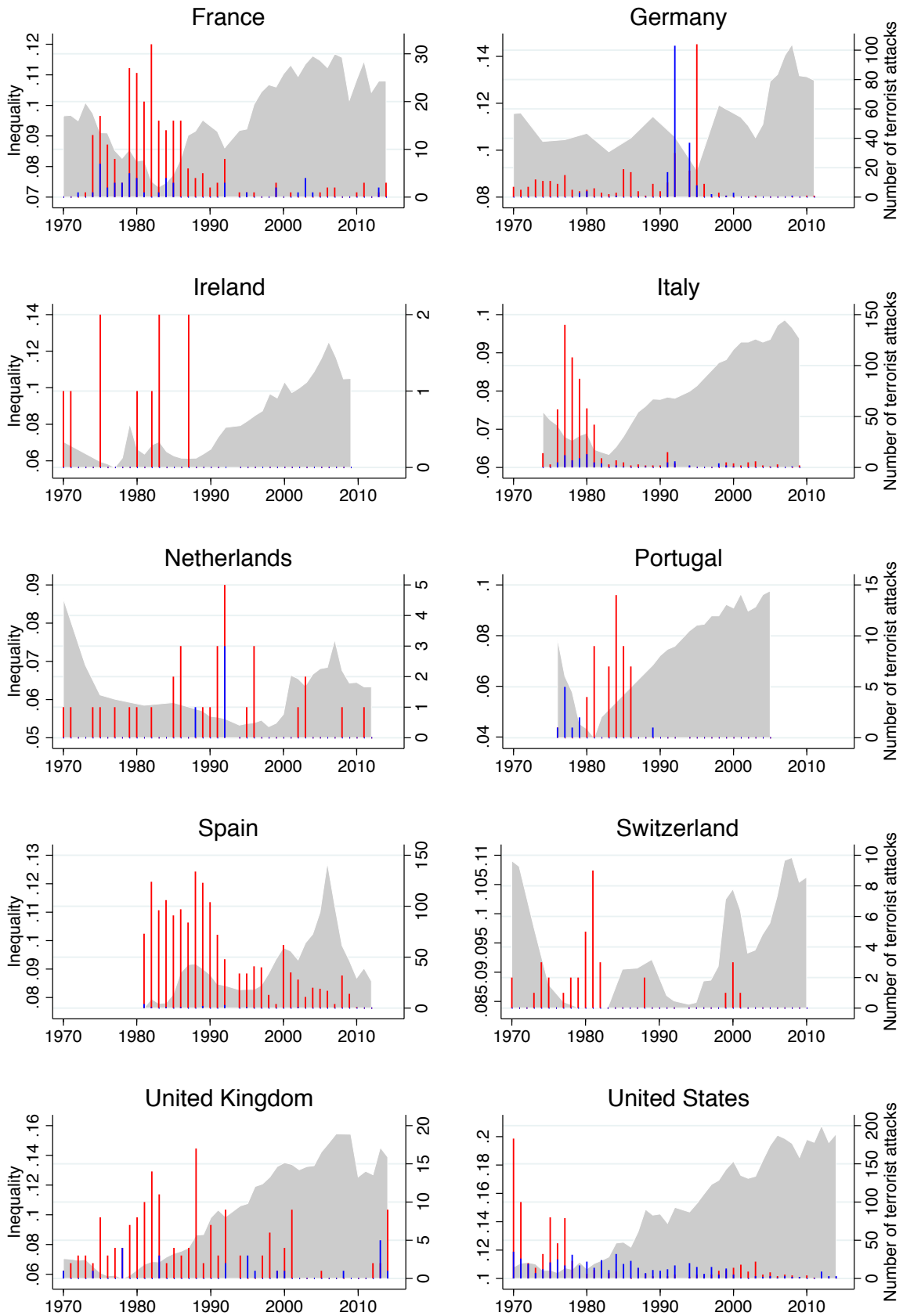
2.2.1. Historical look

To have a first look, Figure 8.3 plots the number of terrorist attacks in the ten developed countries that experienced the highest level of left-wing and right-wing terrorist attacks in recent history. A first observation, as in Chapter 6, is that left-wing terrorist attacks are more frequent than right-wing terrorist attacks according to the classification of GTD events by Kis-Katos et al. (2014). In the whole sample, the mean number of left-wing terrorist attacks by country and year is 11.6 ($SD = 42$), while it is 1.34 ($SD = 5.62$) for right-wing terrorist attacks. This difference is significant (Mann-Whitney U, $Z = 9.212, p < .001$). This result is consistent with our experimental finding that the overall level of attacks against strong outgroups is higher than the level of attacks against weak outgroups.

Secondly, it seems that left-wing terrorism is more frequent when inequality is low, as expected by Hypothesis 8.2, while there is no clear relationship in the case of right-wing terrorism, as in our experiment. In most countries, historical waves of left-wing terrorism occurred in the 1980s, a decade in which inequalities were at a lowest level in recent history. However, this correlation may well reflect other historical factors, such as the assistance of USSR and the *Munazzamat at-Tahrir al-Filastiniyyah* (Palestinian Liberation Organization, PLO), and the synergy created at the international level by the mutual aid of left-wing terrorist organizations in training and logistics (Shughart, 2006). To control for such global period effect, let's now turn to multivariate analyses.

⁶The final sample includes Australia, Brazil, Canada, Colombia, Finland, France, Germany, India, Indonesia, Italy, Japan, Lebanon, the Netherlands, Norway, Poland, Portugal, Russia, South Africa, Spain, Sweden, Turkey, United Kingdom, United States and Uruguay.

Figure 8.3: Number of terrorist attacks depending on the level of inequality



Red = left-wing terrorism. Blue = right-wing terrorism.

Table 8.2: Effect of inequality on the number of left-wing terrorist attacks (unstandardized coefficients from negative binomial regression)

	(1)	(2)	(3)
Share of income owned by the 1% richest	-9.272*** (2.020)	-18.19*** (3.682)	-9.168* (4.042)
log GDP per capita	0.176+ (0.0972)	-0.956*** (0.214)	0.186 (0.393)
log Population	1.029*** (0.0951)	8.976*** (1.104)	11.04*** (1.175)
Youth population share	18.65** (6.302)	36.62*** (6.900)	16.50* (7.036)
Ethno-political exclusion	3.534*** (0.747)	2.912*** (0.801)	1.888* (0.944)
Government expenditures	0.407 (1.051)	-6.104** (2.046)	-4.017* (1.983)
Democracy	0.109* (0.0465)	-0.547*** (0.148)	-0.499*** (0.140)
Regime durability	-0.00560** (0.00186)	0.0240* (0.0105)	0.0361** (0.0120)
Civil war	-0.478* (0.223)	-0.129 (0.207)	-0.208 (0.204)
GDP growth over 5 years	-0.451 (1.026)	1.696 (1.075)	1.176 (1.251)
Lagged dependent variable	0.0467*** (0.00442)	0.0136*** (0.00218)	0.0114*** (0.00202)
Constant	-21.97*** (2.382)	-142.3*** (17.41)	-186.4*** (20.39)
Inalpha	1.130*** (0.0814)	0.0911 (0.0971)	-0.223* (0.107)
Country fixed effects	No	Yes	Yes
Year fixed effects	No	No	Yes
Observations	652	652	652
Pseudo R ²	0.125	0.245	0.273

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 8.3: Effect of inequality on the number of right-wing terrorist attacks (unstandardized coefficients from negative binomial regression)

	(1)	(2)	(3)
Share of income owned by 1% richest	-1.041 (2.584)	5.213 (6.317)	18.72** (7.176)
log GDP per capita	-0.144 (0.136)	-0.938** (0.290)	-0.167 (0.573)
log Population	0.583*** (0.113)	4.928** (1.570)	8.052*** (1.781)
Youth population share	1.547 (7.640)	35.78*** (9.470)	6.143 (10.22)
Ethno-political exclusion	0.0644 (0.712)	0.692 (0.992)	1.416 (1.027)
Government expenditures	4.058** (1.462)	-0.113 (3.053)	2.948 (3.271)
Democracy	0.00588 (0.0587)	-0.123 (0.111)	-0.132 (0.112)
Regime durability	0.00288 (0.00244)	0.0151 (0.0124)	0.00492 (0.0124)
Civil war	-5.173 (33387.9)	-3.651 (1017.3)	-3.352 (501.1)
GDP growth over 5 years	-2.691* (1.191)	-2.771+ (1.466)	-5.507** (1.697)
Lagged dependent variable	0.248*** (0.0289)	0.118*** (0.0248)	0.121*** (0.0217)
Constant	-11.33*** (3.085)	-81.85** (25.48)	-136.7*** (31.34)
Inalpha	1.079*** (0.142)	0.333+ (0.177)	-0.455* (0.229)
Country fixed effects	No	Yes	Yes
Year fixed effects	No	No	Yes
Observations	652	652	652
Pseudo R^2	0.163	0.242	0.322

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

2.2.2. Confirmatory analyses

Table 8.2 and Table 8.3 respectively reports estimates from negative binomial regressions of left-wing terrorist attacks and right wing terrorist attacks. As expected from Hypothesis 8.2, results from model (1) of Table 8.2 show that inequality has a significant negative effect on the number of left-wing attacks. The coefficient is still negative and significant in models (2) including country fixed effects. Importantly, this result holds in model (3) including year fixed effects, which indicates that this effect is not a mere artifact due to other global historical factors.

In line with our experimental findings, results from Table 8.3 show that inequality has no robust effect on the number of right-wing attacks. The coefficient is insignificant in models (1) and (2). The effect of inequality becomes significant in model (3) including country and year fixed effects: the higher the level of inequality the higher the number of right-wing attacks.

Summing up, in line with our experimental results, inequality has a different effect on left-wing and right-wing terrorist attacks: left-wing attacks are more frequent when inequality is low, while there is no robust relationship in the case of right-wing terrorism.

Regarding control variables, some variables have relatively similar effects on left-wing and right-wing terrorism, albeit results vary across models. Populated countries with a high share of young individual produce more terrorism. GDP per capita, democracy, regime durability and civil war have either inconsistent or insignificant effects on both left-wing and right-wing terrorism. Interestingly, other variables have divergent effects. Ethno-political exclusion consistently increases left-wing terrorism, while it has no significant effect on right-wing terrorism. Government expenditures seem to overall decrease left-wing terrorism, albeit the effect is not very robust, while it has no or even a positive effect on right-wing terrorism. One interpretation of these divergent effects is that the fights against minority discrimination and in favor of public services are among the recurring components of egalitarian left-wing ideologies. Hence, circumstances in which these goals are not met may fuel grievances that give rise to left-wing terrorism (Kis-Katos et al., 2014). Finally, long-term economic growth has no significant effect on left-wing terrorism while it significantly decreases right-wing terrorism, which is in perfect line with conclusions from Part II.

3. General discussion

Our results shed light on the linkages between inequality and the orientation of political violence. A historical look reveals close relationships between ideological waves of

political violence and the variation in inequality. For instance, high levels of inequality in Europe in the 1930s coincided with a right-wing orientation of political violence, incarnated by the Nazis in Germany, the *Jeunesses Patriotes* (Young Patriots, JP) in France or the *British Union of Fascists* (BUF) in the UK. In contrast, violent political movements in the 1970s-1980s, under unprecedented low levels of inequality, were mainly left-wing oriented, as illustrated by the *Brigate Rosse* (Red Brigades, BR) in Italy, the *Rote Armee Fraktion* (Red Army Faction, RAF) in Germany or *Action Directe* (Direct Action, AD) in France. In the current context of increasing inequalities, right-wing violence seems again to gain prevalence over left-wing violence.

Our experiment offers clues to understand this relationship. Our results suggest that inequality may lead to a right-wing orientation of political violence. Not only through increasing right-wing violence, but through decreasing the share of left-wing violence targeting strong groups. This result is close to Abbink et al. (2018), who found in an economic contest between two groups that the level of attacks from the disadvantaged group significantly decreases in a setting with increased inter-group inequality. However, our results point toward a different interpretation of the mechanism behind this effect. Abbink et al. (2018) pointed a resignation effect: when inequality is too high, the disadvantaged cannot hope to reduce the gap and hence avoid to attack. In our game, we found that inequality decrease attacks against richer outgroups only in the UDC treatment. In contrast, when group resources are not associated with destructive capacity, the effect is not observed. This suggests that the reduction of attacks against stronger groups under high inequality is due to the increased retaliation capacity of economically dominant groups rather than to a resignation mechanism.

The paradox of Tocqueville. The dampening effect of inequality on left-wing parochial altruism is paradoxical since left-wing ideologies precisely strive against inequality. The paradoxical result that inequality dampens the struggle for equality is close to the observation from de Tocqueville (2000) in epigraph that "the desire for equality always becomes more insatiable as equality is greater".⁷ However, the present results are only partly con-

⁷For de Tocqueville (2000), democracy (in the American case he analyses) is founded on juridic equality between citizens and the absence of domination, which itself generates a quest for more equality in all aspects of life, since the absence of privileges and sujétions makes all individuals able to compare themselves with each-others:

"When all the prerogatives of birth and fortune are destroyed, when all professions are open to all, and when one can reach the summit of each of them by oneself, an immense and easy course seems to open before the ambition of men, and they willingly fancy that they have been called to great destinies. But that is an erroneous view corrected by experience every day. The same equality that permits each citizen to conceive vast hopes renders all citizens individually weak. It limits their strength in all regards at the same time that it permits their desires to expand." (de Tocqueville, 2000, p. 512)

This quest is infinite since perfect equality can never be achieved:

sistent with the explanation of de Tocqueville (2000). Contrary to the view of de Tocqueville (2000), we find that when inequalities are high, individuals nonetheless strongly aspire to equality. This is apparent through the fact that, in the EDC treatment, individuals concentrate their attacks against richest outgroups, even when inequalities are high. This also appears in results from regression analyses presented in Chapter 3 indicating that inequality may increase support for redistribution and extreme left votes. Our results suggest that it is the asymmetric balance of power, resulting from material inequalities (Acemoglu and Robinson, 2006), that leads individuals to avoid struggling for equality, rather than the amount of inequalities and privileges *per se*.

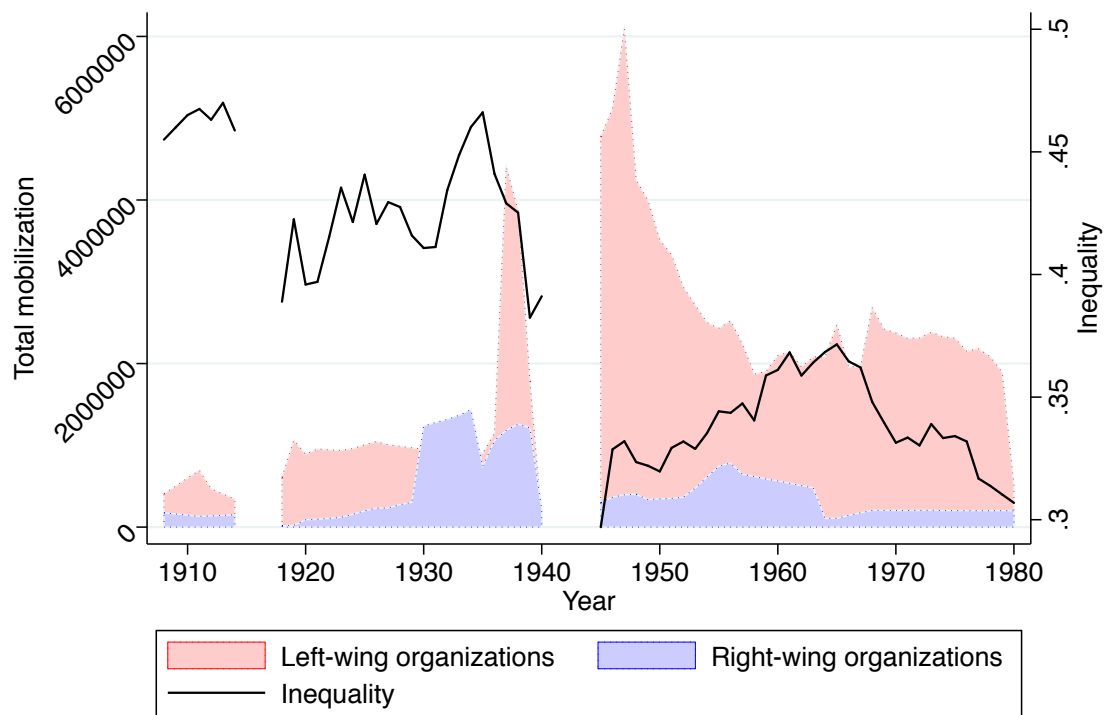
From low opportunities to resignation? Results from Study 2 based on historical data confirm that the level of economic inequality in a country significantly reduces the incidence of left-wing terrorist attacks, while it does not affect right-wing terrorist attacks. Now, one exploratory question is whether inequality only affects the occurrence of actions lead by left-wing radical movements but also affects their mobilization level. Indeed, one possibility is that radical movements strategically abstain from resorting to violence under contexts of low opportunity (high inequality). Alternatively low opportunities may also lead in a second step to a resignation effect, leading potential recruits to withdraw from engagement in left-wing radical movements. In this line, social movements' scholars highlight that a key explanation of individuals' mobilization into collective action is opportunity (see Tilly and Tarrow, 2015) – or taken at the subjective level, perceived efficacy, the "shared belief of being able to solve their group-related problems by unified effort" (Mummendey et al., 1999, p. 232). Low perceived efficacy strongly reduces the individual probability to engage in collective action (for a meta-analysis, see Van Zomeren et al., 2008). Hence, it is possible that the lack of opportunity due to high inequality reduces individuals' engagement in left-wing radical movements.

This question is beyond the empirical scope of the present chapter, which focuses on violent actions. However, a quick look at results from Chapter 1 suggests that inequality may also dampen the mobilization of left-wing radical movements. Based on the same model than Figures presented in Chapters 1 and 6, Figure 8.4 plots the level of mobilization of left-wing and right-wing radical movements in France during the last century, along with the level of inequality – measured by the share of the national income owned by the 10% richest (Piketty, 2013). There is a clear negative relationship between inequal-

"In democratic peoples, men easily obtain a certain equality; they cannot attain the equality they desire. It retreats before them daily but without ever evading their regard, and, when it withdraws, it attracts them in pursuit. They constantly believe they are going to seize it, and it constantly escapes their grasp. They see it from near enough to know its charms, they do not approach it close enough to enjoy it, and they die before having fully savored its sweetness." (de Tocqueville, 2000, p. 513)

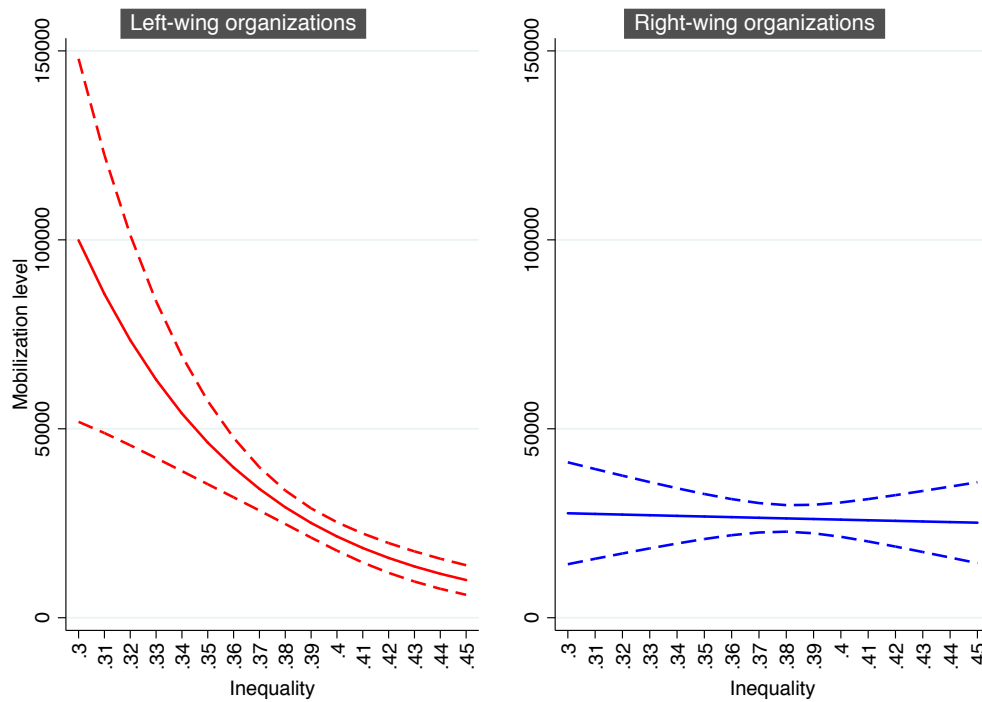
ity and the mobilization of left-wing movements ($r = -0.649, p < .001, N = 66$), while there is no relationship in the case of right-wing movements ($r = 0.194, p = .119, N = 66$). This result is confirmed when computing the same regression models than in Chapter 1 including inequality, as presented in Table H.5 in appendix. Figure 8.5, based on the full model from Table H.5, clearly shows that inequality is negatively related with the mobilization of left-wing movements while it is unrelated with the mobilization of right-wing movements. These results suggests that the effect of inequality may go beyond the strategic targeting of dominant groups and affect the very individual propensity to engage in left-wing collective action, however they must be interpreted carefully since they do not offer clues to corroborate the causal mechanism.

Figure 8.4: Historical evolution of inequality and the mobilization of radical movements in France



May altruism be a stronger motive for right-wing than left-wing violence? One last finding deserves discussion. We found in the experiment that subjects' perceived level of cooperation is related to attacks against poorer groups, while it has a limited effect on attacks against richer groups. This result is close from the findings of Halevy et al. (2010) that, although attacks are generally based on altruistic motives, attacks against advantaged groups may be inspired by purely hateful motives. This is also congruent with recent evidence suggesting that the widespread individual tendency to punish non-cooperative players result from a basic human inequality aversion rather than from a desire

Figure 8.5: Marginal effect of inequality on the mobilization level of French radical movements depending on their ideology (with 95% confidence interval)



of reciprocity (Dawes et al., 2007; Raihani and McAuliffe, 2012). An implication of this finding is that individual identification with an ingroup may not be a pre-requisite for all types of political violence, contrary to predictions of the identity fusion model of conflict (Atran et al., 2014; Whitehouse et al., 2014). Although individual identification with an ingroup may be crucial in motivating right-wing violence, left-wing violence might in some cases emerge solely from personal inequality aversion.

PART IV

The limits of the compass. Beyond the
economic causes of political violence

9

The statistical logic of suicide terrorism

"The most dangerous creation of any society is the man who has nothing to lose."

The Fire Next Time
JAMES BALDWIN

The self-sacrifice of suicide terrorists is subject to sophisticated models of altruistic sacrifice. Yet, a simpler account is that it reflects common suicidal tendencies. This chapter offers new micro and macro evidence supportive of this hypothesis. Study 1 compared a sample of suicide and non-suicide terrorists in the United States from 1948 to 2017. Results indicated that suicide terrorists were more likely to display various established suicidal risk factors including history of child abuse, absent parent/s and relationship troubles. Study 2 took advantage of the cross-national variations in suicidal tendencies to explain the incidence of suicide and non-suicide terrorist attacks worldwide from 1991 to 2014. Results revealed that countries with higher share of deaths from suicide displayed higher incidences of suicide attacks but similar incidences of non-suicide attacks. The decision of some terrorists to sacrifice their life may well have been subject to over-theorization.

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Throughout the previous parts of the dissertation, I have investigated the empirical validity of my general framework – the compass of radicalism – to explain the mobilization and action of radical movements. In this last part, I propose to illustrate some limits of the compass of radicalism. The following chapters are based on research projects in which I took part during the previous years that do not directly focus on the economic causes of radicalism but that, in my opinion, offer illustrative evidence of two key limits of the compass of radicalism.

In the present chapter, I show that the compass of radicalism, as other theories of altruistic and ideologically motivated violence, has a limited explanatory power when it comes to account for acts of individual extreme self-sacrifice. More specifically, I analyze in the present chapter the determinants of suicide terrorism. I provide evidence that the specific decision of some terrorists to sacrifice their life does not reflect altruistic motives, but rather individual suicidal tendencies. The implication is that theories of altruistic and ideologically motivated violence – including the compass of radicalism –, although valuable to explain common acts of political violence, are nonetheless inherently limited to explain extreme self-sacrificial behaviors. Such behaviors have to be explained by non-altruistic apolitical motives.

1. Theoretical and empirical background

1.1. Rationale behind the suicidality hypothesis

Suicide terrorists are individuals who purposely sacrifice their life in perpetrating violence for political aims (Atran, 2003; Pape, 2006). The personal decision of suicide terrorists to commit self-sacrifice seems challenging for standard theories of human behavior. From a rational perspective, suicide terrorists deliberately act against their interest in self-preservation. From an evolutionary perspective, suicide terrorists avoid any future opportunity for personal reproduction on the behalf of non-kin relatives, which seems hardly compatible with natural selection.

The foremost motivational explanation considers that suicide terrorism is an extreme form of altruistic devotion to the group (Atran, 2016; Ginges and Atran, 2009; Ginges

et al., 2009; Pape, 2006; Sheikh et al., 2016; Swann et al., 2012; Whitehouse, 2018; Whitehouse et al., 2017). Extreme altruism would have evolved through a multilevel selection process, allowing groups with altruistic individuals to survive and other to disappear (Atran, 2016; Atran and Sheikh, 2015; Whitehouse, 2018; Whitehouse et al., 2017). Yet, this hypothesis encompasses problems in evolutionary theory. Multilevel selection only occurs under specific conditions and should be considered the exception (Dawkins, 1976; Maynard Smith, 1976). Simulation studies do find that multilevel selection may foster altruism in specific conditions (Bowles, 2009; Choi and Bowles, 2007; García and van den Bergh, 2011; Whitehouse et al., 2017), but they rest on the assumption that altruistic individuals have a non-null probability to survive and transmit their genes. In sum, multilevel selection may explain why individuals *risk* their lives for the group; there is however a qualitative step in explaining why individuals knowingly *sacrifice* their life for the group.

A simpler explanation is that suicide terrorism is not altruistic but rather reflects individual suicidal tendencies (Lankford, 2013a,b; Merari et al., 2009). Common suicidal behavior is less challenging for both rational and evolutionary perspectives. Individuals who have a low expected utility over their lifetime may rationally commit suicide (Hamer-mesh and Soss, 1974). From an evolutionary perspective, suicide may be explained by kin selection: individuals who have low prospect of reproduction and consider themselves to be a burden for kin relatives may engage in self-destruction (Brown et al., 2009, 1999; de Catanzaro, 1995). Thus, a possibility is that suicide terrorists engage in violence for the same reasons than non-suicide terrorists, but that the specific decision to commit suicide or non-suicide missions reflects individual differences in suicidal tendencies.

1.2. Existing evidence

Despite passionate debates on whether suicide terrorists are suicidal (see Atran, 2004, 2014; Lankford, 2014; McCauley, 2014; Sela and Shackelford, 2014), evidence insofar remains scarce (see Sheehan, 2014). Assessing suicidal tendencies of suicide terrorists is methodologically challenging. Researchers can hardly apply clinical evaluations of candidates for suicide terrorism. One notable exception is Merari et al. (2009) who conducted psychological tests on fifteen Palestinian prisoners who attempted to commit a suicide attack, in comparison to prisoners who committed other types of attacks or organized suicide attacks. Their diagnoses indicated that perpetrators of suicide attacks displayed higher avoidant-dependent personality disorders, depressive symptoms and suicidal tendencies. However, it is impossible to disentangle whether the suicidal tendencies of the subjects preceded or followed the attack. Suicidal tendencies could reflect the hard conditions of incarceration and the psychological cost of the failure to achieve the attack (Brym and Araj, 2012b).

In response to Merari et al. (2009), Brym and Araj (2012a) conducted interviews with family members of forty Palestinians who committed suicide attacks. Their findings differed from those Merari et al. (2009). In the year before the attacks, three-quarter of individuals did not show signs of depression or personal crisis according to their relatives. Nonetheless, interviews with family members encompass reliability issues, since they may be unaware of the psychological state and prone to picture their relatives in a more or less favorable light depending on their approval of suicide terrorism (see Merari, 2010, 83-102). For instance, Speckhard and Ahkmedova (2006) drew opposite conclusion based on interviews of close relatives of 34 Chechen suicide bombers. In their case, the interviews indicated that all individuals experienced the death or beating of close parents or friends prior to their involvement, which resulted in symptoms of post-traumatic stress in all cases, social alienation and isolation in nearly all cases and depression in around 60% of cases.

Another line of research relies on biographical data derived from public sources to assess the prevalence of established suicide risk factors among suicide terrorists. Using this approach, Lankford (2013b) found clues of suicide risk factors in nearly 130 suicide terrorists around the world: including, depressive disorders, post-traumatic stress disorder or other associated mental disorders, the death of a spouse or loved one, or negative catalyst events. In another study focusing on the United States from 1990 to 2010, Lankford (2013a) compared the characteristics of suicide terrorists and rampage, workplace and school shooters, generally associated with mental disorders (Langman, 2009, 2013). Lankford (2013a) found high level of similarities between groups in terms of social and personal issues preceding the attack. However, as these studies were based on the researchers' evaluation of social and mental problems faced by the terrorists based on fragmentary data, one cannot exclude coding biases (Atran, 2014). Besides, they lacked a control group of non-suicide terrorist, which would be necessary to gauge the specificity of suicide terrorists compared to non-suicide terrorists. It is possible that risk factors commonly associated to suicidal tendencies play a more general role in radicalization processes leading both to suicide and non-suicide terrorism. For instance, some evidence suggests that depression is related to vulnerability to radicalization (Bhui et al., 2014).

To our knowledge, only one study addressed these issues. Freilich et al. (2019) compared a sample of 56 suicide terrorists to 391 non-suicide terrorists based on a collective open-source database of perpetrators of terrorist attacks in the United States (Freilich et al., 2014). They measured suicidal tendencies based on evidence that terrorists had been diagnosed mentally ill or had previously attempted suicide. Albeit a higher proportion of suicide terrorists entered this category, the difference was not significant. Freilich et al. (2019) also found that suicide terrorists were significantly more likely to have a known history of alcohol/drug abuse, a secondary proxy of suicidal risk factors. In sum, their results indicated limited support for the suicidality hypothesis.

The study of Freilich et al. (2019) had some limitations that required further investigation. First, a majority of the sample was based on a broad definition of suicide terrorism including individuals who did not commit suicide but presumably expected to die during the attack.¹ Among the 25 remaining cases in which suicide was an inherent part of the attack, 19 were the hijackers of the 9/11 attacks. Since these individuals were non-US citizens, one can wonder whether the probability of clinical diagnoses for mental illness and the availability of information on previous suicidal attempts was comparable to the rest of the sample. In such cases, absence of evidence may not be evidence of absence.² Hence, it is necessary to replicate the analysis of Freilich et al. (2019) based on different samples and operationalization of suicide terrorism, and to account for differences in available information across cases.

2. Operational hypotheses and overview of studies

The present chapter aims to address the up-mentioned limitations. It provides a new empirical test of the hypothesis that suicide terrorists have common suicidal tendencies. More specifically, I test two predictions from the suicidality hypothesis. Each prediction is tested in a separate study. The first prediction, at the micro level, is:

Hypothesis 9.1 *Suicide terrorists are more likely to exhibit risk factors associated with common suicides than non-suicide terrorists.*

To test this hypothesis, Study 1 relied on a new reliable open-source database on domestic terrorists who radicalized in the United States from 1948 to 2017. The study compared the prevalence of a range of established suicide risk factors in a sample of narrowly defined suicide terrorists ($N = 20$) compared to non-suicide terrorists ($N = 1,214$), controlling for differences in available information. The study also assessed whether similar results were found in a sample of near-suicide terrorists, i.e. individuals who presumably expected to be killed in perpetrating violence ($N = 26$).

¹The expectation to die in the attack may be disputed in some cases analyzed by Freilich et al. (2019). For instance, the sample included the perpetrator of the shootings at the *Central Intelligence Agency* (CIA) headquarters in 1993 who escaped in Pakistan after the attack and was later captured and sentenced to death. It also included the perpetrator of the Oklahoma city bombing in 1995 who was captured in the aftermath of the attack and sentenced to death.

²On this regards, Lankford (2018) re-examined evidence of mental illness among the hijackers of the 9/11 attacks. For most (13) cases, existing biographical evidence was too scarce to allow any psychological assessment. In the other cases, Lankford (2018) found evidence of mental health problems that may relate to suicidal tendencies.

The second prediction, at the macro level, is that suicide terrorist attacks should be more numerous in contexts in which suicidal tendencies are high within the population. Epidemiological studies revealed high differences in suicidal behaviors across national contexts (Liu, 2009; Naghavi, 2019). In the 1990-2016 period, the share of deaths from suicide was more than ten times higher in countries with the highest suicide rates compared to countries with the lowest suicide rates (Naghavi, 2019).³ If the self-sacrifice of suicide terrorists reflects suicidal tendencies, countries with high prevalence of suicidal tendencies should have more candidates for suicide terrorism but no more candidates for non-suicide terrorism. This leads to the following prediction:

Hypothesis 9.2 *The incidence of suicide terrorist attacks in a country is positively related to the prevalence of suicidal tendencies, whereas the incidence of non-suicide terrorist attacks is not.*

Study 2 is a first attempt to test this hypothesis by taking advantage of the cross-national variation in suicidal tendencies. I tested this prediction based on a cross-national analysis of suicide and non-suicide terrorist attacks in 137 countries from 1991 to 2014.

3. Study 1. Suicide and non-suicide terrorists in the US

3.1. Methods

3.1.1. Data

Study 1 relies on the PIRUS database (National Consortium for the Study of Terrorism and Responses to Terrorism (START), 2018), presented in Chapter 2. The updated data, based on public sources, gather a representative sample of more than 2,100 profiles of radical activists in the United States from 1948 to 2017. The PIRUS database is complementary with the data analyzed by Freilich et al. (2019). Firstly, the time span of the present data is larger than Freilich et al. (2019). Secondly, the PIRUS database focuses on individuals who radicalized in the United States, but who may have committed ideologically motivated crime elsewhere.⁴ Finally, the PIRUS database includes a larger set of biographical information on perpetrators which allow new insights about suicide risk factors.

³This estimation is based on countries with populations greater than 1 million, which excludes random outlier cases (Naghavi, 2019).

⁴In contrast, Freilich et al. (2019) focused on individuals who perpetrated ideologically motivated crimes in the United States, even if they radicalized elsewhere - such as in the case of the 9/11 attacks.

3.1.2. Suicide versus non-suicide terrorists

I first excluded individuals who did not actively participate in a plot involving violence. In the remaining sample of terrorists ($N = 1,241$), I identified suicide terrorists, narrowly defined as individuals who committed suicide in perpetrating violence. The PIRUS database does not directly identify suicide terrorists. To do so, I first selected individuals that were currently dead due to suicide ($N = 35$). I then conducted research for each case based on public sources to specifically identify suicide terrorists. Among, the 35 suicide cases, I identified 20 cases as suicide terrorists. This included 5 suicide bombers, 2 plane hijackers, and 13 individuals who committed suicide while or directly after perpetrating firearm violence. Among the remaining 15 cases, 9 committed suicide long ago after perpetrating violence, whom I included in the non-suicide terrorist category.⁵ I was not able to find information on the six remaining cases and excluded them from the analyses.⁶ As a result, I obtained a group of suicide terrorists ($N=20$, 1.6% of the sample), which can be compared to non-suicide terrorists ($N=1,214$).

3.1.3. Suicide risk factors

I screened variables related to personal characteristics of terrorists in the PIRUS database to identify all measures that may capture established suicide risk factors based on scientific research on suicidality.

Child abuse Meta-analytic evidence demonstrates that individuals that were abused as child are at significantly higher risk of suicide attempt: three times more likely in case of sexual abuse and two and a half more likely in case of physical or emotional abuse (Angelakis et al., 2019; Bruffaerts et al., 2010; Dube et al., 2001). I relied on the following question: “Is there evidence that the individual was abused - either verbally or physically - as a child? If there is no information, assume 0 for No”. I generated a binary variable coded 0 = no evidence of abuse (1,184 cases; 96% of valid cases), 1 = evidence of abuse (50 cases; 4% of valid cases).

History of mental illness There is a strong correlation between mental disorders and suicidal behaviors (Cavanagh et al., 2003; Nock et al., 2008), albeit the intensity of the relationship depends on the kind of mental disorders: mood disorders, especially depression, being stronger predictors than other disorders (Kessler et al., 1999). Unfortunately, the PIRUS database does not include information on specific mental disorders. I assessed

⁵Note that the inclusion of these cases in the suicide terrorist category does not alter the conclusions. Results can be sent by the author upon request.

⁶Note that the inclusion of these cases in the suicide or in the non-suicide terrorist category does not alter the conclusions. Results can be sent by the author upon request.

the experience of any mental disorder based on the following question: “Is there evidence presented in the sources that the individual had a history of mental illness? If there is no information, assume 0 for No”. I generated a binary variable coded 0 = no evidence of mental illness (1,051 cases; 85% of valid cases), 1 = evidence of mental illness - either according to public/popular speculation or professionally diagnosed (183 cases; 15% of valid cases).

Relationship troubles Social isolation - either living alone or loneliness feelings - is related to suicidal behaviors (Calati et al., 2019), and psychological autopsies reveal enhanced chronic and recent relationship problems among individuals who committed suicide (Appleby et al., 1999; Houston et al., 2001). I relied on the following question: “Did subject typically have difficulty finding or maintaining romantic relationships?”. I generated a binary variable coded missing for cases in which the response was unknown (833 cases), 0 = no troubles (290 cases; 72% of valid cases), 1 = troubles (111 cases; 28% of valid cases).

Absent parent/s Household dysfunction during childhood, including parents’ separation, has been shown to increase the risk of attempted suicide in later life (Dube et al., 2001). Notably, parent loss, either due to death, divorce or other causes, is related to subsequent suicidal behaviors (Bruffaerts et al., 2010). I relied on the following question: “Are/were there any parents absent (separated, divorced, killed, suicide, or dead of natural causes?) during the individual’s childhood?”. I generated a binary variable coded missing for cases in which the response was unknown (901 cases), 0 = no parenthood absence (220 cases; 66% of valid cases), 1 = parenthood absence - either father, mother or both (113 cases; 34% of valid cases).

History of alcohol/drug abuse Substance abuse is a common correlate of suicidal behaviors (Adams and Overholser, 1992), especially alcohol acute use (Cherpitel et al., 2004). I relied on the following question: “Is there evidence presented in the sources that the individual had a history of alcohol or drug abuse? If there is no information, assume 0 for No”. I generated a binary variable coded 0 = no evidence of alcohol/drug abuse (1,071 cases; 87% of valid cases), 1 = evidence of alcohol/drug abuse (163 cases; 13% of valid cases).

Trauma There is evidence that the personal experience of some traumatic events - such as sexual and interpersonal violence - increases suicide ideations and, in some cases, suicide attempts (Stein et al., 2010). I relied on the following question: “Prior to radicalization, was subject ever exposed to any traumatic event in which he witnessed an event or events that involve actual or threatened death or serious injury, or a threat to the physical

integrity of others, where his response involved intense fear, helplessness, or horror?”. I generated a binary variable coded missing for cases in which the response was unknown (908 cases), 0 = no trauma (206 cases; 63% of valid cases), 1 = trauma (120 cases; 37% of valid cases).

3.1.4. Other individual factors

Sociodemographic and personal characteristics I tested the effect of a range of characteristics usually included in analyses of profiles of terrorists (Freilich et al., 2019; LaFree et al., 2018). Four variables captured demographic characteristics. I used a continuous variable measuring the *age* of the perpetrator at the time of the plot ($M = 33$, $s.d. = 13$), with 28 missing cases. For *gender*, I used a binary variable coded 0 = female (84 cases; 7% of valid cases), 1 = male (1,150 cases; 93% of valid cases). I measured *minority status*, based on the ethnicity of the individual, by a binary variable coded missing for cases in which the ethnicity was unknown (89 cases), 0 = white (694 cases; 61% of valid cases), 1 = other (451 cases; 39% of valid cases). I identified *immigrant* individuals with a binary variable coded missing for cases in which the residency status was unknown (62 cases), 0 = born citizen (1,018 cases; 87% of valid cases), 1 = naturalized citizen or resident (154 cases; 13% of valid cases).

Two variables captured previous involvement in violence and crime. I generated a binary variable to assess *military experience* coded missing for cases in which there was no information about military experience (382 cases), 0 = never in the US or a foreign military (716 cases; 84% of valid cases), 1 = ever was in the US or a foreign military (136 cases; 16% of valid cases). I identified individuals with *previous criminal activity* with a binary variable coded missing for cases in which there was no information (483 cases), 0 = no history of criminal activity prior to radicalization (407 cases; 54% of valid cases), 1 = history of criminal activity prior to radicalization (344 cases; 46% of valid cases).

Two variables captured the social background of individuals. I measured the *education* level by a categorical variable coded missing for cases in which there was no information (712 cases), 0 = Less than high school (87 cases; 17% of valid cases), 1 = high school diploma (136 cases; 26% of valid cases), 2 = more than high school (299 cases; 57% of valid cases). I measured the individuals' *social stratum* as adulthood by a categorical variable coded missing for cases in which there was no information (635 cases), 0 = Low⁷ (49 cases; 8% of valid cases), 1 = Middle⁸ (368 cases; 61% of valid cases), 2 = High⁹

⁷E.g. receives welfare, lives close to the poverty line, regularly unemployed or at best works a blue collar job, lives in subsidized housing.

⁸E.g. does not receive welfare, lives in lower-middle or middle class neighborhood, has steady professional employment, owns or holds a mortgage on a house, has college degree.

⁹E.g. works a high-income, white-collar job, lives and owns a house in a middle or upper class neighborhood, can afford luxury items, has college degree or is self-employed as a successful entrepreneur.

(182 cases; 30% of valid cases).

Ideology Some studies suggested that Islamist ideologies specifically provide beliefs that help reducing the cost of killing and dying in suicide missions (Moghadam, 2009; Perry and Hasisi, 2015). I measured the terrorist's ideology based on a categorical variable coded 0 = far-left (120 cases; 11% of valid cases), 1 = far-right (557 cases; 53% of valid cases), 2 = Islamist (369 cases; 35% of valid cases), and missing otherwise.

Lone Some studies indicated that lone terrorists have a distinct psychological profile than terrorists affiliated to a group (Gill et al., 2014; Gruenewald et al., 2013). Lone terrorists generally display higher prevalence of mental disorders than the general population, while affiliated terrorists have on average lower rates of mental disorders (Corner and Gill, 2015, 2017; Corner et al., 2016). Lone terrorists are also more likely to be socially isolated than affiliated terrorists (Capellan, 2015; Gill et al., 2014; Gruenewald et al., 2013). Besides, previous evidence indicated that lone terrorists were more likely to engage in suicide missions than affiliated terrorists (Freilich et al., 2019; Gruenewald et al., 2013). Hence, it was possible that the suicide risk factors under study related to lone terrorism rather than suicide terrorism. I relied on the following question: "Was the individual in a group?". I generated a binary variable coded 0 = affiliated terrorist - either member of an above-ground political movement or activist group, an informal group of fellow extremists or a formal extremist organization or an extremist movement (932 cases; 76% of valid cases), 1 = lone actor (302 cases; 24% of valid cases).

3.1.5. Empirical strategy

The small size of the sample of suicide terrorists prevented to conduct extensive multivariate analyses, which would require larger degrees of freedom. For that reason, I conducted statistical analyses in an ascendant method. I firstly focused on bivariate analyses. Then, I computed multivariate analyses for each significant suicide risk factor, controlling for the other factors that were significant in bivariate analyses.

Differences in available information A common limitation of data based on public sources is that the available information varies across cases. The lack of information results in missing values for most variables under study. I excluded observations with missing values by listwise deletion in the analyses. This decision is conservative: this eliminates potential biases due to unequal information at the cost of reducing the sample. For other variables - namely *child abuse*, *history of mental illness* and *history of alcohol/drug abuse* - the dataset codes the absence of information in the same category than the absence of trouble. This does not allow distinguishing true zeros (e.g. no child abuse) from false zeros (e.g. no evidence of child abuse but actual child abuse), which may result

in bias in the analyses.¹⁰ To mitigate such bias, I tested for the difference in information between suicide and non-suicide terrorists. I computed for each individual the sum of the number of non-missing values for all variables in the database. By dividing this value by the number of variables, I obtained the *share of valid values*, which is a fair measure of the level of available information about each individual in the database.¹¹ The mean share of valid values was 0.65 in the database (*s.d.* = 0.16), meaning that on average an individual had 35% of missing values in variables of the PIRUS database.

3.2. Results

3.2.1. Main results

Table 9.1 presents the distribution of variables across non-suicide and suicide terrorists. Fisher's exact tests revealed that, over the six suicide factors, four are significantly related to suicide terrorism at the 5% threshold. The prevalence of child abuse among suicide terrorist is 20% (4/20), compared to 4% (46/1,214) among non-suicide terrorists ($p = .007$). 35% (7/20) of suicide terrorists have a history of mental illness, compared to 14% (176/1,214) of non-suicide terrorists ($p = .020$). The prevalence of relationship troubles among suicide terrorist is 67% (8/12), compared to 26% (103/389) among non-suicide terrorists ($p = .005$). Finally, 67% (8/12) of suicide terrorists had absent parent/s, compared to 33% (105/321) of non-suicide terrorists ($p = .025$).

Bivariate tests reveal no significant association between other factors and suicide terrorism. None of the sociodemographic and personal characteristics are significantly different among suicide and non-suicide terrorists. The proportion of individuals who engage in suicide terrorism does not differ by ideology, $\chi^2(2, N = 1,046) = 3.13, p = .209$. The proportion of lone actors is not significantly higher among suicide terrorists, with a share of 40% (8/20), compared to 24% (294/1,214) among non-suicide terrorists ($p = .117$).¹² Except suicide risk factors, the only factor that is significantly associated with suicide terrorism is the share of valid values. There is a significant higher share of valid values in the PIRUS database for suicide terrorists ($M = 74, s.d. = 20$) compared to non-suicide terrorists ($M = 64, s.d. = 15$), $t(1232) = 2.64, p = .008$.

¹⁰For instance, it is possible that suicide terrorists received more media attention than non-suicide terrorists, resulting in more available information about them and hence a higher probability that a history of child abuse would be detected among suicide terrorists.

¹¹I doing so, I assumed that missing values were not randomly distributed across cases: that is, that there was a positive correlation within cases in the likelihood of missing values for different variables. Evidence confirmed that this assumption was true. I computed two indicators of the share of non-missing values each for half of the PIRUS database variables. Results of the Pearson correlation showed that these indicators were strongly correlated, $r(1232) = 0.77, p < .000$. This means that individuals with missing values for some variables were more likely to have missing values for other variables.

¹²Note that the difference in the proportion of lone actors between suicide and non-suicide terrorists is significant at the 10% threshold ($p = .090$) under the assumption of a one-tailed test.

Table 9.1: Distribution of variables across non-suicide and suicide terrorists and bivariate statistical tests

	Non-suicide (<i>N</i> = 1,214)	Suicide (<i>N</i> = 20)	<i>p</i> -value
Suicide risk factors			
Child abuse	4%	20%	.007
History of mental illness	14%	35%	.020
Relationship troubles	26%	67%	.005
Absent parent/s	33%	67%	.025
History of alcohol/drug abuse	13%	25%	.170
Trauma	36%	50%	.472
Other factors			
Mean age (s.d.)	33 (13)	30 (12)	.461
Gender	93%	95%	1.000
Minority status	40%	28%	.344
Immigrant	13%	17%	.721
Military experience	16%	19%	.730
Previous criminal activity	46%	56%	.453
Education			.532
Less than high school	16%	22%	
High school diploma	26%	33%	
More than high school	58%	44%	
Social stratum			.907
Low	8%	7%	
Medium	62%	57%	
High	30%	36%	
Ideology			.209
Far-left	12%	0%	
Far-right	53%	68%	
Islamist	35%	32%	
Lone	24%	40%	.117
Mean share of valid values (s.d.)	64 (15)	74 (20)	.008

Notes. Sample size varies across variables. P-values < .05 in bold. P-values are based on Fisher's exact test (two-tailed) for binary variables, chi2 test for education, social stratum and ideology, and t-test (two-tailed) for age and share of valid values.

Table 9.2 presents estimates from logistic regressions of suicide terrorism. I tested the effect of the four suicide risk factor that were significant in bivariate analyses, controlling for the share of valid values.¹³ Results from model (1) confirm that child abuse is significantly related to suicide terrorism. In contrast, history of mental illness is no longer significantly related to suicide terrorism at the 5% threshold when controlling for the share of valid values. This suggests that the higher prevalence of mental illness among suicide terrorists partly reflects the greater available information about them. Finally, models (3) and (4) confirm that suicide terrorists are significantly more likely to have had relationship troubles and to have experienced absent parenthood.

Table 9.2: Effect of suicide risk factors on suicide (versus non-suicide) terrorism (Odds ratios from logistic regression)

	(1)	(2)	(3)	(4)
Child abuse	4.143* (2.525)			
History of mental illness		2.390+ (1.172)		
Relationship troubles			5.425** (3.403)	
Absent parent/s				4.037* (2.548)
Share of valid values	1.032* (0.0162)	1.034* (0.0162)	1.055* (0.0288)	1.087* (0.0383)
Observations	1234	1234	401	333
Pseudo R^2	0.0553	0.0481	0.117	0.125

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Sample size varies across models due to listwise deletion

3.2.2. Secondary analyses

A secondary question is whether suicidal tendency explain not only why individuals directly commit suicide but also why individuals take extreme risks with their life in perpetrating violence. To explore this possibility, I conducted similar analyses on a secondary sample of *near-suicide* terrorists, i.e. individuals who presumably expected to be killed in perpetrating violence.

I selected in the sample of non-suicide terrorists all individuals that were killed, either by authorities or rival groups ($N = 81$). I conducted research based on public sources to

¹³I also tested the same models controlling for lone actor, as this variable was close to statistical significance in bivariate analyses. The results are unchanged. Results can be sent by the author upon request.

identify all cases in which individuals presumably expected to be killed in perpetrating violence. I identified 26 cases as near-suicide terrorists. In all cases, individuals were killed as a result of their violent action by violently resisting arrest. Among the remaining cases, I included 17 cases in the non near-suicide category because evidence did not indicate that the perpetrators expected to be killed.¹⁴ I excluded the remaining 38 cases because evidence did not allow to assess whether the individual expected to be killed in perpetrating violence.¹⁵ As a result, I obtained a group of near-suicide terrorists ($N = 26$), which can be compared to non near-suicide terrorists ($N = 1,150$).

Table I.1 presents the distribution of variables across non near-suicide and near-suicide terrorists. Fisher's exact tests reveal that, over the six suicide factors, only one is significantly related to near-suicide terrorism. The prevalence of child abuse among suicide terrorist is 23% (6/26), compared to 3% (40/1,150) among non-suicide terrorists ($p = .000$). Bivariate tests reveal that none of the other factors are significantly related to near-suicide terrorism, except the share of valid values.¹⁶ There is a significant higher share of valid values in the PIRUS database for near-suicide terrorists ($M = 80, s.d. = 12$) compared to non near-suicide terrorists ($M = 64, s.d. = 15$), $t(1174) = 5.27, p = .000$.

Table I.2 presents estimates from logistic regressions of near-suicide terrorism. I tested the effect of child abuse, controlling for the share of valid values.¹⁷ Results from model (1) confirm that child abuse is significantly related to near-suicide terrorism.

3.3. Discussion

Study 1 analyzed whether suicide terrorists are more likely to exhibit established suicidal risk factors than non-suicide terrorists based on a representative sample of domestic terrorists from the United States between 1948 and 2017. Overall, results are consistent with the hypothesis that suicide terrorism is related to common suicidal tendencies. Over the six suicide risk factors under study, three are significantly related with suicide terrorism when controlling for the difference in available information across cases. Namely, I found that suicide terrorists are four times more likely to have been abused as children,

¹⁴This includes 7 individuals killed afterward by capital punishment, 3 shot by authorities without having opposed resistance, 3 killed by military strikes, 2 killed in shootouts while escaping after a robbery and 2 assassinations.

¹⁵This includes cases for whom I did not find information and cases for whom information did not allow to evaluate whether the individual expected to be killed in action - such as cases of foreign fighters who died in fights with rival groups in unknown circumstances.

¹⁶Two other factors are significant at the 10% threshold. Near-suicide terrorists differ from non near-suicide terrorists by ideology, $\chi^2(2, N = 991) = 4.68, p = .096$. Besides, Fisher's exact test reveals that the proportion of lone actors is different among near-suicide compared to non near-suicide terrorists ($p = .082$), under the assumption of a one-tailed test.

¹⁷I also tested the same models controlling for ideology and lone actor, as these variables were close to statistical significance in bivariate analyses. The results are unchanged. Results can be sent by the author upon request.

five times more likely to have had a history of relationship troubles and four times more likely to have experienced absent parenthood. In contrast, no significant differences are found on sociodemographic characteristics, previous involvement in violence and crime, ideology and group membership. This indicates that differences in suicide risk factors are not a mere artifact due to confounding factors or samples heterogeneity. Besides, this supports the view that suicide terrorists follow similar patterns of radicalization to non-suicide terrorists, and that the specific decision to commit suicide or non-suicide missions reflects individual differences in suicidal tendencies.

The present results must be interpreted in light of the small size of the sample of suicide terrorists. Some differences between suicide terrorists and non-suicide terrorists may have not been detected due to lack of statistical power. This may be true for sociodemographic and personal factors. In this regard, Sabri and Schulze (2020) recently compared the sociodemographic profiles of suicide and non-suicide terrorists of the Hamas and Palestinian Islamic Jihad based on a large sample gathering more than 200 suicide terrorists. Their results reveal differences between groups in age, education and familial status.

This consideration may also be true for suicide risk factors. One cannot exclude that non-significant suicide risk factors in the present study actually play a role in suicide terrorism. It is worth noticing that even when non-significant, all the suicide risk factors under study are related with suicide terrorism in the expected direction. The possibility that suicidal tendencies were undetected in some cases is even more likely as regards to the fact that established suicide risk factors generally have a limited predictive power and that half of suicides occur among people who would be viewed as low risk (Franklin et al., 2017; Large et al., 2017). Symmetrically, the fact that three suicide risk factors are found significant despite low statistical power suggests that suicidal tendencies play a crucial role in suicide terrorism.

A secondary finding is that, over the six suicide risk factors under study, only one - *child abuse* - is higher among terrorists who presumably expected to be killed in perpetrating violence. On the one hand, this result may be interpreted as a confirmation, from a second sample, that suicidal tendencies play a role in suicide terrorism, broadly defined as "the readiness to die in the process of committing a terrorist act" (Merari, 1990). Indeed, among the suicide risk factors under study, child abuse may be considered as one of the most predictive (Angelakis et al., 2019; Franklin et al., 2017). On the other hand, the absence of significant effects of other suicide risk factors suggests that suicidal tendencies play a lesser role in the decision to engage in action with readiness of being killed, compared to the decision to directly commit suicide in action. This suggests that there is a difference between knowingly sacrificing one's life and taking risks with one's life - even with a low probability to survive. This may partly explain why Freilich et al. (2019) found limited support for the suicidal hypothesis when analyzing suicide terrorism based

on a broad definition.

In addition to the low sample size, the main limitation of Study 1 is the impossibility to generalize the results outside the US case. In particular, one may wonder whether the results are also valid in countries in which suicide terrorism receive a higher support from "constituent" communities (Ginges et al., 2009) and is used by well-implanted terrorist groups (Pape, 2006). To generalize the findings, Study 2 analyzes the relationship between cross-national variation in suicide tendencies and variations in suicide and non-suicide terrorist attacks.

4. Study 2. Suicide and non-suicide terrorist attacks worldwide

4.1. Methods

4.1.1. Suicide and non-suicide attacks

Study 2 relies on the Global Terrorism Database (GTD) (National Consortium for the Study of Terrorism and Responses to Terrorism (START), 2017a), presented in Chapter 6. Among the terrorist attacks, the GTD identifies suicide attacks as cases in which there is "evidence that the perpetrator did not intend to escape from the attack alive". I constructed two dependent variables, respectively the *number of suicide attacks* and the *number of non-suicide attacks* by country and year according to the GTD.

4.1.2. Independent variables

Suicidal tendencies I measured the prevalence of suicidal tendencies by country and year by the *share of deaths from suicide* from the Global Burden of Disease (GBD) Study covering 195 countries from 1990 to 2016 (Global Burden of Disease Collaborative Network, 2018). The GBD is currently the most accurate source for cross-national estimates on deaths from suicide (Naghavi, 2019).

Control variables I controlled for a range of confounding factors that may affect both the number of suicide and non-suicide attacks, according to research on the cross-national causes of terrorism (Choi and Piazza, 2016; Freytag et al., 2011; Ghatak et al., 2019; Kis-Katos et al., 2011; Krueger, 2017; Piazza, 2017b). The log of the *population* size was expected to increase the number of attacks. The share of *discriminated population*, derived from the Ethnic Power Relations database (Vogt et al., 2015), was expected to

increase the number of attacks. The *level of democracy* was expected to increase the number of attacks. I used the composite scale from -10 (autocracy) to 10 (democracy) of the Polity dataset (Center for Systemic Peace, 2018b). The *regime durability* in years was expected to decrease the number of attacks. *Civil war*, measured in magnitude from 0 to 10 (Center for Systemic Peace, 2018a), was expected to increase the number of attacks. The log of the *Gross Domestic Product (GDP) per capita* was expected to increase the number of attacks

Some studies found that Muslim majority countries experience a higher number of suicide terrorist attacks (Choi and Piazza, 2017; Wade and Reiter, 2007). Following these studies, I controlled for the share of Muslim population based on quadrennial estimates from the World Religion Dataset (Maoz and Henderson, 2013). Besides, it has been argued that suicide terrorism is especially used as an asymmetric warfare strategy against foreign military occupation (Pape, 2006), even though evidence on this matter is disputed (Choi and Piazza, 2017; Moghadam, 2006). I generated a binary variable capturing instances of foreign occupation based on the list of foreign military occupations assembled for the 1950-2013 period by Vishwasrao et al. (2019).

4.1.3. Empirical strategy

All variables are described in Table I.3. The analyzed sample includes 137 countries over the 1991-2014 period.¹⁸ I analyzed the number of suicide and non-suicide attacks by country and year based on negative binomial regression models, the standard method in studies analyzing counts of terrorist attacks (Choi and Piazza, 2016, 2017; Freytag et al., 2011; Ghatak et al., 2019; Kis-Katos et al., 2011; Piazza, 2017b). To compare the effects of the independent variables on the number of suicide attacks and the number of non-suicide attacks, I computed the same models on both dependent variables. I tested a main model including all independent variables, and a second model including country and year fixed effects to control for potential unmeasured national and historical factors. To infer causality, the independent variables were one-year lagged.

4.2. Results

4.2.1. General comments

The GTD recorded a total of 1,634 suicide attacks (2,5% of all attacks) and 63,200 non-suicide attacks in the sample.¹⁹ Both suicide and non-suicide attacks are concentrated in

¹⁸The lower limit of the study period is due on the lack of data on the share of deaths from suicide before 1990.

¹⁹Note that the sample excludes Afghanistan due to lack of data about the level of democracy. Afghanistan experienced a high number of suicide attacks (731) and non-suicide attacks (5,786) in the

specific countries. Iraq experienced in 2014 both the higher number of suicide attacks (236) and non-suicide attacks (3,133). In contrast, 93% of countries did not experienced any suicide attacks during a given year (44% for non-suicide attacks). A Spearman correlation indicates that the number of suicide and non-suicide attacks are significantly related, $r_s = 0.31, p = .000$.

4.2.2. Main results

Table 9.3 presents results from regression models. The dependent variable is the number of suicide attacks in models (1) and (2). Results from model (1) indicate that the share of deaths from suicide is positively and significantly related to the number of suicide attacks. The effect of the share of deaths from suicide is still significant in model (2) including country and year fixed effects. Models (3) and (4) are the same than models (1) and (2) except that the dependent variable is the number of non-suicide attacks. Results from model (3) indicate that the share of deaths from suicide is not significantly related to the number of non-suicide terrorist attacks. The coefficient is still insignificant in model (4) including country and year fixed effects.²⁰

4.2.3. Robustness checks

I tested the same models with the *share of depression* as an alternative measure of suicidal tendencies. I used estimates of the age-standardized prevalence of depressive disorders (Global Burden of Disease Collaborative Network, 2018). The share of depression only imperfectly correlates with the share of deaths from suicide in the study sample, $r(2971) = 0.10, p = .000$. Hence the share of depression is not redundant with the share of deaths from suicide. Table I.4 presents regression results including the share of depression instead of the share of deaths from suicide. Estimates converge with previous results. Results from model (1) and (2) indicate that the share of depression is positively and significantly related to the number of suicide attacks. In contrast, results from models (3) and (4) indicate that the share of depression is not significantly related to the number of non-suicide attacks.

Evidence indicates that 9/11 was a turning point in historical trends of terrorism (Atran, 2006; Smith and Zeigler, 2017). I tested whether the effect of the share of deaths

study period. The inclusion of Afghanistan raises the total number of suicide attacks to 2,365. I computed the analyses including Afghanistan in the sample - excluding the democracy variable. The results are unchanged. Results can be sent by the author upon request.

²⁰The number of observations is lower in models (2) and (4) because they exclude countries which experienced no suicide attacks in the study period. Indeed, these cases are perfectly predicted by the country fixed effects in model (2). To ensure sample comparability between model (2) and (4), these cases are also excluded from the sample analyzed in model (4). Note that the conclusion are unchanged when including these countries in model (4). Results can be sent by the author upon request.

Table 9.3: Effect of the share of deaths from suicide on the number of suicide and non-suicide terrorist attacks (unstandardized coefficients from negative binomial regression)

Dependent variable	(1)	(2)	(3)	(4)
	Suicide attacks		Non-suicide attacks	
Share of deaths from suicide t_{-1}	1.149*** (0.105)	0.993** (0.380)	0.0204 (0.0401)	-0.343 (0.180)
Share of Muslim t_{-1}	5.715*** (0.404)	-14.51 (10.30)	0.559*** (0.138)	-4.241 (3.039)
Log GDP per capita t_{-1}	0.468*** (0.102)	1.742*** (0.425)	0.0293 (0.0369)	0.179 (0.139)
Log Population t_{-1}	1.145*** (0.0931)	7.712*** (2.227)	0.985*** (0.0359)	3.204*** (0.592)
Discriminated population t_{-1}	9.117*** (0.977)	7.479* (2.923)	1.828*** (0.405)	-1.549 (0.875)
Democracy t_{-1}	0.129*** (0.0280)	0.0343 (0.0391)	0.0799*** (0.00995)	0.0293 (0.0163)
Regime durability t_{-1}	-0.0106** (0.00377)	-0.0323* (0.0140)	-0.0110*** (0.00156)	-0.0146** (0.00527)
Civil war t_{-1}	0.437*** (0.128)	0.336* (0.153)	0.388*** (0.0548)	0.313*** (0.0599)
Foreign military occupation t_{-1}	0.391 (0.608)	0.186 (1.022)	0.496* (0.234)	1.091* (0.491)
Constant	-29.63*** (1.951)	-135.3*** (39.23)	-14.68*** (0.632)	-46.97*** (10.39)
Inalpha	2.460*** (0.0951)	0.516*** (0.140)	1.486*** (0.0303)	-0.117* (0.0560)
Country fixed effects	No	Yes	No	Yes
Year fixed effects	No	Yes	No	Yes
Observations	2971	1094	2971	1094
Pseudo R^2	0.185	0.290	0.0616	0.194

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Models (2) and (4) exclude countries with no records of suicide attacks in the study period

from suicide is found before and after 2001. Table I.5 presents estimates from the main models based on split samples. Results from model (1) and (2) confirm that the share of deaths from suicide is significantly related to the number of suicide attacks both before and after 2001. Results from model (3) and (4) confirm that the share of deaths from suicide is not significantly related to the number of non-suicide attacks both before and after 2001.

4.2.4. Control variables

Although statistical significance is not achieved in all models, coefficients of the control variables are in the expected direction when significant. Overall, results from Table 9.3, I.4 and I.5 suggest that the incidences of suicide and non-suicide attacks are higher in populated, rich, democratic countries with young institutions, high level of discrimination and which experienced civil war. Besides, the share of Muslim population is positively related to both the number of suicide and non-suicide attacks. Finally, in contradiction with the view that suicide attacks are specifically used against foreign occupation (Pape, 2006), results indicate that occupied countries experience significantly more non-suicide attacks but do not experienced more suicide attacks.

4.3. Discussion

Study 2 analyzed the cross-national associations between the share of deaths from suicide and the number of suicide and non-suicide terrorist attacks. I found that countries with higher share of deaths from suicide experience significantly more suicide terrorist attacks but a similar number of non-suicide attacks. These results support the hypothesis that suicide terrorism is related to common suicidal tendencies. The results reveal that other factors generally have similar effects on suicide and non-suicide terrorism. This supports the view that suicide terrorism follows a similar pattern than non-suicide terrorism, but that the difference between suicide and non-suicide terrorism reflects differences in suicidal tendencies.

Study 2 has several limitations. The number of terrorist attacks in a country is not a direct measure of the number of terrorists from this country. Unfortunately, there is no systematic data on the number of terrorists worldwide. It is yet reasonable to assume that the number of terrorist attacks depends on the number of terrorists, and previous studies usually relied on the number of attacks to test hypotheses about terrorist mobilization (Choi and Piazza, 2016, 2017; Freytag et al., 2011; Ghatak et al., 2019; Krueger, 2017; Piazza, 2017b). Relatedly, as in Study 3 of Chapter 6, the attacks analyzed mix both attacks perpetrated by national and foreign citizens. The suicidal hypothesis predicts that countries with higher prevalence of suicide tendencies experience more suicide attacks perpetrated by national citizens, but no more attacks perpetrated by foreign citizens, who

come from countries with a different prevalence of suicidal tendencies. Unfortunately, the GTD does not identify the perpetrators' nationality. As discussed in Chapter 6, this issue is not highly problematic since transnational attacks should only produce additional noise in the data and that previous studies suggest that a large majority of attacks in the GTD are domestic (Enders et al., 2011; Kis-Katos et al., 2011; LaFree et al., 2014).²¹

Another concern is that estimates of the share of deaths from suicide could be unequally reliable across countries. Even though the GBD addressed cross-national variation in data quality through a range of correction (see Naghavi, 2019), one cannot exclude that suicide reporting practices differ across countries in correlation with reporting biases in the counting of terrorist attacks.²² However, this should not significantly alter the present conclusions. Firstly, I see no reason why suicide attacks in particular, but not non-suicide attacks, would be more systematically reported in countries that more systematically report deaths from suicide. Besides, results reveal that the effect of the share of deaths from suicide is still significant when including country fixed effects. This indicates that, putting aside the mean variations between countries, the share of deaths from suicide predicts longitudinal variations across countries in the number of suicide attacks. Finally, the share of depression offers an alternative measure of suicidal tendencies.

Overall, one cannot conclude from the results from Study 2 alone that suicide terrorists are suicidal. Such macro associations may always reflect some ecological fallacy.²³ But given existing micro evidence from Study 1 and previous studies on different geographical locations (Lankford, 2013b; Merari et al., 2009; Speckhard and Ahkmedova, 2006), it is likely that this macro association reflects the fact that suicide terrorists are suicidal.

²¹Some studies on domestic terrorism rely on data from Enders et al. (2011), who devised a method to classify GTD attacks as domestic and transnational. However, this classification method does not distinguish attacks according to the nationality of perpetrators (see LaFree et al., 2014, 146-172, for a discussion). For instance, data from Enders et al. (2011) identified the 9/11 attacks as domestic. For that reason, I preferred to focus in the main analyses on the original GTD. However, I conducted the present analyses based on Enders et al. (2011) data, with update for recent years (Gaibullov and Sandler, 2019). The results were unchanged. Results can be sent by the author upon request.

²²For instance, it is possible that both deaths from suicide and terrorist attacks are systematically more reported in developed countries.

²³For instance, individuals may be more inclined to fight to change the political system in countries with higher share of deaths from suicide, even if they are not suicidal themselves. Yet, in this case, I see no reasons why the share of deaths from suicide would only explain suicide terrorism and not non-suicide terrorism.

5. Conclusion

The hypothesis that suicide terrorists are suicidal has stimulated passionate opposition (Atran, 2014; McCauley, 2014; Sela and Shackelford, 2014). Among its detractors, Atran (2014) argued that the suicidal hypothesis is a symptom of fundamental attribution error, i.e. the common human tendency to attribute others' behavior to psychological causes and to attribute one's behavior to external causes. Scholars who disregard the suicidal hypothesis may be subject to another common human tendency: base rate fallacy, i.e. focusing on specific cases and ignoring base rates (Kahneman and Tversky, 1972). Around 1.6% of the US population dies from suicide (Naghavi, 2019). Among US domestic terrorists, the exact same proportion committed suicide in perpetrating violence. Hence, suicide terrorism may be no more than the statistical conjunction of suicide and terrorism.

Detractors of the suicidal hypothesis overlook the base rate of suicides. In doing so, they exclude that suicidal individuals may fight for a political cause. In fact, most individuals who will eventually commit suicide display normal social and clinical characteristics (Large et al., 2017). Suicidal individuals, as all humans, may have altruistic motives and believe in a political cause. Then, is there a more meaningful way to commit suicide than through advancing one's political cause? Since 1993, around 200 Palestinians died in perpetrating suicide bombings to fight Israeli occupation (Jewish Virtual Library, 2020; Johnston, 2018; Sabri and Schulze, 2020). Over the same period, it can be estimated that 4,000 Palestinians died from common suicides.²⁴ Thus, if 5% of Palestinians who were to commit suicide anyway did it through suicide bombings against Israeli occupation, this would account for Palestinians suicide bombings over this period. Is this proportion unrealistic, given that a majority of the Palestinian population supports suicide attacks to fight Israeli occupation (Kohut and Bell, 2013; Sharvit et al., 2015)?

This chapter offers new micro and macro evidence supportive of the hypothesis that suicide terrorists are suicidal (Lankford, 2013a,b; Merari et al., 2009). These results are in contradiction with the foremost explanation of suicide terrorism as driven by altruistic devotion to the group (Atran, 2016; Atran and Sheikh, 2015; Ginges and Atran, 2009; Ginges et al., 2009; Pape, 2006; Sheikh et al., 2016; Swann et al., 2012; Whitehouse, 2018). The present results do not indicate that suicide terrorists are *not* altruistic *at all*. Suicide terrorists are not suicidal individuals who randomly perpetrate violence. A simple look at the geographical and historical concentration of suicide attacks shows that suicidal tendencies do not randomly translate into suicide terrorism. Results from Study 2 confirm that suicide attacks are related to a range of contextual causes, that are essentially similar

²⁴This estimation is based on applying the GBD estimated yearly suicide rate of West Bank and Gaza to its population since 1993 to 2019 - with simple application of the 2016 suicide rate for the 2017-2019 period. With a mean estimated suicide rate of 4.5 per 100,000 inhabitants, West Bank and Gaza range among countries with the lowest suicide rates in the world.

to those of terrorist attacks in general (Choi and Piazza, 2016; Freytag et al., 2011; Ghatak et al., 2019; Kis-Katos et al., 2011; Krueger, 2017; Piazza, 2017b). Hence, the present results do not contradict the view that altruism, as well as other factors, play a role in suicide terrorism. However, the results suggest that the difference between suicide and non-suicide terrorists may be simply explained by variations in suicidal tendencies.

The suicidal hypothesis has a main analytical advantage as compared to the altruistic hypothesis: it explains why suicide terrorism is an extremely rare phenomenon. As stated by (Victoroff, 2009, 397): "approximately 0.00024% of Saudis were documented to have become suicide bombers in Iraq. Any theory of suicide terrorism must account for this observation." The altruistic hypothesis states that sacrificial tendencies for the group are a human universal, i.e. a potential residing among all humans (Atran, 2016; Atran and Sheikh, 2015; Whitehouse, 2018; Whitehouse et al., 2017). The invocation of a universal does a poor job in explaining why the behavior under study is extremely rare. In contrast, the suicidal hypothesis explains the extreme rarity of suicide terrorism as the simple statistical conjunction of two relatively rare phenomena: suicide and terrorism.

Besides being empirically and analytically grounded, the suicidal hypothesis is parsimonious (Quine, 1964). Put simply, suicide terrorism is the conjunction of suicide and terrorism. Both phenomena are well documented and relatively under control for standard theories of human behavior. In contrast, the altruistic hypothesis encompasses a deep reconsideration of existing conceptions of humans, as basically interested in their preservation and not willing to sacrifice for non-kin relatives. It is not to say that existing conceptions should never be reconsidered. But such reconsideration should only be made in case of well-documented contradictory evidence. Evidence about suicide terrorism seems neither well-documented nor contradictory enough to justify such reconsideration. In sum, suicide terrorism may well be a case of over-theorization based on fragmentary data.

10

The strategic logic of jihadism

"If you attack the Caliphate and the Islamic State, you will be attacked."

AMEDY COULIBALY
(French homegrown jihadist)

The globalization of jihad has taken various patterns ranging from the lone involvement in deadly attacks at home, violence as an affiliated terrorist or joining a foreign insurgency. Yet, the likelihood of violent engagement and the patterns it takes considerably vary across countries. This chapter aims to explain such cross-national variation. We emphasize how the level of perpetrator's agency over two decisions – mobilization and target selection — is reflected in socio-economic conditions and foreign military interventionism that differ across countries. Consistently with our hypotheses, our analysis – focusing on global jihadism in support of ISIS (2014-2016) - shows that differences in the socio-economic conditions of Sunni Muslims explain the variation in jihadist mobilization, while varying levels of anti-ISIS foreign military interventionism explains variation in the selection of lone and affiliated terrorists targets. We further generalize these findings for non-ISIS jihadist domestic attacks (1992-2006).

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In this last chapter, I illustrate a second limit of the compass of radicalism. The compass of radicalism aims to link the economic context of a given society to the incidence of acts of political violence in this society. However, this leaves aside the fact that political violence may enter a transnational logic and be perpetrated abroad: individuals may join radical movements for domestic reasons – including collective deprivation experienced in their home country – and thereafter perpetrate violence in other countries for strategic reasons. In this case, the link between the domestic context – including the economy – and the act of political violence vanishes.

The present chapter illustrates this view by presenting results from a research conducted with my colleagues Clara Egger and Raul Magni-Berton on the causes of different forms of political violence perpetrated in the name of *ad-Dawlah al-Islāmiyah fī 'l-'Irāq wa-sh-Shām* (Islamic State of Iraq and Syria, ISIS). We show that domestic mobilization causes have an explanatory power to account for the number of recruits from a country joining ISIS in Iraq and Syria, and for the number of terrorist attacks perpetrated in the country by individuals inspired by ISIS. In contrast, domestic mobilization causes are unrelated to the number of terrorist attacks perpetrated in the country by individuals affiliated to ISIS. The implication is that the compass of violence may certainly account for the mobilization and action of domestic radical movements; it may also account for the mobilization, within a given society, of transnational organizations; it nonetheless cannot account for acts of political violence perpetrated by transnational organizations.

1. Introduction

Since 2001, jihadism¹ has been consequential in shaping patterns of political violence globally (Kis-Katos et al., 2014; LaFree and Dugan, 2018). The globalization of jihad has accompanied a trend of civil wars internationalization (Von Einsiedel et al., 2017) in the Muslim world, increasingly leading third parties – be they government or individuals

¹Jihadism is a contested concept. We use this term in its narrow sense stating that “armed confrontation with political rivals is a theologically legitimate and instrumentally efficient method for socio-political change” (for a discussion see Sedgwick, 2015, p. 36).

– to take up arms to support or oppose jihadist belligerents. Since the end of the Cold War, individual engagement in jihadism has taken three main patterns. A first pattern sees noncitizens of conflict states becoming foreign fighters who join a jihadist insurgency during a civil war (Malet, 2013, p. 9). ISIS is one of the particularly successful jihadist groups when it comes to recruiting foreign fighters. Recent estimates state that the organization is recruiting combatants in at least 85 different countries, most of them belonging to the Middle-East but also from countries as diverse as Russia, France, Belgium, Australia, New Zealand or Indonesia (Benmelech and Klor, 2020). A second pattern leads individuals to become affiliates of a transnational terrorist organization which operates in one country (either engaging in training activities or in a civil war) and selects individuals to fight outside – and sometimes far from – their base of operations (Bapat, 2006, p. 222). Third, a growing range of lone wolves has perpetrated deadly attacks outside the civil war battlefield without receiving any logistical support from a terrorist organization they claim to support (Hamm and Spaaij, 2017). Beside recruiting fighters in support of its territorial claims – the reconstitution of the Caliphate – ISIS has also considerably exported its struggle. Since the start of the Iraqi civil war in 2014, at least thirty-five countries were targeted by terrorist attacks, either by ISIS affiliated terrorists or lone wolves (Miller et al., 2016), leading the group to be one of the most active and deadliest (National Consortium for the Study of Terrorism and Responses to Terrorism (START), 2019).

The fact that countries are unequally affected by patterns of globalization of jihad suggests that diverse logics are at stake. In the case of violence in support of ISIS, some countries – such as, for example, France – are repeatedly targeted while attacks are rarer in other countries (such as Italy). In some instances, perpetrators share the same nationality than their victims and act in their own country (Orton, 2017). In others, they come from a foreign country and target nationals in another country. Foreign fighters flows also vary. Tunisia – the first provider of ISIS foreign fighters – has hosted some 6000 fighters since 2014 while Morocco, a close country with a population three times bigger than Tunisia, only hosted 1200 (Benmelech and Klor, 2020, p. 5). Some countries experience all three patterns of violence (affiliated terrorists, foreign fighters and lone wolves) while others are affected by a single pattern.

The multifaceted globalization of jihad raises two unanswered questions. How can cross-national diversity in patterns of violence be explained? Does each pattern of violence follow a distinct logic or is there a link between them? While growing evidence has been collected about the causes of each pattern, two distinct logics have been identified. The first stresses international strategic factors where the globalization of jihad is fueled by the opposition to targeted states' foreign policy (Braithwaite, 2015; Braithwaite and Chu, 2018; Choi and Piazza, 2017; McCauley, 2018; Nesser, 2019; Savun and Phillips, 2009). The second emphasizes the role of minority grievances leading politically excluded or repressed groups to violently oppose (national) governments (Ghatak, 2016;

Ghatak and Gold, 2017; Ghatak et al., 2019; Ghatak and Prins, 2017; Kurrild-Klitgaard et al., 2006; Piazza, 2011, 2012). We argue that the comparative analysis of diverse patterns of globalization of jihad allows distinguishing the conditions under which one logic takes precedence over the other and instances where both have a combined influence.

Following Hegghammer (2013), our theoretical argument assumes that individuals rationally opt for either terrorism or foreign fighting. Yet, each pattern of violence is characterized by different levels of perpetrator's agency regarding two decisions: mobilization and target selection. The more predominant the individual agency, the better the action is explained by the perpetrator's individual grievances. Joining a foreign insurgency is a typical example of this pattern. In contrast, strategic factors become predominant when individuals delegate their agency over target selection to a terrorist organization. Affiliated terrorism is the most typical example. The case of lone wolves attacks is more ambiguous, because they do not delegate their agency, but they align with the perceived strategy of the organization they support. We demonstrate that strategic factors robustly predict lone wolves attacks, even though individual grievances are also associated with them.

Our empirical demonstration relies on a comparative analysis focusing at the macro (country) level. We argue that variation in the drivers of decisions taken at the micro (individual) level is reflected in cross-national variation in macro indicators related to the intensity of grievances (visible in domestic socio-economic contexts) and diverse foreign policy approaches (level of military interventionism). Based on this strategy, we develop two empirical studies. We first statistically analyze the causes of various patterns of globalization of jihad (affiliated terrorists, foreign fighters and lone wolves) in support to ISIS during the Iraqi and Syrian civil wars (from December 2014 to December 2016). Second, we assess the broader implications of this result, following a two-staged approach focusing on ISIS affiliated terrorists but also on all instances of domestic jihadist terrorism in the period 1992- 2006. Our results show that even when attacks are perpetrated by national citizens in their home country, the target is selected based on foreign policy considerations.

Our analysis contributes to better conceptualizing the causes of political violence by distinguishing patterns of violence that are explained by the grievances of the perpetrator, by the international strategy of the organization she supports or by a mix of both. Bringing clarity to such debates has strong implications for counter-terrorist strategies (LaFree et al., 2014). Existing policies focusing on altering the conditions in which potential terrorists live through economic, educational and anti-discriminatory measures only have an impact if violence is due to such causes. They are however ineffective when it comes to terrorism due to international causes which would be better addressed through a change in the foreign policy of the target state (McCauley, 2018; Nesser, 2019).

The demonstration is organized as follows. We first present our theoretical argument

regarding the causes of different patterns of globalization of jihad. The following sections are dedicated to our two empirical case studies. In the concluding section, we discuss the implications of our results regarding current conceptualizations of terrorism.

2. Theoretical framework: explaining jihadism beyond borders

This section starts with developing a conceptual framework of the individual drivers leading jihadists to engage in diverse patterns of violence. We then explain how such drivers can be translated into macro-level indicators to building testable hypotheses, drawing from existing literature on the causes of jihadism.

2.1. Mobilizations and target selection: conceptualizing individual agency in the globalization of Jihad

Violence is sometimes adopted by unaffiliated perpetrators, either a single-actor (Becker, 2014; Spaaij, 2011) or a “bunch of guys” (Sageman, 2004), and sometimes perpetrated on behalf of an organization (Hoffman, 2006). This distinction is crucial: in the first case - lone wolves attacks -, the characteristics of the perpetrators are relevant to identify the selected pattern of violence while in the second case, affiliated terrorists, the strategy of the organization overcomes individual choices. To further analyze the implications of this distinction, we conceptualize a specific pattern of violence as resulting from a two-staged process. Stage 1 deals with the mobilization of an individual into jihadism whereas stage 2 deals with target selection for a specific attack. We argue that combining these two dimensions – the level of individual agency in the decision and the stage of the process (mobilization vs. target selection) shape the choice for various patterns of jihadism.

Leaving aside cases where individuals are constrained by an organization to engage in violence against their will, we argue that the outcome of the first stage (mobilization) is an individual decision shaped by the perpetrator’s personal experience in her country of origin. This follows existing scholarship on jihadism pointing lack of economic perspectives (Bakker, 2006; Hecker, 2018; Rekawek et al., 2018) and political grievances (Doosje et al., 2013; Mitts, 2019; Murshed and Pavan, 2011) as initial causes of individual mobilization. Once an individual has opted for violence, she can decide to achieve the second stage (target selection) without relating to an organization aligned with her goals. In this case, violence always is the result of the perpetrator’s agency: it is shaped by individual mobilization causes and by the perpetrator’s own target selection strategy.

The situation changes when an individual decides to develop ties with a transnational organization – in our case, ISIS – after mobilizing in violence. Three types of ties can be distinguished. First, an individual may *join the transnational organization* and renounce to her agency over the target selection stage. A typical case is foreign fighting. Individuals take up arms because of the individual life experiences and join a transnational organization, which will then select the target of attacks for them. In this case, the initial decision to engage in foreign fighting is only explained by mobilization causes, as, when leaving her country, the individual is not implementing any specific strategy.

Second, in *lone wolf attack*, an individual set up an action based on an organization's perceived strategy but without joining it. The individual maintains agency over decision-making in the two stages of the process but uses a foreign organization's strategy as a source of inspiration in the target selection stage.² In the case of ISIS, this pertains to unaffiliated individuals claiming their attack in support of the organization. Although the attack fits the strategy of the organization, the latter did not play a role in its logistical planning. The number of lone wolves attacks is hence explained both by individual mobilization causes and on by the strategy of the terrorist organization.

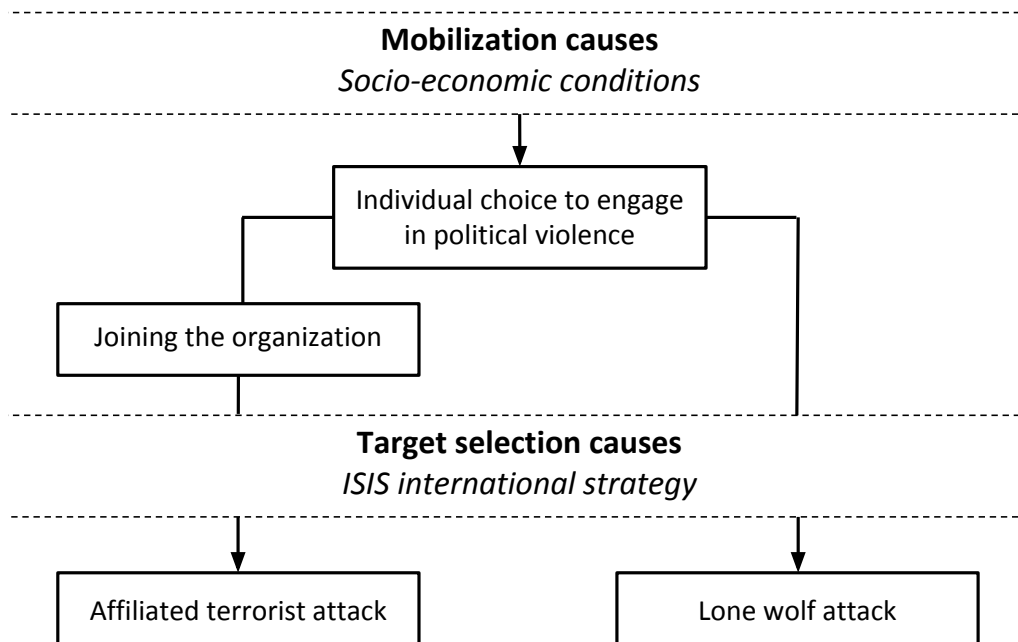
Third, *affiliated terrorist attack* gives no influence to mobilization causes. It consists in instances where a transnational organization sets up an attack and selects the right perpetrator within its ranks based on strategic considerations such as its political goals or success maximization.³ In this case, mobilization causes are not relevant to explain the attack as they are filtered by the target selection strategy of the organization. For example, if ISIS plans an attack in Denmark but not in Austria, Danish fighters will preferably be deployed to perpetrate terrorist attacks in their home country, because they can access Denmark more easily than foreigners and have a better knowledge of it, while Austrians will be kept on the Iraqi or Syrian battlefield. This choice is independent from the number of Danes and Austrians enrolled in the organization.

Figure 10.1 applies to ISIS struggle the general mechanism we focus on. Two processes can lead to a terrorist attack. The first process (on the left) entails two steps. In a first step, individuals self-select to join ISIS. While the organization's recruitment propaganda may play a role in this decision, our model argues that insurgent groups do not necessarily target specific countries in their recruitment propaganda: they appeal to

²Note that, according to Becker (2014), the target selection by lone wolves differs from those performed by affiliated terrorists in their within-country dimension (for example, civilian vs. military target). Lone wolves appear much less able to set up an ambitious deadly attack. However, in their cross-country dimension, only strategical or ideological reasons motivate lone wolves, exactly as affiliated terrorists do. (Becker, 2014, p. 965) point out that “most lone wolves chose targets that clearly corresponded with the class of “enemies” that they identified using their ideology”. Yet, he does not discuss how such ideology may be shaped by groups a lone wolf feels close to.

³This selection has already been identified at the theoretical level but never empirically tested (Hegghammer, 2013, p. 10).

Figure 10.1: Causes of different patterns of ISIS violence



a transnational community to hide the domestic nature of their struggle (Malet, 2013).⁴ This is even more likely to be the case for a group such as ISIS whose objective is to create a transboundary caliphate to host Sunni Muslims wherever they come from. During the second step, a few fighters are selected by the organization to perform terrorist attacks, giving precedence to target selection strategy of the group over individual choices. In contrast, in the second process (on the right), individuals simultaneously choose to engage in political violence and to select their target based on ISIS perceived strategy. Both their individual characteristics and the chosen organization’s strategy shape the likelihood of such attacks.

⁴The untargeted recruitment propaganda of ISIS is not a central assumption. Two other possibilities can be considered. First, the recruitment propaganda is more intense where people are more likely to be convinced. In this case, our analysis does not fundamentally change, because it assumes that ISIS knows that socio-economic conditions are responsible for the success of their recruitment. Therefore, they amplify this impact by focusing on already favorable contexts. Second, the recruitment propaganda is not undertaken in countries in which ISIS prefers lone wolves to commit attacks. This happened when ISIS lost its capacity to organize training and attacks and the borders with Syria were strongly controlled. Insofar as this is a generalized strategy, we should find that the number of foreign fighters departing from a country is negatively associated with the number of ISIS attacks in this country. As detailed in the result section, this is not the case, hence we can exclude that such systematic propaganda strategy was undertaken, or at least successful.

2.2. Translating mobilization and target selection causes at the macro Level : drivers of cross-national variation in ISIS global Jihad

Our hypotheses assume the level of individual agency in the mobilization and target selection process can be reflected in macro-level indicators to explain cross-national variation in patterns of ISIS violence. To do so, we select in existing scholarship the most robust predictors.

2.2.1. Mobilization causes: grievances and opportunity costs

Existing research emphasizes the role of grievances and opportunity costs that individuals experience in their country of residence. Domestic socio-economic contexts vary in their likelihood to generate such grievances. A large body of scholarship has established that the presence and intensity of political and economic discriminations against minority groups at the country level is a breeding ground for individual violence (Ghatak, 2016; Ghatak and Gold, 2017; Ghatak et al., 2019; Ghatak and Prins, 2017; Mitts, 2019; Piazza, 2011, 2012). As ISIS claims to act on behalf of Sunni Muslims, we especially select on discriminations targeting Sunni minorities. We hence expect cross-national variation in foreign fighters flows and in the number of lone wolves' attacks to be explained by cross-national differences in the level of such discriminations.

The second alleged predictor of individual engagement in jihadist violence is opportunity costs, meaning that individuals with little economic perspectives are more likely to mobilize into violence (Caruso and Schneider, 2011). To translate this finding at the macro level and apply it to the the specific case of ISIS violence, we examine the relationship between patterns of jihadist violence and country-level rate of unemployment among Muslim youth, a factor already found as positively associated with the number of foreign fighters (Gouda and Marktanner, 2019; Verwimp, 2016).

2.2.2. Target selection causes: anti-ISIS military interventionism

At the target selection stage, the underlying strategy through which ISIS selects its target needs to be unpacked. The literature on target selection is thin but supports the idea that militants groups' ideologies influence the selection of the group's enemies (Asal et al., 2009; Drake, 1998). We build on sizeable evidence to specifically investigate how transnational terrorist groups strategically target countries in retaliation for military interventions in asymmetrical warfare. Terrorist attacks in military intervening countries seek to affect their resolve to continue their intervention (Linebarger et al., 2020) and backlash on states involved in politico-strategic military interventions (Braithwaite, 2015; Du Bois and Buts, 2016; Neumayer and Plümper, 2009; Piazza and Choi, 2018), especially when organized

by ad hoc military coalitions (Buts and Du Bois, 2017). We hence claim that ISIS labels as a legitimate “enemy” each country which military intervenes against the groups’ positions in Iraq and Syria. As a result, we expect that, shall cross-national variation in targeting result from the strategy of ISIS, we should observe that countries military intervening against the group are more affected by terrorist attacks than non-intervening ones.

2.2.3. Operational hypotheses

This leads to the formulation of three hypotheses, explaining why countries are differently affected the globalization of ISIS jihad.

Hypothesis 10.1 *Cross-national variation in foreign fighters flows is only associated with variation in Sunni discriminations and opportunities and not with variation in anti-ISIS military interventionism of their home country.*

Hypothesis 10.2 *Cross-national variation in lone wolves attacks is jointly associated with cross-national variation in Sunni discriminations and opportunities in their home country and with military interventionism against ISIS.*

Hypothesis 10.3 *Cross national variation in affiliated terrorist attacks is only associated with variation in countries’ military interventionism against ISIS and not with variation in Sunni discriminations and opportunities.*

Table 10.1 summarizes our hypotheses.

Table 10.1: Causes of cross-national variation in patterns of ISIS violence

	Hypothesis 10.1	Hypothesis 10.2	Hypothesis 10.3
	Foreign fighters	Lone wolves attacks	Affiliated terrorist attacks
Conceptual causes	Mobilization causes	Mobilization causes + Target selection causes	Target selection causes
Operational causes	Sunnis discriminations and opportunities	Sunnis discriminations and opportunities + Military interventionism against ISIS	Military interventionism against ISIS

2.2.4. Implications for jihadist domestic terrorism

Our theoretical argument has implications for existing debates on the domestic and transnational dimensions of jihadist attacks. In most studies, the identity relationship between the venue, target, and perpetrators is used to identify instances of domestic terrorism, which are generally considered to derive from purely domestic causes (Berkebile, 2017; Enders et al., 2011). Yet, we argue that using this criterion hides two very different types of attacks. We label the first as affiliated terrorist attack. In this case, the nationality of the individual perpetrator is contingent and chosen by the organization. Therefore, to understand the causes of the attack, the organization should be taken as the “real” perpetrator and not the individual directly involved in the attack. When the organization is transnational, the attack cannot be considered as purely domestic in its dimensions and causes. The second type of attack is perpetrated by lone wolves, who are not affiliates of a specific organization. According to our argument, the number of attacks from jihadist lone wolves in a country partly depends on a domestic socio-economic conditions, and for this reason, they entail a domestic dimension. However, many jihadist lone wolves align with the strategy of a transnational organization to select their target (Mueller, 2013). As a result, their attacks also reflect the specificity of such a strategy. In both cases – affiliated terrorist and lone wolves – the target is selected consistently with the strategy of a transnational organization. For that reason, we follow studies that rather focus on the nationality of the perpetrating organization (Kis-Katos et al., 2011; LaFree et al., 2014) to explain the rationale of the attacks while extending it to instances of terrorism perpetrated by unaffiliated individuals. In fact, our argument invites to consider as transnational every attack with foreign ties or transnational ramifications.⁵ While the precise definition of such foreign ties often lacks clarity (see LaFree et al., 2014, p. 149), the simple fact that the attack is accomplished in support of a foreign jihadist group suggests that the target is selected based on foreign policy considerations.

This conclusion is consistent with what perpetrators themselves claim (McCauley, 2018). The asymmetrical warfare logic of jihadist terrorism is apparent in justifications of domestic attacks. Combining data on the expressed motivations of jihadists in America from the 2001 to 2017, (Mueller, 2013, p. 10) concludes that the driving force is “outrage at American policy” and not hostility to American culture, society and values. This remark applies beyond the US case. During the Hypercacher supermarket siege, French-citizen Amedy Coulibaly affirmed: “What we are doing is totally legitimate. You attack the caliphate, you attack the Islamic State, you are attacked. You cannot attack and have nothing in return” (our translation). In the same token, British Michael Adebolajo

⁵This criteria originates from the International Terrorism: Attributes of Terrorist Events (ITERATE) database, the reference data source within the literature on transnational terrorism (Krueger, 2017; Krueger and Malečková, 2009; Neumayer and Plümper, 2009; Piazza and Choi, 2018).

justified his killing of a British soldier in 2013, saying: “The only reason we have killed this man today is because Muslims are daily killed by British soldiers”. This leads to the formulation of a fourth hypothesis, aiming to generalize our results beyond the specific case of ISIS.

Hypothesis 10.4 *Cross-national variation in the number of jihadist attacks characterized by an identity relationship between the venue, target, and individual perpetrators reflects variation in countries’ military interventionism in majority Muslim countries.*

3. Study 1. Patterns of ISIS globalization of Jihad (December 2014-2016)

Study 1 focuses on patterns of jihadist violence in support of ISIS during the Iraqi and Syrian civil wars. Our objective is to investigate how variation in these patterns is explained by variation in levels of military interventionism against ISIS and variation in socio-economic conditions affecting Sunni minorities.

3.1. Research design

We built a cross-sectional (not cross-temporal) dataset including 155 observations (one by country). Indicators pertain to the intensity of each pattern of ISIS violence for each country as well as to national indicators of socio-economic conditions and military interventionism. The main reason for using a simple cross-sectional design is the lack of reliable longitudinal data regarding key variables in the analysis.⁶ Note that Study 2 specifically addresses the limitations of this simple design by using longitudinal data.

3.1.1. Dependent variables

Foreign fighters. We first operationalized our dependent variables by estimating the incidence of the three patterns of ISIS violence in a given country. Regarding foreign fighting in Iraq and Syria we relied on data from the Soufan Group assembled by Benmelech and Klor (2020), which estimate a count of foreign fighters joining ISIS from all countries. The Soufan Group claimed to rely on official government estimates wherever possible but also from other reliable sources (Barrett et al., 2015). The data inevitably

⁶To our knowledge, there is no existing longitudinal data on ISIS foreign-fighters flows by country. Similarly, no data have been systematically collected about the temporal variation in military intervention against ISIS by country and about the discrimination of Sunni Muslim populations by country.

suffer from limitations such as estimates biases but also the lack of government official counts for some countries. However, to our knowledge, this source provides the most systematical and accurate estimates of foreign fighters flows, and is the reference database for cross-national comparisons of foreign fighters flows (Benmelech and Klor, 2020; Gouda and Marktanner, 2019).

Terrorist attacks. For terrorist attacks related to ISIS, we used the Global Terrorism Database (GTD) (National Consortium for the Study of Terrorism and Responses to Terrorism (START), 2017a), presented in Chapter 6. In the case of ISIS, an auxiliary dataset was recently released to further disentangle attacks related to the group (Miller et al., 2016). This dataset, updated until December 2016, enables distinguishing between attacks directed by ISIS – which corresponds to our conceptual category of affiliated terrorists attacks - and attacks perpetrated by unaffiliated individuals inspired by ISIS – what we refer to as lone wolves attacks.⁷ We computed data on the number of these attacks by target country since December 2014. We chose this period because most military interventions against ISIS' core territorial positions in Iraq and Syria started in Autumn 2014.⁸ As we aim to test the causal effect of military interventionism, it is necessary to analyze attacks organized after the start of the strikes against ISIS.

Lone wolves attacks. Table J.1 in Appendix J lists the date and location of the 44 lone wolves attacks identified for our study period.⁹ Our own research based on public sources shows that three quarters are generally classified as domestic (based on an identity relationship between the venue, target, and perpetrators). Since Hypothesis 10.2 expects cross-national variation in the number of lone wolves attacks to be positively associated to both military interventionism against ISIS and to grievances and opportunity costs, we excluded — for methodological reasons — cases involving foreign perpetrators. By excluding minority transnational attacks, we restrict the analyses to attacks considered as domestic to determine to what extent international target selection causes influence them.

⁷The strengths of the GTD however come with a price. The coding method - which relies on international press releases and public sources - generates uncertainties regarding the affiliation and claim of the perpetrators in some attacks. As contested claims remain marginal and randomly distributed, we decided to use the original dataset in our analyses. However, we conducted research based on public sources for each attack (see Tables J.1 and J.2 in the appendix) and identified attacks where the link with ISIS is contested. The conclusions of the study are unchanged when excluding these cases.

⁸As we aim to explain cross-national variation in global jihadism in support of ISIS, we exclude attacks occurring in the headquarters territories of ISIS as attacks in Syria and Iraq.

⁹We excluded four attacks inspired by ISIS, but which were claimed by other organizations: *Harakat al-Shabaab al-Mujahideen* (Mouvement of the young mujahideen, HSM), *Harakat al-Muqawamah al-Islamiyyah* (Islamic Resistance Movement) – commonly known as *Hamas* (Courage) –, *Jund Ansar Allah* (Soldiers of the Supporters' of Allah) and *Harakat al-Khalifah al-Islamiyya* (Kilafah Islamic Movement) (see Miller et al., 2016).

Affiliated terrorists attacks. Affiliated terrorists attacks imply that the leadership of ISIS took an active part in the planning of the attack. Table J.2 in appendix lists the date and location of the 113 attacks identified for our study period. In two thirds of the cases, attacks cannot easily be categorized as the identity of the perpetrator is unknown — most of them involve events resulting from a spill-over of the Syrian civil war to Lebanon and Turkey. 12% of the remaining cases are perpetrated by national citizens and can be defined as domestic. The other cases either involve foreign perpetrators (10%) or combine both national and foreign perpetrators (12%). Our argument implies that cross-national variation in affiliated terrorist attacks only reflects variation in countries' military interventionism against ISIS and not countries' socio-economic characteristics, even when such attacks are classified as domestic. Yet, the low number of domestic attacks in our sample prevents us from conducting a rigorous statistical analysis restricted to domestic affiliated terrorist attacks. Hence, to test Hypothesis 10.3, our main analyses focus on the total number of ISIS affiliates attacks in a country while we merely comment on our sample of domestic attacks.

3.1.2. Independent variables

Our independent variables capture identified target selection and mobilization causes, as well as control factors.

Military interventionism against ISIS. To gauge a country's level of military interventionism against ISIS, we first identified all the governments that provided military support to the anti-ISIS forces in Iraq and Syria. We used the data collected by the US State Department in November 2014, which lists all countries that military contributed (or officially committed to do so) to the anti-ISIS war (Drennan, 2014). The coverage of the source is likely to be reliable, as the Obama administration coordinated military efforts against ISIS at that time. The source also includes information on the military interventions of non-coalition partners such as Iran. The main advantage of this source, from a methodological point of view, is that it allows identifying countries that engaged in the conflict at the beginning of our study period. Indeed most countries listed by the US State Department committed to contributions in September 2014. However, this list is limited by its rather large definition of military support, which combine various degrees of military intervention: it may either consist in providing military equipment – as for Albania which supported Kurdish forces since August 2014 –, training counter-insurgency forces – as for Spain's support to the Iraqi Army since October 2014 –, or directly launching airstrikes against ISIS territorial positions.

To specify the focus, and as various ISIS-related perpetrators specifically refer to countries involved in airstrikes in their retaliation claims, we then specifically identified

the countries that launched airstrikes against ISIS in Iraq or Syria, based on McInnis (2016) and public sources (see table J.3 in the appendix). The United States were the first coalition member to launch airstrikes against the group in August 2014, followed by France, Jordan, the United Arab Emirates, Saudi Arabia, Bahrain and the United Kingdom in September. Australia, the Netherlands, Belgium and Denmark started conducting airstrikes in October, Canada in November and Morocco in December. Turkey later joined airstrikes operations in July 2015. Outside of the coalition members, Iran was the first country involved in strikes against ISIS in Iraq, deploying troops in June 2014 and conducting airstrikes at least since December of the same year. Finally, Russia started airstrikes against ISIS in Syria in support to the Syrian government in September 2015.

Based on this information, we built our main explanatory variable in three categories: countries that did not commit to provide military support to the coalition against ISIS (0), countries that committed to provide military support to the coalition (1), and countries that directly launched airstrikes against ISIS in Iraq or Syria (2).

Sunni discriminations and opportunities. Regarding mobilization causes, we first included the share of Sunnis based on the estimates of Correlates of War World Religion Data (Maoz and Henderson, 2013). To test for Sunni opportunity costs, we gathered data on youth unemployment rate estimates from the World Bank (2019b). As we have no data on the unemployment rate of Sunni populations, we followed Gouda and Marktanner (2019) by computing the interaction between these two variables, a factor they found to correlate with the number of foreign fighters joining ISIS. To analyze the influence of Sunnis discriminations, we followed previous studies on the terrorism-discrimination nexus (Choi and Piazza, 2016; Ghatak, 2016; Ghatak and Prins, 2017; Piazza, 2011, 2012) by relying on the Minorities at Risk Database (Minorities at Risk Project, 2009). The main advantage of the dataset is that it allows distinguishing levels of discrimination suffered from different religious minorities by country, rather than computing an aggregated national score of discrimination. However, the major limitation is that the data is time-constant, the last update dating back from 2006. Hence, it does not take into account recent national variation in minority discriminations. Based on Piazza (2012), we constructed a binary variable coded 1 for countries in which at least one Sunni minority face some level of political, economic, linguistic or religious discrimination. Other countries, either having no Sunni minority at risk or in which Sunni minorities do not face discrimination, were coded 0.

Control variables. Lastly, we controlled for factors that have been shown to affect political violence in general. We first included the logged Population size and GDP that positively correlate with the number of domestic (Piazza, 2012), transnational attacks (Choi and Luo, 2013) as well as foreign fighters flows (Benmelech and Klor, 2020). Besides,

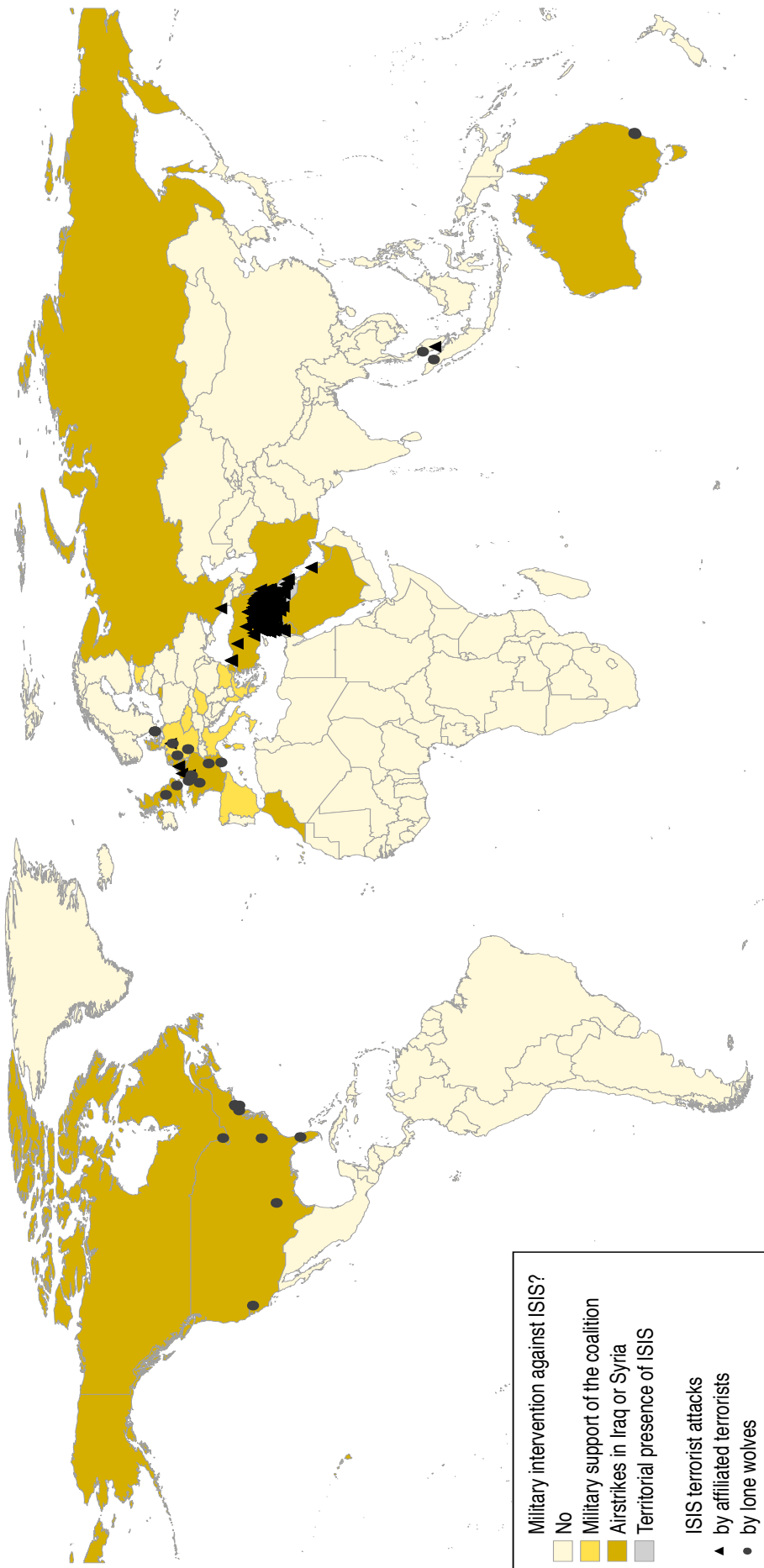
we controlled for regime type based of the standard Polity IV score (Center for Systemic Peace, 2018b), ranging from -10 (autocracy) to 10 (democracy). Finally, we controlled for the distance to Iraq, where most of ISIS territorial positions were located during the study period, in thousands of kilometers (Mayer and Zignago, 2011). This partly captures the logistical cost of fighting that should negatively affect the number of attacks directed by ISIS and flows of foreign fighters.

We merged all independent variables values for 2014, the beginning of our study period, except for the data on the share of Sunnis (last half decade estimate of 2010) and for the variable on Sunni minority discriminations which is time-constant. All variables are described in Table J.4 in the appendix.

3.2. Empirical results

We start with investigating whether the three identified patterns of violence in support of ISIS are correlated. Using linear correlations, we find that the number of affiliated terrorist attacks in a country neither correlates with the number of lone wolf terrorist attacks ($r = -.01, p = .85$) nor the number of foreign fighters departing from a country ($r = -.02, p = .84$). The number of lone wolf terrorists in a country slightly correlates with the number of foreign fighters departing from the country ($r = .16, p = .05$). Consistently with our argument, this suggests that different factors explain varying levels in countries' exposure to patterns of ISIS globalization of jihad.

Figure 10.2: Terrorist attacks related to ISIS (December 2014-2016)



How do the three patterns relate to the military intervention against ISIS and socio-economic conditions? Figure 10.2 displays the geographical location of terrorist attacks related to ISIS in the GTD, distinguishing between ISIS affiliated terrorists attacks and lone wolves attacks perpetrated in support of the organization. It also highlights countries involved in military interventions against ISIS, be they countries military supporting the coalition (in light yellow) or countries launching airstrikes in Iraq or Syria (in gold). This map suggests that ISIS related attacks mainly target countries involved in military interventions against the group, especially countries conducting airstrikes which particularly suffer from terrorist attacks.¹⁰ In contrast, nearly all the non-intervening countries are not targeted. The only exceptions are Georgia, Indonesia and Malaysia. In the last two cases, this could suggest that the share of Sunni Muslims in a country increases the risk of ISIS related attacks.

3.2.1. Confirmatory analyses

To test the effect of military interventionism compared to domestic socio-economic causes, we conducted regression analyses. As in Chapters 6, 8 and 9, we rely on negative binomial regression models. This method, common in terrorism studies (Kis-Katos et al., 2011; Neumayer and Plümper, 2009; Piazza and Choi, 2018), is also standard in studies on foreign fighters (Benmelech and Klor, 2020; Krueger, 2017). Table 10.2 presents estimates for the determinants of different patterns of ISIS violence. For each pattern of violence, we estimate three models: one including foreign policy target-selection causes, one including socio-economic mobilization causes and one including both. All models include control variables. Models (1) to (3) explain the number of foreign fighters leaving a country. Models (4) to (6) explain the number of lone wolves attack in a country. Finally, models (7) to (9) analyze the number of ISIS affiliated terrorists attacks in a country.

¹⁰The exceptions are The Netherlands, Iran, Saudi Arabia, Russia, Morocco and The United Arab Emirates. Actually, one could guess that these exceptions reflect the conservativeness of our inclusion criteria data rather that contradict our argument. Indeed, after the end our study period, Iran suffered from a series of affiliated terrorists attacks in 2017 and at least two ISIS inspired lone wolves attacks took place in The Netherlands in 2018 (5 May 2018 in The Hague and the 31 August in Amsterdam). Besides, Saudi Arabia suffered from a high number of attacks (29) perpetrated by ISIS affiliated groups during our study period. Similarly, the Sinai Province of ISIS was responsible for the bombing of a Russian passenger flight on 31 October 2015, killing 227 people, just a month after Russia started its airstrikes in Syria. To our knowledge, the only two countries conducting airstrikes in Iraq and Syria that were not attacked by ISIS and inspired lone wolves are The United Arab Emirates and Morocco. In the latter case, a lone wolf attack took place in December 2018, but targeted a group of Danish and Norwegian tourists.

Table 10.2: Effect of target selection causes and mobilization causes on patterns of ISIS violence (unstandardized coefficients from negative binomial regression)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Nb foreign fighters			Nb lone wolves attacks			Nb affiliated terrorists attacks		
Target selection causes									
Military interventionism against ISIS (no as reference)									
Military support of the coalition	-1.779 (1.199)		-0.752 (0.962)	1.228 (1.161)	16.19* (7.965)	1.024 (1.277)	2.971* (1.313)	4.458 (4.242)	2.406+ (1.312)
Airstrikes in Iraq or Syria	1.690+ (1.000)		0.144 (0.877)	2.631* (1.048)	3.709 (4.310)	2.259* (1.098)	4.887** (1.540)	-2.000 (8.810)	4.388** (1.464)
Mobilization causes									
Share of Sunni population		3.537* (1.458)	3.671* (1.455)						
Youth unemployment rate		-2.677 (2.723)	-2.147 (2.685)						
Share of Sunni population × Youth unemployment rate		10.39 (6.817)	9.556 (6.719)		-56.72+ (33.15)	-44.89 (34.00)		-4.350 (16.64)	-8.008 (12.39)
Sunni discriminated minority		1.642** (0.612)	1.723** (0.620)		2.178** (0.811)	1.705* (0.840)		1.907 (1.305)	1.208 (1.201)
Controls									
log Population	0.609** (0.201)	0.480** (0.151)	0.485** (0.161)	0.785** (0.262)	0.827*** (0.238)	0.564* (0.264)	0.288 (0.382)	0.0623 (0.499)	-0.192 (0.412)
log GDP per capita	0.819* (0.334)	1.448*** (0.187)	1.453*** (0.227)	0.795 (0.596)	3.654** (1.199)	2.480+ (1.355)	-0.164 (0.514)	1.415* (0.560)	0.374 (0.539)
Democracy score	0.136* (0.0609)	0.137** (0.0517)	0.143* (0.0566)	0.283 (0.218)	0.355 (0.231)	0.516 (0.356)	0.119 (0.109)	0.111 (0.118)	0.214* (0.108)
Distance to Iraq	-0.592*** (0.101)	-0.267*** (0.0798)	-0.274** (0.0846)	-0.0259 (0.0927)	0.188+ (0.106)	0.0940 (0.110)	-0.821* (0.387)	-0.755* (0.375)	-0.783+ (0.400)
Constant	-10.56* (4.472)	-18.12*** (3.011)	-18.31*** (3.550)	-26.52*** (7.778)	-59.86*** (16.63)	-44.39* (18.08)	-5.072 (8.076)	-15.50+ (8.164)	-3.545 (7.147)
Inalpha	2.407*** (0.149)	1.892*** (0.158)	1.884*** (0.159)	-0.377 (0.933)	-0.961 (1.387)	-1.153 (1.030)	1.725** (0.539)	2.208*** (0.521)	1.076 (0.692)
Observations	155	155	155	155	155	155	155	155	155
R ²	0.0373	0.0843	0.0850	0.409	0.457	0.516	0.245	0.222	0.288

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: Iraq and Syria excluded from the sample

Models (1) to (3) relative to the number of foreign fighters support Hypothesis 10.1. The level of military interventionism against ISIS has no effect on the number of foreign fighters leaving a country: compared to non-intervening countries, governments supporting the coalition and launching airstrikes against ISIS do not experience higher foreign fighters flows. In contrast, the presence of a discriminated Sunni minority has a significant positive effect on foreign fighters flows. The share of Sunni in the population also does, but we do not find a significant effect of the interaction between the youth unemployment rate and the share of Sunni population. In sum, as expected by Hypothesis 10.1, only variation in mobilization causes explains cross-national variation in foreign fighters flows.

Models (4) to (6) show that, consistently with Hypothesis 10.2, military interventionism has a positive effect on lone wolves attacks. The effect is only significant for countries launching airstrikes. As in the case of foreign fighters, the presence of a Sunni discriminated minority significantly increases the number of lone wolves attacks, while the interaction between the share of Sunni and youth unemployment rate has no effect. The coefficient of the share of Sunni is significant only when military interventionism is not controlled for. These results support Hypothesis 10.2 holding that lone-wolves attacks are jointly due to mobilization and target selection causes.

In line with Hypothesis 10.3, models (7) to (9) show that military interventionism against ISIS, especially airstrikes, has a significant positive effect on the number of ISIS affiliated terrorists attacks, while domestic socio-economic causes do not have any significant effect. Neither the interaction between the share of Sunni population and youth unemployment rate nor the presence of a Sunni discriminated minority are related to attacks by ISIS affiliates. In line with Hypothesis 10.4, cross-national variations in affiliated terrorists attacks are only related to variations in target selection causes.

Note that results from models (7) to (9) hold even when we run the models on the very limited number of attacks (13) identified as domestic. These attacks took place in Turkey, Jordan, Lebanon, Malaysia, Belgium and Germany. Except for Malaysia, all these countries launched airstrikes against ISIS or, in the case of Lebanon and Germany, supported the anti-ISIS coalition. Despite being perpetrated by national citizens, several attacks have a rather explicit link with the international interventionism of the target country. For example, the attack in Brussels airport occurred 20 days after the Belgian Prime Minister decided to intensify air warfare by extending strikes to Syria. The police investigation revealed that the perpetrators belonged to a terrorist cell in Belgium, involved in the organization of the November 2015 Paris' attacks and planning an attack on the Amsterdam airport. Both France and The Netherlands were engaged in airstrikes against ISIS at that time. Attacks in Jordan took place after Jordan strengthened its air campaign against ISIS early 2015 and served as a rear-operating base for the anti-ISIS international coalition.

Finally, most control variables display expected coefficients. The population size and

GDP positively affect foreign fighting and lone wolves attacks, but not affiliated terrorists attacks. The level of democracy is positively associated with affiliated terrorists attacks in model (9), consistently with the view that terrorist groups target more democratic countries to get a larger audience and influence policy responses (Chenoweth, 2013). Finally, the distance to Iraq has a significant negative effect on the number of foreign fighters and, only in models (7) and (8), the number of affiliated terrorists attacks. This is consistent with the higher logistical cost for individuals to join ISIS from distant countries and for ISIS to organize attacks in distant countries.

3.2.2. Robustness checks

We then conducted several robustness checks. We first estimated our models with an alternative dependent variable, the number of casualties (killed and injured people) induced by affiliated terrorists and lone wolves attacks (see Table J.5 in the appendix). Estimates confirm the effect of military interventionism on both types of terrorism, albeit the estimates do not reach the conventional significance threshold in all models. In contrast to the main results, socio-economic causes have no significant effect on the number of casualties.

Second, we used a wider definition of anti-ISIS military interventionism, by testing the effect of military strikes against ISIS and affiliated organizations. We added to our country count of ISIS affiliated terrorists attacks the number of attacks directed by organizations affiliated to ISIS (for the complete list of affiliated groups, see Miller et al., 2016). We coded as interveners all the previously identified countries involved in airstrikes in Iraq or Syria and added to this list other countries involved in foreign military strikes against groups affiliated to ISIS during our study period. Cameroon, Chad, Benin and Niger launched military strikes against *Jamā'atu Ahli is-Sunnah lid-Da'wati wal-Jihād* (Group of the People of Sunnah for Dawa and Jihad) – more commonly known as *Boko Haram* (Western education is forbidden) – in Nigeria, and Egypt conducted airstrikes against the Tripoli Province of ISIS in Libya in February 2015 (see Table J.6 in the appendix). Note that, in addition to Iraq and Syria, we now additionally excluded from the sample countries in which groups inspired by ISIS were territorially implanted (Nigeria, Libya, Afghanistan, Somalia and Yemen) to only unpack the international activity of such groups.

Figure 10.3: Terrorist attacks related to ISIS and groups that declared allegiance to ISIS (December 2014-2016)

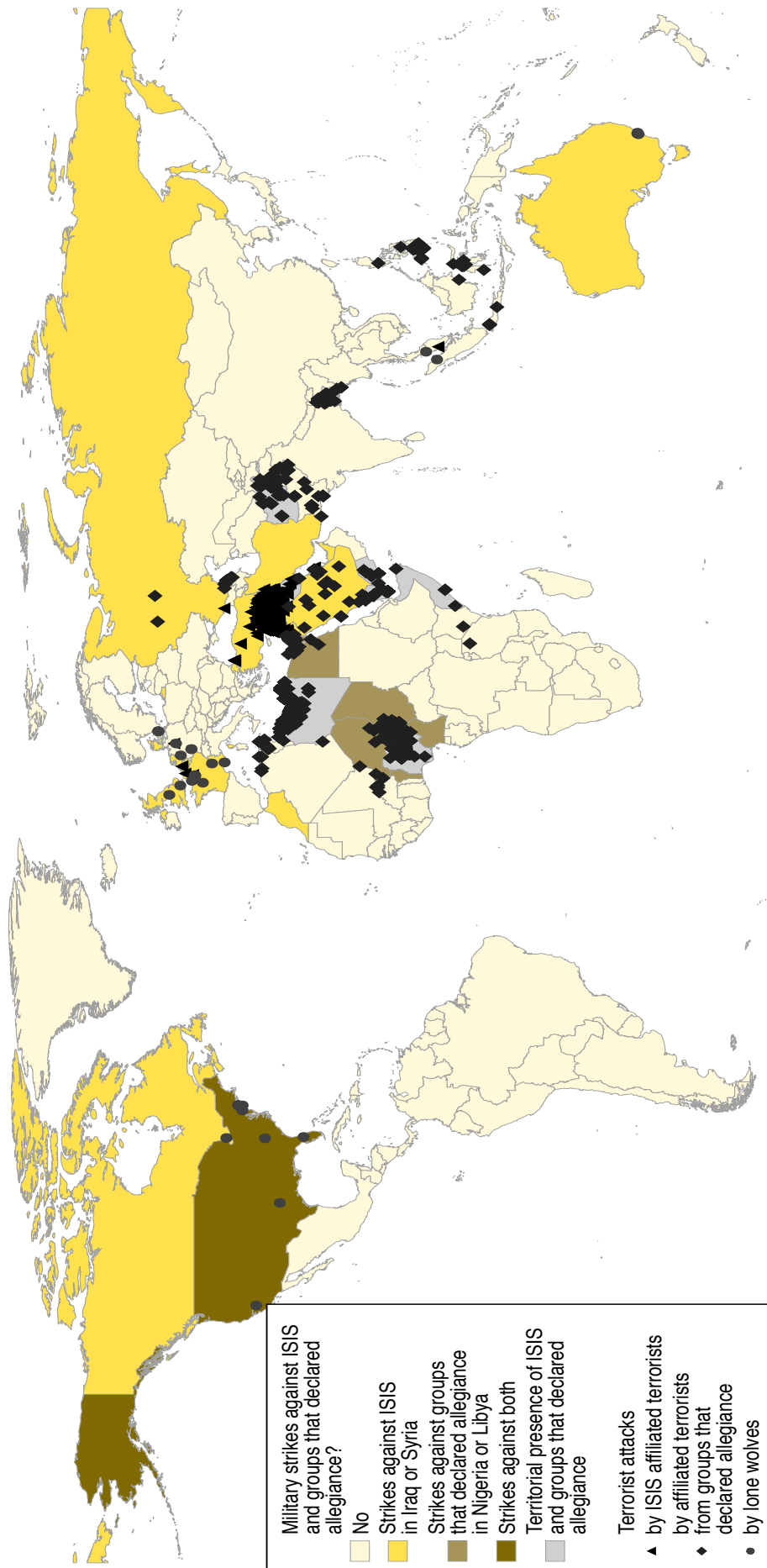


Figure 10.3 shows the geographical distribution of affiliated terrorists and lone wolves attacks. It also highlights countries involved in strikes against ISIS or affiliated groups. The map suggests that attacks are more frequent in intervening countries. Regression estimates (detailed in Table J.7 in the appendix), based on the above-presented main models are consistent with our previous findings. Results from the full models show that countries involved in strikes against ISIS and affiliated groups experience significantly more attacks, both from lone wolves as well as organized by ISIS and affiliated organizations terrorists. In contrast, the number of foreign fighters joining ISIS is not related to military interventions against ISIS and affiliated groups. Besides, the other variables display coefficients similar to our main results.

3.3. Discussion

Study 1 allows drawing several conclusions. In line with previous studies (Benmelech and Klor, 2020; Gouda and Marktanner, 2019), variation in foreign fighters flows is predicted by variation in the social experiences of individuals in their country of residence. Besides, variation in ISIS affiliated terrorism is mainly predicted by the organization's target selection strategy, even when perpetrators are national citizens. This result is coherent with the view that the characteristics of the organization, rather than the ones of individual perpetrator, is key to capture the transnational dimension of terrorism (Kis-Katos et al., 2011; LaFree et al., 2014). Furthermore, we show that target selection causes – related to foreign policy considerations - have an influence on attacks from national citizens, even when the perpetrators have no direct link with ISIS.

The main limit of Study 1 is the possibility of a reverse causality mechanism, meaning that countries launched airstrikes in response to ISIS attacks on their soil. This is however unlikely as few countries suffered from attacks before December 2014. ISIS affiliated terrorists attacks occurred in Belgium, Lebanon and Turkey before their military interventions, even if the last two countries already hosted several anti-ISIS activists and fighters at that time. ISIS inspired lone wolves attacks have been recorded in the United States, Australia and Canada before their airstrike campaigns: In the Australian case, the first attack took place the 23rd of September, a few days after the Australian government announced the deployment of aircrafts in Iraq. Similarly, in Canada, lone wolves attacks occurred in late October 2014, after the Parliament approved of sending aircrafts in Iraq. Thus, the United States are the only case in which some lone wolves attacks actually occurred before military intervention.

4. Study 2. Jihadist domestic terrorism (1992-2006)

In light of these results, Study 2 serves two purposes. First, it seeks to test whether target selection causes – related to military interventionism - have an influence on jihadist terrorism perpetrated by national citizens, beyond ISIS specific case. More specifically, we analyze the effect of military interventions in Muslim majority countries on jihadist domestic terrorism to test Hypothesis 10.4. Second, Study 2 aims to assess the direction of the causal relationship between military interventionism and jihadist domestic terrorism. The study is based on GTD data from 1992, when the first noticeable wave of jihadist terrorism was recorded after the end of the first Gulf War (Kis-Katos et al., 2011) to 2006, the time of ISIS establishment under the leadership of Abu Bakr al-Baghdadi (Starr-Deelen, 2018).

4.1. Research design

We built a dataset combining indicators of the intensity of domestic jihadist terrorism for each country and year and indicators of socio-economic conditions and military interventionism for each country and year. The analyzed dataset is both cross-sectional and cross-temporal, meaning that each observation is a given country at a given year. The dataset gathers 156 countries over a 15 years period.

4.1.1. Dependent variable

Jihadist domestic terrorism. The GTD does not directly distinguish between transnational and domestic terrorism. Enders et al. (2011) designed a method to separate domestic from transnational attacks in the GTD. Although there are doubts regarding the ability of this classification method to properly distinguish attacks perpetrated by nationals (see LaFree et al., 2014, 146-172, for a discussion), most recent empirical research on domestic terrorism is based on this dataset (Choi and Piazza, 2016; Ghatak, 2016; Ghatak and Gold, 2017; Ghatak and Prins, 2017; Piazza, 2011). Following these studies, we use the updated version of the Enders et al. (2011) dataset (Gaibulloev and Sandler, 2019).

The GTD does not include information on the ideological orientation of terrorist attacks. To identify jihadist domestic terrorism we relied on the name of the perpetrating group in the GTD combined with a research based on public sources about the group's ideology. We mostly conducted research on the website of the Terrorism Research and Analysis Consortium (Terrorism Research & Analysis Consortium, 2019) which is, to our knowledge, the most extensive database on terrorist organizations (their history, ideology, targets, etc.), covering more than 4,500 groups. The GTD includes a great number of small groups, on which information about the ideology is not always available. For that reason, we excluded minor terrorist groups that perpetrated five attacks or less over

1992-2006. Table J.8 lists the identified jihadist groups for the study period. This process leads us to identify 372 attacks. We summed the count of attacks per country and year to construct our dependent variable.

4.1.2. Independent variables

Military interventionism in Muslim majority countries. To measure military interventionism, we followed Piazza and Choi (2018) and used the International Military Intervention Dataset (Pickering and Kisangani, 2009), which lists all cases in which national military forces were moved into foreign countries from 1947 to 2005. Military interventions fall in two categories depending on their motives (Kisangani and Pickering, 2007). On the one hand, politico-strategic interventions are launched for a least one of the following issues: diplomatic issues, domestic political issues, regime change issues, rebel pursuit issues, strategic issues and territorial issues. On the other hand, socio-economic interventions refer to at least one of the following issues: humanitarian issues, social or economic issues. As Piazza and Choi (2018) found that only politico-strategic interventions were associated with transnational terrorism, we specifically analyzed these instances. We focused on interventions in majority Muslim countries, i.e. targeting countries where more of 50% of the population is Muslim at the year of the intervention according to the latest estimates of the World Religion Data (Maoz and Henderson, 2013). Based on this data, we constructed a country-year dummy coded 1 for countries military involved in one or more politico-strategic intervention in Muslim countries, and 0 otherwise. We expect this variable to be positively related to jihadist domestic terrorism.

Muslim discriminations and opportunities. We used the same socio-economic causes than in Study 1, except that we focused on Muslim populations in general rather than on Sunni populations.¹¹

Control variables. We only made two changes regarding the control variables. We did not include a measure of territorial distance since our dependent variable gathers attacks from groups implanted in different areas. Moreover, as Study 2 focuses on terrorist attacks performed by groups that are territorially implanted in various countries facing civil wars, we controlled for a dummy variable indicating the occurrence of a civil war in a given country-year based on the Major Episodes of Political Violence database (Center for Systemic Peace, 2018a). Major episodes of political violence “involve at least 500 "directly-related" fatalities and reach a level of intensity in which political violence is both systematic and sustained (a base rate of 100 directly-related deaths per year)”. An

¹¹Indeed, Study 2 is about jihadist terrorism in general, which also includes Shia Muslim terrorist groups such as *Ḥizbu 'llāh* (Party of Allah).

episode of political violence is considered as a civil war when it involves rival political groups at the intra-state level.

After merging all country-year indicators, we lagged all independent variables by one year to ensure that the explanatory factors occurred before the dependent variable. All variables are described in Table J.9 in the appendix.

4.2. Results

Table 10.3 presents estimates from negative binomial regression models of the number of domestic jihadist attacks in a given country and year. We minimally included continent fixed effects, and further tested our models including year fixed effects.¹² As in Study 1, we firstly tested three models: target selection causes only (1), mobilization causes only (2), and both (3).

Models (1) and (2) confirm that the number of jihadist domestic attacks is positively related to politico-strategic military interventions in Muslim countries. Besides, domestic socio-economic determinants significantly predict the number of jihadist domestic attacks. Whilst it does not reach the conventional significance threshold in model (2), the interaction between the youth unemployment rate and the share of Muslim population is significantly and positively associated with the number of jihadist domestic attacks in model (3). Furthermore, the presence of a discriminated Muslim minority significantly increases the number of jihadist domestic attacks, both in model (2) and (3). These findings support the view that jihadist domestic terrorism is related to both foreign policy and domestic socio-economic causes.

We then further analyzed the causal mechanism linking politico-strategic intervention and jihadist domestic terrorism. Model (4) shows that countries involved in politico-strategic intervention in non-Muslim majority countries do not experience more jihadist domestic attacks. This suggests that the effect of politico-strategic intervention in Muslim countries is not due to the effect of military interventions in general. Moreover, model (5) excludes a reverse causal mechanism, i.e. that countries which experience jihadist domestic terrorism are more likely to launch politico-strategic interventions in Muslim countries in retaliation. Indeed, there is no significant relationship between future politico-strategic intervention in Muslim countries and the number of jihadist domestic attacks.¹³ Finally, model (6) generally confirms the robustness of our main results when including year fixed effects in the model. Among the main explanatory variables,

¹²We also tested the inclusion of country fixed effects (excluding time-constant predictors) but models did not converge as the distribution of our dependent variable is highly truncated at zero.

¹³One could wonder whether this insignificant relationship could rather be explained by the sample reduction in model (5), due to the lack of data on future intervention after 2004. Yet, we exclude this possibility because past politico-strategic interventions still have a significant effect on jihadist domestic terrorism on the same sample than model (5), excluding observations after 2004.

Table 10.3: Effect of target selection causes and mobilization causes on the number of domestic jihadist terrorist attacks (unstandardized coefficients from negative binomial regression)

	(1)	(2)	(3)	(4)	(5)	(6)
Target selection causes						
Military politico-strategic intervention in Muslim majority countries t_{-1}	1.255* (0.514)		1.339** (0.515)			1.111* (0.540)
Military politico-strategic intervention in non-Muslim majority countries t_{-1}				-0.219 (0.583)		
Military politico-strategic intervention in Muslim majority countries t_{+1}					0.0820 (0.561)	
Mobilization causes						
Share of Muslim population t_{-1}		-0.411 (0.975)	-1.036 (1.028)	-0.358 (0.985)	-0.0110 (1.018)	-0.726 (0.997)
Youth unemployment rate t_{-1}		-0.0946 (2.438)	-0.313 (2.489)	-0.0761 (2.451)	0.121 (2.434)	-0.0553 (2.426)
Share of Muslim population t_{-1} × Youth unemployment rate t_{-1}		6.739+ (3.945)	8.478* (4.059)	6.525 (3.994)	4.845 (4.112)	6.870+ (3.959)
Muslim discriminated minority t_{-1}		1.061** (0.408)	1.016* (0.412)	1.077** (0.410)	0.760+ (0.429)	1.121** (0.419)
Controls						
log Population t_{-1}	1.108*** (0.162)	0.865*** (0.154)	0.835*** (0.155)	0.873*** (0.156)	0.907*** (0.168)	0.778*** (0.150)
log GDP per capita t_{-1}	1.161*** (0.170)	0.892*** (0.172)	0.844*** (0.174)	0.897*** (0.173)	0.912*** (0.196)	0.841*** (0.174)
Democracy score t_{-1}	0.000935 (0.0319)	0.0592 (0.0402)	0.0493 (0.0411)	0.0588 (0.0402)	0.0594 (0.0408)	0.0540 (0.0391)
Civil war t_{-1}	2.144*** (0.472)	1.424** (0.547)	1.434** (0.548)	1.435** (0.547)	1.672** (0.539)	1.615** (0.562)
Constant	-29.51*** (3.588)	-24.44*** (3.435)	-23.56*** (3.446)	-24.59*** (3.464)	-25.03*** (3.802)	-22.40*** (3.378)
Inalpha	2.524*** (0.175)	2.321*** (0.190)	2.320*** (0.188)	2.320*** (0.190)	2.158*** (0.208)	2.167*** (0.199)
Continent fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	No	No	No	No	No	Yes
Observations	2214	2214	2214	2214	1904	2214
Pseudo R^2	0.207	0.220	0.228	0.220	0.231	0.241

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

both politico-strategic interventions in Muslim countries and the presence of a Muslim discriminated minority significantly increase the number of jihadist domestic attacks.

Estimates related to control variables generally go in the expected direction. Both the population size and the GDP per capita have a positive effect on jihadist domestic terrorism. The effect of democracy is not significant. Finally, the occurrence of a civil war has a significant positive effect.

We present several robustness checks in table J.10 of the appendix. We firstly tested our models using socio-economic intervention in Muslim countries instead of politico-strategic intervention. Our results remain similar but the relationship does not reach the conventional significance threshold in the full model including year fixed effects. Secondly, we ran estimates using the number of casualties due to domestic jihadist attacks as an alternative dependent variable. Estimates confirm the robustness of our main findings: politico-strategic interventions in Muslim countries have a positive significant impact on jihadist domestic attacks. Regarding socio-economic causes, the interaction term between youth unemployment and the Muslim population share has no significant effect on the number of casualties, while the presence of a Muslim discriminated population performs better.

5. General discussion

Research on the causes of individual engagement in the globalization of jihad has so far separately studied the three most common patterns of violence, namely affiliated terrorism, foreign fighting and lone wolves terrorism. From the point of view of the jihadist organization supporting or inspiring such violence, these patterns are, however, linked. In particular, the organization has to decide of the pattern which support the best its strategy. It can either disseminate a recruitment campaign (appealing for foreign fighters) or rather a terror campaign (appealing for lone wolves attacks). The first strategy enables the organization to better control violent engagement and maximizes its impact — including the selection of the perpetrator among its affiliates based on its target selection. In contrast, the second strategy — although less controllable — is less costly and demands less investment. In both cases, the success of these strategies is conditioned to the specific socio-economic characteristics of each country. Our results shows that cross-national variation in the size of the Sunni population, its level of discrimination, and, to a lesser extent, its level of unemployment explains cross-national variation in foreign fighters flows and in the number lone wolves attacks.

Besides recruitment, the organization has to target a legitimate enemy. Jihadi groups

and inspirational figures have extensively commented on the criteria leading a target selection process to be legitimate (Hegghammer, 2013, p. 8). When looking at deadly attacks perpetrated outside the battlefield, our analysis shows that countries involved in foreign military strikes against majority Muslim countries are specifically targeted. This is true whatever the recruitment strategy used: appealing to lone wolves attacks or recruiting foreign fighters first to then train them and finally deploy selected affiliated terrorists. However, differences in targeting only reflect variation in countries' foreign policy positioning — and as such, all countries could virtually be targeted by affiliated terrorists. This is not true in the first strategy as we show that appeals to lone wolves are more successful in countries where there are many discriminated Sunni Muslims. Yet, this does not mean that the impact and degree of precision of such attacks is the same. Since our level of analysis is situated at the country level, both strategies appear very similar. But other micro-analyses reveal that lone wolves attacks differ as their material and victims are more accessible (Becker, 2014).

Our results converge with the motivational factors identified for the terrorist attacks related to *al-Qā'idah* (The Base) in Spain and the Netherlands in 2004 (Nesser, 2006). Military interventionism in Iraq appears to be the major driving cause of the Madrid bombings, directly perpetrated by *al-Qā'idah*. In contrast, among the bunch of lone wolves that murdered the Dutch artist Theo Van Gogh, the effect of both socio-economic conditions in the Netherlands and military interventionism combined (Nesser, 2006, p. 338).

Analyzing patterns of jihadist violence through the lens of jihadist organizations allows understanding why, where and when individual opt for a specific course of action. In particular, we can infer from our results that the less costly recruitment strategy (appealing to lone wolves attacks) predominates when the cost of affiliated terrorists' attacks is too high. In line with this argument, our results demonstrate that the distance of a country from the organization's headquarters is associated with less affiliated terrorists' attacks, but it does not affect the number of lone wolves' attacks. Moreover, the choice of the right strategy does not only depend on the characteristics of the targeted country, but also on those of the organization itself. The less costly strategy is preferred when the organization is weakened. Data from the GTD support this interpretation. The number of terrorist attacks directly perpetrated by ISIS out of Iraq and Syria continuously declined while the group was defeated on territorial grounds. After a peak of 97 attacks in 2016, 41 attacks were perpetrated in 2017 and 8 in 2018 (National Consortium for the Study of Terrorism and Responses to Terrorism (START), 2019). In comparison, lone wolf attacks remained quite stable: 38 attacks by jihadi-inspired extremists occurred in 2016, 28 in 2017 and 29 in 2018 (National Consortium for the Study of Terrorism and Responses to Terrorism (START), 2019).

This leads us to discuss our second key finding, namely that jihadist domestic terrorism — defined by an identity relationship between the venue, target, and perpetrators —

is not immune from a strong international dimension. Domestic terrorist attacks are used in retaliation for military interventions in Muslim countries. This result — consistent with what homegrown extremists themselves claim — sheds new light on the international dimension of terrorism. Whether they are lone wolves or affiliated terrorists, perpetrators attack target countries engaged in foreign military strikes against majority Muslim countries.

Our findings have threefold implications. First, they reveal that the existing literature suffers from a categorization issue. While the concept of “domestic terrorism” has been forged to account for the domestic causes of terrorism, jihadist domestic terrorism cannot be fully accounted for without taking into account the foreign policy of the targeted country. We even show that in some instances — when homegrown individuals have been selected by the organization — domestic drivers can even be ruled out from the analysis. These instances, however, are poorly documented, and we cannot provide more than empirical clues in favor of this relationship. However, the fact that individuals mobilize in violence and join a foreign insurgency is a properly domestic phenomenon. Our analysis shows that variation in foreign fighters flows per country — a measure for choosing to join the organization rather than directly implementing the organization’s strategy — is only predicted by variation in domestic characteristics, and not by differences in foreign policy positioning. Overall our analysis shows that, to hold explanatory power, any classification of terrorist attacks should account both for the characteristics of the perpetrator and of the organization hiring or inspiring the perpetrator. When attacks are set up by unaffiliated individuals, socio-economic factors combined with a variety of motives related to the perpetrator’s own strategy are relevant. When the perpetrator aligns her preferences with those of a transnational organization — in our case case of ISIS or transnational jihadist organizations — foreign policy determinants also explain these attacks. In contrast, when the attacks are directly set up by the organization, only the latter’s strategy matters to explain cross-national variation in the number, venue and victims of the attack.

Second, our findings shed new light on the stay versus go dilemma that jihadists face when selecting their fighting theater (Hegghammer, 2013). They suggest that the main reason leading individuals to stay is the fact that their country is at war against ISIS - or more generally intervene in Muslim countries. Hence, when opting for a theater, fighters opt for the battlefield where they feel the most useful to advance the goals of the organization they support, even without any evidence of organized coordination. Our results also allows capturing the conditions under which the perpetrator’s individual agency shapes the pattern of violence in a predominant way.

Lastly, our analysis advocates for fundamentally rethinking existing counter-terrorism strategies. Current strategies to address domestic terrorism emphasize the role of national social and anti-discriminatory policy to address the root causes of violent radicalization (European Council, 2018). In contrast, existing policies to tackle foreign fighting and

transnational terrorism have a strong international component, aiming to strengthen international cooperation in borders control and countering of ISIS online propaganda and recruitment campaigns (Council of the European Union, 2014). Our findings contribute to explain the ineffectiveness of such strategies and suggest that altering international policies is more likely to tackle homegrown jihadism.

General conclusion

The present dissertation challenges the conclusion of recent empirical research that economic conditions do not matter in the explanation of radicalism (Krieger and Meierrieks, 2011; Krueger, 2017). I found supportive evidence that the absence of general effect of collective deprivation on radicalism actually hides sizable opposite effects depending on the ideology of radical movements: right-wing radical movements are active under contexts of collective deprivation, while left-wing radical movements are active under contexts of collective improvement. I found evidence for this opposite effects in two in-depth case studies respectively analyzing the mobilization of French radical movements during a century (Chapter 1) and the ideological orientation of US domestic terrorists since World War II (Chapter 2). Furthermore, such differential effects of economic inequality and recessions are also observed in cross-national comparisons of right-wing and left-wing terrorist attacks (see the second study of Chapter 8).

Why do we observe such a differential effect? I proposed in this dissertation two main explanations: the theory of ideals and the theory of enemies. The theory of ideals states that collective deprivation affects the popular appeal of the ideologies that motivate radicalism: radical movements would fight for the past in times of collective deprivation and fight for the future in times of economic improvement. The theory of enemies states that collective deprivation affects the motivation to attack specific social groups which determines the ideological orientation of radicalism: radical movements would fight against the weak in times of collective deprivation and fight against the strong in times of collective improvement. Taken together, those theories offered what I called the compass of radicalism: collective deprivation would be the magnetic field orientating radical movements at a given historical period across the cardinal points of the ideals (past or future) and enemies (weak or strong).

The theory of ideals works for the right, not the left.

Economic decline affects right-wing ideologies, not left-wing ideologies.

The results from Part II partly corroborate my theory of ideals. The theory of ideals predicted, in a first stage, that reactionary ideologies would resonate under contexts of economic decline while revolutionary ideologies would resonate under contexts of eco-

conomic prosperity. In a second stage, the resonance of these ideologies would offer a fertile soil for the mobilization of radical movements fighting in the name of such ideologies. The first stage of the causal chain clearly operates for right-wing radicalism. I showed in Chapter 3 that contexts of long-term economic recession generate a reactionary shift, which results in higher votes for extreme right parties. Besides, Chapter 5 indicates that manipulating the perception of an economic recession enhances nostalgia among individuals at the right of the political spectrum, indirectly increasing their radical intentions.

In contrast, the opposite is not true for left-wing radicalism. I did not find that contexts of economic prosperity result in higher votes for the extreme left in Chapter 3 and the manipulation of the perception of economic growth did not generate a decrease of nostalgia among individuals at the left of the political spectrum. Why did not I find support for the first stage of the theory of ideals for the left? That is, why are not left-wing ideologies more resonant under contexts of collective improvement? The present results offer different pieces of answer.

The left may be reactionary. Firstly, the left is not always revolutionary. Indeed, I found evidence that individuals and parties commonly labeled as left-wing may well have reactionary components, which could partly explain why economic decline does not have a systematic effect on them. This is especially visible in Socialist Republics, as shown in Chapter 3, in which attitudes associated with the left such as support for redistribution are weakly associated with progressivism (see also Duriez et al., 2005; Magni-Berton, 2013). Chapter 4 demonstrated that this may explain the fluctuating effect of economic decline on extreme left votes: I found that contexts of sector employment decline may at times increase votes for extreme left parties – when they display reactionary components – while it decreases their vote share at other times – when they display revolutionary components. The reactionary left seems not to be a mere exception: in the survey presented in Chapter 5, it appears that in West European countries extreme left voters are currently more nostalgic of the past than the average.

Are economic recessions inherently threatening? Secondly, economic recessions are differently perceived by individuals depending on their political orientation. People at the right may be more likely to give attention to economic issues (Newport, 2018) and promote economic growth (see for instance Neumayer, 2004). Hence, recessions may affect the resonance of reactionary versus revolutionary attitudes especially among the right, while other forms of collective variations could affect reactionary versus revolutionary attitudes among the left. Evidence from the survey experiment in Chapter 5 gives some support to this view. I found that the evocation of an economic recession triggers nostalgia among right-wing individuals but not among left-wing individuals. However, it is hard

to conclude from the experiment that this is what actually happens in times of recession. Individuals at the left may be theoretically indifferent or defavorable to economic growth, but affected by the social suffering that is often associated with historical periods of recessions. In this line, I found in Chapter 3 that actual economic recessions decreased votes for extreme left parties that were incumbent, meaning that their voters tended to punish them in case of recession. Nonetheless, one more general interpretation of the finding from the experiment is that, economic recessions may not *per se* triggers reactionary attitudes. They do so once they are associated with collective losses and suffering that generate a perception of collective decline. One may hence guess that economic recessions that are publicly desired and associated with redistributive policies and alternative ways of living – such as in various de-growth political options – would not mechanically generate reactionary attitudes.

For a rational approach of ideology. The third reason why the theory of ideals is not corroborated for the left may simply be that the theory of ideals is partly false: periods of decline are more prompt to generate reactionary attitudes than periods of prosperity revolutionary attitudes. As I detailed in the Introduction, the theory of ideals lies on two distinct approaches of ideologies – a *rational* one and a *psychological* one – which are respectively more suited to explain reactionary and revolutionary attitudes. The *rational* approach states that economic decline generates a wish to return to the past system which is seen as objectively more efficient. The *psychological* approach – more specifically system-justification theory (Jost et al., 2003b) – states that economic decline generates a need for security and certainty that inclines people to disregard innovative ideologies. The most direct reading of the data from this dissertation gives the favor to the *rational* approach. I did not find evidence that revolutionary ideologies benefit from prosperity, but I found plenty of evidence that reactionary ideologies benefit from decline. For instance, this is particularly evident from the comparative study of elections in Chapter 3. Votes for extreme left parties follow a classic economic voting mechanism: under recessions, the extreme left gains votes if it belongs to the opposition and loses votes if it participates in the government. In contrast, votes for the extreme right seem to offer something beyond simple economic voting: the extreme right benefits from recessions, even when it is in power. This specific thing the extreme right has to offer is, I have argued, the promise of a return to the past.

The finding from Chapter 5 that the experimental evocation of a recession and a dis-sension in public opinion differently affects nostalgia depending on subjects' political orientation further casts doubts on the *psychological* approach of ideology, in favor of a *rational* approach. Indeed, as discussed in Chapter 5, a common view of system-justification theory, in the psychological approach of ideology, is that exposure to threat systematically increases right-wing orientation because right-wing ideologies offer reassuring cog-

nitions (Jost, 2017; Jost et al., 2003b). However, this literature has typically analyzed specific threats – such as terrorist attacks – for which right-wing parties are perceived as more competent (Seeberg, 2017). Recent evidence shows that other types of threats – such as health-care, pollution or corporate misconduct –, for which left-wing parties are perceived as more competent, may increase left-wing attitudes (Eadeh and Chang, 2020; see also Brandt et al., 2019; Crawford, 2017). In this line, Brouard et al. (2018) recently found that terrorist attacks do actually not generate a general attitudinal shift toward the right, but rather specifically increases right-wing attitudes relative to security issues. This suggests that attitudinal changes in response to threats may be simply conceived as rational adaptations to the new information and salient issues that individuals are facing (see Bullock, 2009; Gerber and Green, 1999). My own results align with this view: different threats may generate different attitudinal responses depending on whether individuals are feeling concerned or not by the threat. In the same vein, the finding from Chapters 3 and 4 that economic decline differently affects political attitudes and votes for extreme right and extreme left parties in former Socialist versus Western Bloc countries indicates that the link between threat and ideology is not systematic, but context-dependent (see also Kossowska and Hiel, 2003; Thorisdottir et al., 2007). Overall, this suggests that predictions of the psychological approach of ideology about the effect of threat deserve further critical investigations to disentangle whether (more parsimonious) rational mechanisms may be at play. More broadly, this aligns with recent research questioning the existence (or at least the size) of ideological asymmetries in affective (see Pliskin et al., 2020) and physiological processes (Bakker et al., 2020).

Ideology matters to explain radicalism, for both the left and the right.

Although the first stage of the theory of ideals does not work for both the right and the left, the second stage of the theory of ideals receives consistent empirical support for both ideologies. Chapter 6 demonstrated that the spread of left-wing and right-wing ideologies, as measured by extreme votes, is positively associated with left-wing and right-wing radical intentions, mobilization and terrorist actions in their name. This aligns with studies linking opinions and terrorist attacks (Hewitt, 2003; Krueger and Malečková, 2009; Malečková and Stanišić, 2011; Sharvit et al., 2015) as well as recent findings from Rees et al. (2019) indicating that similar contextual variables are related to extreme right votes and hate crimes. Thus, the results comfort the belief that radicalism is not created out of thin air: it rises in contexts in which the ideologies for which it fights are experiencing popular success.

More broadly, with regard to the literature on radicalization, this suggests that the quest for common origins of all types of radicalism is certainly relevant yet limited. Indeed, most of the current research on radicalization, using cross-sectional and longitudinal

data, analyses the occurrence of terrorism whatever its ideological orientation (Abadie, 2006; Caruso and Schneider, 2011; Dreher and Fischer, 2011; Kis-Katos et al., 2011; Li and Schaub, 2004; Piazza, 2006). However, some key variables may be missed in such analyses because they may have different causal relationships with distinct ideological orientations of radicalism. In this line, there is evidence that the moderating effect of ideology is not limited to the macroeconomic variables analyzed here. For instance, research indicates that there are substantial sociodemographic differences between left-wing and right-wing activists (Chermak and Gruenewald, 2015; Gambetta and Hertog, 2017; Smith and Morgan, 1994), suggesting that research should focus on the individual determinants of right-wing versus left-wing radicalization. Similarly, Kis-Katos et al. (2014) and Brockhoff et al. (2016) found that contextual factors generally have very different effects on terrorist attacks depending on their ideological orientation. In other words, some difficulties in finding general determinants of terrorism may be due to the fact that the concept of terrorism incorporates phenomena that future research should disaggregate into distinct ideologies.

The theory of enemies works for the left, not the right.

The results from Part III also give partial support to my theory of enemies. The theory of enemies predicted that variations in inter-group inequality would affect the individual probability to commit acts of altruistic violence against weaker or stronger outgroups. The motivation to attack weak groups would generate right-wing violence, while the motivation to attack strong groups would generate left-wing violence. Results from the economic experiment presented in Chapter 7 align with the predictions regarding left-wing violence. As expected, I found that inequality in group destructive capacity results in fewer attacks targeting strong outgroups. I also found that attacks against strong outgroups increase when individuals see their resources increasing. Besides, results from Chapter 8 confirm that individuals at the left of the political spectrum are more likely to attack strong outgroups. Taken together, these results shed light on the negative relationship between periods of increasing inequality and left-wing radicalism.

However, the theory of enemies is not corroborated for the right. I did not find that groups in relatively declining economic condition target weaker outgroups more. How may this result be explained? The first possibility is that – in the same way than the theory of ideals may not work for the left – the theory of enemies does not work for the right. However, a second possibility is that another form of economic decline affects the likelihood to attack weak outgroups. In the experiment of Part III, the resources are distributed across groups in a non-zero sum game fashion. Resources vary in time, but the specific amount of resources earned by each group at the beginning of a round is independent from the amount of resources earned by the other groups. As a consequence, groups

have no incentive to eliminate other groups: this would not affect their own amount of resources. The situation would change in contexts in which the distribution of resources follows a zero-sum game. In such case, groups would have an incentive to target weak groups in order to eliminate them and own the resources left available by the eliminated groups. This consideration maps with simulation studies, which indicate that contexts of concurrence of resources have been a pre-condition for the emergence of parochial altruism (Choi and Bowles, 2007; Lehmann and Feldman, 2008). One may consider that there exist environmental variations in the level of concurrence on resources – for instance, bad weather may induce more concurrence than good weather, etc. Hence, it is possible that environmental variations in the level of concurrence on resources affect the level of attacks against weak outgroups. Evolution may have shaped mechanisms increasing the motivation to target weak outgroups when individuals face environmental clues indicating a high level of concurrence on resources. This could offer a new mechanism to explain the rise of right-wing radicalism in periods of economic scarcity. Though a little bit outside the scope of this dissertation, we started investigating this possibility with my colleague Ismaël Benslimane by working on a model simulating the evolution of strategies to attack strong or weak outgroups in conditions of fluctuating affluence, based on previous evolutionary models of parochial altruism (Choi and Bowles, 2007; Lehmann and Feldman, 2008).

Right-wing radicalism crucially depends on preferences while left-wing radicalism crucially depends on opportunities.

Taken altogether, the findings relative to the theory of ideals and enemies suggest that left-wing and right-wing radicalism have distinct root causes. I found positive evidence that economic contexts affect the *preferences* for right-wing radicalism, through the success and ultimately the radicalization of reactionary ideologies in contexts of economic decline. In contrast, results regarding left-wing radicalism point toward the fact that its emergence crucially depends on *opportunities* for violence – here, whether people have material possibilities to engage in egalitarian violence and whether the level of inequality in destructive capacity allows to hope for a successful egalitarian revolution.

This view is comforted by a finding from the post-experimental survey presented in Chapter 8: I found that although attacks against weak outgroups are strongly related to perceived ingroup cooperation, attacks against strong outgroups are only weakly related to it. In other words, identifying with a specific ingroup is not a necessary precondition to engage in attacks against the strong. What this finding suggests is that the motivation for left-wing violence is roughly always present. It is deeply rooted in the basic human preference for equality (Dawes et al., 2007; Raihani and McAuliffe, 2012). What will crucially determine the radicalization of egalitarian ideals and the rise of left-wing political

violence is the viability of the egalitarian fight. Although the opportunity for right-wing violence is generally higher – right-wing radical groups are typically more able to find material assistance from rich financial backers (see the discussion of the third study of Chapter 6, and for instance Collombat and Servenay, 2009; Ferguson and Voth, 2008; Lahousse, 1998; Soucy, 1989; Sternhell, 1976; Weber, 1990) and their targets are much less dangerous –, the motivation for right-wing violence is not always present. It arises only in specific contexts, such as that of perceived threat to the ingroup safety, which motivate the individual engagement into group-based violence.

The final limit of the compass: a theory of low-intensity violence.

Throughout this dissertation, I have been a bit ambiguous on one point. I have argued that the literature on radicalism and political violence generally considered that economic conditions do not matter – a conclusion which I tried to disprove in this dissertation. However, this statement about the literature is not rigorously exact. This is true for the literature on terrorism. But this is not true for the literature on civil wars. Civil wars are internal conflicts with more than 1,000 deaths in a single year, involving government forces and one or more identifiable rebel organization (Collier and Hoeffler, 2004, p. 565). In all rigor, violence perpetrated by insurgent groups in civil wars enters the behavioral definition of radicalism used in this dissertation, since it consists in illegal acts (here, violent acts) perpetrated under the claim to achieve political changes (e.g. regime change). Now, empirical studies on civil wars do find poverty and economic recessions to be key causes of the onset of civil wars (Collier and Hoeffler, 2004; Fearon and Laitin, 2003). Why did I leave aside this information and what does it change about the conclusions of the present dissertation?

The reason lies on the divergent dominant motivations of actors involved in civil wars compared to actors involved in terrorism or other radical behaviors studied throughout this dissertation. My theoretical framework – the compass of radicalism – focuses on radicalism perpetrated for truly *altruistic* motives. Both the theories of ideals and enemies lie on this assumption. The theory of ideals assumes that individuals involved in radical movements are committed for ideological reasons, which explain why ideological shifts affect the mobilization of radical movements. Similarly, the theory of enemies lies on the concept of parochial altruism, which captures acts of inter-group violence that are costly for the perpetrator. In contrast, the literature on civil wars suggests that individuals involved in rebel groups are mostly motivated by *egoistic* (or in other words apolitical) motives. Those motives are caused by *selective incentives* to participate in the conflict, i.e. private benefits from involvement through money, loot, lands, grade (see Lichbach, 1998), or even the enjoyment of a safer position in the fighting group than outside of it (Kalyvas and Kocher, 2007).

The fact that egoistic motives are predominant in civil wars is apparent both at the micro and macro levels. At the micro level, individuals involved in insurgent groups during civil wars are generally drawn from poor economic backgrounds (Humphreys and Weinstein, 2008). At the macro level, factors associated with grievances (e.g. low political rights, ethnic and religious fractionalization) have a low predictive power on civil wars¹⁴, while factors associated with opportunity for the viability of insurgency (e.g. resources available for extortion, poverty favoring rebel recruitment) are key predictors (Collier and Hoeffler, 2004; Fearon and Laitin, 2003; Fjelde, 2015). These findings support the view that individuals with low opportunity cost are more likely to engage in insurgency, as it is the case for crime (Becker, 1968).

As mentioned in the Introduction, such opportunity cost argument is not supported for terrorists in general: evidence indicates that terrorists are not drawn from poor economic backgrounds (Clark, 1983; Krueger and Malečková, 2003; Russell and Miller, 1977; Sageman, 2004; Speckhard and Ahkmedova, 2006). This maps with the view that involvement in terrorism generally results from altruistic and ideological motives (Krueger, 2017). Interestingly however, this becomes less true when looking at large terrorist groups that have means to offer selective incentives to their recruits. For instance, it has been noticed that members of the *Óglaigh na hÉireann* (Irish Republican Army, IRA) were disproportionately coming from the working class (Russell and Miller, 1977). This may be connected to the large financial means of the organization, relying on its links with organized crime (Woodford and Smith, 2018). Similar observations have been made of the membership of large terrorist groups such as the *Fuerzas Armadas Revolucionarias de Colombia* (Revolutionary Armed Forces of Colombia, FARC), the *Demala ilām vimukti koṭi* (Liberation Tigers of Tamil Eelam, LTTE) and the *Partiya Karkerên Kurdistanê* (Kurdistan Workers' Party, PKK) (Hudson, 1999). It seems not a coincidence that these groups have large financial capabilities: all three organizations were involved in drug dealing and other criminal activities to fund their struggle (Norman, 2018; Roth and Sever, 2007; Sahin, 2001).

More recently, it has been noticed that European jihadists have a much lower socio-economic backgrounds than usually observed in terrorism studies (Basra and Neumann, 2016; Hecker, 2018; Hegghammer, 2016; Rekawek et al., 2018). Again, this is likely to be due to the capacities of jihadist groups operating in Syria and Iraq to offer selective incentives to recruits. On the top of it, *ad-Dawlah al-Islāmiyah fī 'l-'Irāq wa-sh-Shām* (Islamic State of Iraq and the Levant, ISIS) had large sources of revenues – at a first stage through bank theft, hostage taking and oil takeover; and at a second stage through an-

¹⁴In contrast, the literature on terrorism shows that grievances, such ethno-political discriminations (Ghatak, 2016; Ghatak and Gold, 2017; Ghatak et al., 2019; Ghatak and Prins, 2017; Mitts, 2019; Piazza, 2011, 2012), are of major influence (see also Chapter 10).

tiquity sale, human trafficking, and taxation of local populations (Pagliery, 2015) – and hence could promise salaries and commodities to its recruits. Comforting this view, the search for an employment and for fulfilling basic needs appear among the most common expressed motivations to join the group among former ISIS members, at a similar frequency than the group ideology (Speckhard and Ellenberg, 2020). This may explain the relationship between national Muslim youth unemployment and the number of foreign fighters joining ISIS observed by some studies (Gouda and Marktanner, 2019; Verwimp, 2016).

Hence, it seems that the dominant motivations of recruits shift from altruistic to egoistic once terrorist groups attain a certain size and financial capacity. What this means is that altruism alone is not enough for violence to reach a certain scale. Altruism may well lead to the commission of spectacular illegal and violent acts, but it may not lead – at least alone – to the onset of a civil war. Krueger (2017) summarizes this general view:

"Beyond a certain size, the additional recruits tend to be motivated more by pay and less by ideology; these tend to be people of lower socioeconomic status. For a civil war to occur, a terrorist or insurgent group must reach a certain scale. In this event, the organization is composed not only of those who care deeply about the cause but also mercenaries" (Krueger, 2017, p. 47-48).

In a way, Chapter 9 illustrated this view. I defended that altruism (or stated otherwise ideological commitment) alone is insufficient to lead to acts of extreme individual sacrifice such as suicide terrorism. For such extreme behaviors to appear, there must be an egoistic motivation. In Chapter 9, this motivation was individual suicidal tendencies, facilitating the commission of suicide during violence.

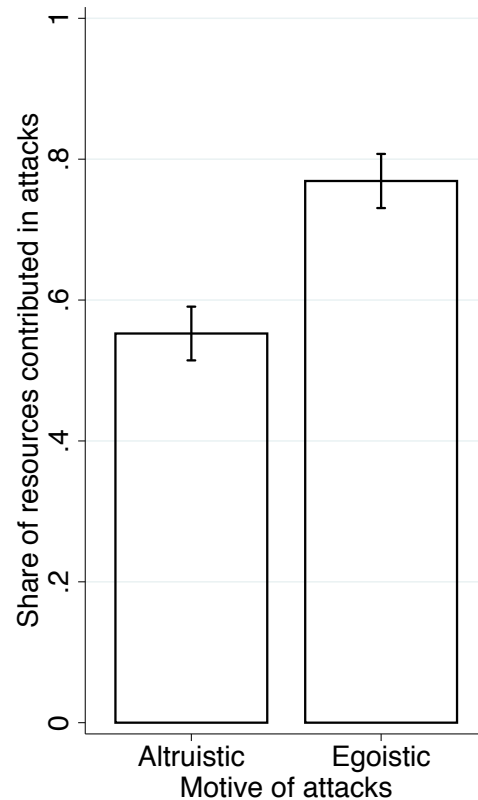
I would even go further and argue that egoism is a much more powerful driver of violence than altruism. To support this point, I propose to backtrack a little bit to the economic experiment analyzed in Part III of the dissertation. In this experiment, individuals could spend money to withdraw money to other groups at the benefit of their ingroup. As predicted by parochial altruism, individuals engaged in a high level of attacks (see Chapter 7). With my colleagues, we wondered whether individuals would have engaged in fewer attacks for egoistic motives. That is, would individuals engage in such a high level of attacks if there was no social pressure from the ingroup to do so? To investigate this possibility, we launched new experimental sessions, with the exact same game, except that individuals could now gain money when attacking other groups, with no benefits for the ingroup. In the first (Altruistic motive) version of the experiment, when attacking, an individual spent 1 point, which withdrawn 0.5 points to the three outgroup members and brought 0.5 to the three ingroup members – including her. Hence, the subject overall lost 0.5 points when attacking. Now, in the new (Egoistic motive) version, when attacking, an

individual still spent 1 point, which withdrawn 0.5 points to the three outgroup members and brought 1.5 to her. Hence, the subject overall gained 0.5 points when attacking.¹⁵ A total of 150 subjects participated in this version, which can be compared to 150 subjects of the other version.¹⁶

What did we find? Subjects engaged in even more attacks in the Egoistic motive condition than they did in the Altruistic condition. As shown by Figure 10.4, subjects on average spent around a half (55.3%) of their resources in attacks throughout the game in the Altruistic treatment compared to around the three quarters (76.9%) in the Egoistic treatment. This result may be not so much of a surprise from the exterior. After all, personal interest is often seen as the initial cause of many behaviors. But it was a surprise for my colleagues and I. We were at that time just coming out from the first experimental session and very impressed by the level of attacks that participants engaged in for their ingroup. We were also reading a lot about the theories of parochial altruism and how it could be a major driving force behind human conflict.

The results were without appeal: individuals engaged in significantly more attacks for their personal interest than they did for the ingroup. It should be reminded that attacking entails collective losses. If everybody attacks, everybody loses. This happened in the Altruistic game. And mechanically, this was even worst in the Egoistic game. Figure 10.5 illustrates this view. It shows the mean resources across rounds of the five playing groups in a session of the Altruistic and Egoistic motives games. The resources of all groups decrease along the experiment in the Altruistic game but literally collapses in the Egoistic

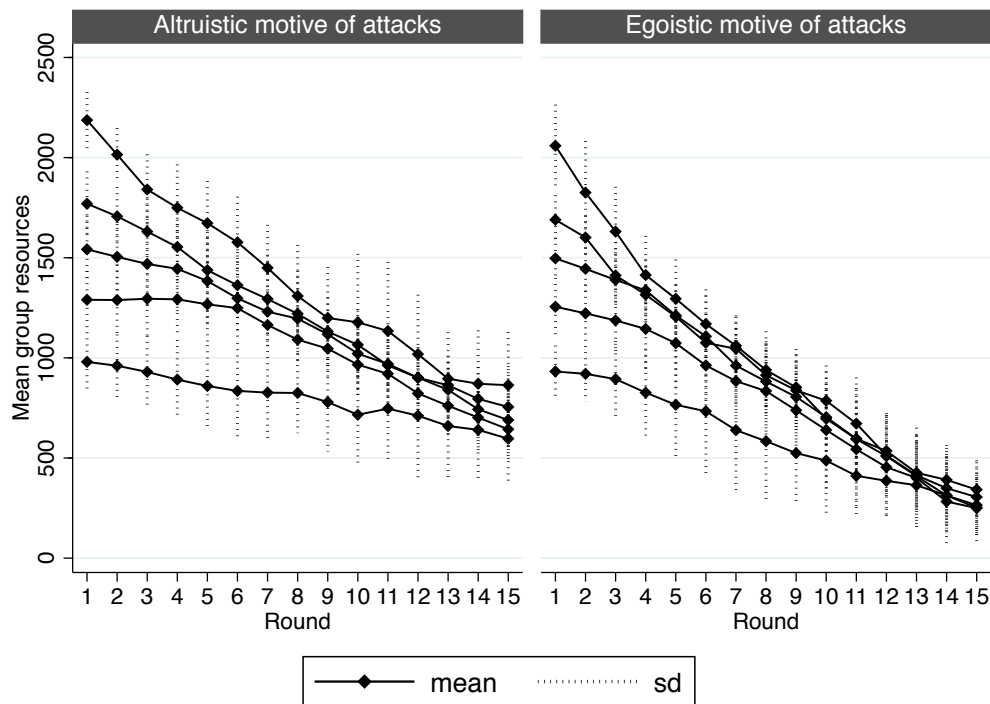
Figure 10.4: Mean share of the subject's resources invested in attacks for egoistic versus altruistic motives



¹⁵The two conditions differ in their dominant strategies. The individual dominant strategy is to refrain from attacking in the Altruistic motive condition, while it is to attack in the Egoistic motive condition. The ingroup dominant strategy is to attack in the Altruistic motive condition, while attacking has no direct benefit or cost in the Egoistic motivation condition (yet, it may have an indirect cost through revenges from outgroups). The collective – i.e. ingroup and outgroups taken together – dominant strategy in both conditions is to refrain from attacking, because attacks cause a net collective loss.

¹⁶In the Egoistic motive condition, subjects played with Equal Destructive Capacity (EDC), i.e. with a fixed absolute maximum level of attacks (see Chapter 7). We hence compared them to the 150 subjects who participated in the EDC treatment of the first experiment.

Figure 10.5: Mean resources of the groups by round in the altruistic versus egoistic motives conditions



game. In sum, even though subjects were aware that everyone attacking would lead to a collective disaster, they continued to choose to attack because it was in their best personal interest. This looks like what happens in civil wars.

What does all of this imply regarding the conclusion of the present dissertation? As I explained, the theory of this dissertation – the compass of radicalism – applies to altruistic violence: collective deprivation has a differential effect on right-wing and left-wing altruistic violence. The compass of radicalism, however, does not apply to egoistic violence. In the case of egoistic violence, collective deprivation has a very different effect, which is well identified by studies on civil wars. Periods of collective deprivation increases the mobilization of insurgent groups with financial capabilities, whatever their ideologies, since it facilitates rebel recruitment (Collier and Hoeffler, 2004; Fearon and Laitin, 2003; Fjelde, 2015). Therefore, when terrorist groups grow in capabilities, the economy has an entirely different effect, which takes precedence over the effect presented in this dissertation. The paradoxical consequence is that the explanatory force of the compass decreases as the phenomenon it wishes to explain – political violence – intensifies. In other words, this dissertation offers a theory of low-intensity political violence.

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A

Appendix – Chapter 1

Table A.1: The ten French organizations with the maximum hard radicalization level

Name	Year	Max. hard radicalization level	Ideology
Anarchists	1894	36,911	Left-wing
<i>Comité secret d'action révolutionnaire (CSAR)</i>	1937	35,967	Right-wing
<i>Noyaux Armés pour l'Autonomie Populaire (NAPAP)</i>	1977	33,732	Left-wing
<i>Brigades Internationales (BI)</i>	1975	31,099	Left-wing
<i>Jeune Nation (JN)</i>	1959	27,745	Right-wing
<i>Groupe Joachim Peiper / Groupe Hermann Goering</i>	1978	27,745	Right-wing
<i>Club Charles Martel</i>	1973	27,745	Right-wing
<i>Fédération d'Action Nationale et Européenne (FANE)</i>	1980	24,192	Right-wing
<i>Union Anarchiste (UA)</i>	1923	21,609	Left-wing
<i>Commandos Delta</i>	1980	19,202	Right-wing

Table A.2: The ten French organizations with the maximum soft radicalization level

Name	Year	Max. soft radicalization level	Ideology
<i>Confédération Générale du Travail (CGT)</i>	1947	32,945	Left-wing
<i>Section Française de l'Internationale Ouvrière (SFIO)</i>	1934	28,714	Left-wing
<i>Gauche Prolétarienne (GP)</i>	1969	26,851	Left-wing
<i>Parti Communiste Français (PCF)</i>	1927	25,995	Left-wing
<i>Union de Défense des Commerçants et Artisans (UDCA)</i>	1956	25,643	Right-wing
<i>Croix-de-Feu</i>	1931	23,78	Right-wing
<i>Autonomists^a</i>	1979	23,545	Left-wing
<i>Comités de défense paysanne</i>	1933	23,146	Right-wing
<i>Comités Malville</i>	1977	23,061	Left-wing
<i>Union Nationale des Etudiants de France (UNEF)</i>	1968	21,902	Left-wing

^aThis includes various groups such as *Camarades (Comrades) / Vive la Révolution ! (Long live the revolution!)* / *Marge (Margin)* / *Organisation Communiste Libertaire (Libertarian Communist Organization, OCL)* / *La Cause du Peuple (The People's Cause)*

Figure A.1: Number of injured due to radical movements in France

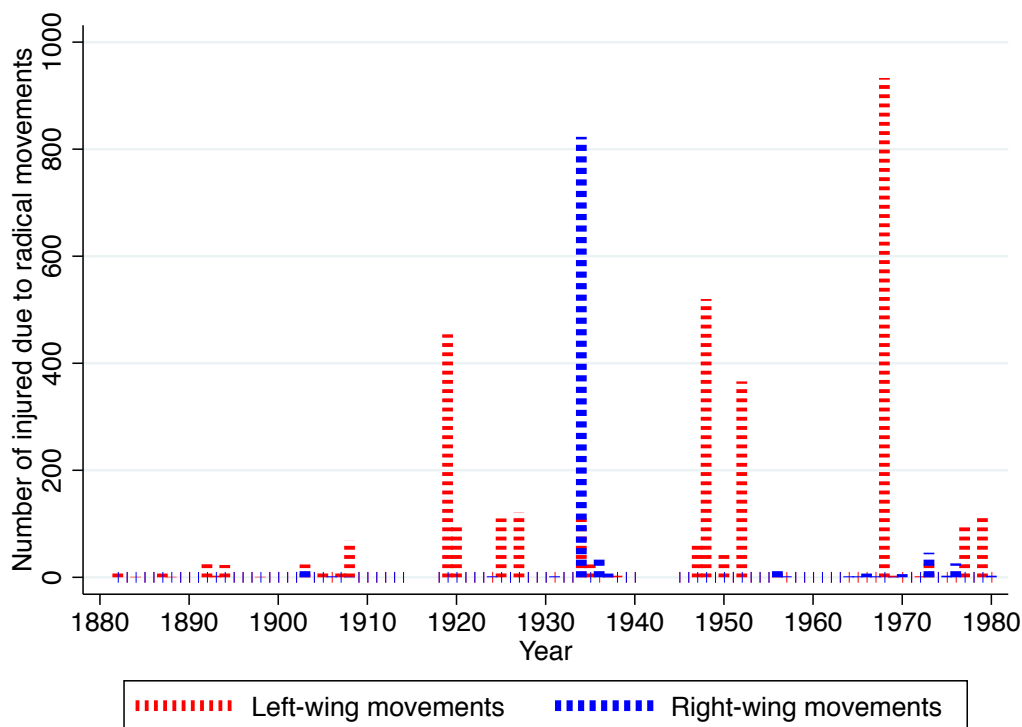


Figure A.2: Number of deaths due to radical movements in France

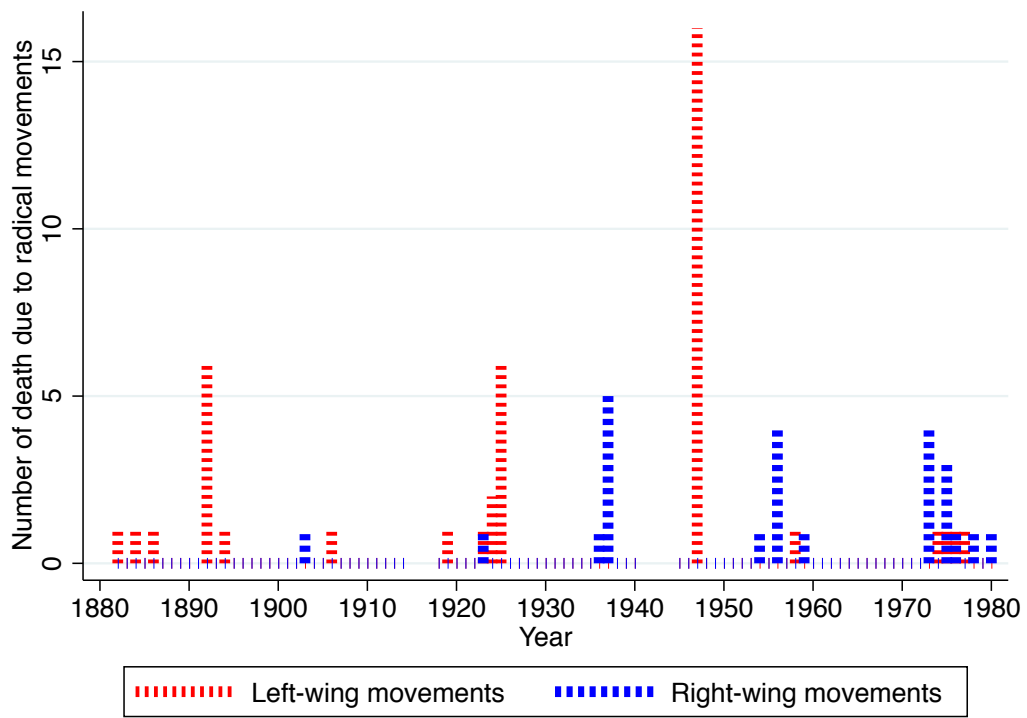


Table A.3: Effect of collective deprivation (over 5 years) on the mobilization level of French radical organizations (unstandardized coefficients from log linear multilevel regression analyses)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GDP growth (over 5 years)	-0.00662 (0.0251)	0.0746 ⁺ (0.0418)			0.0787* (0.0379)	0.0974** (0.0311)	0.0788** (0.0259)	0.102*** (0.0211)
Right-wing organization		-0.549*** (0.154)		-1.259*** (0.170)	-0.609*** (0.170)	-0.625*** (0.149)	0.556** (0.176)	0.699*** (0.164)
Right-wing × GDP growth (over 5 years)		-0.187*** (0.0391)			-0.196*** (0.0338)	-0.191*** (0.0400)	-0.150*** (0.0313)	-0.163*** (0.0285)
Inequality growth (over 5 years)			-0.0318 (0.0758)	-0.0816 (0.0755)	-0.123 (0.0751)	-0.136* (0.0631)	-0.219*** (0.0579)	-0.139** (0.0491)
Right-wing × Inequality growth (over 5 years)				0.169 (0.132)	0.246* (0.116)	0.109 (0.101)	0.299*** (0.0898)	0.141 ⁺ (0.0813)
Democracy score						0.0733 (0.0760)		-0.0989** (0.0367)
log unemployment rate						-0.0419 (0.147)		0.129 (0.119)
Government orientation (right to left)						-0.138 (0.0879)		0.0326 (0.0520)
Right-wing × Government orientation (right to left)						0.276*** (0.0836)		0.204** (0.0708)
Population						-0.332*** (0.0681)		0.0171 (0.0528)
Hard radicalization level							-0.0480 ⁺ (0.0268)	-0.0481 ⁺ (0.0249)
Soft radicalization level							0.0408*** (0.00800)	0.0392*** (0.00758)
Constant	10.25*** (0.1101)	10.51*** (0.152)	10.24*** (0.111)	10.81*** (0.130)	10.54*** (0.164)	23.07*** (3.334)	13.50*** (0.149)	14.35*** (2.483)
Decade fixed effects	No	No	No	No	No	Yes	No	Yes
Organization type fixed effect	No	No	No	No	No	No	Yes	Yes
Source fixed effect	No	No	No	No	No	No	Yes	Yes
Observations	715	715	549	549	549	535	549	535
Number of years	92	92	61	61	61	57	61	57
R ²	0.0000724	0.0604	0.000272	0.0536	0.0699	0.148	0.763	0.783

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.4: Effect of collective deprivation (over 15 years) on the mobilization level of French radical organizations (unstandardized coefficients from log linear multilevel regression analyses)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GDP growth (over 15 years)	-0.146** (0.0554)	-0.0545 (0.0649)			0.0788 (0.0875)	0.217** (0.0734)	0.191** (0.0690)	0.140+ (0.0726)
Right-wing organization		-0.487* (0.197)		-1.252*** (0.155)	0.378 (0.291)	-0.0458 (0.302)	0.900* (0.404)	0.893** (0.340)
Right-wing × GDP growth (over 15 years)		-0.224*** (0.0587)			-0.489*** (0.0741)	-0.370*** (0.0709)	-0.260* (0.107)	-0.211* (0.0915)
Inequality growth (over 15 years)			-0.295* (0.115)	-0.688*** (0.133)	-0.764*** (0.144)	-0.715*** (0.161)	-0.601*** (0.101)	-0.597*** (0.124)
Right-wing × Inequality growth (over 15 years)				0.826*** (0.167)	1.216*** (0.162)	1.123*** (0.156)	0.788*** (0.159)	0.738*** (0.140)
Democracy score						0.0647 (0.104)		-0.130* (0.0581)
log unemployment rate						-0.0650 (0.141)		0.0821 (0.122)
Government orientation (right to left)						-0.202+ (0.105)		-0.0602 (0.0588)
Right-wing × Government orientation (right to left)						0.294*** (0.0726)		0.306*** (0.0828)
Population						-0.335*** (0.0685)		0.000492 (0.0475)
Hard radicalization level							-0.0449+ (0.0267)	-0.0435+ (0.0225)
Soft radicalization level							0.0459*** (0.00831)	0.0430*** (0.00834)
Constant	10.63*** (0.141)	10.89*** (0.185)	10.20*** (0.109)	10.78*** (0.113)	10.51*** (0.286)	23.04*** (3.557)	13.10*** (0.292)	14.20*** (2.328)
Decade fixed effects	No	No	No	No	No	Yes	No	Yes
Organization type fixed effect	No	No	No	No	No	No	Yes	Yes
Source fixed effect	No	No	No	No	No	No	Yes	Yes
Observations	715	715	514	514	514	508	514	508
Number of years	92	92	54	54	54	52	54	52
R ²	0.00921	0.0614	0.00905	0.0822	0.104	0.165	0.771	0.785

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.5: Effect of collective deprivation (over 20 years) on the mobilization level of French radical organizations (unstandardized coefficients from log linear multilevel regression analyses)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
GDP growth (over 20 years)	-0.216*** (0.0535)	-0.153** (0.0521)			-0.00602 (0.0783)	0.325** (0.103)	0.274*** (0.0637)	0.379*** (0.0957)
Right-wing organization		-0.541* (0.246)		-1.309*** (0.198)	0.363 (0.400)	-0.788 (0.497)	1.739*** (0.412)	1.617*** (0.413)
Right-wing × GDP growth (over 20 years)		-0.242** (0.0769)			-0.522*** (0.109)	-0.119 (0.147)	-0.504*** (0.111)	-0.422*** (0.118)
Inequality growth (over 20 years)			-0.644*** (0.153)	-1.080*** (0.164)	-1.070*** (0.207)	-0.915*** (0.191)	-0.930*** (0.145)	-0.982*** (0.178)
Right-wing × Inequality growth (over 20 years)				0.826*** (0.240)	1.404*** (0.244)	1.248*** (0.217)	1.103*** (0.214)	1.024*** (0.198)
Democracy score						0.161+ (0.0883)		-0.0773+ (0.0413)
log unemployment rate						0.292 (0.180)		0.263 (0.172)
Gouvernement orientation (right to left)						-0.552*** (0.108)		-0.0834 (0.0970)
Right-wing × Gouvernement orientation (right to left)						0.454*** (0.110)		0.203* (0.101)
Population						-0.375*** (0.0706)		0.0146 (0.0457)
Hard radicalization level							-0.0348 (0.0255)	-0.0384 (0.0248)
Soft radicalization level							0.0598*** (0.00869)	0.0580*** (0.00951)
Constant	10.78*** (0.122)	11.15*** (0.162)	10.10*** (0.117)	10.72*** (0.118)	10.74*** (0.290)	25.28*** (3.755)	12.82*** (2.263)	13.37*** (2.500)
Decade fixed effects	No	No	No	No	No	Yes	No	Yes
Organization type fixed effect	No	No	No	No	No	No	Yes	Yes
Source fixed effect	No	No	No	No	No	No	Yes	Yes
Observations	715	715	467	467	467	461	467	461
Number of years	92	92	49	49	49	47	49	47
R ²	0.0187	0.0754	0.0245	0.0986	0.126	0.167	0.786	0.792

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

B

Appendix – Chapter 2

1. Tests on violent versus non-violent radical activists

The main results of the chapter are based on a broad definition of radical activism including both violent and non-violent political crimes. Yet, other definitions specifically focus on terrorism – i.e. violence against people (Krueger, 2017). For that reason, I tested the robustness of the results in sub-samples of violent and non-violent activists (see Table B.1). In the sub-sample of violent activists, the coefficients of the variation of wealth and inequality are significant and in the expected direction. In sum, the model performs well on narrower definition of radicalism. In the sub-sample of non-violent activists, both coefficients are in the expected direction but only the coefficient of the variation of wealth attains statistical significance.

Table B.1: Effect of collective deprivation (over 10 years) on the right-wing orientation of US violent and non-violent activists (Unstandardized coefficients from hierarchical logistic regression analyses)

	Violent activists (1)	Non-violent activists (2)
Nation-level variables		
Wealth growth over 10 years	-6.634*** (1.744)	-11.73** (4.161)
Inequality growth over 10 years	5.386 (3.293)	14.33* (6.187)
Democrat presidency	-0.276 (0.408)	0.473 (0.757)
Net migration rate t_{-1}	0.155 (0.214)	0.614 (0.474)
Homicide rate t_{-1}	0.113 (0.105)	-0.467* (0.228)
Troop deployment	-1.015 (1.546)	2.343 (3.034)
Individual-level variables		
Social stratum, adulthood (low as reference)		
Middle	0.693 (0.818)	-0.259 (1.145)
High	1.030 (1.089)	0.798 (1.515)
Social stratum, childhood (low as reference)		
Middle	0.182 (0.713)	-0.123 (1.235)
High	-0.345 (1.088)	-0.692 (1.607)
Unemployed	1.018 (0.949)	1.266 (1.332)

1. Tests on violent versus non-violent radical activists

Work history (regularly employed as reference)		
Serially employed	-0.0316 (0.593)	0.0794 (0.894)
Underemployed	0.00850 (1.326)	-0.417 (1.431)
Long-term unemployed	-0.716 (1.167)	-2.669 (1.673)
Education (less than high school as reference)		
High school	0.221 (0.715)	-1.265 (1.389)
More than high school	-1.077 (0.653)	-3.258 ⁺ (1.640)
Age	0.0970*** (0.0187)	0.0775* (0.0301)
Male (female as reference)	1.339* (0.560)	2.235* (1.072)
Military experience (none as reference)	0.649 (0.574)	0.607 (0.801)
Previous criminal activity (none as reference)		
Previous (nonviolent) minor activity	0.316 (0.543)	0.00635 (1.011)
Previous (nonviolent) serious activity	0.350 (0.801)	-0.799 (1.042)
Previous violent crime	1.045 (0.842)	-0.110 (0.969)
Immigrant	-0.426 (1.453)	0.743 (1.817)
Region (East North Central as reference)		
East South Central	3.793*** (1.146)	24.02 (43068.7)
Middle Atlantic	-0.554 (0.647)	-3.001** (1.080)
Mountain	-0.184 (0.643)	0.474 (1.215)
New England	-0.0976 (0.920)	-1.796 (1.564)
Pacific	-0.558 (0.591)	-1.584 ⁺ (0.932)
South Atlantic	1.029 (0.652)	-0.653 (1.075)
West North Central	-0.00124 (0.970)	-0.0712 (1.245)
West South Central	1.638* (0.790)	21.41 (44080.9)
Constant	-4.300* (1.986)	0.612 (4.339)

$\ln(\sigma)$	-10.86 (100.5)	0.313 (0.998)
Observations	403	504
Number of groups (years)	55	53

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

2. Tests on different temporal specifications

I performed regression models similar to the main analyses of the paper using different temporal specifications of collective deprivation. Table B.2 shows results using various indicators: the absolute level of wealth, unemployment and inequality, and the variation of wealth and inequalities for 1, 5, 10, 15 and 20 years. Among the absolute indicators of deprivation, only the unemployment rate is significantly related to the ideological orientation of radical activists in the expected direction: the higher the unemployment rate the higher the share of right-wing radical activists. Regarding economic variations, the coefficient of the growth of wealth is significant (and in the expected negative direction) across the 5 to 20 years specifications - the size and significance being especially high for the variation over 5 and 10 years. The variation of inequality is significant (and in the expected direction) only when calculated over 5 and 10 years - the effect size is especially high in the 5 years specification.

3. Tests based on the beginning of radicalization

Moreover, I performed similar regression models in the sub-sample of radical activists for which I had information on their radicalization duration (N=346) and using the year they started to radicalize as the basis for merging the data with the year-level variables. Results are presented in Table B.3. None of the indicators of absolute deprivation are significant in these models. Interestingly, the variation of wealth and inequality are both significant (and in the expected directions) only in short- and middle-term specifications: that is, over 1 and 5 years before the start of the radicalization.

Table B.2: Effect of various temporal specifications of collective deprivation on the right-wing orientation of US radical activists (Unstandardized coefficients from hierarchical logistic regression analyses)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Nation-level variables								
Wealth $t-1$		0.0205 (0.0363)						
Unemployment $t-1$		0.336* (0.140)						
Inequality $t-1$			8.971 (6.657)					
Wealth growth over 1 year				-9.234 (8.218)				
Inequality growth over 1 year				22.08+ (11.41)				
Wealth growth over 5 years					-9.599*** (2.349)			
Inequality growth over 5 years					18.44*** (4.234)			
Wealth growth over 10 years						-7.784*** (1.757)		
Inequality growth over 10 years						7.579* (2.974)		
Wealth growth over 15 years							-4.341* (1.785)	
Inequality growth over 15 years								2.110

Wealth growth over 20 years																			(2.802)	-4.625** (1.620)
Inequality growth over 20 years																				-3.358 (3.070)
Democrat presidency	0.875*	0.598	0.862*	0.893*	0.940**	0.378	0.644	0.596												0.596 (0.383)
Net migration rate t_{-1}	-0.149	0.145	-0.154	-0.129	-0.0113	0.180	0.128	0.252												0.252 (0.298)
Homicide rate t_{-1}	0.00548	-0.118	0.148	-0.0696	-0.107	-0.0892	-0.0688	-0.204												-0.204 (0.140)
Troop deployment	-3.713*	-2.353	-2.714	-3.848**	-1.194	0.0947	-0.882	-1.453												-1.453 (1.622)
Individual-level variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes												
Constant	-3.690	-4.678*	-7.687	-2.314	-3.587*	-2.908	-2.766	-0.459												-0.459 (2.035)
$\ln(\sigma)$	0.254	0.00775	0.156	0.135	-0.849	-0.679	-0.187	-0.258												-0.258 (0.538)
Observations	907	907	907	907	907	907	907	907												907
Number of groups (years)	58	58	58	58	58	58	58	58												58

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.3: Effect of various temporal specifications of collective deprivation on the right-wing orientation of US radical activists at the beginning of their radicalization (Unstandardized coefficients from hierarchical logistic regression analyses)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Nation-level variables								
Wealth $t-1$	0.0497 (0.0333)							
Unemployment $t-1$		0.0429 (0.138)						
Inequality $t-1$			6.422 (6.894)					
Wealth growth over 1 year				-20.38* (8.302)				
Inequality growth over 1 year				25.80* (12.49)				
Wealth growth over 5 years					-6.717* (2.650)			
Inequality growth over 5 years					13.92** (5.203)			
Wealth growth over 10 years						-1.816 (1.967)		
Inequality growth over 10 years						1.628 (3.488)		
Wealth growth over 15 years							-0.943 (1.592)	
Inequality growth over 15 years								-1.155

4. Tests without imputed values

I also tested the models without multiple imputed values, excluding the control variables for which the amount of missing cases was of concern (education, previous criminal activity, military experience, and the individual deprivation variables). The results are presented in Table B.4. They are mostly similar to the results based on imputed values.

5. Final remarks

The various models tested in Tables B.2, B.3 and B.4 show interesting results regarding the macro-level control variables. Whilst the coefficients related to the immigration and homicides rates are insignificant in all models, the political context and involvement into war are significantly related to the ideological orientation of radical activists in some specifications. Various models presented in Tables B.2, B.3 and B.4 show that the higher the US troop deployment the higher the share of leftist radical activists relative to rightists. As I mentioned in the paper, this variable is correlated with the indicators of collective deprivation used in the main analyses, thus its insignificant coefficients in the main results were possibly due to collinearity issues. Moreover, in some models, a Democrat presidency is related to a higher share of right-wing radical activists compared to left-wing radical activists, as found by prior studies (Hewitt, 2003; Piazza, 2017a).

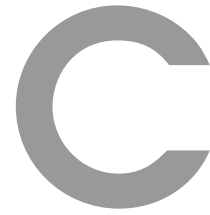
Table B.4: Effect of various temporal specifications of collective deprivation on the right-wing orientation of US radical activists – test without multiple imputation (Unstandardized coefficients from hierarchical logistic regression analyses)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Nation-level variables								
Wealth $t-1$	0.0139 (0.0328)							
Unemployment $t-1$		0.338** (0.116)						
Inequality $t-1$			8.550 (5.913)					
Wealth growth over 1 year				-8.371 (7.018)				
Inequality growth over 1 year				19.90* (9.811)				
Wealth growth over 5 years					-9.063*** (1.862)			
Inequality growth over 5 years					15.67*** (3.322)			
Wealth growth over 10 years						-7.007*** (1.386)		
Inequality growth over 10 years						7.902** (2.449)		
Wealth growth over 15 years							-4.515** (1.494)	
Inequality growth over 15 years								2.449

	(2.418)							
Wealth growth over 20 years		-4.448** (1.356)						
Inequality growth over 20 years		-3.067 (2.622)						
Democrat presidency	0.764* (0.379)	0.493 (0.345)	0.767* (0.359)	0.787* (0.362)	0.835** (0.284)	0.315 (0.309)	0.553 (0.337)	0.517 (0.325)
Net migration rate t_{-1}	-0.173 (0.215)	0.112 (0.207)	-0.183 (0.204)	-0.160 (0.211)	-0.00838 (0.176)	0.0925 (0.177)	0.101 (0.270)	0.200 (0.250)
Homicide rate t_{-1}	-0.0360 (0.146)	-0.149 (0.0973)	0.121 (0.173)	-0.0944 (0.101)	-0.127+ (0.0764)	-0.0969 (0.0814)	-0.0715 (0.0958)	-0.207+ (0.119)
Troop deployment	-4.336** (1.493)	-2.799* (1.309)	-3.258* (1.565)	-4.331*** (1.282)	-1.834+ (1.113)	-0.735 (1.198)	-1.235 (1.539)	-2.001 (1.378)
Individual-level variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-2.688 (3.254)	-4.129* (1.825)	-6.999+ (4.154)	-1.751 (1.728)	-2.988* (1.378)	-2.311+ (1.362)	-2.490 (1.519)	-0.183 (1.660)
$\ln(\sigma)$	-0.0295 (0.390)	-0.414 (0.466)	-0.149 (0.413)	-0.205 (0.423)	-1.499+ (0.899)	-1.340+ (0.746)	-0.660 (0.544)	-0.689 (0.563)
Observations	863	863	863	863	863	863	863	863
Number of groups (years)	57	57	57	57	57	57	57	57

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



Appendix – Chapter 3

1. Study 1

Table C.1: The twenty extreme right parties with largest share of votes during parliamentary elections in the ParlGov dataset

Party	Country	Max. share of votes	Year
<i>Nationalist Party of Australia (NAT)</i>	Australia	54.2	1917
<i>Rietspartei (PD)</i>	Luxembourg	52.8	1919
<i>Nationalsozialistische Deutsche Arbeiterpartei (NSDAP)</i>	Germany	43.9	1933
<i>Fédération Républicaine (FR)</i>	France	35.4	1924
<i>Freiheitliche Partei Österreichs (FPÖ)</i>	Austria	26.9	1999
<i>Milliyetçi Demokrasi Partisi (MDP)</i>	Turkey	23.3	1983
<i>Fremskrittspartiet (FrP)</i>	Norway	22.9	2009
<i>Dansk Folkeparti (DF)</i>	Denmark	20.6	2015
<i>Deutschnationale Volkspartei (DNVP)</i>	Germany	20.5	1924
<i>Jobbik Magyarorszáért Mozgalom (Jobbik)</i>	Hungary	20.2	2014
<i>Partidul România Mare (PRM)</i>	Romania	19.5	2000
<i>Milliyetçi Hareket Partisi (MHP)</i>	Turkey	18.0	1999
<i>Sverigedemokraterna (SD)</i>	Sweden	17.5	2018
<i>Lega Nord (LN)</i>	Italy	17.4	2018
<i>Lijst Pim Fortuyn (LPF)</i>	Netherlands	17.0	2002
<i>Nacionālā apvienība (NA)</i>	Latvia	16.6	2014
<i>Partij voor de Vrijheid (PVV)</i>	Netherlands	15.5	2010
<i>Front National (FN)</i>	France	15.0	1997
<i>Tautas Kustība Latvijai – Zīgerista Partija (TKL-ZP)</i>	Latvia	14.9	1995
<i>Onofhängeg Nationalpartei (PNI)</i>	Luxembourg	14.9	1922

Table C.2: The twenty extreme left parties with largest share of votes during parliamentary elections in the ParlGov dataset

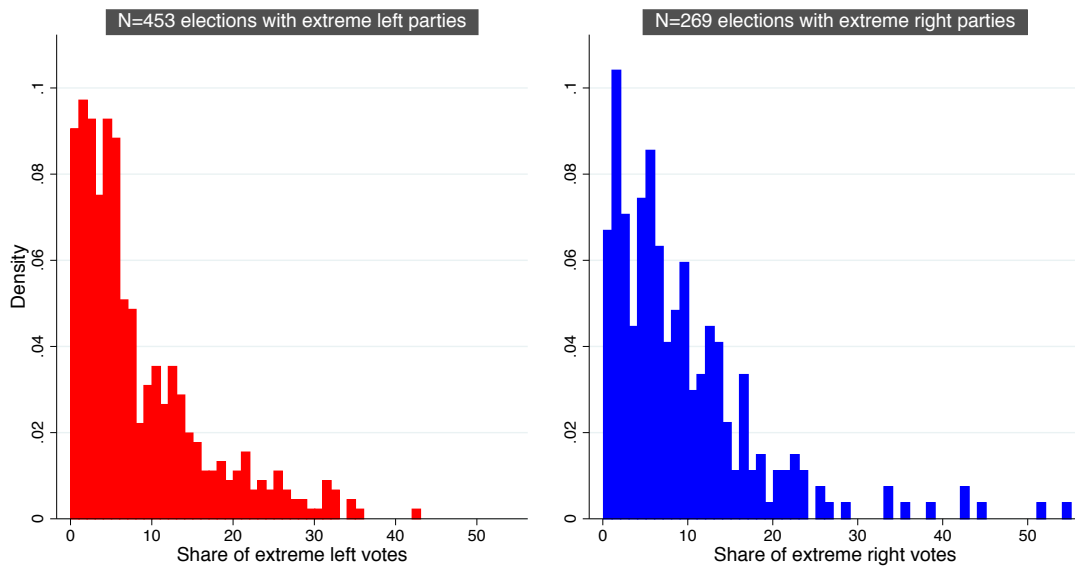
Party	Country	Max. share of votes	Year
<i>Synaspismós Rizospastikís Aristerás (SYRIZA)</i>	Greece	36.3	2015
<i>Anorthotikó Kómma Ergazómenou Laoú (AKEL)</i>	Cyprus	34.7	2001
<i>Partito Comunista Italiano (PCI)</i>	Italy	34.4	1976
<i>Parti Communiste Français (PCF)</i>	France	28.6	1946
<i>Vasemmistoliitto (VAS)</i>	Finland	23.5	1945
<i>Alþýðubandalagið (Ab)</i>	Iceland	22.9	1978
<i>Latvijas Komunistiskā partija (LKP)</i>	Latvia	21.5	1990
<i>Sameiningarflokkur alþýðu - Sósiálistaflokkurinn (SA-S)</i>	Iceland	19.5	1946/1949
<i>Aliança Povo Unido (APU)</i>	Portugal	19.3	1979
<i>Unabhängige Sozialdemokratische Partei Deutschlands (USPD)</i>	Germany	18.8	1920
<i>Komunistická strana Čech a Moravy (KSČM)</i>	Czechia	18.5	2002
<i>Kommunistische Partei Deutschlands (KPD)</i>	Germany	16.9	1932
<i>Kommunistesch Partei vu Lëtzebuerg (KPL)</i>	Luxembourg	16.9	1948
<i>Socialistische Partij (SP)</i>	Netherlands	16.6	2006
<i>Sahashakaitō (LWSP)</i>	Japan	15.4	1955
<i>Partido Comunista Português (PCP)</i>	Portugal	15.1	1976
<i>Strana demokratickej ľavice (SDL)</i>	Slovakia	14.7	1992
<i>Partidul Poporului - Dan Diaconescu (PP-DD)</i>	Romania	14.0	2012
<i>Sinn Féin</i>	Ireland	13.9	2016
<i>Podemos</i>	Spain	13.4	2016

Table C.3: Variables description for Study 1

Variable	Obs	Mean	Std. Dev.	Min	Max
Extreme left votes (Parlgov)	757	5.32	7.36	0	42.8
Extreme left votes (CPDS)	483	6.28	8.34	0	44
Extreme right votes (Parlgov)	757	3.94	8.48	0	65.3
Extreme right votes (CPDS)	483	3.48	6.84	0	45.2
GDP growth (over 5 years)	736	.105	.132	-.445	.472
log GDP per capita	487	9.24	1.14	6.28	11.6
Gini	433	28.6	4.68	15.5	46.9
Social welfare expenditure	283	19.9	4.74	5.7	34.6
Unemployment rate	449	6.4	4.45	0	26.5
Net migration	573	1.7	4.99	-18.7	35.2
Extreme left in government (over 5 years)	676	.0932	.291	0	1
Extreme right in government (over 5 years)	676	.121	.327	0	1

Figure C.1: Distribution of the share of extreme votes

(a) ParlGov



(b) CPDS

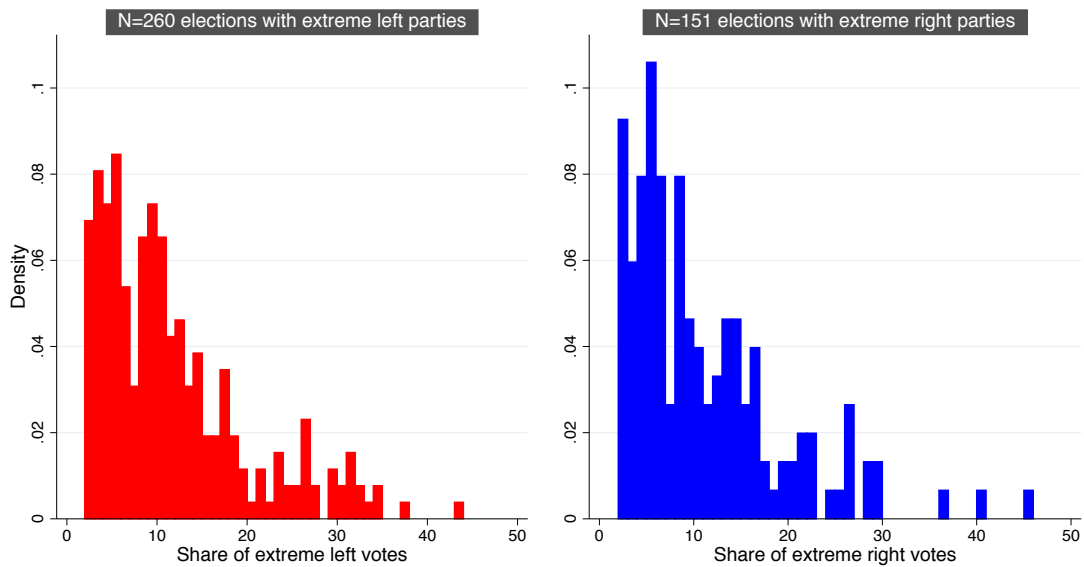


Figure C.2: Distribution of short-term and mid-term GDP growth in Study 1

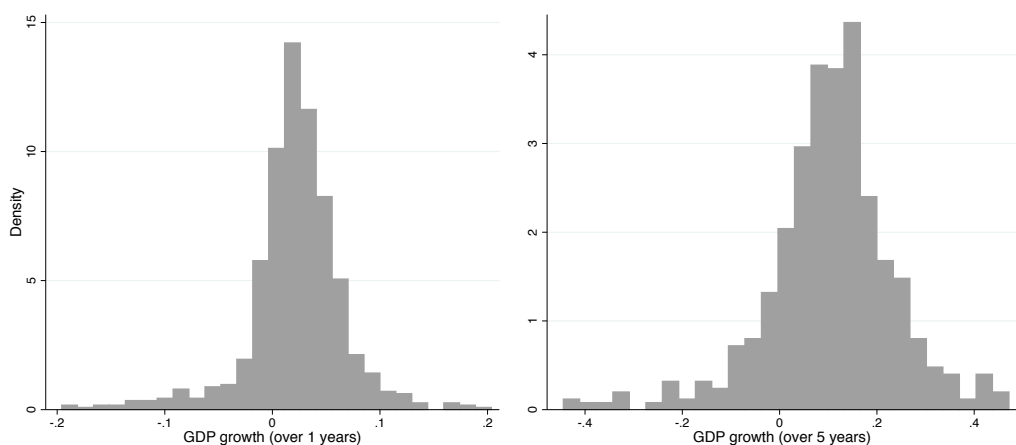
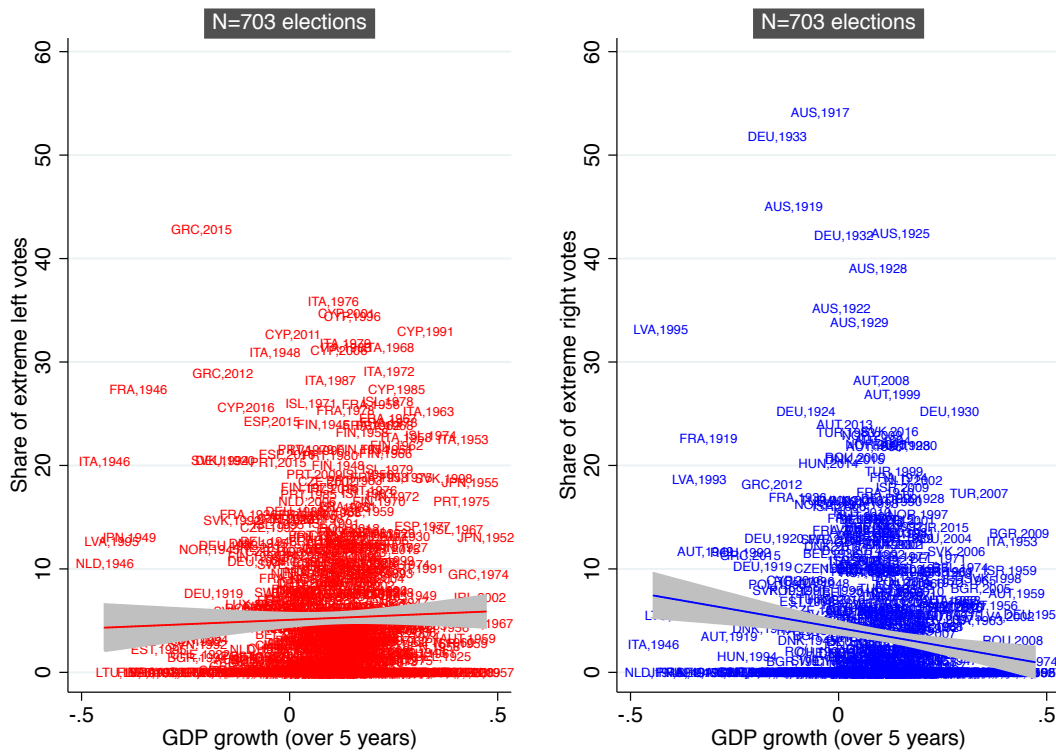


Figure C.3: Share of extreme votes depending on mid-term economic decline - all elections

(a) ParlGov



(b) CPDS

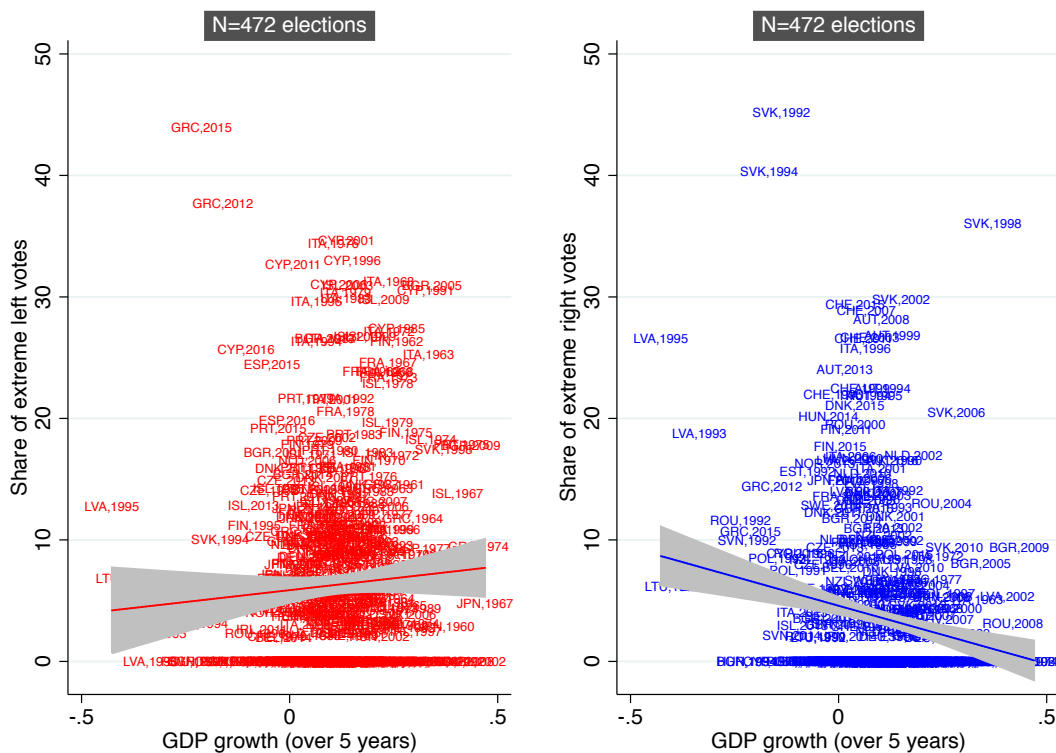
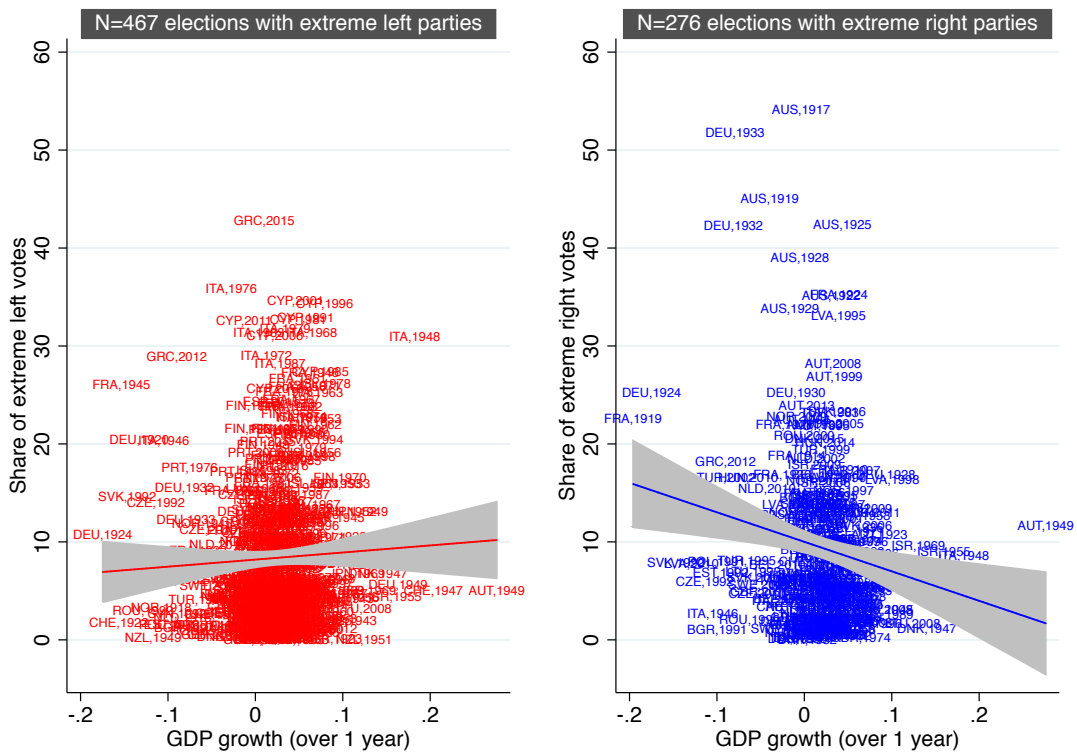


Figure C.4: Share of extreme votes depending on short-term economic decline

(a) ParlGov



(b) CPDS

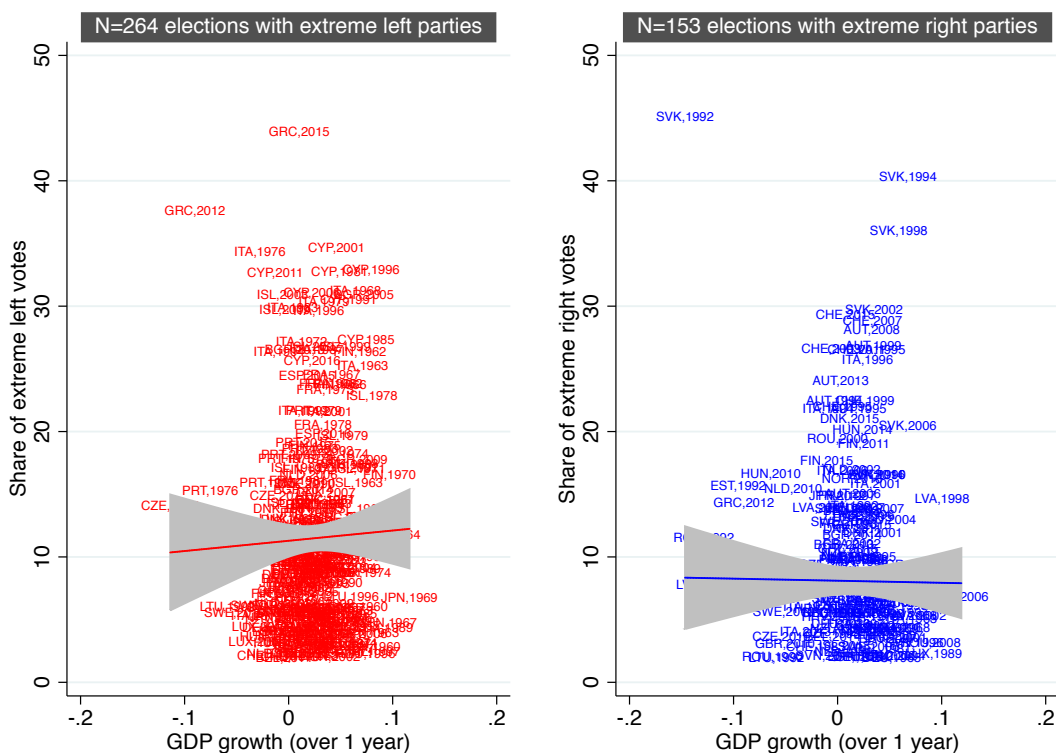


Table C.4: Effect of short-term GDP growth on the share of extreme right votes (*Parlgov*)
(unstandardized coefficients from linear regression)

	(1)	(2)	(3)	(4)	(5)
GDP growth (over 1 year)	-29.85** (9.435)	-29.79** (8.978)	-15.34 (12.43)	-11.38 (14.59)	-43.34 (27.81)
log GDP per capita				4.491*** (1.218)	-7.810+ (4.179)
Gini				-0.526 (0.375)	-0.215 (0.493)
Social welfare expenditure				-0.767** (0.291)	-0.973* (0.405)
Unemployment rate				0.499+ (0.285)	0.423 (0.355)
Net migration				-0.0842 (0.246)	0.338 (0.338)
Constant	10.000*** (0.549)	26.79*** (2.486)	21.29* (8.175)	-11.63 (12.13)	93.89* (43.97)
Country fixed effects	No	Yes	Yes	Yes	Yes
Year fixed effects	No	No	Yes	No	Yes
Observations	276	276	276	118	118
R^2	0.0352	0.289	0.616	0.646	0.772

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table C.5: Effect of short-term GDP growth on the share of extreme right votes (CPDS) (unstandardized coefficients from linear regression)

	(1)	(2)	(3)	(4)	(5)
GDP growth (over 1 year)	-18.07 (12.95)	-18.88 (11.57)	-20.33 (15.97)	39.83 ⁺ (22.73)	31.96 (46.27)
log GDP per capita				1.082 (1.842)	-5.840 (7.229)
Gini				-0.148 (0.542)	0.370 (0.801)
Social welfare expenditure				0.465 (0.349)	0.557 (0.517)
Unemployment rate				1.032* (0.402)	0.924 (0.586)
Net migration				0.284 (0.428)	-0.347 (0.728)
Constant	11.19*** (0.671)	6.841 (4.861)	-1.829 (8.631)	-19.27 (19.77)	23.15 (72.42)
Country fixed effects	No	Yes	Yes	Yes	Yes
Year fixed effects	No	No	Yes	No	Yes
Observations	153	153	153	103	103
R ²	0.0127	0.429	0.666	0.536	0.687

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table C.6: Effect of mid-term GDP growth on the share of extreme right votes (CPDS) (unstandardized coefficients from linear regression)

	(1)	(2)	(3)	(4)	(5)
GDP growth (over 5 years)	-12.28** (4.619)	-17.98*** (4.250)	-18.41** (5.723)	-4.869 (9.445)	0.491 (15.33)
GDP				0.400 (1.894)	-5.596 (7.802)
Gini				-0.231 (0.565)	0.0898 (0.780)
Social welfare expenditure				0.370 (0.353)	0.514 (0.507)
Unemployment rate				0.723 (0.469)	1.052 (0.645)
Net migration				0.442 (0.434)	-0.0254 (0.678)
Constant	11.91*** (0.738)	9.153* (4.591)	3.979 (8.458)	-4.701 (19.83)	28.90 (74.24)
Country fixed effects	No	Yes	Yes	Yes	Yes
Year fixed effects	No	No	Yes	No	Yes
Observations	151	151	151	102	102
R ²	0.0453	0.507	0.703	0.517	0.695

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table C.7: Effect of short-term GDP growth on the share of extreme left votes (Parlgov)
(unstandardized coefficients from linear regression)

	(1)	(2)	(3)	(4)	(5)
GDP growth (over 1 year)	7.564 (6.863)	5.116 (4.569)	4.486 (5.605)	-23.28 ⁺ (13.88)	-30.32 (21.01)
log GDP per capita				1.146 (0.849)	3.565 (2.514)
Gini				-0.0799 (0.203)	0.0173 (0.243)
Social welfare expenditure				-0.320 ⁺ (0.175)	-0.161 (0.208)
Unemployment rate				0.208 (0.160)	0.115 (0.201)
Net migration				-0.326* (0.138)	-0.289 ⁺ (0.166)
Constant	8.184*** (0.390)	1.723 (2.451)	-13.43* (5.898)	0.551 (7.566)	-27.37 (25.44)
Country fixed effects	No	Yes	Yes	Yes	Yes
Year fixed effects	No	No	Yes	No	Yes
Observations	467	467	467	167	167
R ²	0.00261	0.633	0.749	0.698	0.756

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table C.8: Effect of short-term GDP growth on the share of extreme left votes (CPDS)
(unstandardized coefficients from linear regression)

	(1)	(2)	(3)	(4)	(5)
GDP growth (over 1 year)	8.178 (16.57)	-8.864 (11.68)	-14.72 (16.72)	-28.54 (17.68)	-47.45 ⁺ (25.85)
log GDP per capita				0.666 (1.177)	6.905* (3.194)
Gini				0.336 (0.271)	0.436 (0.322)
Social welfare expenditure				-0.414 ⁺ (0.236)	-0.258 (0.267)
Unemployment rate				0.465* (0.214)	0.385 (0.250)
Net migration				-0.325 ⁺ (0.183)	-0.208 (0.217)
Constant	11.29*** (0.649)	3.420 (5.351)	-12.05 ⁺ (7.106)	-4.066 (10.67)	-67.64* (32.11)
Country fixed effects	No	Yes	Yes	Yes	Yes
Year fixed effects	No	No	Yes	No	Yes
Observations	264	264	264	142	142
R ²	0.000929	0.627	0.738	0.678	0.782

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

*Table C.9: Effect of mid-term GDP growth on the share of extreme left votes (CPDS)
(unstandardized coefficients from linear regression)*

	(1)	(2)	(3)	(4)	(5)
GDP growth (over 5 years)	4.003 (4.088)	-1.179 (3.152)	-3.085 (5.034)	7.048 (6.089)	-0.178 (8.972)
GDP				0.670 (1.184)	7.445* (3.263)
Gini				0.319 (0.273)	0.506 (0.330)
Social welfare expenditure				-0.266 (0.247)	-0.190 (0.282)
Unemployment rate				0.562* (0.221)	0.468+ (0.258)
Net migration				-0.319+ (0.184)	-0.191 (0.222)
Constant	10.99*** (0.697)	3.313 (5.426)	-12.00+ (7.255)	-10.29 (10.72)	-78.59* (32.21)
Country fixed effects	No	Yes	Yes	Yes	Yes
Year fixed effects	No	No	Yes	No	Yes
Observations	260	260	260	142	142
R ²	0.00370	0.617	0.730	0.674	0.773

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

2. Study 2

Figure C.5: Distribution of short-term and mid-term GDP growth

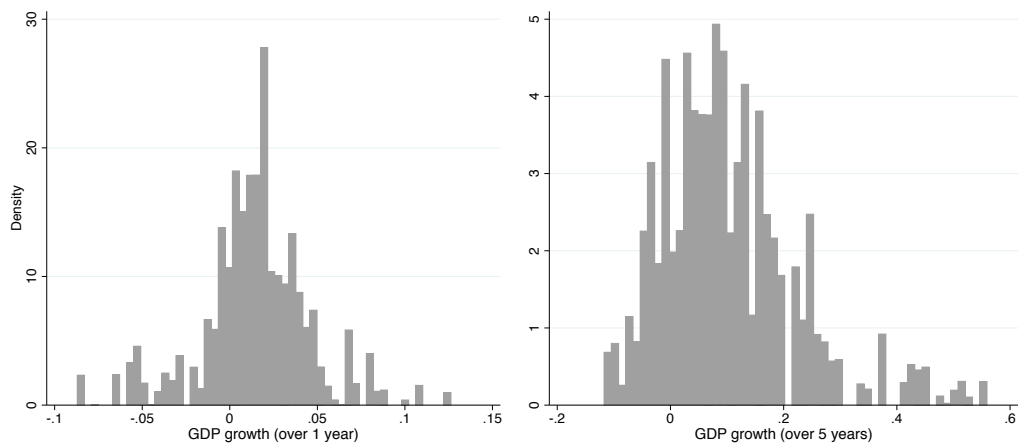


Table C.10: Variables description for Study 2

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>Individual-level variables</i>					
Extreme right vote	80330	.0865	.281	0	1
Extreme left vote	82029	.0968	.296	0	1
Political trust	248712	4.06	2.28	0	10
Support for redistribution	248712	3.86	1.05	1	5
Anti-immigration	248712	4.88	2.1	0	10
Traditionalism	248712	4.3	1.34	1	6
Economic well-being	248712	2.98	.868	1	4
Education	248712	3.22	1.34	1	5
Unemployed	248712	.0549	.228	0	1
Age	248712	47.9	18	14	114
Gender	248712	1.52	.5	1	2
Religiosity	248712	4.68	2.98	0	10
Rural/urban	248712	.645	.479	0	1
<i>Macro-level variables</i>					
GDP growth (over 1 years)	247248	.0145	.0313	-.0871	.126
GDP growth (over 5 years)	247248	.102	.119	-.117	.559
GDP	247248	.0336	.0196	.00137	.103
Gini	209961	29.2	4.5	22.1	41.6
Social welfare expenditure	222130	22.4	4.19	9.76	31.9
Unemployment rate	247248	8.13	3.88	2.1	24.8
Net migration	247248	2.29	3.81	-9.66	13.4

Table C.11: Effect of short-term GDP growth on individual extreme right vote compared to mainstream vote (unstandardized coefficients from multilevel logistic regression)

	(1)	(2)	(3)	(4)	(5)
<i>Macro-level predictors</i>					
GDP growth (over 1 year)	-6.017 ⁺ (3.388)	-6.803 ⁺ (3.568)	-5.425 ⁺ (3.034)	-1.990 (2.181)	-5.487 (4.035)
GDP			14.99* (7.324)	-17.88 ⁺ (9.687)	-30.33* (15.25)
Gini			-0.0593 ⁺ (0.0343)	-0.0646 (0.0653)	-0.0831 (0.0697)
Social welfare expenditure			-0.104*** (0.0264)	0.179* (0.0760)	0.157 (0.103)
Unemployment rate			0.0189 (0.0359)	0.0718 ⁺ (0.0381)	0.0658 (0.0494)
Net migration			0.157** (0.0485)	0.166* (0.0660)	0.197** (0.0701)
<i>Individual-level predictors</i>					
Economic well-being		-0.177*** (0.0190)	-0.157*** (0.0210)	-0.158*** (0.0211)	-0.158*** (0.0211)
<i>Education</i>					
Lower secondary		0.143* (0.0603)	0.126 ⁺ (0.0675)	0.128 ⁺ (0.0674)	0.128 ⁺ (0.0674)
Upper secondary		-0.118* (0.0579)	-0.150* (0.0653)	-0.147* (0.0653)	-0.147* (0.0653)
Postsecondary		-0.220** (0.0840)	-0.281** (0.0965)	-0.271** (0.0965)	-0.272** (0.0965)
Tertiary		-1.078*** (0.0635)	-1.097*** (0.0717)	-1.093*** (0.0717)	-1.093*** (0.0717)
Unemployed		0.212** (0.0678)	0.166* (0.0765)	0.166* (0.0765)	0.166* (0.0765)
Age		-0.0113*** (0.000870)	-0.0115*** (0.000970)	-0.0115*** (0.000970)	-0.0116*** (0.000970)
Gender		-0.408*** (0.0275)	-0.415*** (0.0305)	-0.415*** (0.0305)	-0.415*** (0.0305)
Religiosity		-0.0525*** (0.00500)	-0.0512*** (0.00557)	-0.0517*** (0.00557)	-0.0517*** (0.00557)
Rural/urban		-0.100*** (0.0276)	-0.0937** (0.0305)	-0.0894** (0.0305)	-0.0894** (0.0305)
Constant	-2.639*** (0.105)	-0.321* (0.150)	2.386* (1.159)	-3.798 ⁺ (2.143)	-2.391 (3.182)
Insig2u	0.271* (0.131)	0.378** (0.131)	-0.160 (0.146)	-1.094*** (0.161)	-1.134*** (0.161)
Country fixed effects	No	No	No	Yes	Yes
Year fixed effects	No	No	No	No	Yes
Observations	80325	80325	68193	68193	68193
Number of Country × Year	150	150	127	127	127
ICC	0.285	0.307	0.206	0.0924	0.0891

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table C.12: Effect of short-term GDP growth on individual extreme left vote compared to mainstream vote (unstandardized coefficients from multilevel logistic regression)

	(1)	(2)	(3)	(4)	(5)
<i>Macro-level predictors</i>					
GDP growth (over 1 year)	-1.634 (2.543)	-1.788 (2.823)	-0.112 (2.611)	0.279 (1.020)	1.844 (1.428)
GDP			22.57*** (4.641)	-4.540 (3.539)	-8.823 (5.452)
Gini			0.0849*** (0.0224)	0.161*** (0.0257)	0.158*** (0.0236)
Social welfare expenditure			-0.0115 (0.0223)	0.0222 (0.0315)	0.0393 (0.0334)
Unemployment rate			-0.0645** (0.0233)	-0.0645*** (0.0166)	-0.0569*** (0.0173)
Net migration			-0.0527* (0.0210)	-0.0554*** (0.0157)	-0.0487*** (0.0147)
<i>Individual-level predictors</i>					
Economic well-being		-0.359*** (0.0168)	-0.367*** (0.0183)	-0.373*** (0.0183)	-0.373*** (0.0183)
Education					
Lower secondary		0.256*** (0.0534)	0.248*** (0.0577)	0.257*** (0.0577)	0.257*** (0.0577)
Upper secondary		0.212*** (0.0512)	0.240*** (0.0550)	0.247*** (0.0551)	0.247*** (0.0551)
Postsecondary		0.226** (0.0772)	0.262** (0.0861)	0.275** (0.0860)	0.276** (0.0860)
Tertiary		0.379*** (0.0520)	0.426*** (0.0561)	0.433*** (0.0561)	0.433*** (0.0561)
Unemployed		0.340*** (0.0520)	0.283*** (0.0579)	0.276*** (0.0578)	0.274*** (0.0578)
Age		-0.00190* (0.000832)	-0.00176+ (0.000903)	-0.00170+ (0.000903)	-0.00173+ (0.000903)
Gender		0.191*** (0.0249)	0.202*** (0.0270)	0.201*** (0.0269)	0.201*** (0.0269)
Religiosity		-0.188*** (0.00482)	-0.189*** (0.00523)	-0.190*** (0.00523)	-0.190*** (0.00523)
Rural/urban		0.213*** (0.0273)	0.210*** (0.0295)	0.210*** (0.0295)	0.212*** (0.0295)
Constant	-2.430*** (0.0714)	-1.185*** (0.121)	-3.509*** (0.879)	-5.029*** (0.768)	-5.292*** (0.745)
Insig2u	-0.567*** (0.153)	-0.345* (0.150)	-0.760*** (0.167)	-3.424*** (0.244)	-3.860*** (0.306)
Country fixed effects	No	No	No	Yes	Yes
Year fixed effects	No	No	No	No	Yes
Observations	82027	82027	70520	70520	70520
Number of Country × Year	140	140	119	119	119
ICC	0.147	0.177	0.124	0.00981	0.00636

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table C.13: Effect of short-term GDP growth on individual political trust (unstandardized coefficients from multilevel linear regression)

	(1)	(2)	(3)
<i>Macro-level predictors</i>			
GDP growth (over 1 year)	4.040** (1.375)	2.472** (0.842)	4.948*** (1.299)
GDP	18.17*** (2.760)	8.337* (3.401)	17.43*** (4.965)
Gini	-0.0527*** (0.0110)	-0.0532* (0.0237)	-0.0472+ (0.0245)
Social welfare expenditure	-0.00931 (0.0114)	-0.114*** (0.0255)	-0.0967** (0.0317)
Unemployment rate	-0.0629*** (0.0135)	-0.00844 (0.0124)	-0.00858 (0.0143)
Net migration	0.0227+ (0.0132)	0.0169 (0.0132)	0.00884 (0.0134)
<i>Individual-level predictors</i>			
Economic well-being	0.340*** (0.00628)	0.339*** (0.00628)	0.339*** (0.00628)
Education			
Lower secondary	-0.0252 (0.0182)	-0.0232 (0.0182)	-0.0233 (0.0182)
Upper secondary	0.0225 (0.0173)	0.0252 (0.0173)	0.0254 (0.0173)
Postsecondary	0.128*** (0.0292)	0.130*** (0.0292)	0.131*** (0.0292)
Tertiary	0.386*** (0.0178)	0.388*** (0.0178)	0.388*** (0.0178)
Unemployed	-0.164*** (0.0209)	-0.165*** (0.0209)	-0.164*** (0.0209)
Age	-0.00201*** (0.000274)	-0.00199*** (0.000274)	-0.00200*** (0.000274)
Gender	-0.115*** (0.00926)	-0.115*** (0.00926)	-0.115*** (0.00926)
Religiosity	0.0879*** (0.00167)	0.0879*** (0.00167)	0.0879*** (0.00167)
Rural/urban	0.0800*** (0.00979)	0.0798*** (0.00979)	0.0798*** (0.00979)
Constant	4.347*** (0.484)	6.873*** (0.872)	6.150*** (1.070)
Observations	187383	187383	187383
Number of Country*Year	208	208	208
Country fixed effects	No	Yes	Yes
Year fixed effects	No	No	Yes
ICC	0.0726	0.0209	0.0207
Mean group size	900.9	900.9	900.9
Min group size	2	2	2
Max group size	2479	2479	2479

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table C.14: Effect of short-term GDP growth on individual support for redistribution (unstandardized coefficients from multilevel linear regression)

	(1)	(2)	(3)	(4)
<i>Macro-level predictors</i>				
GDP growth (over 1 year)	-0.149 (0.576)	0.0990 (0.250)	0.388 (0.394)	1.105* (0.494)
Former Socialist Republics				0.361*** (0.0868)
Former Socialist Republics × GDP growth (over 1 year)				-1.146* (0.485)
GDP	-3.917*** (1.160)	1.694 (1.038)	-1.185 (1.544)	-0.939 (1.532)
Gini	0.0169*** (0.00462)	0.0104 (0.00718)	0.00523 (0.00752)	0.00444 (0.00745)
Social welfare expenditure	0.00517 (0.00479)	-0.000522 (0.00771)	-0.0138 (0.00970)	-0.0105 (0.00970)
Unemployment rate	0.0213*** (0.00568)	0.00457 (0.00374)	0.00289 (0.00434)	0.00340 (0.00430)
Net migration	0.0101 ⁺ (0.00556)	-0.00213 (0.00395)	-0.00178 (0.00408)	-0.00201 (0.00404)
<i>Individual-level predictors</i>				
Economic well-being	-0.177*** (0.00312)	-0.176*** (0.00312)	-0.177*** (0.00312)	-0.177*** (0.00312)
Education				
Lower secondary	0.0582*** (0.00904)	0.0597*** (0.00905)	0.0599*** (0.00905)	0.0600*** (0.00905)
Upper secondary	0.0263** (0.00856)	0.0277** (0.00857)	0.0278** (0.00857)	0.0279** (0.00857)
Postsecondary	-0.0464** (0.0145)	-0.0425** (0.0145)	-0.0435** (0.0145)	-0.0435** (0.0145)
Tertiary	-0.182*** (0.00884)	-0.181*** (0.00884)	-0.181*** (0.00884)	-0.180*** (0.00884)
Unemployed	0.0832*** (0.0104)	0.0828*** (0.0104)	0.0828*** (0.0104)	0.0828*** (0.0104)
Age	0.00425*** (0.000136)	0.00426*** (0.000136)	0.00426*** (0.000136)	0.00426*** (0.000136)
Gender	0.130*** (0.00460)	0.130*** (0.00460)	0.130*** (0.00460)	0.130*** (0.00460)
Religiosity	-0.00682*** (0.000829)	-0.00695*** (0.000830)	-0.00694*** (0.000830)	-0.00695*** (0.000830)
Rural/urban	-0.0307*** (0.00486)	-0.0305*** (0.00486)	-0.0304*** (0.00486)	-0.0304*** (0.00486)
Constant	3.375*** (0.203)	3.636*** (0.264)	4.206*** (0.328)	4.127*** (0.326)
Observations	187383	187383	187383	187383
Number of Country*Year	208	208	208	208
Country fixed effects	No	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes
ICC	0.0522	0.00679	0.00693	0.00676
Mean group size	900.9	900.9	900.9	900.9
Min group size	2	2	2	2
Max group size	2479	2479	2479	2479

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table C.15: Effect of short-term GDP growth on individual anti-immigration attitudes (unstandardized coefficients from multilevel linear regression)

	(1)	(2)	(3)	(4)
<i>Macro-level predictors</i>				
GDP growth (over 1 year)	-2.313* (1.093)	-0.958 (0.599)	-2.179** (0.837)	-1.882* (0.924)
Former Western Bloc				-0.484** (0.186)
Former Western Bloc × GDP growth (over 1 year)				-0.793 (1.043)
GDP	-11.06*** (2.202)	-4.687+ (2.454)	1.713 (3.260)	1.544 (3.268)
Gini	0.0256** (0.00876)	-0.00728 (0.0170)	-0.00728 (0.0159)	-0.00675 (0.0159)
Social welfare expenditure	-0.0118 (0.00909)	-0.00417 (0.0183)	0.0374+ (0.0205)	0.0351+ (0.0208)
Unemployment rate	-0.0269* (0.0108)	0.00273 (0.00890)	-0.0127 (0.00920)	-0.0130 (0.00921)
Net migration	-0.0354*** (0.0105)	-0.0178+ (0.00940)	-0.0180* (0.00866)	-0.0179* (0.00866)
<i>Individual-level predictors</i>				
Economic well-being	-0.226*** (0.00597)	-0.225*** (0.00597)	-0.225*** (0.00597)	-0.225*** (0.00597)
Education				
Lower secondary	-0.181*** (0.0173)	-0.181*** (0.0173)	-0.181*** (0.0173)	-0.181*** (0.0173)
Upper secondary	-0.446*** (0.0164)	-0.447*** (0.0164)	-0.447*** (0.0164)	-0.447*** (0.0164)
Postsecondary	-0.674*** (0.0277)	-0.672*** (0.0277)	-0.671*** (0.0277)	-0.671*** (0.0277)
Tertiary	-1.209*** (0.0169)	-1.210*** (0.0169)	-1.210*** (0.0169)	-1.210*** (0.0169)
Unemployed	0.109*** (0.0199)	0.109*** (0.0199)	0.109*** (0.0199)	0.109*** (0.0199)
Age	0.00863*** (0.000260)	0.00861*** (0.000260)	0.00863*** (0.000260)	0.00863*** (0.000260)
Gender	0.0735*** (0.00881)	0.0735*** (0.00881)	0.0736*** (0.00881)	0.0736*** (0.00881)
Religiosity	-0.0202*** (0.00159)	-0.0200*** (0.00159)	-0.0200*** (0.00159)	-0.0200*** (0.00159)
Rural/urban	-0.244*** (0.00931)	-0.243*** (0.00931)	-0.243*** (0.00931)	-0.243*** (0.00931)
Constant	6.001*** (0.386)	6.381*** (0.627)	5.243*** (0.694)	5.783*** (0.579)
Observations	187383	187383	187383	187383
Number of Country*Year	208	208	208	208
Country fixed effects	No	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes
ICC	0.0513	0.0112	0.00880	0.00880
Mean group size	900.9	900.9	900.9	900.9
Min group size	2	2	2	2
Max group size	2479	2479	2479	2479

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table C.16: Effect of short-term GDP growth on individual traditionalism (unstandardized coefficients from multilevel linear regression)

	(1)	(2)	(3)
<i>Macro-level predictors</i>			
GDP growth (over 1 year)	-1.249* (0.488)	-0.560*** (0.149)	-0.650** (0.230)
GDP	-3.928*** (0.994)	3.759*** (0.631)	0.494 (0.919)
Gini	-0.00355 (0.00395)	0.00135 (0.00435)	-0.00257 (0.00448)
Social welfare expenditure	-0.0195*** (0.00409)	-0.00862+ (0.00469)	-0.0223*** (0.00572)
Unemployment rate	0.0176*** (0.00482)	0.00245 (0.00224)	0.00169 (0.00252)
Net migration	0.0145** (0.00475)	0.00771** (0.00238)	0.00836*** (0.00242)
<i>Individual-level predictors</i>			
Economic well-being	-0.00137 (0.00384)	-0.00113 (0.00384)	-0.000933 (0.00384)
Education			
Lower secondary	-0.0533*** (0.0111)	-0.0566*** (0.0112)	-0.0565*** (0.0112)
Upper secondary	-0.0378*** (0.0105)	-0.0401*** (0.0106)	-0.0399*** (0.0106)
Postsecondary	-0.0682*** (0.0179)	-0.0626*** (0.0178)	-0.0674*** (0.0178)
Tertiary	-0.157*** (0.0109)	-0.159*** (0.0109)	-0.160*** (0.0109)
Unemployed	-0.0638*** (0.0128)	-0.0648*** (0.0128)	-0.0646*** (0.0128)
Age	0.0115*** (0.000168)	0.0116*** (0.000167)	0.0115*** (0.000167)
Gender	0.0672*** (0.00567)	0.0674*** (0.00567)	0.0674*** (0.00567)
Religiosity	0.145*** (0.00102)	0.145*** (0.00102)	0.145*** (0.00102)
Rural/urban	-0.0565*** (0.00600)	-0.0571*** (0.00599)	-0.0570*** (0.00599)
Constant	3.549*** (0.174)	2.867*** (0.161)	3.396*** (0.194)
Observations	187383	187383	187383
Number of Country*Year	208	208	208
Country fixed effects	No	Yes	Yes
Year fixed effects	No	No	Yes
ICC	0.0245	0.000809	0.000737
Mean group size	900.9	900.9	900.9
Min group size	2	2	2
Max group size	2479	2479	2479

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

D

Appendix – Chapter 4

Figure D.1: Distribution of short-term and mid-term sector employment growth

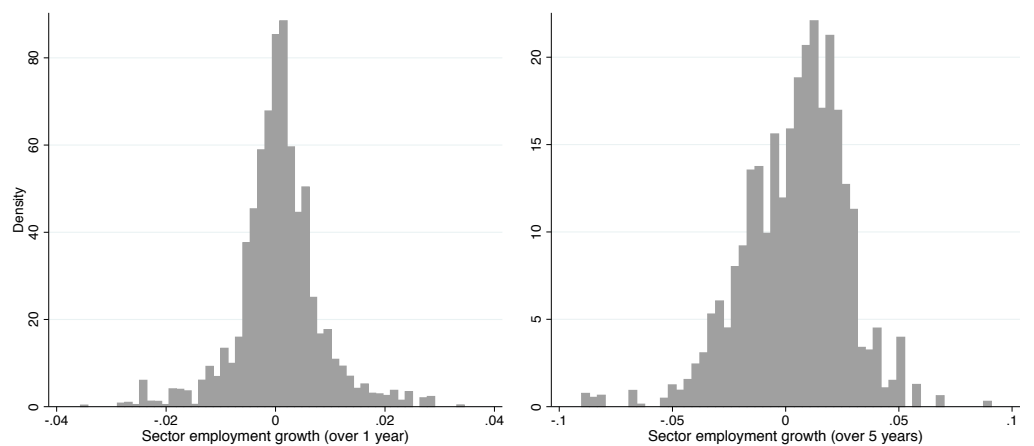


Table D.1: Effect of short-term sector employment growth on individual extreme right vote compared to mainstream vote (unstandardized coefficients from multilevel logistic regression)

	(1)	(2)
Sector employment growth (over 1 year)	-13.39** (4.875)	-12.98* (5.177)
Sector (Industry as reference)		
Alimentation production		-0.385** (0.148)
Public Sector and community		-0.166+ (0.0991)
Services		0.0207 (0.0945)
Other		0.114 (0.153)
Constant	-1.962 (2.114)	-2.127 (2.093)
Insig2u	-1.209*** (0.121)	-1.250*** (0.122)
Individual controls	Yes	Yes
Macro controls	Yes	Yes
Country fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	59902	59902
Number of Sector × Country × Year	498	498
ICC	0.0832	0.0801

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table D.2: Effect of short-term sector employment growth on individual extreme left vote compared to mainstream vote (unstandardized coefficients from multilevel logistic regression)

	(1)	(2)	(3)
Sector employment growth (over 1 year)	-0.483 (3.302)	-3.387 (3.424)	-2.558 (3.487)
Former Socialist Republics			-0.183 (0.390)
Former Socialist Republics × Sector employment growth (over 1 year)			-16.66 (14.27)
Sector (Industry as reference)			
Alimentation production		-0.240* (0.105)	-0.244* (0.105)
Public Sector and community		0.267*** (0.0659)	0.263*** (0.0658)
Services		-0.0557 (0.0642)	-0.0570 (0.0640)
Other		-0.125 (0.133)	-0.124 (0.133)
Constant	-4.331*** (0.958)	-4.412*** (0.882)	-4.265*** (1.135)
Insig2u	-2.305*** (0.150)	-2.620*** (0.179)	-2.630*** (0.179)
Individual controls	Yes	Yes	Yes
Macro controls	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	60045	60045	60045
Number of Sector × Country × Year	462	462	462
ICC	0.0294	0.0216	0.0214

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

E

Appendix – Chapter 5

1. Study 1

1.1. Lab treatments

Deprivation

- *Journaliste* : franceinfo... 8h11... à quelques jours de la rentrée universitaire... l'observatoire national de la vie étudiante publie comme chaque année son rapport sur l'insertion des étudiants en france... et une nouvelle fois, le constat est alarmiste : toujours d'importantes difficultés d'insertion, toujours beaucoup de chômage et de précarisation à la sortie des études supérieures... on en parle ce matin avec Elodie Pasquier, bonjour !
- *Elodie Pasquier* : Bonjour.
- *Journaliste* : Merci d'avoir accepté notre invitation. Chercheuse au CNRS, vous êtes la coordinatrice de cette enquête nationale... alors d'abord un mot de méthode... comment vous vous y êtes pris ?
- *Elodie Pasquier* : Alors... Depuis les années 2000, nous publions tous les ans, en lien avec l'INSEE, l'enquête « Insert-Sup » sur l'insertion des étudiants à l'issue de leurs études. L'idée, c'est principalement de connaître l'avenir professionnel des anciens étudiants – en terme de débouchés, de types de contrats, de salaires... – mais aussi, plus largement l'insertion sociale et humaine – avec des questions sur la santé, la satisfaction, les relations sociales, etc. Sur le plan méthodologique, notre enquête est basée à la fois sur les statistiques générales et sur un questionnaire annuel rempli par près de 15 000 anciens étudiants en France.
- *Journaliste* : Et donc je le disais, cette année encore, vous dressez un tableau sombre de l'avenir des étudiants français ?
- *Elodie Pasquier* : Oui. Depuis 2013, on constate que la tendance est à la précarisation des parcours issus du supérieur. Pour la deuxième année consécutive, on remarque un fait alarmant : le taux de chômage est plus élevé à la sortie des cycles supérieurs qu'à la sortie des études secondaires et professionnelles. Alors que jusqu'ici, la qualification restait un rempart relatif au chômage, on voit aujourd'hui que 55% des bac+5 de la promotion 2016 n'ont toujours pas trouvé d'emploi. La raison à cela est que les employeurs rechignent de plus en plus à employer des personnes hautement qualifiées car le diplôme est synonymes de salaires plus élevés ; et lorsqu'ils recherchent des profils qualifiés, ils préfèrent tabler sur des profils expérimentés. Au-delà du chômage, on constate un allongement de la période d'emplois précaires – CDD et intérim notamment – qui passe de 3 à 7 ans en moyenne après

l'obtention du diplôme. Enfin, pour ceux qui ont la chance de décrocher un poste, cela va de pair avec des salaires moins élevés sur le long-terme par rapport aux générations précédentes.

- *Journaliste* : Et c'est particulièrement le cas pour certaines filières ?
- *Elodie Pasquier* : Comme toujours, les filières littéraires, artistiques et les sciences humaines sont les plus touchées par ces difficultés d'insertion, mais ce qui est nouveau c'est que différentes filières que l'on considérait classiquement comme « protégées » sont à leur tour marquées par des parcours professionnels de plus en plus chaotiques et précaires. Je pense notamment aux filières scientifiques – sciences de l'ingénieur, de l'informatique – ou encore aux sciences de gestion.
- *Journaliste* : Donc si je vous comprends bien, ça veut dire qu'aujourd'hui, les études supérieures ne garantissent plus une élévation sociale ?
- *Elodie Pasquier* : En effet, d'autant que sur le deuxième plan de l'enquête dont je parlais au début – l'insertion sociale et humaine -, nos résultats sont aussi alarmants. En corollaire de la précarité économique, les anciens étudiants ont des niveaux de satisfaction et de santé dégradés : 30% sont touchés par des symptômes dépressifs et plus de 15% témoignent d'idées suicidaires. C'est davantage que leurs aînés et bien plus que la population française en général. De même, les comportements à risque et les addictions – tabac, alcool, drogues – sont plus fréquents que dans nos précédentes enquêtes. En ce qui concerne les relations sociales, ce qu'on voit c'est que la difficulté à trouver un emploi stable et la nécessité d'être mobiles sur le plan géographique entraîne des relations amicales et conjugales plus distancées, et un taux de célibat plus élevé. Les réponses aux questionnaires montrent aussi un affaiblissement des relations avec la famille par rapport aux années précédentes.
- *Journaliste* : Et ces tendances vont elles se maintenir dans les années à venir ?
- *Elodie Pasquier* : Avec nos partenaires de l'INSEE, nous faisons des projections à partir d'agrégats économiques et de nos enquêtes précédentes, et les perspectives pour l'avenir vont dans le même sens. Il y a toutes les raisons de penser que la prochaine génération de diplômés bénéficiera de conditions d'insertion professionnelle et sociale très dégradées par rapport à la décennie précédente.
- *Journaliste* : Elodie Pasquier, coordinatrice de cette étude de l'observatoire de la vie étudiante... Merci beaucoup !! merci. Je rappelle que le rapport est disponible sur le site observatoire tiret vie tiret étudiante point org.
- *Elodie Pasquier* : Merci.

Neutral

- *Journaliste* : franceinfo... 8h11... Les études supérieures sont-elles encore synonyme de réussite professionnelle ? À quelques jours de la rentrée universitaire, l'observatoire nationale de la vie étudiante publie aujourd'hui son traditionnel rapport sur l'insertion des étudiants en France... l'occasion d'en savoir plus aussi sur la valeur actuelle des diplômes... on en parle ce matin avec Elodie Pasquier, bonjour !
- *Elodie Pasquier* : Bonjour.
- *Journaliste* : Merci d'avoir accepté notre invitation. Vous êtes chercheuse au CNRS et coordinatrice de l'enquête nationale publiée aujourd'hui par l'Observatoire de la Vie Etudiante. D'abord, en quoi elle consiste cette enquête ?
- *Elodie Pasquier* : Alors... Depuis les années 2000, nous publions tous les ans, en lien avec l'INSEE, l'enquête « Insert-Sup » sur l'insertion des étudiants à l'issue de leurs études. L'idée, c'est principalement de connaître l'avenir professionnel des anciens étudiants – en terme de débouchés, de types de contrats, de salaires... – mais aussi, plus largement l'insertion sociale et humaine – avec des questions sur la santé, la satisfaction, les relations sociales, etc. Sur le plan méthodologique, notre enquête est basée à la fois sur les statistiques générales et sur un questionnaire annuel rempli par près de 15 000 anciens étudiants en France.
- *Journaliste* : Alors justement, elle nous dit quoi cette enquête cette année sur l'avenir des étudiants?
- *Elodie Pasquier* : Alors, nos résultats de cette année montrent globalement une stabilité par rapport aux années précédentes dans l'insertion professionnelle des étudiants. Ce qu'on constate, c'est bien une légère augmentation du taux de chômage à la sortie des cycles supérieurs par rapport à 2015-2016 – avec 20% des bac+5 de la promotion de 2016 qui n'ont pas encore trouvé d'emploi. Mais la qualification reste néanmoins toujours un rempart solide face à la précarité et un synonyme d'insertion à plus long-terme. En effet, on constate une diminution de la période d'emplois à durée limitée – CDD et intérim notamment – qui passe de 4 à 3 ans en moyenne après l'obtention du diplôme. Et ce qui est aussi une bonne nouvelle pour les diplômés, ce sont les salaires plus élevés sur le long-terme par rapport à la génération précédente.
- *Journaliste* : Et si on rentre dans le détail, est ce qu'il ya des filières qui se portent mieux que d'autres ?
- *Elodie Pasquier* : On entend souvent que les filières scientifiques – sciences de l'ingénieur, de l'informatique – ou encore les sciences de gestion se portent mieux

que les filières littéraires ou artistiques. Mais ce n'est pas tout à fait vrai ! Par rapport à la décennie précédente, on est plutôt face à une convergence : les filières littéraires, artistiques et aux sciences humaines, bénéficient en fait du bon développement de différents domaines : l'édition, l'enseignement, la traduction ; alors que les filières scientifiques connaissent davantage de difficultés que dans le passé, avec la montée d'une concurrence au niveau international dans la recherche et aux faibles investissements des grands groupes dans la Recherche et Développement en France.

- *Journaliste* : Vous disiez que votre enquête ne s'intéresse pas seulement à l'insertion professionnelle, mais aussi l'insertion humaine,... du coup on apprend quoi là dessus ?
- *Elodie Pasquier* : Sur ce plan aussi, il faut apporter des résultats nuancés. Un point positif, c'est que les anciens étudiants ont des niveaux de satisfaction et de santé qui s'améliorent : les symptômes dépressifs sont en baisse et 80% déclarent de bons niveaux de santé physique et psychique. C'est un peu plus que leurs aînés et que la population française en général. De même, les comportements à risque et les addictions – tabac, alcool, drogues – sont moins fréquents que dans nos précédentes enquêtes. Par contre, en ce qui concerne les relations sociales, ce qu'on voit c'est que la plus grande mobilité professionnelle sur le plan géographique entraîne des relations amicales et familiales plus distancées, et un taux de célibat plus élevé. A long-terme, cette fragilisation des liens sociaux peut avoir des effets néfastes.
- *Journaliste* : Et ces tendances vont elles se maintenir dans les années à venir ?
- *Elodie Pasquier* : Avec nos partenaires de l'INSEE, nous travaillons actuellement sur des projections à partir d'agrégats économiques et de nos enquêtes précédentes, mais il est difficile à l'heure actuelle d'avoir une idée claire concernant les tendances futures. Globalement, ce que je peux vous dire c'est qu'on ne prévoit pas de changement majeur pour les années à venir.
- *Journaliste* : Elodie Pasquier, merci. Vous avez donc coordonné cette enquête sur l'insertion des étudiants... Je rappelle que le rapport est disponible sur le site observatoire tiret vie tiret étudiante point org.
- *Elodie Pasquier* : Merci.

Prosperity

- *Journaliste* : franceinfo... 8h11... On part à la fac, à quelques jours de la rentrée universitaire ! Comme chaque année, l'Observatoire National de la Vie Etudiante publie un rapport d'enquête sur l'insertion des étudiants en France. Et la

tendance de fond, depuis quelques années... est plutôt optimiste : insertion plus rapide, diminution du chômage et du nombre d'emplois précaires à la sortie des cycles supérieures. On va voir si ça se confirme encore cette année avec Elodie Pasquier, bonjour !

– *Elodie Pasquier* : Bonjour.

– *Journaliste* : Vous êtes chercheuse au CNRS et coordinatrice de cette enquête... d'abord quelques mots de méthode, en quoi consiste cette enquête ?

– *Elodie Pasquier* : Alors... Depuis les années 2000, nous publions tous les ans, en lien avec l'INSEE, l'enquête « Insert-Sup » sur l'insertion des étudiants à l'issue de leurs études. L'idée, c'est principalement de connaître l'avenir professionnel des anciens étudiants – en terme de débouchés, de types de contrats, de salaires... – mais aussi, plus largement l'insertion sociale et humaine – avec des questions sur la santé, la satisfaction, les relations sociales, etc. Sur le plan méthodologique, notre enquête est basée à la fois sur les statistiques générales et sur un questionnaire annuel rempli par près de 15 000 anciens étudiants en France.

– *Journaliste* : Et cette année encore, le constat est plutôt optimiste alors pour l'avenir de nos étudiants ?

– *Elodie Pasquier* : Oui. Depuis 2013, on constate que la tendance est à la sécurisation des parcours issus du supérieur. Pour la deuxième année consécutive, on remarque une baisse significative du taux de chômage à la sortie des cycles supérieurs, beaucoup plus faible qu'à la sortie des études secondaires et professionnelles par exemple. On voit aujourd'hui que 85% des bac+5 de la promotion 2016 ont trouvé un emploi. Alors que le manque d'expérience jouait ces dernières années comme un frein à l'embauche, les meilleures perspectives économiques pour l'avenir encouragent les employeurs à embaucher des jeunes qualifiées. Au-delà de la baisse du chômage, on constate une diminution de la période d'emplois précaires – CDD et intérim notamment – qui passe de 5 à 2 ans en moyenne après l'obtention du diplôme. Enfin, cela va de pair avec des salaires plus élevés sur le long-terme par rapport à la génération précédente.

– *Journaliste* : Et ce constat est valable pour certaines filières plus particulièrement ?

– *Elodie Pasquier* : Comme toujours, les filières scientifiques – sciences de l'ingénieur, de l'informatique – ou encore les sciences de gestion présentent de bons niveaux d'insertion professionnelle, mais ce qui est nouveau c'est que différentes filières que l'on considérait classiquement comme moins « protégées », ont aujourd'hui de meilleures perspectives et des parcours plus sécurisés. Je pense

notamment aux filières littéraires, artistiques et aux sciences humaines, qui bénéficient du bon développement de différents domaines : l'édition, l'enseignement, la traduction.

- *Journaliste* : Si je vous comprends bien, la bonne nouvelle quand même, c'est que les études supérieures sont à nouveau synonymes d'élévation sociale !
- *Elodie Pasquier* : En effet, d'autant que sur le deuxième plan de l'enquête dont je parlais au début – l'insertion sociale et humaine -, nos résultats sont aussi optimistes. En corolaire d'une meilleure sécurité économique, les anciens étudiants ont des niveaux de satisfaction et de santé qui s'améliorent : les symptômes dépressifs sont en baisse et 90% déclarent d'excellents niveaux de santé physique et psychique. C'est davantage que leurs aînés et bien plus que la population française en général. De même, les comportements à risque et les addictions – tabac, alcool, drogues – sont moins fréquents que dans nos précédentes enquêtes. En ce qui concerne les relations sociales, ce qu'on voit c'est que la meilleure capacité à trouver un emploi épanouissant entraîne des relations amicales et conjugales plus solides et investies. Les réponses aux questionnaires montrent aussi un renforcement des relations avec la famille par rapport aux années précédentes.
- *Journaliste* : Et ces tendances vont-elles se maintenir dans les années à venir ?
- *Elodie Pasquier* : Avec nos partenaires de l'INSEE, nous faisons des projections à partir d'agrégats économiques et de nos enquêtes précédentes, et les perspectives pour l'avenir vont dans le bon sens. Il y a toutes les raisons de penser que la prochaine génération de diplômés bénéficiera de conditions d'insertion professionnelle et sociale très favorables par rapport à la décennie précédente.
- *Journaliste* : Elodie Pasquier, coordinatrice de cette enquête de l'observatoire de la vie étudiante, merci beaucoup ! Je rappelle que le rapport est disponible sur le site observatoire-tiret-vie-tiret-étudiante-point-org.
- *Elodie Pasquier* : Merci.

1.2. French translation of the ARIS

1 Totalement en désaccord 2 3 4 Neutre 5 6 7 Totalement d'accord

- Je deviendrais membre d'une organisation qui défend les droits politiques et légaux de mon groupe
- Je donnerais de l'argent à une organisation qui combat pour les droits politiques et légaux de mon groupe

- Je donnerais de mon temps (i.e., à écrire des pétitions, distribuer des flyers, recruter des membres, etc.) pour une organisation qui combat pour les droits politiques et légaux de mon groupe
- Je ferais un trajet d'une heure pour rejoindre un rassemblement ou une manifestation en soutien de mon groupe
- Je continuerais à soutenir une organisation qui lutte pour les droits politiques et légaux de mon groupe même si cette organisation transgresse parfois la loi
- Je continuerais à soutenir une organisation qui lutte pour les droits politiques et légaux de mon groupe même si cette organisation recourt parfois à la violence
- Je participerais à une manifestation publique contre l'oppression de mon groupe même je pensais que la manifestation pourrait devenir violente
- J'attaquerais les forces de police ou de sécurité si je les voyais frapper des membres de mon groupe

1.3. Results

Figure E.1: Distribution of activism and radicalism in the lab experiment

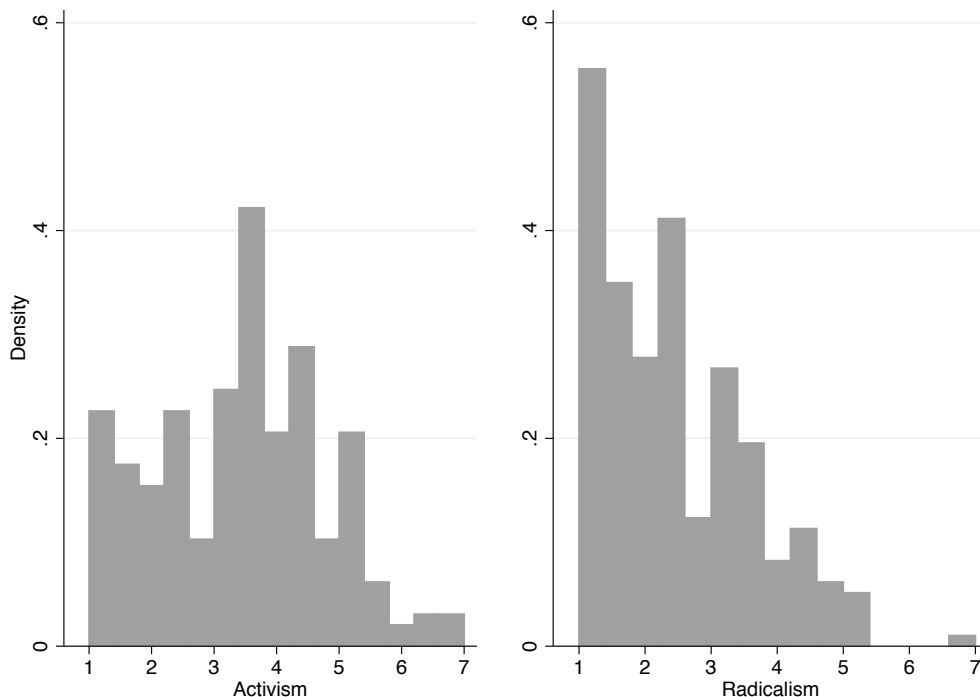


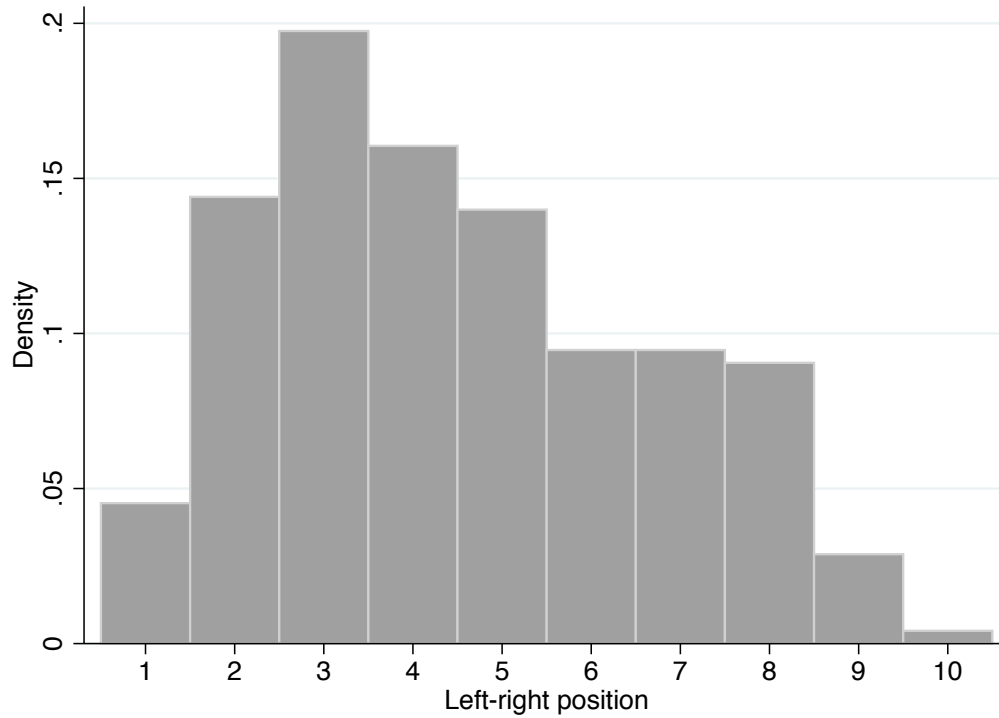
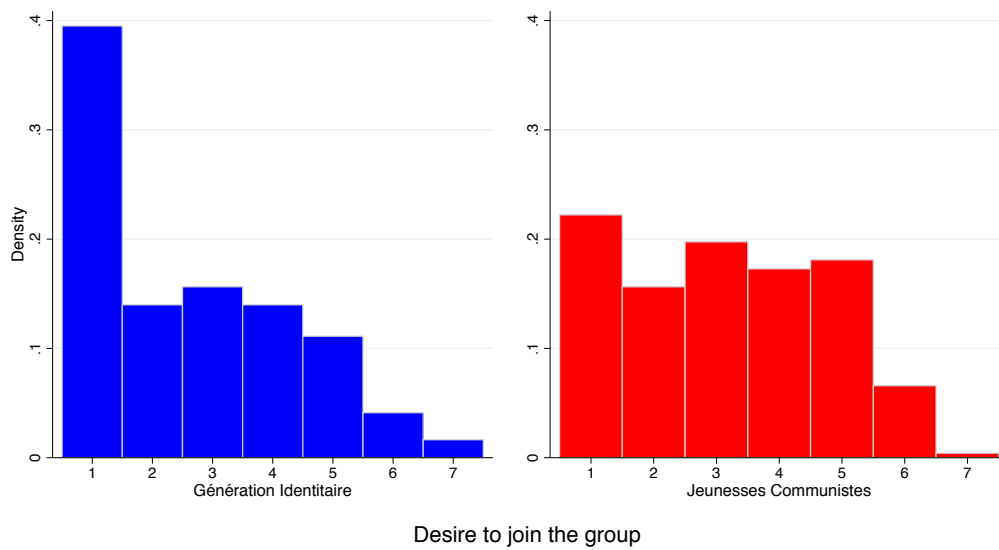
Figure E.2: Distribution of the left-right position in the lab experiment*Figure E.3: Distribution of the desire to join a political group*

Table E.1: Cross-correlation table for the Lab experiment

Variables	Activism	Radicalism	Génération Identitaire	Jeunesses Communistes	Left-right position	Authoritarianism
Activism	1.000					
Radicalism	0.456***	1.000				
Génération Identitaire	0.239***	-0.012	1.000			
Jeunesses Communistes	0.603***	0.378***	0.444***	1.000		
Left-right position	-0.284***	-0.389***	0.100	-0.296***	1.000	
Authoritarianism	-0.176**	-0.321***	0.173**	-0.058	0.346***	1.000

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure E.4: Effect of the lab treatment on activism and radicalism (with 95% confidence interval)

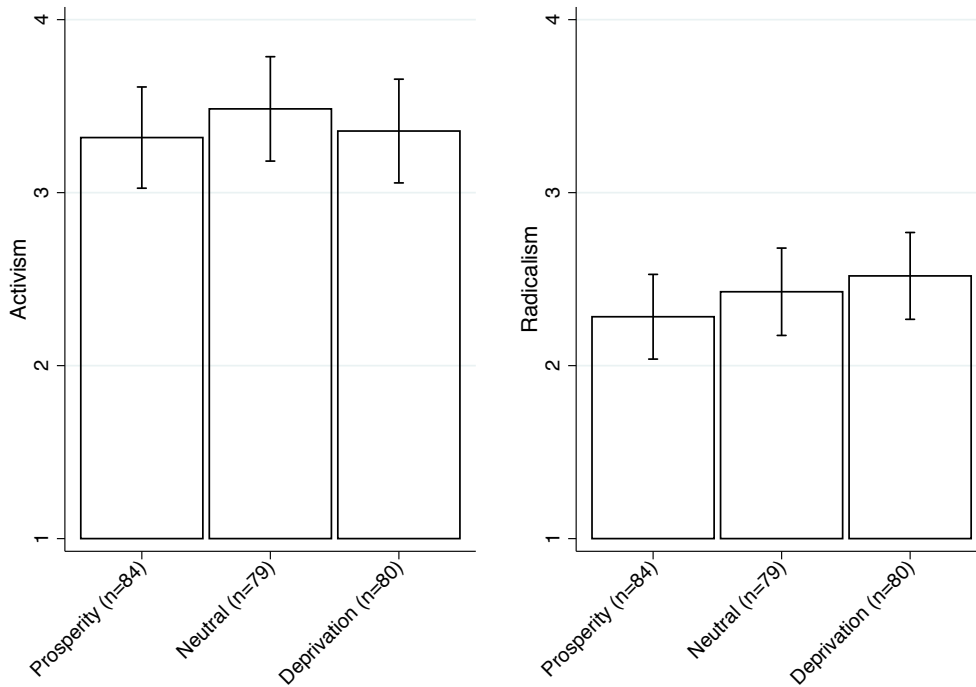


Table E.2: Effect of the lab treatment on activism depending on the left-right position (unstandardized coefficients from linear regression)

	(1)	(2)	(3)	(4)
Experimental treatment (Prosperity as reference)				
Neutral	0.166 (0.213)	0.145 (0.250)	0.420 (0.385)	0.0398 (0.485)
Deprivation	0.0378 (0.213)	0.0332 (0.246)	0.209 (0.392)	0.209 (0.495)
Left-right position				-0.186* (0.0753)
Experimental treatment (Prosperity as reference) × Left-right position				
Neutral × Left-right position				0.0359 (0.0991)
Deprivation × Left-right position				-0.0230 (0.100)
Constant	3.318*** (0.149)	3.536*** (0.168)	2.705*** (0.288)	4.129*** (0.357)
Subjects	All	Left-wing	Right-wing	All
Observations	243	167	76	243
R^2	0.00273	0.00218	0.0161	0.0861

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table E.3: Effect of the lab treatment on the desire to join a political group (unstandardized coefficients from linear regression)

Dependent variable	(1)	(2)
	Génération Identitaire	Jeunes Communistes
Experimental treatment (Prosperity as reference)		
Neutral	0.466+ (0.262)	0.217 (0.253)
Deprivation	0.306 (0.261)	0.164 (0.252)
Constant	2.369*** (0.182)	3.024*** (0.176)
Subjects	All	All
Observations	243	243
R^2	0.0135	0.00335

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table E.4: Effect of the lab treatment on activism, radicalism and the desire to join a political group, including controls (unstandardized coefficients from linear regression)

Dependent variable	(1) Activism	(2) Radicalism	(3) Radicalism	(4) Radicalism	(5) Génération Identitaire	(6) Jeunes Communistes
Experimental treatment (Prosperity as reference)						
Neutral	0.234 (0.213)	0.127 (0.174)	0.0797 (0.220)	0.445 (0.270)	0.506 ⁺ (0.258)	0.326 (0.254)
Deprivation	0.0599 (0.210)	0.256 (0.172)	0.150 (0.216)	0.646* (0.263)	0.317 (0.255)	0.239 (0.251)
Authoritarianism	-0.691*** (0.201)	-0.818*** (0.165)	-0.802*** (0.208)	-0.226 (0.291)	0.633* (0.244)	-0.377 (0.240)
Female	0.588** (0.203)	-0.392* (0.166)	-0.331 (0.202)	-0.423 (0.278)	0.651** (0.246)	0.843*** (0.242)
Age	-0.0172 (0.0445)	-0.0121 (0.0365)	0.00470 (0.0448)	-0.0806 (0.0599)	0.0342 (0.0541)	-0.00191 (0.0532)
Education grade (Highschool as reference)						
Bachelor	0.131 (0.194)	0.202 (0.159)	0.245 (0.200)	0.160 (0.241)	-0.108 (0.236)	0.0213 (0.232)
Master and more	-0.359 (0.440)	-0.143 (0.360)	-0.159 (0.517)	-0.0575 (0.451)	0.173 (0.534)	-0.128 (0.525)
Faculty (Arts and languages as reference)						
Law, economy and management	0.299 (0.423)	-0.231 (0.347)	-0.173 (0.423)	0.147 (0.637)	0.581 (0.514)	0.383 (0.506)
Health	1.520 (0.999)	-1.104 (0.818)	-0.281 (1.184)	-1.108 (1.097)	1.612 (1.212)	0.151 (1.192)
Social and behavioral sciences	-0.120 (0.318)	-0.342 (0.261)	-0.248 (0.299)	0.0692 (0.554)	1.045** (0.387)	0.223 (0.380)
Sciences and technology	-0.118 (0.350)	-0.697* (0.287)	-0.623 ⁺ (0.334)	-0.0438 (0.623)	0.521 (0.425)	-0.0605 (0.418)
Constant	4.404*** (1.220)	5.575*** (1.000)	5.207*** (1.199)	4.393* (1.925)	-1.789 (1.482)	2.373 (1.457)
Subjects	All	All	Left-wing	Right-wing	All	All
Observations	239	239	163	76	239	239
R ²	0.107	0.163	0.146	0.155	0.137	0.0929

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure E.5: Effect of the lab treatment on activism depending on the left-right position (with 95% confidence interval)

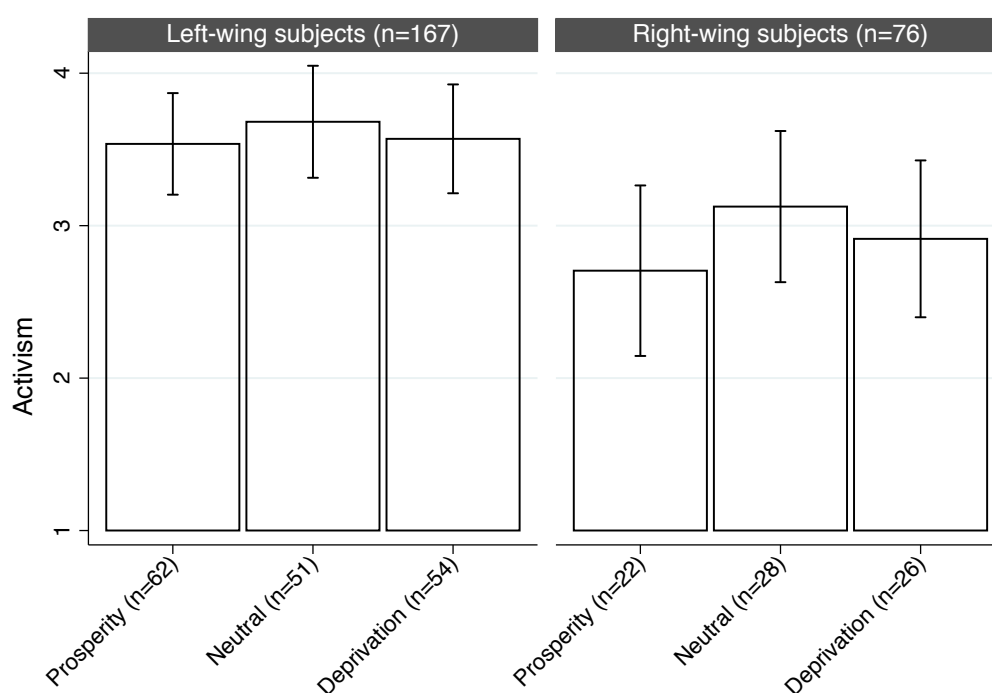


Table E.5: Effect of the lab treatment on radicalism and the desire to join a political group, authoritarian dynamic hypothesis (unstandardized coefficients from linear regression)

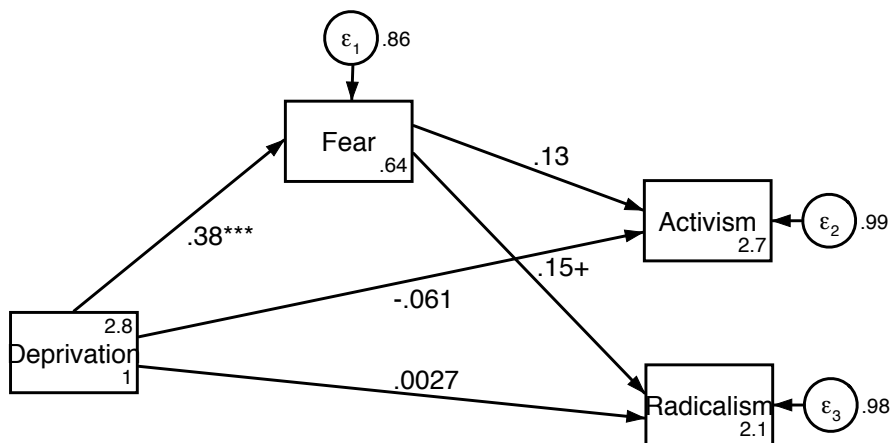
Dependent variable	(1) Radicalism	(2) Radicalism	(3) Radicalism	(4) Génération Identitaire	(5) Jeunesses Communistes
Experimental treatment (Prosperity as reference)					
Neutral	-1.932 ⁺ (1.096)	-1.149 (1.378)	-0.680 (1.818)	0.842 (1.687)	1.062 (1.647)
Deprivation	-0.543 (1.007)	-0.244 (1.225)	0.459 (2.001)	0.220 (1.549)	1.792 (1.512)
Authoritarianism	-1.240*** (0.326)	-1.048* (0.422)	-0.327 (0.549)	0.687 (0.502)	0.189 (0.490)
Experimental treatment (Prosperity as reference) × Authoritarianism					
Neutral × Authoritarianism	0.842 ⁺ (0.437)	0.532 (0.564)	0.449 (0.679)	-0.155 (0.672)	-0.341 (0.656)
Deprivation × Authoritarianism	0.322 (0.400)	0.172 (0.506)	0.0372 (0.730)	0.0291 (0.616)	-0.654 (0.601)
Constant	5.352*** (0.816)	5.084*** (1.021)	2.348 (1.493)	0.668 (1.256)	2.556* (1.226)
Subjects	All	Left-wing	Right-wing	All	All
Observations	243	167	76	243	243
R ²	0.126	0.105	0.0872	0.0432	0.0120

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure E.6: Standardized coefficients from structural equation models linking the lab treatment (deprivation versus neutral and prosperity), fear and radicalism

(a) Left-wing subjects (n=167)



(b) Right-wing subjects (n=76)

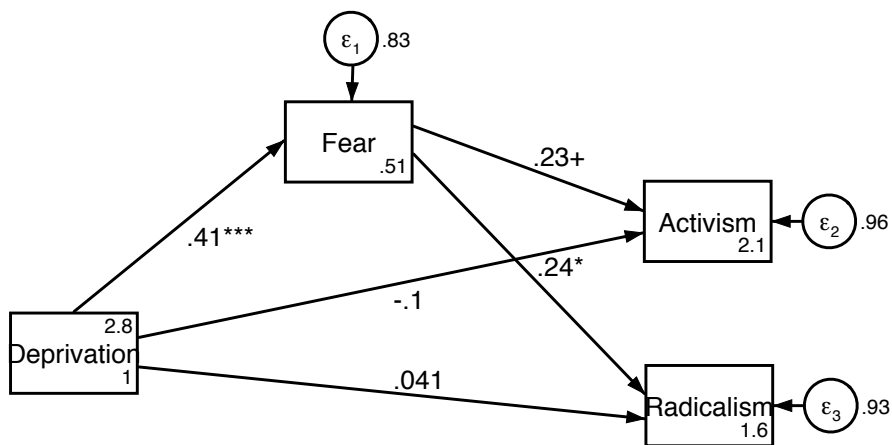


Table E.6: Effect of fear on radicalism depending on the left-right position (unstandardized coefficients from linear regression)

Dependent variable	(1) Radicalism	(2) Radicalism	(3) Radicalism	(4) Radicalism	(5) Génération Identitaire	(6) Jeunesses Communistes
Fear	0.195** (0.0651)	0.155+ (0.0786)	0.213* (0.0939)	0.127 (0.131)	0.230* (0.0965)	0.246** (0.0924)
Left-right position				-0.217*** (0.0616)		
Fear × Left-right position				0.00875 (0.0275)		
Constant	2.042*** (0.141)	2.366*** (0.175)	1.470*** (0.191)	3.077*** (0.305)	2.193*** (0.209)	2.689*** (0.201)
Subjects	All	Left-wing	Right-wing	All	All	All
Observations	243	167	76	243	243	243
R ²	0.0360	0.0231	0.0649	0.177	0.0229	0.0285

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

2. Study 2

Table E.7: Cross-correlation table for the Survey experiment

Variables	Activism	Radicalism	Left-right position	Nostalgia
Activism	1.000			
Radicalism	0.534***	1.000		
Left-right position	-0.023+	0.088***	1.000	
Nostalgia	0.015	0.067***	0.114***	1.000

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure E.7: Distribution of activism and radicalism in the survey experiment

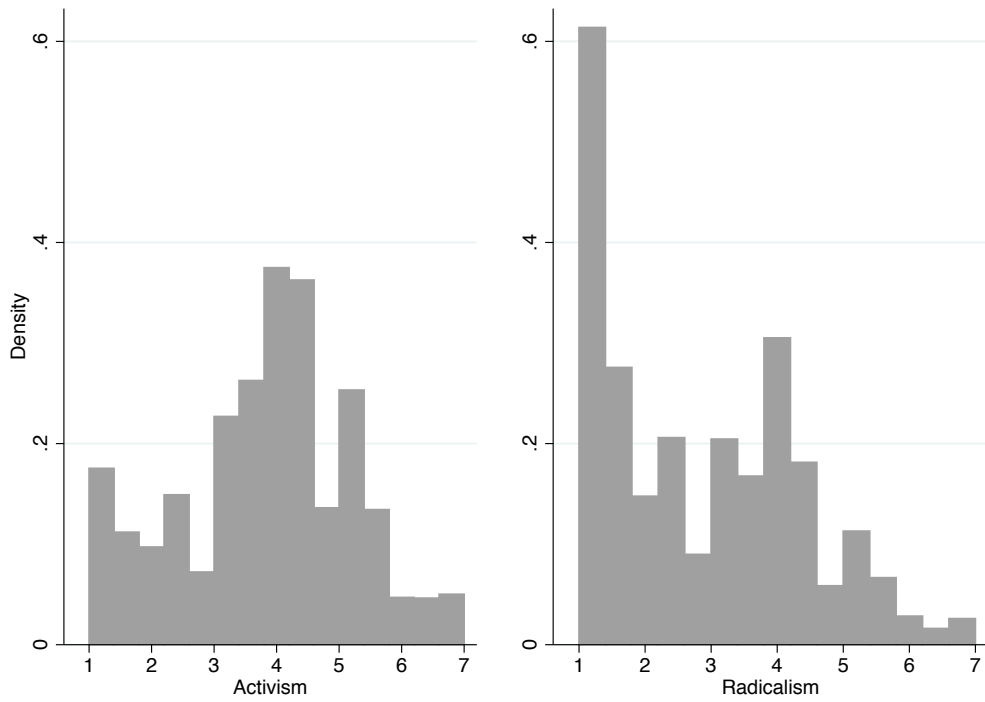


Figure E.8: Distribution of the left-right position in the survey experiment

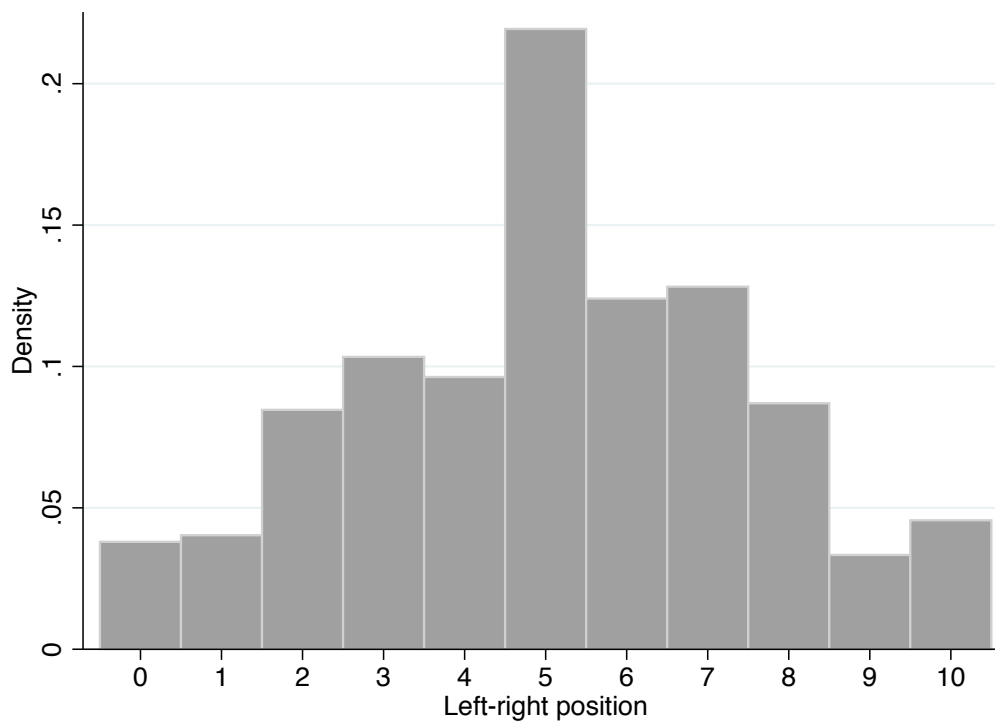


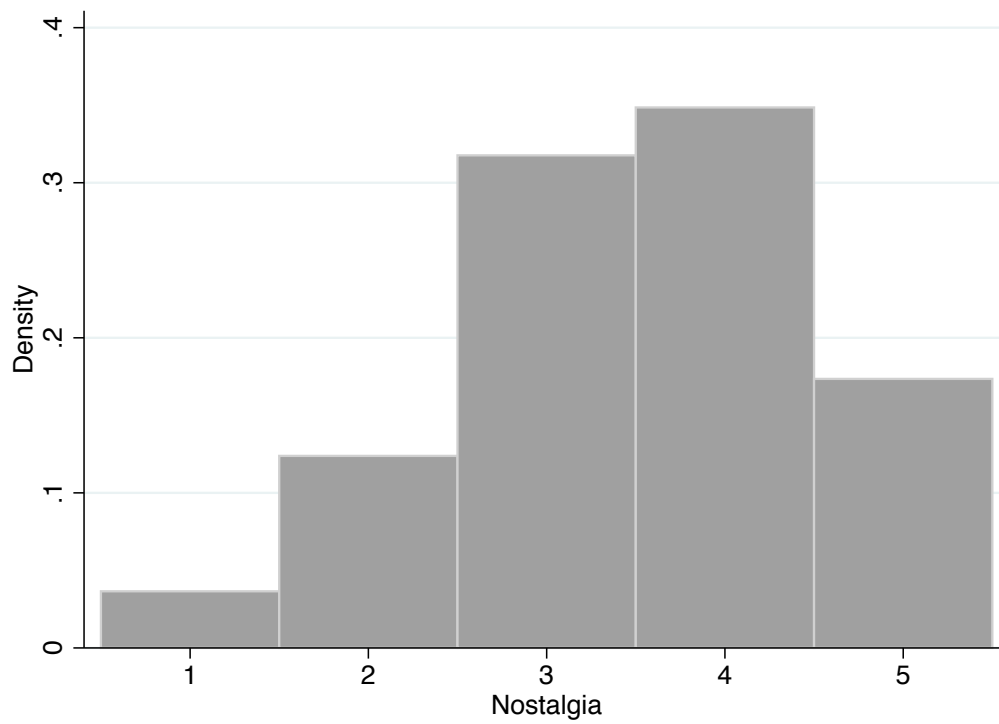
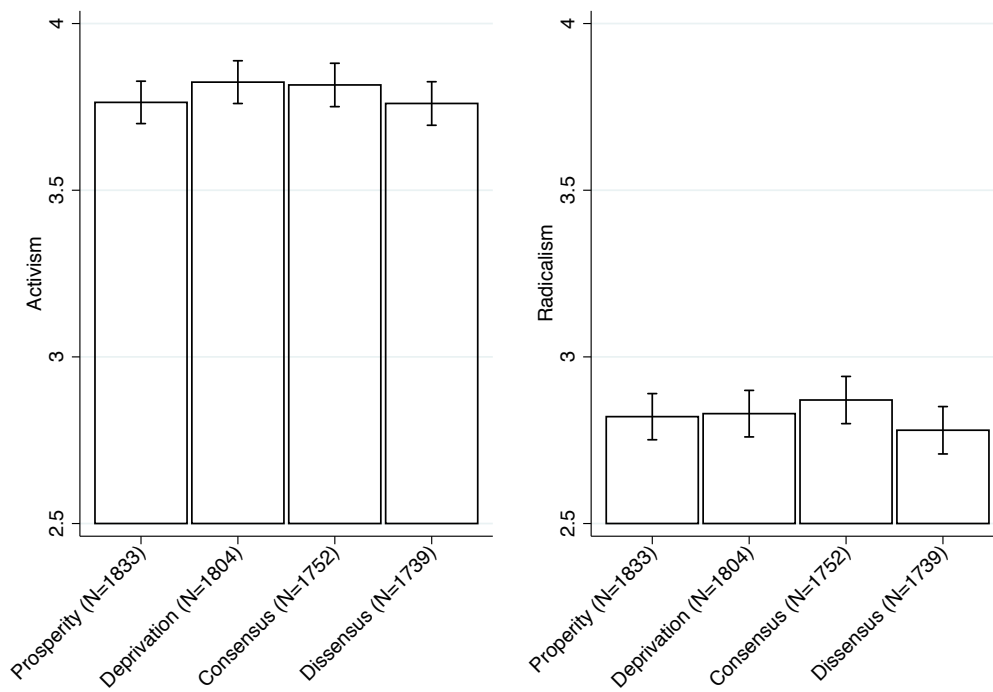
Figure E.9: Distribution of nostalgia in the survey experiment*Figure E.10: Effect of the survey treatment on activism and radicalism (with 95% confidence interval)*

Table E.8: Effect of the survey treatment on activism depending on the left-right position (unstandardized coefficients from linear regression)

	(1)	(2)	(3)	(4)
Experimental treatment (Prosperity as reference)				
Deprivation	0.0608 (0.0461)	0.143 (0.0954)	-0.0417 (0.0820)	0.232* (0.112)
Consensus	0.0523 (0.0464)	0.120 (0.0957)	-0.0670 (0.0825)	0.272* (0.113)
Dissensus	-0.00330 (0.0465)	0.00609 (0.0973)	-0.0951 (0.0820)	0.0788 (0.114)
Left-right position				0.00825 (0.0142)
Survey treatment (Prosperity as reference) × Left-right position				
Deprivation × Left-right position				-0.0308 (0.0198)
Consensus × Left-right position				-0.0424* (0.0201)
Dissensus × Left-right position				-0.00985 (0.0201)
Constant	3.764*** (0.0325)	3.936*** (0.0683)	3.818*** (0.0580)	3.769*** (0.0805)
Subjects	All	Left-wing	Right-wing	All
Observations	7128	1703	2623	6383
R^2	0.000444	0.00214	0.000554	0.00182

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure E.11: Effect of the survey treatment on activism depending on the left-right position (with 95% confidence interval)

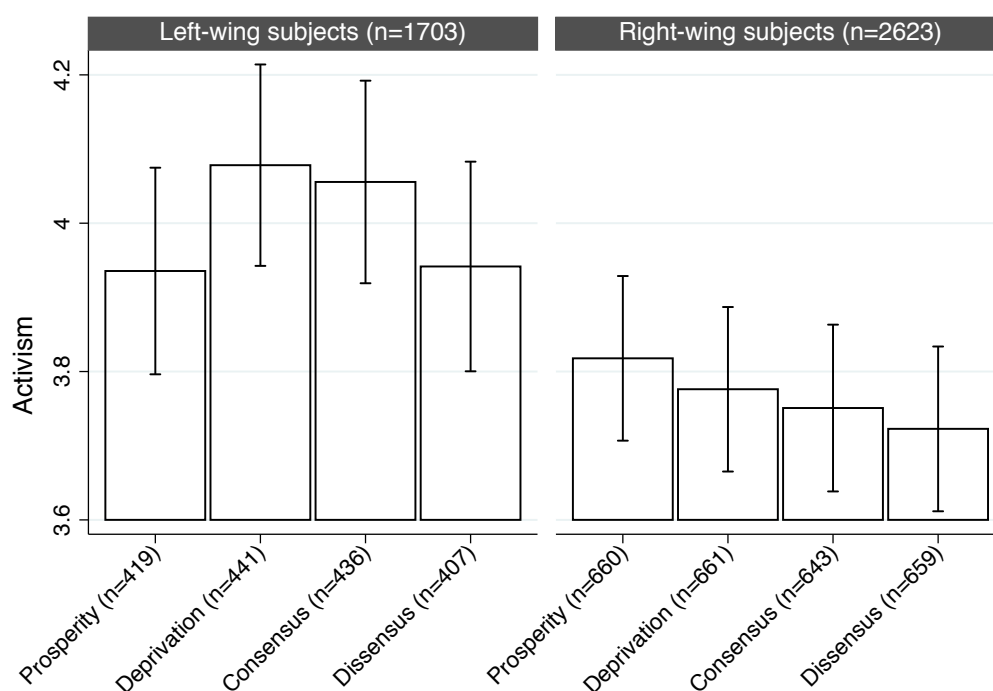


Table E.9: Effect of nostalgia on activism and radicalism, including controls (unstandardized coefficients from linear regression)

Dependent variable	(1) Activism	(2) Radicalism	(3) Radicalism	(4) Radicalism
Nostalgia	0.0248 (0.0160)	0.104*** (0.0166)	0.0259 (0.0327)	0.153*** (0.0288)
<i>Personality traits</i>				
Extraversion	0.125*** (0.0140)	0.103*** (0.0145)	0.0907** (0.0276)	0.0848*** (0.0253)
Agreeableness	-0.0977*** (0.0177)	-0.207*** (0.0184)	-0.178*** (0.0375)	-0.211*** (0.0309)
Conscientiousness	-0.0600*** (0.0164)	-0.247*** (0.0170)	-0.125*** (0.0331)	-0.297*** (0.0288)
Neuroticism	-0.0102 (0.0156)	-0.0437** (0.0162)	0.0189 (0.0320)	-0.0655* (0.0277)
Openness	0.111*** (0.0160)	-0.0366* (0.0166)	-0.0440 (0.0328)	-0.00748 (0.0280)
<i>Sociodemographics</i>				

Appendix E. Appendix – Chapter 5

Female	-0.212*** (0.0348)	-0.251*** (0.0361)	-0.353*** (0.0732)	-0.226*** (0.0633)
Age	0.00781*** (0.00152)	0.0179*** (0.00157)	0.0157*** (0.00317)	0.0161*** (0.00275)
Income (Low as reference)				
Mid	0.0624 (0.0454)	-0.0458 (0.0471)	-0.127 (0.0937)	0.0318 (0.0835)
High	0.0394 (0.0396)	-0.116** (0.0411)	-0.0805 (0.0817)	-0.0859 (0.0722)
Place of living (Big city as reference)				
Suburbs or outskirts of a big city	-0.157* (0.0641)	-0.142* (0.0665)	-0.0595 (0.136)	-0.245* (0.114)
Town or small city	-0.235*** (0.0471)	-0.340*** (0.0489)	-0.229* (0.0956)	-0.554*** (0.0849)
Country village	-0.315*** (0.0546)	-0.324*** (0.0567)	-0.147 (0.113)	-0.569*** (0.0995)
Farm or home in the countryside	-0.375*** (0.104)	-0.253* (0.108)	0.162 (0.221)	-0.463** (0.177)
Education level (Low as reference)				
Mid	0.132** (0.0423)	0.000469 (0.0439)	-0.0389 (0.0905)	0.0479 (0.0753)
High	0.296*** (0.0470)	0.0383 (0.0488)	-0.0551 (0.0968)	0.228** (0.0864)
Current status (Paid job as reference)				
Unemployed	-0.142* (0.0621)	-0.246*** (0.0644)	-0.124 (0.123)	-0.223* (0.110)
Student	0.174* (0.0742)	-0.261*** (0.0770)	-0.0404 (0.151)	-0.386** (0.135)
Apprenticeship / vocational training	0.0895 (0.153)	0.0980 (0.158)	-0.0186 (0.309)	0.0988 (0.253)
Disabled / Unable to work	-0.130 (0.0986)	-0.321** (0.102)	-0.0451 (0.175)	-0.272 (0.192)
Retired	0.0787 (0.0565)	-0.0211 (0.0586)	0.0528 (0.111)	-0.0643 (0.108)
Stay at home	-0.0156 (0.0692)	-0.0891 (0.0718)	-0.116 (0.149)	-0.0732 (0.127)
Country (Denmark as reference)				

France	0.433*** (0.0574)	0.708*** (0.0596)	1.134*** (0.119)	0.621*** (0.0996)
Germany	0.428*** (0.0568)	0.331*** (0.0589)	0.302* (0.117)	0.690*** (0.115)
Italy	0.971*** (0.0591)	0.675*** (0.0613)	0.813*** (0.129)	0.621*** (0.0988)
Netherlands	0.218*** (0.0591)	0.663*** (0.0613)	0.475*** (0.131)	0.763*** (0.102)
Spain	0.772*** (0.0603)	0.718*** (0.0625)	0.917*** (0.113)	0.585*** (0.116)
Constant	-12.10*** (3.029)	-30.60*** (3.143)	-27.08*** (6.329)	-26.78*** (5.518)
Subjects	All	All	Left-wing	Right-wing
Observations	6705	6705	1604	2436
R^2	0.106	0.191	0.155	0.236

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

F

Appendix – Chapter 6

Table F.1: Effect of nostalgia on individual extreme vote (compared to non-extreme vote), including controls (unstandardized coefficients from logistic regression)

Dependent variable	(1) Extreme left vote	(2) Extreme right vote
Nostalgia	0.130** (0.0418)	0.475*** (0.0390)
<i>Personality traits</i>		
Extraversion	-0.0143 (0.0358)	0.0461 (0.0317)
Agreeableness	-0.00711 (0.0473)	-0.0239 (0.0400)
Conscientiousness	0.000216 (0.0430)	0.151*** (0.0379)
Neuroticism	0.0160 (0.0410)	0.0467 (0.0354)
Openness	0.186*** (0.0429)	-0.0927* (0.0367)
<i>Sociodemographics</i>		
Female	-0.0358 (0.0902)	-0.209** (0.0787)
Age	-0.00425 (0.00398)	0.00241 (0.00342)
Income (Low as reference)		
Mid	-0.174 (0.117)	-0.00287 (0.102)
High	-0.395*** (0.104)	-0.0908 (0.0896)
Place of living (Big city as reference)		
Suburbs or outskirts of a big city	-0.156 (0.161)	0.195 (0.147)
Town or small city	-0.0843 (0.118)	0.178 (0.111)
Country village	-0.254 ⁺ (0.139)	0.296* (0.124)
Farm or home in the countryside	-0.217 (0.295)	0.521* (0.223)
Education level (Low as reference)		
Mid	-0.182 (0.115)	-0.177 ⁺ (0.0939)
High	-0.132 (0.121)	-0.483*** (0.108)
Current status (Paid job as reference)		
Unemployed	0.0573 (0.164)	-0.00747 (0.146)
Student	-0.341 ⁺	-1.506***

	(0.201)	(0.239)
Apprenticeship / vocational training	-0.402 (0.418)	-0.644 ⁺ (0.368)
Disabled / Unable to work	0.275 (0.218)	-0.132 (0.219)
Retired	-0.158 (0.144)	-0.0868 (0.123)
Stay at home	-0.228 (0.215)	0.147 (0.157)
Country (Denmark as reference)		
France	-0.000846 (0.135)	0.0888 (0.122)
Germany	-0.338* (0.138)	-0.549*** (0.130)
Italy	-1.790*** (0.292)	0.766*** (0.126)
Netherlands	-0.0320 (0.146)	0.493*** (0.125)
Spain	0.0182 (0.139)	-0.930*** (0.153)
Constant	6.184 (7.960)	-7.865 (6.835)
Observations	4299	4732
Pseudo R^2	0.0380	0.1047

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table F.2: Effect of individual vote on activism and radicalism, including controls (unstandardized coefficients from linear regression)

Dependent variable	(1) Activism	(2) Radicalism
Voting choice (Extreme left as reference)		
Social democrats	-0.0272 (0.0654)	-0.152* (0.0687)
Greens	-0.0407 (0.101)	-0.283** (0.106)
Liberals	-0.309*** (0.0693)	-0.380*** (0.0728)
Conservatives and Christian democrats	-0.260*** (0.0699)	-0.182* (0.0734)
Extreme right	-0.223*** (0.0648)	-0.0240 (0.0680)
<i>Personality traits</i>		
Extraversion	0.122*** (0.0165)	0.0844*** (0.0173)

Agreeableness	-0.124*** (0.0215)	-0.240*** (0.0226)
Conscientiousness	-0.0811*** (0.0200)	-0.247*** (0.0210)
Neuroticism	-0.0150 (0.0187)	-0.0480* (0.0196)
Openness	0.0940*** (0.0195)	-0.0329 (0.0205)
<i>Sociodemographics</i>		
Female	-0.261*** (0.0417)	-0.287*** (0.0438)
Age	0.00792*** (0.00187)	0.0200*** (0.00196)
Income (Low as reference)		
Mid	0.0432 (0.0551)	-0.0591 (0.0578)
High	0.0201 (0.0481)	-0.0911+ (0.0505)
Place of living (Big city as reference)		
Suburbs or outskirts of a big city	-0.238** (0.0758)	-0.259** (0.0796)
Town or small city	-0.251*** (0.0565)	-0.365*** (0.0593)
Country village	-0.303*** (0.0649)	-0.353*** (0.0682)
Farm or home in the countryside	-0.388** (0.127)	-0.243+ (0.133)
Education level (Low as reference)		
Mid	0.175*** (0.0531)	0.00264 (0.0558)
High	0.274*** (0.0577)	-0.0580 (0.0606)
Current status (Paid job as reference)		
Unemployed	-0.183* (0.0818)	-0.306*** (0.0859)
Student	0.146 (0.103)	-0.287** (0.108)
Apprenticeship / vocational training	0.146 (0.194)	0.0537 (0.203)
Disabled / Unable to work	-0.245* (0.113)	-0.308** (0.118)
Retired	0.0693 (0.0651)	-0.00991 (0.0684)
Stay at home	-0.0934 (0.0911)	-0.219* (0.0957)

Country (Denmark as reference)		
France	0.525*** (0.0683)	0.739*** (0.0717)
Germany	0.535*** (0.0660)	0.412*** (0.0693)
Italy	1.076*** (0.0780)	0.666*** (0.0819)
Netherlands	0.312*** (0.0705)	0.775*** (0.0740)
Spain	0.857*** (0.0714)	0.774*** (0.0749)
Constant	-11.63** (3.726)	-34.02*** (3.912)
Observations	4614	4614
R^2	0.1249	0.2036

Standard errors in parentheses
 + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure F.1: Historical evolution of extreme right votes (Parlgov classification) and the mobilization of reactionary movements in France

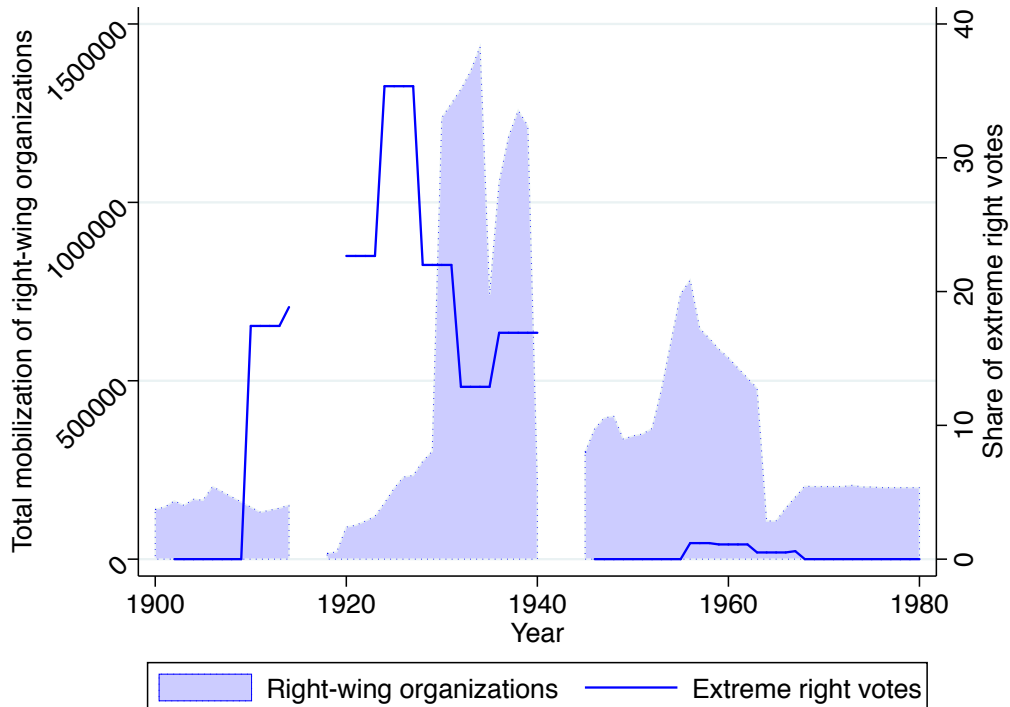


Table F.3: Effect of extreme right votes (Parlgov classification) on the mobilization level of French radical organizations (unstandardized coefficients from log linear multilevel regression analyses)

	(1)	(2)	(3)	(4)	(5)
Extreme right votes	0.0231*** (0.00698)	-0.00418 (0.00812)	-0.00228 (0.0128)	-0.0415*** (0.00634)	-0.0173 (0.0128)
Reactionary		-1.731*** (0.168)	-1.797*** (0.178)	-0.527*** (0.125)	-0.592*** (0.125)
Reactionary × Extreme right votes		0.0619*** (0.0103)	0.0579*** (0.0107)	0.0586*** (0.0122)	0.0681*** (0.0126)
Democracy score			0.108 (0.0802)		-0.0675* (0.0292)
log Unemployment rate			-0.0515 (0.143)		0.180 (0.120)
Government orientation			-0.152+ (0.0823)		0.0946 (0.0647)
Reactionary × Government orientation			0.214** (0.0750)		0.0283 (0.0757)
Population			-0.324*** (0.0659)		-0.00661 (0.0443)
Hard radicalization level				-0.0392+ (0.0229)	-0.0400+ (0.0215)
Soft radicalization level				0.0369*** (0.00864)	0.0318*** (0.00829)
Constant	10.04*** (0.136)	10.83*** (0.181)	22.94*** (3.233)	14.19*** (0.0729)	16.06*** (2.071)
Decade fixed effects	No	No	Yes	No	Yes
Organization type fixed effects	No	No	No	Yes	Yes
Source fixed effects	No	No	No	Yes	Yes
Observations	610	610	596	610	596
Number of years	72	72	68	72	68
R ²	0.00924	0.0763	0.142	0.748	0.766

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure F.2: Marginal effect of extreme right votes (Parlgov classification) on the mobilization level of French radical movements depending on their ideology

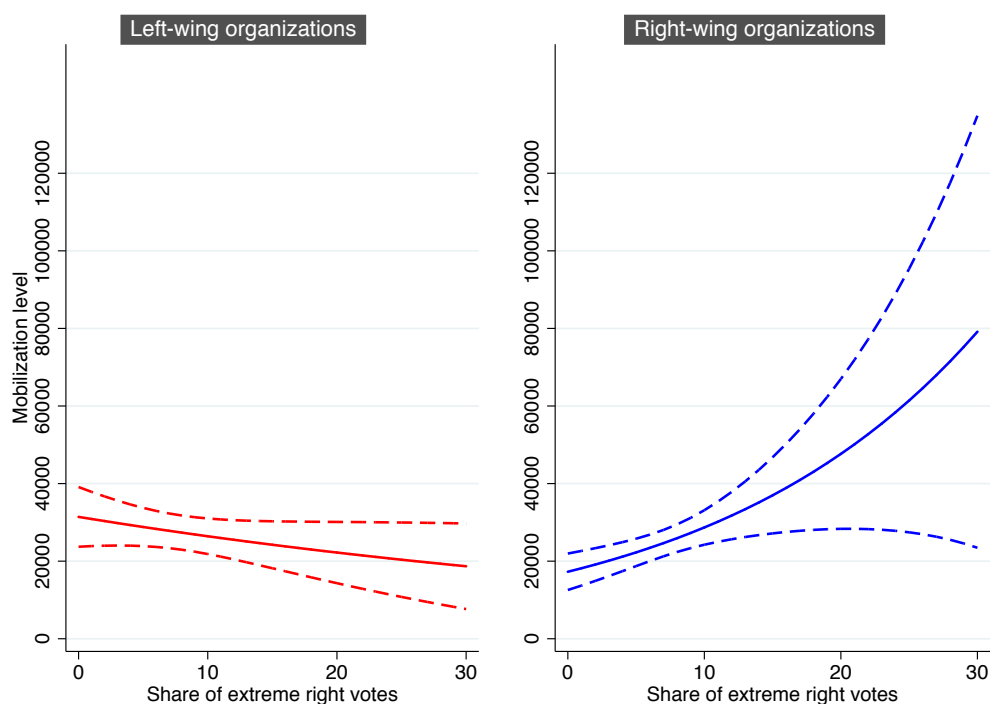


Table F.4: Variables description for Study 3

Variable	Obs	Mean	Std. Dev.	Min	Max
Number of left-wing terrorist attacks	1058	5.69	21.7	0	292
Number of right-wing terrorist attacks	1058	.893	4.49	0	103
Extreme left votes (Parlgov)	1014	5.49	6.38	0	35.9
Extreme left votes (CPDS)	992	5.76	7.13	0	37.7
Extreme right votes (Parlgov)	1014	4.53	6.24	0	33.2
Extreme right votes (CPDS)	992	4.34	7.32	0	40.4
log GDP per capita	1058	9.59	.927	7.05	11.5
log Population	1058	16.4	1.25	14.1	19.6
Youth population share	1058	.149	.0149	.109	.185
Ethno-political exclusion	1058	.0386	.0966	0	.43
Government expenditures	1058	.325	.121	.00513	.886
Democracy	1058	9.49	1.09	1	10
Regime durability	1058	51.4	46.6	0	206
Civil war	1058	0	0	0	0

Table F.5: The twenty left-wing terrorist groups with largest number of terrorist attacks in Europe

Group name	Country	Total attacks
<i>Euskadi ta Askatasuna</i> (ETA)	Multiple (main Spain)	1821
<i>Brigate Rosse</i> (BR)	Multiple (main Italy)	212
<i>Partiya Karkerên Kurdistanê</i> (PKK)	Multiple (main Germany)	173
<i>Grupos de Resistencia Antifascista Primero de Octubre</i> (GRAPO)	Multiple (main Spain)	148
<i>Hayasdani Azadakrut'ean Hay Kaghdni Panag</i> (ASALA)	Multiple (main France)	118
<i>Epanastatiki Organosi dekaefta Noemvri</i> (17N)	Greece	106
<i>Arm Saoirse Náisiúnta na hÉireann</i> (INLA)	Multiple (main UK)	93
<i>Epanastatikos Laikos Agonas</i> (ELA)	Greece	84
Anarchists	Multiple (main Greece)	79
<i>Terra Lliure</i> (TLL)	Spain	61
<i>Prima Linea</i>	Italy	58
<i>Synomosía ton Pyrínon tis Fotiás</i> (SPF)	Multiple (main Greece)	52
<i>Action Directe</i> (AD)	Multiple (main France)	52
<i>Baader-Meinhof</i> group	Multiple (main Germany)	51
<i>Revolutionäre Zellen</i> (RZ)	Multiple (main Germany)	50
<i>Rote Armee Fraktion</i> (RAF)	Multiple (main Germany)	47
<i>Exército Guerrilheiro do Povo Galego Ceive</i> (EGPGC)	Spain	47
<i>Forças Populares 25 de Abril</i> (FP-25)	Portugal	46
<i>Federazione Anarchica Informale</i> (FAI)	Multiple (main Italy)	35
<i>Animal Liberation Front</i> (ALF)	Multiple (main UK)	33

Including only countries with valid observations for votes shares in the ParlGov dataset

Table F.6: The twenty right-wing terrorist groups with largest number of terrorist attacks in Europe

Group name	Country	Total attacks
Neo-Nazi groups	Multiple (main Germany)	212
Right-Wing extremists	Multiple (main Germany)	37
<i>Nuclei Armati Rivoluzionari</i> (NAR)	Italy	20
<i>Movimento Sociale Italiano</i> (MSI)	Italy	17
<i>Grupos Antiterroristas de Liberación</i> (GAL)	Multiple (main France)	12
Neo-Fascists	Multiple (main Italy)	10
<i>Frente de Libertação dos Açores</i> (FLA)	Portugal	8
<i>Batallón Vasco Español</i> (BBE)	Multiple (main Spain)	7
Anti-Immigrant activists	Multiple	6
<i>Bozkurtlar</i>	Multiple (main Italy)	6
White extremists	Multiple (main UK)	6
<i>Falange Armata</i>	Italy	6
Anti-Muslim extremists	Multiple (main UK)	5
<i>Jewish Defense League</i> (JDL)	Multiple (main France)	5
<i>Alianza Anticomunista Argentina</i> (AAA)	Multiple (main Spain)	5
<i>Fuerza Nueva</i>	Spain	5
Anti-Semitic extremists	Multiple (main France)	4
<i>Ordre Nouveau</i>	France	4
<i>Direct Action Against Drugs</i>	UK	4
<i>Column 88</i>	UK	4

Including only countries with valid observations for votes shares in the ParlGov dataset

Table F.7: Effect of extreme votes (CPDS) on the number of left-wing terrorist attacks (unstandardized coefficients from negative binomial analyses)

	(1)	(2)	(3)	(4)
Extreme left votes (CPDS)	0.0694*** (0.0151)	0.0324* (0.0132)	0.0306* (0.0140)	0.0239+ (0.0132)
Extreme right votes (CPDS)	-0.0331+ (0.0174)	-0.0197 (0.0169)	-0.0137 (0.0173)	-0.0181 (0.0164)
log GDP per capita	-0.430** (0.142)	0.0460 (0.308)	0.0182 (0.500)	0.0375 (0.476)
log Population	1.259*** (0.0876)	6.063*** (1.701)	5.407** (1.744)	4.556** (1.675)
Youth population share	20.22** (7.411)	13.68* (6.604)	10.72 (7.583)	14.81* (7.239)
Ethno-political exclusion	-7.841+ (4.587)	112.1* (44.70)	98.79* (47.90)	75.66 (50.14)
Government expenditures	-0.489 (0.860)	0.675 (1.146)	0.532 (1.232)	-1.389 (1.239)
Democracy	0.0946 (0.111)	0.253* (0.125)	0.305+ (0.184)	0.279 (0.176)
Regime durability	-0.0101*** (0.00236)	-0.0880*** (0.0229)	0.393 (1.501)	0.803 (1.438)
Lagged dependent variable				0.0195*** (0.00372)
Constant	-19.88*** (2.285)	-100.0*** (27.46)	-124.7 (108.8)	-140.1 (104.0)
Inalpha	1.553*** (0.0795)	0.293** (0.0999)	0.135 (0.102)	-0.000795 (0.108)
Country fixed effects	No	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes
Observations	992	992	992	971
Pseudo R^2	0.107	0.260	0.284	0.294

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table F.8: Effect of extreme votes (CPDS) on the number of right-wing terrorist attacks (unstandardized coefficients from negative binomial analyses)

	(1)	(2)	(3)	(4)
Extreme left votes (CPDS)	0.0314 ⁺ (0.0161)	0.0490 (0.0330)	0.0435 (0.0289)	0.0539 ⁺ (0.0287)
Extreme right votes (CPDS)	0.0622** (0.0209)	0.107*** (0.0313)	0.0861*** (0.0247)	0.0730** (0.0249)
log GDP per capita	0.0141 (0.181)	0.777 (0.503)	0.913 (0.717)	0.327 (0.742)
log Population	1.515*** (0.115)	8.753*** (2.592)	5.833* (2.358)	5.410* (2.418)
Youth population share	49.04*** (8.129)	33.62*** (10.12)	4.666 (10.56)	-1.397 (10.66)
Ethno-political exclusion	-91.52*** (25.50)	143.0* (68.69)	84.32 ⁺ (44.68)	68.14 (44.05)
Government expenditures	-1.210 (1.425)	1.679 (2.750)	-0.298 (2.734)	0.492 (2.668)
Democracy	-0.457** (0.162)	-0.577* (0.283)	-0.395* (0.192)	-0.392* (0.190)
Regime durability	-0.00509* (0.00238)	-0.127*** (0.0370)	-0.237 (0.416)	-0.199 (0.410)
Lagged dependent variable				0.0640** (0.0226)
Constant	-29.60*** (3.039)	-145.0*** (42.18)	-88.51 ⁺ (49.93)	-78.81 (50.49)
Inalpha	1.339*** (0.138)	0.578*** (0.174)	-0.453 ⁺ (0.257)	-0.487 ⁺ (0.249)
Country fixed effects	No	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes
Observations	992	992	992	971
Pseudo R ²	0.210	0.297	0.372	0.384

Standard errors in parentheses

⁺ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table F.9: Effect of extreme left votes and participation in government (Parlgov) on the number of left-wing terrorist attacks (unstandardized coefficients from negative binomial analyses)

	(1)	(2)	(3)	(4)
Extreme left votes (Parlgov)	0.117*** (0.0205)	0.0522*** (0.0145)	0.0492*** (0.0148)	0.0359* (0.0146)
Extreme left in government	0.326 (0.658)	0.0351 (0.611)	0.496 (0.576)	0.287 (0.559)
Extreme left votes (Parlgov) × Extreme left in government	-0.0607 (0.0475)	0.00230 (0.0407)	-0.0374 (0.0373)	-0.0284 (0.0360)
log GDP per capita	-0.337** (0.121)	-0.211 (0.245)	-0.352 (0.428)	-0.309 (0.411)
log Population	1.335*** (0.0895)	2.821** (0.994)	5.303*** (1.208)	4.089*** (1.187)
Youth population share	39.22*** (7.337)	17.71** (6.547)	11.58 (7.066)	18.28** (6.965)
Ethno-political exclusion	4.441** (1.407)	-5.667+ (3.140)	-3.448 (3.228)	-5.999+ (3.183)
Government expenditures	0.653 (0.658)	0.710 (1.022)	1.277 (1.028)	0.256 (1.018)
Democracy	-0.0357 (0.0998)	0.228* (0.0912)	0.145 (0.103)	0.0765 (0.101)
Regime durability	-0.00385 (0.00309)	-0.0498*** (0.0143)	-0.000906 (0.0211)	0.00530 (0.0205)
Lagged dependent variable				0.0155*** (0.00365)
Constant	-24.70*** (2.314)	-47.37** (15.69)	-91.92*** (20.91)	-72.90*** (20.45)
Inalpha	1.582*** (0.0760)	0.416*** (0.0927)	0.186+ (0.0972)	0.106 (0.102)
Country fixed effects	No	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes
Observations	1014	1014	1014	992
Pseudo R^2	0.108	0.251	0.280	0.287

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table F.10: Effect of extreme right votes and participation in government (Parlgov) on the number of right-wing terrorist attacks (unstandardized coefficients from negative binomial analyses)

	(1)	(2)	(3)	(4)
Extreme right votes (Parlgov)	0.0705* (0.0286)	0.104** (0.0387)	0.107** (0.0338)	0.0852* (0.0337)
Extreme right in government	0.293 (1.081)	-0.926 (1.247)	0.228 (1.138)	-0.339 (1.198)
Extreme right votes (Parlgov) × Extreme right in government	-0.0801 (0.0841)	-0.0917 (0.104)	-0.169 ⁺ (0.100)	-0.140 (0.111)
log GDP per capita	0.203 (0.168)	-0.581 (0.491)	0.376 (0.885)	-0.0574 (0.878)
log Population	1.473*** (0.147)	2.557 (2.006)	6.658** (2.325)	5.026* (2.360)
Youth population share	33.63** (10.41)	44.70*** (12.20)	2.124 (11.82)	-1.471 (11.66)
Ethno-political exclusion	3.829 (2.344)	4.604 (6.592)	5.158 (5.559)	4.122 (5.505)
Government expenditures	1.241 (1.521)	-1.273 (2.561)	-2.911 (2.597)	-2.928 (2.545)
Democracy	-0.356* (0.157)	-0.743* (0.309)	-0.826* (0.323)	-0.649* (0.267)
Regime durability	-0.00789 ⁺ (0.00431)	0.00556 (0.0317)	0.135* (0.0557)	0.112* (0.0519)
Lagged dependent variable				0.0985* (0.0395)
Constant	-30.12*** (3.484)	-39.87 (32.73)	-134.9 (3008.6)	-101.7 (1126.7)
Inalpha	2.084*** (0.134)	1.170*** (0.162)	0.167 (0.228)	0.0746 (0.242)
Country fixed effects	No	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes
Observations	1014	1014	1014	992
Pseudo R^2	0.125	0.247	0.355	0.364

Standard errors in parentheses

⁺ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



Appendix – Chapter 7

1. Instructions of the experiment

1.1. General instructions

Hello and thank you for your participation in our study.

In order to preserve anonymity during the session and when analysing the data, we have assigned you a code. No identifying data will be collected. It will be impossible to link your decisions to your name. The data will only be used for academic research purposes, always respecting anonymity.

Any communication between participants is strictly prohibited, as is any comment on what is appropriate or inappropriate to do during the experiment. Please turn off your cell phones. We ask you to stay focused on your own computer screen. During the session, you will have to make simple decisions. Nevertheless, if you face any problem, please do not hesitate to consult us.

During the session, you will have to perform several tasks. Three phases will take place: First, you will participate in a word creation game, then you will engage in an economic group game, and finally you will be asked to fill out a questionnaire. A new phase will only begin when all participants have finished the previous phase. We will give you instructions before the beginning of each phase. For everyone's understanding, these instructions will be read aloud. The duration of this session will not exceed two hours.

You have 10 euros in cash for your participation. You will find this amount in your personal envelope. This sum is yours. In addition to this amount and depending on the choices you make, you can earn more money throughout the games. You will be informed of your final earnings at the end of the session.

Do you have any questions?

1.2. First task

We will now begin the first phase: the word creation game.

(See instructions in Brüggemann et al., 2016)

1.3. Inter-group prisoner dilemma

You have now completed the word creation game. Therefore, we are going to move on to the economic group game.

In this new game, you will be divided into 5 groups of participants depending on your ranking in number of points during the word creation game:

- The top three players will be in the yellow group.
- The next three in the red group.

- The next three in the purple group.
- The next three in the blue group.
- The last three players in the green group.

You will be part of the same group throughout the game.

In this new game, you have a number of individual points: your personal prize pool. At the beginning of the game, your prize pool contains 10 times the number of points you won during the word-creation game.

The game is composed of 15 successive rounds. In each round you must decide how many points you want to take from other groups to give them to your group.

Taking points from another group has a cost: to take 1.5 points from a group, you must spend 1 point of your personal prize pool. In that case :

- You take 1.5 points from the other group, that is 0.5 points per player from this group.
- You give 1.5 points to your group, that is 0.5 points per player in your group (including you).

Unequal Destructive Capacity (UDC) treatment There is a limit to the number of points you can spend to take points from other groups: you can not spend more than 10% of your personal prize pool per turn.

Equal Destructive Capacity (EDC) treatment There is a limit to the number of points you can spend to take points from other groups: you can not spend more than 50 points of your personal prize pool per turn.

Figure G.1 is a capture of the game screen. The screen is framed by the colour of your group. In this example, you are part of the blue group. At the top of the screen, you see information about the situation of your group and the other four groups. At the top left, you see a graph that shows the number of points of each group in previous rounds. At the top centre, you have the total number of points of each group in the round being played. At the top right, you have the weather: I'll explain what it means a little later. In the middle of the screen, you see piles of coins. The pile on the left is your personal prize pool. You see that here you have 500 points. The piles on the right each correspond to another group from which you can take points. It is at the level of these piles that you will have to indicate your decisions. You must choose how much you want to take from each of the other groups to give to your own group. To do this, you must click on each of the piles corresponding to the other groups and decide how many points you want to take. It is imperative to click on each pile, even when you decide to take away zero points, in

Figure G.1: Screenshot Decision page 1



order to validate your decision. You have a limited time to choose how many points you want to take from each of the other groups: you have 45 seconds to indicate your choices. After this time, if you have not indicated a decision for one or more groups, the computer will randomly decide how much you take from each of them. It is therefore important to validate your decisions quickly. To help you, you have a little extra-time in the first round.

Figure G.2: Screenshot Decision page 2



Let's see an example. Say you want to take 45 points from the red group to give them to your group. Say you do not want to take points from other groups. In practice, you have to click on each of the piles to select the amount you want to take from each group:

zero for groups green, purple and yellow and 45 points for the red one. As you can see in Figure G.2, your decision is summarized below: to take 45 points from the red group and give them to your group, you spend 30 points of your personal prize pool. The 45 points you take from the red group will be evenly distributed in your group: 15 points for you and 30 for the other two players in your group. Once you have indicated your choices, you must click on validate.

At the end of each round, your personal prize pool will increase or decrease depending on your choices and those of other players. But not only ... Chance will determine a part of your gains and losses.

In practice, every 5 rounds, the chance will decide the weather of your group for the next rounds. You will be randomly assigned to one the following weather conditions:

- Good weather: your prize pool will increase by 6% at the end of each round.
- Average weather: your prize pool will increase by 2% at the end of each round.
- Bad weather: your prize pool will decrease by 2% at the end of each turn.

Each turn, the weather will affect your prize pool after the calculations related to your choices and those of the other players.

Figure G.3: Screenshot Result page



Let's go back to the game screen. After validating your decision and once everyone has played, the results page is displayed (Figure G.3). At the top of the screen, you still see information about the situation of your group and the other groups. This information has been updated based on the results of the tour that has just been played. In the middle of the screen, you now see a summary of the gains and losses of your group of the round that

has just been played. In this example, you see on the left that the green group has taken 30 points from your group overall - that is 10 points per player in your group, including you. As for you, you have given 45 points to your group - 15 points per player - by taking them from the red group. For that purpose, you spent 30 points of your personal prize pool. On the right, you see that another player in your group has also given 45 points to your group by taking them from another group. Then you see that the third player in your group has not brought points to your group by taking to other groups. Finally, on the far right, you see that the weather, which is of +2% for your group, has brought 30 points to your group. Finally, at the end of this round, your personal prize pool after these different calculations is 500 points. Indeed, you spent 30 points to take points from the red group. You have gained 15 points from this action and 15 points thanks to another player in your group. This compensates. In addition, you lost 10 points because of the green group and gained 10 points because of your weather. This also compensates. Therefore, you still have the same number of points.

At the end of the 15 rounds, you will see the number of points accumulated in your personal prize pool.

Thus, in this new part you put into play your gains of the word creation game.

At the end of the game, the number of points in your personal prize pool will be divided by ten, and this score will determine your final gains in Euros, at the conversion rate of 1 POINT = 0.25 €.

This final amount will be added to the 10 Euros in you envelope.

Do you have any questions?

1.4. Questionnaire and end of experience

Now that you have completed the economic group game, we will ask you to complete a brief questionnaire.

Once this questionnaire is completed, we will call you to proceed to the payment.

We thank you for participating in this study.

2. Otree codes of the experiment (models.py and pages.py)

```
1
2 from otree.api import (
3 models, widgets, BaseConstants, BaseSubsession, BaseGroup,
   BasePlayer,
```

```
4 Currency as c, currency_range
5 )
6
7 doc = """
8 This is an inter-group social class prisoner dilemma.
9 """
10 import random
11 import time
12
13
14 class Constants(BaseConstants):
15 name_in_url = 'IPDradical'
16 players_per_group = 15 #all player in same group
17
18 nb_group = 5 # If you change, do not forget to add more variable
    field in player like group_i = make_field(i)
19
20 players_per_role = 3
21
22 num_rounds = 15 # in exp : 20
23
24 instructions_template = 'IPDradical/Instructions.html'
25
26 colorsname = ['Jaune', 'Rouge', 'Violet', 'Bleu', 'Vert']
27 colors = ['#ffc107', '#ff816c', '#d496ff', '#8cc5fb', '#83eb64'] #jaune
    , rouge, bleu,vert
28 huerotate = [0,310,200,180,80]
29
30 attacked_payoff = c(-0.5)
31 player_attack_cost = c(-1.0)
32 group_attack_payoff = c(0.5)
33 individualism_attack_payoff = c(1.5)
34
35 absolute_limit_attack = c(50)
36 relative_limit_attack = 0.1 # number between [0,1]
37
38 init_payoffs = [400,500,600,700,800,
39 400,500,600,700,800,
40 400,500,600,700,800,
41 ]
42
43 weather_value = {
44 "negative":-0.02,
45 "neutral":0.02,
46 "positive":0.06
47 }
48
```

```
49 interval = 5
50
51
52 decision_timeout_rounds = 2
53 decision_timeout = 45
54 decision_timeout_bonus = 75
55
56 results_timeout_rounds = 2
57 results_timeout = 45
58 results_timeout_bonus = 75
59
60 class Subsession(BaseSubsession):
61
62     def creating_session(self):
63
64         if self.round_number == 1:
65             for player in self.get_players():
66                 list_group = list(range(Constants.nb_group))
67                 random.shuffle(list_group)
68                 player.participant.vars['rand_display_group'] = list_group
69
70             if self.session.config["standalone"]:
71                 player.participant.payoff = c(Constants.init_payoffs[player.
                    id_in_group-1])
72                 player.participant.vars['initial_payoff'] = c(Constants.
                    init_payoffs[player.id_in_group-1])
73                 player.participant.vars['session_payoff_choice'] = 1
74
75
76         def set_init_payoff(self):
77             if not self.session.config["standalone"]:
78                 choice = random.randint(0,1)
79                 for player in self.get_players():
80                     player.participant.vars['session_payoff_choice'] = choice
81                 sessions_payoff = [player.participant.vars['first_session_payoff'],
                    player.participant.payoff]
82                 player.participant.payoff = sessions_payoff[choice] * self.session.
                    config["IPD_payoff_multiplier"]
83                 player.participant.vars['initial_payoff'] = player.participant.
                    payoff
84
85         def do_ranking(self):
86
87             players = self.get_players()
88
89             rank = sorted(players, key=lambda players: players.participant.
                payoff, reverse=True) # list all players by desc payoff
```

```
90
91 self.set_group_matrix([rank])
92
93 def get_players_by_role(self, role):
94 return [p for p in self.get_players() if p.role() == role]
95
96 def set_weather(self):#for the next tour
97 for role in range(Constants.nb_group):
98 role_weather = random.choice(list(Constants.weather_value.keys()))
99 for player in self.get_players_by_role(role):
100 player.participant.vars['weather'] = role_weather
101
102
103
104 def vars_for_admin_report(self):
105
106
107 return {
108 'nb_group': Constants.nb_group,
109 'groups': ["group_" + format(s) for s in range(Constants.nb_group)
110 ],
111 'roles_list': list(range(Constants.nb_group)),
112 'round': self.round_number,
113 'round_list': list(range(1, Constants.num_rounds + 1)),
114 'highcharts_series': self.session.vars['group_evolution'],
115 'highcharts_series_columns': self.graph_report_columns(0),
116 'colors': Constants.colors,
117 'style_colors' : ["color:" + s for s in Constants.colors],
118 }
119
120 def init_graph_report(self):
121 group = self.get_groups()[0]
122
123 self.session.vars['group_evolution'] = []
124 series = self.session.vars['group_evolution']
125
126 for role in range(Constants.nb_group):
127
128 payoffs = 0
129 for player in group.get_players_by_role(role):#for all players in
130 the team
131 payoffs += player.participant.payoff
132
133 if self.round_number == 1:
134 series.append(
135 {'name': 'Cagnotte du groupe {}'.format(role),
136 'group': role,
```

```
135 'data': [payoffs],
136 'color': Constants.colors[role],
137 'colorIndex':role,
138 })
139
140 def set_graph_report(self):
141 group = self.get_groups()[0]
142
143 series = self.session.vars['group_evolution']
144
145 for role in range(Constants.nb_group):
146
147 payoffs = 0
148 for player in group.get_players_by_role(role):#for all players in
    the team
149 payoffs += player.participant.payoff
150
151 series[role]['data'].append(payoffs)
152
153 class Group(BaseGroup):
154
155
156 def get_roles_list(self,role):
157 #list all the group by order : my group first, then the others
    group
158 roleslist = []
159 roleslist.insert(0, role)
160 for x in range(Constants.nb_group):
161 if x != role and self.get_total_payoff_role(x) > 0: #if group not
    dead
162 roleslist.append(x)
163 return roleslist
164
165 def get_players_by_role(self, role):
166 return [p for p in self.get_players() if p.role() == role]
167
168 def get_players_by_other_role(self, role):
169 return [p for p in self.get_players() if p.role() != role]
170
171 def graph_results(self,role):
172
173 group_attacks_me = []
174 for others_role in range(Constants.nb_group):
175 if others_role != role:
176 group_attacks_me.append(
177 {'name': Constants.colorsname[others_role],
178 'data': [sum([Constants.attacked_payoff*p.box(role)*Constants.
```

```
        players_per_role for p in self.get_players_by_role(others_role)
    ]]),
179 'color': Constants.colors[others_role],
180 })
181 return group_attacks_me
182
183 def other_group_attacks(self, role):
184     group_attacks_me = []
185     for others_role in range(Constants.nb_group):
186         if others_role != role:
187             group_attacks_me.append([Constants.colorsname[others_role], sum([
188                 Constants.attacked_payoff*p.box(role) for p in self.
189                 get_players_by_role(others_role)])])
190
191     return group_attacks_me
192
193 def get_total_payoff_role(self, role):
194     total = 0
195     for player_roleingroup in self.get_players_by_role(role):#for all
196         players in the team
197     total = total + player_roleingroup.participant.payoff
198     return total
199
200 def nb_group_inlive(self):
201     nb=0
202     for role in range(Constants.nb_group):
203         if self.get_total_payoff_role(role) > 0:
204             nb = nb + 1
205     return nb
206
207 def group_alive(self):
208     group = []
209     for role in range(Constants.nb_group):
210         if self.get_total_payoff_role(role) > 0:
211             group.append(role)
212     return group
213
214 def weather_val_percent(self):
215     return {key: 100 * Constants.weather_value[key] for key in
216             Constants.weather_value.keys()}
217
218 def set_payoffs(self):
219     #loop over all the players to set there payoffs after game tour
220
221     for player in self.get_players():
222         player.participant.vars['payoff_before_attack'] = player.
```

```
    participant.payoff
220
221 for player in self.get_players():
222
223 player.payoff += ( player.total_attack() * Constants.
    player_attack_cost ) # cost of attack this tour for the player
224
225 for player_role_attacked in self.get_players_by_other_role(player.
    role()):#for players attacked by player
226
227 player_role_attacked.payoff += ( player.box(player_role_attacked.
    role()) * Constants.attacked_payoff )
228
229 if self.session.config['treatment'][2] == 'parochial':
230
231 for player_roleingroup in self.get_players_by_role(player.role()):
    #for all players in the team
232
233 player_roleingroup.payoff += ( player.total_attack() * Constants.
    group_attack_payoff )
234 else:
235 player.payoff += ( player.total_attack() * Constants.
    individualism_attack_payoff )
236
237 for player in self.get_players():
238 player.participant.vars['payoff_before_weather'] = player.
    participant.payoff
239
240 player.payoff += round(player.participant.payoff * Constants.
    weather_value.get(player.participant.vars['weather'])*2) / 2 #
    weather and round the result
241
242 if player.participant.payoff < 0 :
243 player.participant.payoff = 0
244
245 class Player(BasePlayer):
246
247 #     def get_other_group_number(self):
248 #         me = self.player
249 #         #list all the group by order : my group first, then the
    others group
250 #         grouplist = []
251 #         grouplist.insert(0, 'group_{}'.format(me.role()))
252 #         for x in range(Constants.nb_group):
253 #             if x != me.role():
254 #                 grouplist.append('group_{}'.format(x))
255 #         return grouplist
```

2. Otree codes of the experiment (models.py and pages.py)

```
256
257
258 weather = models.StringField()
259 timeout = models.BooleanField()
260
261 def make_field(group):
262     return models.CurrencyField(
263         name='group_{}'.format(group),
264         label='{}'.format(group),
265
266     )
267
268
269 # If you want more groups, add a variable for each new group i
    group_i = make_field(i) :
270 # do not forget to change also Constants.nb_group
271
272 group_0 = make_field(0)
273 group_1 = make_field(1)
274 group_2 = make_field(2)
275 group_3 = make_field(3)
276 group_4 = make_field(4)
277
278 #     group_5 = make_field(5)
279 #     group_6 = make_field(6)
280 #     group_7 = make_field(7)
281
282 # If you want more groups, add a variable for each new group i if
    group_box == i: return self.group_i
283 # do not forget to change also Constants.nb_group
284
285 def box(self, group_box):
286
287     if group_box == 0 :
288         if self.group_0 is None :
289             return 0
290         else:
291             return self.group_0
292     if group_box == 1:
293         if self.group_1 is None :
294             return 0
295         else:
296             return self.group_1
297     if group_box == 2:
298         if self.group_2 is None :
299             return 0
300         else:
```



```
301 return self.group_2
302 if group_box == 3:
303 if self.group_3 is None :
304 return 0
305 else:
306 return self.group_3
307 if group_box == 4:
308 if self.group_4 is None :
309 return 0
310 else:
311 return self.group_4
312
313 #         if group_box == 5:
314 #             return self.group_5
315 #         if group_box == 6:
316 #             return self.group_6
317 #         if group_box == 7:
318 #             return self.group_7
319
320
321
322 def random_choice(self):
323 choice = [0]*Constants.nb_group
324
325 attack = random.randint(0,self.max_attack())
326 if attack > 0 :
327 for role in self.group.group_alive():
328 if role != self.role():
329 choice[role] = random.randint(0,attack)
330
331 if sum(choice) > 0:
332 choice = [c(round(i*attack/sum(choice)))] for i in choice]
333
334 choice[self.role()] = self.participant.payoff - sum(choice)
335 return choice
336
337
338 def role(self):
339
340 return int((self.id_in_group-1)/3)
341
342
343 def total_attack(self): # Compute the sum of the attack for the
344 # player
345 total = 0
346 for b in range(Constants.nb_group):
347 if b != self.role() :
```

```

347 if self.box(b) is not None :
348 total = total + self.box(b)
349 return total
350
351 def initial_payoff(self,round_number):
352 if round_number > 1 :
353 return self.in_round(round_number - 1).participant.payoff
354 else :
355 return self.participant.vars['initial_payoff']
356
357 def max_attack(self):
358 if self.session.config['treatment'][1] == 'absolute':
359 if Constants.absolute_limit_attack > self.participant.payoff :
360 return c(round(self.participant.payoff))
361 else:
362 return c(round(Constants.absolute_limit_attack))
363 else:
364 return c(round(Constants.relative_limit_attack*self.participant.
    payoff))
365
366 def max_attack_percent(self):
367 if self.session.config['treatment'][1] == 'absolute':
368 if Constants.absolute_limit_attack > self.participant.payoff :
369 return 100
370 else:
371 return round(100*Constants.absolute_limit_attack/self.participant.
    payoff)
372 else:
373 if 100*Constants.relative_limit_attack > self.participant.payoff :
374 return 0
375 else:
376 return round(100*Constants.relative_limit_attack)
377
378 def my_parteners_attacks(self):
379 if self.session.config['treatment'][2] == 'parochial':
380 return [p.total_attack()*(Constants.group_attack_payoff*Constants.
    players_per_role) for p in self.subsession.get_players_by_role(
    self.role()) if p.id_in_group != self.id_in_group]
381 else:
382 return [p.total_attack()*(Constants.individualism_attack_payoff)
    for p in self.subsession.get_players_by_role(self.role()) if p.
    id_in_group != self.id_in_group]
383
384 def get_random_roles_list(self):
385 #list all the group by order : my group first, then the others
    group
386 roleslist = []

```

```
387 role = self.role()
388 roleslist.insert(0, role)
389 for x in self.participant.vars['rand_display_group']:
390 if x != role and self.group.get_total_payoff_role(x) > 0: #if group
    not dead
391 roleslist.append(x)
392 return roleslist
393
394 def list_form_fields_group(self):
395 # form name
396 return ['group_{}'.format(x) for x in self.get_random_roles_list()]
397
398 def graph_report_columns(self):
399 myrole = self.role()
400
401 series = []
402
403 roleslist = []
404 roleslist.insert(0, myrole)
405 for x in self.participant.vars['rand_display_group']:
406 if x != myrole :
407 roleslist.append(x)
408
409 for role in roleslist:
410 payoffs_of_group = []
411 payoffs = 0
412 for player in self.group.get_players_by_role(role):#for all players
    in the team
413 payoffs += player.participant.payoff
414
415 if payoffs >=1:
416 payoffs_of_group.append(payoffs)
417 series.append(
418 {'name': 'Cagnotte du groupe {}'.format(role),
419 'group': role,
420 'data': payoffs_of_group,
421 'color': Constants.colors[role],
422 'colorIndex':role,
423 })
424
425
426 return series
```

Code source G.1: models.py (coded by Ismaël Benslimane)

```
1
2 from ._builtin import Page, WaitPage
```

2. Otree codes of the experiment (models.py and pages.py)

```
3 from otree.api import Currency as c, currency_range
4 from .models import Constants
5
6
7
8
9 class Introduction(Page):
10
11 def is_displayed(self):
12 return self.round_number == 1
13
14 class WaitBeforeStart(WaitPage):
15
16 def is_displayed(self):
17 return self.round_number == 1
18
19 wait_for_all_groups = True
20
21 def after_all_players_arrive(self):
22 self.subsession.set_init_payoff()
23 self.subsession.do_ranking()
24 self.subsession.set_weather()
25 for subsession in self.subsession.in_rounds(2, Constants.num_rounds
    ):
26 subsession.group_like_round(1)
27 self.subsession.init_graph_report()
28
29 class Ranking(Page):
30 template_name = 'IPDradical/Ranking.html'
31
32 timeout_seconds = 45
33 timer_text = 'Debut de la partie dans '
34
35 def is_displayed(self):
36 return self.round_number == 1
37
38 def vars_for_template(self):
39
40 me = self.player
41 if not self.session.config["standalone"]:
42 multiplier = self.session.config["IPD_payoff_multiplier"]
43 else:
44 multiplier = 1
45
46 return {
47 'my_role': me.role(),
48 'my_colors': Constants.colors[me.role()],
```

```
49 'colorname' : Constants.colorname ,
50 'mycolorname' : Constants.colorname[me.role()],
51 'session_choice': self.participant.vars['session_payoff_choice'],
52 'multiplier': multiplier ,
53 'colors': Constants.colors ,
54 'style_colors' : ["color:" + s for s in Constants.colors],
55 'standalone': self.session.config["standalone"],
56 'players': ["color:" + Constants.colors[p.role()] for p in self.
    group.get_players()],
57
58
59 }
60
61 class Decision(Page):
62
63 timer_text = 'Temps restant pour faire votre choix '
64
65 def get_timeout_seconds(self):
66 if self.round_number <= Constants.decision_timeout_rounds :
67 return Constants.decision_timeout + Constants.
    decision_timeout_bonus
68 else:
69 return Constants.decision_timeout
70
71 def is_displayed(self):#display page Decision only if not dead and
    not alone
72 nb_alive=0
73 for x in range(Constants.nb_group):
74 if self.group.get_total_payoff_role(x) > 0: #if group not dead
75 nb_alive += 1
76 return (self.group.get_total_payoff_role(self.player.role()) >= 1
    and nb_alive > 1 and self.player.participant.payoff >= 1)
77
78 form_model = 'player'
79
80 def before_next_page(self):
81 self.player.weather = self.participant.vars['weather']
82
83 if self.timeout_happened:
84 self.player.timeout = True
85
86 random_choice = self.player.random_choice()
87
88 self.player.group_0 = random_choice[0]
89 self.player.group_1 = random_choice[1]
90 self.player.group_2 = random_choice[2]
91 self.player.group_3 = random_choice[3]
```

2. Otree codes of the experiment (models.py and pages.py)

```
92 self.player.group_4 = random_choice[4]
93
94 def get_form_fields(self):
95 me = self.player
96 return me.list_form_fields_group()
97
98 def vars_for_template(self):
99
100
101 me = self.player
102
103 return {
104 'my_role': me.role(),
105 'nb_group': self.group.nb_group_inlive(),
106 'groups': self.get_form_fields(),
107 'roles_list': me.get_random_roles_list(),
108 'initial_payoff': me.participant.payoff,
109 'round': self.round_number,
110 'lastround': self.round_number - 1,
111 'round_list': list(range(1, Constants.num_rounds + 1)),
112 'highcharts_series': self.session.vars['group_evolution'],
113 'highcharts_series_columns': me.graph_report_columns(),
114 'colors': Constants.colors,
115 'style_colors' : ["color:" + s for s in Constants.colors],
116 'my_colors': Constants.colors[me.role()],
117 'huerotate': Constants.huerotate,
118 'weather': self.participant.vars['weather'],
119 'weather_val_percent': self.group.weather_val_percent(),
120 'weather_next_tour': (Constants.interval - self.round_number) %
    Constants.interval,
121 'max_attack': self.player.max_attack(),
122 'max_attack_percent': self.player.max_attack_percent(),
123 'group_payoff': Constants.group_attack_payoff * (Constants.
    players_per_role),
124 'individualist_payoff': Constants.individualism_attack_payoff,
125 'group_attacked_payoff': abs(Constants.attacked_payoff * (Constants
    .players_per_role)),
126 'colorname' : Constants.colorname,
127 'mycolorname' : Constants.colorname[me.role()],
128 'mode': self.session.config['treatment'][2] #parochial or
    individualist
129
130 }
131
132
133
134 class ResultsWaitPage(WaitPage):
```

```
135
136 title_text = "Veuillez patienter en attendant que les autres
      participants finissent de jouer"
137
138 template_name = 'IPDradical/ResultsWaitPage.html'
139
140 def after_all_players_arrive(self):
141     self.group.set_payoffs()
142     self.subsession.set_graph_report()
143     if self.round_number % Constants.interval == 0:
144         self.subsession.set_weather()
145
146     def vars_for_template(self):
147
148
149     me = self.player
150
151     return {
152         'my_role': me.role(),
153         'round': self.round_number,
154         'lastround': self.round_number - 1,
155         'round_list': list(range(1, Constants.num_rounds + 1)),
156         'highcharts_series': self.session.vars['group_evolution'],
157         'highcharts_series_columns': me.graph_report_columns(),
158         'colors': Constants.colors,
159         'style_colors' : ["color:" + s for s in Constants.colors],
160         'my_colors': Constants.colors[me.role()],
161         'huerotate': Constants.huerotate,
162         'weather': self.participant.vars['weather'],
163         'weather_val_percent': self.group.weather_val_percent(),
164         'weather_next_tour': (Constants.interval - self.round_number) %
            Constants.interval,
165         'colorsname' : Constants.colorsname,
166         'mycolorname' : Constants.colorsname[me.role()]
167     }
168 }
169
170 class Weather(Page):
171     timeout_seconds = 20
172
173     def is_displayed(self):##display page each Constants.interval ex.
        each 5 rounds and display page Decision only if not dead and not
        alone
174     nb_alive=0
175     for x in range(Constants.nb_group):
176         if self.group.get_total_payoff_role(x) > 0: #if group not dead
177             nb_alive += 1
```

2. Otree codes of the experiment (models.py and pages.py)

```
178 return ((self.round_number-1) % Constants.interval == 0) and (self.
    group.get_total_payoff_role(self.player.role()) >= 1 and
    nb_alive > 1 and self.player.participant.payoff >= 1)
179
180 def before_next_page(self):
181 if self.timeout_happened:
182 self.player.weather = self.participant.vars['weather']
183
184 def vars_for_template(self):
185
186 self.player.weather = self.participant.vars['weather']
187
188 if not self.session.config["standalone"]:
189 multiplier = self.session.config["IPD_payoff_multiplier"]
190 else:
191 multiplier = 1
192
193 me = self.player
194
195 return {
196 'my_role': me.role(),
197 'nb_group': self.group.nb_group_inlive(),
198 'groups': self.get_form_fields(),
199 'roles_list': me.get_random_roles_list(),
200 'round': self.round_number,
201 'lastround': self.round_number - 1,
202 'round_list': list(range(1, Constants.num_rounds + 1)),
203 'colors': Constants.colors,
204 'style_colors' : ["color:" + s for s in Constants.colors],
205 'my_colors': Constants.colors[me.role()],
206 'huerotate': Constants.huerotate,
207 'weather': me.weather,
208 'weather_val_percent': self.group.weather_val_percent(),
209 'colorsname' : Constants.colorsname,
210 'mycolorsname' : Constants.colorsname[me.role()],
211 'session_choice': self.participant.vars['session_payoff_choice'],
212 'multiplier': multiplier,
213 'standalone': self.session.config["standalone"]
214 }
215 }
216
217 class Results(Page):
218 timer_text = 'Prochain tour dans '
219
220 def get_timeout_seconds(self):
221 if self.round_number <= Constants.results_timeout_rounds :
222 return Constants.results_timeout + Constants.results_timeout_bonus
```



```
223 else:
224 return Constants.results_timeout
225
226 def is_displayed(self):#display page Decision only if not dead and
    not alone
227 nb_alive=0
228 for x in range(Constants.nb_group):
229 if self.group.get_total_payoff_role(x) > 0: #if group not dead
230 nb_alive += 1
231 return (self.group.get_total_payoff_role(self.player.role()) >= 1
    and nb_alive > 1 and self.player.participant.payoff >= 1)
232
233
234 def vars_for_template(self):
235 me = self.player
236
237 my_parteners_attacks = me.my_parteners_attacks()
238
239 if self.session.config['treatment'][2] == 'parochial':
240 my_attacks = me.total_attack()*Constants.group_attack_payoff*
    Constants.players_per_role
241 else:
242 my_attacks = me.total_attack()*Constants.
    individualism_attack_payoff
243
244 weather_points = c(round( Constants.weather_value.get(me.weather)*
    sum([p.participant.vars['payoff_before_weather'] for p in self.
    subsession.get_players_by_role(me.role())])*2) / 2)
245
246 highcharts_series_results = self.group.graph_results(me.role())
247
248 highcharts_series_results.append(
249 {
250 'type': 'column',
251 'color': Constants.colors[me.role()],
252 'data': ['',my_attacks, my_parteners_attacks[0],
    my_parteners_attacks[1],weather_points ]
253 })
254
255 #         highcharts_series_results.append(
256 #             {
257 #                 'type': 'column',
258 #                 'name': 'Vous',
259 #                 'color': '#c0c0c0',
260 #                 'data': ['','',',',',', me.
    payoff]
261 #             })
```

2. Otree codes of the experiment (models.py and pages.py)

```
262 return {
263 'my_role': me.role(),
264 'nb_group': self.group.nb_group_inlive(),
265 'groups': self.get_form_fields(),
266 'roles_list': me.get_random_roles_list(),
267 'round': self.round_number,
268 'initial_payoff': me.participant.vars['payoff_before_attack'],
269 'lastround': self.round_number - 1,
270 'round_list': list(range(1, Constants.num_rounds + 1)),
271 'colors': Constants.colors,
272 'style_colors' : ["color:" + s for s in Constants.colors],
273 'my_colors': Constants.colors[me.role()],
274 'huerotate': Constants.huerotate,
275 'highcharts_series_results': highcharts_series_results,
276 'highcharts_series': self.session.vars['group_evolution'],
277 'highcharts_series_columns':me.graph_report_columns(),
278 'weather': me.weather,
279 'myweather_percent' : Constants.weather_value[me.weather]*100,
280 'weather_points' : weather_points,
281 'weather_val_percent': self.group.weather_val_percent(),
282 'weather_next_tour': (Constants.interval - self.round_number) %
    Constants.interval,
283 'colorname' : Constants.colorname,
284 'mycolorname' : Constants.colorname[me.role()],
285 'my_group_attacks' : my_parteners_attacks,
286 'my_attacks' : my_attacks,
287 'mode': self.session.config['treatment'][2] #parochial or
    individualist
288 }
289
290
291 page_sequence = [
292 Introduction,
293 WaitBeforeStart,
294 Ranking,
295 Weather,
296 Decision,
297 ResultsWaitPage,
298 Results
299 ]
```

Code source G.2: pages.py (coded by Ismaël Benslimane)

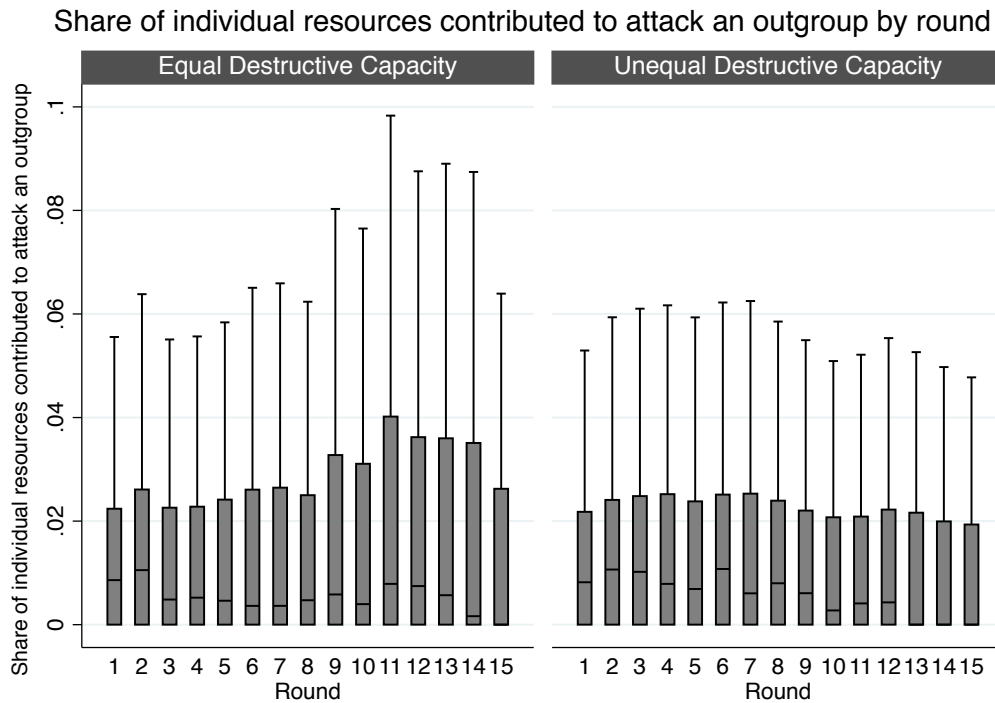
3. Results

Table G.1: Mean level of individual attacks against an outgroup (and SDs) by round

Round	Level of individual attacks	Share of individual resources contributed to attack
1	7.16 (9.71)	0.015 (0.02)
2	8.02 (10.3)	0.017 (0.022)
3	7.74 (10.9)	0.017 (0.024)
4	7.34 (11.1)	0.017 (0.026)
5	6.86 (10.4)	0.016 (0.025)
6	6.83 (9.88)	0.018 (0.028)
7	6.89 (10.5)	0.019 (0.038)
8	6.73 (10.4)	0.018 (0.03)
9	6.51 (10.1)	0.019 (0.032)
10	5.91 (9.83)	0.019 (0.036)
11	6.38 (10.2)	0.022 (0.04)
12	6.08 (9.69)	0.022 (0.039)
13	5.43 (8.8)	0.02 (0.037)
14	5.2 (8.78)	0.022 (0.053)
15	4.56 (8.71)	0.021 (0.05)
<i>All</i>	<i>6.54 (10)</i>	<i>0.019 (0.034)</i>

Comment: the mean level of individual attacks decreases over the game, but this mainly reflects the fact that individual resources that subject can contribute to attack also decrease over the game. Indeed, the mean share of individual resources contributed to attacks does not decrease over the game. Looking at the boxplots gives a better view.

Figure G.4: Share of individual resources contributed to attack an outgroup by round

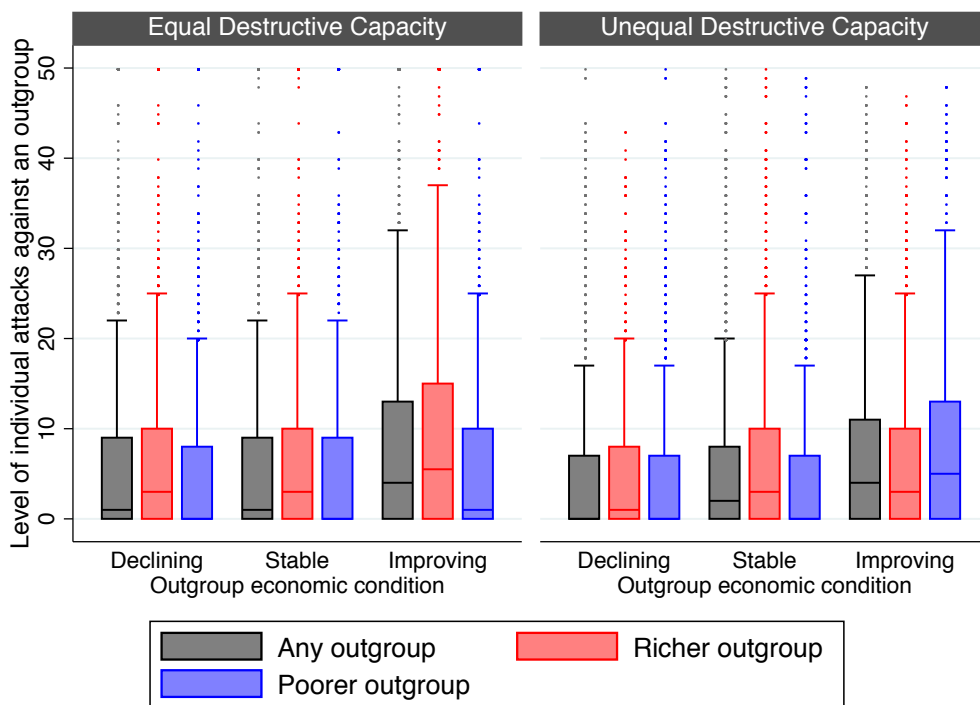


Comment: the share of individual resources contributed to attacks clearly decreases in the Unequal Destructive Capacity (UDC) treatment (both the median and upper quartile). In the Equal Destructive Capacity (EDC) treatment, the median share of resources contributed to attack also decreases but dispersions increases - i.e. high level attacks become more frequent over the game.

Table G.2: Mean level of individual attacks against an outgroup (and SD) by experimental treatment and outgroup economic condition

Experimental treatment	EDC treatment				UDC treatment				All
	Declining	Stable	Improving	All	Declining	Stable	Improving	All	
Any outgroup	5.94 (9.56)	6.51 (10.6)	8.34 (11.4)	6.84 (10.5)	5.11 (8.61)	6.07 (9.86)	7.36 (9.95)	6.24 (9.55)	6.54 (10)
Richer outgroup	7.14 (10.5)	7.1 (11.1)	9.59 (12)	8 (11.3)	5.24 (8.02)	6.58 (9.53)	6.66 (9.06)	6.33 (9.01)	7.15 (10.2)
Poorer outgroup	5.07 (8.75)	5.92 (10)	6.55 (10.1)	5.7 (9.51)	5.04 (8.88)	5.52 (10.2)	8.59 (11.2)	6.16 (10.1)	5.93 (9.79)

Figure G.5: Distribution of the level of individual attacks against an outgroup depending on the experimental treatment and the outgroup economic condition



Note. For visual readability, outliers with more than 50 points contributed in attacks against an ingroup do not appear in the figure (45 observations in the UDC treatment, i.e. 0.26% of the sample)

Table G.3: Effect of the outgroup resources and the experimental treatment on the ingroup level of attacks against an outgroup (standardized coefficients from negative binomial regression)

	(1)	(2)	(3)	(4)
Outgroup resources	0.213*** (0.0164)	0.256*** (0.0252)	0.212*** (0.0166)	0.265*** (0.0267)
UDC treatment		-0.252*** (0.0305)		-0.161*** (0.0370)
UDC treatment × Outgroup resources		0.00558 (0.0331)		0.00352 (0.0342)
Outgroup resources × Outgroup resources			0.0147 (0.0117)	0.0762*** (0.0192)
Relative treatment × Outgroup resources × Outgroup resources				-0.105*** (0.0239)
Ingroup resources	0.146*** (0.0183)	-0.0657* (0.0294)	0.145*** (0.0183)	-0.0667* (0.0294)
UDC treatment × Ingroup resources		0.416*** (0.0376)		0.418*** (0.0375)
Attacks by the outgroup against the ingroup at t-1	0.322*** (0.0165)	0.302*** (0.0164)	0.324*** (0.0166)	0.303*** (0.0164)
Constant	2.869*** (0.0154)	2.956*** (0.0218)	2.855*** (0.0189)	2.894*** (0.0263)
Inalpha	0.213*** (0.0205)	0.173*** (0.0207)	0.213*** (0.0205)	0.169*** (0.0207)
Observations	5520	5520	5520	5520
Pseudo R^2	0.0198	0.0245	0.0199	0.0250

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Observations are ingroup - outgroup dyads for each round of the game (excluding the first round). Rounds in which at least one group “died” were excluded.

Comments of Table G.3. Model (1) tests the effect of the outgroup resources on the level of ingroup attacks. Model (2) tests the interaction between the UDC treatment and the effect of the outgroup resources. As expected by Hypothesis 7.1, model (1) shows a positive effect of the outgroup resources on the level of ingroup attacks. Contrary to the expected negative interaction (Hypothesis 7.1.1), model (2) shows no significant interaction between this effect and the UDC treatment. In model (3), we test for a quadratic effect of the outgroup resources and in model (4) for the interaction between a quadratic effect and the UDC treatment. As illustrated by the marginal effects presented in Figures G.6a and G.6b, model (4) shows that the effect of the outgroup resources on the level of ingroup attacks is exponential in the EDC treatment, while it is not exponential in the

UDC treatment.

Table G.4: Effect of the outgroup resources and the experimental treatment on the individual level of attacks against an outgroup (standardized coefficients from fixed effects negative binomial regression)

	(1)	(2)	(3)	(4)
Outgroup resources	0.337*** (0.0113)	0.376*** (0.0184)	0.348*** (0.0124)	0.369*** (0.0188)
UDC treatment		– ^a		– ^a
UDC treatment × Outgroup resources		-0.0485* (0.0234)		-0.00875 (0.0252)
Outgroup resources × Outgroup resources			-0.0190* (0.00813)	0.0194 (0.0137)
UDC treatment × Outgroup resources × Outgroup resources				-0.0660*** (0.0172)
Subject resources	-0.0461*** (0.0136)	-0.159*** (0.0206)	-0.0485*** (0.0136)	-0.156*** (0.0207)
UDC treatment × Subject resources		0.203*** (0.0276)		0.199*** (0.0277)
Attacks by the out-group against the in-group at t-1	0.176*** (0.00897)	0.176*** (0.00912)	0.176*** (0.00899)	0.177*** (0.00918)
Constant	-1.117*** (0.0146)	-1.159*** (0.0208)	-1.100*** (0.0162)	-1.174*** (0.0234)
Observations	16372	16372	16372	16372
Number of subjects ^b	299	299	299	299

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Observations are all subject - outgroup dyads for each round of the game (excluding the first round and one subject - see ^b). Rounds in which at least one group “died” were excluded.

^aThe UDC treatment variable was included in the model, but because it is perfectly collinear with subject fixed effects, the coefficients was omitted from the table.

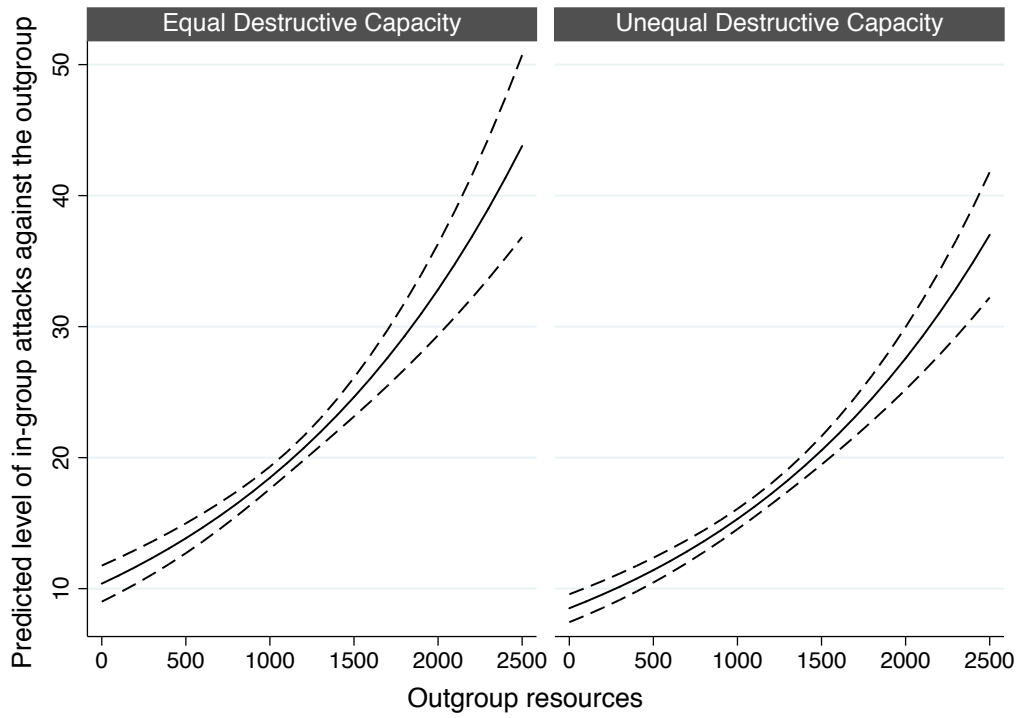
^bOne subject was automatically omitted from the analyses because his level of attacks was 0 against all outgroups in all rounds, and hence was perfectly predicted by the subject fixed effect.

Comments of Table G.4. We test the same models than the previous table based on subject - outgroup dyads, including subject fixed effects. As shown by the marginal effects presented in Figures G.7a and G.7b, the results are essentially unchanged.

Comments of Table G.5. Model (1) tests the effect of the ingroup economic condition (declining, stable, improving) on the level of ingroup attacks. Model (2) tests the interaction between the UDC treatment and the effect of the ingroup economic condition. Model (3) tests the three-way interaction with the outgroup being richer or poorer. We expected richer outgroups to be attacked more when the ingroup is in improving economic condition, while poorer outgroups should be attacked more when the ingroup is in declining

Figure G.6: Marginal effect of the outgroup resources on ingroup attacks (with 95% CI)

(a) Linear effect - computed from model (2) of Table G.3



(b) Quadratic effect - computed from model (4) of Table G.3

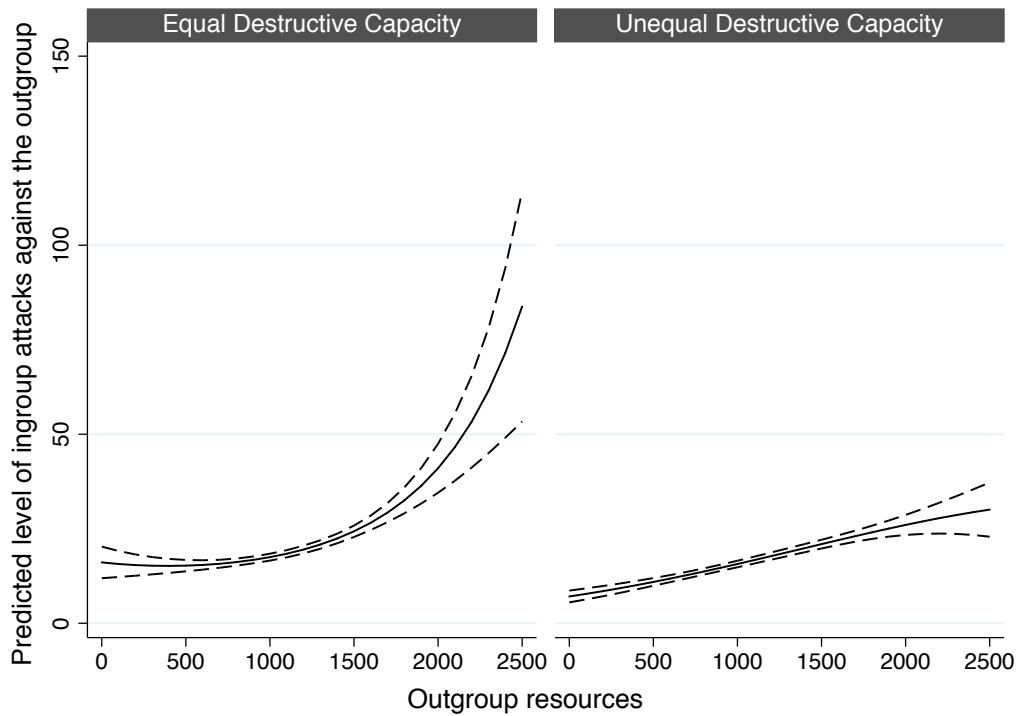
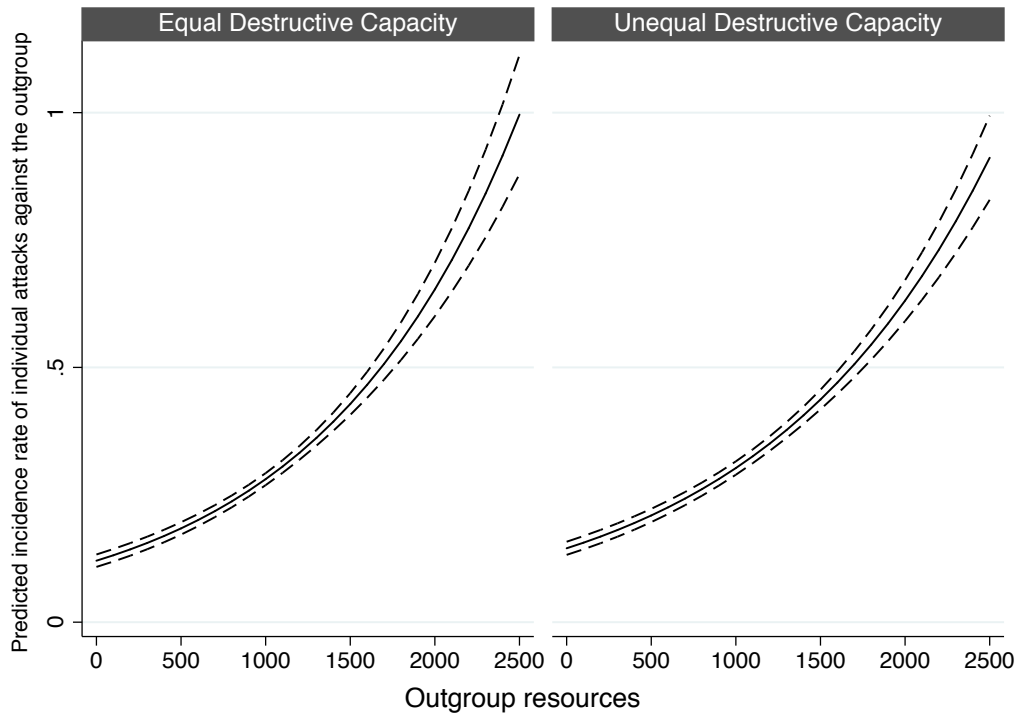


Figure G.7: Marginal effect of the outgroup resources on ingroup attacks (with 95% CI)

(a) Linear effect - computed from model (2) of Table G.4



(b) Quadratic effect - computed from model (4) of Table G.4

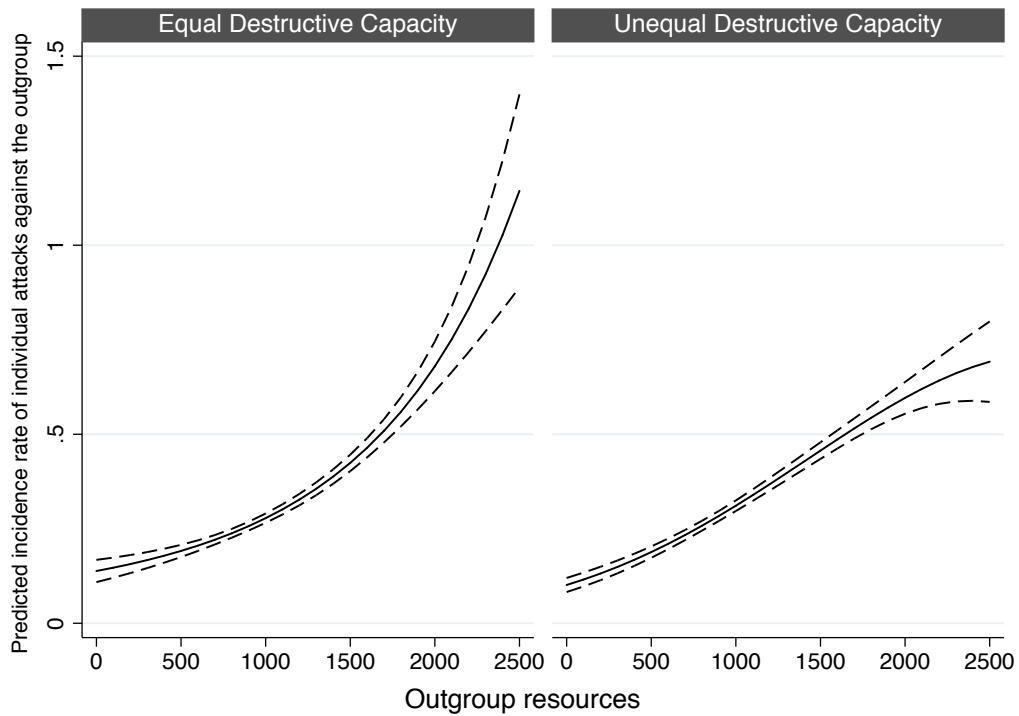


Table G.5: Effect of the ingroup economic condition and the experimental treatment on the ingroup level of attacks against an outgroup (standardized coefficients from negative binomial regression)

Dependent variable	(1)	(2)	(3)	(4)	(5)
	Any outgroup			Richer outgroup	Poorer outgroup
Ingroup economic condition (declining as ref)					
Stable	0.127** (0.0389)	-0.0603 (0.0533)	-0.175* (0.0784)	0.0480 (0.0660)	-0.215** (0.0833)
Improving	0.174*** (0.0378)	0.0360 (0.0544)	-0.00319 (0.0764)	0.168* (0.0723)	-0.106 (0.0824)
UDC treatment		-0.414*** (0.0525)	-0.347*** (0.0877)	-0.438*** (0.0596)	-0.307*** (0.0932)
UDC treatment × Ingroup economic condition (declining as ref)					
UDC treatment × Stable		0.440*** (0.0774)	0.629*** (0.118)	0.251** (0.0956)	0.543*** (0.126)
UDC treatment × Improving		0.349*** (0.0754)	0.392*** (0.111)	0.165+ (0.0998)	0.373** (0.118)
Richer outgroup			0.228** (0.0724)		
Richer outgroup × Ingroup economic condition (declining as ref)					
Richer outgroup × Stable			0.236* (0.107)		
Richer outgroup × Improving			0.174 (0.110)		
UDC treatment × Richer outgroup			-0.124 (0.109)		
UDC treatment × Richer outgroup × Ingroup economic condition (declining as ref)					
UDC treatment × Richer outgroup × Stable			-0.345* (0.158)		
UDC treatment × Richer outgroup × Improving			-0.0986 (0.156)		
Ingroup rank					
Richest					ref
Second				ref	-0.256*** (0.0583)
Third				-0.238** (0.0770)	-0.492*** (0.0672)
Fourth				-0.481*** (0.0744)	-0.321*** (0.0869)
Poorest				-0.744*** (0.0728)	
Attacks by the out-group against the in-group at t-1	0.374*** (0.0171)	0.376*** (0.0170)	0.377*** (0.0169)	0.281*** (0.0218)	0.352*** (0.0262)
Constant	2.787*** (0.0263)	2.962*** (0.0359)	2.822*** (0.0555)	3.520*** (0.0755)	3.068*** (0.0701)
Inalpha	0.267*** (0.0202)	0.255*** (0.0203)	0.240*** (0.0204)	0.0407 (0.0290)	0.357*** (0.0292)
Observations	5520	5520	5516 ^a	2758 ^a	2758 ^a
Pseudo R ²	0.0136	0.0150	0.0168	0.0240	0.0178

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Observations are ingroup - outgroup dyads for each round of the game (excluding the first round). Rounds in which at least one group "died" were excluded.

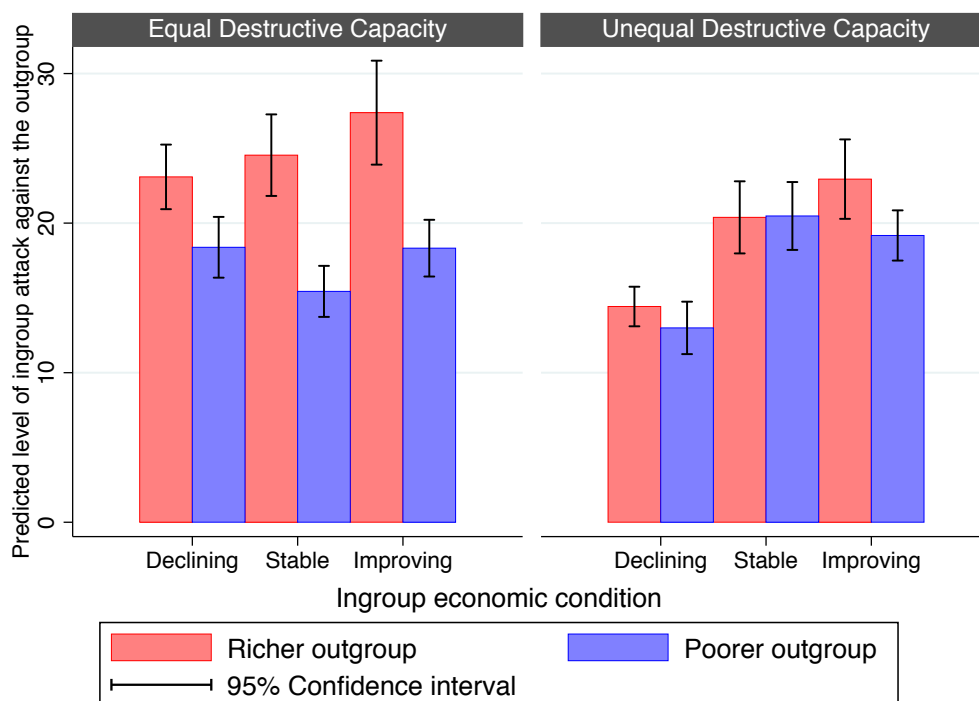
^aFour ingroup - outgroup dyads had the same level of resources, meaning that there was no richer / poorer group. These four observations were excluded from models (3) to (5).

economic condition (Hypothesis 7.2). These effects should be specifically observed in the UDC treatment (Hypothesis 7.2.1).

Results from the three-way interaction are hard to read from the table, so Figure G.8 computes marginal effects. Model (3) shows a positive effect of the ingroup economic condition on the level of ingroup attacks, but this effect is true both for richer and poorer outgroups. This contradicts our hypothesis that the ingroup generally attacks more outgroups that are getting closer to the ingroup. Indeed, we should observe that the ingroup economic condition positively affects attacks against richer outgroups and negatively affects attacks against poorer outgroups. Nonetheless, as expected by Hypothesis 7.2.1, richer outgroups are significantly attacked more when the ingroup is in improving condition and in the UDC treatment, while this is not the case for poorer outgroups.

As an alternative test, Model (4) and (5) separately test the interaction between the UDC treatment and the effect of the outgroup economic condition for richer and poorer outgroups. In these models, we control for the ingroup rank. Indeed, the ingroup does not face the same number of richer and poorer outgroups depending on its rank, which may affect attack level. Results from models (4) and (5) are similar to those from model (3).

Figure G.8: Marginal effect of the ingroup economic condition on the ingroup level of attacks against an outgroup (with 95% CI) computed from model (3) of Table G.5



Comments of Table G.6. We test the same models than the previous table based on subject - outgroup dyads, including subject fixed effects. As shown by the marginal ef-

Table G.6: Effect of the ingroup economic condition and the experimental treatment on the individual level of attacks against an outgroup (standardized coefficients from fixed effects negative binomial regression)

Dependent variable	(1)	(2)	(3)	(4)	(5)
	Any outgroup			Richer outgroup	Poorer outgroup
Ingroup economic condition (declining as ref)					
Stable	0.0339 (0.0278)	-0.0552 (0.0392)	-0.164** (0.0605)	0.0517 (0.0500)	-0.174** (0.0651)
Improving	0.182*** (0.0265)	0.132*** (0.0378)	0.187*** (0.0542)	0.218*** (0.0524)	0.0996+ (0.0576)
UDC treatment		– ^a	– ^a	– ^a	– ^a
UDC treatment × Ingroup economic condition (declining as ref)					
UDC treatment × Stable		0.179** (0.0558)	0.323*** (0.0890)	0.142* (0.0712)	0.205* (0.0948)
UDC treatment × Improving		0.0931+ (0.0532)	0.102 (0.0804)	0.0726 (0.0735)	0.0809 (0.0847)
Richer outgroup			0.415*** (0.0496)		
Richer outgroup × Ingroup economic condition (declining as ref)					
Richer outgroup × Stable			0.247*** (0.0745)		
Richer outgroup × Improving			0.0335 (0.0720)		
UDC treatment × Richer outgroup			-0.0399 (0.0773)		
UDC treatment × Richer outgroup × Ingroup economic condition (declining as ref)					
UDC treatment × Richer outgroup × Stable			-0.194+ (0.110)		
UDC treatment × Richer outgroup × Improving			0.0710 (0.104)		
Ingroup rank					
Richest					ref
Second				0 (.)	-0.125** (0.0413)
Third				-0.308*** (0.0479)	-0.356*** (0.0508)
Fourth				-0.443*** (0.0497)	-0.316*** (0.0675)
Poorest				-0.510*** (0.0527)	
Attacks by the out-group against the in-group at t-1	0.241*** (0.00861)	0.243*** (0.00862)	0.222*** (0.00869)	0.151*** (0.0122)	0.255*** (0.0143)
Constant	-1.234*** (0.0208)	-1.239*** (0.0282)	-1.456*** (0.0418)	-0.583*** (0.0550)	-1.243*** (0.0533)
Observations	16372	16372	16360 ^b	8040	8169
Number of subjects ^{c,d}	299	299	299	271	260

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Observations are subject - outgroup dyads for each round of the game (excluding the first round). Rounds in which at least one group died were excluded.

^aThe UDC treatment variable was included in the model, but because it is perfectly collinear with subject fixed effects, the coefficients was omitted from the table.

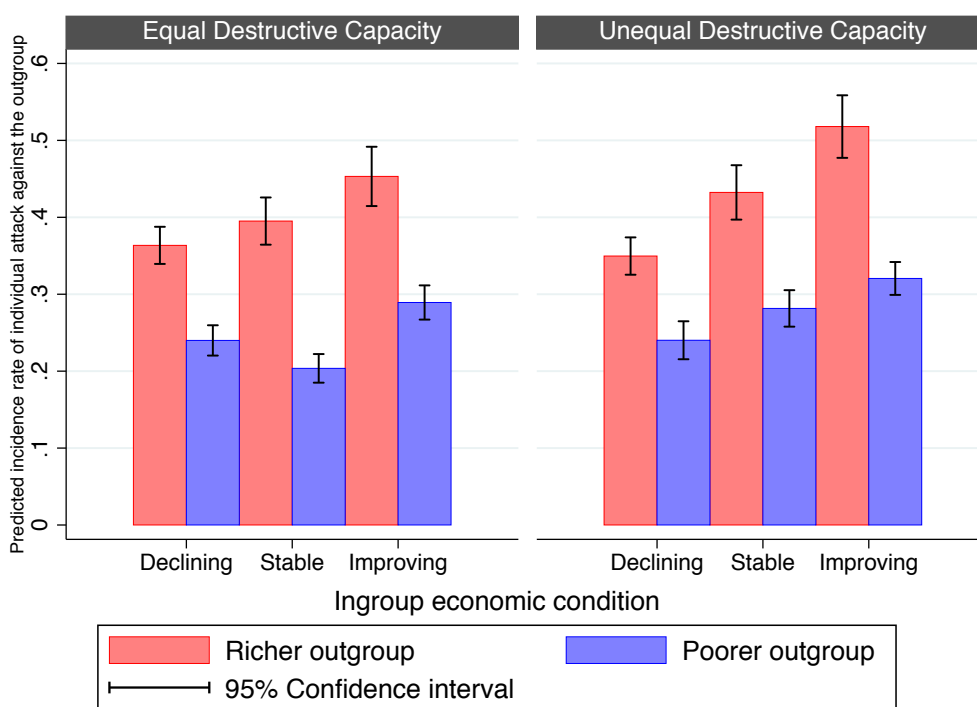
^bFour ingroup - outgroup dyads had the same level of resources, meaning that there was no richer / poorer group. As each ingroup gathers three subjects, twelve subject - outgroup dyads were excluded from models III to V.

^cOne subject was automatically omitted from the analyses because his level of attacks was 0 against all outgroups in all rounds, and hence was perfectly predicted by the subject fixed effect.

^dThe number of subjects vary in models IV and V because some subjects did not face richer / poorer outgroups during the game (they were part of the richest / poorest group all along the game).

fects presented in Figure G.9, the results are essentially unchanged regarding our hypothesis. Outgroups are generally attacked more when the ingroup is in improving economic condition, and richer outgroups are significantly attacked more when the ingroup is in improving condition and in the UDC treatment. The only difference is that when we include individual fixed effect, the overall level of attacks against richer outgroups is no longer different between the EDC and UDC treatments, which is likely to be due to individual fixed effects capturing the main effect of the treatment.

Figure G.9: Marginal effect of the ingroup economic condition on the individual level of attacks against an outgroup (with 95% CI) computed from model (3) of Table G.6



Comments of Table G.7. Model (1) tests the effect of the outgroup economic condition (declining, stable, improving) on the level of ingroup attacks. Model (2) tests the interaction between the UDC treatment and the effect of the outgroup economic condition. Model (3) tests the three-way interaction with the outgroup being richer or poorer. We expected richer outgroups to be attacked more when they are in declining economic condition, while poorer outgroups should be attacked more when they are in improving economic condition (Hypothesis 7.3). These effects should be specifically observed in the UDC treatment (Hypothesis 7.3.1).

Results from the three-way interaction are hard to read from the table, so Figure G.10 computes marginal effects. Model (3) shows a positive effect of the outgroup economic condition on the level of ingroup attacks, but this effect is true both for richer and poorer

Table G.7: Effect of the outgroup economic condition and the experimental treatment on the ingroup level of attacks (standardized coefficients from negative binomial regression)

Dependent variable	(1)	(2)	(3)	(4)	(5)
	Any outgroup			Richer outgroup	Poorer outgroup
Outgroup economic condition (declining as ref)					
Stable	0.116** (0.0388)	0.134* (0.0534)	0.175* (0.0730)	0.0263 (0.0712)	0.155* (0.0769)
Improving	0.286*** (0.0376)	0.302*** (0.0544)	0.209** (0.0798)	0.181** (0.0697)	0.205* (0.0841)
UDC treatment		-0.145** (0.0525)	0.00738 (0.0656)	-0.279*** (0.0799)	-0.0112 (0.0692)
UDC treatment × Outgroup economic condition (declining as ref)					
UDC treatment × Stable		-0.0376 (0.0776)	-0.177+ (0.105)	0.0131 (0.108)	-0.123 (0.111)
UDC treatment × Improving		-0.00420 (0.0754)	0.254* (0.109)	-0.114 (0.101)	0.229* (0.115)
Richer outgroup			0.341*** (0.0725)		
Richer outgroup × Outgroup economic condition (declining as ref)					
Richer outgroup × Stable			-0.127 (0.107)		
Richer outgroup × Improving			0.0410 (0.110)		
UDC treatment × Richer outgroup			-0.332** (0.109)		
UDC treatment × Richer outgroup × Outgroup economic condition (declining as ref)					
UDC treatment × Richer outgroup × Stable			0.301+ (0.157)		
UDC treatment × Richer outgroup × Improving			-0.320* (0.156)		
Ingroup rank					
Richest					ref
Second				ref	-0.278*** (0.0570)
Third				-0.252** (0.0773)	-0.485*** (0.0659)
Fourth				-0.510*** (0.0739)	-0.311*** (0.0846)
Poorest				-0.771*** (0.0732)	
Attacks by the out-group against the in-group at t-1	0.371*** (0.0170)	0.375*** (0.0170)	0.378*** (0.0169)	0.282*** (0.0219)	0.344*** (0.0261)
Constant	2.749*** (0.0262)	2.815*** (0.0360)	2.659*** (0.0468)	3.523*** (0.0802)	2.867*** (0.0582)
Inalpha	0.260*** (0.0203)	0.255*** (0.0203)	0.242*** (0.0204)	0.0510+ (0.0289)	0.348*** (0.0293)
Observations	5520	5520	5516 ^a	2758 ^a	2758 ^a
Pseudo R ²	0.0144	0.0150	0.0166	0.0228	0.0188

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

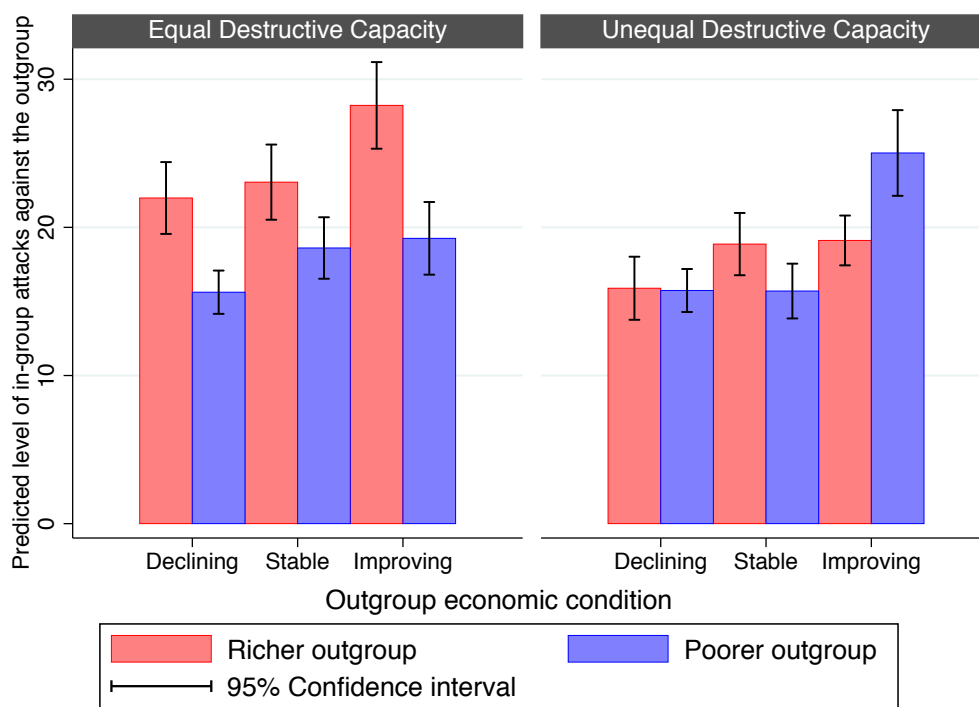
Observations are ingroup - outgroup dyads for each round of the game (excluding the first round). Rounds in which at least one group "died" were excluded.

^aFour ingroup - outgroup dyads had the same level of resources, meaning that there was no richer / poorer group. These four observations were excluded from models (3) to (5).

outgroups. This again contradicts our hypothesis that the ingroup generally attacks more outgroups that are getting closer to the ingroup. Indeed, we should observe that the outgroup economic condition positively affects attacks against poorer outgroups and negatively affects attacks against richer outgroups. Nonetheless, as expected by Hypothesis 7.3.1, poorer outgroups are significantly attacked more when they are in improving condition and in the UDC treatment.

As an alternative test, Model (4) and (5) separately test the interaction between the UDC treatment and the effect of the outgroup economic condition for richer and poorer outgroups. Results from models (4) and (5) are similar to those from model (3).

Figure G.10: Marginal effect of the outgroup economic condition on the ingroup level of attacks (with 95% CI) computed from model (3) of Table G.7



Comments of Table G.8. We test the same models than the previous table based on subject - outgroup dyads, including subject fixed effects. As shown by the marginal effects presented in Figure G.11, the results are essentially unchanged regarding our hypothesis. Outgroups are generally attacked more when they are in improving economic condition, and poorer outgroups are significantly attacked more when they are in improving condition and in the UDC treatment. The only difference is again that when we include individual fixed effect, the overall level of attacks against richer outgroups is no longer different between the EDC and UDC treatments, which is likely to be due to individual fixed effects capturing the main effect of the treatment.

Table G.8: Effect of the outgroup economic condition and the experimental treatment on the individual level of attacks (standardized coefficients from fixed effects negative binomial regression)

Dependent variable	(1)	(2)	(3)	(4)	(5)
	Any outgroup			Richer outgroup	Poorer outgroup
Outgroup economic condition (declining as ref)					
Stable	0.0972*** (0.0265)	0.0688 ⁺ (0.0365)	0.0240 (0.0526)	0.0109 (0.0511)	0.0240 (0.0533)
Improving	0.353*** (0.0247)	0.299*** (0.0353)	0.200*** (0.0549)	0.202*** (0.0474)	0.212*** (0.0556)
UDC treatment		_a	_a	_a	_a
UDC treatment × Outgroup economic condition (declining as ref)					
UDC treatment × Stable		0.0591 (0.0531)	-0.110 (0.0755)	0.193* (0.0787)	-0.128 ⁺ (0.0764)
UDC treatment × Improving		0.0979* (0.0493)	0.222** (0.0730)	0.0372 (0.0726)	0.161* (0.0738)
Richer outgroup			0.423*** (0.0500)		
Richer outgroup × Outgroup economic condition (declining as ref)					
Richer outgroup × Stable			0.0286 (0.0723)		
Richer outgroup × Improving			0.0511 (0.0717)		
UDC treatment × Richer outgroup			-0.153* (0.0770)		
UDC treatment × Richer outgroup × Outgroup economic condition (declining as ref)					
UDC treatment × Richer outgroup × Stable			0.267* (0.108)		
UDC treatment × Richer outgroup × Improving			-0.219* (0.102)		
Ingroup rank					
Richest					ref
Second				ref	-0.139*** (0.0408)
Third				-0.302*** (0.0480)	-0.361*** (0.0499)
Fourth				-0.457*** (0.0492)	-0.344*** (0.0660)
Poorest				-0.526*** (0.0524)	
Attacks by the out-group against the in-group at t-1	0.229*** (0.00867)	0.230*** (0.00869)	0.220*** (0.00869)	0.147*** (0.0122)	0.246*** (0.0144)
Constant	-1.307*** (0.0206)	-1.321*** (0.0282)	-1.491*** (0.0368)	-0.585*** (0.0582)	-1.301*** (0.0462)
Observations	16372	16372	16360 ^b	8040	8169
Number of subjects ^{c,d}	299	299	299	271	260

Standard errors in parentheses

⁺ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Observations are subject - outgroup dyads for each round of the game (excluding the first round). Rounds in which at least one group died were excluded.

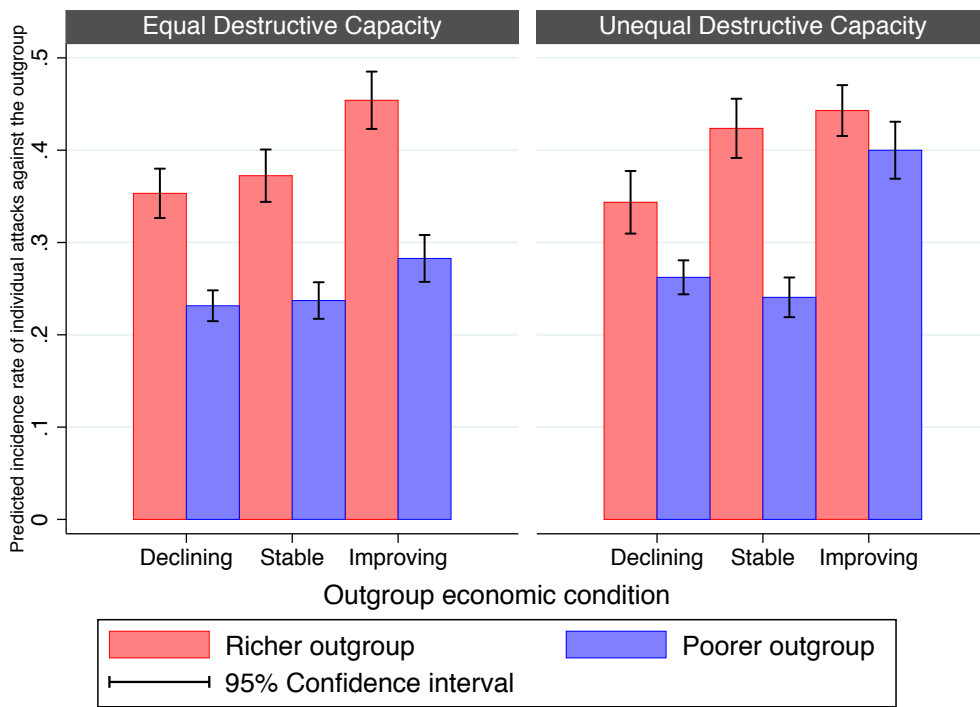
^aThe UDC treatment variable was included in the model, but because it is perfectly collinear with subject fixed effects, the coefficients was omitted from the table.

^bFour ingroup - outgroup dyads had the same level of resources, meaning that there was no richer / poorer group. As each ingroup gathers three subjects, twelve subject - outgroup dyads were excluded from models (3) to (5).

^cOne subject was automatically omitted from the analyses because his level of attacks was 0 against all outgroups in all rounds, and hence was perfectly predicted by the subject fixed effect.

^dThe number of subjects vary in models (4) and (5) because some subjects did not face richer / poorer outgroups during the game (they were part of the richest / poorest group all along the game).

Figure G.11: Marginal effect of the outgroup economic condition on the individual level of attacks (with 95% CI) computed from model (3) of Table G.8



H

Appendix – Chapter 8

Table H.1: Grand-mean of the level of individual attacks against an outgroup by individual characteristics, and appropriate bivariate statistical tests (*p*-values < 0.05 in bold)

Subjects characteristics	Grand-mean (and SD)	Test
Gender		
Female (N=177)	6.17 (2.96)	T-test t(298) = 2.6404, p = 0.0087
Male (N=123)	7.1 (3.06)	
Age		
18-20 years (N=111)	6.32 (3.05)	Pearson correlation ¹ r(298) = 0.0681, p = 0.2393
21-25 years (N=102)	6.67 (3.04)	
26-40 years (N = 50)	6.58 (2.88)	
>40 years (N=37)	6.86 (3.23)	
Education		
Less than highschool (N=56)	6.34 (3.08)	One-way anova F(4, 295) = 2.78, p = 0.0269
Highschool (N=84)	6.34 (2.98)	
Bachelor (N=58)	6.44 (2.9)	
Master (N=51)	7.79 (3.05)	
Phd (N=51)	6 (2.98)	
Working status		
Student (N=205)	6.52 (3.05)	One-way anova F(2, 297) = 0.03, p = 0.9749
Worker (N=76)	6.59 (2.97)	
No (N=19)	6.66 (3.29)	
Perceived self cooperation²		
Low (N=59)	5.44 (2.89)	Pearson correlation ¹ r(298) = 0.2857, p < 0.0001
High (N=231)	6.82 (3.01)	
Left-right self position³		
Left (N=121)	6.77 (2.84)	Pearson correlation ¹ r(298) = -0.0211, p = 0.7155
Center (N=111)	6.05 (3.09)	
Right (N=68)	6.96 (3.2)	
Social Dominance Orientation⁴		
Low (N=157)	6.47 (2.94)	Pearson correlation ¹ r(298) = -0.0069, p = 0.9055
High (N=143)	6.64 (3.14)	
All subjects (N=300)	6.55 (3.03)	

¹For age, perceived self-cooperation, left-right self position and social dominance orientation: we used categories to describe the means but treat the variable as linear for the test.

²For perceived cooperation: "low" refers to subjects that described themselves as "not very" or "not at all" cooperative and "high" refers to subjects that described themselves as "fairly" or "very" cooperative.

³For Left-right self position: "left" refers to subjects that positioned themselves at 1 to 4, "center" at 5 or 6, "right" at 7 to 10 on the left-right scale.

⁴For Social Dominance Orientation: "low" refers to subjects that were equal or below the median score on the scale and "high" refers to subject that were above the median score.

Table H.2: Grand-mean of the level of individual attacks against a richer outgroup by individual characteristics, and appropriate bivariate statistical tests (*p*-values < 0.05 in bold)

Subjects characteristics	Grand-mean (and SD)	Test
Gender		
Female (N=161)	7.9 (4.72)	T-test t(274) = 1.1212, p = 0.2632
Male (N=115)	8.58 (5.3)	
Age		
18-20 years (N=102)	7.54 (4.38)	Pearson correlation ¹ r(274) = 0.0934, p = 0.1215
21-25 years (N=90)	8.42 (5.58)	
26-40 years (N = 48)	6.58 (5.37)	
>40 years (N=36)	8.51 (4.35)	
Education		
Less than highschool (N=56)	7.98 (4.71)	One-way anova F(4, 271) = 0.79, p = 0.5305
Highschool (N=75)	7.73 (4.06)	
Bachelor (N=52)	8.26 (5.1)	
Master (N=45)	9.32 (5.71)	
Phd (N=48)	7.95 (5.68)	
Working status		
Student (N=186)	7.91 (4.95)	One-way anova F(2, 273) = 1.92, p = 0.1488
Worker (N=72)	8.35 (4.38)	
No (N=18)	10.3 (6.92)	
Perceived self cooperation²		
Low (N=54)	6.97 (4.01)	Pearson correlation ¹ r(274) = 0.1684, p = 0.0050
High (N=222)	8.47 (5.15)	
Left-right self position³		
Left (N=111)	9.29 (5.58)	Pearson correlation ¹ r(274) = -0.1580, p = 0.0085
Center (N=102)	7.17 (3.93)	
Right (N=63)	7.86 (5.03)	
Social Dominance Orientation⁴		
Low (N=145)	8.97 (5.31)	Pearson correlation ¹ r(274) = -0.1326, p = 0.0277
High (N=131)	7.3 (4.43)	
All subjects (N=276)⁵	8.18 (4.97)	

¹For age, perceived self-cooperation, left-right self position and social dominance orientation: we used categories to describe the means but treat the variable as linear for the test.

²For perceived cooperation: "low" refers to subjects that described themselves as "not very" or "not at all" cooperative and "high" refers to subjects that described themselves as "fairly" or "very" cooperative.

³For Left-right self position: "left" refers to subjects that positioned themselves at 1 to 4, "center" at 5 or 6, "right" at 7 to 10 on the left-right scale.

⁴For Social Dominance Orientation: "low" refers to subjects that were equal or below the median score on the scale and "high" refers to subject that were above the median score.

⁵The number of subjects is not 300 because some (24) subjects did not face richer outgroups during the game (they were part of the richest group all along the game).

Table H.3: Grand-mean of the level of individual attacks against a poorer outgroup by individual characteristics, and appropriate bivariate statistical tests (p-values < 0.05 in bold)

Subjects characteristics	Grand-mean (and SD)	Test
Gender		
Female (N=158)	5.12 (3.18)	T-test t(265) = 2.6269, p = 0.0091
Male (N=109)	6.31 (4.21)	
Age		
18-20 years (N=98)	5.82 (4.28)	Pearson correlation ¹ r(265) = -0.0321, p = 0.6021
21-25 years (N=96)	5.52 (3.21)	
26-40 years (N = 43)	5.23 (3.33)	
>40 years (N=30)	5.69 (5.69)	
Education		
Less than highschool (N=45)	5.46 (3.09)	One-way anova F(4, 262) = 1.30, p = 0.2701
Highschool (N=74)	5.81 (4.29)	
Bachelor (N=56)	4.97 (3.5)	
Master (N=49)	6.48 (3.47)	
Phd (N=43)	5.23 (3.48)	
Working status		
Student (N=186)	5.78 (3.82)	One-way anova F(2, 264) = 0.83, p = 0.4368
Worker (N=64)	5.29 (3.43)	
No (N=17)	4.83 (2.88)	
Perceived self cooperation²		
Low (N=49)	4.66 (3.27)	Pearson correlation ¹ r(265) = 0.2487, p < 0.0001
High (N=218)	5.82 (3.73)	
Left-right self position³		
Left (N=110)	5.45 (3.76)	Pearson correlation ¹ r(265) = 0.0850, p = 0.1659
Center (N=97)	5.26 (3.3)	
Right (N=60)	6.44 (4)	
Social Dominance Orientation⁴		
Low (N=143)	5.1 (3.12)	Pearson correlation ¹ r(265) = 0.0600, p = 0.3290
High (N=124)	6.19 (4.17)	
All subjects (N=267)⁵	5.6 (3.67)	

¹For age, perceived self-cooperation, left-right self position and social dominance orientation: we used categories to describe the means but treat the variable as linear for the test.

²For perceived cooperation: "low" refers to subjects that described themselves as "not very" or "not at all" cooperative and "high" refers to subjects that described themselves as "fairly" or "very" cooperative.

³For Left-right self position: "left" refers to subjects that positioned themselves at 1 to 4, "center" at 5 or 6, "right" at 7 to 10 on the left-right scale.

⁴For Social Dominance Orientation: "low" refers to subjects that were equal or below the median score on the scale and "high" refers to subject that were above the median score.

⁵The number of subjects is not 300 because some (33) subjects did not face richer outgroups during the game (they were part of the richest group all along the game).

Table H.4: Effect of game and individual factors on the individual level of attacks against an outgroup – combined models (standardized coefficients from mixed effects negative binomial regression)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Subject-level variables									
Perceived self cooperation	0.123** (0.0288)	0.171** (0.0371)	0.144** (0.0345)	0.143** (0.0345)	0.127** (0.0284)	0.117** (0.0275)	0.118** (0.0272)	0.118** (0.0273)	0.160** (0.0354)
Richer outgroup × Perceived self cooperation		-0.0969* (0.0474)							-0.0892* (0.0433)
Left right self position	-0.0738* (0.0328)	-0.0460 (0.0397)	-0.00520 (0.0416)	-0.0484 (0.0393)	-0.0664* (0.0323)	-0.0674* (0.0312)	-0.0644* (0.0309)	-0.0600+ (0.0311)	-0.0266 (0.0408)
Richer outgroup × Left right self position			-0.141** (0.0454)						-0.0624 (0.0480)
Social dominance orientation	0.0624+ (0.0330)	0.0863* (0.0399)	0.0850* (0.0395)	0.130** (0.0416)	0.0633+ (0.0326)	0.0636* (0.0314)	0.0648* (0.0312)	0.0642* (0.0313)	0.118** (0.0408)
Richer outgroup × Social dominance orientation				-0.151** (0.0450)					-0.110* (0.0477)
Male (female as reference)	-0.0454 (0.0600)	-0.0563 (0.0719)	-0.0564 (0.0712)	-0.0518 (0.0712)	-0.0418 (0.0591)	-0.0284 (0.0570)	-0.0282 (0.0565)	-0.0316 (0.0568)	-0.0414 (0.0674)
Age	0.0816+ (0.0465)	0.0878 (0.0552)	0.0851 (0.0546)	0.0853 (0.0547)	0.0862+ (0.0459)	0.0931* (0.0442)	0.0778+ (0.0446)	0.0756+ (0.0448)	0.0769 (0.0528)
Education (less than highschool as reference)									
Highschool	0.0532 (0.0973)	-0.0266 (0.118)	-0.0160 (0.116)	-0.000744 (0.117)	0.0316 (0.0960)	0.0129 (0.0927)	-0.0130 (0.0923)	-0.0106 (0.0927)	-0.0307 (0.111)
Bachelor	0.0825 (0.0957)	-0.0246 (0.115)	-0.0136 (0.114)	-0.00367 (0.114)	0.0663 (0.0944)	0.0564 (0.0910)	0.0348 (0.0907)	0.0353 (0.0911)	-0.0199 (0.109)
Master	0.0768 (0.107)	-0.00442 (0.129)	-0.00189 (0.127)	0.0115 (0.127)	0.0582 (0.105)	0.0335 (0.102)	0.0114 (0.101)	0.00792 (0.102)	-0.0246 (0.121)
Phd	-0.0804 (0.0970)	-0.194+ (0.117)	-0.184 (0.116)	-0.182 (0.116)	-0.0926 (0.0957)	-0.110 (0.0923)	-0.107 (0.0915)	-0.110 (0.0919)	-0.174 (0.110)
Working status (student as reference)									

Working	-0.106 (0.144)	-0.184 (0.171)	-0.169 (0.170)	-0.155 (0.170)	-0.117 (0.142)	-0.137 (0.137)	-0.128 (0.135)	-0.120 (0.136)	-0.143 (0.161)
Not working	-0.0947 (0.110)	-0.121 (0.131)	-0.107 (0.130)	-0.107 (0.130)	-0.0941 (0.109)	-0.122 (0.105)	-0.104 (0.104)	-0.104 (0.105)	-0.110 (0.124)
Game-level variables									
Richer outgroup	0.318*** (0.0596)	0.316*** (0.0590)	0.312*** (0.0588)	0.378*** (0.0473)	0.298*** (0.0485)	0.387*** (0.0575)	0.397*** (0.0627)	0.131 (0.0993)	
Outgroup resources	0.311*** (0.0192)	0.278*** (0.0235)	0.279*** (0.0235)	0.229*** (0.0216)	0.279*** (0.0228)	0.285*** (0.0228)	0.286*** (0.0229)	0.319*** (0.0237)	
Outgroup variation due to economic condition	0.0741*** (0.0153)	0.0612*** (0.0155)	0.0614*** (0.0155)	0.0611*** (0.0155)	0.104*** (0.0245)	0.0650*** (0.0154)	0.0676*** (0.0154)	0.108*** (0.0245)	
Richer outgroup × Outgroup variation due to economic condition				-0.0657* (0.0306)				-0.0784* (0.0310)	
Inequality	-0.0724*** (0.0209)	-0.0551* (0.0226)	-0.0550* (0.0226)	-0.0544* (0.0226)	-0.0767*** (0.0208)	0.0340 (0.0269)	0.0335 (0.0275)	0.0872 (0.0610)	0.103 (0.0630)
Relative treatment									
UDC treatment × Inequality									
Richer outgroup × Inequality									
UDC treatment × Richer outgroup									
UDC treatment × Richer outgroup × Inequality									
Attacks by the subject against the outgroup at t-1	0.342*** (0.0159)	0.321*** (0.0159)	0.321*** (0.0159)	0.322*** (0.0159)	0.342*** (0.0158)	0.340*** (0.0158)	0.340*** (0.0158)	0.320*** (0.0159)	
Attacks by the outgroup against the ingroup at t-1	0.245*** (0.0154)	0.239*** (0.0155)	0.239*** (0.0155)	0.239*** (0.0155)	0.232*** (0.0154)	0.238*** (0.0154)	0.238*** (0.0154)	0.239*** (0.0155)	
Attacks by other ingroup subjects at t-1	0.254*** (0.0231)	0.229*** (0.0240)	0.229*** (0.0240)	0.230*** (0.0240)	0.253*** (0.0230)	0.252*** (0.0229)	0.246*** (0.0229)	0.245*** (0.0229)	0.226*** (0.0239)
Subject resources	-0.0836**	-0.0213	-0.0220	-0.0228	-0.0224	-0.0743**	-0.0724*	-0.0726*	-0.0676*

	(0.0263)	(0.0292)	(0.0291)	(0.0291)	(0.0274)	(0.0282)	(0.0282)	(0.0282)	(0.0282)
Ingroup rank (richest as reference)									
Second	-0.0890 ⁺ (0.0530)	-0.251 ^{***} (0.0558)	-0.252 ^{***} (0.0557)	-0.252 ^{***} (0.0557)	-0.181 ^{**} (0.0539)	-0.211 ^{***} (0.0534)	-0.221 ^{***} (0.0534)	-0.220 ^{***} (0.0534)	-0.289 ^{***} (0.0571)
Third	-0.141 [*] (0.0560)	-0.379 ^{***} (0.0610)	-0.380 ^{***} (0.0608)	-0.380 ^{***} (0.0609)	-0.312 ^{***} (0.0592)	-0.333 ^{***} (0.0586)	-0.337 ^{***} (0.0585)	-0.337 ^{***} (0.0585)	-0.423 ^{***} (0.0652)
Fourth	-0.0802 (0.0578)	-0.373 ^{***} (0.0667)	-0.377 ^{***} (0.0665)	-0.373 ^{***} (0.0666)	-0.313 ^{***} (0.0638)	-0.347 ^{***} (0.0634)	-0.347 ^{***} (0.0634)	-0.347 ^{***} (0.0634)	-0.233 ^{***} (0.0822)
Poorest	-0.228 ^{**} (0.0712)	-0.520 ^{***} (0.0866)	-0.518 ^{***} (0.0863)	-0.509 ^{***} (0.0863)	-0.521 ^{***} (0.0791)	-0.592 ^{***} (0.0791)	-0.597 ^{***} (0.0789)	-0.595 ^{***} (0.0790)	-0.361 ^{***} (0.107)
Richer outgroup × Ingroup rank									
Richer outgroup × Second									0.313 ^{**} (0.107)
Richer outgroup × Third									0.302 ^{**} (0.102)
Constant	1.720 ^{***} (0.125)	1.840 ^{***} (0.149)	1.834 ^{***} (0.148)	1.819 ^{***} (0.148)	1.700 ^{***} (0.124)	1.763 ^{***} (0.120)	1.789 ^{***} (0.124)	1.811 ^{***} (0.126)	1.914 ^{***} (0.148)
Inalpha	1.018 ^{***} (0.0149)	0.979 ^{***} (0.0154)	0.979 ^{***} (0.0154)	0.980 ^{***} (0.0154)	1.012 ^{***} (0.0149)	1.009 ^{***} (0.0150)	1.009 ^{***} (0.0150)	1.008 ^{***} (0.0150)	0.980 ^{***} (0.0155)
var(subjects)	0.173 ^{***} (0.0235)	0.226 ^{***} (0.0322)	0.221 ^{***} (0.0317)	0.221 ^{***} (0.0317)	0.167 ^{***} (0.0226)	0.151 ^{***} (0.0212)	0.147 ^{***} (0.0210)	0.149 ^{***} (0.0212)	0.197 ^{***} (0.0293)
var(Richer outgroup) ^a		0.280 ^{***} (0.0554)	0.266 ^{***} (0.0542)	0.259 ^{***} (0.0536)					0.181 ^{***} (0.0452)
Observations ^b	16428	16416	16416	16416	16416	16416	16416	16416	16416
Number of subjects	300	300	300	300	300	300	300	300	300

Standard errors in parentheses

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

^aIn models (2), (3), (4) and (9), we test for a cross-level interaction between a subject-level (level-2) variable and a subject-round-outgroup (level-1) variable - here, the richer outgroup variable. In these models, we included a random slope for the level-1 variable as recommended by Snijders and Bosker (2011). See also Heisig and Schaeffer (2019).

^bFour ingroup - outgroup dyads had the same level of resources, meaning that there was no richer / poorer group. As each ingroup gathers three subjects, twelve subject - outgroup dyads were excluded from models (2) to (9).

Table H.5: Effect of inequality on the mobilization level of French radical organizations (unstandardized coefficients from log linear multilevel regression)

	(1)	(2)	(3)	(4)	(5)
rich10	3.016 ⁺ (1.698)	-5.870** (2.075)	-19.41*** (3.106)	-10.58*** (1.874)	-15.36*** (2.786)
Reactionary		-9.094*** (0.720)	-9.141*** (1.118)	-5.583*** (1.185)	-5.468*** (1.353)
Reactionary × rich10		20.45*** (1.771)	20.82*** (2.681)	14.84*** (2.968)	14.73*** (3.351)
m5_croi			0.0335 (0.0268)	0.00368 (0.0235)	0.0542** (0.0195)
Reactionary × m5_croi			-0.0745* (0.0297)	-0.0410 (0.0283)	-0.0753** (0.0279)
Democracy score			0.0535 (0.0754)		-0.107** (0.0388)
log unemployment rate			-0.0899 (0.141)		0.0967 (0.114)
Government orientation			0.0595 (0.0705)		0.180*** (0.0443)
Reactionary= × Government orientation			-0.0838 (0.0780)		-0.0745 (0.0688)
Population			-0.330*** (0.0647)		0.00679 (0.0475)
Hard radicalization level				-0.0334 (0.0225)	-0.0417 ⁺ (0.0234)
Soft radicalization level				0.0429*** (0.00845)	0.0375*** (0.00807)
Constant	9.095*** (0.730)	13.04*** (0.885)	31.37*** (3.599)	17.80*** (0.726)	20.95*** (2.907)
Decade fixed effects	No	No	Yes	No	Yes
Organization type fixed effect	No	No	No	Yes	Yes
Source fixed effect	No	No	No	Yes	Yes
Observations	573	573	559	573	559
Number of years	66	66	62	66	62
R ²	0.00307	0.0901	0.163	0.766	0.782

Standard errors in parentheses

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



Appendix – Chapter 9

Table I.1: Distribution of variables across non near-suicide and near-suicide terrorists and bivariate statistical tests

	Non near-suicide (N = 1,150)	Near-suicide (N = 26)	p-value
Suicide risk factors			
Child abuse	3%	23%	.000
History of mental illness	14%	19%	.570
Relationship troubles	25%	40%	.232
Absent parent/s	34%	25%	.592
History of alcohol/drug abuse	13%	15%	.767
Trauma	36%	40%	.787
Other factors			
Mean age (s.d.)	33 (13)	33 (12)	.973
Gender	93%	96%	1.000
Minority status	38%	54%	.152
Immigrant	13%	15%	.764
Military experience	16%	12%	.784
Previous criminal activity	45%	56%	.313
Education			.355
Less than high school	17%	11%	
High school diploma	26%	16%	
More than high school	57%	74%	
Social stratum			.907
Low	8%	0%	
Medium	63%	55%	
High	29%	45%	
Ideology			.096
Far-left	12%	21%	
Far-right	55%	33%	
Islamist	34%	46%	
Lone	24%	38%	.109
Mean share of valid values (s.d.)	64 (15)	80 (12)	.000

Notes. Sample size varies across variables. P-values < .05 in bold. P-values are based on Fisher's exact test (two-tailed) for binary variables, chi2 test for education, social stratum and ideology, and t-test (two-tailed) for age and share of valid values.

Table I.2: Effect of suicide risk factors on near-suicide (versus non near-suicide) terrorism (Odds ratios from logistic regression)

	(1)
Child abuse	3.942** (2.042)
Share of valid values	1.069*** (0.0170)
Observations	1176
Pseudo R^2	0.136

Standard errors in parentheses
⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table I.3: Description of Study 2 variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Number of suicide attacks	2971	.55	6.88	0	236
Number of non-suicide attacks	2971	21.3	112	0	3133
Share of deaths from suicide t_{-1}	2971	1.31	.863	.109	6.61
Share of Muslim t_{-1}	2971	.256	.359	0	1
Log GDP per capita t_{-1}	2971	7.75	1.66	4.17	11.5
Log Population t_{-1}	2971	16.4	1.37	13.3	21
Discriminated population t_{-1}	2971	.0374	.104	0	.84
Democracy t_{-1}	2971	3.44	6.35	-10	10
Regime durability t_{-1}	2971	25	32.1	0	204
Civil war t_{-1}	2971	.161	.793	0	6
Foreign military occupation t_{-1}	2971	.0313	.174	0	1

Table I.4: Effect of the share of depression on the number of suicide and non-suicide terrorist attacks (unstandardized coefficients from negative binomial regression)

Dependent variable	(1)	(2)	(3)	(4)
	Suicide attacks		Non-suicide attacks	
Share of depression t_{-1}	0.547*	4.237**	-0.0646	-0.235
	(0.240)	(1.415)	(0.0640)	(0.497)
Share of Muslim t_{-1}	4.168***	-14.82	0.558***	-4.657
	(0.421)	(10.11)	(0.137)	(3.039)
Log GDP per capita t_{-1}	-0.0262	1.564***	0.0358	0.200
	(0.105)	(0.427)	(0.0371)	(0.139)
Log Population t_{-1}	1.037***	8.663***	0.984***	2.820***
	(0.106)	(2.046)	(0.0360)	(0.559)
Discriminated population t_{-1}	6.937***	6.945*	1.883***	-1.522
	(1.150)	(2.923)	(0.410)	(0.878)
Democracy t_{-1}	0.166***	0.0549	0.0783***	0.0299
	(0.0334)	(0.0412)	(0.0102)	(0.0164)
Regime durability t_{-1}	0.00497	-0.0279	-0.0106***	-0.0150**
	(0.00513)	(0.0145)	(0.00157)	(0.00529)
Civil war t_{-1}	-0.0172	0.274	0.388***	0.327***
	(0.140)	(0.152)	(0.0548)	(0.0602)
Foreign military occupation t_{-1}	0.274	0.271	0.491*	1.148*
	(0.603)	(0.999)	(0.234)	(0.491)
Constant	-23.33***	-164.2***	-14.46***	-39.70***
	(1.913)	(35.86)	(0.668)	(9.673)
Inalpha	2.924***	0.508***	1.486***	-0.112*
	(0.0959)	(0.139)	(0.0303)	(0.0559)
Country fixed effects	No	Yes	No	Yes
Year fixed effects	No	Yes	No	Yes
Observations	2971	1094	2971	1094
Pseudo R^2	0.120	0.291	0.0616	0.194

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Models (2) and (4) exclude countries with no records of suicide attacks in the study period

Table I.5: Effect of the share of deaths from suicide on the number of suicide and non-suicide terrorist attacks, split samples (unstandardized coefficients from negative binomial regression)

Dependent variable	(1)	(2)	(3)	(4)
	Suicide attacks		Non-suicide attacks	
Share of deaths from suicide t_{-1}	1.291*** (0.179)	1.075*** (0.138)	-0.0399 (0.0477)	0.114 (0.0653)
Share of Muslim t_{-1}	1.937** (0.663)	5.885*** (0.473)	-0.348 (0.179)	1.211*** (0.210)
Log GDP per capita t_{-1}	0.207 (0.194)	0.334** (0.119)	-0.0923 (0.0490)	0.166** (0.0555)
Log Population t_{-1}	0.804*** (0.181)	1.178*** (0.110)	0.852*** (0.0502)	1.134*** (0.0511)
Discriminated population t_{-1}	8.703*** (1.536)	10.000*** (1.256)	1.679*** (0.463)	2.519*** (0.760)
Democracy t_{-1}	0.107* (0.0485)	0.133*** (0.0331)	0.0770*** (0.0119)	0.0809*** (0.0160)
Regime durability t_{-1}	-0.0179 (0.0114)	-0.00828 (0.00466)	-0.00469* (0.00215)	-0.0131*** (0.00250)
Civil war t_{-1}	0.419* (0.212)	0.483** (0.169)	0.391*** (0.0561)	0.460*** (0.119)
Foreign military occupation t_{-1}	-18.97 (26608.5)	0.464 (0.676)	-0.108 (0.350)	0.746* (0.337)
Constant	-22.07*** (4.216)	-28.88*** (2.209)	-11.18*** (0.861)	-18.84*** (0.922)
Inalpha	2.025*** (0.331)	2.257*** (0.106)	1.025*** (0.0462)	1.703*** (0.0431)
Period	Before 2001	After 2001	Before 2001	After 2001
Observations	1105	1733	1105	1733
Pseudo R^2	0.224	0.189	0.0601	0.0733

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

J

Appendix – Chapter 10

1. Study 1

Table J.1: ISIS lone wolves attacks in the GTD (December 2014-2016)

Date	City	Country	Number of casualties	Perpetrated by national(s)?	Reference
December 15, 2014	Sydney	Australia	7	Yes	1
December 18, 2014	Morganton	US	1	Yes	2
December 20, 2014	Joue-les-Tours	France	4	Yes	3
January 7, 2015	Paris	France	1	Yes	4
January 8, 2015	Paris	France	2	Yes	5
January 9, 2015	Paris	France	8	Yes	6
February 14, 2015	Copenhagen	Denmark	3	Yes	7
February 14, 2015	Copenhagen	Denmark	4	Yes	8
April 19, 2015	Paris	France	1	No	9
May 3, 2015	Garland	US	3	Yes	10 / 11 / 12
June 26, 2015	Saint-Quentin-Fallavier	France	3	Yes	13
October 2, 2015	Parramatta	Australia	2	Yes	14
November 4, 2015	Merced	US	5	Yes	15
December 2, 2015	San Bernardino	US	33	Mixed	16 / 17
December 5, 2015	London	UK	3	Yes	18
January 7, 2016	Paris	France	1	No	19
January 7, 2016	Philadelphia	US	2	Yes	20

¹<https://www.abc.net.au/news/2017-05-22/lindt-cafe-sydney-siege-gunman-man-haron-monis/8375858>

²<https://www.counterextremism.com/extremists/justin-sullivan>

³https://www.lepoint.fr/societe/qui-est-bertrand-nzohabonayo-1-agresseur-de-joue-les-tours-21-12-2014-1891481_23.php

⁴<https://www.counterextremism.com/extremists/amedy-coulibaly>

⁵<https://www.counterextremism.com/extremists/amedy-coulibaly>

⁶<https://www.counterextremism.com/extremists/amedy-coulibaly>

⁷<https://www.independent.co.uk/news/world/europe/copenhagen-shootings-suspected-gunman-omar-abdel-hamid-el-hussein-was-a-danish-national-with-a-10047741.html>

⁸<https://www.independent.co.uk/news/world/europe/copenhagen-shootings-suspected-gunman-omar-abdel-hamid-el-hussein-was-a-danish-national-with-a-10047741.html>

⁹<https://www.lefigaro.fr/actualite-france/2015/04/24/01016-20150424ARTFIG00367-que-risque-sid-ahmed-ghlam-sur-le-plan-penal.php>

¹⁰<https://www.counterextremism.com/extremists/elton-simpson>

¹¹<https://www.counterextremism.com/extremists/nadir-soofi>

¹²<https://www.counterextremism.com/extremists/abdul-malik-abdul-kareem>

¹³<https://www.bbc.com/news/world-europe-35166691>

¹⁴<https://thediplomat.com/2015/11/australia-faces-tough-choices-on-immigration-and-terrorism/>

¹⁵<https://www.bbc.com/news/world-us-canada-35838588>

¹⁶<https://www.counterextremism.com/extremists/syed-rizwan-farook>

¹⁷<https://www.counterextremism.com/extremists/tashfeen-malik>

¹⁸<https://www.thedailybeast.com/san-bernardino-inspired-british-attempted-beheader>

¹⁹https://www.lepoint.fr/societe/sallah-ali-ce-que-l-on-sait-du-terroriste-du-commissariat-de-paris-08-01-2016-2008024_23.php

²⁰<https://www.counterextremism.com/extremists/edward-archer>

January 11, 2016	Marseille	France	1	Yes	21
January 11, 2016	Sungai Petani	Malaysia	0	Yes	22
February 5, 2016	Hanover	Germany	0	Yes	23
February 18, 2016	Rochdale	UK	1	Yes	24
April 16, 2016	Essen	Germany	3	Yes	25
June 12, 2016	Orlando	US	103	Yes	26
June 13, 2016	Magnanville	France	3	Yes	27
July 14, 2016	Nice	France	520	No	28
July 18, 2016	Wurzburg	Germany	6	No	29
July 24, 2016	Ansbach	Germany	16	No	30
July 26, 2016	Saint-Etienne-du-Rouvray	France	4	Yes	31 / 32
August 10, 2016	Strathroy	Canada	2	Yes	33
August 28, 2016	Medan	Indonesia	2	Yes	34
September 1, 2016	Copenhagen	Denmark	4	Yes	35
September 4, 2016	Paris	France	0	Yes	36
September 10, 2016	Minto	Australia	1	Yes	37
September 17, 2016	Seaside Park	US	0	Yes	38
September 17, 2016	New York City	US	29	Yes	39
September 17, 2016	New York City	US	0	Yes	40
September 18, 2016	Elizabeth	US	0	Yes	41
October 8, 2016	Unknown	Kuwait	1	No	42
November 26, 2016	Ludwigshafen	Germany	0	Yes	43

²¹<https://www.timesofisrael.com/french-teen-who-attacked-jewish-teacher-with-machete-gets-7-years-in-jail/>

²²<https://www.freemalaysiatoday.com/category/nation/2016/01/12/kedahan-arrested-for-holding-woman-at-knife-point-is-style/>

²³<https://www.thelocal.de/20170126/16-year-old-isis-sympathizer-gets-to-six-years-jail-for-stabbing-officer>

²⁴<https://www.theguardian.com/uk-news/2016/aug/24/rochdale-imam-jalal-uddin-killer-fled-to-turkey-court-hears>

²⁵<https://www.refworld.org/docid/5981e43da.html>

²⁶<https://www.counterextremism.com/extremists/omar-mateen>

²⁷<https://time.com/4367986/larossi-abballa-isis-paris-killed-police/>

²⁸https://www.lexpress.fr/actualite/societe/mohamed-lahouaiej-bouhleb-le-tueur-de-l-attentat-de-nice_1814155.html

²⁹<https://www.refworld.org/docid/5981e43da.html>

³⁰<https://www.refworld.org/docid/5981e43da.html>

³¹<https://www.counterextremism.com/extremists/abdel-malik-petitjean>

³²<https://www.counterextremism.com/extremists/adel-kermiche>

³³<https://globalnews.ca/news/2876837/aaron-driver-what-we-know-about-the-canadian-terror-suspect-killed-in-ontario/>

³⁴<https://www.reuters.com/article/us-indonesia-security-church-idUSKCN1140DD>

³⁵<https://www.thelocal.dk/20160901/christiania-shooter-is-isis-sympathizer>

³⁶<https://www.nouvelobs.com/societe/terrorisme/20180911.OBS2128/tentative-d-attentat-pres-de-notre-dame-ornella-et-ines-une-romance-djihadiste.html>

³⁷<https://www.jpost.com/Diaspora/Australian-terrorist-planned-to-kill-kippah-wearing-Jewish-students-590883>

³⁸<https://www.counterextremism.com/extremists/ahmad-khan-rahami>

³⁹<https://www.counterextremism.com/extremists/ahmad-khan-rahami>

⁴⁰<https://www.counterextremism.com/extremists/ahmad-khan-rahami>

⁴¹<https://www.counterextremism.com/extremists/ahmad-khan-rahami>

⁴²<https://www.ndtv.com/world-news/kuwait-arrests-isis-member-over-us-truck-ramping-attack-1471954>

⁴³<https://www.bbc.com/news/world-europe-38343124>

November 28, 2016	Columbus	US	12	No	44
December 5, 2016	Ludwigshafen	Germany	0	Yes	45
December 19, 2016	Berlin	Germany	1	No	46
December 19, 2016	Berlin	Germany	60	No	47
December 23, 2016	Milan	Italy	2	No	48
Total			854		

Note: Iraq and Syria excluded from the sample

Table J.2: ISIS affiliated terrorists attacks in the GTD (December 2014-2016)

Date	City	Country	Number of casualties	Perpetrated by national(s)?	Reference	Doubt link link with ISIS
January 6, 2015	Istanbul	Turkey	3	Unknown	49	Yes
January 10, 2015	Tripoli	Lebanon	47	Yes	50	
January 19, 2015	Arsal	Lebanon	1	Unknown	51	
January 20, 2015	Arsal	Lebanon	0	Unknown	52	
January 23, 2015	Ras Baalbek	Lebanon	48	Unknown	53	
January 30, 2015	Arsal	Lebanon	0	Unknown	54	
March 18, 2015	Arsal	Lebanon	1	No	55	
March 30, 2015	Arsal	Lebanon	0	No	56	
April 12, 2015	Arsal	Lebanon	0	No information		
April 13, 2015	Arsal	Lebanon	0	No information		
April 17, 2015	Arsal	Lebanon	1	No information		
April 20, 2015	Aritis	Turkey	1	Unknown	57	
May 18, 2015	Adana	Turkey	6	Unknown	58	Yes
May 18, 2015	Mersin	Turkey	0	Unknown	59	Yes

⁴⁴<https://www.bbc.com/news/world-us-canada-38136658>

⁴⁵<https://www.bbc.com/news/world-us-canada-38136658>

⁴⁶<https://www.bbc.com/news/world-europe-38415287>

⁴⁷<https://www.bbc.com/news/world-europe-38415287>

⁴⁸<https://www.bbc.com/news/world-europe-38415287>

⁴⁹<https://www.bbc.com/news/world-europe-30707871>

⁵⁰<https://www.reuters.com/article/us-lebanon-attack/islamic-state-carried-out-lebanon-cafe-attack-minister-idUSKBN0KKOKS20150111>

⁵¹<http://www.naharnet.com/stories/en/173567>

⁵²http://www.dailystar.com.lb/News/Lebanon-News/2015/Jan-22/284959-gunmen-release-2-of-3-kidnapped-arsal-residents.ashx?utm_source=Magnet%26utm_medium=Entity%20page%26utm_campaign=Magnet%20tools

⁵³<https://civilsociety-centre.org/timeliness/4929#event-a-href-sir-two-syrians-injured-gunfire-qaatwo-syrians-injured-in-gunfire-in-qa-a>

⁵⁴<http://www.dailystar.com.lb/News/Lebanon-News/2015/Jan-30/285821-isis-kidnaps-arsal-man.ashx>

⁵⁵<http://www.dailystar.com.lb/News/Lebanon-News/2015/Mar-30/292698-arsal-man-kidnapped-in-apparent-tit-for-tat-act.ashx>

⁵⁶<http://www.naharnet.com/stories/en/173604>

⁵⁷<https://edition.cnn.com/2015/12/17/world/mapping-isis-attacks-around-the-world/index.html>

⁵⁸<https://www.aljazeera.com/news/2015/05/turkey-pro-kurdish-party-rocked-twin-bomb-attacks-150519034134519.html>

⁵⁹<https://www.aljazeera.com/news/2015/05/turkey-pro-kurdish-party-rocked-twin-bomb-attacks-150519034134519.html>

June 5, 2015	Diyarbakir	Turkey	53	Unknown	60	
June 5, 2015	Diyarbakir	Turkey	52	Unknown	61	
July 20, 2015	Suruc	Turkey	135	Yes	62	
July 23, 2015	Unknown	Turkey	4	Unknown	63	
August 10, 2015	Istanbul	Turkey	1	Yes	64	Yes
August 21, 2015	Arras	France	3	No	65	
September 1, 2015	Kilis	Turkey	1	Unknown	66	
October 10, 2015	Ankara	Turkey	350	Yes	67	
October 17, 2015	Damistan	Bahrain	0	Unknown	68	
October 17, 2015	Hamala	Bahrain	0	Unknown	69	
October 30, 2015	Sanliurfa	Turkey	2	Unknown	70	
November 5, 2015	Arsal	Lebanon	12	Unknown	71	
November 9, 2015	Muwaqqar	Jordan	13	Yes	72	
November 12, 2015	Beirut	Lebanon	142	No	73	
November 12, 2015	Beirut	Lebanon	143	No	74	
November 13, 2015	Paris	France	19	Mixed	75	
November 13, 2015	Paris	France	310	Mixed	76	
November 13, 2015	Paris	France	41	Mixed	77	
November 13, 2015	Paris	France	29	Mixed	78	
November 13, 2015	Saint Denis	France	35	Mixed	79	
November 13, 2015	Saint Denis	France	35	Mixed	80	

⁶⁰<https://www.reuters.com/article/turkey-election-blast/gas-cylinder-bomb-caused-blast-at-turkish-election-rally-sources-idINKBN00M08S20150606>

⁶¹<https://www.reuters.com/article/turkey-election-blast/gas-cylinder-bomb-caused-blast-at-turkish-election-rally-sources-idINKBN00M08S20150606>

⁶²<https://www.bbc.com/news/world-europe-33619043>

⁶³<https://www.bbc.com/news/world-europe-33641315>

⁶⁴<http://www.hurriyetdailynews.com/senior-dhkp-c-militant-captured-in-istanbul-140963>

⁶⁵<https://edition.cnn.com/2015/08/24/europe/france-train-attack-what-we-know-about-suspect/>

⁶⁶<https://news.yahoo.com/turkish-soldier-killed-another-missing-fire-territory-syria-200039635.html>

⁶⁷<https://www.theguardian.com/world/2015/oct/19/ankara-suicide-bomber-was-brother-of-suspect-in-previous-attack-turkey-says>

⁶⁸<http://www.byislam.com/en/bahraini-scholars-issue-statement-over-attacks-on-muharram-mourners/>

⁶⁹<http://www.byislam.com/en/bahraini-scholars-issue-statement-over-attacks-on-muharram-mourners/>

⁷⁰<https://news.un.org/en/story/2015/11/514882-murder-two-syrian-citizen-journalists-condemned-unesco-chief>

⁷¹<https://www.bbc.com/news/world-middle-east-34735117>

⁷²<https://www.reuters.com/article/us-mideast-crisis-jordan-insight-idUSKCN0T029720151111>

⁷³<https://www.dailystar.com.lb/News/Lebanon-News/2015/Nov-12/322821-isis-claims-responsibility-for-beirut-southern-suburb-attack-statement.ashx>

⁷⁴<https://www.dailystar.com.lb/News/Lebanon-News/2015/Nov-12/322821-isis-claims-responsibility-for-beirut-southern-suburb-attack-statement.ashx>

⁷⁵<https://www.bbc.com/news/world-europe-34832512>

⁷⁶<https://www.bbc.com/news/world-europe-34832512>

⁷⁷<https://www.bbc.com/news/world-europe-34832512>

⁷⁸<https://www.bbc.com/news/world-europe-34832512>

⁷⁹<https://www.bbc.com/news/world-europe-34832512>

⁸⁰<https://www.bbc.com/news/world-europe-34832512>

November 13, 2015	Saint Denis	France	36	Mixed	81	
November 13, 2015	Paris	France	45	Mixed	82	
November 14, 2015	Oguzeli district	Turkey	4	Unknown	83	
December 1, 2015	Istanbul	Turkey	5	Unknown	84	
December 27, 2015	Gaziantep	Turkey	1	Unknown	85	
January 8, 2016	Arsal	Lebanon	2	Unknown	86	
January 12, 2016	Istanbul	Turkey	26	No	87	
January 14, 2016	Arsal	Lebanon	1	Unknown	88	
January 18, 2016	Kilis	Turkey	3	No	89	
January 28, 2016	Karkamis	Turkey	0	Unknown	90	
February 3, 2016	Karkamis	Turkey	0	Mixed	91	
February 3, 2016	Karkamis	Turkey	0	Mixed	92	
February 3, 2016	Karkamis district	Turkey	0	Mixed	93	
February 3, 2016	Karkamis district	Turkey	0	Mixed	94	
February 26, 2016	Hanover	Germany	1	Yes	95	
March 8, 2016	Kilis	Turkey	0	Unknown	96	
March 8, 2016	Kilis	Turkey	3	Unknown	97	
March 8, 2016	Kilis	Turkey	0	Unknown	98	
March 8, 2016	Kilis	Turkey	0	Unknown	99	
March 19, 2016	Istanbul	Turkey	41	Yes	100	Yes

⁸¹<https://www.bbc.com/news/world-europe-34832512>

⁸²<https://www.bbc.com/news/world-europe-34832512>

⁸³<https://www.reuters.com/article/us-mideast-crisis-turkey/four-islamic-state-fighters-shot-dead-by-turkish-soldiers-media-idUSKCN0T406P20151115>

⁸⁴<https://www.straitstimes.com/world/europe/blast-hits-istanbul-metro-bomb-suspected>

⁸⁵<https://www.thejakartapost.com/news/2016/01/10/turkey-3-arrested-over-killing-syrian-journalist.html>

⁸⁶<https://www.youtube.com/watch?v=Bsjh2HPpVIA>

⁸⁷<https://www.questia.com/newspaper/1P2-39180317/arrest-is-made-in-deadly-istanbul-attack>

⁸⁸<https://www.middleeastpressreleases.com/one-injured-in-arsal-blast/>

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¹⁰⁰<https://www.reuters.com/article/us-turkey-blast-bursa-claim-idUSKCN0XS1F9>

March 22, 2016	Zaventem	Belgium	153	Yes	101	
March 22, 2016	Brussels	Belgium	152	Mixed	102	
March 22, 2016	Unknown	Turkey	0	Mixed	103	
April 4, 2016	Gaziantep	Turkey	0	Unknown	104	Yes
April 5, 2016	Unknown	Turkey	1	Unknown	105	
April 7, 2016	Kilis	Turkey	1	Unknown	106	
April 7, 2016	Kilis	Turkey	2	Unknown	107	
April 10, 2016	Gaziantep	Turkey	1	Unknown	108	
April 11, 2016	Kilis	Turkey	12	Unknown	109	
April 12, 2016	Kilis	Turkey	8	Unknown	110	
April 13, 2016	Unknown	Turkey	0	Unknown	111	
April 18, 2016	Kilis	Turkey	8	Unknown	112	
April 18, 2016	Kilis	Turkey	0	Unknown	113	
April 18, 2016	Kilis	Turkey	2	Unknown	114	
April 18, 2016	Kilis	Turkey	0	Unknown	115	
April 19, 2016	Kilis	Turkey	1	Unknown	116	
April 19, 2016	Kilis	Turkey	1	Unknown	117	
April 19, 2016	Kilis	Turkey	1	Unknown	118	

¹⁰¹<https://www.npr.org/sections/thetwo-way/2016/03/22/471391497/what-we-know-terrorist-bombing-at-brussels-airport?t=1568403176454>

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¹⁰⁴<https://www.start.umd.edu/gtd/search/IncidentSummary.aspx?gtdid=201604050049&print=yes>

¹⁰⁵<https://www.todayonline.com/world/one-turkish-soldier-wounded-islamic-state-fires-army-outpost-near-border-agency>

¹⁰⁶https://www.menafn.com/qn_news_story_s.aspx?storyid=1094693504&title=Two-rocket-projectiles-from-Syria-hit-Turkish-border-town-wound-two&src=RSS

¹⁰⁷https://www.menafn.com/qn_news_story_s.aspx?storyid=1094693504&title=Two-rocket-projectiles-from-Syria-hit-Turkish-border-town-wound-two&src=RSS

¹⁰⁸<https://en.unesco.org/news/director-general-condemns-killing-syrian-journalists-naji-jeff-zakaria-ibrahim-and-batoul>

¹⁰⁹<https://www.rt.com/news/339222-kilis-turkey-syria-rocket/>

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¹¹³<https://www.abc.net.au/news/2016-04-19/four-dead-as-rockets-hit-teachers'-dormitory-in-turkish-town/7336574>

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¹¹⁵<https://www.abc.net.au/news/2016-04-19/four-dead-as-rockets-hit-teachers'-dormitory-in-turkish-town/7336574>

¹¹⁶<https://www.dailysabah.com/turkey/2016/04/19/house-in-kilis-on-fire-after-being-hit-by-rockets-from-syria>

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¹¹⁸<https://www.dailysabah.com/turkey/2016/04/19/house-in-kilis-on-fire-after-being-hit-by-rockets-from-syria>

April 22, 2016	Unknown	Turkey	9	Unknown	119	
April 24, 2016	Kilis	Turkey	8	Unknown	120	
April 24, 2016	Kilis	Turkey	11	Unknown	121	
April 24, 2016	Kilis	Turkey	8	Unknown	122	
April 28, 2016	Karkamis	Turkey	0	Unknown	123	
May 1, 2016	Kilis	Turkey	2	Unknown	124	
May 1, 2016	Gaziantep	Turkey	38	Unknown	125	
May 1, 2016	Kilis	Turkey	2	Unknown	126	
May 1, 2016	Kilis	Turkey	2	Unknown	127	
May 2, 2016	Kilis	Turkey	1	Unknown	128	
May 2, 2016	Kilis	Turkey	2	Unknown	129	
May 5, 2016	Kilis	Turkey	0	Unknown	130	
May 5, 2016	Kilis	Turkey	1	Unknown	131	
May 5, 2016	Kilis	Turkey	3	Unknown	132	
May 6, 2016	Istanbul	Turkey	1	Yes	133	Yes
May 27, 2016	Unknown	Turkey	0	Unknown	134	
May 27, 2016	Elbeyli district	Turkey	5	Unknown	135	

¹¹⁹<http://www.hurriyetdailynews.com/16-wounded-as-two-rocket-projectiles-fired-from-syria-hit-turkeys-kilis-98241>

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¹²⁷<https://newsinfo.inquirer.net/782576/explosion-in-southern-turkey-kills-policeman-13-wounded>

¹²⁸<https://www.aa.com.tr/en/turkey/new-cross-border-rocket-attack-kills-one-in-se-turkey/565300>

¹²⁹<https://www.aa.com.tr/en/turkey/new-cross-border-rocket-attack-kills-one-in-se-turkey/565300>

¹³⁰<https://www.aa.com.tr/en/turkey/four-people-injured-in-southern-turkey-rocket-attack/566858>

¹³¹<https://www.aa.com.tr/en/turkey/four-people-injured-in-southern-turkey-rocket-attack/566858>

¹³²<https://www.aa.com.tr/en/turkey/four-people-injured-in-southern-turkey-rocket-attack/566858>

¹³³<https://www.independent.co.uk/news/world/europe/turkish-journalist-survives-assassination-attempt-before-receiving-5-year-sentence-for-revealing-a7017816.html>

¹³⁴<http://www.hurriyetdailynews.com/turkish-army-hits-isil-targets-in-syria-says-104-militants-killed-99780>

¹³⁵<http://www.hurriyetdailynews.com/turkish-army-hits-isil-targets-in-syria-says-104-militants-killed-99780>

May 27, 2016	Unknown	Turkey	0	Unknown	136	
June 12, 2016	Sanliurfa	Turkey	1	Unknown	137	
June 21, 2016	Ar-Ruwayshid district	Jordan	21	Unknown	138	
June 21, 2016	Istanbul	Turkey	0	Unknown	139	
June 27, 2016	Qaa	Lebanon	13	No	140	
June 27, 2016	Qaa	Lebanon	17	No	141	
June 27, 2016	Qaa	Lebanon	11	No	142	
June 28, 2016	Istanbul	Turkey	283	No	143	
June 28, 2016	Puchong	Malaysia	8	Yes	144	
August 20, 2016	Gaziantep	Turkey	149	Unknown	145	
August 23, 2016	Karkamis	Turkey	0	Unknown	146	
August 29, 2016	Kilis	Turkey	5	Unknown	147	
September 19, 2016	Unknown	Turkey	0	Unknown	148	
September 22, 2016	Kilis	Turkey	2	Unknown	149	
September 22, 2016	Kilis	Turkey	6	Unknown	150	
October 16, 2016	Rukban	Jordan	24	Unknown	151	
October 16, 2016	Arsal	Lebanon	1	Unknown	152	
October 17, 2016	Sokhumi	Georgia	1	Unknown	153	Yes
November 4, 2016	Diyarbakir	Turkey	114	Unknown	154	Yes

¹³⁶<http://www.hurriyetdailynews.com/turkish-army-hits-isis-targets-in-syria-says-104-militants-killed-99780>

¹³⁷<https://www.reuters.com/article/us-mideast-crisis-syria-activist/syrian-activist-shot-by-islamic-state-fighters-in-southeast-turkey-idUSKCN0YZ100>

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¹⁴⁰<https://www.reuters.com/article/us-mideast-crisis-lebanon/eight-suicide-bombers-target-lebanese-christian-village-idUSKCN0ZD09C>

¹⁴¹<https://www.reuters.com/article/us-mideast-crisis-lebanon/eight-suicide-bombers-target-lebanese-christian-village-idUSKCN0ZD09C>

¹⁴²<https://www.reuters.com/article/us-mideast-crisis-lebanon/eight-suicide-bombers-target-lebanese-christian-village-idUSKCN0ZD09C>

¹⁴³<https://www.bbc.com/news/world-europe-36670576>

¹⁴⁴<https://www.channelnewsasia.com/404>

¹⁴⁵<https://www.independent.co.uk/news/world/europe/turkey-wedding-bomb-latest-child-suicide-attack-erdogan-isis-a7202381.html>

¹⁴⁶<https://www.military.com/daily-news/2016/08/23/turkey-strikes-isis-syria-tensions-rise-border-town.html>

¹⁴⁷<https://www.aljazeera.com/news/2016/04/rockets-syria-strike-turkey-kilis-160424172703622.html>

¹⁴⁸<https://www.dailysabah.com/war-on-terror/2016/09/19/2-daesh-suicide-bombers-detained-in-southeastern-turkey>

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¹⁵¹<https://www.jpost.com/Middle-East/ISIS-Threat/ISIS-suspected-as-suicide-bomber-kills-3-at-refugee-camp-on-Syria-Jordan-border-470257>

¹⁵²<https://www.lbcgroup.tv/news/d/breaking-news/285951/lebanese-army-soldier-shot-dead-in-arsal/en>

¹⁵³<https://www.dw.com/en/man-blows-himself-up-at-tv-station-in-abkhazia/a-36062319-0>

¹⁵⁴<https://www.reuters.com/article/us-turkey-blast-kurds-idUSKBN1310F4?il=0>

December 4, 2016	Bqaa Sifrin	Lebanon	2	Unknown	155
December 18, 2016	Karak	Jordan	43	Yes	156
December 18, 2016	Qatraneh	Jordan	2	Yes	157
December 18, 2016	Karak	Jordan	0	Yes	158
Total			2795		

Note: Iraq and Syria excluded from the sample

Table J.3: Countries Involved in Airstrikes Against ISIS in Iraq or Syria Before December 2016

Country	First airstrikes	Reference
US	August 2014	159
Bahrain	September 2014	160
France	September 2014	161
Jordan	September 2014	162
UK	September 2014	163
United Arab Emirates	September 2014	164
Saudi Arabia	September 2014	165
Australia	October 2014	166
Belgium	October 2014	167

¹⁵⁵<http://www.naharnet.com/stories/en/221572>

¹⁵⁶<https://www.reuters.com/article/us-mideast-crisis-jordan-claim/islamic-state-claims-responsibility-for-shootout-at-jordanian-castle-statement-idUSKBN1491GN>

¹⁵⁷<https://www.reuters.com/article/us-mideast-crisis-jordan-claim/islamic-state-claims-responsibility-for-shootout-at-jordanian-castle-statement-idUSKBN1491GN>

¹⁵⁸<https://www.reuters.com/article/us-mideast-crisis-jordan-claim/islamic-state-claims-responsibility-for-shootout-at-jordanian-castle-statement-idUSKBN1491GN>

¹⁵⁹https://edition.cnn.com/2014/08/08/world/iraq-options/index.html?hpt=hp_t1

¹⁶⁰<https://www.reuters.com/article/us-syria-crisis-usa-strikes/u-s-and-arab-allies-launch-first-strikes-on-militants-in-syria-idUSKCN0HIO3A20140923>

¹⁶¹<https://www.defense.gouv.fr/operations/chammal/actualites/irak-premieres-frappes-francaises>

¹⁶²<https://www.reuters.com/article/us-syria-crisis-usa-strikes/u-s-and-arab-allies-launch-first-strikes-on-militants-in-syria-idUSKCN0HIO3A20140923>

¹⁶³<https://www.gov.uk/government/news/raf-tornado-jets-fly-ready-for-attack-role-over-iraq>

¹⁶⁴<https://www.reuters.com/article/us-syria-crisis-usa-strikes/u-s-and-arab-allies-launch-first-strikes-on-militants-in-syria-idUSKCN0HIO3A20140923>

¹⁶⁵<https://www.reuters.com/article/us-syria-crisis-usa-strikes/u-s-and-arab-allies-launch-first-strikes-on-militants-in-syria-idUSKCN0HIO3A20140923>

¹⁶⁶<https://web.archive.org/web/20141006120200/http://news.defence.gov.au/2014/10/02/australian-air-task-group-commences-operational-missions-over-iraq/>

¹⁶⁷<https://www.mil.be/nl/artikel/zevenduizend-vlieguren-boven-irak-en-syrie>

Denmark	October 2014	168
Netherlands	October 2014	169
Canada	November 2014	170
Iran	December 2014	171
Morocco	December 2014	172
Turkey	July 2015	173
Russia	September 2015	174

Note: Iraq and Syria excluded from the sample

Table J.4: Main variables description for Study 1

Variable	Obs	Mean	Std. Dev.	Min	Max
Number of attacks directed by ISIL	155	.703	5.72	0	68
Number of attacks inspired by ISIL	155	.213	1.13	0	9
Number of foreign fighters	155	174	625	0	6000
Military intervention against ISIL	155	.271	.627	0	2
Share of Sunni population	155	.212	.326	0	.99
Youth unemployment rate	155	.165	.122	.00345	.535
Sunni discriminated minority	155	.239	.428	0	1
logged Population	155	16.2	1.57	13.2	21
logged GDP per capita	155	8.57	1.5	5.75	11.7
Democracy score	155	4.43	5.93	-10	10
Distance to Iraq	155	5.77	3.81	.56	15.6

Note: Syria and Iraq are excluded from the sample

¹⁶⁸<https://www.fmn.dk/eng/allabout/Pages/the-effort-against-isil.aspx>

¹⁶⁹<https://nltimes.nl/2014/09/24/dutch-parliament-commits-soldiers-f-16s-fight-isis-iraq>

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Table J.5: Effect of target selection causes and mobilization causes on the number of casualties from ISIS terrorism (unstandardized coefficients from negative binomial regression)

	Nb casualties from lone wolves attacks			Nb casualties from affiliated terrorists attacks		
	(1)	(2)	(3)	(4)	(5)	(6)
Target selection causes						
Military interventionism against ISIS (no as reference)						
Military support of the coalition	1.394 (1.881)		4.277 (4.322)	5.280* (2.613)		6.250 (4.391)
Airstrikes in Iraq or Syria	5.554** (1.943)		8.422+ (4.400)	5.285* (2.543)		6.938+ (3.682)
Mobilization causes						
Share of Sunni population		23.40 (39.05)	42.84 (35.91)		9.802 (12.50)	12.68 (11.33)
Youth unemployment rate		-2.541 (12.85)	13.59 (13.52)		-6.516 (25.22)	1.712 (19.47)
Share of Sunni population × Youth unemployment rate		-45.15 (199.3)	-9.101 (190.4)		4.166 (46.48)	-20.75 (40.39)
Sunni discriminated minority		2.946 (2.302)	3.201+ (1.929)		1.567 (2.783)	-1.333 (3.233)
Controls						
log Population	1.071** (0.362)	1.290* (0.533)	1.352** (0.480)	0.882 (0.820)	0.0956 (1.290)	0.347 (1.096)
log GDP per capita	-0.168 (0.847)	6.556 (4.513)	10.26+ (6.009)	0.904 (0.934)	3.322* (1.354)	0.790 (1.248)
Democracy score	1.314+ (0.697)	1.761 (1.252)	4.739+ (2.695)	0.0808 (0.233)	0.558 (0.430)	0.485 (0.427)
Distance to Iraq	-0.0434 (0.141)	0.0619 (0.198)	0.0141 (0.150)	-0.336 (0.359)	-1.099 (0.868)	-0.591 (0.736)
Constant	-32.23** (11.26)	-110.4+ (63.34)	-191.7+ (101.4)	-23.76+ (14.35)	-33.70 (22.30)	-18.95 (20.71)
Inalpha	0.703 (0.574)	1.383** (0.470)	0.0254 (0.505)	3.692*** (0.416)	3.658*** (0.396)	3.398*** (0.414)
Observations	155	155	155	155	155	155
Pseudo R ²	0.410	0.365	0.510	0.113	0.125	0.143

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: Iraq and Syria excluded from the sample

Table J.6: Countries involved in military strikes against groups affiliated to ISIL before the end of the study period (December 2016)

Country	First airstrikes	Reference
Benin	February 2015	175
Cameroon	February 2015	176
Chad	February 2015	177
Egypt	February 2015	178
Niger	February 2015	179
US	November 2015	180

Note: Nigeria, Libya, Yemen, Sudan and Afghanistan excluded from the sample

¹⁷⁵<https://www.csmonitor.com/World/Latest-News-Wires/2015/0207/Nigeria-postpones-elections-focuses-on-major-offensive-against-Boko-Haram>

¹⁷⁶<https://www.csmonitor.com/World/Latest-News-Wires/2015/0207/Nigeria-postpones-elections-focuses-on-major-offensive-against-Boko-Haram>

¹⁷⁷<https://www.csmonitor.com/World/Latest-News-Wires/2015/0207/Nigeria-postpones-elections-focuses-on-major-offensive-against-Boko-Haram>

¹⁷⁸<https://www.theguardian.com/world/2015/feb/16/egypt-air-strikes-target-isis-weapons-stockpiles-libya>

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¹⁸⁰<https://www.thedailybeast.com/us-kills-leader-of-isis-in-libya>

Table J.7: Effect of target selection causes and mobilization causes on patterns of violence related to ISIS and groups that declared allegiance to ISIS (unstandardized coefficients from negative binomial regression)

	Nb foreign fighters			Nb lone wolves attacks			Nb affiliated terrorists attacks from ISIS and groups that declared allegiance			Nb affiliated terrorists attacks from groups that declared allegiance		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Target selection causes												
Strikes against ISIS or groups that declared allegiance	1.843 ⁺ (0.950)		0.334 (0.790)	1.872* (0.738)		2.508* (1.127)	1.722 (1.305)		2.629* (1.045)			
Strikes against groups that declared allegiance										2.526 (2.359)		5.811* (2.513)
Mobilization causes												
Share of Sunni population		3.866* (1.686)	3.914* (1.664)		15.94 (13.37)	25.50 (15.89)		-0.506 (2.077)			-0.638 (4.089)	-0.413 (3.275)
Youth unemployment rate		1.195 (2.654)	1.235 (2.586)		1.713 (4.466)	-1.828 (8.310)		-2.919 (5.084)			-15.49 (15.87)	-16.05 (11.08)
Share of Sunni population × Youth unemployment rate		8.218 (7.348)	7.585 (7.348)		-33.85 (76.86)	-76.30 (69.51)		6.503 (8.996)			19.74 (21.82)	31.46 ⁺ (16.12)
Sunni discriminated minority		2.286*** (0.626)	2.256*** (0.629)		1.299 (0.790)	1.933* (0.958)		2.106* (0.956)			3.705* (1.488)	3.715** (1.376)
Controls												
log Population	0.427 ⁺ (0.248)	0.312 ⁺ (0.181)	0.289 (0.184)	0.874** (0.277)	1.022*** (0.283)	0.787** (0.280)	1.381*** (0.285)	0.963** (0.333)	0.703* (0.327)	1.700*** (0.439)	0.917 ⁺ (0.554)	0.986 ⁺ (0.506)
log GDP per capita	0.381 (0.235)	1.476*** (0.196)	1.434*** (0.217)	1.074 ⁺ (0.549)	4.057** (1.456)	4.378* (2.048)	-0.101 (0.330)	0.0500 (0.293)	-0.253 (0.288)	0.571 ⁺ (0.343)	0.0349 (0.474)	0.107 (0.392)
Democracy score	0.0578 (0.0497)	0.0755 (0.0563)	0.0748 (0.0553)	0.168 (0.231)	0.310 (0.267)	0.454 (0.284)	-0.00257 (0.0849)	-0.0992 (0.0772)	0.00337 (0.0872)	-0.00303 (0.105)	-0.0963 (0.139)	-0.0187 (0.113)
Territorial contiguity with positions of ISIS and groups that declared allegiance	2.860*** (0.806)	0.286 (0.832)	0.358 (0.844)	-36.70 (114792412.7)	-39.10 (52835670.1)	-28.82 (152655.6)	3.354*** (0.839)	3.010*** (0.914)	2.033* (0.927)			
Territorial contiguity with positions of groups that declared allegiance										2.287 (1.438)	3.786** (1.426)	-0.555 (1.868)
Constant	-7.224 ⁺ (4.189)	-17.58*** (3.329)	-16.89*** (3.624)	-29.38*** (8.012)	-65.48** (20.67)	-67.82* (28.40)	-23.08*** (6.347)	-17.19* (6.768)	-11.22 ⁺ (6.696)	-33.80*** (9.264)	-16.39 (12.13)	-18.81 ⁺ (10.88)
Inalpha	2.516*** (0.150)	1.975*** (0.163)	1.973*** (0.163)	-0.00786 (0.829)	-0.554 (1.300)	-1.046 (0.922)	2.303*** (0.251)	2.192*** (0.253)	2.060*** (0.251)	2.999*** (0.290)	2.689*** (0.290)	2.512*** (0.295)
Observations	151	151	151	151	151	151	151	151	151	151	151	151
Pseudo R ²	0.0280	0.0758	0.0760	0.400	0.475	0.573	0.117	0.127	0.146	0.0901	0.132	0.150

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: Iraq, Syria, Nigeria, Libya, Somalia, Afghanistan and Yemen excluded from the sample

2. Study 2

Table J.8: Islamist groups involved in domestic terrorism in the GTD (Enders et al., 2011) between 1992 and 2006

Group name	Nb attacks	Percent
<i>Taliban</i>	90	24,19%
<i>Jamā'at Abū Sayyāf</i> (ASG)	29	7,80%
<i>al-Qā'idah</i>	28	7,53%
<i>Ḥizbu 'llāh</i>	27	7,26%
<i>tanẓīm qā'idat al-jihād fī bilād ar-rāfidayn</i>	23	6,18%
<i>al-Jama'ah al-Islamiyah al-Musallaha</i> (GIA)	22	5,91%
<i>Ḥarakat al-Muqāwamah al-'Islāmiyyah</i> (Hamas)	18	4,84%
<i>al-Jamā'ah al-'Islāmiyyah</i> (IG)	18	4,84%
<i>Jabhat Taḥrīr Moro al-'Islāmiyyah</i> (MILF)	16	4,30%
<i>Katā'ib Shuhadā' al-'Aqṣā</i>	14	3,76%
Muslim militants	12	3,23%
<i>sāzmân-e mojâhedîn-e khalq-e irân</i> (PMOI)	11	2,96%
Muslim fundamentalists	10	2,69%
<i>Katā'ib Abū Ḥafṣ al-Maṣrī</i>	9	2,42%
<i>al-Jabhah al-Islāmiyah lil-Inqādh</i> (FIS)	9	2,42%
<i>al-Jamā'h al-Islāmiyah</i> (JI)	9	2,42%
Islamic terrorists	8	2,15%
<i>Jama'at al-Tawhid wal-Jihad</i> (JTJ)	7	1,88%
<i>Fatah al-Majles al-Thawry</i> (ANO)	6	1,61%
Islamic jihad (Ideological grouping)	6	1,61%
Total	372	100,00%

Table J.9: Main variables description for Study 2

Variable	Obs	Mean	Std. Dev.	Min	Max
Number of domestic Islamist events	2214	.0944	.816	0	27
Military politico-strategic intervention in Muslim majority countries	2214	.0623	.242	0	1
Share of Muslim population	2214	.253	.357	0	1
Youth unemployment rate	2214	.173	.121	.00403	.657
Muslim discriminated minority	2214	.26	.439	0	1
logged Population	2214	16	1.58	12.7	21
logged GDP per capita	2214	7.53	1.62	4.17	11.3
Democracy score	2214	3.01	6.63	-10	10
Civil war	2214	.0501	.218	0	1

Table J.10: Effect of target selection causes and mobilization causes on domestic jihadist terrorism, further tests (unstandardized coefficients from negative binomial regression)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Nb domestic jihadist attacks				Nb casualties due to domestic jihadist attacks				
Target selection causes									
Military socio-economic intervention in Muslim majority countries $t-1$	1.356*	1.491*			1.322 ⁺			7.914**	3.457
	(0.629)	(0.616)			(0.682)			(2.446)	(2.469)
Military socio-economic intervention in Muslim majority countries $t+1$				1.188 ⁺					
				(0.652)					
Military politico-strategic intervention in non-Muslim majority countries $t-1$			-0.987						
			(0.760)						
Military politico-strategic intervention in Muslim majority countries $t-1$						7.657***	5.126*		
						(2.218)	(2.397)		
Mobilization causes									
Share of Muslim population $t-1$		-0.646	-0.196	0.346	-0.384	-4.766	-1.947	-4.460	-1.647
		(1.000)	(0.983)	(1.022)	(0.976)	(3.440)	(3.271)	(3.437)	(3.494)
Youth unemployment rate $t-1$		0.131	0.343	0.323	0.255	2.931	-4.258	3.480	-4.977
		(2.524)	(2.419)	(2.471)	(2.467)	(6.544)	(7.385)	(6.783)	(7.938)
Share of Muslim population $t-1$ × Youth unemployment rate $t-1$		7.372 ⁺	5.678	3.948	6.049	17.65	23.10	16.44	24.42
		(4.045)	(3.959)	(4.142)	(3.960)	(12.74)	(14.56)	(12.76)	(14.92)
Muslim discriminated minority $t-1$		1.111**	1.090**	0.809 ⁺	1.197**	1.951 ⁺	5.320***	1.770 ⁺	5.494***

	(0.419)	(0.410)	(0.427)	(0.425)	(1.053)	(1.060)	(1.067)	(1.140)
Controls								
log Population $t-1$	1.131*** (0.164)	0.852*** (0.157)	0.898*** (0.157)	0.889*** (0.167)	0.787*** (0.150)	2.063*** (0.436)	3.093*** (0.603)	2.142*** (0.460)
log GDP per capita $t-1$	1.192*** (0.171)	0.884*** (0.175)	0.906*** (0.173)	0.949*** (0.200)	0.873*** (0.173)	1.548*** (0.422)	1.033* (0.503)	1.805*** (0.410)
Democracy score $t-1$	0.00803 (0.0321)	0.0601 (0.0407)	0.0514 (0.0408)	0.0590 (0.0403)	0.0641+ (0.0389)	-0.153 (0.122)	0.0213 (0.155)	-0.156 (0.132)
Civil war $t-1$	2.103*** (0.479)	1.454** (0.552)	1.479** (0.540)	1.843*** (0.549)	1.608** (0.569)	-0.356 (1.950)	-5.060** (1.890)	0.0552 (1.957)
Constant	-30.06*** (3.635)	-24.27*** (3.499)	-25.18*** (3.511)	-25.13*** (3.824)	-23.08*** (3.432)	-50.86*** (9.678)	-58.91*** (11.95)	-52.83*** (10.29)
Inalpha	2.557*** (0.173)	2.341*** (0.188)	2.310*** (0.191)	2.152*** (0.205)	2.185*** (0.198)	4.558*** (0.144)	4.690*** (0.143)	4.593*** (0.144)
Continent fixed effects	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Year fixed effects	No	No	No	No	Yes	Yes	No	Yes
Observations	2214	2214	2214	1904	2214	2214	2214	2214
Pseudo R^2	0.206	0.227	0.221	0.236	0.240	0.102	0.0905	0.0988

Standard errors in parentheses

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Because of convergence problems, models VII and XI do not include continent fixed effects.

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The compass of violence. Prosperity, decline and the ideological orientation of radical movements

Résumé

Contrairement à une intuition répandue, les contextes de misère économique n'alimentent pas les violences politiques en général. En revanche, les violences commises au nom d'idéologies de droite sont accentuées en période de misère, alors que les violences commises au nom d'idéologies de gauche augmentent en période de prospérité. La présente thèse vise à documenter et expliquer cette relation. La première partie décrit le lien entre économie et violences politiques de droite et de gauche dans les cas français (1882-1980) et étasunien (1948-2016). Sur la base d'enquêtes par sondage, d'expérimentations psychologiques et de données sur les actes terroristes dans les pays démocratiques depuis les années 1970, la deuxième partie montre que le déclin économique favorise la mobilisation d'idéaux réactionnaires, qui contribuent aux violences politiques de droite. Sur la base d'une expérimentation économique et de données sur les actes terroristes, la troisième partie montre que les inégalités économiques diminuent les capacités d'attaque des groupes économiquement dominés vis-à-vis des groupes économiquement dominants, ce qui limite les violences politiques de gauche. La dernière partie de la thèse explore quelques limites de la relation entre économie et violences politiques : dans le cas de violences à motifs apolitiques (e.g. attentats-suicides à motifs suicidaires) et dans le cas de violences participant d'une stratégie politique globale (e.g. djihadisme contemporain).

Mots-clés : Radicalisation, violence politique, terrorisme, privation, inégalités, idéologie

Abstract

Contrary to a widespread opinion, contexts of economic deprivation do not fuel political violence in general. However, violence committed in the name of right-wing ideologies increases in times of deprivation, while violence in the name of left-wing ideologies rises in times of prosperity. This dissertation aims to document and explain this differential effect of economic deprivation. The first part describes the link between economy and political violence of the right and the left in two historical case studies: France (1882-1980) and the United States (1948-2016). Based on cross-national surveys, psychological experiments and data on terrorist attacks in democratic countries since the 1970s, the second part shows that economic decline favors the mobilization of reactionary ideologies that contribute to right-wing political violence. Based on an economic experiment and data on terrorist attacks, the third part shows that economic inequalities reduce the capabilities of economically dominated groups to attack dominant groups, which consequently limits left wing political violence. Finally, the last part of the thesis explores some limits of the relationship between economy and political violence: in the case of violence with apolitical motives (e.g. suicide terrorists with suicidal motives) and in the case of violence entering a transnational strategy (e.g. contemporary jihadism).

Keywords : Radicalization, political violence, terrorism, deprivation, inequality, ideology

