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Alexia Lochmann

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UNIVERSITÉ PARIS 1 PANTHÉON-SORBONNE  
ÉCOLE D'ÉCONOMIE DE PARIS

**THÈSE**

*Pour l'obtention du grade de Docteur de l'Université Paris 1 Panthéon-Sorbonne  
et de l'École d'Économie de Paris en Sciences Économiques.*

Présentée et soutenue publiquement  
en 2020 par

Alexia LOCHMANN

**ESSAYS ON THE ECONOMICS OF  
MIGRATION AND CULTURAL IDENTITY**

**Sous la direction de**

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*Für di, Mami.*



## *Acknowledgments*

When we hike across a glacier, we help, support and protect each other. Tied to the same rope, in an order that allows each member to best use their skills, we manage every expected and unexpected challenge. Even the toughest crevasse can be overcome with the right team. The sight of the mountain top appears and disappears behind the clouds, giving and taking motivation; yet, we never lose hope since we know the view from the top will be all the more stunning. If the choice of the rope team for a challenging glacier hike determines the expedition's success, then I could not have chosen a better team for my PhD journey.

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# Contents

<b>1</b>	<b>Introduction en Français</b>	<b>1</b>
1	Introduction Générale . . . . .	1
2	L'Economie des Migrations et de la Diversité . . . . .	5
2.1	L'Economie des Migrations . . . . .	5
2.2	L'Economie de la Diversité . . . . .	10
3	Contributions et Plan de la thèse . . . . .	13
<b>1</b>	<b>Introduction in English</b>	<b>22</b>
1	General Introduction . . . . .	22
2	The Economics of Migration and Diversity . . . . .	25
2.1	The Economics of Migration . . . . .	25
2.2	The Economics of Diversity . . . . .	30
3	Contribution and Outline of the dissertation . . . . .	33
<b>2</b>	<b>The Effect of Language Training on Immigrants' Economic Integration: Empirical Evidence from France</b>	<b>47</b>
1	Introduction . . . . .	48
2	The French " <i>Contrat d'Accueil et d'Intégration</i> " (CAI) . . . . .	51
3	Data . . . . .	53
3.1	ELIPA . . . . .	54
3.2	Data on Test Results and Outcome Variables . . . . .	54
3.3	Descriptive Statistics . . . . .	55
4	Regression discontinuity design (RDD) . . . . .	56
4.1	Fuzzy RDD . . . . .	57
4.2	Two approaches: local linear regressions and parametric estimates using the whole sample . . . . .	58
4.3	Validity of the RD design . . . . .	59
5	Results . . . . .	62
5.1	Mechanisms . . . . .	65
6	Concluding remarks . . . . .	69
7	Appendix . . . . .	88
7.1	A.1 Selection into or out of training: Robustness checks for possible manipulation of the assignment variable . . . . .	88
<b>3</b>	<b>Culture and Emigration: Evidence from the Hitler-Mussolini Migration Option Agreement.</b>	<b>101</b>
1	Introduction . . . . .	102

2	Historical context . . . . .	105
2.1	Migration decision: The procedure . . . . .	107
3	Data . . . . .	108
4	Empirical Strategy . . . . .	109
5	Results . . . . .	114
5.1	Heterogeneity of effects . . . . .	117
5.2	Alternative explanations: Selection-into-migration by the Gov- ernments . . . . .	118
5.3	Empirical determination of the emigration threshold $e^*$ . . . . .	120
6	Conclusion . . . . .	122
7	Appendix . . . . .	141
7.1	A1: Theoretical frame for the determination of the emigration threshold . . . . .	141
<b>4</b>	<b>Fake News and Cultural Identity: Evidence from South Tyrol in 1939</b>	<b>164</b>
1	Introduction . . . . .	165
2	Historical Background . . . . .	169
2.1	Fake news "Sicilian Legend": July 3, 1939 . . . . .	170
3	Data . . . . .	172
3.1	Nibelungen Index . . . . .	173
4	Methodology . . . . .	174
4.1	Validity of the methodology . . . . .	174
5	Main results . . . . .	175
5.1	Channels: Change in preferences or change in incentives? . . . . .	177
5.2	Heterogeneity of effects . . . . .	180
5.3	Persistence of the effect . . . . .	182
5.4	Robustness Tests . . . . .	182
6	Conclusion . . . . .	183
7	Appendix . . . . .	201
<b>5</b>	<b>Résumé</b>	<b>207</b>
	<b>Summary</b>	<b>208</b>

# 1 Introduction en Français

## 1 Introduction Générale

*"Notre capacité à atteindre l'unité dans la diversité  
sera la beauté et le test de notre civilisation."*

(Mahatma Gandhi)

L'histoire de l'humanité est formée par des exemples récurrents d'empires qui montent et descendent, causés par les combinaisons les plus diverses d'une multitude de facteurs. De la géographie et du climat, en passant par la culture, la religion et l'ethnicité, jusqu'à l'échec des institutions, de nombreux articles universitaires, ainsi que des livres à succès, traitent de la montée et de la chute des empires et débattent des causes communes possibles. Pour n'en citer que quelques-uns, "Guns, Germs and Steel : The Fates of Human Societies" (2002) et "Collapse : How Societies Choose to Fail or Succeed" (2005) de Jared Diamond, "Why Nations Fail : The Origins of Power, Prosperity, and Poverty" (2012) de Daron Acemoglu et James A. Robinson, ou encore "Sapiens : A Brief History of Humankind" (2014) de Yuval Noah Harari, ont tous attiré l'attention d'un large public international. Bien que les différentes approches mettent l'accent sur des facteurs différents - Diamond met en évidence les facteurs géographiques et environnementaux, Acemoglu et Robinson soulignent le succès ou l'échec institutionnel - un dénominateur commun aux raisons de l'essor et du déclin des empires est la réponse que les sociétés ont pour faire face aux menaces. La flexibilité et la volonté d'une société de s'adapter à de nouvelles circonstances s'avèrent essentielles pour sa survie. Dans le dernier chapitre de "Collapse" de Diamond, l'auteur suggère deux choix cruciaux dans ce qui a déterminé l'échec ou la survie des sociétés du passé. Le premier est *la planification à long terme* - reconnaître les menaces et s'y attaquer lorsqu'elles sont constatées mais avant qu'elles n'atteignent les proportions d'une crise. Le second est *la volonté de reconsidérer les valeurs fondamentales*, en ayant le courage de remettre en question les valeurs de la société, et d'apprécier la distinction entre les valeurs qui servent bien la société dans de nouvelles circonstances, et celles qui ne sont plus pertinentes. Alors que la stratégie de planification à long terme est familière à beaucoup d'entre nous, le concept de *valeurs fondamentales* et leur flexibilité pourraient être plus déroutants. Comment pouvons-nous définir les valeurs fondamentales d'une société ? La discussion autour de cette définition est ample et complexe, et dépasse la portée de cette thèse. Je limite l'objet de cette étude aux éléments qui définissent

le *sentiment d'appartenance* à une société particulière à un moment précis dans le temps, ainsi que les règles et les normes qui la soutiennent. Dans la discussion sur l'"identité" de Liebkind et al. (2015) dans l'Encyclopédie des sciences sociales et comportementales, les auteurs considèrent que l'identité est une façon appropriée de conceptualiser la façon dont les gens se perçoivent *eux-mêmes* et en relation avec les autres. En ce sens, la perception qu'une personne a de son identité est double : l'identité sociale et l'identité personnelle, et selon la situation, l'une ou l'autre perception domine la réponse de la personne à cette situation. Le dictionnaire Cambridge définit la "culture" comme "le mode de vie, en particulier les coutumes et les croyances générales, d'un groupe particulier de personnes à un moment donné". Je m'appuie ci-après sur les définitions ci-dessus, en introduisant le *concept d'identité culturelle*. L'identité culturelle fait partie de l'identité sociale, en ce qu'elle relie une personne à son environnement, par son accord tacite d'adhérer à certaines coutumes et croyances typiques de la culture. Ce concept n'est pas statique mais dynamique, et varie dans l'espace et le temps. La relation entre le changement d'environnement et le changement d'identité culturelle va dans les deux sens. L'identité culturelle est un facteur important de la réponse d'une personne ou d'une société à un environnement changeant, et un environnement changeant est un moteur de ce qui est perçu comme une identité culturelle : des traits existants mélangés à de nouveaux traits, qui modifient la vision de ce qui définit *l'appartenance*.

La figure 1 montre des exemples de mélange de cultures, à travers le temps et l'espace. La première image représente un sarcophage égyptien, réutilisé par la suite par un roi phénicien. Dans la partie supérieure du sarcophage, on trouve des hiéroglyphes égyptiens, tandis que dans la partie inférieure, on trouve un texte en alphabet phénicien. La deuxième photo montre un sphinx romain sur un versant herbeux devant un immeuble oriental à plusieurs étages au centre d'Alexandrie, en Égypte. La troisième photo présente une croix sur le sommet d'une montagne, un signe culturellement accepté sur les sommets des montagnes à travers les régions des Alpes. La figure de droite rapporte une copie d'une carte d'identité italienne en cours de validité. Contrairement aux cartes d'identité italiennes ordinaires, celle-ci est verte au lieu d'être rouge, et est rédigée en allemand et en italien - une déclaration sur l'environnement multiculturel de la province de Bolzano. .

Figure 2: Cultures mixtes à travers l'espace et le temps.



Source : propre à l'auteur. (de gauche à droite) Sarcophage égyptien réutilisé plus tard par un roi phénicien. Sphinx romain devant un bâtiment oriental à plusieurs étages. La croix sur le sommet d'une montagne, acceptée culturellement comme signe du sommet. Carte d'identité de la province autonome de Bolzano - Tyrol du Sud, officiellement rédigée en allemand et en italien.

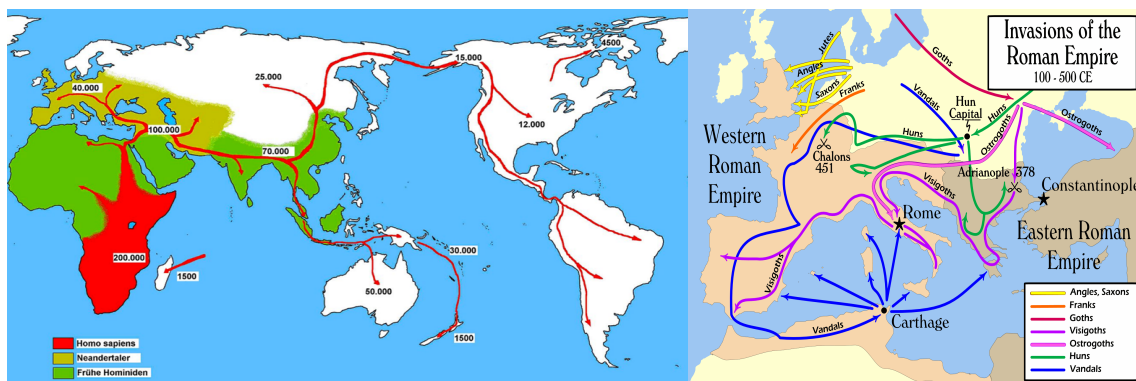
Bien que l'"identité culturelle" soit un concept dynamique, qui varie considérablement à travers l'espace et le temps, des traits différents, surtout inconnus, d'autres cultures sont souvent considérés comme étranges et "faux". Dans certains cas, l'idée d'adopter de nouveaux traits culturels est perçue comme presque impensable. La protection de la "propre culture" a conduit à de nombreuses guerres dans l'histoire de l'humanité, et est un moteur fondamental de l'environnement politique, social et économique dans le monde d'aujourd'hui.

Le rôle de l'"identité culturelle" dans la formation des institutions ainsi que dans le développement économique, et la question de savoir comment l'"identité culturelle" se forme, sont les premiers intérêts de recherche fondamentaux de cette thèse.

Alors qu'il y a peu de nations aujourd'hui qui ne sont pas multiculturelles dans une certaine mesure, la diversité culturelle au sein et parmi des nations continue d'augmenter à un rythme soutenu. L'un des principaux moteurs de cette augmentation de la diversité est la mobilité humaine, ou migration. Tout comme la constante évolution du nombre et de la définition des cultures dans le monde entier, le concept de mobilité humaine existe depuis le début de l'histoire de l'humanité. Souvent, les mouvements de population étaient des *stratégies d'expansion* des empires existants, et d'autres fois, des *stratégies de simple survie*. La figure 2 donne des exemples de mouvements de population à l'époque préhistorique et à l'époque de l'invasion romaine. Au départ, les humains se déplaçaient des zones peuplées pour aller vers des zones où il n'y avait pas encore d'emplacements humains. Depuis l'ère néolithique, les migrations sont devenues essentiellement des acquisitions de territoires d'autres peuples, motivées par la guerre. Aujourd'hui, la migration est un mouvement entre ou au sein de nations souveraines pour des raisons de mobilité du travail, de regroupement familial, de migration de réfugiés et sous forme de migration avec ou

sans papiers. Une autre caractéristique des mouvements de population à travers le temps est leur régularité. Il existe une différence entre les mouvements de population continus, principalement pour des raisons volontaires, et les pics de mouvements de population causés par des événements extraordinaires qui ont provoqué une migration forcée. Citons par exemple la grande migration atlantique de l'Europe vers l'Amérique du Nord au XIXe siècle, qui a entraîné la migration d'environ 37 millions de personnes, ou la partition de l'Inde, qui a provoqué le déplacement de 17 millions de personnes (Encyclopedia Britannica).

Figure 3: Exemples de historic population movements.



Source : [https://commons.wikimedia.org/wiki/File:Spreading\\_homo\\_sapiens.jpg](https://commons.wikimedia.org/wiki/File:Spreading_homo_sapiens.jpg), [https://en.wikipedia.org/wiki/History\\_of\\_human\\_migration#/media/File:Invasions\\_of\\_the\\_Roman\\_Empire\\_1.png](https://en.wikipedia.org/wiki/History_of_human_migration#/media/File:Invasions_of_the_Roman_Empire_1.png)

Ces flux migratoires ont eu - et ont encore - une incidence considérable sur la composition des populations à travers les nations et les continents, augmentant la diversité ethnique, culturelle et linguistique. La mobilité humaine est la deuxième littérature de base sur laquelle cette thèse se fonde et vise à enrichir.

L'"identité culturelle" et la "mobilité humaine" sont des phénomènes communs, dans le temps et l'espace de l'histoire de l'humanité, qui sont fortement corrélés entre eux. Si l'identité culturelle est une force motrice majeure de l'environnement politique, social et économique dans le monde entier, nous définissons la mobilité humaine comme son moteur et la mondialisation comme son carburant.

Cette thèse est un voyage à travers l'interaction entre la force motrice, le moteur et le carburant, demandant au lecteur de s'arrêter et de jeter un coup d'œil à travers la loupe sur trois aspects spécifiques. Le premier chapitre éclaire le voyage des humains qui saisissent la chance de trouver un nouveau foyer dans un nouveau pays; le deuxième met en lumière le rôle de l'identité culturelle et des facteurs économiques lorsqu'ils décident de quitter l'ancien foyer pour un nouveau ; et le troisième étudie les effets que des circonstances extrêmes, en particulier par le biais d'informations fausses, ont sur la formation de l'identité culturelle.

## 2 L'Economie des Migrations et de la Diversité

Avant de prendre la loupe, j'aimerais brosser un tableau des deux phénomènes actuels. La compréhension de l'économie des migrations et de la diversité est essentiel pour fonder les questions de recherche auxquelles cette thèse répond.

### 2.1 L'Economie des Migrations

Aujourd'hui les migrations internationales sont définies comme des mouvements temporaires ou permanents de personnes à travers les pays, pour toute une série de raisons différentes. Dans cette section, ainsi que plus généralement dans cette thèse, nous nous concentrerons sur la migration permanente, par opposition à la migration temporaire (par exemple, la migration saisonnière, ou la migration pour l'échange d'études, etc.) En outre, cette thèse parle principalement de la migration volontaire par opposition à la migration forcée - c'est pourquoi cette section est également concentrée sur la migration volontaire. Trois questions permettront de brosser un tableau de la migration internationale aujourd'hui. 1) « Quelle est l'ampleur et la composition des compétences des migrations internationales modernes » ? 2) « Qui migre ? La migration forcée par opposition à la migration volontaire, et l'autosélection dans la migration. » 3) « Qui bénéficie de la migration ? La migration et le bien-être mondial. » Cette thèse vise à contribuer à la réponse aux questions 2) et 3), expliquées plus en détail ci-dessous.

*1) Quelle est l'ampleur et la composition des compétences des migrations internationales modernes ?*

Ozden et ses co-auteurs (2011) posent la question *Où est tout le monde sur terre ?* et tentent de décrire l'évolution des migrations internationales entre 1960 et 2000. En construisant des matrices carrées pour cinq cycles de recensement, ils constatent que le nombre de migrants est passé de 92 millions à 165 millions. Selon les données de la Banque mondiale, le nombre de migrants a continué à augmenter régulièrement, pour atteindre 266 millions de personnes en 2018. Les migrations Sud-Nord, c'est-à-dire les migrants des pays en développement vers les pays développés, et les migrations Sud-Sud, représentent la majeure partie des migrants internationaux. La proportion d'immigrants est passée de 2,8% en 2000 à 3,5% en 2018, principalement en raison des écarts de revenus et d'emploi entre les pays, des inégalités économiques et sociales, des différences plus générales de niveau de vie et de qualité des institutions entre les pays, ainsi que du changement climatique. Le rapport de la Banque mondiale intitulé "Leveraging economic migration for development" constate un



autre facteur important de la migration actuelle et surtout future : les déséquilibres démographiques. Alors que les pays développés sont confrontés à une société vieillissante et à un faible taux de natalité, de nombreux pays en développement sont encore confrontés au phénomène sociétal inverse. Les experts de la Banque mondiale s'attendent à ce que ces déséquilibres influencent fortement la pression en faveur d'une migration internationale volontaire. La menace du changement climatique, qui affecte en particulier les pays vulnérables aux conséquences d'un climat extrême, est un autre facteur important qui pousse à la migration volontaire et forcée.

Si l'on examine maintenant la composition des compétences de ce stock important de migrants, le premier modèle à introduire est le modèle Roy qui, lorsqu'il est appliqué dans le contexte de l'économie de la migration (par exemple Borjas, 1987 ; Grogger et al., 2011 ; McKenzie et Rapoport, 2010), montre que les différences de revenus entre le pays d'origine et le pays de destination déterminent l'autosélection dans la migration. Plus la différence de revenus est importante entre les travailleurs hautement et peu qualifiés dans les pays de destination, plus le mélange de migrants est qualifié. Grogger et al. (2011) constatent en outre que les pays anglophones ont tendance à attirer les immigrants les plus qualifiés et que l'émigration est plus importante vers les destinations qui partagent une langue commune avec les pays d'origine et que ces migrants sont plus qualifiés. Les migrants perçoivent une plus grande récompense de leurs compétences dans les pays de destination où ils peuvent parler une langue qu'ils connaissent. La contiguïté augmente l'ampleur de la migration, mais pour des compétences relativement faibles. Les relations coloniales augmentent également l'ampleur de la migration, mais les émigrants des anciennes colonies sont également moins qualifiés. Les politiques d'asile, qui peuvent limiter les possibilités offertes aux migrants plus qualifiés, semblent constituer un autre facteur d'impact sur le mélange des compétences. En ce qui concerne l'Europe, les accords de Schengen semblent avoir peu d'effet sur l'ampleur de la migration, si ce n'est une sélection positive des migrants en termes de compétences. McKenzie et Rapoport (2010) montrent en outre que les réseaux migratoires sont également un moteur important de la combinaison des compétences des migrants : les réseaux migratoires plus qualifiés et de plus petite taille attirent les migrants plus qualifiés, tandis que les réseaux migratoires plus importants et moins qualifiés attirent les migrants moins qualifiés. À leur tour, les migrants plus qualifiés développent un réseau migratoire plus qualifié, et vice versa. Ce point nous amène directement à la question suivante.

2) *Qui migre ? Migration forcée ou volontaire, autosélection dans la migration.*

On distingue la migration forcée et la migration volontaire. Alors que la migration forcée suit un choc exogène (un choc politique, une guerre, une condition climatique extrême), et s'accompagne souvent de politiques d'immigration spécifiques (par exemple, les politiques d'asile), la migration volontaire est déterminée par l'auto-sélection dans la migration. Sur la base du modèle de Roy que j'ai brièvement présenté à la question 1), un grand nombre d'ouvrages se sont penchés sur la question de l'auto-sélection en matière de migration : qui migre et pourquoi ? La pertinence de cette question est souvent liée à la question de la fuite des cerveaux, ou émigration qualifiée. C'est pourquoi un grand nombre de recherches se concentrent sur la composition des compétences dans le cadre de l'auto-sélection en matière de migration.

L'auto-sélection est principalement motivée par les écarts de salaires, déduction faite des coûts de la migration. Borjas (1987) constate que les personnes qui émigrent de pays où l'inégalité des revenus est forte vers des pays où elle est faible ont tendance à s'auto-sélectionner négativement. Ainsi, si l'on considère le Mexique et les États-Unis et leur indice de revenu de Gini, on peut prédire une auto-sélection négative. Toutefois, il faut également tenir compte du fait que le coût de la migration n'est pas fixe et n'est pas le même pour tous. Borjas (1991) détermine le coût de la migration en fonction des coûts directs, des coûts d'opportunité et des coûts psychiques, qui varient pour chaque individu. Deuxièmement, le coût de la migration n'est pas proportionnel aux salaires ; il pourrait être moins coûteux pour les personnes plus instruites d'émigrer. Cela permettrait donc de prévoir une auto-sélection positive des migrants. Enfin, le coût de la migration est également déterminé par les parties au niveau communautaire. Ainsi, le schéma d'auto-sélection devrait également dépendre du coût de la migration pour une communauté donnée. Nous faisons ici référence, d'une part, à la communauté du pays d'origine, mais aussi à la migration dans le pays de destination : ce que nous appelons les "réseaux de migration". McKenzie et Rapoport (2010) affirment que les réseaux de migration réduisent les coûts de la migration (par exemple, ils peuvent fournir des informations sur les possibilités d'emploi, les conditions du marché du travail, le passage des frontières, ils peuvent même contribuer à assouplir les contraintes de crédit, etc.). Les auteurs constatent que dans les communautés où les réseaux de migration sont petits, la probabilité de migration augmente avec le niveau d'éducation, jusqu'à des niveaux de scolarité raisonnablement élevés, ce qui se traduit par une sélection positive des migrants. Ceci est cohérent avec le fait que les coûts élevés de la migration sont le

facteur déterminant des personnes qui migrent dans ces communautés. Des résultats opposés sont rapportés pour les communautés disposant de grands réseaux, où les coûts de la migration sont plus bas.

Dans le troisième chapitre de cette thèse, nous revenons à cette littérature sur l'autosélection en matière de migration, et discutons d'un autre élément potentiellement important, mais non encore étudié, de la décision d'émigration : le rôle des préférences culturelles.

### 3) *Qui bénéficie de la migration ? La migration et le bien-être mondial.*

Après les questions 1) et 2), où nous discutons de la taille et de la composition des compétences des migrants, la question du bien-être mondial se pose naturellement. Un phénomène actuel dans le débat public est la fuite des cerveaux, selon laquelle des individus hautement qualifiés, provenant également de pays en développement, migrent vers des pays à haut revenu, laissant derrière eux une population peu qualifiée, ce qui nuit au développement économique. Dans la question ci-dessus, nous discutons de l'autosélection dans la migration et constatons que les migrants hautement qualifiés sont effectivement attirés par une prime de salaire plus élevée dans les pays de destination.

Beine et ses coauteurs (2001) font une distinction entre la fuite des cerveaux *ex ante* (les perspectives de migration augmentent les investissements dans l'éducation dans le pays d'origine) et la fuite des cerveaux *ex post* (migration réelle) et constatent que la fuite des cerveaux peut être bénéfique si la fuite des cerveaux *ex ante* domine. En 2008, les auteurs ont effectué une analyse transversale et ont constaté qu'il y a, en moyenne, plus de perdants que de gagnants et que les perdants ont tendance à perdre plus que les gagnants ne gagnent. Alors que nous constatons que le phénomène de la fuite des cerveaux est effectivement observé, ce qui inquiète les économistes et les décideurs politiques, des recherches récentes portant sur les *envois de fonds* et les *migrations de retour* montrent, comme le résumait bien Clemens et Pritchett (2008), que la migration est un moyen efficace d'échapper à la pauvreté. Rapoport et Docquier (2006) montrent que, dans l'ensemble, les transferts de fonds ont un effet positif sur les performances à long terme des pays d'origine, au niveau micro et macro. Cet effet positif à long terme des transferts de fonds est donc présent pour les familles des migrants, mais aussi pour des économies en développement entières - on peut dire que les transferts de fonds représentent une source de financement externe plus importante que l'APD (aide au développement ordinaire) (par exemple Benmamoun et Lehnert, 2013 ; Bourguignon, 2006 ; Adams et Page,

2003 ; Meyers, 2002 ; Government Accountability Office (GAO), 2005 ; Jennings et Clarke, 2005). La littérature sur la migration, qui se concentre sur les effets de croissance de l'émigration par le biais des transferts de fonds, des choix éducatifs (capital humain endogène - entraînant un *gain de cerveaux*), de la migration de retour et de l'effet des réseaux/diasporas migratoires, constate les effets positifs de la migration sur le commerce (Rauch, 1991, Iranzo et Peri, 2009) et/ou les IDE (Kugler et Rapoport, 2007, Docquier et Lodigiani, 2010), la diffusion des technologies (Kerr, 2008), la transmission de normes/valeurs sociales telles que la fertilité ou l'émancipation politique des femmes, ainsi que la démocratie (Docquier et al. , 2011 ; Batista et Vicente, 2011 ; Barsbai et al., 2017 ; Bertoli et Marchetta 2015). Au lieu d'examiner les effets à long terme, Gibson et al. (2011), examinent les effets à court terme de la migration sur les membres du ménage restés au pays et brossent un tableau moins optimiste de l'effet de l'émigration sur la famille restée au pays. Les auteurs constatent que la situation des membres de la famille peut être pire au départ, mais ils soulignent également qu'à long terme, les envois de fonds peuvent compenser (voire surcompenser) la perte à court terme. Les auteurs font allusion à un point également souligné par Clemens et Pritchett (2008), à savoir que les gains des membres de la famille qui émigrent *avec* l'émigrant initial pourraient dépasser de loin les bénéfices des envois de fonds.

Au-delà des effets de la migration, Hausmann et Nedelkoska (2018) ont récemment constaté que les migrants de retour en Albanie avaient des effets positifs significatifs sur les niveaux d'emploi et les salaires des non-migrants.

Après avoir examiné les effets de la migration sur les *pays d'origine*, examinons brièvement les *pays de destination*. Dans ce contexte, je présente brièvement les conclusions de la discussion d'Alesina et al. (2016) sur la *diversité des lieux de naissance*. Si la diversité des lieux de naissance, et donc la diversité par la migration, peut, d'une part, conduire à une complémentarité des compétences, elle peut, d'autre part, entraîner des inefficacités dues à la méfiance et au manque de cohésion sociale. Les auteurs construisent un nouvel indice de la diversité des lieux de naissance, décomposé en fonction de la taille et de la variété de la population née à l'étranger, pour 195 pays en 1990 et 2000. Ils constatent une forte corrélation positive entre la diversité des lieux de naissance et les revenus et la productivité. Une augmentation d'un écart-type de la diversité des immigrants qualifiés entraîne à long terme une augmentation des revenus de 1,2 à 1,5. Bahar et Rapoport (2018), ainsi que Hausmann (2016) soulignent que la migration est un important canal de diffusion des connaissances tacites ("savoir-faire") et, avec elle, l'amélioration du développement économique. Dans un [article d'opinion](#), Hausmann décrit ce pro-

cessus comme "le déplacement des cerveaux pour déployer le savoir-faire", tout en écrivant sur l'importance de déplacer les personnes plutôt que les informations.

Nous voyons que la question de la migration et du bien-être mondial n'est simple à répondre - elle dépend du contexte et de la mesure. D'un point de vue tant académique que politique (voir les projections de la Banque mondiale concernant les déséquilibres démographiques), il est reconnu que la migration, ou la mobilité humaine, a un potentiel non exploré d'une importance considérable pour stimuler le développement économique des pays du monde entier, qu'il s'agisse de pays en développement, de pays émergents ou de pays développés.

Un facteur critique dans le débat sur les migrations et le bien-être, c'est la réussite de l'intégration économique et sociale des immigrants. L'intégration a une forte incidence sur le bien-être personnel, le bien-être du pays de destination et le bien-être du pays d'origine grâce aux envois de fonds. Le deuxième chapitre de cette thèse évalue un facteur majeur qui influence l'intégration économique des immigrants au pays d'accueil : la barrière de la langue.

## 2.2 L'Economie de la Diversité

Ensuite, je donne un aperçu de l'économie de la diversité, en général, et en mettant l'accent sur la diversité culturelle. Lorsque nous parlons de la *diversité* dans le contexte des résultats économiques, nous faisons généralement référence à la diversité en tant que trait d'une population. Une population donnée peut varier en fonction de plusieurs facteurs : sexe, composition par âge, langue, religion, ethnicité, etc. L'interaction entre l'économie et la diversité des caractéristiques d'une population n'est pas négligeable. D'une part, les politiques économiques ont tendance à affecter autrement les différentes parties de la population. En économie, nous appelons cela *l'analyse de l'hétérogénéité des effets* par caractéristiques spécifiques. Dans les travaux qui constituent le premier chapitre de cette thèse, par exemple, nous constatons que la formation linguistique des immigrants a un effet différent pour les hommes et les femmes, pour les personnes âgées par rapport aux jeunes, pour différents groupes d'immigrants (travailleurs immigrants, familles immigrées et réfugiés) et pour les immigrants dont la langue maternelle est plus ou moins éloignée de la première langue du pays de destination.

Si l'analyse de l'hétérogénéité des effets est une partie bien établie et commune de toute analyse économique, la question inverse donne lieu à un courant littéraire relativement récent : *Comment la diversité affecte-t-elle les résultats économiques ?*

S'appuyant sur différents types de diversité (par exemple, la diversité ethnique, religieuse, linguistique, géographique, culturelle ou de lieu de naissance), les recherches

actuelles aboutissent à des résultats théoriques et empiriques qui vont dans des directions opposées. D'une part, la combinaison de la diversité des compétences, des expériences et des idées au sein des groupes et des individus (leur *savoir-faire*), tend à conduire à des résultats économiques positifs : augmentation de la productivité et stimulation de l'innovation. D'autre part, un degré de diversité plus élevé peut également entraîner des résultats économiques négatifs, causés par l'incompréhension et l'hostilité entre divers groupes ou individus, chacun d'entre eux croit que *sa* manière de faire est *l'unique et la bonne* : diminution de la productivité et augmentation des conflits.

Même si les conclusions pour la question sur le savoir si la diversité est "bonne" ou "mauvaise" pour l'économie divergent, les universitaires s'accordent sur le fait que 1) il est difficile de mesurer la diversité, 2) les résultats diffèrent selon la mesure de la diversité.

Les mesures communes de la diversité sont le fractionnement ethnique (Easterly et Levine 1997 ; Alesina et al. 2003 ; Fearon 2003, Alesina et Zhuravskaya, 2011 ; Alesina et al. 2016), la diversité linguistique (Desmet et al, 2012), la diversité génétique (Ashraf et Galor, 2013), la diversité des lieux de naissance (Alesina, Harnoss et Rapoport, 2016) et d'autres mesures de la diversité sociale (Bisin et Verdier, 2000 et 2001 ; et Bisin et al. 2011 ; Fouka, 2020 ; Laitin, 1998 ; Carvalho et Koyama, 2016 ; Fryer Jr et al. 2004 ; Rubinstein et al. 2013 ; Biavaschi et al. 2017). Les recherches basées sur les mesures de la fractionalisation ethnique, menées par les auteurs mentionnés ci-dessus, constatent un effet négatif entre la diversité ethnique/linguistique et un certain nombre de variables de résultat : croissance économique, qualité du gouvernement, inégalité et augmentation des conflits. En ce qui concerne la diversité génétique, Ashraf et Galor (2013) constatent une relation en forme de U inversé entre la diversité et le développement. Dans le débat sur l'économie des migrations, nous avons déjà brièvement évoqué la diversité des lieux de naissance - une mesure qui permet de brosser un tableau de la diversité et des résultats économiques. Tout d'abord, les auteurs montrent que la diversité ethnolinguistique, génétique et du lieu de naissance ne sont généralement pas corrélées entre elles. Deuxièmement, ils diffèrent sur le plan économique en ce sens que la diversité ethnolinguistique a des résultats négatifs ou insignifiants, tandis que la diversité des lieux de naissance a un effet positif important sur le revenu, même à long terme, et en tenant compte d'un grand nombre de variables de contrôle. Les analyses économiques au niveau des entreprises confirment largement les résultats macro : effets négatifs pour la diversité ethnique, effets positifs pour la diversité du lieu de naissance (Hjort, 2004 ; Brunow et al. 2015 ; Parrotta et al. 2014 ; Ozgen et al. 2013 ; Boeheim et al. 2012).

## *Diversité culturelle*

La recherche liée à l'économie de la diversité culturelle est relativement jeune. Une partie de la littérature se concentre sur les déterminants de la culture (Alesina et Giuliano, 2015 ; Giuliano et Nunn, 2017 ; Bazzi et al, 2017 ; Galor et Savitskiy, 2018, Eder et Halla, 2020), et l'autre volet sur le rôle de la culture dans le développement économique (Landes, 1998 ; Guiso et al., 2006 ; Alesina et Fuchs-Schündeln, 2007 ; Aghion et al., 2010 ; Spolaore et Wacziarg, 2009, 2013 ; Desmet et al., 2017). Dans leur document de 2015, Alesina et Giuliano se penchent sur la relation entre la culture et les institutions, à la suite de Putnam et al. 1993 qui se demandent s'il existe un lien de cause à effet entre la culture et les institutions, et comment elles interagissent. Les auteurs constatent que la culture et les institutions jouent toutes deux un rôle majeur dans le développement économique et qu'elles fonctionnent de manière complémentaire, y compris par des effets de rétroaction les unes sur les autres. Un certain nombre d'études menées par les auteurs susmentionnés confirment les résultats selon lesquels les traits transmis d'une génération à l'autre, comme la culture et l'histoire commune, jouent un rôle important dans le développement économique, et que ces traits sont profondément persistants et suivent des racines historiques. D'autre part, l'histoire montre également de nombreux épisodes significatifs de changement culturel. Giuliano et Nunn (2017) tentent de trouver une réponse à la question de savoir quand une culture persiste et quand elle change, et constatent que les populations dont les ancêtres vivaient dans des environnements plus stables ont aujourd'hui des traditions plus persistantes. Dans le même sens, le chapitre quatre de cette thèse vise à analyser si l'identité culturelle change suite à un événement extrême de biais d'information, en particulier d'information trompeuse. Récemment, Bazzi et al. (2017) examinent le processus d'intégration des immigrants et la lenteur avec laquelle l'attachement ethnique à leur pays d'origine converge vers une nouvelle identité mixte. Plus récemment, Rapoport et al. (2017), sont les premiers à développer un cadre visant à mettre fin aux effets de la migration sur le changement culturel, en particulier, afin de répondre à la question de savoir si la migration stimule la convergence ou la divergence culturelle. Tant sur le plan théorique qu'empirique, ils trouvent des preuves de la convergence culturelle bilatérale. Les auteurs discutent également de la direction de la convergence, et si la mixité sociale ou les transferts de fonds sociaux sont les principaux moteurs de la convergence. Alors que Rapoport et al. (2017) expliquent le changement culturel par une mobilité humaine plus élevée, dans le chapitre trois de cette thèse, nous soutenons

que les facteurs culturels sont également un paramètre important dans la décision d'émigration.

Robert Putnam, dans sa conférence de 2006 pour le prix Johan Skytte<sup>1</sup>, aborde les défis et les opportunités d'une société mondiale dont la diversité s'accroît rapidement. Putnam affirme que "[...] le principal défi pour les sociétés modernes qui se diversifient est de créer un nouveau sens, plus large, du "nous""". (Putnam, 2007, p. 139) À la suite des travaux de Robert Putnam, ainsi que du nouveau concept de "sense of us" introduit par Ricardo Hausmann (2018), la question de savoir si la diversité est une opportunité ou une menace semble se résumer en fin de compte à la question de savoir si nous percevons les autres comme *nous* ou comme *eux*. Hausmann, dans sa conférence de 2018 à la London School of Economics and Political Science, intitulée "Development, Knowhow and Us", soutient que le secret du développement est l'adoption de la technologie, qui dépend à son tour de la diffusion du savoir-faire collectif et de l'ouverture aux autres : le "sense of us". En d'autres termes, selon le Mahatma Gandhi, "notre capacité à atteindre l'unité dans la diversité sera la beauté et le test de notre civilisation".

### 3 Contributions et Plan de la thèse

Après avoir brossé un bref tableau des deux grands ensembles de littérature, qui mériteraient chacun un examen dans la longueur de cette thèse, dans cette section je vais guider le lecteur à travers la contribution et la structure de la thèse. Il serait impossible de décrire les résultats des trois chapitres présentés en conséquence, sans introduire simultanément les projets qui encadrent les questions de recherche.

*Chapitre 2 : L'effet de la formation linguistique sur l'intégration économique des immigrants : Preuves empiriques en France*

Le deuxième chapitre de cette thèse est un travail conjoint avec Hillel Rapoport et Biagio Speciale, et vise à contribuer à la littérature sur *la migration et le bien-être*, plus précisément sur *l'intégration économique* des immigrants dans le pays de destination. Dans de nombreux pays de destination, les immigrants représentent toujours la partie la plus vulnérable de la population, alors que l'un des principaux obstacles à une intégration réussie est la barrière de la langue. Le 1er janvier 2007, le gouvernement français a mis en place un programme d'intégration qui vise à améliorer la réussite économique et sociale des immigrants. Tous les migrants âgés de plus de 16

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<sup>1</sup>Remarque: Le prix Johan Skytte est souvent appelé prix Nobel de science politique.



ans et provenant de pays tiers doivent signer un "Contrat d'accueil et d'intégration" (CAI). Ce contrat impose une formation civique (par exemple sur les institutions françaises et les valeurs de la République), une formation linguistique, une séance d'information sur la vie en France et une déclaration de compétence professionnelle. La réussite de ces éléments est essentielle pour le renouvellement du titre de séjour. En juillet 2016, le gouvernement a introduit le "Contrat d'intégration républicaine", une version modifiée du "CAI".

Le cadre unique de la formation linguistique organisée par le Ministère français de l'Intérieur permet d'évaluer un facteur majeur qui a un impact sur l'intégration efficace des immigrants sur le marché du travail : la barrière de la langue. Chiswick (1991) et Borjas (1994) ont été parmi les premiers chercheurs à reconnaître la barrière linguistique comme l'un des principaux obstacles à l'intégration des immigrants. Depuis lors, la preuve des compétences linguistiques a été reconnue comme jouant un rôle important dans le processus d'assimilation et d'intégration. L'analyse économétrique de la relation entre la formation linguistique et l'intégration économique est difficile, et les méthodes traditionnelles économétriques pourraient sous-estimer le véritable effet de la formation s'il existe des différences non observables dans les niveaux de compétence. Nos méthodes économétriques relèvent principalement de la méthode dite de "régression sur discontinuité" (*Regression Discontinuity Design, RD Design*), une expérience locale randomisée qui consiste à comparer les individus de part-et-d'autre du seuil (ici le score au test linguistique préalable) qui détermine la participation au programme de formation. Cette méthode nous permet d'éviter les biais possibles résultant de la sélection dans la formation.

Les données que mes coauteurs Hillel Rapoport et Biagio Speciale et moi utilisons proviennent de l'"Enquête longitudinale sur l'intégration des primo-arrivants (ELIPA)", créée par le Ministère français de l'Intérieur. Cette base de données suit plus de 6000 personnes, ayant reçu leur permis de séjour en 2009, sur trois périodes (2010, 2011 et 2013) afin de retracer leur parcours d'intégration. Nous évaluons l'impact du nombre d'heures de formation linguistique (entre 60 et 400) sur différentes variables liées à l'intégration.

Cet article est lié à plusieurs branches de la littérature sur la relation entre les compétences linguistiques et les performances sur le marché du travail, voir entre autres Chiswick (1991), Chiswick et Miller (1995), Dustmann et van Soest (2001), Hayfron (2001), et Bleakley et Chin (2004). Nous complétons cette branche de la littérature en explorant comment les plans de formation linguistique proposés par le gouvernement affectent l'intégration sur le marché du travail, non seulement par leur effet potentiel sur les mesures objectives des compétences linguistiques, mais aussi par

plusieurs mécanismes. Nous innovons également en utilisant un RD Design, qui a les propriétés d'une expérience locale randomisée.

Nous constatons que le nombre d'heures de formation augmente considérablement la participation de la population active. Nous explorons différents mécanismes qui expliquent l'effet que nous observons. Nous trouvons peu de preuves d'un effet de signalisation du diplôme reçu après la fin des cours de langue, d'une augmentation de la taille du réseau et d'un effet d'information lié à l'accès aux prestations sociales. En ce qui concerne le principal mécanisme, le simple canal linguistique, nous remarquons relativement peu d'amélioration ; une légère amélioration est observée pour les immigrants dont la langue maternelle n'est pas trop éloignée du français. Nous constatons des effets comportementaux négatifs qui peuvent découler de la déception du plan d'intégration. Enfin, les informations sur les stratégies de recherche d'emploi que les individus tirent du temps passé avec leurs camarades de classe et les enseignants pendant les cours semblent être un canal important qui aide les immigrants à s'intégrer au marché du travail français. Nous pensons que les informations que nous obtenons sur le mécanisme d'information amplifient notre compréhension des cours de langue comme moyen de faciliter l'intégration. Cette connaissance du canal d'information est applicable au-delà de la France, à condition que les cours impliquent une interaction active entre les immigrants et les enseignants pendant une durée suffisamment longue.

Ce projet m'a montré de première main l'importance d'évaluer rigoureusement les politiques économiques. Bien qu'une politique impliquant des cours de langue puisse sembler une politique relativement simple et efficace avec un grand impact, elle comporte de nombreux pièges possibles, que nous aborderons dans le deuxième chapitre de cette thèse : "The effect of language training on immigrants' economic integration: Empirical evidence from France".

Ce projet de recherche a été, après avoir présenté les résultats au Ministère de l'Intérieur, traduit en un document académique qui m'a permis d'obtenir ma première publication : en effet, le travail a été publié dans le *European Economic Review* 113, 2019.

### *Chapitre 3 : Culture et émigration : Les preuves de l'accord d'option Hitler - Mussolini Migration*

Les chapitres deux et trois font partie d'un projet plus large autour de la question de l'interaction entre la culture, les institutions et le développement économique. Cette expérience historique d'option de migration est une étude de cas qui nous permet

d'explorer, d'une part, la formation de l'identité culturelle, et d'autre part, les résultats économiques de l'identité culturelle. Alors que dans cette thèse, nous limitons l'analyse à l'impact de l'identité culturelle sur la décision d'émigration, dans mon futur projet de post-doctorat, j'étudie l'effet à long terme que cet épisode migratoire a eu sur les communautés en question.

La culture est depuis longtemps reconnue pour son rôle majeur dans la création des institutions, ainsi que sur la richesse et le bien-être des sociétés. Dans le monde globalisé d'aujourd'hui, caractérisé par le libre-échange, les investissements étrangers directs et l'augmentation des flux migratoires, la culture joue un rôle décisif dans l'intégration économique aux marchés mondiaux. La littérature récente sur la migration souligne l'importance des aspects culturels de la migration sur les normes sociétales et les institutions politiques. Batista et Vincente (2011) examinent les résultats politiques dans le pays d'origine. Chauvet et Mercier (2014) analysent l'impact des migrants de retour sur les élections au Mali. Docquier et coauteurs (2016), se concentrent sur l'impact de l'émigration sur la démocratie, tandis que Barsbai et autres (2016) examinent l'effet de la migration de travail sur la diffusion de la démocratie en s'appuyant sur l'exemple de l'ancienne Union soviétique. Il existe donc une littérature de plus en plus abondante sur l'interaction entre la culture, la migration et les institutions. Ce projet, et les contributions qui en résultent pour la littérature académique, vise à analyser une étude de cas du rôle de la culture dans le processus de migration et l'impact qui en résulte sur les institutions modernes et la richesse des sociétés.

Je me penche sur le cas du Tyrol du Sud (aujourd'hui la province la plus septentrionale d'Italie et, jusqu'à la Première Guerre mondiale, la province la plus méridionale d'Autriche), dont l'autonomie institutionnelle est un exemple éclairant dans la recherche de solutions aux problèmes des communautés culturellement divisées. Plus précisément, je me concentre sur un événement clé de l'histoire du Tyrol du Sud, dont les cicatrices devaient être ressenties par la population pendant les décennies à venir. L'accord d'option du Tyrol du Sud de 1939 a été conçu dans l'espoir que "la migration puisse réussir là où l'assimilation a échoué", dans le cadre d'une tentative d'italianisation de la province (Alcock, 2001). Le 23 juin 1939, l'Italie fasciste et l'Allemagne nazie ont signé à Berlin un accord qui donnait à la population du Tyrol du Sud une option : quitter sa patrie (s'installer dans l'Empire allemand) et conserver sa culture, ou rester dans sa patrie et abandonner sa culture (accepter une assimilation totale à la culture et à la langue italiennes). L'évaluation des moteurs de la décision d'émigration est la principale question de recherche du chapitre trois. La formation de l'identité culturelle suite à une vague d'informations trompeuses

sur les conséquences de cet accord, est la question à laquelle j'essaie de répondre dans le chapitre quatre.

Ce projet a nécessité non seulement des recherches documentaires, mais surtout un travail et une coordination étroits avec nos partenaires (par exemple, les Archives nationales de Bolzano, nos assistants de recherche, les partenaires financiers). Il a fallu plusieurs mois de numérisation et de saisie de données que j'ai effectuées manuellement avec l'aide d'assistants de recherche pour numériser l'échantillon de deux pour cent avec lequel je travaille dans le cadre de cette thèse. Ce projet a grandement bénéficié des aides financières du Labex OSE de PSE, de l'Université Libre de Bolzano et de l'Institut Convergences Migrations. En outre, grâce à ce projet, j'ai reçu le Prix Autrichien pour jeunes chercheurs "Eduard Wallnöfer Preis" en décembre 2017.

Le troisième chapitre de cette thèse vise à enrichir, d'une part, la littérature sur *l'autosélection dans la migration* et, d'autre part, la littérature sur *l'identité culturelle et son influence sur le comportement humain*. Plus précisément, j'examine l'autosélection dans la migration au cours d'une expérience historique de choix migratoire entre l'Allemagne nazie et l'Italie fasciste. Cet épisode historique me permet d'avoir un aperçu unique du processus de prise de décision lors de la sélection dans la migration, en mettant l'accent sur les composantes économiques et culturelles de la décision.

Aujourd'hui, avec la pression croissante des migrations, la question de savoir *pourquoi* les individus quittent leur pays est pertinente. Il existe une littérature qui vise à trouver des réponses à cette question (par exemple, Borjas, 1987 ; Bauer et al., 2005 ; McKenzie et Rapoport, 2010 ; Fernandez-Huertes Moraga, 2011), qui mentionne les facteurs économiques (par exemple, les différences de revenus) et les réseaux de migration parmi les facteurs majeurs de sélection des migrants.

Les différences de revenus ne sont pas les seuls éléments qui amènent les individus à prendre une décision de migration. D'autres facteurs, comme le sentiment de sécurité et d'avenir dans le pays d'origine et le pays de destination, les opportunités perdues dans les deux pays, les réseaux familiaux et amicaux dans le pays d'origine et à l'étranger, ainsi qu'une composante culturelle peuvent également constituer des influences majeures. Il n'est pas évident de quantifier l'ampleur de l'impact de chacune de ces composantes sur la décision d'émigrer. L'expérience de migration à grande échelle que j'examine dans le monde réel tente de démêler les composantes des préférences culturelles et de quantifier leur ampleur.

Le deuxième volet de la littérature auquel je souhaite contribuer est la littérature

récente sur l'identité culturelle et son influence sur les préférences et le comportement humain. L'identité culturelle est difficile à cerner, mais il a été démontré qu'elle influence considérablement les préférences et le comportement (voir par exemple Akerlof et Kranton, 2000 ; Hoff et Pandey, 2006 ; Benjamin, Choi et Fisher, 2016 ; Bisin et al. 2016 ; Fouka, 2020). Dans cette analyse, je me fonde sur trois indicateurs potentiels des liens culturels avec l'Allemagne : le prénom de l'optant  $i$  pour tenir compte des préférences culturelles héritées, l'historique de la migration de l'optant  $i$  vers l'Autriche ou l'Allemagne pour tenir compte des préférences culturelles acquises personnellement et le pays de citoyenneté et de résidence actuelle des parents de l'optant  $i$ . En outre, j'étudie une spécification sur un sous-échantillon d'optants ayant des enfants, en utilisant une mesure alternative pour les préférences culturelles : les préférences culturelles manifestées par le biais de la dénomination ethnique des nouveau-nés.

Je trouve des preuves que les liens culturels jouent un rôle majeur dans la décision de migration : plus les liens avec l'Allemagne sont forts, plus les optants sont susceptibles de partir. La plus importante des composantes économiques semble être la décision stratégique consistant à saisir l'opportunité d'acheter des terres aux voisins. En examinant l'hétérogénéité des effets, je constate que les effets varient en fonction de la structure familiale et du groupe d'âge, ce qui laisse supposer l'adoption de stratégies de prise de décision légèrement différentes. En utilisant des données sur la profession d'agriculteur, sur les dossiers de police et les maladies, ainsi que sur les effets fixes des officiers publics, je peux exclure d'autres explications de l'émigration, en me basant sur une certaine évidence historique qui suggère qu'une partie de la décision de partir a été quelque peu forcée par les gouvernements participants. Enfin, je discute empiriquement et théoriquement de la probabilité d'émigration en fonction d'un coût économique de la migration, et d'un gain migratoire grâce à une externalité sociale dérivée de l'interaction d'un agent avec d'autres agents du même type culturel. Je constate que le seuil d'émigration d'un agent varie en fonction de l'intensité de l'attachement culturel et du coût de la migration.

#### *Chapitre 4 : Fausses nouvelles et identité culturelle : Témoignages du Tyrol du Sud en 1939*

Le quatrième chapitre, réalisé en collaboration avec Max Viskanic, étudie si un événement extrême conduisant à un biais d'information, ici l'exposition à des informations trompeuses, peut avoir un effet immédiat et persistant sur la formation de l'identité culturelle. Ce chapitre s'ajoute donc à la littérature sur la *formation*

*de l'identité culturelle*, contribuant également à un volet relativement récent de la littérature économique sur les *effets des informations trompeuses*. Notre principale source de données provient des mêmes fichiers récemment numérisés que ceux du troisième chapitre.

Tout d'abord, ce document vient s'ajouter à la littérature qui étudie la façon dont l'identité est façonnée en réponse aux politiques qui visent l'assimilation et l'intégration, voir par exemple Bisin et Verdier (2000, 2001), Bisin et al. (2011) pour les fondements théoriques, et plus récemment Fouka (2020), qui examine l'interdiction d'enseigner des cours d'allemand dans les écoles américaines après la Première Guerre mondiale. Elle constate un retour de bâton similaire de la part de la population allemande, comme dans Carvalho (2013), qui estime que l'interdiction du port du voile par les femmes musulmanes peut accroître la religiosité. Carvalho et Koyama (2017) montrent que lorsque l'éducation est un moyen de transférer des traits culturels, les minorités peuvent former une résistance culturelle et sous-investir dans l'éducation. Le deuxième volet de la littérature que nous souhaitons enrichir analyse la relation entre les informations trompeuses et le comportement humain, plus précisément les résultats du vote. Voir par exemple Allcott et Gentzkow (2017) qui étudient les données sur la consommation de fausses nouvelles avant les élections américaines de 2016 et discutent de l'économie des fausses nouvelles, et Barrera et al. (2020) qui mènent une expérience randomisée étudiant l'efficacité de la vérification des faits pour contrebalancer les informations trompeuses des politiciens.

La principale contribution de cet article de recherche réside dans la nouveauté de la question de recherche, qui non seulement relie deux courants littéraires émergents, mais tente de faire le lien entre les fausses nouvelles et les politiques identitaires. Pour ce faire, nous nous appuyons sur des techniques économétriques de pointe et sur un nouvel ensemble de données, qui a été récemment numérisé. Plus précisément, nous cherchons à déterminer si un épisode historique de fausses nouvelles a provoqué une réaction comportementale immédiate chez les personnes concernées. Dans une analyse complète de l'hétérogénéité des effets, nous examinons comment cette réaction s'est traduite en effets secondaires, ou externalités, pour les enfants des ménages concernés. Enfin, nous cherchons à savoir si la rectification des fausses nouvelles a eu un effet sur le comportement des ménages, afin d'examiner la persistance éventuelle du biais d'information.

Notre principale variable de résultat est le modèle de dénomination des nouveau-nés, plus précisément le "caractère germanique" des prénoms des nouveau-nés. Le choix de cette variable découle de trois considérations. Premièrement, nous partons de l'hypothèse que le prénom d'un nouveau-né est une manifestation des préférences cul-

turelles des parents, et qu'un changement observé est un signal fort pour une réponse comportementale permanente déclenchée par la fausse nouvelle. Deuxièmement, si nous constatons que les fausses nouvelles affectent les préférences culturelles, c'est un signal alarmant en termes d'impact des fausses informations sur le développement économique au sens large. Dans son article de 2012 intitulé "Culture and the Historical Process", Nathan Nunn explique et souligne l'importance des valeurs et des croyances culturelles dans l'histoire du développement économique. Nunn décrit la "culture" comme un facteur d'entrée dans la prise de décision, et soutient que la culture est un mécanisme important dans l'explication des effets persistants des chocs historiques. Non seulement les valeurs culturelles sont pertinentes dans l'explication de la persistance des chocs historiques, mais les valeurs culturelles en tant que telles sont, à leur tour, façonnées par le développement économique historique. Nous cherchons à savoir si un choc informationnel peut affecter les valeurs culturelles, par une réaction comportementale immédiate, et si l'effet est persistant. Pour notre analyse empirique, nous construisons un proxy pour les préférences culturelles que nous appelons "Nibelungen Index". Nous nous appuyons sur la nature inattendue de la publication des fausses nouvelles pour effectuer une étude de l'histoire des événements (*Event history study*), ce qui nous permet de prétendre à une relation de cause à effet sur l'impact des fausses nouvelles sur les différents comportements à motivation ethnique. Pour notre analyse, nous nous appuyons sur trois approches différentes : une approche non-paramétrique avec un lissage linéaire, une approche paramétrique avec la distance par rapport à la coupure comme fonction polynomiale, et une approche des effets fixes sur les ménages. Nous constatons que les fausses nouvelles amènent les gens à renforcer leur identité culturelle et plus précisément à nommer leur progéniture d'une manière plus allemande. Nous constatons que les femmes qui étaient enceintes entre le 3e et le 6e mois au moment de l'annonce de la fausse nouvelle étaient particulièrement enclines à changer le prénom du nouveau-né, et à effectuer une analyse des effets hétérogènes pour le sexe et l'ordre de naissance des nouveau-nés. En analysant les différents canaux de changement des modèles de dénomination, nous constatons qu'un changement global des préférences culturelles est plus prononcé qu'un changement des incitations économiques. Nous trouvons des résultats intéressants pour les différents canaux par sexe et par ordre de naissance, qui reflètent les stratégies de prise de décision du noyau familial. Ces résultats sont conformes à la littérature historique, ainsi qu'à la littérature économique sur le rôle des enfants dans le noyau familial des sociétés agricoles. Enfin, nous effectuons une série de tests de robustesse.

Les résultats obtenus dans cet article de recherche visent à mettre en lumière les

répercussions négatives de l'exposition à des informations trompeuses, en particulier, la sculpture permanente de notre ensemble d'information, une réaction comportementale immédiate et des externalités négatives pour les autres. Nous trouvons des preuves de ces trois répercussions qui, dans le contexte de l'identité culturelle, soulignent à quel point les conséquences des informations trompeuses peuvent être profondément ancrées.

En conclusion, j'espère que dans la vaste littérature qui entoure l'interaction entre la mobilité humaine et l'identité culturelle, je pourrai apporter une contribution originale, d'une manière rigoureuse sur le plan académique, tout en étant pertinente et pratique. Je souhaite au lecteur un agréable voyage.



# 1 Introduction in English

## 1 General Introduction

*"Our ability to reach unity in diversity  
will be the beauty and test of our civilization."*

(Mahatma Gandhi)

Human history is formed by recurring patterns of rising and falling empires, caused by the most diverse combinations of a multitude of factors. From geography and climate, over culture, religion and ethnicity, to institutional failure, numerous academic articles, as well as best-selling books, discuss the rise and fall of empires and debate possible common causes. To mention a few, Jared Diamond's "Guns, Germs and Steel: The Fates of Human Societies" (2002) and "Collapse: How Societies Choose to Fail or Succeed" (2005), Daron Acemoglu and James A. Robinson's "Why Nations Fail: The Origins of Power, Prosperity, and Poverty" (2012), or Yuval Noah Harari's "Sapiens: A Brief History of Humankind" (2014), have all reached the attention of a broad international audience. Although different approaches emphasize different factors - Diamond highlights geographical and environmental factors, Acemoglu and Robinson underline institutional success or failure - a common denominator in why empires rise and fall, is the response that societies have to cope with threats. A society's flexibility and willingness to adapt to new circumstances proves essential for survival. In the final chapter of Diamond's "Collapse", the author suggests two crucial choices in what determined past societies' failure or survival. The first is *long term planning* - recognizing and tackling threats when they are noticed but before they reach crisis proportions. The second is *willingness to reconsider core values*, having the courage to question society's values, and appreciate the distinction between values that serve the society well under new circumstances, and those that are no longer relevant.

Whereas the strategy of long term planning is familiar to many, the concept of *core values*, and their flexibility, might be more puzzling. How can we define the core values of a society? The discussion around this definition is ample and complex, and goes beyond the scope of this thesis. I limit the focus of this study to the elements that define a particular society's sense of *belonging* to a certain society in a specific moment in time, and the rules and norms upholding it. In the discussion of "identity" by Liebkind et al. (2015) in the Encyclopedia of Social and Behavioral Sciences, the authors consider identity a fitting way to conceptualize how people

perceive themselves as *self* and in relation to others. In this sense, a person's perception of their identity is two-fold: social and personal identity, and depending on the situation, either one or the other perception dominates the person's response to that situation. The Cambridge Dictionary defines "culture" as "the way of life, especially the general customs and beliefs, of a particular group of people at a particular time." I hereafter rely on the above definitions, introducing the concept of *cultural identity*. Cultural identity is part of the social identity, in that it relates a person to their environment, through their tacit agreement to adhere to certain customs and beliefs typical to the culture. This concept is not static but dynamic, and varies across space and time. The relationship between change in environment and change in cultural identity goes in both directions. Cultural identity as an important factor for the response of a person or society to a changing environment, and a changing environment as a driver of what is perceived as cultural identity: existing traits mixed with new traits, changing the view of what defines *belonging*. Figure 1 shows examples of a mix of cultures, across time and space. The first picture depicts an Egyptian sarcophagus, later re-used by a Phoenician king. On the top part of the sarcophagus we find Egyptian hieroglyphs whereas on the bottom part there is a text in Phoenician alphabet. The second photo shows a Roman sphinx on a grassy hillside in front of an oriental multi-storey apartment building in the center of Alexandria, Egypt. The third photo shows a cross on the summit of a mountain, a cross-culturally accepted sign on mountain tops across the Alps regions. The figure on the right hand side depicts a copy of a current Italian identity card. In contrast to regular Italian identity cards, this one is green instead of red, and is written in both German and Italian language - a statement of the multi-cultural environment in the province of Bolzano.

Figure 4: Mixed cultures across space and time.



Source: author's own. (from left to right) Egyptian sarcophagus later reused by a Phoenician king. Roman sphinx in front of an oriental multi storey building. The cross on a mountain summit, cross-culturally accepted as summit sign. ID card of the Autonomous Province of Bolzano – South Tyrol, officially written in German and Italian.

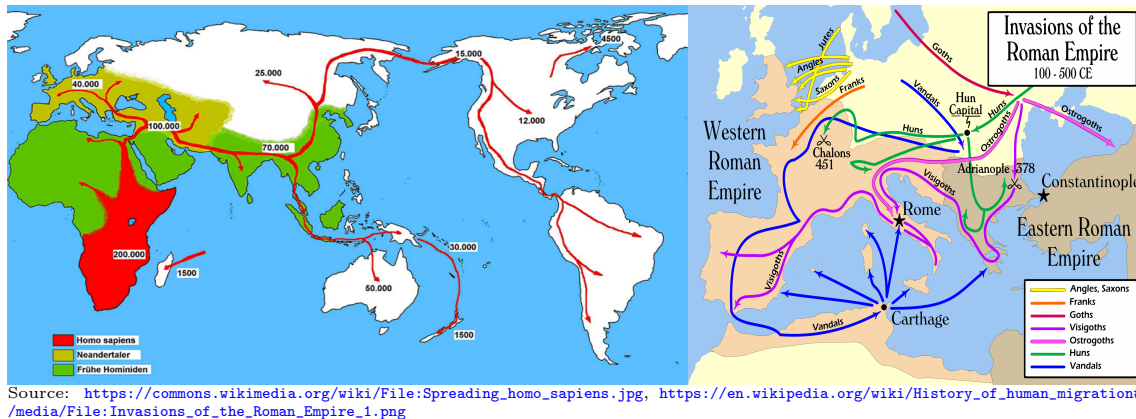
Although "cultural identity" is a dynamic concept, which varies greatly across space

and time, different, especially unknown traits from other cultures are often seen as estrange and "wrong". In some cases, the idea of adopting new cultural traits is perceived as being almost unthinkable. The protection of the "own culture" has led to many wars in the history of humanity, and is a fundamental driver of the political, social and economic environment in today's world.

The role of "cultural identity" in the shaping of institutions as well as economic development, and the question as to how "cultural identity" is formed, are the first core research interests of this thesis.

Whereas there are few nations today that are not multi-cultural to a certain extent, cultural diversity within and across nations is still increasing at a steady pace. One main driver in this increase in diversity is human mobility, or migration. Just like the ever-changing number and definition of cultures around the world, the concept of human mobility has existed since the beginning of the history of humankind. Oftentimes, population movements were strategies of *expansion* of existing empires, and other times they were strategies of sheer *survival*. Figure 2 gives examples of population movements in the pre-historic era, and during the times of Roman invasion. Initially, humans moved from populated areas to areas where there were no human settlements yet. Since the Neolithic age, migration has become mostly war-driven acquisition of territories from other peoples. In modern times, migration takes place as a movement between or within sovereign nations for reasons of labor mobility, family reunification, refugee migration and in the form of documented or undocumented migration. Another characteristic of population movements across time is their regularity. There is a difference between ongoing population movements, mostly for voluntary reasons, or spikes in population movement caused by extraordinary events that induced forced migration. Examples include the Great Atlantic Migration from Europe to North America in the 19th Century, which involved the migration of around 37 million people, or the partition of India which caused the displacement of up to 17 million people (Encyclopedia Britannica).

Figure 5: Examples of historic population movements.



These migration flows significantly affected - and still affect - the composition of populations across nations and continents, increasing ethnic, cultural and linguistic diversity. Human mobility is the second core literature this thesis is based on, and aims to enrich.

"Cultural identity" and "human mobility" are common phenomena, all across the time and space of the history of humankind, which are highly correlated with each other. If cultural identity is a major driving force of the political, social and economic environment all over the world, we define human mobility as its engine, and globalization as its fuel.

This thesis is a journey through the interplay between driving force, engine and fuel, asking the reader to stop and take a look through the magnifying glass at three specific aspects. The first chapter sheds light on the journey of humans who take the chance to find a new home in a new country; the second highlights the role of cultural identity and economic factors when taking the decision to leave the old home for a new; and the third investigates the effects that extreme circumstances, in particular through information bias, have on the formation of cultural identity.

## 2 The Economics of Migration and Diversity

Before taking the magnifying glass, I would like to paint a picture of both phenomena today. The understanding of the economics of migration and diversity is fundamental to ground the research questions answered in this dissertation.

### 2.1 The Economics of Migration

Today, international migration is defined as temporary or permanent movements of people across countries, for a range of different reasons. In this section, as well as

more generally in this thesis, we will focus on permanent migration, as opposed to temporary migration (for example, seasonal migration, or migration for study exchange, etc.). Furthermore, this thesis speaks mainly about voluntary as opposed to forced migration - hence we focus this section on voluntary migration as well. Three questions will help paint a picture of international migration today. 1) "What is the size and skill composition of modern international migration?" 2) "Who migrates? Forced vs. voluntary migration, and self-selection into migration." 3) "Who benefits from migration? Migration and global welfare." This dissertation aims at contributing to answering questions 2) and 3), more in detail explained below.

*1) What is the size and skill composition of modern international migration?*

Ozden et al. (2011) ask the question *Where on Earth is Everybody?* and try to picture the evolution of international migration from 1960 to 2000. Constructing square matrices for five completed census rounds, they find that the migrant stock rose from 92 million to 165 million. According to World Bank data, the migrant stock kept pursuing its steady rise, to 266 million people in 2018. South-North migration, i.e. migrants from developing countries to high-income countries, and South-South migration, account for the bulk of international migrants. The share of immigrants increased from 2.8 percent in 2000 to 3.5 percent in 2018, driven mostly by income gaps and employment gaps across countries, economic and social inequality, more broadly differences in the standard of living and institutional quality across countries, as well as climate change. The World Bank report "Leveraging economic migration for development" finds another major driver of current, and particularly future, migration: demographic imbalances. Whereas high-income countries struggle with an aging society and low birth rates, many developing countries still face the opposite societal phenomenon. Experts from the World Bank expect these imbalances to highly influence pressure for voluntary international migration. Another significant push factor for both voluntary and forced migration is the threat of climate change, which affects in particular countries that are vulnerable to consequences of extreme climate.

Looking now at the skill composition of this significant stock of migrants, the first model to introduce is the Roy model, which, when applied in the context of migration economics (e.g. Borjas, 1987; Grogger et al., 2011; McKenzie and Rapoport, 2010), shows that the differences in income between home and destination country determine self-selection into migration. The higher the difference in earnings between high and low skilled workers in destination countries, the more skilled the

migrant mix becomes. Grogger et al. (2011) furthermore find that English-speaking countries tend to attract higher-skilled immigrants, that emigration is greater towards destinations that share a common language with the source countries, and that such migrants are more skilled. Migrants perceive higher rewards to skill in destination countries where they can speak a language they know. Contiguity increases migration in scale, but for relatively lower skills. Colonial relationships increase the scale of migration as well, but also emigrants from former colonies are less skilled. Another impact factor to the skill mix appears to be asylum policies which may limit opportunities for more skilled migrants. As for Europe, the Schengen accord appears to have little effect on the scale of migration, except positive selection of migrants in terms of skills. McKenzie and Rapoport (2010) show furthermore, that migration networks are also a significant driver of the migration skill mix: higher skilled, smaller size migration networks attract higher skilled migrants, while bigger, lower skilled migration networks attract lower skilled migrants. In turn, higher skilled migrants develop a higher skilled migration network, and vice versa. This point leads us directly to our next question.

*2) Who migrates? Forced vs. voluntary migration, self-selection into migration.*

We distinguish between forced and voluntary migration. Whereas forced migration follows an exogenous shock (a political shock, a war, an extreme climate condition), and is often accompanied by specific immigration policies (e.g. asylum policies), voluntary migration is determined by self-selection into migration. Based on the Roy model I briefly introduced in question 1), a large body of literature has been looking at the question of self-selection into migration: who migrates and why? The relevance of this question is oftentimes related to the question of brain drain, or skilled emigration. Hence, a substantial body of research focuses on the skill composition when looking at self-selection into migration.

Self-selection is driven primarily by wage differentials net of migration costs. Borjas (1987) finds that individuals migrating from countries with high earnings inequality to countries with low earnings inequality will tend to be negatively self-selected. Thus, looking at Mexico and the US and their Gini index of income, negative self-selection would be predicted. However, what also has to be considered is that the cost of migration is not fixed, and not equal for everybody. Borjas (1991) determines the migration cost a function of direct costs, forgone income costs, and psychic costs, which varies for each individual. Second, the migration cost is not proportional to wages; it might be less costly for more educated individuals to migrate. This, then,

would predict positive self-selection of migrants. Finally, the migration cost is also partly determined at the community level. Thus, the pattern of self-selection should also depend on how costly migration is for a given community. Here we refer, on one hand, to the community in the origin country, but also to the migration in the destination country: what we call "migration networks". McKenzie and Rapoport (2010) argue that migration networks lower the costs of migrating (e.g. they can provide information on job opportunities, labor market conditions, border crossing, they can even help relaxing credit constraints etc.). The authors find that in communities with small migration networks, the probability of migration is increasing in education up to reasonably high levels of schooling, resulting in positive selection of migrants. This is consistent with high costs of migration being the determining factor of who migrates in these communities. Opposite results are reported for communities with large networks, where migration costs are lower.

In the third chapter of this dissertation, we return to this literature on self-selection into migration, and discuss another potentially important, yet unstudied, component of the emigration decision: the role of cultural preferences.

### 3) *Who benefits from migration? Migration and global welfare.*

Following questions 1) and 2), where we discuss the size and skill composition of migrants, the question of global welfare naturally arises. A present phenomenon in the public debate is the *brain drain*, according to which highly skilled individuals from developing countries migrate to high-income countries, leaving a low-skilled population behind, which, in turn, harms economic development. In the above question we discuss self-selection into migration and see that highly skilled migrants are indeed attracted by a higher wage-by-skill premium in destination countries.

Beine et al. (2001) distinguish between ex-ante brain drain (migration prospects increase investments in education at home), and ex-post brain drain (actual migration) and find that brain drain can be beneficial, if ex-ante brain drain dominates. In 2008, the authors carry out a cross-sectional analysis and find that, there are, on average more losers than winners and the losers tend to lose more than the winners gain. We see that the brain drain phenomenon is indeed observed, worrying economists and policy makers. Recent research focusing on *remittances* and *return migration* shows, that, as Clemens and Pritchett (2008) summarize well: migration is an efficient means of escaping poverty. Rapoport and Docquier (2006), document that overall, remittances have a positive effect on the long-run performance in the origin countries, at the micro and macro level. This long-run positive ef-

fect of remittances is, hence, present for the migrants' families, but also for entire developing economies - arguably remittances represent a more important source of external funding than ODA (Ordinary Development Aid) (e.g. Benmamoun and Lehnert, 2013; Bourguignon, 2006; Adams and Page, 2003; Meyers, 2002; Government Accountability Office (GAO), 2005; Jennings and Clarke, 2005). Migration literature focusing on the growth effects of emigration through remittances, education choices (endogenous human capital - leading to *brain gain*), return migration, and the effect of migration networks/diasporas, finds positive effects of migration on trade (Rauch, 1991, Iranzo and Peri, 2009) and/or FDI (Kugler and Rapoport, 2007, Docquier and Lodigiani, 2010), technology diffusion (Kerr, 2008), transmission of social norms/values such as fertility or female political empowerment, as well as democracy (Docquier et al., 2011; Batista and Vicente, 2011; Barsbai et al., 2017; Bertoli and Marchetta 2015). As opposed to looking at long-run effects, Gibson et al. (2011), look at the short-run effects of migration on household members remaining at home, and paint a less optimistic picture of the effect of emigration on the left-behind family. The authors find that family members might initially be worse off, however the authors also emphasize that in the long run, remittances may compensate (or even over-compensate) for the short-run loss. The authors hint at a point also emphasized by Clemens and Pritchett (2008), that the gains from the family members migrating *with* the initial emigrant might by far exceed the benefits through remittances.

Looking beyond the effects of migration, most recently, Hausmann and Nedelkoska (2018), find that return migrants to Albania had significantly positive effects on the employment levels and wages of non-migrants.

After discussing effects of migration on *origin countries*, let us take a brief look at *destination countries*. In this context, I briefly introduce the findings of Alesina et al. (2016) discussion on *birthplace diversity*. Whereas birthplace diversity, hence diversity through migration, might, on one hand, lead to skill complementarity, it might, on the other hand, lead to inefficiencies due to mistrust and lack of social cohesion. The authors construct a novel index of birthplace diversity, decomposed into the size and variety of the foreign born population, for 195 countries in 1990 and 2000. They find a robust positive correlation between birthplace diversity and income and productivity. A one standard deviation expansion in the diversity of skilled immigrants leads to long-run increases in income between 1.2 to 1.5. Bahar and Rapoport (2018), as well as Hausmann (2016) point out migration as an important channel for tacit knowledge ("knowhow") diffusion and with it, the enhancement of economic development. Hausmann describes this process as "moving



brains to deploy know-how", in an [op-ed](#), while writing about the importance of moving people rather than information.

We see that the question of migration and global welfare is not straightforward to answer - it depends on the context and measurement. What is recognized from an academic as well as policy point of view (see World Bank projections regarding demographic imbalances), is, that human mobility has a unexplored potential of considerable importance to spur economic development across countries in the world, for developing, emerging and high-income countries.

One crucial factor when discussing the welfare effects of migration, is the successful economic and social integration of immigrants, which strongly affects personal welfare, destination country welfare and origin country welfare through remittances. Chapter two of this thesis evaluates one major factor that impacts the immigrants' efficient integration in the host country's labor market: the language barrier.

## 2.2 The Economics of Diversity

Next, I give an overview on the economics of diversity, in general, and with a focus on cultural diversity. When speaking about *diversity* in the context of economic outcomes, we generally refer to diversity as a trait of a population. Any given population can be diverse in many ways: gender, age composition, language, religion, ethnicity and so on. The interplay between economics and the diverse characteristics of a population is non negligible. On one hand, economic policies tend to affect different parts of the population differently. In economics, we call this *analysis of the heterogeneity of effects* by specific characteristics. In the work that represents the first chapter of this thesis, for example, we find that language training for immigrants has a different effect for men than for women, for elder people relative to younger people, for different groups of immigrants (labor migrants, family migrants and refugees), and for immigrants whose native language is more or less linguistically distant to the destination country's main language.

While the analysis of the heterogeneity of effects is a well-established and common part of any economic analysis, the reverse question gives rise to a relatively recent strand of literature: *How does diversity affect economics outcomes?*

Relying on a range of different types of diversity (e.g. ethnic, religious, linguistic, genetic, birthplace or cultural diversity), the current body of research finds theoretical and empirical results that point in opposite directions. On one hand, the combination of diversity in skills, experience and ideas across groups and individuals (their *knowhow*), tend to lead to positive economic outcomes: increasing productivity and spurring innovation. On the other hand, higher degrees of diversity can also lead

to negative economic outcomes, caused by misunderstanding and hostility across diverse groups or individuals, who each believe that *their* way of doing things is the *only right* way: decreasing productivity and increasing conflicts.

Even though the findings on whether diversity is "good" or "bad" for the economy diverge, scholars agree upon the fact, that 1) it is difficult to measure diversity, 2) outcomes differ according to the measurement of diversity.

Common measures of diversity are ethnic fractionalization (Easterly and Levine 1997; Alesina et al. 2003; Fearon 2003, Alesina and Zhuravskaya, 2011; Alesina et al., 2016), linguistic diversity (Desmet et al., 2012), genetic diversity (Ashraf and Galor, 2013) birthplace diversity (Alesina, Harnoss and Rapoport, 2016), and other measures of social diversity (Bisin and Verdier, 2000 and 2001; and Bisin et al. 2011; Fouka, 2020; Laitin, 1998; Carvalho and Koyama, 2017; Fryer Jr et al., 2004; Rubinstein et al. , 2013; Biavaschi et al., 2017).

Research relying on measures of ethnic fractionalization, by the aforementioned authors, finds a negative effect between ethnic/linguistic diversity and a number of outcome variables: economic growth, quality of government, inequality, and, and an increase in conflicts. Looking at genetic diversity, Ashraf and Galor (2013), find an inverted u-shape relationship between diversity and development. In the discussion around migration economics, we have already briefly discussed birthplace diversity - a measure which repaints the picture about diversity and economic outcomes. First, the authors show that ethno-linguistic, genetic and birthplace diversity are mostly uncorrelated with each other. Second, they differ economically in that ethno-linguistic diversity has negative or insignificant results, while birthplace diversity has a robust positive effect on income even in the long run, and controlling for a large set of control variables. Economic analyses at the firm level largely confirm the macro results: negative effects for ethnic diversity, positive effects for birthplace diversity (Hjort, 2004; Brunow et al. 2015; Parrotta et al., 2014; Ozgen et al., 2013; Boeheim et al., 2012).

### *Cultural diversity*

Research related to the economics of cultural diversity is relatively young. One strand of the literature focuses on the determinants of culture (Alesina and Giuliano, 2015; Giuliano and Nunn, 2017; Bazzi et al., 2017; Galor and Savitskiy, 2018, Eder and Halla, 2020), and the other strand on the role of culture in economic development (Landes, 1998; Guiso et al., 2006; Alesina and Fuchs-Schündeln, 2007; Aghion et al., 2010; Spolaore and Wacziarg, 2009, 2013; Desmet et al., 2017). In their 2015

paper, Alesina and Giuliano look into the relationship between culture and institutions, following Putnam et al. 1993 who ask whether there is a causal link between culture and institutions, and how they interact. The authors find that both culture and institutions play a major role in economic development and that they work in a complementary way, including feedback effects on one another. A number of studies by the aforementioned authors confirm the results that intergenerationally transmitted traits like culture and common history play an important role in economic development, and that these traits are deeply persistent and follow historic roots. On the other hand, history also shows many significant episodes of cultural change. Giuliano and Nunn (2017) try to find an answer to the question of when a culture persists and when it changes, and find that populations whose ancestors lived in more stable environments have more persistent traditions today. In the same direction, chapter four of this thesis aims at finding an answer to the question as to whether cultural identity changes following an extreme event of information bias, in particular, misleading information.

Most recently, Bazzi et al. (2017) look into the integration process of immigrants, and how slowly the ethnic attachment to their origin country converges towards a new mixed identity, while Rapoport et al. (2017), are the first to develop a framework to determine the effects of migration on cultural change. In particular, they aim to answer whether migration spurs cultural convergence or divergence. Both theoretically and empirically, they find evidence for bilateral cultural convergence. The authors also discuss the direction of convergence, and whether social mixing or social remittances are the major driver for convergence. Whereas Rapoport et al. (2017) explain cultural change as a result of increased human mobility, in chapter three of this thesis we argue that cultural factors are also an important parameter in the emigration decision.

Robert Putnam, in his 2006 Johan Skytte Prize Lecture<sup>2</sup>, discusses the challenges and opportunities of a global society whose diversity is rapidly increasing. Putnam argues "[...] the central challenge for modern, diversifying societies is to create a new, broader sense of 'we'." (Putnam, 2007, p. 139) Following Robert Putnam's work, as well as the novel concept of the "sense of us" introduced by Ricardo Hausmann (2018), whether diversity is an opportunity or a threat, appears to ultimately come down to whether we perceive others as *we* or *they*. Hausmann, in his 2018 lecture at the London School of Economics and Political Science, "Development, Knowhow and Us", argues that the secret for development is technology adoption, which in

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<sup>2</sup>Note: The Johan Skytte Prize is oftentimes referred to as the Nobel Prize for Political Science.

turn depends on the spread of collective knowhow, and the openness to others: the "sense of us". In other words, following Mahatma Gandhi, "our ability to reach unity in diversity will be the beauty and the test of our civilization".

### 3 Contribution and Outline of the dissertation

After painting a brief picture of the two large bodies of literature, which would each deserve its own review in the length of this thesis, in this section I will walk the reader through the contribution and structure of this thesis. It would be impossible to describe the findings of the three chapters presented consequently, without introducing simultaneously the projects that frame the research questions.

*Chapter 2: The effect of language training on immigrants' economic integration: Empirical evidence from France*

The second chapter of this dissertation is joint work with Hillel Rapoport and Biagio Speciale, and aims at contributing to the literature on *migration and welfare*, more precisely on *the economic integration of immigrants* in the destination country. In many destination countries, immigrants still represent the most vulnerable part of the population, whereas one major obstacle to successful integration is the language barrier. On the 1st of January 2007, the French Government introduced an integration program that aims at improving the economic and social success of immigrants. All migrants older than 16 and coming from Non-EU countries have to sign a "Welcome and Integration Contract" ("Contrat d'accueil et d'integration" (CAI)). This contract imposes a civil training (e.g. on French institutions and values of the Republic), a language training, an information session on life in France and a statement of professional competence. The successful completion of these elements is essential for the renewal of the residency permit. In July 2016, the Government has introduced the "Contrat d'intégration républicaine", a modified version of the "CAI".

The unique framework of the language training organized by the French Ministry of the Interior allows to assess one major factor that impacts the immigrants' efficient integration in the host country's labor market: the language barrier. Chiswick (1991) and Borjas (1994) were among the first scholars to recognize the language barrier as one of the major hurdles in the immigrant's integration. Since then, improving the language skills has been acknowledged to play an important role in the assimilation and integration process. The econometric analysis of the relationship between language training and economic integration is challenging, and traditional

econometric tools could underestimate the true effect of the training if there are unobservable differences in skill levels. Hence, our study relies on a local randomized experiment in the form of a Regression Discontinuity Design to correct for the selection-into-language-training due to unobservables, such as ability.

The data my co-authors, Hillel Rapoport and Biagio Speciale, and I use comes from the "Enquête longitudinale sur l'intégration des primo-arrivants (ELIPA)", created by the French Ministry of the Interior. This database follows more than 6000 individuals, who received their residency permit in 2009, over three periods of time (2010, 2011 and 2013) in order to trace their integration paths. We evaluate the impact of the number of hours of language training (between 60 and 400) on several different variables related to the integration.

This paper is related to several branches of literature on the relationship between language skills and labor market performance, see among others Chiswick (1991), Chiswick and Miller (1995), Dustmann and van Soest (2001), Hayfron (2001), and Bleakley and Chin (2004). We complement this branch of the literature by exploring how language training plans proposed by the government affect labor market integration, not only through their potential effect on objective measures of language skills, but through several different mechanisms as well. We also innovate using a RD design, which has the properties of a local randomized experiment.

We find that the number of hours of training significantly increases labor force participation. We explore different mechanisms that explain the effect we find. We find little evidence for a signaling effect of the diploma received after the end of the language classes, for an increase in the size of the network and for an information effect related to access to welfare benefits. With regard to the main mechanism, the mere language channel, we find relatively little improvement; a slight improvement is observed for immigrants whose native language is not too distant from French. We find negative behavioral effects that may derive from disappointment from the integration plan. Finally, the information on job search strategies that individuals derive from the time spent with their classmates and teachers during the classes appear to be an important channel that helps immigrants to integrate in the French labor market. We believe that the insights we gain on the information mechanism amplify our understanding of language classes as a means of facilitating integration. This knowledge of the information channel is applicable beyond France, as long as the classes imply active interaction between immigrants and teachers for a sufficiently long time length.

This project showed me first-hand the importance of rigorously evaluating economic policies. Although a policy involving language classes may seem a relatively straight-

forward and efficient policy with great impact, there are many possible pitfalls to it, which we will discuss more in detail in the second chapter of this thesis: "The effect of language training on immigrants' economic integration: Empirical evidence from France".

This research project was, after presenting the results to the Ministry of the Interior, translated into an academic paper which allowed me to attain my first publication: in fact, the work was published in the *European Economic Review* 113, 2019.

*Chapter 3: Culture and Emigration: Evidence from the Hitler - Mussolini Migration Option Agreement.*

Chapters three and four are part of a larger project that aims at enriching, in several different ways, the literature on the interplay between culture, institutions, and economic development. We rely on a historic migration choice experiment that allows us to explore, on one hand, the formation of cultural identity, and on the other hand, the economic outcomes of cultural identity. In this dissertation I focus on the analysis of the impact of cultural identity on the emigration decision, and on the formation of cultural identity following extreme events. In my future postdoc project I aim at looking at the long-run effect that this migration episode had on the communities in question.

Culture has long been recognized by its major role in the creation of institutions, and on the wealth and well being of societies. In today's globalized world, characterized by free trade, FDI and increasing migration flows, culture assumes a decisive part of economic integration into the world markets. Recent migration literature points out the importance of the cultural aspects of migration on societal norms, and political institutions. Batista and Vincente (2011) look at political outcomes in the country of origin. Chauvet and Mercier (2014) analyze how return migrants impact elections in Mali. Docquier et al. (2016), focus on the impact of emigration on democracy, whereas Barsbai et al. (2016) consider the effect of labor migration on the diffusion of democracy leaning on the example of the Former Soviet Union. There exists, thus, a growing body of literature around the interplay between culture, migration, and institutions.

I look at the case of South Tyrol (now the northernmost province of Italy, and until WW I the southernmost province of Austria), whose Institutional Autonomy is an illuminating example in the search for solutions to problems in culturally divided communities. More precisely, I focus on a key event in the history of South Tyrol, the scars of which were to be felt by the population for decades to come. The so-

called "South Tyrol Option Agreement" of 1939 was designed with the hope that "migration might succeed where assimilation had failed" as part of an attempt to italianize the province (Alcock, 2001). On June 23rd, 1939 Fascist Italy and Nazi Germany signed an agreement in Berlin that gave the South Tyrolean population an option: to leave their homeland (move to the German Empire) and keep their culture, or to stay in their homeland and abandon their culture (accept full assimilation into Italian culture and language). The evaluation of the drivers of the emigration decision is the main research question of chapter three. The formation of cultural identity following a wave of misleading information about the consequences of this agreement, is the question I try to answer in chapter four.

This project involved not only desk research, but even more so the close work and coordination with our stakeholders (e.g. the National Archives of Bolzano, our research assistants, the financial stakeholders). It involved several months of scanning and data entry that I conducted manually with the help of research assistants to digitize the two percent sample I work with in this thesis. This project benefitted greatly from the financial grants of the Labex OSE at PSE, the Free University of Bolzano and the Institut Convergences Migrations. Furthermore, thanks to this project I was awarded the Austrian Young Scholar Award "Eduard Wallnöfer Preis" in December 2017.

Chapter three of this dissertation aims at enriching, on one hand, the literature on *self-selection into migration*, and on the other hand the literature around *cultural identity and its influence on human behavior*. More precisely, I examine the self-selection into migration during a historical migration choice experiment between Nazi Germany and Fascist Italy. This historical episode allows me to have unique insight in the decision making process when selecting into migration, with focus on economic and cultural components of the decision.

Nowadays, with increased migration pressure, the question about *why* individuals move away from home is pertinent. There exists a strand of literature that aims at finding answers to this question (e.g. Borjas, 1987; Bauer et al., 2005; McKenzie and Rapoport, 2010; Fernandez-Huertes Moraga, 2011), which mention economic push-factors (e.g. differences in income) and migration networks among other important drivers for selection into migration.

Differences in earnings are not the only component that lead individuals to take a migration decision. Other factors, like the feeling of safety and a future in both the home and the destination country, forgone opportunities in both countries, family and friends networks at home and abroad, as well as a cultural component can be

major influences as well. It is not evident to quantify the magnitude of the impact of each of these components on the emigration decision. The real world large scale migration experiment I examine tries to disentangle the cultural preference components and quantify their magnitude.

The second strand of literature I aim at contributing to is the recent literature around cultural identity and its influence on preferences and human behavior. Cultural identity is tricky to capture, yet has been shown to influence preferences and behavior significantly (see e.g. Akerlof and Kranton, 2000; Hoff and Pandey, 2006; Benjamin, Choi and Fisher, 2016; Bisin et al., 2016; Fouka, 2020). In this analysis I rely on three potential indicators of cultural ties to Germany: opter  $i$ 's first name to account for inherited cultural preferences, opter  $i$ 's migration history to Austria or Germany account for personally acquired cultural preferences and opter  $i$ 's parents country of citizenship and current residency. In addition, I look into a specification on a sub sample of opters with children, using an alternative measure for cultural preferences: manifested cultural preferences through the ethnic naming of newborn children.

I find evidence for cultural ties to play a major role in the migration decision: the stronger the ties to Germany, the more likely it is for 'opters' to leave. The most important of the economic components appears to be the strategic decision catching the opportunity of buying land from the neighbors. Looking at the heterogeneity of effects I see that the effects vary by family structure and age group, hinting towards the adoption of slightly different decision making strategies. Using data on the farming profession, on police records and illnesses, as well as officer fixed effects, I can rule out alternative explanations for emigrating, based on some historical evidence that suggests that part of the leaving decision was somewhat forced by the participating governments. Finally, I discuss empirically and theoretically the emigration probability as a function of an economic migration cost, and a migration gain through a social externality derived from the interaction of an agent with other agents from the same cultural type. I find that an agent's emigration threshold varies according to the intensity of cultural attachment and the migration cost.

#### *Chapter 4: Fake News and Cultural Identity: Evidence from South Tyrol in 1939*

Chapter four, joint work with Max Viskanic, studies whether an extreme event leading to information bias, here exposure to misleading information, can have an immediate and persistent effect on the shaping of cultural identity. This chapter, hence, adds to the literature around the *formation of cultural identity*, contributing



as well to a relatively recent strand of economic literature on the *effects of misleading information*. Our primary data source stems from the same recently digitized files as in chapter three.

First, this paper adds to the literature that studies how identity is shaped in response to policies that aim at assimilation and integration, see e.g. Bisin and Verdier (2000, 2001), Bisin et al. (2011) for theoretical foundations, and most recently Fouka (2020), who examines the prohibition to teach German language classes in US schools after WWI. She finds similar backlash from the German population as in Carvalho (2013), who finds that bans on veiling Muslim women can increase religiosity. Carvalho and Koyama (2017) show that when education is a means to transfer cultural traits, minorities can form a cultural resistance and under-invest in education.

The second strand of literature we aim at enriching, analyzes the relationship between misleading information and human behavior, more precisely, voting outcomes. See e.g. Allcott and Gentzkow (2017) who study data on consumption of fake news prior to the 2016 US election and discuss the economics of fake news, and Barrera et al. (2020) who run a randomized experiment studying the effectiveness of fact checking in countervailing misleading information by politicians.

The main contribution of this research paper lies in the novelty of the research question, which not only links two emerging strands of literature, but tries to bridge the non-evident link between fake news and identity politics. Here fore, we rely on state-of-the-art econometric techniques and a novel data set, which has been digitized most recently. More precisely, we aim at determining whether a historical episode of fake news provoked an immediate behavioral response in the affected individuals. In a comprehensive analysis of the heterogeneity of effects, we look at how this response translated into possible side effects, or externalities, for the children of the affected households. Finally, we investigate whether the rectification of the fake news had an effect on the behavior of the households, to examine possible persistence of the information bias.

Our main outcome variable is the naming pattern of newborn children, more precisely, the "Germanic-ness" of the first names of the newborns. The choice of this variable derives from three considerations. First, we follow the hypothesis that the first name of a newborn child is a manifestation of the parents' cultural preferences, and an observed change is a strong signal for a permanent behavioral response triggered by the fake news. Second, if we find fake news to affect cultural preferences, this is an alarming signal in terms of impact of false information on economic development in a broader sense. In his 2012 article "Culture and the Historical Process", Nathan Nunn explains and emphasizes the importance of cultural values and beliefs

in the history of economic development. Nunn describes "culture" as an input factor in decision making, and argues that culture is an important mechanism in the explanation of persistent effects of historical shocks. Not only are cultural values relevant in the explanation of persistence of historical shocks, but cultural values *per se* are, in turn, shaped by historic economic development. We investigate whether an information shock can affect cultural values, through immediate behavioral response, and if the effect is persistent.

For our empirical analysis, we construct a proxy for cultural preferences that we call "Nibelungen Index". We rely on the unexpected nature of the publication of the fake news to carry out an event history study, which allows us to claim causality on the impact of fake news on differing ethnically motivated behavior. For our analysis we rely on three different approaches: a non-parametric approach with local linear smoother, a parametric approach with distance from cutoff as polynomial function, and a household fixed-effects approach. We find that the fake news lead people to strengthen their cultural identity and specifically to name their offspring in a more German way. We find that women who were pregnant between the 3rd and 6th month at the time of fake news announcement were particularly prone to change the newborn's first name, and carry out a heterogeneity of effects analysis for gender and birth order of the newborns. Analyzing different channels for the change in naming patterns, we find an overall change in cultural preferences to be more pronounced than a change in economic incentives. We find interesting results for different channels by gender and birth order, which reflect the decision making strategies of the family nucleus. The results are in line with historic literature, as well as economic literature on the role of children in the family nucleus of agricultural societies. Finally, we carry out a set of robustness tests.

The results found in this research paper aim at shedding light on the negative repercussions from exposure to misleading information, in particular, the permanent carving of our information set, an immediate behavioral response, and negative externalities to others. We find evidence for all three repercussions, which in the context of cultural identity emphasize how deeply rooted the consequences of misleading information can become.

Conclusively, I hope that in the vast literature around the interplay between human mobility and cultural identity, I can contribute with novel insight, in an academically rigorous and yet relevant and practical manner. I wish the reader a pleasant journey.

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## 2 The Effect of Language Training on Immigrants' Economic Integration: Empirical Evidence from France

### Abstract

We examine the impact of language training on the economic integration of immigrants in France. The assignment to this training, offered by the French Ministry of the Interior, depends mainly on a precise rule: the training is provided if the test score of an initial language exam is below a certain threshold. This eligibility rule creates a discontinuity in the relation between the test result and the variables of interest, which is used to estimate the causal effect of language training, through the method of Regression Discontinuity Design. We find that the number of assigned hours of training significantly increases labor force participation of the treated individuals. The language classes appear to have a larger effect for individuals with higher levels of education, while there is no robust differential effect by type of migration, gender or age. Our estimated coefficients are remarkably similar when we rely on local linear regressions using the optimal bandwidth with few observations around the threshold and when we control parametrically for a polynomial of the forcing variable and use the whole estimation sample. We conclude with a discussion of the candidate mechanisms for the improved labor market participation of immigrants.

*Keywords:* immigrants' integration, language training, Regression Discontinuity Design.

*JEL classification:* J15, J61, J68.

# 1 Introduction

Immigrants often represent the most vulnerable fringe of the labor force and France is no exception (Algan et al., 2010). In the mid-2000s, the French government introduced a series of policies aimed at improving the economic and social integration of immigrants and at providing immigrants the dignity guaranteed by fundamental human rights. Since the 1st of January 2007, every new legal immigrant to France who is older than 16 and is coming from a country outside the EU, has to sign a *Contrat d'accueil et d'intégration* (CAI). This contract imposes a civil training (e.g., on French institutions and the values of the French Republic), a language training, an information session on life in France and a statement of professional competence.<sup>3</sup> This study evaluates the component of the CAI related to the language training. In fact, after the signature of the CAI contract, the immigrant has to pass a test on the knowledge of the French language, written and spoken. If the result is insufficient, the person is likely to receive a training. The assignment to this training depends, therefore, mainly on a precise rule: the treatment (i.e., the language training) is available when the test results are inferior or equal to a certain threshold. This eligibility rule creates a discontinuity in the relation between the test result and the variables of interest. We use this discontinuity to estimate the causal effect of the CAI language training, through the method of Regression Discontinuity (RD) design. Straightforward regression analysis could lead to bias in the estimation of the relation, since individuals who take the language classes are different in unobservable characteristics from the individuals who are not assigned the training. The proposed method is based on the hypothesis that immigrants who are just above and just below the eligibility threshold are comparable and similar in several dimensions, except for their participation in the linguistic training organized by the Ministry of the Interior.

This unique framework allows, thus, to assess one major factor that impacts the immigrants' efficient integration in the host country's labor market: the language barrier. Chiswick (1991) and Borjas (1994) were among the first scholars to recognize the language barrier as one of the major hurdles in the immigrant's integration. Since then, improving the language skills has been acknowledged to play an important role in the assimilation and integration process. Indeed, the data we use in our analysis – the ELIPA dataset – show that 45% of all individuals in our sample think that the lack of French language skills is the main obstacle to immigrants' integration.

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<sup>3</sup>On the 1st of July 2016, the French Government modified some aspects of these integration policies. The new integration plan is denoted *Contrat d'intégration républicaine*, CIR.

The econometric analysis of the relationship between language training and economic integration is challenging, because if the least skilled immigrants attend the language classes and some skill dimensions are unobservable, then traditional econometric tools would underestimate the true effect of the training. Our study uses a local randomized experiment in the form of a Regression Discontinuity Design to correct for the selection-into-language-training due to unobservables, such as ability. Our empirical analysis shows a higher probability of participating in the labor force due to the language classes. Looking at the heterogeneity of effects by education level, we find that the higher the level of education, the bigger the impact of the language training on labor force participation. Instead, there appears to be no differential effect of the training on labor force participation by type of migration (labor migrants, refugees or family migrants), gender or age.

Our analysis aims at estimating the overall effect of language training, which may derive from a number of different mechanisms. The main channel is the language effect. We find an improvement in objective oral language skills for individuals whose native language is not too distant from French. There is as well suggestive evidence of an information effect: before, during and after the classes, immigrants can obtain useful information on job search strategies from interactions with classmates and teachers.

Since we have few observations around the threshold of the assignment variable (i.e., the entry test score), we compare estimates from local linear regressions using the optimal bandwidth with parametric estimates over the whole sample, controlling for a polynomial of the forcing variable. The two approaches provide results that are remarkably similar.

Our paper is related to several branches of literature. There are works on the relationship between language skills and labor market performance, see among others Chiswick (1991), Chiswick and Miller (1995), Dustmann and van Soest (2001), Hayfron (2001), Berman et al. (2003), Dustmann and Fabbri (2003), and Bleakley and Chin (2004). Chiswick (1991) studies the determinants of English language fluency among immigrants in the US and the effects of self-reported language skills on earnings. He finds that reading fluency is more important than speaking fluency as a determinant of income. Chiswick and Miller (1995) provide an international comparison of the relationship between language and income, using data from Australia, the US, Canada and Israel. Dustmann and van Soest (2001) show that neglecting measurement error in self-reported assessments of language proficiency leads to a substantial downward bias of the impact of speaking fluency on earnings. For non-parametric identification of the earnings equation, they use the education level of

the immigrant’s father as instrument in the speaking fluency equation. Hayfron (2001) investigates the impact of language training on the linguistic proficiency of immigrant men in Norway and estimates the labour market returns to Norwegian language proficiency. He uses ethnicity of the wife and mother tongue as instrumental variables for linguistic proficiency in the earnings regression. His estimates show no statistically significant effect of language skills on immigrants’ earnings. Using retrospective information on linguistic proficiency, Berman et al. (2003) study how language acquisition affects immigrant earnings growth for Soviet immigrants to Israel. They find that language explains a large part of the differential in earnings growth between immigrants and natives in high-skill occupations, while it has no discernible effect for low-skilled occupations. Dustmann and Fabbri (2003) analyze data from the UK. They combine a matching estimator that addresses the problem of endogenous choice of language acquisition with an IV estimator that eliminates the bias due to measurement error in the self-assessed measures of language skills. The instrument they use is a dummy variable equal to one if the interview was done in English only. Their estimates show that fluency in English increases employment probabilities by about 22 percentage points. Instead, the estimates on earnings are not statistically significant, when both endogenous selection and measurement error are taken into account. Finally, Bleakley and Chin (2004) solve the endogeneity of language skills in immigrants’ earnings equations, using age at arrival interacted with a dummy for non-English-speaking country as instrumental variable. We complement this branch of the literature by exploring how integration plans proposed by the government affect labor market integration, not only through their potential effect on objective measures of language skills, but through other channels as well. We also innovate using a RD design, which has the properties of a local randomized experiment.

The second branch of the literature this paper is related to, uses test scores or other eligibility rules as assignment variables of local randomized experiments in contexts of human capital investment. Chin et al. (2013) investigate the effect of bilingual education on the academic achievement of students with low English proficiency and their peers in Texas. In case of bilingual education, the students attend some classes in English and other classes in the native language (with Spanish-English programs by far the most common). The authors exploit a policy rule requiring a school district to offer bilingual education depending on a cutoff value of enrollment of limited English proficient students.<sup>4</sup> Our work contributes to this literature by focusing on

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<sup>4</sup>See Cappellari and Di Paolo (2015) for a study of bilingual schooling and earnings in Catalonia, which relies on a difference-in-differences framework and exploits a reform that introduced Catalan alongside Spanish as medium of instruction in Catalan schools.

the effects of language training for immigrants, which is a relevant research question given that poor language skills is a major obstacle for the immigrants' economic and social integration in host countries.

Finally, the article that comes closer to our study is by Sarvimäki and Hämäläinen (2016). They analyze the effect of a change in Active Labor Market Policies for unemployed immigrants in Finland, using a fuzzy RD design that relies on a cutoff date of arrival determining whether immigrants are affected or not by the reform. Sarvimäki and Hämäläinen (2016) estimate the effect of implementing tutoring of caseworkers in integration plans, which aims to improve the communication between caseworkers and immigrants and to make sure the immigrants understand their integration plan. Over a follow-up period of 10 years, they find remarkable benefits of the tutoring policy for the immigrants. Differently from that study, our work focuses on the impact of the language training itself (rather than tutoring of caseworkers in integration plans), on a broader set of outcomes related to the immigrant's integration (among others, the formation of networks and objective measures of language skills), and on the test scores of an initial language exam as assignment variable (rather than a cutoff date determining eligibility for the reform). Moreover, we empirically assess several mechanisms that might explain the relationship between languages classes and immigrants' economic integration.

The rest of the paper is structured as follows. Section 2 provides background information on immigrants' integration policies in France. Section 3 presents the data this study relies on and descriptive statistics that motivate our analysis. Section 4 explains the empirical strategy. Section 5 presents the results, as well as the mechanisms at work. Finally, section 6 concludes.

## 2 The French "*Contrat d'Accueil et d'Intégration*" (CAI)

As previously explained, every new legal immigrant to France who is older than 16 and is coming from a country outside the EU, has to sign a contract, which imposes a civil training (e.g., on French institutions and on the values of the French Republic), a language training, an information session on life in France and a statement of professional competence. The language training is the only part that is conditional upon the passing or failing of an entry exam - all other parts are mandatory for every CAI signatory. Until recently this integration contract was the so-called *Contrat d'accueil et d'intégration* (CAI), introduced in 2007. In July 2016, the French Government launched an updated version of this program, under the name of *Contrat d'intégration republicaine* (CIR). In this paper, we evaluate the language training component of the CAI.

Following the signature of the CAI, all individuals had to take an evaluation of language skills which is designed and carried out by "FLE" (*Français langue étrangère* or French as a Foreign Language) instructors. The exam was carried out individually for every CAI signatory, during a general interview at the OFII (*Office Français de l'Immigration et de l'Intégration* or French Immigration and Integration Office) with an auditor of OFII who is "FLE" certified. This language exam evaluated immigrants' actual language skills relative to an A1.1 (a "survival") level. Individuals with language skills above this level were likely to succeed at the highest grade, even though their French language skills might have been very basic. For the individuals who were assigned this training - designed by "FLE" instructors as well - the number of assigned hours ranged from 60 to 400, depending on how much training was needed to achieve an A1.1 level. The scope was, indeed, to bring all individuals' language skills to the same level: A1.1. The number of hours was decided by the organization that carried out the language classes and depended on guidelines written by the language class providers (e.g., language schools) before submitting their offer and being chosen through government procurement contracts.<sup>5</sup> The content of the training was structured in three blocks: public life (e.g., institutions, values, secularism), practical life (e.g., health, education) and professional life (e.g., job search, employment contract types). Once the training was over, an evaluation was made and the individuals got a diploma of basic French skills, which was an important requirement to renew the residence permit. After the first renewal, this one-time language course allowed to extend the residence permit as often as the individuals wished. Only in case the immigrants wanted to naturalize, they had to present a B1 certificate level. In sum, the CAI system foresaw no system of progressive learning of the new language: once the level A1.1 was attained, individuals did not have to further improve their French - unless they wanted to apply for naturalization. Thus the offered training stopped at levels that were generally too low for economic integration. The individuals did not speak French well enough to be considered employable.

It is worth providing more detailed information on the fraction of immigrants who were assigned language training by area of origin and language distance, as well as information on the distribution of assigned hours of training. 25% of the immigrants (equally distributed between men and women) were proposed the language training program. Out of the individuals who failed the test, 90% were proposed the training,

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<sup>5</sup>These language class providers are chosen through government procurement contracts; in most cases these are private schools or associations specialized in teaching French as foreign language as well as in teaching adults. The CAI signatories obtained specific OFII language classes and were not mixed with regular participants of the respective language school.

whereas of those who passed the test, 15% were proposed the training. Grouping immigrants by nationality shows that immigrants from Asia are the most likely to be assigned language training (36%), second most likely are immigrants from Maghreb (23%), whereas immigrants from European countries and Sub-Saharan Africa are less likely to be assigned language training. Australia and Oceania, as well as other African countries, account for the lower range. Table A3 in the appendix presents test results by geographic origin areas. For immigrants from Asia - the most common geographic group to be assigned training - the probability of failing is more than 70%, whereas out of the individuals who failed, 67% got a grade of zero. Dividing immigrants in two groups by language distance relative to French, 25% of the immigrants from high language distance countries were proposed the training, while 18% of the immigrants from low language distance countries were not.

Out of a minimum of 0 and a maximum of 400 hours, the average number of prescribed hours of French classes is 264, the median number is 200. The mode as well is 200 hours (24% of the immigrants who are in the estimation sample and are assigned the training) and the second and third most frequent number of assigned hours are 400 (17%) and 300 (16%), respectively.

73% of all individuals offered a language training program completed their training by 2011. Of those who had completed the training, 95% passed the DILF French language exam (Diplôme Initial de Langue Française), which provides them with a recognized diploma. Nonetheless, 70% of the individuals who took the CAI language classes think that this training was not enough to read and speak French - they would have wished to have additional hours.

The compliance rate - i.e., the percentage of immigrants who were assigned language training and actually attended the classes - was high: 91%. The reason for this high compliance rate is that attending the training sessions of the CAI is a requirement enhancing the probability of renewal of the residence permit. For the individuals who abandoned or did not follow their language training, the most important reasons involved were "being pregnant", "having to take care of children" or "health issues". By 2013 almost 90% completed their language training, 97% of whom passed the DILF.

### 3 Data

The study is based on the database *Enquête Longitudinale sur l'Intégration des Primo-Arrivants* (ELIPA), created by the *Département des statistiques, des études et de la documentation* (DSED) of the French Ministry of the Interior. These data contain detailed socio-demographic information on the interviewed immigrants. For



each individual in the sample, the dataset also includes administrative information by the *Office français de l'immigration et de l'intégration* (OFII) on the test results that determine admission to the language training program.

### 3.1 ELIPA

The *Enquête Longitudinale sur l'Intégration des Primo-Arrivants* (ELIPA) is a longitudinal survey on the integration of first-time arrived immigrants in France. The first wave was carried out in 2010 (baseline survey), the second wave in 2011, and the final wave took place in 2013. The survey aims at following the path of the individuals and collects a large set of information regarding socio-demographic characteristics, bureaucratic itinerary, employment, language skills, living conditions and social integration. The individuals are immigrants from countries outside the EU and Switzerland who are at least 18 years old and were granted their residence permit at the end of 2009.<sup>6</sup> The survey considers individuals who asked for a residence permit of at least one year and want to settle permanently in the country.<sup>7</sup>

### 3.2 Data on Test Results and Outcome Variables

In order to evaluate the integration of immigrants as broadly as possible, we use several different outcome variables. We measure labor market outcomes in 2013, three years after the baseline survey and the entry test determining assignment to the language classes. Our main dependent variables are labor force participation (equal to 1 if being employed or registered as unemployed, 0 otherwise)<sup>8</sup>, employment status (equal to 1 if employed, 0 otherwise), type of contract (equal to 1 if permanent contract) and type of employment (a dummy equal to 1 if full time job;

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<sup>6</sup>The dataset only includes information on immigrants residing in the host country with a regular residence permit. Examples of works that analyze the effects of legal status on several aspects of immigrants' integration are Kossoudji and Cobb-Clark (2002), Dustmann, Fasani and Speciale (2017), Pinotti (2017) and Devillanova, Fasani and Frattini (forthcoming).

<sup>7</sup>The following categories of residence permits are excluded from the survey: students and trainees; employees on assignment; holders of residence permits with endorsements for "skills and talents", "research" or "business"; high-level executives and family members accompanying them; holders of a permit endorsed as "visitor" or "arts and culture professional"; veterans; and persons from third countries entering France for medical treatments (Direction générale des étrangers en France, Département des statistiques, des études et de la documentation, 2010).

Permanent residents represent a large fraction of immigrants. For example, in 2010, 17663 migrants obtained a residence permit for employment reasons in France: 15992 as permanent workers (i.e., holding a permanent work contract or work contract with length of more than 1 year); 627 as temporary workers (contract length inferior to 12 months); 1044 as seasonal workers (for specific types of jobs and no more than 6 months per year).

<sup>8</sup>In the section where we present the results, we mainly focus on labor force participation because this is the dependent variable for which we find statistically significant effects of the language classes.

another dummy equal to 1 if informal work). Furthermore we also measure income per household individual.<sup>9</sup>

The ELIPA dataset provides detailed information on the language training and results of the entry test. The latter information is not self-reported, but it is provided by the OFII. The training is not assigned to all individuals. It is exclusively offered to, and compulsory for, a subset of individuals. After signing the CAI, each immigrant has to take a language test, which is composed of five parts: one oral part that grants a score of 70 points maximum and four written exams that, together with the oral exam, grant a total score of 100 points. There is a higher focus on the oral language skills in this evaluation. This is due to the low reference level of language knowledge (A1.1). We create a running variable that sums the points gained from each of the tests. The total grade is in intervals of five points and its maximum value is 100 points. 45 is the last failing grade and 50 is the first passing grade.

Table A4 in the appendix presents how assignment to language training is related to the grades of the written and oral entry tests. Out of the 191 immigrants who were assigned language training among those in the estimation sample, 64 obtained a grade equal to zero in both the oral and written tests. 85% of the people who obtained the worst grades in both the oral and written tests were assigned language training. Interestingly, the other most frequent combination of grades that determines assignment is the best results in both types of entry tests: 70 for the oral test and 30 for the written test. 53 immigrants among those who got these top grades at the entry test were assigned French language classes. However, this corresponds to only 3.69% of the people who obtained these grades, given that most of the immigrants – more precisely 66% of those in the estimation sample – obtained top grades in both types of tests, i.e. it is easy for an immigrant to obtain the maximum grades in the entry test.

### 3.3 Descriptive Statistics

Most of the new immigrants (69%) were granted a residence permit on the grounds of family migration. The other two main administrative reasons are the granting of refugee status (14%) or economic migration, which is migration for employment reasons (12%). The slight majority of the new immigrants (51%) are women. The average age at arrival is 29. All the individuals in the sample received their residence permit in 2009, however, they have not all arrived in the same year: on average,

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<sup>9</sup>Income per household individual is defined as the total income of the household divided by its “consumption units”. These are calculated following the equivalence scale of the OECD, which attributes one consumption unit to the head of the household, 0.5 to other members of age 14 and older, and 0.3 to children below the age of 14.

immigrants have been living in France 3.5 years before the survey. The main region of origin is Africa: 33% are from the Maghreb and 28% from sub-Saharan Africa. The reason why a residence permit was issued widely differs by origin. Family migrants more often come from the Maghreb countries (43%), economic migrants from sub-Saharan Africa (53%) and refugees from Asia (40%).

The immigrants' employment rate rose steadily: from 47% in 2010 (66% for men and 28% for women), to 56% in 2011 (74% and 38%) and 64% in 2013 (79% and 49%). In 2010 more than 50% of all immigrants who worked found their current job through relations and recommendation (family, friends, third persons), whereas in 2011 this number decreased to 39% for those people who had a new job in 2011 relative to 2010, replaced by responses to job offers in newspapers, from the *Pôle Emploi* (the French national employment agency), and spontaneous applications. In 2013, 38% of the workers found their current job through relations and recommendations. The numbers of responses to job offers from newspapers and spontaneous job applications increased further. Tables A1 and A2 in the appendix show additional descriptive statistics on socio-demographic characteristics by language training status, as well as labor market outcomes by gender and year.

Immigrants with lower language skills are less likely to have a job. In 2013, 65% of immigrants with very good French skills had a job, while only 56% of immigrants with little or no French had one. In 2011, 59% of immigrants with very good French had a job, while only 43% of immigrants with little or no French had one. In 2010, the percentages were 48% versus 32%.

## 4 Regression discontinuity design (RDD)

As explained, each new legal immigrant to France has to take a language exam assessing her knowledge of the French language, written and spoken. If the result is insufficient, the person is likely to be assigned to a language program. The rule is the following: the treatment (i.e., the linguistic training) is likely to be offered when the test results are inferior or equal to a certain threshold. More precisely, the exam is composed of five parts. The first part is an oral examination, where the individual can obtain a score between zero and 70 points. The four additional written tests give a maximum of 30 possible points. The total score ranges from zero to 100 points and is measured in intervals of five points. 45 is the last failing grade and 50 is the first passing grade. This eligibility rule – which is not necessarily known by the immigrants – creates a discontinuity in the relation between the test result and the variables of interest. The discontinuity will be used to estimate the causal effect

of the linguistic training, through the method of Regression Discontinuity Design.<sup>10</sup>

#### 4.1 Fuzzy RDD

The treatment is heterogeneous in the sense that different individuals can be assigned a different number of hours of language training. The range goes from 0 to 400 hours, in steps of 10. The assignment to the language training and the number of hours do however not solely depend on the fact of passing or not the language exam. The government may take into account other personal and socio-demographic characteristics of the immigrant as well. So, for the same test score, an immigrant coming from a non-francophone country may have a higher probability of being assigned language training (and more hours of classes) than an immigrant from a francophone country (Le Quentrec-Creven, 2014). Nonetheless, the language examination is the most important variable taken into consideration. As Figure 1 shows – considering the total test score of the entry exam as horizontal axis and the number of hours of language training as vertical axis – there is a clear cutoff at the passing threshold.

Given that our running variable is not the only determinant of the treatment status, we employ the method of fuzzy RD design, using the test result to build an instrument for the number of hours of language classes the immigrant was assigned.

Our first and second stage regressions are set up the following way. Equation 1 represents the second stage of the 2SLS specification:

$$Y_i = \beta_0 + \beta_1 LC_i + \beta_2 X_i + \varepsilon_i \quad (1)$$

$Y_i$  is the outcome of interest for individual  $i$  (e.g., labor force participation, employment status, objective language skills, etc.) and  $X_i$  is a vector of control variables. Our main explanatory variable is  $LC_i$ , which is equal to 0 if no language classes were assigned or the number of prescribed hours if the language training was assigned. We are, thus, interested in the coefficient  $\beta_1$ . Equation 2 is the first stage of our specification:

$$LC_i = \alpha_0 + \alpha_1 T_i + \alpha_2 X_i + v_i \quad (2)$$

$T_i$  is the assignment variable, that is a dummy equal to 1 if the immigrant did not succeed the language test or 0 if she did succeed. More precisely,  $T = 1$  if

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<sup>10</sup>See Lee and Lemieux (2010) for a survey of RD design in economics and Pinotti (2017) for a recent application of this methodology to assess the effect of immigrants' legal status on crime. Kolesár and Rothe (2018) justify the use of non-continuous running variables in RD designs.

$TestResult < cutoff(50)$  and  $T = 0$  if  $TestResult \geq cutoff(50)$ .<sup>11</sup>

The set of control variables of vector  $X$  includes education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the “Ile-de-France” region (i.e., the geographical area around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the immigrant has already spent in France, dummy variables indicating the reason to migrate (the three main options being labor migration, refugee migration, and family migration), a dummy variable equal to 1 if the individual was employed in 2010 (i.e., at the time of the language entry test), and country of origin fixed effects.

#### 4.2 Two approaches: local linear regressions and parametric estimates using the whole sample

A peculiarity of our setting is that we have few observations around the threshold (see Figure 3). For this reason, we compare estimates from local linear regressions where we focus on a small neighborhood around the threshold with estimates from parametric regressions using the whole estimation sample. To choose the subsample of immigrants for the first approach, we rely on the optimal bandwidth selector suggested by Calonico, Cattaneo and Titiunik (2014), which is compatible with fuzzy RD designs. We also check the robustness of our results using alternative bandwidths. The second approach we rely on instead uses the whole estimation sample. This adds statistical power and robustness to the results, since we do not have a sufficiently large sample size around the threshold.

We choose a vector of polynomials to approximate the functional form of our model. Equations (1) and (2) can be rewritten as follows:

$$Y_i = \beta_0 + \beta_1 LC_i + \beta_2 Dist_i + \beta_3 Dist_i * T_i + \beta_4 X_i + \varepsilon_i \quad (3)$$

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<sup>11</sup>Table A5 in the appendix shows results of regressions with the number of assigned hours of French language training as dependent variable and different main explanatory variables: a dummy equal to 1 if the total test score of the entry exam is inferior to 50 (column 1), a dummy equal to 1 if both the grades of the oral and written tests are equal to 0 (column 2), a dummy equal to 1 if the grade of the oral exam is equal to 0 (column 3) or a dummy equal to 1 if the grade of the written test is equal to 0 (column 4). The main explanatory variable in column 1 is the variable that we consider in our RDD analysis. It is worth noting that we get a higher R-squared when we consider this explanatory variable, which further corroborates our choice of the rule that determines assignment. See Egger and Wamser (2015) for an example of work that relies on sharp multi-dimensional RD design and fuzzy one-dimensional RD design.

$$LC_i = \alpha_0 + \alpha_1 T_i + \alpha_2 Dist_i + \alpha_3 Dist_i * T_i + \alpha_4 X_i + v_i \quad (4)$$

where the variables are defined as in equations (1) and (2).  $Dist_i$  is a row vector of polynomial terms of the test result normalized around its cutoff value, 45 (i.e., the first failing grade). These terms control for the distance from the cutoff and define the functional form of our model.  $Dist_i * T_i$  allows the functional form to vary on each side of the cutoff. For our estimates we will gradually increase the polynomial degree, from the first to the second. We stop at the second order polynomial, following the suggestions of Gelman and Imbens (2016) about the flaws of controlling for higher-order polynomials. We follow the literature in considering  $T$  as the only excluded instrument in equation (4).<sup>12</sup>

In all specifications we cluster standard errors by country of origin times test score of the initial language exam. In our context, this approach has the advantage of exploiting the information on the assignment variable – as suggested by Card and Lee (2008) – and generating a sufficiently large number of clusters: 45 clusters for the local linear regressions using the 30-65 bandwidth and 325 clusters for the parametric estimates using the whole sample.<sup>13</sup>

### 4.3 Validity of the RD design

Figure 1 depicts the first stage of our model. The graph plots the relationship between the test score and language training, both with raw data and with residuals from a regression of language training on the control variables at baseline.<sup>14</sup> Panels A and B of Figure 1 plot the test score against the number of assigned hours, and Panels C and D the test score against the probability of being assigned training. The line shows the predicted values of a local quadratic smoother with rectangular kernel. We can clearly identify a jump around the cutoff: the number of hours of

<sup>12</sup>As Angrist and Pischke (2009) suggest, the resulting just-identified IV estimator has the advantage of having good finite sample properties.

<sup>13</sup>In Table A14, we show that our main findings are robust to the use of alternative ways of clustering the standard errors: two-way clustering by country of origin and test score of the initial language exam (Cameron et al., 2011), one-way clustering by country of origin, one-way clustering by test score of the initial language exam, wild bootstrap (Davidson and MacKinnon, 2010) by test score of initial language exam and robust standard errors. In our setting the first and the third alternative approach suffer from the few clusters issue, which may lead to downward-biased cluster-robust variance matrix estimates and over-rejection of the null hypothesis  $H_0 : LC = 0$  (Cameron et al., 2015). The second alternative approach does not cluster the standard errors on the values of the forcing variable, as Lee and Card (2008) suggest to do when the assignment variable is discrete. Estimates are less precise when using wild bootstrapped standard errors clustering on test scores only.

<sup>14</sup>Although there are potentially 10 points to the left of the threshold for the 10 possible grades, Figure 1 depicts 8 points, since there are no observations for the grades 10 and 20.

language classes are, indeed, remarkably higher for individuals who failed the test (i.e., who have a test result of 45 or less) with respect to individuals who passed the test.

In Figure 2 we plot labor force participation in 2013 against the running variable (the test result in 2010), again with raw data and after baseline characteristics have been controlled for. The line shows the predicted values of a local quadratic smoother with rectangular kernel. In this figure as well there is a clear jump around the cutoff: individuals who marginally failed the test, and were thus more likely to take up the language training program, appear to have a higher probability of participating in the labor force in 2013 than those who marginally passed the test.

Next, in the spirit of the McCrary (2008) test, we plot the density of the forcing variable, to make sure the test scores have not been manipulated around the cutoff. Given that in our context the running variable is discrete, we have checked its density by plotting histograms. Figure 3 shows the frequency of observations for each grade over the full sample and around the threshold. Focusing on the frequency around the threshold, we see that there is a higher mass around the test result of 50, which is the first passing result. However, this is a low density overall: 42 individuals have a test result of 50. The figure also shows that there is a lower mass for the first failing grade (i.e., 45). Again, these histograms emphasize the importance of the two approaches towards the estimation of the impact of the language classes. Since the density around the passing threshold is low, considering the whole sample of individuals – while controlling parametrically for a polynomial of the distance from the threshold – adds statistical power and robustness to the results.

In our context, manipulation of the entry test scores by the individuals on the one hand and the provider of the language classes on the other hand, is unlikely.<sup>15</sup> In order for our methodology to be valid, we need to be sure that the individuals close to the cutoff did not purposely fail the language test. This case is, intuitively, to be ruled out. There is no incentive to try to fail the test marginally – for instance targeting a test score of 40 or 45 –, as this strategy induces the risk of not failing, as well as having a lower number of assigned hours. Furthermore, as explained earlier in the paper, the language examination takes place during the regular CAI interview – so the interviewee does not know which questions account for how many points and how many questions there are. In addition, the individual does not necessarily know the threshold needed to succeed the entry test. On the other hand, it is equally im-

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<sup>15</sup>While in this section we explain why manipulation of the assignment variable around the threshold is conceptually unlikely, in Appendix A.1 we consider robustness checks to address this potential threat to the validity of our empirical strategy. These checks are important because Figure 3 shows excess bunching at the first passing grade and at the zero test score.

portant that the results were not manipulated by the language class provider. The risk here is that the test scores of individuals who would have marginally failed, were pushed upwards to pass the test, or vice versa. Also this hypothesis can likely be ruled out. As discussed in the previous section, the test score of the entry exam is not the only variable that matters for the assignment to language training. There is no incentive, therefore, on the side of the language class provider, to manipulate the test result. If the government wants to assign - or not to assign - language classes to a specific individual it simply does so. In addition, there is no upper limit to the number of people who can be admitted to the training - the training is provided to every person who needs it.

Nonetheless, we still observe a missing mass at the test score of 45. If we look a bit more in detail on the test structure, we see that this missing mass derives from the structure of the exam itself, and not from possible manipulation by any involved party. In order to explain the missing mass around the passing threshold (45 points) it is important to point out the structure of the test. The exam grades go from zero to 100, with 50 being the first passing grade. The test is composed by an oral and a written part. From the oral part the participant can obtain a minimum of zero and a maximum of 70 points, where 35 points from the oral part are necessary to pass the overall exam. In our data, the variable “oral exam” has three values: 0, 35 and 70. The written part is composed of four sub-exams, in ascending levels of difficulty, which reward respectively the following number of points: 5, 10, 10, 5 and hence a total of 30 points. In our sample (and from Figure 3) we can see the missing mass between zero and 35. These are individuals who got zero in their language exam but managed to get a few points from their written exams. The next threshold is 35 – corresponding to individuals who got 35 points at the oral exam and zero for the written exam, and then 40 points if they pass the first (easiest) part of the written exam, 50 points if they pass the first and the second part of the written exam and so on. It is to notice here, that in order to receive the grade of 45, the individual needs to get 35 points in the oral exam, and 10 points in the written exam. Given the structure of the test, this implies that the few people who actually have the 45 grade, failed the first (easiest) part of the written exam but passed the second or third (more difficult) part of the written exam. The following conditional probabilities show that it is unlikely to pass Part 2 or Part 3 of the written exam - which both provide either 10 or 0 points - conditional on having failed Part 1 of the written exam (which is graded either 5 or 0):  $\Pr(P2=10 \mid P1=5) = 90.5\%$ ,  $\Pr(P2=10 \mid P1=0) = 9\%$ ,  $\Pr(P3=10 \mid P1=5) = 79.7\%$  and  $\Pr(P3=10 \mid P1=0) = 8.4\%$ . Hence the structure of the test explains the low frequency of the 45 grade.



Similarly and importantly, in Figure 3 we observe a decrease in mass at the value of 55 for the same mechanical reason, and at the value of 80 – which is, again, 10 points above the grade of 70 (next oral exam grade threshold).

Finally, we follow the literature on RD design and carry out a test of balance of pre-treatment characteristics, in order to check whether there is sorting around the threshold. Table 1 shows the reduced form estimates, with 19 different dependent variables in their 2010 values (i.e., observed at the time of the entry test). We regress each one of these variables<sup>16</sup> on a dummy variable equal to 1 if the test result is strictly inferior to 50, including polynomials of the forcing variable (centered around the threshold) to the second degree. Ideally, we expect no significant coefficients, which would confirm random sorting around the threshold. And indeed, for all 19 variables we find no significant coefficient, showing no evidence of a discontinuity between test scores and baseline characteristics.<sup>17</sup>

## 5 Results

Table 2 presents our first stage results (Panel A), as well as the second stage estimates (Panel B), using labor force participation as dependent variable.<sup>18</sup> Labor force participation is equal to 1 for all individuals who are employed or registered as unemployed in 2013. By then, almost 90 percent of the individuals have already completed their language training. It is, thus, a point in time that is advanced enough to show first effects on economic integration, but does not allow yet to study long run effects.

Our results are presented in eight columns, where each odd-numbered column shows the estimates without control variables and country of origin fixed effects, and each even-numbered column presents the results from the regressions that include a set

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<sup>16</sup>Education level, age, time already spent in France, a dummy equal to 1 if the individual is resident in the “Ile-de-France” region, a dummy equal to 1 if the individual is male, a dummy equal to 1 if the person is married, number of children in the household, number of individuals in the household, a dummy equal to 1 if the individual is employed at the time of the entry test, a dummy equal to 1 if the individual is taking other French classes, three dummies for the different migration reasons, and regions of origin. All these variables are measured in 2010.

<sup>17</sup>Figures 4a and 4b depict the relationship between each of the 19 baseline variables and the test score. Here the relationship seems to be different on either side of the threshold for some variables. This emphasizes the importance of checking the robustness of our results by adding the control variables to the regressions. See Blundell and Costa Dias (2002) on the possibility to control ex post for unbalanced covariates in endogenous binary treatment models based on the assumption of conditional mean independence.

<sup>18</sup>In this section, the main focus is on labor force participation as dependent variable, because for this outcome of interest we find statistically significant effects of the language classes. In Table 7, we show results from regressions using other labor market outcomes as dependent variables.

of control variables and country of origin fixed effects. The set of control variables is the one presented in section 4.1.

The first four columns in the table follow our first approach: local linear regressions around the cutoff. For this approach, in line with the literature on RD design, we determine the optimal bandwidth around the cutoff. For this purpose, we use the optimal bandwidth selector suggested by Calonico, Cattaneo and Titiunik (2014), which is compatible with fuzzy RD designs. The preferred bandwidth includes individuals with test results between 35 and 60 points. For the sake of robustness, we also report the estimation results of a specification using a larger bandwidth, considering individuals with test results between 30 and 65 points.

The second set of results, columns five to eight, follows our second approach, the parametric estimates over the whole sample. We increase the polynomial of the forcing variable centered around the threshold (i.e., the distance of the test score from the threshold) from the first to the second degree and include as well interactions with our instrumental variable equal to 1 if the test result is lower than 50.

Looking at the first stage in Table 2, in all specifications we find a highly significant impact of failing the entry test on the number of assigned hours of French language training. The second stage shows the effect of additional 100 hours of training on the probability of participating in the labor force. We observe a significant positive impact, which is robust throughout the specifications. An increase by 100 hours of training raises the probability of participating in the labor force between 14.5 and 26.6 percentage points. This is a sizable effect, considering the average probability of labor force participation in 2013 being 81%. Our results imply that a 1-standard deviation increase in the number of hours of assigned language classes raises labor force participation by about 0.4 standard deviations.

In Table 3, we check whether our results are driven by the sparseness of the data in the middle of the entry test distribution (see Figure 3). This check is also motivated by the high probability of labor force participation for those just below the threshold, as Figure 2 shows. In Panel A of Table 3, we present estimates of specifications similar to those in Table 2, except that we consider the entry test scores in intervals of 10 points rather than in intervals of 5 points as in Table 2.<sup>19</sup> In particular, we combine the 40 and 45 test scores, the 50 and 55 test scores, and so on. This implies a larger bin size with more individuals for each bin. Panel B of Table 3 shows estimates where we include a fixed effect for the missing mass at the 45 test score, i.e., a dummy variable equal to 1 if the entry test score is equal to 45, 0 otherwise. Panel

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<sup>19</sup>The information we have on the entry test score from the OFII is in intervals of five points. The discreteness of the data, therefore, is not the result of anonymization/categorization of the data, but it results from the way points are assigned.

C of Table 3 instead presents donut specifications where we exclude grades 45 and 50.<sup>20</sup> Overall the estimates in the three panels of Table 3 confirm our results, even if the donut specifications in columns 7 and 8 present coefficients that are imprecisely estimated.

The results of our benchmark specification may differ according to the immigrants' characteristics. Heterogeneity may derive from higher learning efficiency of certain groups of people, for instance young and highly-educated immigrants, or from labor market demand characteristics that may determine different returns to language acquisition, for instance if gender affects the likelihood to work in language-intensive occupations. Table 4 shows heterogeneity of effects by education level, which is defined as the number of years of education. The range goes from 0 to 17, with a median value of 12, which is equal to a high school degree. The most frequent levels of education are 0 years at school – i.e., no schooling – (26% of the individuals in the sample), 12 years at school (19% of the individuals) and 17 years at school (17% of the individuals). The table shows that the higher the level of education, the bigger the impact of the language training on labor force participation. Illiterate immigrants have little benefit from the language classes, which may suggest the importance of combining language classes and literacy policies for individuals with no schooling. For all our specifications, the coefficients  $a_0$  and  $a_1$  are jointly significant at the median value of education level (12 years).

Table 5 analyzes the impact of the language classes on labor force participation by migration category.<sup>21</sup> Panel A considers labor migration relative to other types of migration (family, refugee, other). In Panel B, we focus on refugee migration, while in Panel C on family migrants relative to the other categories. Overall the lack of statistical significance of the interaction term suggests that the effect is not heterogeneous by type of migration.

In Table 6 we consider labor force participation by gender and age category. These regressions are motivated by findings in previous literature. For instance, Gathmann (2015) looks at the impact of waiting time for naturalization on several economic and social integration indicators. She finds that women are more likely to participate in the labor force, but invest less in education and language skills. With regard to age, in principle learning a new language might be easier for individuals who arrive

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<sup>20</sup>The approaches of Panels B and C in Table 3 to deal with anomalies around the threshold in the distribution of the running variable are similar to those in previous related literature, see for instance Barreca et al. (2011) and Bharadwaj et al. (2013). In Appendix A.1, we discuss robustness checks for possible manipulation of the assignment variable.

<sup>21</sup>In the specifications of Table 5, we compare each type of migration to all other types combined together, because we prefer to estimate a more parsimonious specification with fewer endogenous regressors.

in the country at a young age, as Chiswick and Miller (1995) show. However, the estimates in Table 6 do not show evidence of a robust differential effect by age or gender in the context of the CAI language training.

Table 7 presents regressions using other labor market outcomes as dependent variables. The results for employment, permanent contract, informal work and income per household member are ambiguous. The estimates hint towards a negative impact on the probability of having a full-time job. Although these findings show little robustness throughout the specifications in terms of significance, the negative effect on full-time job may be explained considering the language training as an investment into future employability. Due to the language classes, the individuals might not be able to work full-time, an effect that could last for few years after the classes. For instance, this may happen if the immigrant works part-time during the language classes and does not quit her/his part-time job after the end of the classes .

To summarize the main results, we find a strong labor force participation effect without an increase in the probability of employment. However, it is important to stress that our data do not allow for assessing the long run effects of the language classes on employment. Also, the basic level of the language training implies that those who attend the French classes end up with language skills that generally remain inferior to those of the people who were not assigned the training. Our results suggest that the A1.1 level of the language courses does not improve the immigrants' employability level.<sup>22</sup>

## 5.1 Mechanisms

An important question is to discuss the mechanisms through which the language classes impact on economic integration. Our work aims at estimating the overall effect of language training and we point out five possible channels, which we analyze in Tables 8 and 9. We present all these mechanisms as potential outcomes rather than adding them as control variables in the specification of Table 2 to avoid a "bad control" problem, which would generate selection bias (Angrist and Pischke, 2009).<sup>23</sup>

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<sup>22</sup>In unreported regressions, we analyzed treatment intensity using generalized propensity score estimation. This approach was developed by Hirano and Imbens (2004) and Imai and van Dijk (2004), who extended propensity score matching to continuous treatments. Becker, Egger and von Ehrlich (2012) is an example of application of this approach. In our analysis, we do not find statistically significant differences in labor market outcomes when we compare immigrants with more versus less treatment, focusing on the sample of people who were assigned language training. This approach also shows that selectivity matters less when we compare low versus high treatment intensity, excluding immigrants who did not attend French language classes.

<sup>23</sup>The estimates in Tables 2-7 allow for a causal interpretation and quantification of the total effect of language training on labor market outcomes. The estimates in Tables 8 and 9 may also

The first and most direct mechanism is an objective improvement in the language skills, especially for immigrants whose native language is not too distant from French. To check for this channel, we use the results of a written and oral language exam that all individuals in the sample had to take in 2013, as well as self-reported language skills. The estimates are presented in Panel A of Table 8. Columns 1 and 2 show no robust significant impact of the language classes on the actual language skills of immigrants. There is a hint towards a negative subjective perception of one’s writing skills, which might be related to a negative behavioral effect associated to the disappointment of the absence of impact of the integration policies on employment. This result - whose interpretation seems to be confirmed by other findings below – needs however to be considered with caution. By 2011 over 70% of the language class participants had already completed their training. Measuring language skills in 2013 means quantifying the skills two years after completion of the classes for most individuals. During this time, language skills might have decreased again if no further training was taken. Nonetheless, descriptive statistics show that over 70% of the individuals who were assigned language training do not think the training was enough to learn French, and about the same percentage would have liked to have more hours of classes. Column 3 in Table 8 reports estimates of the heterogeneity of effects, which allow to analyze the role of the distance of the native language to French. To compute measures of language distance, we follow previous literature (for instance, Fearon, 2003; Desmet, Ortuño and Wacziarg, 2012; Alesina, Harnoss and Rapoport, 2016; Laitin and Ramachandran, 2016) and use Ethnologue’s linguistic tree diagrams to determine the number of common nodes between the native language of the immigrants – there are about 100 different native languages in our estimation sample – and French. In particular, we compute language distance  $d$  as follows:

$$d_{French \ Other \ Language} = 1 - \left[ \frac{\# \ of \ common \ nodes \ between \ French \ and \ Other \ Language}{\frac{1}{2}(\# \ of \ nodes \ for \ French + \# \ of \ nodes \ for \ Other \ Language)} \right]^\lambda \quad (5)$$

where in line with previous literature we consider  $\lambda$  equal to 0.5.<sup>24</sup>

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receive a causal interpretation, and allow for discussing candidate mechanisms; however a full decomposition of the total effect into an indirect (mediated) effect – which runs through one or more intermediate variables denoted mediators – and a residual effect – which is a direct effect of the treatment on the outcome – would require additional separate instruments to be dedicated to the mechanisms and additional exogeneity assumptions. See the literature on causal mediation analysis, among others Huber (2016) and Frölich and Huber (2017). We believe that for this specific context, the advantages of causal mediation analysis - which would require a less parsimonious specification with several instrumental variables - would remain limited.

<sup>24</sup>For instance, French is classified as: Indo-European, Italic, Romance, Italo-Western, Western,

For the objective oral language skills we observe an improvement through language classes for individuals whose native language is not too distant from French (the coefficient is statistically significant up to the 42nd percentile of the language distance distribution), while the effect is not statistically significant when computed at the median value of the language distance variable (0.62). The estimates also show a negative effect of the language classes on subjective writing skills: this coefficient is significant at the median value of language distance.

A second possible channel works through a signaling effect. Potential employers could see a language diploma as a signal for language proficiency and higher ability of the immigrant. Indeed, after completion of the number of assigned hours, the participants take the DILF exam, which provides them with a diploma recognizing the acquisition of basic French skills. By 2013, 97% of the participants passed this test, which hints at actual efficiency of the language training. If the signaling effect were an important driver of our main findings, we would expect to observe a significant increase in the employment rate. However, as we have already discussed, Table 7 shows that this is not the case. This finding presents evidence against a signaling effect at work. A possible reason for this result is that if the diploma acquired by individuals who took the official language course is known to correspond to a low level of French, then employers will not view the diploma as a positive signal.

The third channel we look at is based on network effects. There is literature showing the role of networks (especially high quality networks) in the integration process (e.g., McKenzie and Rapoport, 2010). The language training could give access to new networks of French friends, international friends or friends from the same country of origin. For instance, this may happen if the individual improves her language skills and becomes more sociable. Also, during the period of the language classes, the immigrant might interact more with her classmates, while having less time to socialize with other people. Panel B in Table 8 shows the estimates for the probability of having new friends in 2011 and 2013. We find some evidence of a negative impact on making new French friends in 2011 and no impact on other potential networks.

As a fourth channel, we consider behavioral effects. In principle, we would expect positive effects if immigrants are encouraged to participate in the labor force because the government implements an integration plan. Instead, we find suggestive evidence of negative behavioral effects, probably because immigrants are demotivated after they realize the integration policies are not effective in increasing the probability of

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Gallo-Iberian, Gallo-Romance, Gallo-Rhaetian, Oil, French. Spanish is instead classified as Indo-European, Italic, Romance, Italo-Western, Western, Gallo-Iberian, Ibero-Romance, West Iberian, Castilian. From equation (7), the two classifications imply that the language distance between French and Spanish is 0.205.

employment. Indicators for this channel are the lack of an impact on self-reported language skills (and the negative effect on subjective perception of writing skills), as well as a negative effect of the language classes on "feeling at home" in France, interest in French politics and interest in the origin country's politics (see Panel B of Table 9).

Finally, we find suggestive evidence of a positive effect of the training through our fifth channel, the channel of information. The participants to the training are likely to benefit from positive interactions that the language classes produce. Before, during and after the classes the participants can use their time to exchange about their experiences in France and to give each other important advice on the French life and labor market. This exchange involves not only the participants, but also the teacher. For immigrants, it is simple and time-saving to talk to the teacher and other participants in class, as compared to trying to find the information on their own elsewhere. Furthermore, the language classes are applied to a specific content which consists of three blocks: public life, practical life and professional life. Hence, the training itself is an important source of information about life in France. This is how attendance to the classes can provide a valuable source of information on life in France and job search strategies.<sup>25</sup> In Panel A of Table 9, outcome variables related to this channel – such as "searching and / or having found a job through *Pôle Emploi* (the French national employment agency)", "having passed the driver's license in France" and "having asked for the recognition of the latest academic diploma" – all show positive significant coefficients.

It is possible to rule out the possibility that the information channel works through increased access to welfare benefits.<sup>26</sup> There are two potential welfare benefit allocations. The first is the so-called RSA ("*Revenu de solidarité active*") which is a specific type of minimum income allocated to individuals with no income - for immigrants it is limited to those residing in France for at least 5 years or for individuals with refugee status. The second type are the "*allocations chômage*" (unemployment benefits), for which there is an eligibility rule of at least 4 months of work in France. However, none of these allocations are linked to participation to the CAI language training or to registration to *Pôle Emploi*. This suggests that the mechanism at work is likely linked to information related to job search strategies rather than to access to welfare benefits.

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<sup>25</sup>The *Contrat d'accueil et d'intégration* also includes an information session on life in France, which lasts 6 hours only. The advantage of the interactions during the language classes is that the average time length is higher, and therefore the immigrant has more time to think and ask about information that is useful for her integration.

<sup>26</sup>See "Service-Public.fr" for detailed information on the French social welfare system.

## 6 Concluding remarks

We examine the impact of language training on the economic integration of immigrants in France. The language classes are offered by the French Ministry of the Interior after the immigrant signs the *Contrat d'accueil et d'intégration*. The training is more likely to be available when the test score of an initial language exam is below a certain threshold.

Our study is novel and important in at least two directions. First, we use a local randomized experiment in the form of a Regression Discontinuity Design to estimate the effects of language training on immigrants' integration. Second, we look at the mechanisms through which language classes impact on a set of outcome variables related to economic integration.

We find that the number of hours of training significantly increases labor force participation. The language training shows a significantly higher impact on labor force participation for individuals with higher levels of education. The effect does not appear to be statistically different by age, gender or type of migration. Furthermore, the language classes do not significantly increase the probability of employment. The latter finding however needs to be interpreted with caution because our data do not allow to analyze long run effects.

We explore different mechanisms that explain the effect of language classes on labor force participation. We find little evidence for a signaling effect of the diploma received after the end of the language classes, for an increase in the size of the network and for an information effect related to access to welfare benefits. With regard to the main mechanism — the mere language channel — our estimates show evidence of an improvement in objective oral language skills up to the 42nd percentile of the language distance distribution, i.e., for immigrants whose native language is not too distant from French. We find negative behavioral effects that may derive from disappointment from the integration plan. Finally, the information on job search strategies that individuals derive from the time spent with their classmates and teachers during the classes appear to be an important channel that helps immigrants to integrate in the French labor market.

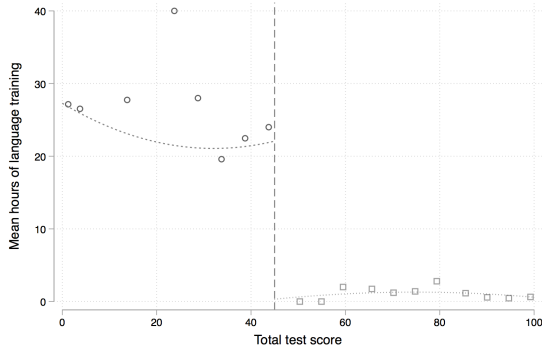
We believe that the insights we gain on the information mechanism amplify our understanding of language classes as a means of facilitating integration. We can speculate that this knowledge of the information channel is applicable beyond France, as long as the classes imply active interaction between immigrants and teachers for a sufficiently long time length. For Finland, the reform analyzed by Sarvimäki and Hämäläinen (2016) allocated more resources toward language courses, in addition to improve communication between caseworkers and immigrants, and this was benefi-



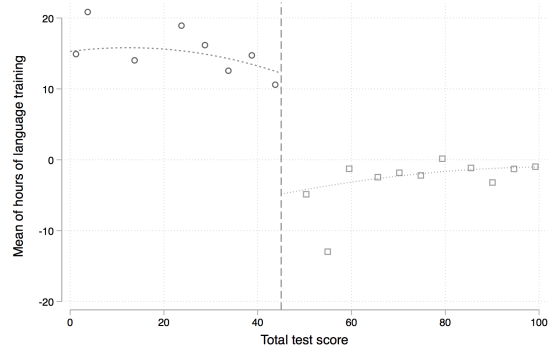
cial for the immigrants' earnings, even if it did not affect their employment prospects. In France, the language classes of the *Contrat d'Intégration Républicaine* - the new integration plan introduced by the French government on the 1st of July 2016 - provide more advanced training than the CAI language classes. The government now organizes as well free courses at the A2 and B1 level, which are important to renew the "multi-annual" residence permit and for the immigrant's naturalization. To analyze whether this change in the integration policy is beneficial to immigrants' integration, there is a need to collect new data on labor market outcomes for several years after the policy change.

Figure 6: Figure 1: First stage graph  
 (1) Number of assigned training hours

(a) Raw data

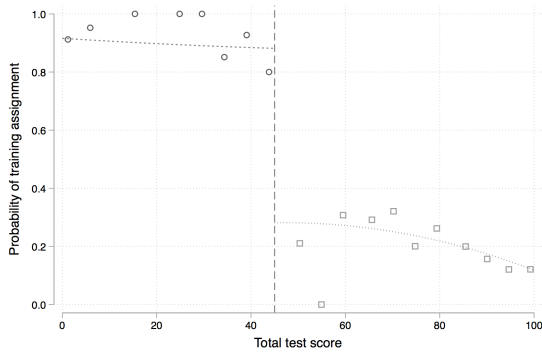


(b) Residuals from a regression on covariates

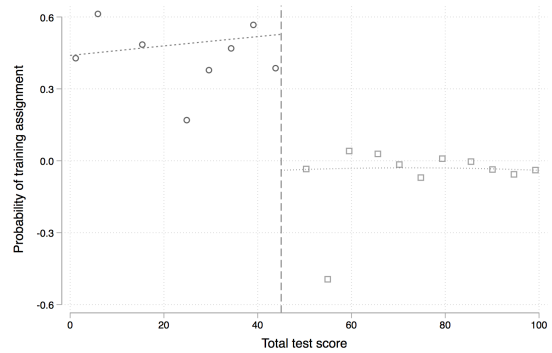


(2) Probability of being assigned training

(c) Raw data



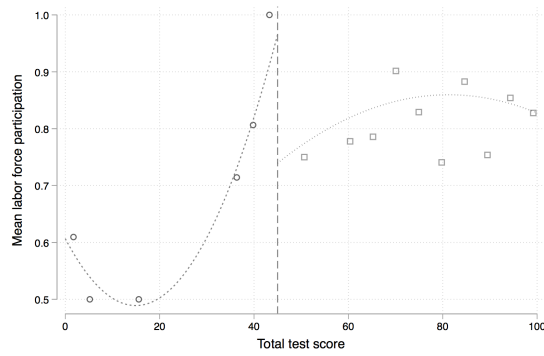
(d) Residuals from a regression on covariates



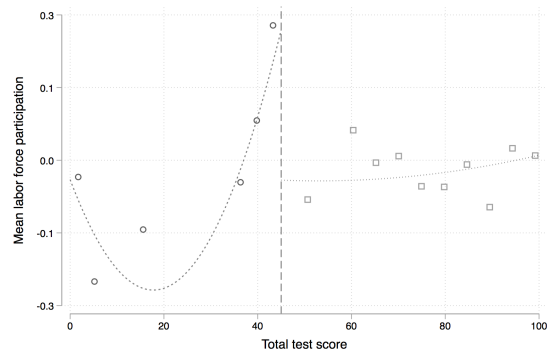
First stage plot. The left parts of this figure (panels A and C) show the relation on raw data, the right parts of the figure (panels B and D) plot residuals from a regression on "Number of hours of language training" or a dummy equal to 1 if the immigrant is assigned training, on a set of covariates (education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the "Ile-de-France" region (i.e., the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the immigrant has already spent in France, dummy variables indicating the reason to migrate, a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects). The variable "Total test score" refers to the language entry exam and is observed in interval of 5 points. The line shows the predicted values of a local quadratic smoother with rectangular kernel.

Figure 7: Figure 2: Reduced form graph  
 (1) Entire sample

(a) Raw data

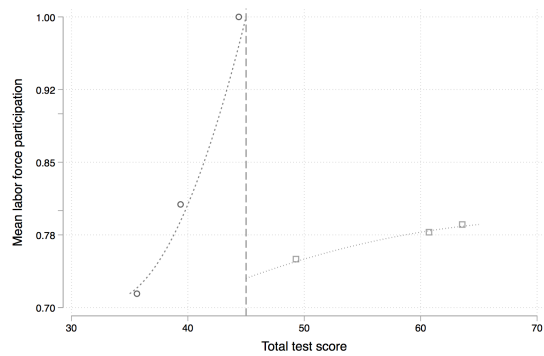


(b) Residuals from a regression on covariates

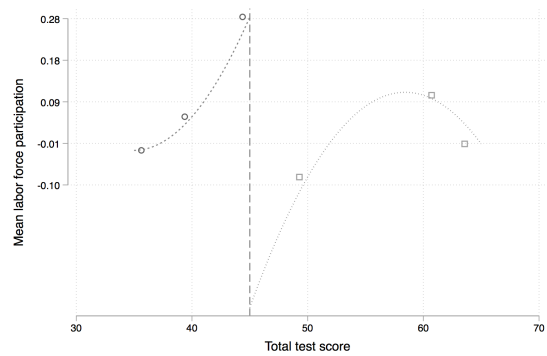


(2) Bandwidth of test scores between 30 and 65

(c) Raw data



(d) Residuals from a regression on covariates



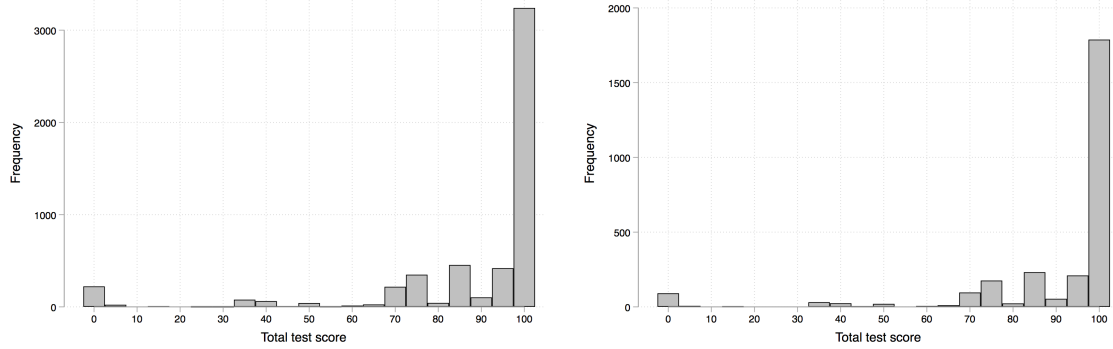
Reduced-form relationship. The left part of this figure shows the relation on raw data, the right part of the figure plots residuals from a regression of "Labor force participation" (observed in 2013) on a set of covariates from the baseline survey (education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the "Ile-de-France" region (i.e., the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the immigrant has already spent in France, dummy variables indicating the reason to migrate, a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects). The variable "Total test score" refers to the language entry exam and is observed at baseline in interval of 5 points. The line shows the predicted values of a local quadratic smoother with rectangular kernel.

Figure 8: Figure 3: Test score of the language entry exam

(1) Density plot over the entire sample

(a) Entire sample

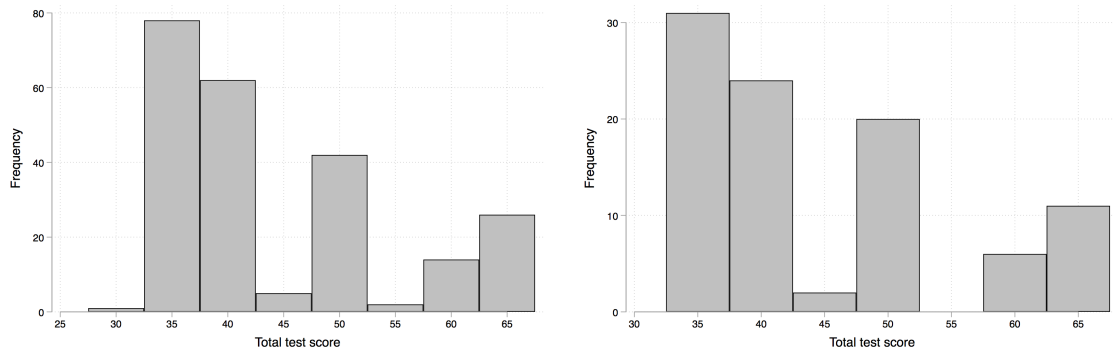
(b) Estimation sample



(2) Density plot zoomed on the threshold

(c) Entire sample

(d) Estimation sample



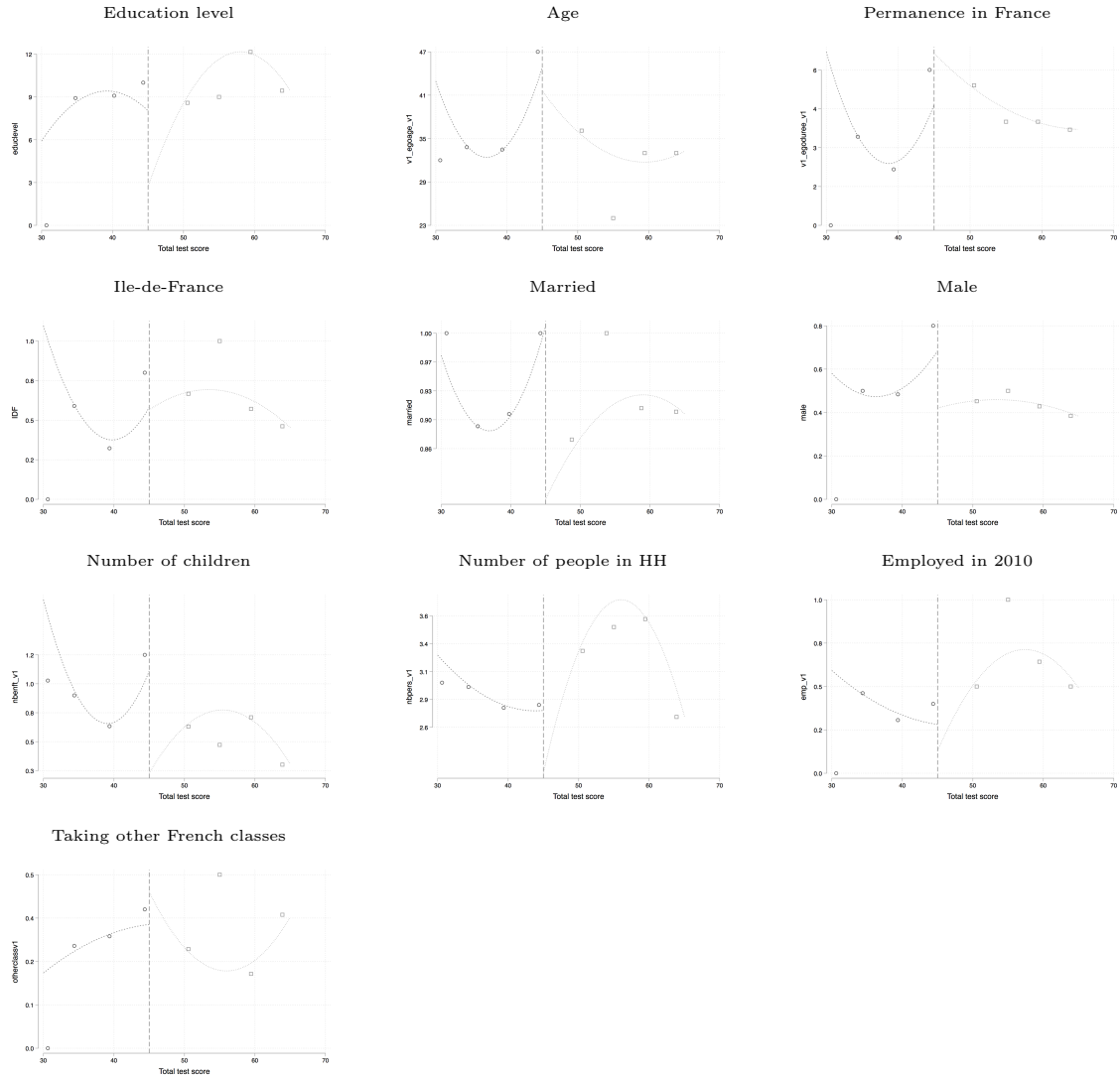
The y-axis represents the frequency, the x-axis the total test score (which refers to the language entry exam and is observed at baseline in intervals of 5 points).

Table 1: Test of Balance of Pre-Treatment Characteristics, in 2010.

Test of Balance of Pre-Treatment Characteristics, in 2010.										
Panel A: Demographic and household characteristics										
	Education level	Age	Permanence in France	Ile-de-France	Married	Male	Number of children	Number of people in HH	Employed in 2010	Taking other French classes
I(test score initial language exam < 50)	-0.772 [2.381]	0.787 [4.094]	-2.071 [1.863]	-0.397 [0.243]	-0.048 [0.125]	0.152 [0.210]	0.013 [0.378]	-0.897 [0.593]	-0.205 [0.202]	0.010 [0.136]
Polynomial of degree	2	2	2	2	2	2	2	2	2	2
Observations	4,969	5,299	5,298	5,307	4,231	5,307	5,307	5,307	5,303	5,304
Panel B: Types of migration and regions of origin										
	Work migration	Refugee migration	Family migration	Europe	Asia	Maghreb	Sub-Sah. Africa	Africa (other)	America & Oceania	
I(test score initial language exam < 50)	-0.080 [0.097]	0.120 [0.185]	0.035 [0.216]	0.113 [0.171]	-0.256 [0.271]	0.315 [0.451]	0.019 [0.218]	-0.098 [0.158]	-0.093 [0.118]	
Polynomial of degree	2	2	2	2	2	2	2	2	2	
Observations	5,307	5,307	5,307	5,307	5,307	5,307	5,307	5,307	5,307	

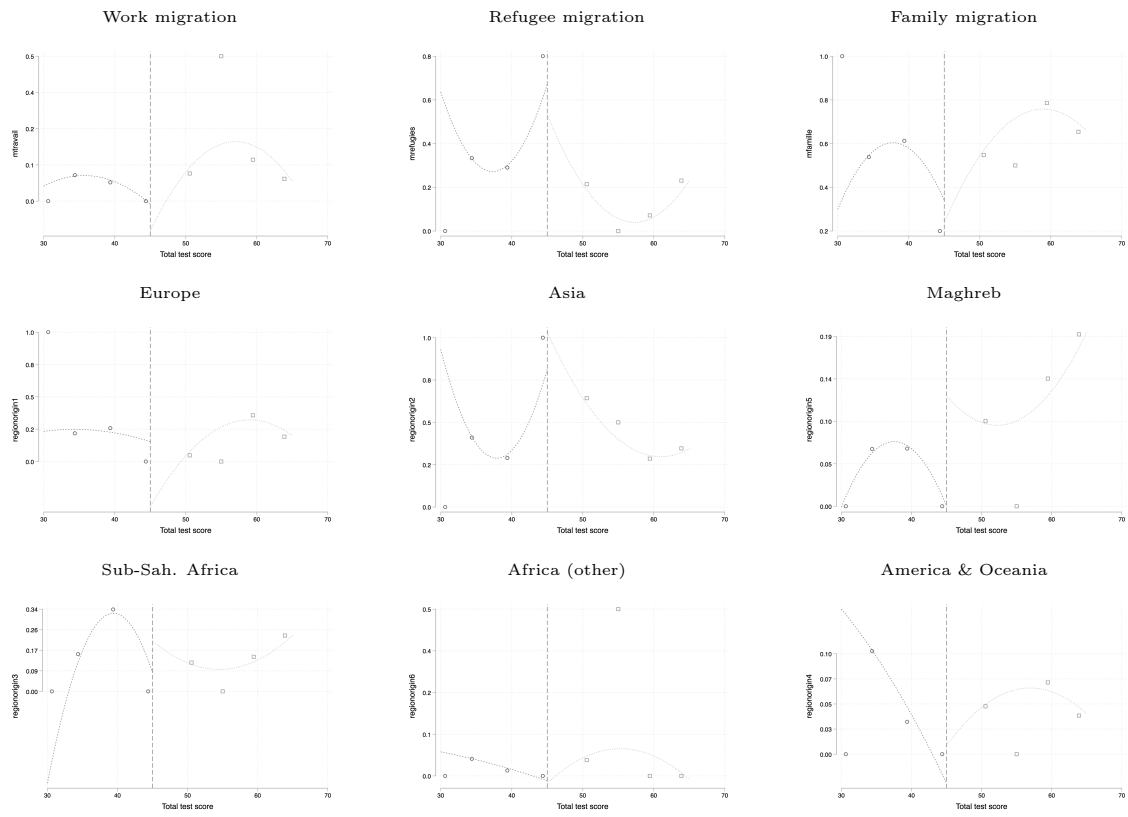
Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam. The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degree 2, interacted with I(test score initial language exam < 50). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Figure 9: Figure 4a: Baseline variables and entry test results



Relationship between the baseline variables and the entry test result. The variable "Total test score" refers to the language entry exam and is observed at baseline in interval of 5 points. The line shows the predicted values of a local quadratic smoother with rectangular kernel.

Figure 10: Figure 4b: Baseline variables and entry test results



Relationship between the baseline variables and the entry test result. The variable "Total test score" refers to the language entry exam and is observed at baseline in interval of 5 points. The line shows the predicted values of a local quadratic smoother with rectangular kernel.

Table 2: Assigned French Language Training and Labor Force Participation.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Local linear estimates		[30, 65]		Parametric estimates			
	[35, 60]	[35, 60]	[30, 65]	[30, 65]				
<b>Panel A: First stage regressions (dependent variable: number of assigned hours of French language training/100)</b>								
(test score initial language exam < 50)	3.317*** [0.507]	3.294*** [0.655]	3.154*** [0.492]	2.910*** [0.370]	1.591*** [0.312]	1.790*** [0.287]	2.665*** [0.499]	2.576*** [0.466]
<b>Panel B: Second stage regressions (dependent variable: labor force participation dummy)</b>								
Hours of French classes (/100)	0.184** [0.080]	0.266** [0.117]	0.167** [0.076]	0.190** [0.075]	0.047 [0.062]	0.145** [0.072]	0.174** [0.077]	0.206** [0.098]
Polynomial of degree	1	1	1	1	1	1	2	2
Control variables	No	Yes	No	Yes	No	Yes	No	Yes
Country of origin fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
Observations	67	67	76	76	2,168	2,168	2,168	2,168

Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam. The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degrees 1 and 2, interacted with 1 (test score initial language exam < 50). The set of control variables includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region "Ile-de-France" (the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the migrant has already spent in France, dummy variables indicating the reason to migrate (labor migration, refugee, other: Family migration is the reference category). a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects.

\*\*\*p<0.01, \*\*p<0.05, \*p<0.1.

Table 3: Assigned French Language Training and LFP. Robustness Tests.

	Assigned French Language Training and Labor Force Participation. Robustness Tests.							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Local linear estimates		Local linear estimates		Parametric estimates			
	[35, 60]	[35, 60]	[30, 65]	[30, 65]				
<b>Panel A: Binsize 10</b>								
Hours of French classes (/100)	0.159**	0.192**	0.159**	0.187***	0.048	0.146**	0.149***	0.215**
	[0.064]	[0.077]	[0.064]	[0.070]	[0.058]	[0.072]	[0.056]	[0.090]
Observations	67	67	76	76	2,168	2,168	2,168	2,168
<b>Panel B: Grade 45 Fixed Effects.</b>								
Hours of French classes (/100)					0.045	0.144*	0.179**	0.214**
					[0.063]	[0.074]	[0.077]	[0.103]
Observations					2,168	2,168	2,168	2,168
<b>Panel C: Donut specification excluding grades 45 and 50</b>								
Hours of French classes (/100)					0.036	0.154**	0.142	0.161
					[0.068]	[0.073]	[0.110]	[0.107]
Observations					2,150	2,150	2,150	2,150
Polynomial of degree	1	1	1	1	1	1	2	2
Control variables	No	Yes	No	Yes	No	Yes	No	Yes
Country of origin fixed effects	No	Yes	No	Yes	No	Yes	No	Yes

Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam.  
 The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degree 1 and 2, interacted with (test score initial language exam < 50).  
 The set of control variables includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region "Ile-de-France" (the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the migrant has already spent in France, dummy variables indicating the reason to migrate (labor migration, refugee, other).  
 Family migration is the reference category.), a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects.  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.



Table 4: Assigned French Language Training and Labor Force Participation. Heterogeneity of effects by education level.

<b>Assigned French Language Training and Labor Force Participation. Heterogeneity of effects by education level.</b>				
	(1)	(2)	(3)	(4)
	Local linear estimates		Parametric estimates	
	[35, 60]	[30, 65]		
<b>Second stage regressions (dependent variable: labor force participation dummy)</b>				
Hours of French classes (/100) ( $a_1$ )	0.095*	0.097**	0.110*	0.162*
	[0.054]	[0.039]	[0.066]	[0.088]
Hours of French classes (/100) X education level ( $a_1$ )	0.024*	0.024	0.008*	0.011*
	[0.014]	[0.015]	[0.004]	[0.006]
H <sub>0</sub> : $a_1 + 12^2 a_2 = 0$ (p-value)	0,0064	0,0214	0,0419	0,0363
Polynomial of degree	1	1	1	2
Control variables	Yes	Yes	Yes	Yes
Country of origin fixed effects	Yes	Yes	Yes	Yes
Observations	67	76	2,168	2,168

Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam. The median value of education level is 12 years. The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degree 1 and 2, interacted with  $I(\text{test score initial language exam} < 50)$ . The set of control variable includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region "Ile-de-France" (the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the migrant has already spent in France, dummy variables indicating the reason to migrate (labor migration, refugee, other). Family migration is the reference category), a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 5: Assigned French Language Training and LFP. Heterogeneity of effects by migration category.

	(1)	(2)	(3)	(4)
	Local linear estimates		Parametric estimates	
	[35, 60]	[30, 65]		
<b>Assigned French Language Training and Labor Force Participation. Heterogeneity of effects by migration category (labor migration, refugee migration, and family migration).</b>				
<b>Panel A: Second stage regressions (dependent variable: labor force participation dummy). Labor migration versus other types of migration (refugee and family migration)</b>				
Hours of French classes (/100) (a <sub>0</sub> )	0.265** [0.119]	0.187** [0.082]	0.143** [0.071]	0.205** [0.097]
Hours of French classes (/100) X labor migration (a <sub>1</sub> )	0.107 [0.943]	-0.017 [0.495]	0.076 [0.052]	0.095 [0.070]
Labor migration	0.044 [0.635]	-0.026 [0.246]	-0.031** [0.015]	-0.034** [0.016]
H <sub>0</sub> : a <sub>0</sub> +a <sub>1</sub> =0 (p-value)	0.6851	0.7192	0.0246	0.0233
<b>Panel B: Second stage regressions (dependent variable: labor force participation dummy). Refugee migration versus other types of migration (labor and family migration)</b>				
Hours of French classes (/100) (a <sub>0</sub> )	0.263** [0.122]	0.197** [0.094]	0.141* [0.075]	0.204** [0.103]
Hours of French classes (/100) X refugee migration (a <sub>1</sub> )	0.012 [0.139]	-0.033 [0.124]	0.025 [0.057]	0.009 [0.064]
Refugee migration	-0.060 [0.391]	-0.052 [0.429]	0.005 [0.047]	0.009 [0.048]
H <sub>0</sub> : a <sub>0</sub> +a <sub>1</sub> =0 (p-value)	0.0674	0.0498	0.0167	0.0165
<b>Panel C: Second stage regressions (dependent variable: labor force participation dummy). Family migration versus other types of migration (labor and refugee migration)</b>				
Hours of French classes (/100) (a <sub>0</sub> )	0.357* [0.193]	0.175* [0.100]	0.178*** [0.068]	0.234** [0.091]
Hours of French classes (/100) X family migration (a <sub>1</sub> )	-0.097 [0.178]	0.012 [0.129]	-0.039 [0.046]	-0.033 [0.050]
Family migration	-0.048 [0.327]	-0.027 [0.221]	0.018 [0.022]	0.016 [0.022]
H <sub>0</sub> : a <sub>0</sub> +a <sub>1</sub> =0 (p-value)	0.0338	0.0421	0.0657	0.0477
Polynomial of degree	1	1	1	2
Control variables	Yes	Yes	Yes	Yes
Country of origin fixed effects	Yes	Yes	Yes	Yes
Observations	67	76	2,168	2,168

Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam. The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degree 1 and 2, interacted with 1 (test score initial language exam < 50). The set of control variable includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region "Île-de-France" (the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the migrant has already spent in France, a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 6: Assigned French Language Training and LFP. Heterogeneity of effects by gender and age.

	(1)	(2)	(3)	(4)
	Local linear estimates		Parametric estimates	
	[35, 60]	[30, 65]		
<b>Assigned French Language Training and Labor Force Participation. Heterogeneity of effects by gender and age.</b>				
<b>Panel A: Second stage regressions (dependent variable: labor force participation dummy). Women and Men</b>				
Hours of French classes (/100) (a <sub>0</sub> )	0.575** [0.267]	0.266** [0.112]	0.153** [0.072]	0.213** [0.104]
Hours of French classes (/100) X female (a <sub>1</sub> )	-0.401** [0.188]	-0.142 [0.102]	-0.014 [0.041]	-0.012 [0.045]
Female	-0.081 [0.251]	-0.203 [0.155]	-0.187** [0.030]	-0.189** [0.030]
Hi: a <sub>0</sub> +a <sub>1</sub> =0 (p-value)	0.2238	0.1641	0.0846	0.0466
<b>Panel B: Second stage regressions (dependent variable: labor force participation dummy). Above and below median age (32 years old)</b>				
Hours of French classes (/100) (a <sub>0</sub> )	0.349** [0.158]	0.250** [0.104]	0.168** [0.075]	0.233** [0.098]
Hours of French classes (/100) X above median age (a <sub>1</sub> )	-0.110 [0.092]	-0.097 [0.083]	-0.055 [0.037]	-0.059* [0.035]
Hi: a <sub>0</sub> +a <sub>1</sub> =0 (p-value)	0.0399	0.0426	0.0712	0.0545
<b>Panel C: Second stage regressions (dependent variable: labor force participation dummy). Top quintile age (&gt;=40 years old)</b>				
Hours of French classes (/100) (a <sub>0</sub> )	0.266** [0.115]	0.195** [0.078]	0.156** [0.074]	0.214** [0.099]
Hours of French classes (/100) X top quintile age (a <sub>1</sub> )	0.001 [0.092]	-0.030 [0.089]	-0.053 [0.043]	-0.053 [0.046]
Hi: a <sub>0</sub> +a <sub>1</sub> =0 (p-value)	0.0574	0.0923	0.1264	0.0793
Polynomial of degree	1	1	1	2
Control variables	Yes	Yes	Yes	Yes
Country of origin fixed effects	Yes	Yes	Yes	Yes
Observations	67	76	2,168	2,168

Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam.  
 The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degree 1 and 2, interacted with (test score initial language exam < 50).  
 The set of control variable includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region "Ile-de-France" (the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is female, the number of children in the household, the total number of individuals in the household, the number of years that the migrant has already spent in France, dummy variables indicating the reason to migrate (labor migration, refugee, other. Family migration is the reference category), a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects.  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 7: Assigned French Language Training and Other Measures of Labor Market Integration.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Assigned French Language Training and other measures of Labor Market Integration.</b>								
	[35, 60]	Local linear estimates [35, 60]	[30, 65]	[30, 65]		Parametric estimates		
<b>Panel A: Dependent variable: employment (conditional on labor force participation). Second stage regressions.</b>								
Hours of French classes (/100)	-0.041 [0.113]	-0.134** [0.062]	-0.043 [0.110]	-0.069 [0.069]	-0.015 [0.068]	0.053 [0.041]	-0.087 [0.105]	0.007 [0.066]
Observations	51	51	58	58	1,734	1,734	1,734	1,734
<b>Panel B: Dependent variable: full-time work (conditional on employment). Second stage regressions.</b>								
Hours of French classes (/100)	-0.126 [0.173]	0.557 [0.347]	-0.184 [0.181]	0.976 [0.703]	-0.317** [0.143]	-0.197*** [0.067]	-0.263 [0.200]	-0.240** [0.120]
Observations	46	46	52	52	1,387	1,387	1,387	1,387
<b>Panel C: Dependent variable: permanent contract (conditional on employment). Second stage regressions.</b>								
Hours of French classes (/100)	-0.173 [0.150]	0.256 [0.232]	-0.120 [0.125]	0.271 [0.339]	-0.232* [0.118]	-0.059 [0.065]	-0.116 [0.132]	0.084 [0.117]
Observations	46	46	52	52	1,387	1,387	1,387	1,387
<b>Panel D: Dependent variable: informal work (conditional on employment). Second stage regressions.</b>								
Hours of French classes (/100)	-0.090 [0.089]	0.055 [0.161]	-0.143* [0.081]	-0.010 [0.169]	0.029 [0.065]	0.004 [0.031]	-0.090 [0.074]	-0.053 [0.055]
Observations	46	46	52	52	1,387	1,387	1,387	1,387
<b>Panel E: Dependent variable: income per household individual. Second stage regressions.</b>								
Hours of French classes (/100)	-56.511 [112.502]	184.562** [90.264]	-58.650 [91.113]	116.946 [72.233]	-60.575 [86.006]	-100.908** [51.142]	-148.690* [87.842]	-50.056 [54.728]
Observations	61	61	69	69	2,040	2,040	2,040	2,040
Polynomial of degree	1	1	1	1	1	1	2	2
Control variables	No	Yes	No	Yes	No	Yes	No	Yes
Country of origin fixed effects	No	Yes	No	Yes	No	Yes	No	Yes

Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam.  
 The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degree 1 and 2, interacted with (test score initial language exam < 50).  
 The set of control variables includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region "Île-de-France" (the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the migrant has already spent in France, dummy variables indicating the reason to migrate (labor migration, refugee, other). Family migration is the reference category), a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects.  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 8: Mechanisms. Improvement in Language Skills and Networks.

Mechanisms. Improvement in language skills and networks.						
	(1)	(2)	(3)	(4)	(5)	(6)
	Parametric estimates			Parametric estimates		
<b>Panel A: Improvement in language skills</b>						
<b>Second stage regressions. Dependent variable:</b>						
Hours of French classes / (100) (a <sub>2</sub> )	0.309	<b>oral skills</b>	2.177**	-1.363	<b>writing skills</b>	-1.391
	[0.738]	0.396	[1.102]	[2.205]	-1.240	[3.170]
Hours of French classes / (100) X language distance (a <sub>1</sub> )		[0.599]	-2.011***		[2.058]	0.035
Language distance			[0.753]			[2.089]
			-0.370			-1.509***
			[0.409]			[0.430]
H <sub>0</sub> : a <sub>2</sub> +0.62*a <sub>1</sub> =0 (p-value)			0.2092			0.5403
Observations	2,000	2,000	2,000	1,903	1,903	1,903
<b>Second stage regressions. Dependent variable:</b>						
Hours of French classes / (100) (a <sub>2</sub> )	0.140	<b>subjective oral skills</b>	0.161	-0.109	<b>subjective writing skills</b>	-0.292**
	[0.098]	0.075	[0.144]	[0.103]	-0.216*	[0.141]
Hours of French classes / (100) X language distance (a <sub>1</sub> )		[0.104]	-0.095		[0.117]	0.078
Language distance			[0.089]			[0.121]
			-0.041*			-0.118***
			[0.022]			[0.030]
H <sub>0</sub> : a <sub>2</sub> +0.62*a <sub>1</sub> =0 (p-value)			0.3609			0.0336
Observations	2,136	2,136	2,136	2,142	2,142	2,142
<b>Second stage regressions. Dependent variable:</b>						
Hours of French classes / (100) (a <sub>2</sub> )	-0.001	<b>no other French classes</b>	-0.041	0.084	<b>interview held in French</b>	0.112
	[0.031]	0.002	[0.044]	[0.099]	-0.015	[0.108]
Hours of French classes / (100) X language distance (a <sub>1</sub> )		[0.029]	0.048		[0.079]	-0.144**
Language distance			[0.037]			[0.067]
			-0.006			-0.100***
			[0.017]			[0.021]
H <sub>0</sub> : a <sub>2</sub> +0.62*a <sub>1</sub> =0 (p-value)			0.7079			0.7868
Observations	2,142	2,142	2,142	2,142	2,142	2,142
Polynomial of degree	2	2	2	2	2	2
Control variables	No	Yes	Yes	No	Yes	Yes
Country of origin fixed effects	No	Yes	Yes	No	Yes	Yes
<b>Panel B: Networks</b>						
<b>Second stage regressions. Dependent variable:</b>						
Hours of French classes / (100)	0.013	<b>new French friends in 2013</b>	-0.036	-0.050	<b>new friends from same country of origin in 2013</b>	0.058
	[0.027]	-0.008	[0.092]	[0.076]	0.023	[0.076]
Observations	1,642	1,642	1,642	1,642	1,642	1,642
<b>Second stage regressions. Dependent variable:</b>						
Hours of French classes / (100)	-0.072*	<b>new French friends in 2011</b>	0.061	-0.024	<b>new friends from same country of origin in 2011</b>	0.093
	[0.040]	-0.069*	[0.096]	[0.070]	0.011	[0.062]
Observations	1,665	1,665	1,665	1,665	1,665	1,665
Polynomial of degree	2	2	2	2	2	2
Control variables	No	Yes	No	Yes	No	Yes
Country of origin fixed effects	No	Yes	No	Yes	No	Yes

Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam. The median value of language distance is 0.62. The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degree 1 and 2, interacted with (test score initial language exam < 50). The set of control variables includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region "Île-de-France" (the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the migrant has already spent in France, dummy variables indicating the reason to migrate (labor migration, refugee, other. Family migration is the reference category), a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 9: Mechanisms. Information Effect and Behavioral Effect.

	(1)	(2)
<b>Mechanisms. Information effect and behavioral effect.</b>		
<b>Panel A: Information effect</b>		
<b>Dependent variable: Job search through "Pole emploi": Second stage regressions.</b>		
Hours of French classes (/100)	0.159*** [0.039]	0.140*** [0.027]
Observations	363	363
<b>Dependent variable: Found his job through "Pole emploi": Second stage regressions.</b>		
Hours of French classes (/100)	0.340 [0.214]	0.255* [0.146]
Observations	1,344	1,344
<b>Dependent variable: Passed driver's license in France. Second stage regressions.</b>		
Hours of French classes (/100)	0.179*** [0.066]	0.188*** [0.064]
Observations	797	797
<b>Dependent variable: Applied for recognition of the latest academic diploma. Second stage regressions.</b>		
Hours of French classes (/100)	0.353* [0.198]	0.640** [0.273]
Observations	665	665
<b>Panel B: Behavioral effect</b>		
<b>Dependent variable: Feels "at home" in France. Second stage regressions.</b>		
Hours of French classes (/100)	-0.153** [0.067]	-0.149** [0.059]
Observations	2,157	2,157
<b>Dependent variable: Interested in French politics. Second stage regressions.</b>		
Hours of French classes (/100)	-0.206** [0.065]	-0.145** [0.072]
Observations	2,147	2,147
<b>Dependent variable: Interested in European politics. Second stage regressions.</b>		
Hours of French classes (/100)	-0.162 [0.102]	-0.117 [0.080]
Observations	2,141	2,141
<b>Dependent variable: Interested in origin country politics. Second stage regressions.</b>		
Hours of French classes (/100)	-0.289** [0.122]	-0.191** [0.096]
Observations	2,148	2,148
Polynomial of degree	2	2
Control variables	No	Yes
Country of origin fixed effects	No	Yes

Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam. The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degree 1 and 2, interacted with I(test score initial language exam < 50). The set of control variables includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region "Ile-de-France" (the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the migrant has already spent in France, dummy variables indicating the reason to migrate (labor migration, refugee, other. Family migration is the reference category), a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

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## 7 Appendix

### 7.1 A.1 Selection into or out of training: Robustness checks for possible manipulation of the assignment variable

In section 4.3, we discuss that in principle neither the individuals themselves nor the government have an incentive or the power to manipulate the test result around the cutoff. Nonetheless, Figures 2 and 3 show potential issues of selection into or out of training. In Figure 3 we observe a jump in the density of the assignment variable around the cutoff. Notably, there are more individuals who received the first passing grade (50) than individuals who received the first failing grade (45). This may hint towards possible manipulation of the test results by the government, by increasing the number of immigrants who obtained the first passing grade.<sup>27</sup> The same figure also shows a high density at the "zero" test result and Figure 2 a high value of residuals in the labor force participation equation for observations with a test score equal to "zero". This may indicate a situation of manipulation in which highly motivated individuals hand in a blank exam copy and do not respond to the oral questions, in order to make sure they are assigned language training. To test for the robustness of our results to possible manipulation of the assignment variable, we run two additional sets of regressions.

First, to build an instrumental variable that takes into account possible manipulation by the government, we reclassify certain individuals' test score from 50 to 45. We choose the individuals who marginally passed the test, but are most prone to potentially have been pushed by the government from 45 to 50 points. For this purpose we choose four characteristics that may induce such a positive selection out of training: education level, permanence in France (i.e., how long the immigrant has already been in France), distance of French to the native language (see this variable construction in section 5.1) and the fact of being employed at the time of the test. Each of these characteristics may affect the immigrants' integration potential. For each variable, we calculate the 50th percentile for the individuals from our estimation sample who received 50 points in their test. Then we reclassify from test score 50 to test score 45 the immigrants with values of education or permanence in France above the 50th percentile, or with values of linguistic distance below the median value. With regard to employment at the time of the test — which is a binary variable — we reclassify from test score 50 to 45 all individuals who were employed

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<sup>27</sup>In section 4.3, we explain that the missing mass for the last failing grade is mainly due to the structure of the exam itself. For the same reason, there is a low density for other grades too, for instance 55 and 80 (see Figure 3).

in 2010 among those who had a test score equal to 50.<sup>28</sup>

Denoting with “\*” the “true” unobserved variables and taking education level as an example, we assume that the government manipulated the test score in line with the following misclassification rule:

$$TestResult_i = 50 \quad \text{if } TestResult_i^* = 45 \quad \text{and } EducationLevel_i > 9 \quad (6)$$

$$TestResult_i = TestResult_i^* \quad \text{otherwise} \quad (7)$$

where 9 is the median level of education for individuals with an *observed* test score equal to 50. To build the new instrumental variable, we create a binary variable  $r$  equal to 1 if the individual is reclassified and 0 otherwise. We then generate an IV that takes into account the probability  $p$  of being reclassified:  $T^* - pr$ , where  $T^* = 1$  if  $TestResult^* < cutoff(50)$  and  $T^* = 0$  if  $TestResult^* \geq cutoff(50)$ .<sup>29</sup>

Using this modified instrumental variable in a regression with the *observed* outcome variable as dependent variable, we replicate our main estimates, showing the effect of language classes on labor force participation (i.e., considering specifications similar to those in Table 2). Panel A in Table A6 shows the results following the reclassification according to the education level. The reasoning behind this reclassification comes from a higher language learning potential for higher levels of education. This might induce the government to raise the test result from 45 to 50 for individuals with higher education levels, since they may be considered relatively less in need of language classes. In Panel B, we reclassify individuals according to their permanence in France. The more time immigrants have already spent in France at the time of the entry test, the easier it is for them to learn the new language. For Panel C, we choose to reclassify from 50 to 45 the individuals whose native language has lower distance relative to French. These immigrants might need relatively less language training compared to those whose native language is more distant from French. Finally, we look at employment at the time of the entry test, in Panel D. The individuals who were employed in 2010 might be considered less vulnerable in terms of integration and also less in need of language classes.

Comparing the results with each other and with the estimates in Table 2, the coefficients remain similar. We can conclude that our estimates are robust to this test. Our findings do not depend on positive selection out of language classes due to manipulation of the test score by the government. In Tables A7 to A11 of the Appendix, we show that findings from this robustness test are similar when we consider estimates on other labor market outcomes.

As a second robustness test, we check whether the high density of “zero” test scores in

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<sup>28</sup>In this case, we reconstruct our instrument considering that these individuals form 59% of all individuals in our sample with a test result equal to 50.

<sup>29</sup>See Manacorda (2012) for a similar exercise in the context of grade repetition in school using data from Uruguay. In our setting, we exploit the information from government’s documents to choose the criteria that may determine selection out of language classes.

Figure 3 and the high value of the residuals in the labor force participation equation for immigrants with a "zero" test score (see Figure 2) may signal the individuals' manipulation of the assignment variable. Highly motivated immigrants may want to participate in free language classes even though their level of French is high enough to achieve the passing grade in the test. We replicate the estimates of specifications similar to those in Table 2, excluding from the estimation sample all the individuals with a "zero" test score. This exercise implicitly considers a worst-case scenario where all immigrants with a "zero" test score cheated their entry test to be assigned to the language classes. Table A12 shows that our results are also robust to this check. In Table A13 of the Appendix, we repeat this test on other labor market outcomes. These additional checks confirm the robustness of our findings.

Table 10: Table A1: Summary Statistics

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Min</b>	<b>Max</b>
<i>Individuals who got assigned training</i>				
Education level	8.11	6.18	0	17
Age in 2010	33.91	9.34	18	81
Permanence in France	2.95	4.04	0	40
Resident in Ile-de-France	0.62	0.49	0	1
Married	0.89	0.31	0	1
Female	0.50	0.50	0	1
Number of children in household	0.71	1.09	0	7
Number of people in household	3.18	1.68	1	12
Employed in 2010	0.42	0.49	0	1
Work migration	0.11	0.31	0	1
Refugee migration	0.19	0.39	0	1
Other migration	0.02	0.15	0	1
Birth reg.: America and Oceania	0.05	0.22	0	1
Birth reg.: Asia	0.36	0.48	0	1
Birth reg.: Europe	0.10	0.30	0	1
Birth reg.: Maghreb	0.23	0.42	0	1
Birth reg.: Other Africa	0.07	0.26	0	1
Birth reg.: Sub-Saharan Africa	0.18	0.38	0	1
<i>Individuals who did not get assigned training</i>				
Education level	9.40	6.16	0	17
Age in 2010	32.97	8.71	18	81
Permanence in France	3.78	4.74	0	56
Resident in Ile-de-France	0.65	0.48	0	1
Married	0.82	0.38	0	1
Female	0.50	0.50	0	1
Number of children in household	0.65	0.99	0	6
Number of people in household	3.16	1.63	1	12
Employed in 2010	0.49	0.50	0	1
Work migration	0.13	0.33	0	1
Refugee migration	0.10	0.30	0	1
Other migration	0.06	0.23	0	1
Birth reg.: America and Oceania	0.07	0.25	0	1
Birth reg.: Asia	0.12	0.33	0	1
Birth reg.: Europe	0.06	0.24	0	1
Birth reg.: Maghreb	0.37	0.48	0	1
Birth reg.: Other Africa	0.07	0.26	0	1
Birth reg.: Sub-Saharan Africa	0.31	0.46	0	1

Table 11: Table A2: Descriptive statistics, labor market outcomes by gender (in percentages, standard deviation in brackets)

	All	Men	Women
<i>Labor force participation</i>			
Before migration	0.62 (0.49)	0.70 (0.46)	0.54 (0.50)
2010	0.74 (0.44)	0.90 (0.30)	0.57 (0.50)
2011	0.75 (0.43)	0.91 (0.28)	0.59 (0.49)
2013	0.81 (0.39)	0.94 (0.23)	0.68 (0.47)
<i>Employment rate</i>			
Before migration	0.57 (0.49)	0.66 (0.47)	0.49 (0.50)
2010	0.47 (0.50)	0.66 (0.47)	0.28 (0.45)
2011	0.56 (0.50)	0.74 (0.44)	0.38 (0.49)
2013	0.64 (0.48)	0.79 (0.41)	0.49 (0.50)

Table 12: Table A3: Descriptive statistics, test score by birth country groups (out of 100 points)

Birth country group	Mean score	Standard Deviation
<i>Individuals who got assigned training</i>		
America and Oceania	75.67	34.94
Asia	29.75	37.90
Europe	55.85	39.26
Maghreb	79.15	31.60
Other Africa	75.11	35.27
Sub-Saharan Africa	85.73	16.72
<i>Individuals who did not get assigned training</i>		
America and Oceania	95.91	8.54
Asia	87.83	20.36
Europe	91.79	18.37
Maghreb	95.78	9.05
Other Africa	94.88	10.42
Sub-Saharan Africa	93.70	10.39

Table 13: Table A4: Grades of entry test and assignment to language training.

Grade of written test = any	Grades of entry test and assignment to language training.					
	Grade of oral test = any			Grade of oral test = 0		
	Assigned	Non-assigned	% assigned	Assigned	Non-assigned	% assigned
Grade of written test = 0	191	1977	8.81%	71	11	86.59%
Grade of written test = 5	89	64	58.17%	64	11	85.33%
Grade of written test = 10	26	116	18.31%	5	0	100.00%
Grade of written test = 15	3	20	13.04%	0	0	100.00%
Grade of written test = 20	13	170	7.10%	2	0	100.00%
Grade of written test = 25	1	42	2.33%	0	0	
Grade of written test = 30	6	173	3.35%	0	0	
	53	1392	3.67%	0	0	

Grade of written test = any	Grade of oral test = 35					
	Grade of oral test = 35			Grade of oral test = 70		
	Assigned	Non-assigned	% assigned	Assigned	Non-assigned	% assigned
Grade of written test = 0	38	38	50%	82	1928	4.08%
Grade of written test = 5	20	5	80%	5	48	9.43%
Grade of written test = 10	16	3	84%	5	113	4.24%
Grade of written test = 15	1	0	100%	2	20	9.09%
Grade of written test = 20	0	17	0%	11	153	6.71%
Grade of written test = 25	0	0		1	42	2.33%
Grade of written test = 30	1	4	20%	5	169	2.87%
	0	9	0%	53	1383	3.69%



Table 14: Table A5: Dependent variable: Number of assigned hours of French language training/100.

	(1)	(2)	(3)	(4)
<b>Dependent variable: Number of assigned hours of French language training/100.</b>				
l(test score initial language exam < 50)		2.143** [0.153]		
grade of oral exam = 0 and grade of written exam = 0		2.115** [0.177]		
grade of oral exam = 0			2.199** [0.165]	
grade of written exam = 0				1.360** [0.225]
Control variables		Yes	Yes	Yes
Country of origin fixed effects		Yes	Yes	Yes
Observations		2,168	2,168	2,168
R-squared		0.686	0.545	0.503

Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam. The set of control variable includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region "Ile-de-France" (the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the migrant has already spent in France, dummy variables indicating the reason to migrate (labor migration, refugee, other. Family migration is the reference category), a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects.  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 15: Table A6: Positive Selection out of Language Training: Labor Force Participation.

Positive Selection Out Of Language Training: Labor Force Participation.								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Local linear estimates			Parametric estimates				
	[35, 60]	[35, 60]	[30, 65]	[30, 65]				
<b>Panel A: By education level.</b>								
<b>Second stage regressions (dependent variable: labor force participation dummy)</b>								
Hours of French classes (/100)	0.168** [0.068]	0.2153*** [0.069]	0.153** [0.067]	0.144*** [0.043]	0.040 [0.063]	0.143** [0.071]	0.169** [0.071]	0.188** [0.086]
<b>Panel B: By permanence in France.</b>								
<b>Second stage regressions (dependent variable: labor force participation dummy)</b>								
Hours of French classes (/100)	0.198** [0.080]	0.245** [0.121]	0.209** [0.086]	0.171* [0.084]	0.063 [0.063]	0.153** [0.072]	0.219** [0.086]	0.213** [0.105]
<b>Panel C: By language distance (Francophone vs. Non-Francophone).</b>								
<b>Second stage regressions (dependent variable: labor force participation dummy)</b>								
Hours of French classes (/100)	0.174** [0.077]	0.264** [0.115]	0.151* [0.078]	0.200*** [0.077]	0.039 [0.064]	0.143** [0.073]	0.157** [0.079]	0.198** [0.101]
<b>Panel D: By employment in 2010.</b>								
<b>Second stage regressions (dependent variable: labor force participation dummy)</b>								
Hours of French classes (/100)	0.181** [0.073]	0.233** [0.101]	0.194** [0.080]	0.186** [0.082]	0.060 [0.062]	0.150** [0.072]	0.207** [0.081]	0.208** [0.102]
Polynomial of degree	1	1	1	1	1	1	2	2
Control variables	No	Yes	No	Yes	No	Yes	No	Yes
Country of origin fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
Observations	67	67	76	76	2,168	2,168	2,168	2,168

Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam.  
 The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degree 1 and 2, interacted with (test score initial language exam < 50).  
 The set of control variables includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region of origin (the region around the place of origin) and a dummy variable equal to 1 if the immigrant is resident in the region of destination (the region around the place of destination).  
 In the household, the number of years that the migrant has already spent in France, dummy variables indicating the reason to migrate (labor migration, refugee, other. Family migration is the reference category), a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects.  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 16: Tables A7 and A8: Positive Selection out of Training

Table A7: Positive Selection out of Training: Employment.

Positive Selection Out Of Language Training: Employment.								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	[35, 60]	Local linear estimates [35, 60]	[30, 65]	[30, 65]		Parametric estimates		
<b>PART I: By education level.</b>								
<b>Second stage regressions (dependent variable: employment dummy)</b>								
Hours of French classes (/100)	-0.025 [0.117]	-0.153*** [0.058]	-0.013 [0.126]	-0.106* [0.062]	-0.008 [0.071]	0.054 [0.042]	-0.057 [0.123]	0.020 [0.079]
<b>PART II: By permanence in France.</b>								
<b>Second stage regressions (dependent variable: employment dummy)</b>								
Hours of French classes (/100)	-0.023 [0.117]	-0.137** [0.055]	-0.009 [0.125]	-0.062 [0.065]	-0.008 [0.071]	0.051 [0.043]	-0.053 [0.123]	0.013 [0.082]
<b>PART III: By language distance (Francophone vs. Non-Francophone).</b>								
<b>Second stage regressions (dependent variable: employment dummy)</b>								
Hours of French classes (/100)	-0.039 [0.114]	-0.141** [0.064]	-0.038 [0.113]	-0.079 [0.072]	-0.014 [0.069]	0.055 [0.041]	-0.082 [0.109]	0.017 [0.069]
<b>PART IV: By employment in 2010.</b>								
<b>Second stage regressions (dependent variable: employment dummy)</b>								
Hours of French classes (/100)	-0.051 [0.093]	-0.076 [0.075]	-0.038 [0.103]	-0.054 [0.063]	-0.010 [0.070]	0.052 [0.042]	-0.077 [0.106]	0.006 [0.069]
Polynomial of degree	1	1	1	1	1	1	2	2
Control variables	No	Yes	No	Yes	No	Yes	No	Yes
Country of origin fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
Observations	51	51	58	58	1,734	1,734	1,734	1,734

Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam.  
 The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degree 1 and 2, interacted with I(test score initial language exam < 50).  
 The set of control variable includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region "Ile-de-France" (the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the migrant has already spent in France, dummy variables indicating the reason to migrate (labor migration, refugee, other. Family migration is the reference category), a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A8: Positive Selection out of Training: Full-time Contract.

Positive Selection Out Of Language Training: Full-time contract.								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	[35, 60]	Local linear estimates [35, 60]	[30, 65]	[30, 65]		Parametric estimates		
<b>PART I: By education level.</b>								
<b>Second stage regressions (dependent variable: full-time contract dummy)</b>								
Hours of French classes (/100)	-0.187 [0.160]	0.337 [0.213]	-0.247 [0.178]	0.552* [0.286]	-0.349** [0.148]	-0.214*** [0.071]	-0.344 [0.217]	-0.309** [0.139]
<b>PART II: By permanence in France.</b>								
<b>Second stage regressions (dependent variable: full-time contract dummy)</b>								
Hours of French classes (/100)	-0.187 [0.160]	0.519* [0.314]	-0.242 [0.174]	0.918 [0.585]	-0.349** [0.149]	-0.209*** [0.070]	-0.340 [0.216]	-0.288** [0.131]
<b>PART III: By language distance (Francophone vs. Non-Francophone).</b>								
<b>Second stage regressions (dependent variable: full-time contract dummy)</b>								
Hours of French classes (/100)	-0.126 [0.174]	0.635 [0.418]	-0.176 [0.182]	1.177 [0.991]	-0.316** [0.144]	-0.201*** [0.069]	-0.255 [0.202]	-0.259** [0.129]
<b>PART IV: By employment in 2010.</b>								
<b>Second stage regressions (dependent variable: full-time contract dummy)</b>								
Hours of French classes (/100)	-0.170 [0.162]	0.487* [0.283]	-0.185 [0.166]	0.592* [0.340]	-0.322** [0.144]	-0.197*** [0.068]	-0.278 [0.196]	-0.239** [0.115]
Polynomial of degree	1	1	1	1	1	1	2	2
Control variables	No	Yes	No	Yes	No	Yes	No	Yes
Country of origin fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
Observations	46	46	52	52	1,387	1,387	1,387	1,387

Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam.  
 The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degree 1 and 2, interacted with I(test score initial language exam < 50).  
 The set of control variable includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region "Ile-de-France" (the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the migrant has already spent in France, dummy variables indicating the reason to migrate (labor migration, refugee, other. Family migration is the reference category), a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 17: Tables A9 and A10: Positive Selection out of Training.

Table A9: Positive Selection out of Training: Permanent Contract.

Positive Selection Out Of Language Training: Permanent contract.								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	[35, 60]	Local linear estimates [35, 60]	[30, 65]	[30, 65]		Parametric estimates		
<b>PART I: By education level.</b>								
<b>Second stage regressions (dependent variable: permanent contract dummy)</b>								
Hours of French classes (/100)	-0.148 [0.132]	0.323* [0.192]	-0.117 [0.121]	0.220 [0.226]	-0.233* [0.122]	-0.074 [0.069]	-0.118 [0.142]	0.049 [0.124]
<b>PART II: By permanence in France.</b>								
<b>Second stage regressions (dependent variable: permanent contract dummy)</b>								
Hours of French classes (/100)	-0.140 [0.130]	0.343 [0.222]	-0.109 [0.120]	0.607 [0.469]	-0.231* [0.122]	-0.063 [0.067]	-0.110 [0.143]	0.092 [0.114]
<b>PART III: By language distance (Francophone vs. Non-Francophone).</b>								
<b>Second stage regressions (dependent variable: permanent contract dummy)</b>								
Hours of French classes (/100)	-0.162 [0.144]	0.263 [0.256]	-0.109 [0.122]	0.178 [0.379]	-0.228* [0.118]	-0.060 [0.066]	-0.103 [0.131]	0.087 [0.123]
<b>PART IV: By employment in 2010.</b>								
<b>Second stage regressions (dependent variable: permanent contract dummy)</b>								
Hours of French classes (/100)	-0.111 [0.117]	0.455 [0.299]	-0.103 [0.115]	0.168 [0.206]	-0.232* [0.120]	-0.062 [0.066]	-0.114 [0.131]	0.067 [0.112]
Polynomial of degree	1	1	1	1	1	1	2	2
Control variables	No	Yes	No	Yes	No	Yes	No	Yes
Country of origin fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
Observations	46	46	52	52	1,387	1,387	1,387	1,387

Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam.  
 The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degree 1 and 2, interacted with I(test score initial language exam < 50).  
 The set of control variable includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region "Ile-de-France" (the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the migrant has already spent in France, dummy variables indicating the reason to migrate (labor migration, refugee, other. Family migration is the reference category), a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A10: Positive Selection out of Training: Informal Work.

Positive Selection Out Of Language Training: Informal work.								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	[35, 60]	Local linear estimates [35, 60]	[30, 65]	[30, 65]		Parametric estimates		
<b>PART I: By education level.</b>								
<b>Second stage regressions (dependent variable: informal work dummy)</b>								
Hours of French classes (/100)	-0.119 [0.079]	0.046 [0.096]	-0.161* [0.084]	0.009 [0.124]	0.026 [0.066]	0.003 [0.031]	-0.111 [0.081]	-0.060 [0.059]
<b>PART II: By permanence in France.</b>								
<b>Second stage regressions (dependent variable: informal work dummy)</b>								
Hours of French classes (/100)	-0.122 [0.081]	-0.077 [0.174]	-0.163* [0.086]	-0.235 [0.245]	0.026 [0.066]	-0.002 [0.031]	-0.113 [0.084]	-0.079 [0.059]
<b>PART III: By language distance (Francophone vs. Non-Francophone).</b>								
<b>Second stage regressions (dependent variable: informal work dummy)</b>								
Hours of French classes (/100)	-0.094 [0.087]	0.102 [0.180]	-0.146* [0.082]	0.057 [0.199]	0.029 [0.065]	0.005 [0.031]	-0.093 [0.076]	-0.054 [0.057]
<b>PART IV: By employment in 2010.</b>								
<b>Second stage regressions (dependent variable: informal work dummy)</b>								
Hours of French classes (/100)	-0.130* [0.078]	-0.019 [0.089]	-0.141* [0.079]	-0.024 [0.103]	0.030 [0.065]	0.004 [0.031]	-0.088 [0.073]	-0.052 [0.053]
Polynomial of degree	1	1	1	1	1	1	2	2
Control variables	No	Yes	No	Yes	No	Yes	No	Yes
Country of origin fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
Observations	46	46	52	52	1,387	1,387	1,387	1,387

Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam.  
 The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degree 1 and 2, interacted with I(test score initial language exam < 50).  
 The set of control variable includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region "Ile-de-France" (the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the migrant has already spent in France, dummy variables indicating the reason to migrate (labor migration, refugee, other. Family migration is the reference category), a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 18: Table A11: Positive Selection out of Training: Income per Household Individual.

<b>Positive Selection Out Of Language Training: Income per household individual.</b>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	[35, 60]	Local linear estimates [35, 60]	[30, 65]	[30, 65]		Parametric estimates		
<b>PART I: By education level.</b>								
<b>Second stage regressions (dependent variable: income per household individual)</b>								
Hours of French classes (/100)	31.891 [107.860]	186.510** [89.266]	-47.931 [99.547]	129.194* [72.587]	-59.113 [90.052]	-107.998** [53.815]	-154.781 [100.749]	-52.557 [62.384]
<b>PART II: By permanence in France.</b>								
<b>Second stage regressions (dependent variable: income per household individual)</b>								
Hours of French classes (/100)	28.434 [113.369]	185.638** [90.195]	-49.246 [105.225]	119.001* [70.742]	-59.864 [91.030]	-112.460** [53.180]	-157.779 [106.443]	-63.267 [63.685]
<b>PART III: By language distance (Francophone vs. Non-Francophone)</b>								
<b>Second stage regressions (dependent variable: income per household individual)</b>								
Hours of French classes (/100)	34.37 [107.636]	160.564** [81.002]	-73.831 [94.388]	82.780 [65.569]	-68.049 [87.299]	-110.177** [53.040]	-170.971* [93.854]	-64.454 [57.369]
<b>PART VI: By employment in 2010.</b>								
<b>Second stage regressions (dependent variable: income per household individual)</b>								
Hours of French classes (/100)	-6.226 [102.199]	120.512* [69.367]	-47.564 [92.563]	101.850 [63.676]	-55.104 [90.681]	-114.367** [53.543]	-145.568 [97.355]	-68.499 [61.213]
Polynomial of degree	1	1	1	1	1	1	2	2
Control variables	No	Yes	No	Yes	No	Yes	No	Yes
Country of origin fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
Observations	61	61	69	69	2,040	2,040	2,040	2,040

Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam.  
 The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degree 1 and 2, interacted with I(test score initial language exam < 50).  
 The set of control variable includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region "Ile-de-France" (the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the migrant has already spent in France, dummy variables indicating the reason to migrate (labor migration, refugee, other. Family migration is the reference category), a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 19: Table A12: Assigned French Language Training and LFP: Excluding Test Result = 0.

<b>Assigned French Language Training and Labor Force Participation: Excluding Test Result = 0.</b>				
	(1)	(2)	(3)	(4)
		Parametric estimates		
<b>Second stage regressions (dependent variable: labor force participation dummy)</b>				
Hours of French classes (/100)	0.085 [0.059]	0.178** [0.070]	0.160** [0.072]	0.181* [0.097]
Polynomial of degree	1	1	2	2
Control variables	No	Yes	No	Yes
Country of origin fixed effects	No	Yes	No	Yes
Observations	2,093	2,093	2,093	2,093

Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam.  
 The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degree 1 and 2, interacted with I(test score initial language exam < 50).  
 The set of control variable includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region "Ile-de-France" (the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the migrant has already spent in France, dummy variables indicating the reason to migrate (labor migration, refugee, other. Family migration is the reference category), a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects.  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 20: Table A13: Assigned French Language Training and Other Measures of Labor Market Integration. Excluding Test Result = 0.

	(1)	(2)	(3)	(4)
		Parametric estimates		
<b>Assigned French Language Training and other measures of Labor Market Integration. Excluding Test Result = 0.</b>				
<b>Panel A: Dependent variable: employment (conditional on labor force participation). Second stage regressions</b>				
Hours of French classes (/100)	-0.058 [0.065]	0.031 [0.039]	-0.052 [0.103]	0.036 [0.069]
Observations	1,690	1,690	1,690	1,690
<b>Panel B: Dependent variable: full-time work (conditional on employment). Second stage regressions</b>				
Hours of French classes (/100)	-0.348** [0.157]	-0.200*** [0.066]	-0.212 [0.190]	-0.235* [0.128]
Observations	1,357	1,357	1,357	1,357
<b>Panel C: Dependent variable: permanent contract (conditional on employment). Second stage regressions</b>				
Hours of French classes (/100)	-0.239* [0.124]	-0.076 [0.073]	-0.037 [0.127]	0.181 [0.123]
Observations	1,357	1,357	1,357	1,357
<b>Panel D: Dependent variable: informal work (conditional on employment). Second stage regressions</b>				
Hours of French classes (/100)	0.029 [0.058]	0.006 [0.028]	-0.142 [0.091]	-0.134** [0.064]
Observations	1,357	1,357	1,357	1,357
<b>Panel E: Dependent variable: income per household individual. Second stage regressions</b>				
Hours of French classes (/100)	-73.174 [80.126]	-120.737** [49.976]	-151.557 [93.462]	-19.797 [58.151]
Observations	1,967	1,967	1,967	1,967
Polynomial of degree	1	1	2	2
Control variables	No	Yes	No	Yes
Country of origin fixed effects	No	Yes	No	Yes

Robust standard errors in brackets, clustered by country of origin times test score of the initial language exam. The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degree 1 and 2, interacted with I(test score initial language exam < 50). The set of control variable includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region "Ile-de-France" (the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the migrant has already spent in France, dummy variables indicating the reason to migrate (labor migration, refugee, other. Family migration is the reference category), a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 21: Table A14: Robustness Checks Using Different Ways of Clustering the Standard Errors: Assigned French Language Training and Labor Force Participation.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Local linear estimates		[30, 65]		Parametric estimates			
	[35, 60]	[35, 60]	[30, 65]	[30, 65]				
<b>Assigned French Language Training and Labor Force Participation.</b>								
<b>Panel A: Clustering by country of origin times entry test score</b>								
Hi: Hours of French classes=0 (p-value)	0.021	0.023	0.029	0.011	0.449	0.044	0.023	0.035
<b>Panel B: Two-way clustering à la Cameron et al. (2011), by country of origin and entry test score</b>								
Hi: Hours of French classes=0 (p-value)	0.000	0.002	0.000	0.005	0.528	0.042	0.000	0.005
<b>Panel C: One-way clustering, by country of origin</b>								
Hi: Hours of French classes=0 (p-value)	0.033	0.017	0.046	0.037	0.504	0.134	0.026	0.086
<b>Panel D: One-way clustering, by entry test score</b>								
Hi: Hours of French classes=0 (p-value)	0.000	0.005	0.000	0.000	0.482	0.000	0.000	0.000
<b>Panel E: Wild bootstrap, by entry test score</b>								
Hi: Hours of French classes=0 (p-value)	0.067	0.467	0.057	0.149	0.611	0.025	0.020	0.021
<b>Panel F: Robust standard errors</b>								
Hi: Hours of French classes=0 (p-value)	0.029	0.058	0.040	0.074	0.398	0.020	0.043	0.031
Polynomial of degree	1	1	1	1	1	1	2	2
Control variables	No	Yes	No	Yes	No	Yes	No	Yes
Country of origin fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
Observations	67	67	76	76	2,168	2,168	2,168	2,168

The dependent variable is a dummy equal to 1 if the immigrant participates in the labor force. This table presents p-values for the null hypothesis  $H_0$ : Hours of French classes=0, using different ways of clustering the standard errors. The columns include functions in the test scores of the initial language exam (distance from the cutoff value) of degree 1 and 2, interacted with (test score initial language exam < 50). The set of control variable includes: education level in years, age, age squared, a dummy variable equal to 1 if the immigrant is resident in the region "Ile-de-France" (the region around Paris), a dummy variable equal to 1 if the immigrant is married, a dummy variable equal to 1 if the immigrant is male, the number of children in the household, the total number of individuals in the household, the number of years that the migrant has already spent in France, dummy variables indicating the reason to migrate (labor migration, refugee, other. Family migration is the reference category), a dummy variable equal to one if the individual was employed in 2010 and country of origin fixed effects.

### 3 Culture and Emigration: Evidence from the Hitler-Mussolini Migration Option Agreement.

#### Abstract

We examine the self-selection into migration during a historical migration choice experiment between Nazi Germany and Fascist Italy. This historical episode allows us to have unique insight in the decision making process when selecting into migration. In particular, we focus on the role of cultural and economic components of the emigration decision. Relying on the recently digitized micro level data we use for our analysis, we create several indicators for the cultural and economic decision components and analyze their relevance for the emigration decision. We find evidence for cultural preferences to influence the emigration decision, and find family and neighborhood property to be particularly important for the emigration decision. Furthermore, we look into possible heterogeneity of effects by family status and age groups, and find that different groups tend to adopt slightly different decision making strategies. Using data on the farming profession, on police records and illnesses, as well as administration fixed-effects, we rule out alternative explanations for emigrating such as forced emigration initiated by the participating governments. Finally, we develop a simple theoretical framework and economic application to derive the emigration threshold for agents of different cultural types, considering a varying degree of migration cost.

*Keywords:* migration choice, cultural identity, European history.

*JEL classification:* J15, Z10, Z13, N34.



## 1 Introduction

In the current public debate, as well as in the literature on international migration, a core question is the self-selection into migration, or why people choose to move from one country to another. It follows that the phenomenon received a great deal of attention in the academic literature, which agrees on wage differentials as major drivers of the decision *whether* to move, and *where* to move. However, the decision if and where to emigrate goes beyond the consideration of economic variables. Other factors, like the feeling of safety and a future in both the home and the destination country, perceived opportunities in both countries, family and friends networks, as well as a cultural factors, play decisive roles. These factors are crucial, yet understudied, often because of the difficulty to observe and measure them. McKenzie and Rapoport (2010) are the first to introduce migration networks to the question around self-selection into migration. The authors argue that migration networks lower the costs of migrating, hence facilitate migration. The novelty of the present research paper lies in the introduction of cultural factors to the discussion on the emigration decision. This is possible thanks to the recent availability of data in a context that allows studying the role of cultural factors in the emigration decision, and comparing them to role of economic factors.

Most recently, Rapoport et al. (2017) develop a framework to determine the effects of migration on cultural change. More precisely, the authors aim at finding answers to the question whether migration spurs cultural convergence or divergence. The authors argue that cross-country interactions in a globalized world initiate not only an economic but also a cultural exchange. Culture has, in fact, been recognized for its influential role in the creation of institutions, the economic integration into world markets, and the well-being of nations. Both theoretically and empirically, the authors find evidence for bilateral cultural convergence. They also discuss the direction of convergence, whether social mixing or social remittances are the major driver for convergence - hence - whether the destination country tends to converge to the origin country's culture or vice versa.

Whereas Rapoport et al. (2017) explain cultural change as a result of increased human mobility, in this research paper we argue that cultural factors are also an important parameter in the emigration decision. Here fore, we rely on micro level data to paint a profound picture of the self-election into migration at the household level. This in-depth analysis of the emigration decision, in a historical setting where cultural identity plays a major role, is possible thanks to the digitization of historical household level data rich in socio-demographic and economic information.

The contribution of this research paper to the academic literature, as well as to the public debate is manifold. First, the project is based on the digitization of historical household level data, which provides ground for a rich research agenda allowing for the analysis of a case study of the role of cultural identity in the process of migration and the resulting

impact on modern institutions and the wealth and well-being of societies. We look at the case of South Tyrol (nowadays the northernmost province of Italy, and until WW I the southernmost province of Austria), whose Institutional Autonomy is often mentioned as a successful example in the search for solutions to problems in culturally divided communities. The breakthrough in creating a peaceful environment was founded through the understanding of an *extended* identity in contrast to a *changed* identity often aimed at through assimilation policies. Second, the information from the data set allows for definition and creation of several novel proxies for cultural identity and their degree of relevance in the migration decision. In section 4 of this paper, we develop different proxies for cultural identity and show their relevance as well as test for their robustness. Furthermore, we discuss the degree to which each proxy truly captures cultural traits or might capture other personal and economic attributes. Third, we discuss a set of economic, cultural and socio-demographic variables and their role in the emigration decision, and allow the effects to vary by household structure and life cycle. Fourth and final contribution, we develop a theoretical framework to guide the empirical discussion around the role of cultural attachment vis à vis economic migration cost, and the resulting trade-off which results in an emigration threshold which varies by degree of cultural attachment and size of migration cost.

The academic contribution of this research is framed by a story around the definition of "home", about roots that tie places to people, but also about cultural roots, social roots, ideological roots and economic roots. On 23rd of June 1939 Adolf Hitler and Benito Mussolini met in Berlin and decided to force the heads of households of the German speaking population in Italy to choose whether they would want to remain in their homeland but abandon their culture and accept Italianization, or leave their homeland but follow their language and culture.<sup>30</sup> The percentage of people who opted into leaving the homeland (from now on called "opters") lies somewhere between eighty and ninety percent.<sup>31</sup> In the end, about half of the opters ended up effectively emigrating. The decision that heads of households had to take was two-fold. First, they had to decide whether to opt into leaving or into staying - under relentless propaganda and peer pressure. And second, they needed to decide whether to leave or not. After the selection into *potential* migration, which are the components that mattered for the decision of effectively emigrating? In this paper, we will look into this question, considering not only the trade-off between cultural and economic components in decision making, but also alternative explanations, one of which is following historical evidence which claims that part of the emigration was forced. From witnesses and history books we get an idea of the most fundamental drivers of the migration decision. According to Pallaver et al. (2011), the motives can be categorized

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<sup>30</sup>By the time almost all of the population was German speaking.

<sup>31</sup>Different entities who handled this agreement had interest in publishing different numbers (see e.g. Alexander et al. 1993).

as follows: ideological motives, political reasons (domestic and foreign), religious reasons, economic reasons, and socio-psychological reasons. Both opters and stayers found their reasons within these categories. Furthermore, Pallaver et al. (2011) try to dig into different definitions of "home" in the context of the Option Agreement: home as territory, home as societal dimension, home as cultural landscape, and home as prospects for the future. Palfrader (2004) collects a set of interviews in the village of St. Vigil, and writes a chapter about the conflict between economic motives and ethos, discussing a trade-off between economic motives and motives tied to ethos, attachment to the German culture.<sup>32</sup>

This paper aims at contributing to two strands of academic literature. On one hand, it aims at contributing to the literature related to the drivers of self-selection into migration. Nowadays, with increased migration pressure, the question about *why* individuals move away from home is pertinent. There exists a strand of literature that aims at finding answers to this question (e.g. Borjas, 1987; Chiswick, 1999; Chiquiar and Gordon, 2005; Bauer et al., 2005; McKenzie and Rapoport, 2010; Fernandez-Huertes Moraga, 2011, Borjas et al., 2019), which mention economic push-factors (e.g. differences in income) and migration networks amongst other important drivers for selection into migration.

The most common framework cited and worked around in the field of self selection into migration is the so-called *Roy Model* specifically applied to the migration case. In this model, first introduced by Borjas in 1987, the idea is to analyse the economic drivers of migration: under which conditions does an individual decide to move? The main finding in Borjas 1987 is that individuals decide to move when the earnings for their skill level are higher abroad than at home. However, economic drivers are not the only component that lead individuals to take a migration decision. Other factors, like the feeling of safety and a future in both the home and the destination country, forgone opportunities in both countries, family and friends networks at home (and abroad), as well as a cultural component play major roles. It is not evident to quantify the magnitude of the impact of each of these components on the emigration decision. The real world large scale migration experiment we examine tries to disentangle the cultural preference components and quantify their magnitude.

The second strand of literature we aim at contributing to is the recent literature around cultural identity and its influence on preferences and human behavior. Cultural identity is tricky to capture, yet has been shown to influence preferences and behavior significantly (see e.g. Akerlof and Kranton, 2000; Hoff and Pandey, 2006; Benjamin, Choi and Strickland, 2010; Benjamin, Choi and Fisher, 2016; Bisin et al., 2016; Fouka, 2020). In this analysis we rely on three potential indicators of cultural ties to Germany: opter *i*'s first name to account for inherited cultural preferences, opter *i*'s migration history to Austria or Germany account for personally acquired cultural preferences and opter *i*'s parents country of citizenship and current residency. In addition, we will look into a specification on a

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<sup>32</sup>The full text of the chapter is in the appendix, figure 20

sub sample of opters with children, using an alternative measure for cultural preferences: manifested cultural preferences through the ethnic naming of newborn children.

We find evidence for cultural ties to play a major role in the migration decision: the stronger the ties to Germany, the more likely it is for 'opters' to leave. The most important of the economic components appears to be the strategic decision catching the opportunity of buying land from the neighbors. Looking at the heterogeneity of effects we see that the effects vary by family structure and age group, hinting towards the adoption of slightly different decision making strategies. Using data on the farming profession, on police records and illnesses, as well as officer fixed effects, we can rule out alternative explanations for emigrating, based on some historical evidence that suggests that part of the leaving decision was somewhat forced by the participating governments. Finally, we discuss empirically and theoretically the emigration probability as a function of an economic migration cost, and a migration gain through a social externality derived from the interaction of an agent with other agents from the same cultural type. We find that an agent's emigration threshold varies according to the intensity of cultural attachment and the migration cost.

The paper is structured in the following way. Section two provides an overview of the historical context, section three describes the data we use, section four defines the empirical strategy, section five presents the results and develops a framework to determine the emigration threshold, and section six concludes with remarks and comments. Figures and tables are placed after the conclusion, whereas as final section the appendix concludes the paper.

## 2 Historical context

*At school and in school essays, the "noi" was simply: "we, the Italians", and it was forbidden to mean anything else. [...] It was a foreign "We", that had annexed ours, yet unable to extinguish it – a selfish, jealous "We", that, like God the Father, tolerated no other "We" beside himself, in himself, and among himself. It was the "We" of a totalitarian national community. This all was "Us" back then. A confusing human landscape, reflection of a confused time.*

(translated from: Gatterer, C., 2003, p. 17)

The history of South Tyrol in the 20th century evolves around the struggle of the German and Ladin speakers for recognition and preservation of their cultural identity, and the need for a bridge between the province and the Italian State (Alcock, 2001). While initially the question evolved around being re-annexed to Austria, once this possibility was ruled out, the population started fighting for autonomy within the Italian State. This autonomy aimed at creating an environment in which the three linguistic groups (German, Ladin

and Italian speakers) could live in harmony among each other and with the Italian State, while preserving and promoting their own culture. The struggle was long and persistent, not always peaceful, and took the form of several different treaties at the national and international level. On the path towards being one of the wealthiest regions in Europe today, where the three cultures and languages coexist in respect and harmony, numerous lessons were learned with regard to the creation of an extended sense of identity.

With the end of World War I, Italy received from Austria the southernmost part of Tyrol. Fascist policy implied the assimilation of all cultural minorities of the Italian territory. Ettore Tolomei, an official from the province of Trento, was responsible for doing so in South Tyrol. Without any transitory path, Italian was announced to be the only official language in South Tyrol - in all public as well as private establishments and institutions. The German language was abolished, written as well as oral. Whoever did not speak Italian were dismissed from their post, and Italians were sent to replace them. Street signs, town names and last names were italianized. The only teaching language in school was Italian.<sup>33</sup> Nonetheless, the German and Ladin population did not bend in front of the Italian State, even though they were treated like foreigners in their own homeland. A famous example are the so-called "Catacomb" schools: underground schools where children were taught German.

This is why, almost 20 years later, Fascist Italy had still not succeeded in assimilating the South Tyroleans. On June 23rd, 1939 in Berlin, Benito Mussolini and Adolf Hitler signed an agreement that gave the German speaking South Tyrolean population an option: to leave their homeland (move to the Third Reich) and keep their culture, or to stay in their homeland and abandon their culture (accept full assimilation to Italian culture and language). The idea was that "Migration might succeed where assimilation had failed" (Alcock, 2001, p.3). The agreement was designed to facilitate Mussolini's effort to fully italianize South Tyrol, and to advance Hitler's plans to assemble all Germans in one empire. Under relentless propaganda from Fascist and Nazi organizations, who respectively defined "opters" (people who opted to leave) and "stayers" as traitors, more than 80 per cent of the population decided to leave, by the end of 1939. In the end, however, only around half of the "opters" left, with (initially) no return option. The "opters" were relocated in different parts of Germany, mostly southern Germany then (Austria nowadays), whereas heir houses, firms and farms in South Tyrol were potentially given to families who migrated from more southern parts of Italy. Figure 11 shows the net migration in different parts of South Tyrol from 1940 to 1955, and we observe a large negative balance in 1940, which gradually increases to a positive balance in the later years. The only outlier is the capital town of the region: Bolzano. We know from historical evidence that a high share of Italians moved to Bolzano, in order to build new industries, rather than the remote villages with empty property. Figure 12 shows net migration variation across regions in South Tyrol, in 1940. Here again we observe Bolzano as outlier.

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<sup>33</sup>Only religious institutions were allowed to teach in German.

Despite the efforts by the South Tyroleans to return South Tyrol to Austria after WW II, it remained a part of Italy. However, the result of negotiations was the Gruber-DeGasperi Agreement signed on September 5th, 1956, which assigned the first legal autonomy to the province (more modern versions to follow in the subsequent decades). Austria had, and still has, the right to act as the “minority’s protecting power” in case of violation of the clauses. Furthermore, in 1948 (almost 10 years after the Option Agreement) all “opters” and their children got the legal right to return to South Tyrol and to regain Italian citizenship. Indeed, a remarkably large share of the initial “opters” returned to South Tyrol.

## 2.1 Migration decision: The procedure

The decision making process of the population eligible for opting was two-fold. The first decision was whether or not to opt into leaving, and the second was whether to effectively leave. The procedure was designed as follows. Before the 31st of December 1939 - so only six months after the agreement was signed - each head of household had to decide for the family whether to leave to Germany or to stay in South Tyrol (Italy).<sup>34</sup> The head of household went to the local municipality to fill out a form: a red form for leaving, a white form for staying (*Verkaufte Heimat*, 1989). Individuals eligible to the option could also decide not to opt at all, which was equal to opting for staying in Italy. Often people re-opted several times for different options (Plattner, 2013). Once the deadline was over, as second step every opter had to go to the local office of the ADERSt, where they had to officially renounce to Italian citizenship and request German citizenship (hereafter called "Moving request files"). In the time to follow this procedure, the authorities proceeded to the evaluation of the value of the property and assets of the opters who requested to leave. In our analysis, we use the ADERSt moving request files. These files were carefully handled and well organized, partly because they were used for statistical and control reasons regarding the Option in South Tyrol in the Third Reich (Alexander et al. 1993). In the years to come, people had the right to "re-opt" - something that also appeared to happen quite frequently (*Verkaufte Heimat*, 1989). In our data we have two pieces of information which reflect the first and second decision, respectively. We know the exact date of when the opters officially renounced to Italian citizenship at the ADERSt office and requested German citizenship, and we know whether or not the opter effectively left. The first piece of information shows the willingness-to-leave, whereas the second piece of information shows the actual migration status.

Figure 13 summarizes this step-wise emigration procedure, with the corresponding time period and important drivers for the respective decision.

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<sup>34</sup>"Head of household" was the male head of household, by the time. The decision was, hence, taken by him for the entire family. Exceptions were adult unmarried women, divorced women and widowed women.

### 3 Data

The main data source for this project is the detailed documentation of the Option Agreement procedure, held by the National Archive of the Province of Bolzano. The Archive holds four sets of files related to the Option Agreement. The first set of files are the so-called "option requests". These are the files withheld by the Italian authority designated to handle the Option. There exist approximately 140,000 "Option Requests", from 1939, that provide socio-demographic and economic information on the "opter" and their family, as well as information on the timing of departure and destination. For each "option request" there is a corresponding personal file (second set of files) by the German immigration office responsible for the Option ("ADERSt: Deutsche An- und Rückwanderungsstelle"). These files provide, again, detailed socio-demographic and economic information on the opter. Whereas the documentation in each file varies greatly, these ADERSt-files contain one document that is common throughout all files: the so-called "Abwanderungsantrag", or "Request to leave". It summarizes, on one form, the most important socio-demographic characteristics of the opter and their spouse and children as well as their parents. We have information regarding birth date, birth place and detailed address of the opter as well as their entire family, the opter's learnt profession and the current profession, family status, religion, military status, health status, police records and migration history. From the ADERSt files we can furthermore trace information regarding the financial status of the opter (Did they have any significant assets or property? What is the value of the property?), the migration status (Did the person leave or not leave?) and the return migration status (Did the person or their child come back after 1948?). The third set of files, again linked through name and record number of the individual, are the financial statements for each opter that allowed identifying the exact value of all the physical and financial assets of the "opter". The monetary equivalent to the assets, determined by two separate commissions (an Italian and a German one), was transferred to the individual, who agreed to sell everything they had and move to the Third Reich, with (initially) no return option. Finally, there is a fourth set of files. There are around 75,000 "Back-Option Requests", from 1948, when the South Tyroleans were granted the legal right to move back. Children of "opters" had to prove their family status, in order to be allowed to come back to Italy. The requests are held in boxes which we randomly drew, stratified by commune and representative for the leaving request filing date. We digitized a 2% sample, which gave clean files for 2338 "opters", where each opter is the head-of-household.<sup>35</sup> See table 32 in the appendix for more information. The digitization process was a highly sensitive procedure, since all the original files are still stored in the National Archive of Bolzano and cannot leave the archive. Several months of a daily, careful scanning with two research assistants was necessary in order to collect scans for the 2% sample. Afterwards, we tried several

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<sup>35</sup>The files of the office of Bolzano are missing, it is unclear whether they were destroyed, lost or are locked away somewhere untraceable.

OCR techniques to speed up the data entry procedure, however, due to the age of the files which produce low quality scans it was of no help. Another two research assistants and me ended up entering the data manually.

From the sample we successfully collected and digitized, we drew a first set of descriptive statistics, shown in Table 22, and Figure 14. In our sample, 57 percent of all opters ended up effectively migrating - this corresponds to the approximations in the historic literature. We see that the age gap between migrants and non-migrants is relatively small (36 vs 41 years), with the migrant population being slightly younger. The percentage of women who migrated is also lower than women who did not migrate (27 vs. 35%). Previous military service seems to be similar across migrants and non-migrants, on average around 44 percent of all people in the sample have carried out previous military service. Furthermore, we see that individuals with a police record tend to be more likely to emigrate (8% vs 3%), and that individuals with illnesses migrate less frequently (10% vs 18%). A high percentage of individuals in our sample have previously migrated (this includes migration inside of Italy and Germany and Austria, as well as outside these three countries) - individuals who decided not to emigrate were even more likely to have migrated before (83% vs 97%). In terms of children in the household, families with children tended to be less likely to emigrate (22% vs. 34%). In terms of family status, opters who were single, were relatively more likely to emigrate than married, widowed or divorced opters. Furthermore, capitalists (i.e. notable property owners) and opters out of the labor market were less likely to emigrate with respect to workers who were employed. Figure 14 shows that, on average, in our sample we find more single women, divorced or widowed women - which is a somewhat mechanical effect, since by definition, the head-of-household asked to take the decision was the man in the family if there was one. Women tended to own less property than men, more often being employed out of the labor market. This graph also shows most option requests were filed in 1939 and 1940, then gradually decreasing until the end of the program, in 1945.

Whereas in this section we give a general description of the data, in the next section we describe the variables we use and indicators we create, more in detail.

## 4 Empirical Strategy

We examine the selection into migration of individuals who have opted into leaving and are at the bulk of taking the decision of whether to leave their home country for good or not. Our two outcome variables reflect the willingness-to-leave and effective leaving probability of the opters. In this section, we explore the relevant determinants of the emigration decision, defining and testing several explanatory variables among which a set of economic decision making factors and cultural decision making factors. In section 5, we proceed with the presentation of our result, as well as the determination of the trade-off between additional utility from emigrating (cultural benefit), and cost of emigrating



(economic loss), and aim at finding the determinants of the emigration threshold.

$$\begin{aligned} TimeLeaveRequest_i &= \beta_0 + \beta_1 * Econ_i + \beta_2 * Cult_i \\ &+ \beta_3 * ControlVar_i + \beta_4 * CommuneFE + \epsilon_i \end{aligned} \quad (8)$$

$$\begin{aligned} PR(Leave)_i &= \beta_0 + \beta_1 * Econ_i + \beta_2 * Cult_i \\ &+ \beta_3 * ControlVar_i + \beta_4 * CommuneFE + \epsilon_i \end{aligned} \quad (9)$$

**Outcome variables**  $TimeLeaveRequest_i$  is the day on which opter  $i$  officially requests German citizenship to renounce Italian citizenship, at the ADERSt office. The first request day is the 5th September 1939, the last recorded day the in our sample the 15th February 1945. The rounded mean date is the 14th June 1940, with a standard deviation of 300 days (so approx. 10 months).  $PR(Leave)_i$  reflects the probability of effectively leaving the country - it is a binary variable.<sup>36</sup> The mean emigration probability is 57%, with a standard deviation of 0.49.

Now, we define two main blocks of explanatory variables, and a set of control variables. The first main block refers to the *cultural ties to Germany*, and the second to the *economic ties to Italy*.

### ***Cultural Identity: degree of attachment to the German culture***

Cultural identity is tricky to capture, yet has been shown to influence preferences and behavior significantly (see e.g. Akerlof and Kranton, 2000; Hoff and Pandey, 2006; Benjamin, Choi and Strickland, 2010; Benjamin, Choi and Fisher, 2016; Bisin et al., 2016; Fouka, 2020). In this analysis we rely on three variables that reflect potential cultural ties to Germany, introducing a fourth one for a sub-sample of opters with children. The variables explained in the following paragraphs aim at proxying *inherited*, *acquired*, and *manifested* cultural preferences.

The first variable is opter  $i$ 's first name. Here we follow the literature of first names as a reflection of cultural preferences. This concept stems from sociology literature and was recently taken up by economists (see, e.g. Fryer Jr et al., 2004; Rubinstein et al., 2013; Biavaschi et al., 2017). However, this literature proxies parents' cultural preferences which are reflected in their childrens' names. The first name of an adult, can, hence, be interpreted as their inherited cultural preferences. In their lifetime, their cultural identity might have been subject to changes. To take this into account, the second variable we look into is opter  $i$ 's migration history to Austria or Germany, account for personally acquired cultural preferences over lifetime. Finally, we look into a third variable, which reflects the family's

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<sup>36</sup>Unfortunately we cannot use the leaving date as outcome variable, as this information is highly incomplete in our data.

cultural ties: opter  $i$ 's parents country of citizenship and current residency. Finally, on a sub-sample of opters with children, we run specifications that look at manifested cultural preferences, relying on the literature around first names of children as reflections of their parents' preferences.

Whereas it is reasonable to assume that all these indicators reflect cultural preferences to a certain extent, they might reflect a number of other factors as well, for example economic factors. Past migration history, for example, has likely affected opter  $i$ 's economic ties to Germany as well. We therefore present a series of different specifications to get as close as possible to the true effect of cultural preferences in the emigration decision. The results, in particular the size of the effects we find, are nonetheless to be interpreted with caution.

#### *Germanic first name*

Our first indicator of cultural ties to Germany is the first name of each opter  $i$ , the inherited cultural preferences. Unlike other countries like the US, for Germany and Austria there is no official registry of the most popular first names in the early 20th. We hence, rely on other indicators of "German-ness" of a first name. First, we rely on anecdotal evidence that Germanic first names - in particular in the early 20th Century - were a strong reflection of attachment to the German race. There is little scientific evidence for this phenomenon, until Jesus Casquete in 2016 published an article in the *European Journal of Cultural and Political Sociology*, about "The importance of being Horst" which discusses the encouragement of Nazis to give Germanic first names to newborn children (especially boys). We use a list of Wikipedia listing all German first names with Germanic roots and use the Stata algorithm *reclink* to determine the proximity of the names of the opters in our sample to the Germanic names in the list. From this data, we create an index by quintiles. However, as we see in figure 15, there is little variation and frequency in the values in between the strict zero and one. For the sake of precision of our estimates, we prefer using a binary variable for our analysis: taking as zero all non-fully Germanic names, and one all fully Germanic names.<sup>37</sup>

#### *German first name index*

In addition, we define yet another index of "German-ness" of first names. Each first name in our sample is categorized following its usage in the German or Italian language: names that are used in German but not Italian, names that are used in both languages, and names that are used in Italian but not German, and finally names that are used in none of the languages. Furthermore, for names composed of several different first names, like "Franz Anton Guido", we treat each sub-name as a component: the name's indicator will be "GGB": "German - German - Both". We call this index "German first name index". The histogram to this index, in 12 categories of increasing German-ness, is represented in appendix 21.

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<sup>37</sup>We also run a specification, where we use a quintile index. See results section.

### *Nibelungen index*

Finally, we look into a specification on the sub sample of opters with children, relying this time directly on the literature about the role of children first names as indicator for parents' cultural preferences (see, e.g. Fryer Jr et al., 2004; Rubinstein et al., 2013; Biavaschi et al. 2017). More precisely, we create the the so-called "Nibelungen index", where we follow the proposition that individuals who are most culturally connected to Germany, give their children ancient Germanic names. Here fore we use the same list of Wikipedia and use again the Stata algorithm *reclink*, this time to determine the proximity of the names of the first-born children in our sample to the Germanic names. From here, we create another quintile index. Here we find more variation and frequency in between zero and one, and can, hence use the quintile index for our main specification (see 16). In a different specification, we will report a binary index, constructed the same way as the binary index for the full sample. To distinguish the different indices, we name this index "Nibelungen Index", since many Germanic names are best-known from Richard Wagner's operas.

As explained above, there are two more variables we consider when proxying the cultural attachment to Germany. We look at previous migration history of each opter, more specifically, whether the individual has previously migrated to either Austria or Germany. We, thus, have a dummy variable equal to one if opter  $i$  has previously migrated to Austria or Germany, or not. Around 12 percent have previously migrated to Germany or Austria, with a standard deviation of 0.34. And finally, we look into the country of residence as well as country of citizenship of both parents of each opter. Here we create a variable with six categories, the first being none of the parents lives in Austria or Germany or have their citizenship in Austria or Germany - the last being both parents live in Austria or Germany and have citizenship there. The mean of this variable is 1.87 on a scale between 1 and 6, with a standard deviation of 1.36.

### ***Economic well-being in the home country: degree of economic attachment to Italy***

Opoter  $i$ 's economic well-being is linked to the following information in our data. Opter  $i$ 's status of owning property or not, several labor market outcomes as well as looking into whether opter  $i$  carries out the job they learned. The main driver of the migration decision in terms of economic variables is likely to be the property status: whereas jobs are transferable between countries, physical property like a house or a piece of land is not.<sup>38</sup> One key factor in the economic ties to Italy is, hence, the property status of opter  $i$ : do

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<sup>38</sup>Although it was promised to individuals to get property abroad which reflects the exact value of their local property. Nonetheless, there are emotional aspects tied to leaving physical property, in particular if it has been in family property for years. Second, there was no guarantee to get good property abroad - the opters could not choose property and not visit it beforehand.

they own property? Furthermore, we also consider a decision making channel coming from anecdotal evidence: strategic economic decision making. In addition to accounting for their own property, opters tended to consider the opportunity of buying close-by property, knowing that their neighbor opted for leaving. Secondly, also within families strategic decisions were made: there were people sent abroad and others kept at home to take care of the family property. The additional factors in our economic ties - block are, hence, the pieces of property in the immediate neighborhood of opter  $i$ , and the pieces of property owned by the family: mother's family and father's family.

On average 25.6% of all individuals in our sample are property owners, among the people who left 13.34% own property, and among those who didn't leave, 41.9% own property. There average neighborhood property is 1.18, with a standard deviation of 1.72, on a scale between 0 and 10. The average among people who left is 1.10, and among those who stayed, 1.29. The average family property is 0.84, with a standard deviation of 1.21 on a scale between 0 and 7, it is the sum of property from mother's and father's side of the family.

Neighborhood and family property are two variables that call for further discussion, for three main reasons. First, we discuss possible bias arising through the small sample we work with. We only capture a two percent sample of all households exposed to the emigration decision. We are, nonetheless, confident in our indicators, since the sample is random and representative at the commune level and timing of option procedure, which suggests a random and representative sample also for the neighborhood and family property. This provides confidence in the suitability of our data to correctly measure neighborhood and family property. Furthermore, we discuss two of the most common sources of bias in empirical peer effects models: the selection bias and the reflection bias. The *selection bias* occurs when peers select into a specific group. For example, when looking at peer effects on student performance in specific subjects, students might endogenously select into specific subjects, hence giving rise to selection bias. We cannot choose our father and mother, but we can choose our neighborhood. Hence, in our case, there might be endogenous selection: in many cases, people get to choose which neighborhood they want to live in. However, we argue that this selection should not bias our results. On one hand, the Option policy was not expected by the people, and even if, there is no reason, and no evidence, that it would have provided an incentive to move to new neighborhoods. On the other hand, when selecting into the neighborhood, many factors might be taken into consideration (the proximity to good schools, churches, the work place, proximity to nature). We argue that the property status of neighbors is of less interest when selecting into a neighborhood. Neighbor's property status becomes interesting only once there is an exogenous shock, which, all in a sudden opens up the possibility to buy neighborhood land easily and to a good price. Hence, we argue that, while the neighborhood property matters in the decision of whether to emigrate due to the Option policy or not, it did not play a primary role when selecting-into-neighborhoods. The third possible source of bias we discuss, is the so-called

*reflection bias*:  $i$ 's behavior is influenced by  $j$ , but also the contrary is true. Now, in our case it is not the neighbor's action that we look at, hence, no dynamic behavior, but a static fact: their property status. Hence, if  $j$ 's property status influences  $i$ 's decision,  $i$ 's decision does not affect  $j$ 's property status. One might argue, however, that  $i$ 's property status does influence  $j$ 's emigration decision as well. Even in this case, the reflection bias generally does not invalidate the *presence* of an effect, it might just have an effect on its *magnitude*, through a multiplier effect.<sup>39</sup>

Given these three possible sources of bias, we will interpret the magnitude of the possible effect with caution, yet have confidence in the presence of the effect we find. Furthermore, in order to check for the robustness of the results using neighborhood property, we create an index from the variable that normally ranges between zero and ten. The index we create is equal to zero for zero neighborhood property, one for one piece of neighborhood property and two for anything above one. This way we believe we can reduce the noise around properly capturing neighborhood property in a 2 percent sample, in worst case scenario of bias through defective randomization and representativeness. The estimates are represented in appendix table 47 and are in line with results in the main specifications discussed in the results subsection.

### ***Control Variables***

Our set of control variables includes the following variables. We introduce variables looking at how many family members moved and how many neighbors moved, whether opter  $i$ 's current job is their learnt job, whether opter  $i$  is a considerable property owner (by the time representing a capitalist) or if they are working (worker), with reference category "out of the labor market", opter  $i$ 's age and gender, whether opter  $i$  has children, whether they had previously done military service, whether they have a police record, whether they have illnesses, whether they have previously migrated and whether they are married, single or divorced (widowed is the reference category). Furthermore, we add commune fixed effects, and in some specifications officer fixed effects.

## **5 Results**

We propose that the leaving decision as well as timing of requesting German citizenship, reflect the willingness-to-leave of each opter  $i$ , and are decisions driven by cultural and economic components. We look at a set of variables that represent cultural attachment to Germany, and a set of variables that reflect economic well-being at home and their effect on the timing of moving request, and the leaving probability. In the following tables, all regression specifications are presented with robust standard errors. The first specification does not include control variables, and we then gradually increase the number of control

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<sup>39</sup>For a more thorough discussion of possible bias in the estimation of peer effects models, see e.g. Angrist and Pischke (2008) and Angrist (2014).

variables.

In tables 23 and 24 we run the estimates commonly presented in the context of selection-into-migration: taking into account the economic drivers of the emigration decision, and gradually introducing blocks of control variables to the regression specifications. Table 23's outcome variable is the application date (so date filing date of the "Option Request" at the ADERSt office). Table 24's outcome variable shows whether the opters ended up emigrating or not. From these tables, we find that all three indicators of economic ties to Italy (i.e. personal property, neighborhood property, family property) significantly impact the application date, as well as the emigration decision in four out of six specifications. Looking at table 23, we see that all three variables appear to *delay* the application date (positive coefficient) significantly. The estimates we find for personal property are not significant across the specifications: once we introduce control variables, the coefficient is insignificant. The coefficient ranges between 11 days and 77 days. When we look at neighborhood property, whose coefficient is significant across all specifications, we find the size of the effect ranging between 7 and 24 days. Finally, family property appears to delay the application date between 13 and 23 days. What we find here is that once we introduce the block on social network variables, looking into emigration of neighbors and family members, the effect of family property is no longer significant, while the coefficient for neighborhood property remains significant. Furthermore, we see from this table, that our proxy for job satisfaction (current job = learnt job) significantly delays the application decision throughout all specifications, so does the dummy for female, and the dummy for present illnesses. Divorced and widowed people, as well as people who have migrated before, appear to apply *earlier* than married people, singles, and people who had not previously migrated. Finally, the emigration decision of social networks (family and neighbors) both significantly affect opter *i*'s decision: if they take the emigration decision, opter *i* will apply for emigration earlier, by as many as 101 days, which is more than three months. Table 24 looks at the effective emigration: did opter *i* effectively emigrate or not? Whereas for many variables we find similar effects to the results in 23 (job satisfaction, female dummy, illnesses, divorced and widowed individuals, networks), the decisive variables among the economic ties appear to be slightly different. We find the results for personal property to be similar as in the application date specifications. Furthermore, we see that for the effective emigration decision, family property appears to play a more significantly persistent role than neighborhood property. Also, the fact of being a capitalist (i.e. having "notable property") appears to decrease the emigration probability vis à vis having the worker status or being out of the labor market.<sup>40</sup>

In tables 25 and 26 we now introduce the block of cultural ties variables, as defined in the previous section also here gradually adding blocks of control variables in six specifications. Again, we look at the application date in 25 and at the emigration probability in

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<sup>40</sup>From the records that describe the files in use, we cannot determine the precise conditions for being categorized a person with "notable property" in terms of quantity and type of property.

26. Comparing both tables, first of all, we find that the most decisive among the variables we add to the cultural ties block is previous migration to Germany or Austria, the variable we use to proxy acquired cultural preferences. The coefficient is significant throughout all specifications in both tables, and is as large as 110 day *earlier* application date, and a 19 percentage point increase in the emigration probability. We do not fully attribute this effect to economic ties to Germany, since previous migration might have established economic advantages at destination as well, hence we are careful with interpretation of the magnitude of the large effect. Inherited cultural ties through first name appear to play a marginal role, and show less significance throughout the specifications. The effect we find for family ties to Austria and Germany is not persistently significant across the specifications, yet shows an interesting result: family ties to Germany or Austria appear to *delay* the application date and *decrease* emigration probability. This effect could possibly be caused by a less skewed view on life in Third Reich. First of all, according to historians, the Third Reich (especially in its early period) promised Germans a good life and propagated it as such. Second, the German speaking South Tyroleans had such negative views on Italy in 1939, caused by decades of attempted assimilation policies (see e.g. Alexander et al., 1993), that idea of belonging to Germany to many meant salvation. It is possible that close family ties to Germany captured a more accurate picture of the current situation there, which caused people to evaluate their decision more carefully. When looking at the economic ties variables in these tables, we see a similar picture as in 23 and 24. First, the effect of personal property is, here too, large in magnitude (up to 68 days later application, and 23 percentage points lower probability to emigrate) but not significant across all specifications. Second, neighborhood property appears to be the most significant component in the application date, yet family property plays a more significant role in the effective emigration decision. When looking at the control variables, the picture looks like the findings from tables 23 and 24.

In tables 41 and 42, as well as 45 and 46 in the appendix test for the robustness of our main results, using two different first-name indices. First, the non-binary quintile Germanic first name index, where, however, this index is not significant throughout the specifications. Nonetheless, we find in appendix tables 45 and 46, where we use the "German first name index" constructed according to the description in the previous section, that the first name has a significant effect throughout most specifications, for both outcome variables. Whereas the result in tables 41 and 42 might partly derive from a measurement error (see the discussion in the previous section), the results in tables 45 and 46 provide confidence in the relevance of inherited cultural preference on the emigration decision. In fact, the German first name index appears to explain significantly a part of the variation in both outcome variables, to magnitudes up to 40 days earlier application, and a 7 percentage point higher emigration probability. Nonetheless, we prefer to use the binary Germanic first name index throughout the main specifications, since the German first-name index is constructed somewhat arbitrarily, not relying on existing literature.

In tables 27 and 28 we restrict our sample to the families with children, and use the *Nibelungen Index* developed in the previous section. We find similar results to the main specifications in tables 25 and 26. Yet, when looking at the restricted sample with the "Nibelungen Index", we find a significantly *earlier* application date for parents who give their children more Germanic names, between 9 and 14 days, whereas we don't find a significant effect on the emigration probability. Similarly, in appendix tables 43 and 44, where we use the binary Nibelungen Index, we find a significant and robust effect of the "Nibelungen Index" for the application date, and no significant effect on the emigration probability.

### 5.1 Heterogeneity of effects

Since the main drivers of the emigration decision might vary by family structure and life cycle, we carry out an analysis of possible heterogeneity of effects. In these specifications, we present six columns. The first three columns look at the outcome variable "Application date", the last three columns look at the outcome variable "Emigration probability". Columns 1 and 4 are presented without control variables, columns 2 and 5 with the full set of control variables and and columns 3 and 6 with the full set of control variables and commune fixed effects.

First, we look at family structure. In appendix tables 33 and 34 we analyze the sample of single men and single women. Looking at single men, we find that in terms of application date, attachment to Germany is relatively insignificant, and except for neighborhood property, also economic ties to homeland appear to matter little. Once it comes to the effective emigration decision, both blocks of variables gain significance. Looking at our preferred specifications, 5 and 6 with control variables and commune fixed effects, we see that previous migration to AUT or GER, and family ties to AUT or GER significantly increase leaving probability, and neighborhood and family property both decrease it. Interestingly, personal property appears to *increase* emigration probability. This could hint towards a different attitude towards risk by this group of individuals, who do not have a partner or children to take care of. For single women, both for the application and emigration decision, previous migration to AUT or GER has a strong, consistently significant effect, as high as 120 days earlier application and 18.5 percentage points higher leaving probability. We find little effect for personal property, but a significant, though low in magnitude, effect of neighborhood and family property in decreasing the leaving probability.

The next comparison we propose in terms of family structure, is between couples without children and couples with children, represented in appendix tables 35 and 36. The sample of couples, in particular couples with children, points towards an interesting pattern: the drivers of the application date and effective emigration appear to be rather different. More precisely, when looking at couples without children, whereas we find previous migration



to AUT or GER and neighborhood property to matter most for the application date, the only variable in the two blocks which appears to significantly affect also the emigration probability, are family ties to AUT or GER. However, this specification suffers from a small sample, which calls for caution in the interpretation of the magnitude and significance of the results. When looking at couples with children, the picture looks different in yet another dimension. Whereas for the application date, previous migration to AUT or GER as well as neighborhood property appear to be most significant, for the emigration decision it is mostly inherited cultural preferences (head-of-household's first name), previous migration to AUT or GER, and family property that are most influential.

One interesting pattern we observe across the results is that variables that reflect family ties (cultural through ethnicity or economic through property) tend to be more significant in the emigration decision, whereas they seem to be less considered in the application decision.

Second, we look at heterogeneity of effects by age groups, to capture possible life cycle effects. The first age group are opters who are less than 20 years old; the results are shown in appendix table 37. None of the variables appear to matter for either decision in a robust significant way, also here, possibly due to either the small sample size, or a different attitude towards risk, with respect to other age groups. Opters between 20 and 40, appendix table 38, appear to have no significant role of cultural preferences in their application decision, whereas when it comes to effective emigration, previous migration to AUT or GER appears to influence the decision. Neighborhood property is important for both decisions, and family property becomes important once the emigration decision is taken. An interesting case is as well the case of the 40 to 60 years old opters, appendix table 39. Here previous migration and neighborhood property mostly affect the application date, whereas inherited cultural preferences through the first name, past migration history and family property appear to drive the emigration decision significantly. Finally, for opters above 60, appendix table 40, past migration and neighborhood property affect the application decision, but none of the variables in the culture and economic ties blocks appear to affect the emigration decision. In fact, from the control variables we know that for the individuals who are above 60, the emigration decision seems to be almost entirely driven by family decisions (the coefficient of family networks emigrating being as high as 0.8, meaning an increase of 80 percentage points in the leaving probability).

## **5.2 Alternative explanations: Selection-into-migration by the Governments**

After discussing the heterogeneity of effects, we investigate the nature of the selection-into-migration in this peculiar setting: Was the emigration decision entirely voluntary, or was it partly determined by the participating government? There is some historical evidence which claims that some people were deported, whereas for others the leaving time

was artificially delayed (Eisinger et al., 1989; Alexander et al., 1993). This means that, whether or not opters ended up moving or not, was not entirely their decision, but was partly decided by the German and Italian authorities. Initially, there were no boundaries as to whom could enter the German territory, but there is some evidence, see Alexander et al. 1993, p. 50, for example, that suggests that the German authorities in their idea of reuniting all Germans in one empire, followed the idea of reuniting those Germans who were of "unambiguous German race, healthy and with a morally and politically flawless character" (roughly translated from "eindeutig deutscher Volkszugehörigkeit, erbggesund, moralisch und politisch einwandfreien Charakters". On the other hand, Italian authorities had another idea of whom they mostly wanted to "get rid of": theoretically, everybody except for the farmers in the mountains whom they knew they could not replace with Italians. Practically, they wanted to send away the morally and physically questionable individuals first: people in prisons and people in hospitals and especially psychiatric clinics.<sup>41</sup> There is little evidence on whether and how this happened practically, and how the individuals were selected in the end - according to German or Italian ideas - or if they were selected at all. To look into this possible alternative explanation, we check whether we find differential effects when accounting for those population groups, which according to Alexander et al. (1993) were potentially "sampled in" by the Italian Government and "sampled out" by the German Government - i.e. the most vulnerable parts of the population in one specification, and the farmers in another specification.

Here fore we add two specifications, controlling for the effect to be driven by vulnerable individuals, or farmers. We present two specifications, table 29 for the case of vulnerable individuals and table 30 for the case of farmers. In specification 29, we find our main effects to be consistent with the results in our main specification in 24 and 25. The more curious case is the specification 30. The main effects for the non-farmers in the sample show a much higher significance of cultural variables in the emigration decision specifically, with respect to the farmers. In particular, for the emigration decision, the Germanic first-name variable is significantly positive throughout the specifications, and significantly negative for the interaction with the farmer dummy.

In addition, in order to further account for possible manipulation of the leaving decision by the administration, we add officer fixed effects to our model. Partly through image recognition algorithms, partly through manual image recognition, we identify common signatures of the officers who handled the ADERSt leaving request. In our sample, we identified a total of 88 different signatures, i.e. 88 different officers. Table 31 shows the results of our main specification adding officer fixed effects. We see that the results remain robust here as well. In terms of total effects, we see that once we add the officer fixed effects, the R-squared for the specifications looking at the application date as outcome variable, increases significantly: from 0.203 in the main specification (with all controls and commune

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<sup>41</sup>Mentally ill individuals were deported to Germany and killed there. (Eisterer et al., 1989; Alexander et al., 1993)

fixed effects), up to 0.732 in the same specification but with officer fixed effects.

Finally, we carry out a further robustness test, following Oster (2019), and relying on the *psacalc* command. We find that the delta we find for each specification reflects the significance of our results and proves further robustness. In particular, we find for our significant variables in the main specification, a value greater than 2 each. This value suggests that the unobservables would have to be at least twice as important as the observables to produce a treatment effect of zero, for each of the variables we test. The results to the Oster (2019) test are represented in appendix table 48.

### 5.3 Empirical determination of the emigration threshold $e^*$

In this section, we aim at the determination of an emigration threshold which depends on the *utility from migrating* derived from a social externality of being surrounded by agents of the same cultural type, and a *migration cost*. We formally derive the emigration threshold in the theoretical framework explained in appendix 1, 7.1. Its propositions guide the empirical discussion of the emigration threshold. From the findings in appendix 1, we recall that the agents, here heads-of-households, will decide to emigrate if the expected additional utility from living among more individuals of the same cultural type exceeds the cost of migration:  $\Delta U_i \geq M$ . The agents derive their utility as an increasing function of the social externality  $e$ , which in our setting, is higher at  $d$  destination for agents of cultural type  $i$ . We determine the threshold level  $e^* = \frac{M}{q_i^d - q_i^h}$ , where  $q_i^d$  is the share of agents of cultural type  $i$  at destination, and  $q_i^h$  is the share of agents of cultural type  $i$  at home and  $M$  is the migration cost. An agent will decide to emigrate if and only if  $e_i \geq e^*$ . For the empirical discussion, we first need to define the social externality  $e$  of the cultural group  $i$ , here South Tyroleans with German ethnicity. Here fore we rely on the cultural attachment indicators used in the previous sections. Second, we will define the migration cost, which we defined as  $M = m(CD, CFV)$ , hence a function of direct migration cost and forgone value. For this index, we will also rely on the proxies for economic ties to home that we developed in the previous sections.

Empirically, we determine the emigration threshold by plotting the margins from a regression in the form of equation 9, introduced in section 4, except summing the variables from the "cultural ties" block and the "economic ties" block to one variable representing each.

Let us first define and construct the *Migration cost*. Since the direct cost of migrating,  $CD$ , in this setting, was covered by the Italian and German government, hence equal to zero for the agents, we only consider the forgone value cost,  $CFV$ . This can be proxied with the economic ties to homeland, developed in the previous sections. For the sake of ease of interpretation of the results, we construct the migration cost in units: the sum of all property owned by the opter or by their family or present in the neighborhood. The migration cost we determine through this construction, ranges from zero to 16, with a

mean of 2.38 and a standard deviation of 2.65 units of property.

Second, we construct a proxy for what we call in the theoretical framework the *social externality*  $e$ , which serves to determine the intensity of the attachment to the German culture. The definition of this index is not trivial, since it is not straightforward to measure culture in units. We rely on the results from the previous sections and construct two different indicators. The first indicator is based on the straightforward, yet possibly flawed, construction of a simple average of the three indicators of cultural factors (i.e. the first name index, the past migration to Germany or Austria and the family ties to Germany or Austria). From here we create a quintile index, which shows a mean of 2.12 and a standard deviation of 1.35.

However, it is not trivial to understand how much of each of the three components weighs in the representation of cultural ties. Therefore, we create a second index, relying here fore on a Principal Component Analysis. We run the PCA for all variables from the regression specification including all control variables, and find a component that appears to reflect the cultural factors of the emigration decision. The Eigenvalue of the component is 1.57, and the respective factor loading for the main variables is as follows: 0.1487 for the first name index, 0.3836 for past migration to GER or AUT, 0.2617 for family ties to GER or AUT, -0.2255 for personal property, -0.2828 for neighborhood property, -0.2983 for family property. We, again create a quintile index, with a mean of 2.99 and standard deviation of 1.41.

Figures 17 and 18 graph the margins from a regression in the form of equation 9. In the regression of figure 17, we use the *cultural attachment* variable constructed from an average of the cultural ties variables, the *migration cost* constructed from the sum of property variables, and predict the emigration probability. In figure 18, we use the *cultural attachment* variable constructed through the Principal Component Analysis. In both graphs, on the Y-axis we plot the degree of cultural attachment to Germany, i.e. the quintile index between 1 and 5, where 1 is the lowest degree of attachment and 5 the highest degree of attachment. On the X-axis we plot the migration cost. The predicted emigration probability ranges between 30 percent and 70 percent, and changes in terms of colors from dark blue (30 percent) to red (70 percent). We see that, independent of the migration cost, the individuals of higher cultural attachment have a higher emigration probability. Furthermore, we observe that, the higher the migration cost, the lower the emigration probability. Looking at figure 17, we see that an agent least attached to Germany (i.e. index value 1) will have an emigration probability of 60 to 70 percent, only when the migration cost is close to zero units of property. On the contrary, an agent most attached to Germany will have a 60 to 70 percent emigration probability for a migration cost as high as 2.5 units of property. We see that, for agents who have a migration cost higher than 10 property units, even those most culturally attached to Germany have only a 30 to 40 percent emigration probability. We find the same, more pronounced, picture in figure 18.

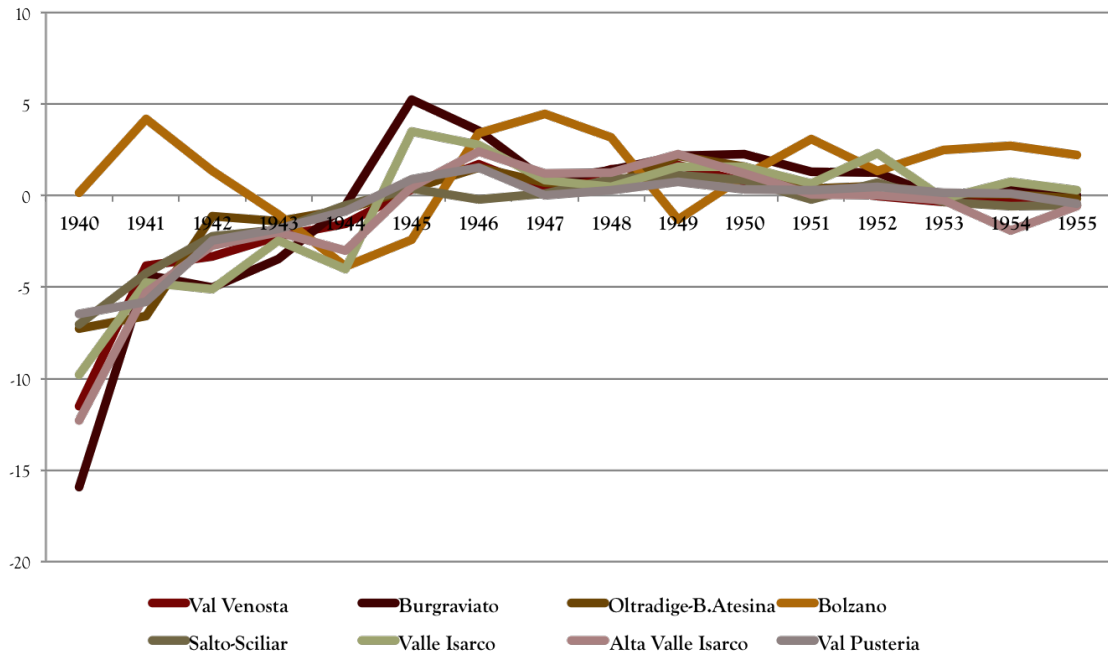
This exercise shows in an empirical application, that agents with high levels of cultural

attachment are likely to emigrate even at a high migration cost. Comparing this result to our figure 19 in the theoretical framework, these agents would be the ones at the upper end of the distribution of the social externality  $e$ . Agents with low levels of cultural attachment are likely to emigrate only at a lower migration cost. They would be the ones at the lower end of the distribution of the social externality  $e$ .

## 6 Conclusion

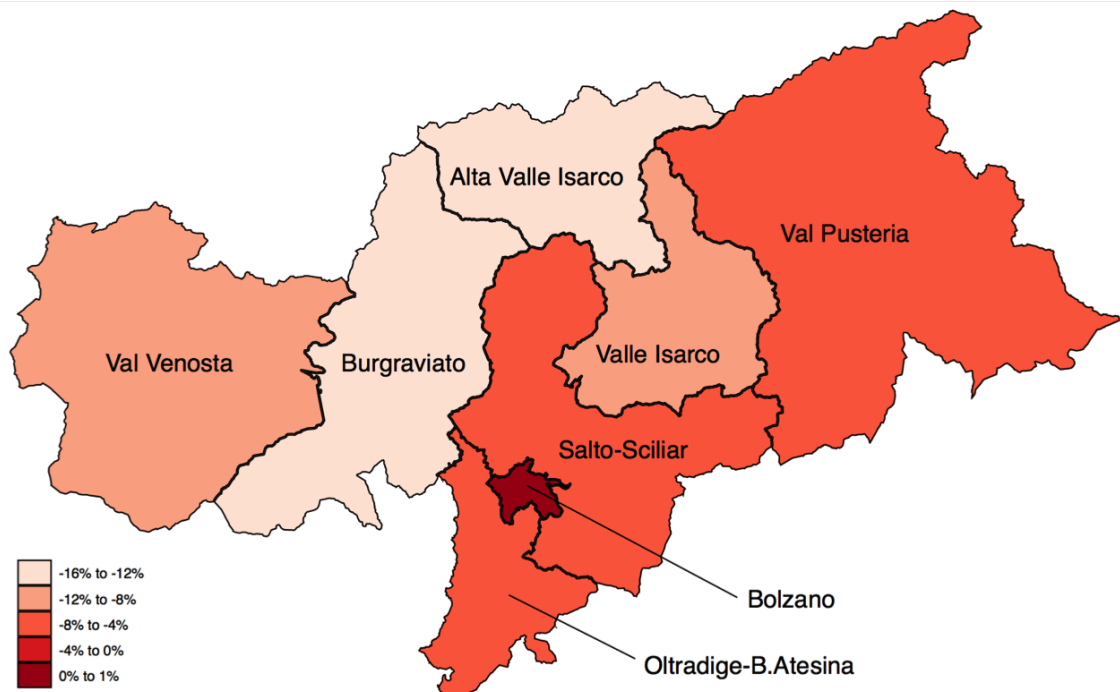
This paper examines the self-selection into migration during a historical migration choice experiment between Nazi Germany and Fascist Italy in 1939, following the loss of institutional power of the region's cultural and linguistic majority to a minority. More than 200,000 German speakers living in Northern Italy were imposed to choose to either stay in their homeland but abandon their culture, or abandon their homeland to follow their culture. According to historical evidence, between 80 and 90 percent of all heads of households 'opted' into leaving and moving to the German Reich, whereas in the end about half of all opters actually left. We look into the cultural and economic components of the leaving decision, defining several indicators of cultural ties to Germany and economic ties to Italy. We define and construct the following indicators: an indicator for "inherited" cultural ties, using the Germanic-ness of the first name of the opter, an indicator for "acquired" cultural ties, looking at previous migration to Austria or Germany, and an indicator for "manifested" cultural ties, following the hypothesis that the first name of a child is the reflection of their parents' cultural preferences. Including a large set of control variables, as well as commune fixed effects, we find robust effects for acquired cultural ties to be influential in the emigration decision, as well as evidence for a significant role of manifested cultural ties. As for the economic ties, we see that strategic decision making based on the possibility to buy neighborhood property or preserve family property outweigh the effect of personal property. Looking at the heterogeneity of effects, we find evidence for differential decision making strategies according to family structure as well as age groups. Using data on the farming profession, on police records and illnesses, as well as officer fixed effects, we rule out alternative explanations for emigrating, based on anecdotal evidence that suggests that part of the leaving decision was determined by the participating governments. Finally, we discuss emigration probability as a function of an economic migration cost, and a migration gain through a social externality from the interaction of an agent with other agents from the same cultural type. We propose a simple theoretical framework, as well as economic application, to derive propositions for a specific cultural group, whose emigration threshold varies according to the intensity of cultural attachment and the migration cost.

Figure 11: Net migration in South Tyrol from 1940-1955.



Data source: ASTAT - Institute for Statistics of the Province of Bolzano.

Figure 12: Net migration in percentage of population in 1940.



Data source: ASTAT - Institute for Statistics of the Province of Bolzano.

Figure 13: Step-wise emigration procedure.

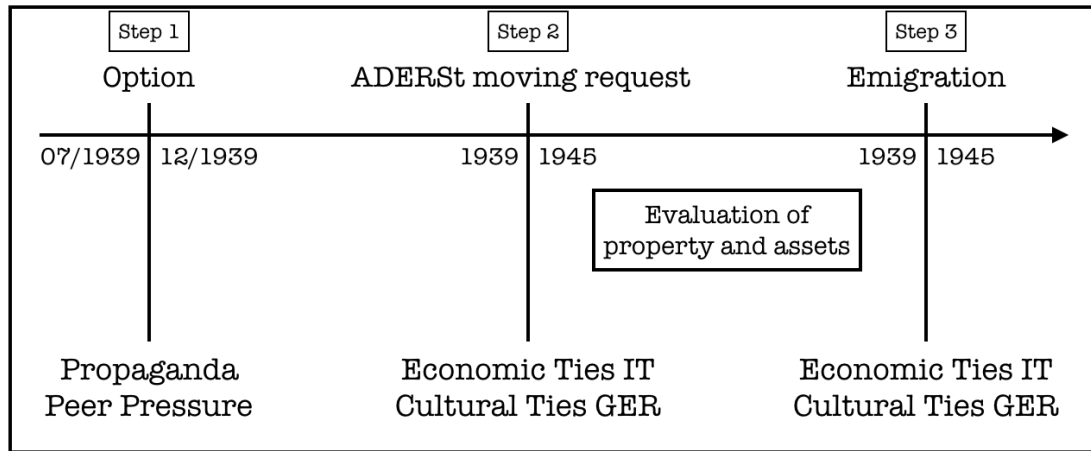


Table 22: Descriptive statistics of a sample of 2338 heads-of-households, by leaving status.

Emigrated: 57%

Did not emigrate: 43%

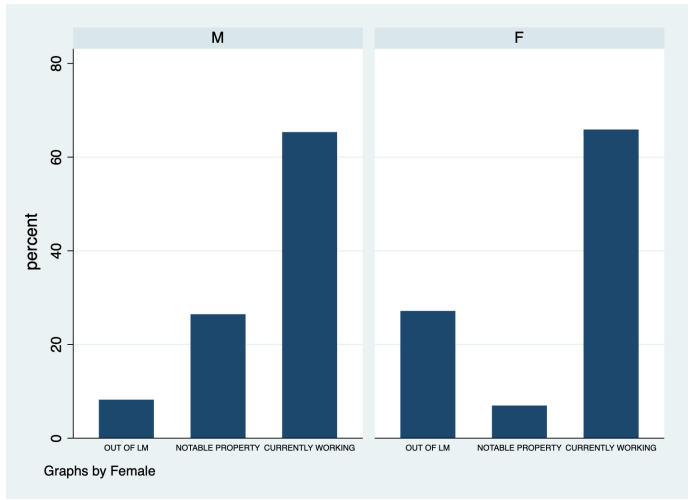
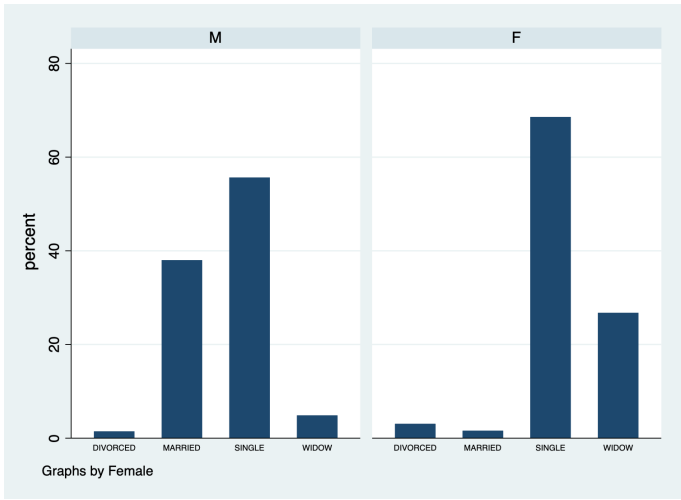
Variable	N	Mean	SD	Min	Max	N	Mean	SD	Min	Max
Age	1328	36.40512	17.03187	15	88	992	41.81452	15.94427	13	82
Female	1336	.2754491	.4469076	0	1	1001	.3836164	.4865093	0	1
Prev. military service	1332	0.452703	.4979449	0	1	986	0.432049	.4956125	0	1
Police record	1329	0.082017	.2744932	0	1	986	0.030426	.1718435	0	1
Illness	1329	0.108352	.3109416	0	1	986	0.186613	.3897979	0	1
Prev. migration	1337	.8332087	.3729289	0	1	1001	.968032	.1760029	0	1
Children in HH	1336	.2193114	.413935	0	1	1001	.3396603	.4738306	0	1
Divorced	1333	.0247562	.1554395	0	1	999	.013013	.1133867	0	1
Married	1333	.2175544	.4127375	0	1	999	.3233233	.4679792	0	1
Single	1333	.6496624	.4772547	0	1	999	.5295295	.4993772	0	1
Widowed	1333	.108027	.310531	0	1	999	.1341341	.3409671	0	1
Out of labor market	1295	.1389961	.3460761	0	1	962	.1507277	.3579693	0	1
Notable property	1295	.0996139	.2996002	0	1	962	.3378378	.473219	0	1
Currently working	1295	.76139	.4263985	0	1	962	.5114345	.5001292	0	1
Current job = learnt job	1315	0.701901	.4575972	0	1	979	0.797753	.4018809	0	1
Property owner	1229	.1334418	.34019	0	1	928	.419181	.4936911	0	1

Data source: National Archive of the Province of Bolzano

Figure 14: Socio-demographic characteristics.

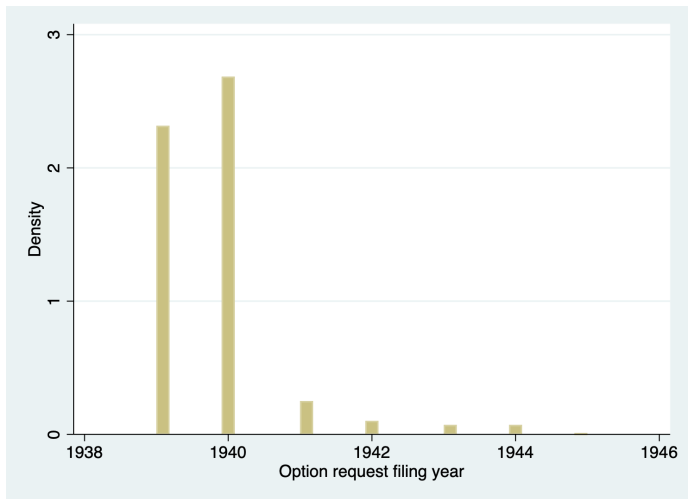
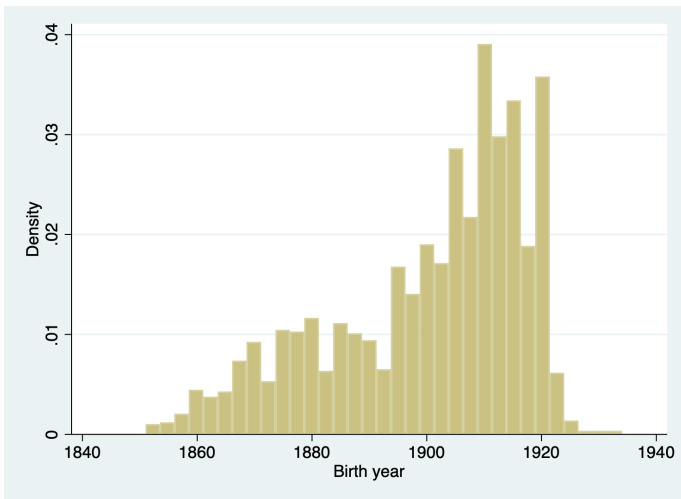
(a) Family Status in %

(b) Labor Market Status in %



(c) Birth year

(d) Emigration application year



Data source: National Archive of the Province of Bolzano



Figure 15: Histogram of the match variable: first names and Germanic names

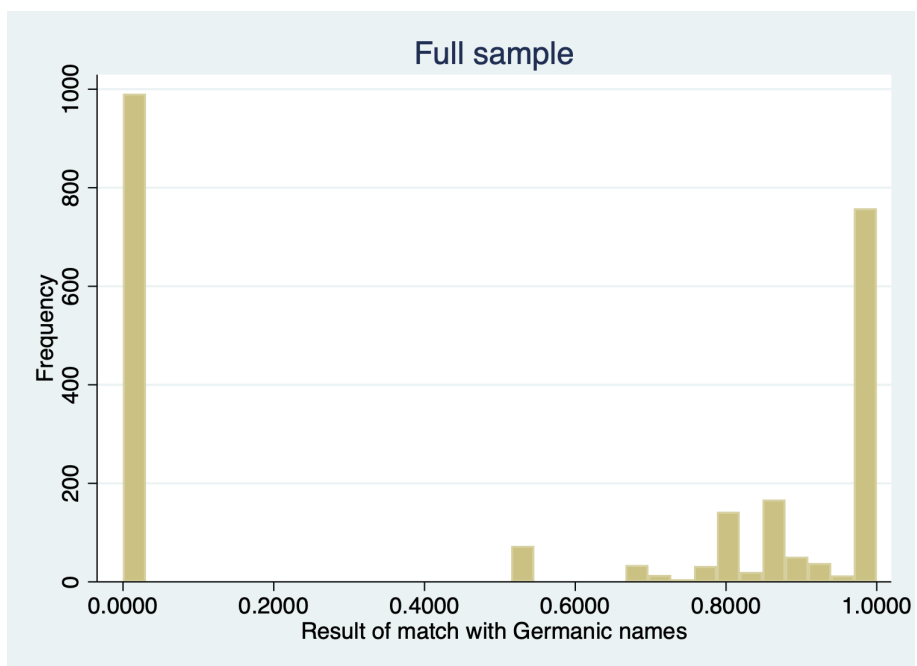


Figure 16: Histogram of the match variable: first names and Germanic names, children sample

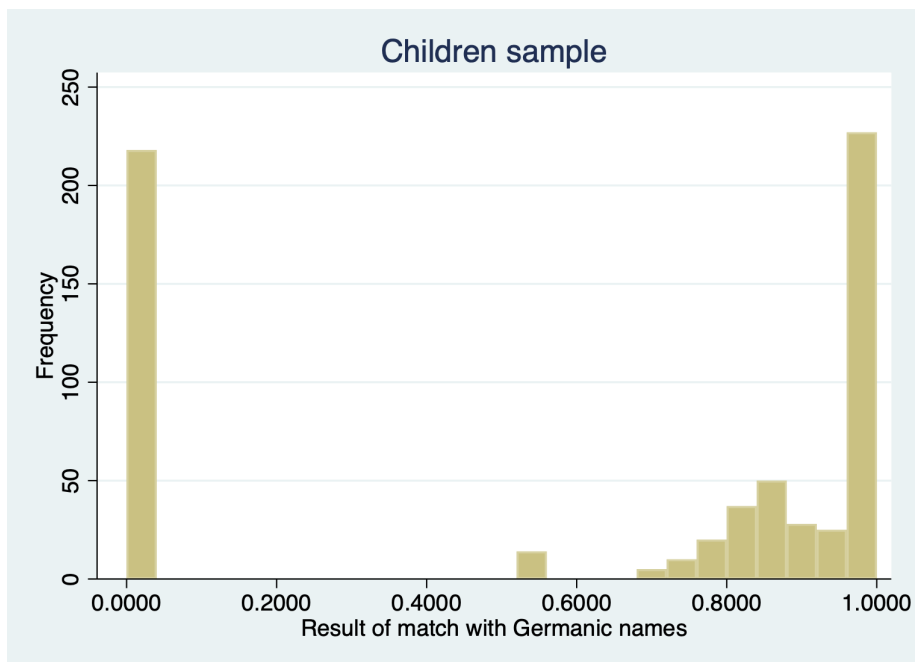


Table 23: Economic factors and application date.

		Application date					
		1	2	3	4	5	6
Economic Ties IT	Personal property	77.209*** [18.175]	36.056 [21.937]	42.278* [21.717]	47.890** [21.543]	11.098 [20.465]	18.862 [20.321]
	Neighborhood property	9.569*** [2.822]	8.150*** [2.894]	7.588** [2.954]	7.741*** [2.952]	22.572*** [3.126]	24.179*** [3.128]
	Family property	23.250*** [7.130]	20.938*** [7.173]	14.762** [7.031]	13.969** [7.007]	8.758 [6.589]	4.900 [6.397]
Economic var.	Capitalist		-58.827** [23.070]	35.490 [28.149]	42.327 [30.514]	30.420 [29.675]	25.557 [29.822]
	Worker		-137.172*** [20.942]	-53.855* [28.096]	-59.852** [29.401]	-41.203 [28.621]	-36.853 [28.787]
	Current job = learnt job		49.662*** [15.252]	56.320*** [15.102]	54.675*** [15.109]	35.528** [14.429]	30.573** [14.626]
Demographic var.	Age			1.043* [0.537]	1.705*** [0.572]	1.443*** [0.553]	1.342** [0.556]
	Female			117.586*** [19.936]	122.324*** [20.938]	113.489*** [19.965]	113.302*** [20.168]
	Previous military service			1.472 [14.675]	1.734 [14.757]	5.069 [14.032]	5.927 [13.956]
	Police record			-16.771 [29.483]	-13.987 [29.392]	10.692 [28.224]	3.067 [28.256]
	Illnesses			62.501*** [20.269]	57.260*** [20.282]	36.421* [19.342]	37.171* [19.558]
	Previous migration			8.576 [16.116]	13.633 [15.907]	-79.648*** [17.612]	-94.202*** [16.967]
	Children in HH				-23.024 [17.863]	-28.104* [16.903]	-25.612 [16.780]
Family structure var.	Divorced				-115.006*** [33.275]	-98.118*** [29.179]	-88.481*** [27.760]
	Married				-17.368 [20.689]	-14.583 [19.595]	-9.535 [19.548]
	Widowed				-62.145** [30.237]	-48.090* [29.148]	-41.961 [29.270]
	Family migrates					-101.296*** [12.239]	-93.537*** [13.134]
Network related var.	Neighbors migrate					-7.164*** [0.542]	-6.284*** [0.566]
	Commune Fixed Effects	NO	NO	NO	NO	NO	YES
Observations		2,109	2,011	2,000	2,000	2,000	2,000
R-squared		0.046	0.074	0.113	0.119	0.195	0.206

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

This table shows several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application days, a negative coefficient represents an earlier application date. The mean application date is the 13th June 1940, with a standard deviation of 300 days. The reference category to "Worker" and "Capitalist" is "Out of the labor market/No income". The reference category to "Married", "Widowed", and "Divorced" is "Single".

Table 24: Economic factors and emigration probability.

		Emigration probability					
		1	2	3	4	5	6
Economic Ties IT	Personal property	-0.236*** [0.037]	-0.135*** [0.044]	-0.127*** [0.042]	-0.132*** [0.042]	0.019 [0.024]	0.010 [0.024]
	Neighborhood property	0.015** [0.006]	0.017*** [0.007]	0.007 [0.006]	0.007 [0.006]	-0.012*** [0.004]	-0.014*** [0.004]
	Family property	-0.072*** [0.013]	-0.067*** [0.014]	-0.052*** [0.013]	-0.052*** [0.013]	-0.044*** [0.008]	-0.040*** [0.008]
Economic var.	Capitalist		-0.052 [0.044]	-0.193*** [0.047]	-0.166*** [0.049]	-0.083*** [0.028]	-0.079*** [0.028]
	Worker		0.128*** [0.033]	0.006 [0.038]	0.039 [0.039]	-0.005 [0.022]	-0.010 [0.022]
	Current job = learnt job		-0.083*** [0.023]	-0.097*** [0.023]	-0.092*** [0.023]	-0.035** [0.014]	-0.029** [0.014]
Demographic var.	Age			-0.001 [0.001]	-0.003*** [0.001]	-0.001* [0.001]	-0.001* [0.001]
	Female			-0.178*** [0.027]	-0.184*** [0.028]	-0.124*** [0.019]	-0.123*** [0.019]
	Previous military service			-0.013 [0.025]	-0.001 [0.025]	-0.009 [0.016]	-0.009 [0.016]
	Police record			0.159*** [0.041]	0.156*** [0.041]	0.041 [0.028]	0.049* [0.028]
	Illnesses			-0.120*** [0.030]	-0.108*** [0.030]	-0.031* [0.017]	-0.031* [0.017]
	Previous migration			-0.381*** [0.025]	-0.392*** [0.025]	0.008 [0.027]	0.022 [0.027]
	Children in HH				-0.049 [0.031]	-0.018 [0.019]	-0.021 [0.018]
Family structure var.	Divorced				0.224*** [0.070]	0.153*** [0.032]	0.146*** [0.031]
	Married				0.068* [0.037]	0.047** [0.022]	0.042* [0.022]
	Widowed				0.191*** [0.042]	0.131*** [0.023]	0.124*** [0.023]
	Family migrates					0.554*** [0.026]	0.544*** [0.026]
Network related var.	Neighbors migrate					0.008*** [0.001]	0.007*** [0.001]
Commune Fixed Effects		NO	NO	NO	NO	NO	YES
Observations		2,112	2,014	2,003	2,003	2,003	2,003
R-squared		0.121	0.146	0.235	0.245	0.710	0.715

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

This table shows several regressions of "Emigration probability" on a set of explanatory variables. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The average emigration probability is 0.57 on a scale between 0 and 1. The reference category to "Worker" and "Capitalist" is "Out of the labor market\No income". The reference category to "Married", "Widowed", and "Divorced" is "Single".

Table 25: Cultural and economic factors and application date.

		Application date					
		1	2	3	4	5	6
Cultural ties GER	Germanic first name	-33.260** [15.322]	-24.060 [15.440]	1.558 [15.390]	1.213 [15.361]	8.250 [14.874]	15.094 [15.071]
	Previous migration to GER or AUT	-108.204*** [19.192]	-102.118*** [19.870]	-110.246*** [20.721]	-104.875*** [20.855]	-71.326*** [20.340]	-64.691*** [20.483]
	Family ties to GER or AUT	24.646*** [5.767]	15.667** [6.748]	4.743 [8.090]	5.931 [8.242]	4.241 [7.731]	5.204 [7.676]
Economic Ties IT	Personal property	68.451*** [18.055]	30.286 [21.781]	39.311* [21.439]	44.143** [21.266]	9.883 [20.289]	17.894 [20.154]
	Neighborhood property	9.335*** [2.795]	8.212*** [2.857]	7.824*** [2.912]	7.959*** [2.912]	22.188*** [3.108]	23.878*** [3.117]
	Family property	20.013*** [6.980]	17.778** [7.041]	11.476* [6.925]	11.061 [6.909]	7.104 [6.515]	3.626 [6.327]
Economic var.	Capitalist		-37.845 [24.998]	41.093 [28.254]	46.105 [30.432]	33.317 [29.678]	28.612 [29.826]
	Worker		-115.423*** [24.472]	-49.667* [28.259]	-55.881* [29.599]	-39.090 [28.811]	-34.731 [28.979]
	Current job = learnt job		47.152*** [15.170]	53.247*** [14.981]	51.851*** [15.005]	34.284** [14.376]	29.537** [14.586]
Demographic var.	Age		1.172* [0.671]	1.689** [0.676]	1.456** [0.654]	1.321** [0.657]	
	Female		120.950*** [20.278]	125.686*** [21.246]	117.451*** [20.275]	118.042*** [20.513]	
	Previous military service		5.621 [14.771]	5.429 [14.838]	7.497 [14.140]	8.230 [14.063]	
	Police record		-12.201 [29.622]	-9.903 [29.601]	12.832 [28.367]	5.739 [28.406]	
	Illnesses		65.960*** [20.153]	60.978*** [20.242]	39.208** [19.376]	38.951** [19.586]	
	Previous migration		22.198 [16.445]	26.067 [17.219]	-67.834*** [17.906]	-82.539*** [17.387]	
	Children in HH				-21.385 [18.053]	-26.860 [17.161]	-24.161 [17.015]
Family structure var.	Divorced				-99.886*** [32.955]	-88.359*** [29.525]	-80.993*** [28.503]
	Married				-13.189 [20.799]	-11.721 [19.777]	-7.513 [19.672]
	Widowed				-58.056* [30.400]	-45.883 [29.371]	-40.846 [29.514]
	Family migrates					-98.028*** [12.242]	-90.412*** [13.168]
Network related var.	Neighbors migrate					-6.940*** [0.559]	-6.155*** [0.573]
	Commune Fixed Effects	NO	NO	NO	NO	NO	YES
Observations		2,109	2,011	2,000	2,000	2,000	2,000
R-squared		0.070	0.089	0.125	0.130	0.200	0.211

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

This table shows several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application date, a negative coefficient represents an earlier application date. The mean application date is the 13th June 1940, with a standard deviation of 300 days. The reference category to "Worker" and "Capitalist" is "Out of the labor market/No income". The reference category to "Married", "Widowed", and "Divorced" is "Single".

Table 26: Cultural and economic factors and emigration probability.

		Emigration probability					
		1	2	3	4	5	6
Cultural ties GER	Germanic first name	0.080*** [0.023]	0.079*** [0.023]	0.033 [0.022]	0.034 [0.022]	0.013 [0.014]	0.007 [0.014]
	Previous migration to GER or AUT	0.149*** [0.031]	0.145*** [0.031]	0.199*** [0.031]	0.192*** [0.031]	0.067*** [0.018]	0.061*** [0.018]
	Family ties to GER or AUT	-0.024*** [0.008]	-0.015* [0.009]	-0.000 [0.010]	-0.006 [0.010]	0.006 [0.006]	0.005 [0.006]
Economic Ties IT	Personal property	-0.228*** [0.037]	-0.128*** [0.044]	-0.122*** [0.042]	-0.125*** [0.042]	0.020 [0.024]	0.010 [0.024]
	Neighborhood property	0.015** [0.006]	0.017** [0.007]	0.007 [0.006]	0.007 [0.006]	-0.012*** [0.004]	-0.014*** [0.004]
	Family property	-0.066*** [0.013]	-0.061*** [0.014]	-0.045*** [0.013]	-0.045*** [0.013]	-0.042*** [0.008]	-0.038*** [0.008]
Economic var.	Capitalist		-0.079* [0.045]	-0.202*** [0.047]	-0.172*** [0.049]	-0.085*** [0.028]	-0.080*** [0.028]
	Worker		0.103*** [0.035]	-0.000 [0.038]	0.032 [0.039]	-0.006 [0.022]	-0.011 [0.022]
	Current job = learnt job		-0.078*** [0.023]	-0.091*** [0.023]	-0.087*** [0.023]	-0.034** [0.014]	-0.028** [0.014]
Demographic var.	Age			-0.001 [0.001]	-0.003*** [0.001]	-0.001** [0.001]	-0.001** [0.001]
	Female			-0.178*** [0.027]	-0.184*** [0.028]	-0.124*** [0.019]	-0.123*** [0.019]
	Previous military service			-0.019 [0.024]	-0.007 [0.025]	-0.009 [0.016]	-0.010 [0.016]
	Police record			0.153*** [0.041]	0.150*** [0.041]	0.041 [0.028]	0.048* [0.028]
	Illnesses			-0.128*** [0.030]	-0.117*** [0.030]	-0.036** [0.017]	-0.035** [0.017]
	Previous migration			-0.404*** [0.025]	-0.413*** [0.026]	-0.002 [0.027]	0.011 [0.027]
Family structure var.	Children in HH				-0.051* [0.031]	-0.017 [0.018]	-0.020 [0.018]
	Divorced				0.194*** [0.069]	0.140*** [0.032]	0.136*** [0.031]
	Married				0.060 [0.037]	0.041* [0.022]	0.038* [0.022]
	Widowed				0.181*** [0.042]	0.123*** [0.023]	0.118*** [0.022]
Network related var.	Family migrates					0.551*** [0.026]	0.542*** [0.026]
	Neighbors migrate					0.008*** [0.001]	0.007*** [0.001]
Commune Fixed Effects		NO	NO	NO	NO	NO	YES
Observations		2,112	2,014	2,003	2,003	2,003	2,003
R-squared		0.138	0.160	0.251	0.260	0.713	0.717

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

This table shows several regressions of "Emigration probability" on a set of explanatory variables. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The average emigration probability is 0.57 on a scale between 0 and 1. The reference category to "Worker" and "Capitalist" is "Out of the labor market\No income". The reference category to "Married", "Widowed", and "Divorced" is "Single".

Table 27: Cultural and economic factors and application date: children sample.

		Application date					
		1	2	3	4	5	6
Cultural ties GER	Nibelungen Index	-8.789 [7.593]	-12.068 [7.424]	-12.250* [7.300]	-12.755* [7.345]	-13.571* [7.214]	-12.247* [7.126]
	Previous migration to GER or AUT	-105.134*** [23.818]	-108.400*** [24.479]	-122.259*** [27.082]	-129.081*** [26.882]	-99.812*** [26.086]	-112.448*** [26.512]
	Family ties to GER or AUT	26.248* [15.672]	29.395* [16.673]	28.895 [18.426]	29.035 [18.050]	26.900 [16.920]	31.089* [17.287]
Economic Ties IT	Personal property	103.443*** [26.612]	44.628 [29.563]	53.603* [28.842]	53.717* [29.274]	41.058 [28.159]	59.860** [27.198]
	Neighborhood property	16.202*** [3.947]	16.895*** [4.111]	19.414*** [4.333]	18.881*** [4.489]	27.144*** [4.997]	30.861*** [4.969]
	Family property	14.994 [10.460]	10.779 [10.629]	9.790 [10.652]	8.533 [10.626]	2.058 [10.089]	-0.681 [9.761]
Economic var.	Capitalist		57.805 [59.839]	103.642* [61.960]	125.787* [64.927]	93.579 [62.447]	87.602 [62.145]
	Worker		-37.688 [59.167]	2.363 [57.789]	29.439 [61.649]	36.842 [59.330]	55.413 [58.571]
	Current job = learnt job		38.163 [24.800]	48.139* [24.710]	54.700** [24.830]	59.757** [24.146]	65.197*** [23.459]
Demographic var.	Age			0.333 [1.095]	-0.397 [1.238]	-0.151 [1.174]	-0.245 [1.166]
	Female			59.091 [38.825]	79.903* [43.803]	95.318** [42.645]	95.197** [42.040]
	Previous military service			-18.579 [27.124]	-14.375 [27.531]	-4.366 [26.546]	0.566 [26.086]
	Police record			24.944 [58.139]	19.683 [57.764]	30.674 [54.215]	33.721 [54.167]
	Illnesses			14.542 [37.708]	12.986 [37.438]	-2.822 [36.978]	0.917 [37.344]
	Previous migration			65.688* [33.913]	64.994* [33.870]	-30.853 [36.528]	-33.627 [35.422]
	Children in HH				200.369*** [31.627]	261.364*** [32.124]	232.285*** [35.759]
Family structure var.	Divorced				-11.153 [65.109]	-9.979 [57.524]	-15.650 [52.809]
	Married				63.076* [34.063]	73.493** [34.240]	66.693** [33.090]
	Widowed				101.641* [58.947]	96.254* [57.132]	89.578 [56.760]
	Family migrates					-106.563*** [24.776]	-90.712*** [25.137]
Network related var.	Neighbors migrate					-4.254*** [1.209]	-4.091*** [1.260]
	Commune Fixed Effects	NO	NO	NO	NO	NO	YES
Observations	594	567	565	565	565	565	565
R-squared	0.139	0.170	0.185	0.194	0.253	0.277	

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

This table shows several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application days, a negative coefficient represents an earlier application date. The mean application date is the 18th June 1940, with a standard deviation of 265 days. The reference category to "Worker" and "Capitalist" is "Out of the labor market\No Income". The reference category to "Married", "Widowed", and "Divorced" is "Single". The sample is restricted to opters with children.

Table 28: Cultural and economic factors and emigration probability: children sample.

		Emigration probability					
		1	2	3	4	5	6
Cultural ties GER	Nibelungen Index	-0.020 [0.014]	-0.018 [0.014]	-0.010 [0.014]	-0.013 [0.014]	-0.002 [0.008]	-0.004 [0.009]
	Previous migration to GER or AUT	0.201*** [0.051]	0.219*** [0.052]	0.254*** [0.052]	0.250*** [0.053]	0.089*** [0.025]	0.093*** [0.027]
	Family ties to GER or AUT	-0.015 [0.017]	-0.013 [0.018]	-0.028 [0.019]	-0.026 [0.019]	-0.011 [0.010]	-0.012 [0.010]
Economic Ties IT	Personal property	-0.173*** [0.061]	-0.047 [0.070]	-0.047 [0.067]	-0.047 [0.067]	0.016 [0.033]	0.007 [0.034]
	Neighborhood property	0.029*** [0.010]	0.030*** [0.010]	0.012 [0.010]	0.012 [0.010]	-0.008 [0.007]	-0.008 [0.007]
	Family property	-0.083*** [0.021]	-0.070*** [0.021]	-0.058*** [0.020]	-0.058*** [0.020]	-0.029** [0.012]	-0.028** [0.012]
Economic var.	Capitalist		-0.172 [0.118]	-0.223* [0.121]	-0.214* [0.123]	-0.042 [0.046]	-0.037 [0.047]
	Worker		0.083 [0.115]	0.042 [0.117]	0.062 [0.120]	0.009 [0.046]	0.003 [0.046]
	Current job = learnt job		0.081* [0.048]	0.055 [0.049]	0.066 [0.049]	0.014 [0.022]	0.011 [0.022]
Demographic var.	Age			0.004* [0.002]	0.002 [0.002]	0.001 [0.001]	0.001 [0.001]
	Female			0.044 [0.064]	0.156** [0.078]	0.069 [0.052]	0.063 [0.052]
	Previous military service			0.110** [0.050]	0.112** [0.050]	0.057* [0.033]	0.053 [0.033]
	Police record			0.156** [0.077]	0.141* [0.078]	0.071** [0.036]	0.071** [0.036]
	Illnesses			-0.100* [0.058]	-0.101* [0.058]	-0.031 [0.029]	-0.035 [0.029]
	Previous migration			-0.454*** [0.064]	-0.447*** [0.066]	0.058 [0.059]	0.062 [0.058]
Family structure var.	Children in HH				0.355*** [0.061]	0.079** [0.040]	0.087** [0.044]
	Divorced				0.166 [0.166]	0.145** [0.065]	0.149** [0.067]
	Married				0.195*** [0.067]	0.112** [0.045]	0.114** [0.044]
	Widowed				0.103 [0.084]	0.114*** [0.044]	0.119*** [0.044]
Network related var.	Family migrates					0.674*** [0.056]	0.668*** [0.058]
	Neighbors migrate					0.007*** [0.002]	0.007*** [0.002]
Commune Fixed Effects		NO	NO	NO	NO	NO	YES
Observations		595	568	566	566	566	566
R-squared		0.170	0.206	0.279	0.290	0.794	0.797

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

This table shows several regressions of "Emigration probability" on a set of explanatory variables. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The average emigration probability is 0.46 on a scale between 0 and 1. The reference category to "Worker" and "Capitalist" is "Out of the labor market\No Income". The reference category to "Married", "Widowed", and "Divorced" is "Single". The sample is restricted to opters with children.

Table 29: Selection into migration by governments: vulnerable population

		Selection into migration by governments: vulnerable population					
		Application date			Emigration probability		
		1	2	3	4	5	6
Cultural ties GER	Germanic first name	-50.335*** [16.157]	-6.403 [15.541]	1.091 [15.778]	0.094*** [0.025]	0.018 [0.016]	0.011 [0.016]
	Previous migration to GER or AUT	-118.711*** [22.410]	-76.574*** [23.486]	-69.783*** [23.833]	0.159*** [0.035]	0.074*** [0.021]	0.069*** [0.021]
	Family ties to GER or AUT	24.214*** [6.883]	5.277 [8.490]	6.629 [8.460]	-0.022** [0.009]	0.005 [0.006]	0.003 [0.006]
Economic Ties IT	Personal property	72.247*** [20.285]	11.549 [22.945]	18.955 [22.841]	-0.230*** [0.041]	0.006 [0.025]	-0.003 [0.025]
	Neighborhood property	8.298** [3.220]	23.327*** [3.466]	24.354*** [3.471]	0.023*** [0.007]	-0.010** [0.004]	-0.011*** [0.004]
	Family property	19.676** [8.125]	6.686 [7.610]	3.661 [7.390]	-0.072*** [0.015]	-0.038*** [0.009]	-0.035*** [0.009]
Cultural ties GER * Vulnerable pop.	Germanic first name * vuln.	84.961** [36.510]	79.491** [36.603]	74.748** [36.799]	-0.063 [0.055]	-0.027 [0.037]	-0.023 [0.037]
	Previous migration to GER or AUT * vuln.	28.580 [43.030]	17.276 [44.471]	17.174 [44.654]	-0.042 [0.073]	-0.034 [0.042]	-0.035 [0.041]
	Family ties to GER or AUT * vuln.	0.430 [8.822]	-0.738 [8.440]	-2.276 [8.489]	-0.002 [0.014]	0.003 [0.007]	0.005 [0.007]
Economic Ties IT *Vulnerable pop.	Personal property * vuln.	-26.920 [45.301]	-8.426 [40.562]	-5.143 [40.052]	0.027 [0.095]	0.072 [0.058]	0.068 [0.057]
	Neighborhood property * vuln.	4.645 [6.511]	-3.881 [6.718]	-0.919 [6.561]	-0.035** [0.016]	-0.010 [0.007]	-0.013* [0.007]
	Family property * vuln.	2.171 [14.557]	3.618 [12.171]	1.699 [12.036]	0.026 [0.033]	-0.023 [0.022]	-0.021 [0.022]
Control Variables		NO	YES	YES	NO	YES	YES
Commune Fixed Effects		NO	NO	YES	NO	NO	YES
Observations		2,109	2,001	2,001	2,112	2,004	2,004
R-squared		0.074	0.201	0.211	0.142	0.713	0.717

Robust standard errors in brackets

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Specifications 1 to 3 in this table show several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application days, a negative coefficient represents an earlier application date. The mean application date is the 13th June 1940, with a standard deviation of 300 days. Specifications 4 to 6 show several regressions of "Emigration probability" on a set of explanatory variables. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The average emigration probability is 0.56 on a scale between 0 and 1. The set of control variables includes "family migrates", "neighbors migrate", "current job = learnt job", "notable property", "currently working", "age", "female", "children in HH", "previous military service", "illnesses", "police record", "previous migration", "divorced", "married", "widowed".



Table 30: Selection into migration by governments: farmers

		Selection into migration by governments: farmers					
		Application date			Emigration probability		
		1	2	3	4	5	6
Cultural ties GER	Germanic first name	-49.052*** [16.770]	7.691 [14.995]	14.536 [15.204]	0.115*** [0.025]	0.038** [0.016]	0.030* [0.016]
	Previous migration to GER or AUT	-118.184*** [21.454]	-77.442*** [22.410]	-69.542*** [22.610]	0.156*** [0.032]	0.067*** [0.020]	0.060*** [0.020]
	Family ties to GER or AUT	27.286*** [6.450]	6.104 [8.312]	7.186 [8.261]	-0.022** [0.009]	0.005 [0.006]	0.003 [0.006]
Economic Ties IT	Personal property	38.224 [24.556]	3.134 [24.539]	12.269 [24.397]	-0.186*** [0.047]	0.016 [0.028]	0.006 [0.028]
	Neighborhood property	9.540*** [3.359]	22.691*** [3.614]	24.291*** [3.597]	0.007 [0.007]	-0.018*** [0.004]	-0.020*** [0.004]
	Family property	17.922** [7.656]	3.223 [6.979]	-0.041 [6.751]	-0.068*** [0.015]	-0.043*** [0.010]	-0.039*** [0.010]
Cultural ties GER * Farmer	Germanic first name * farmer	82.246** [35.236]	49.450 [34.548]	30.025 [35.082]	-0.189*** [0.058]	-0.128*** [0.041]	-0.122*** [0.040]
	Previous migration to GER or AUT * farmer	-13.822 [9.175]	-12.436 [8.892]	-13.310 [8.833]	-0.042 [0.116]	0.037 [0.052]	0.056 [0.050]
	Family ties to GER or AUT * farmer	46.893 [43.116]	21.469 [40.411]	19.032 [40.605]	-0.010 [0.018]	0.003 [0.009]	0.004 [0.009]
Economic Ties IT * Farmer	Personal property * farmer	-3.189 [5.619]	-2.407 [5.755]	-1.942 [5.522]	-0.086 [0.092]	-0.018 [0.049]	-0.017 [0.048]
	Neighborhood property * farmer	8.834 [16.759]	17.311 [15.950]	16.160 [15.821]	0.042*** [0.014]	0.027*** [0.007]	0.026*** [0.007]
	Family property * farmer	-1.099 [5.409]	1.079 [5.663]	0.698 [5.708]	0.009 [0.032]	0.009 [0.017]	0.010 [0.017]
Control Variables		NO	YES	YES	NO	YES	YES
Commune Fixed Effects		NO	NO	YES	NO	NO	YES
Observations		2,087	1,991	1,991	2,090	1,994	1,994
R-squared		0.075	0.202	0.212	0.147	0.717	0.721

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

This specifications 1 to 3, this table shows several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application days, a negative coefficient represents an earlier application date. The mean application date for opters who are not farmers is the 24th May 1940, with a standard deviation of 309 days. Specifications 4 to 6, show several regressions of "Emigration probability" on a set of explanatory variables. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The average emigration probability for opters who are not farmers is 0.64 on a scale between 0 and 1. The set of control variables includes "family migrates", "neighbors migrate", "current job = learnt job", "notable property", "currently working", "age", "female", "children in HH", "previous military service", "illnesses", "police record", "previous migration", "divorced", "married", "widowed".

Table 31: Main specification: including officer fixed effects

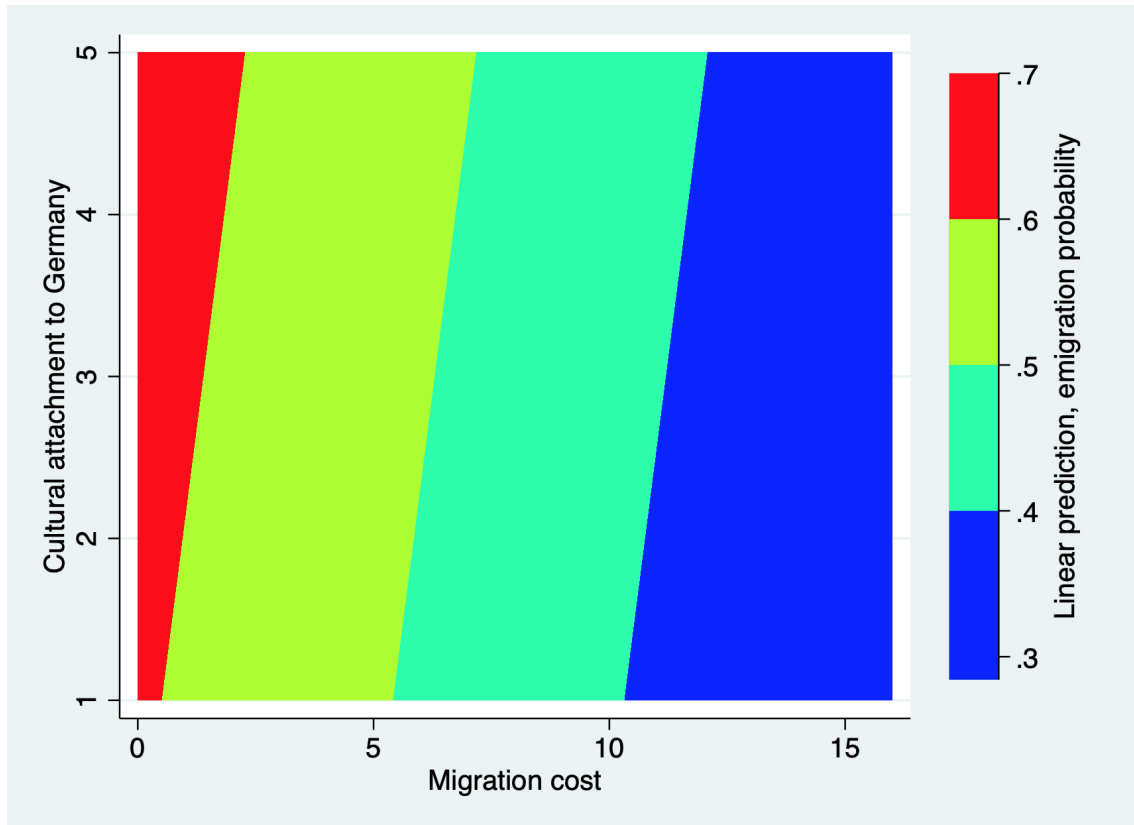
		Main specification with officer fixed effects					
		Application date			Emigration probability		
		1	2	3	4	5	6
Cultural ties GER	Germanic first name	-16.786*	-5.496	-5.601	0.041**	0.017	0.016
		[8.566]	[8.517]	[8.566]	[0.019]	[0.014]	[0.014]
	Previous migration to GER or AUT	-54.389***	-47.669***	-47.705***	0.055**	0.028	0.028
		[13.198]	[14.112]	[14.115]	[0.027]	[0.018]	[0.018]
	Family ties to GER or AUT	5.281*	-7.276*	-7.274*	0.007	0.006	0.006
		[3.088]	[4.193]	[4.210]	[0.007]	[0.006]	[0.006]
Economic Ties IT	Personal property	18.272	-16.295	-16.406	-0.111***	0.033	0.033
		[11.389]	[14.991]	[15.008]	[0.032]	[0.024]	[0.024]
	Neighborhood property	18.652***	25.279***	25.294***	-0.009*	-0.016***	-0.016***
		[1.902]	[2.134]	[2.134]	[0.005]	[0.004]	[0.004]
	Family property	6.633	2.760	2.771	-0.016	-0.025***	-0.025***
		[4.128]	[4.004]	[4.006]	[0.011]	[0.008]	[0.008]
Control Variables		NO	YES	YES	NO	YES	YES
Commune Fixed Effects		NO	NO	YES	NO	NO	YES
Observations		2,037	1,938	1,938	2,039	1,940	1,940
R-squared		0.714	0.735	0.735	0.461	0.761	0.761

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

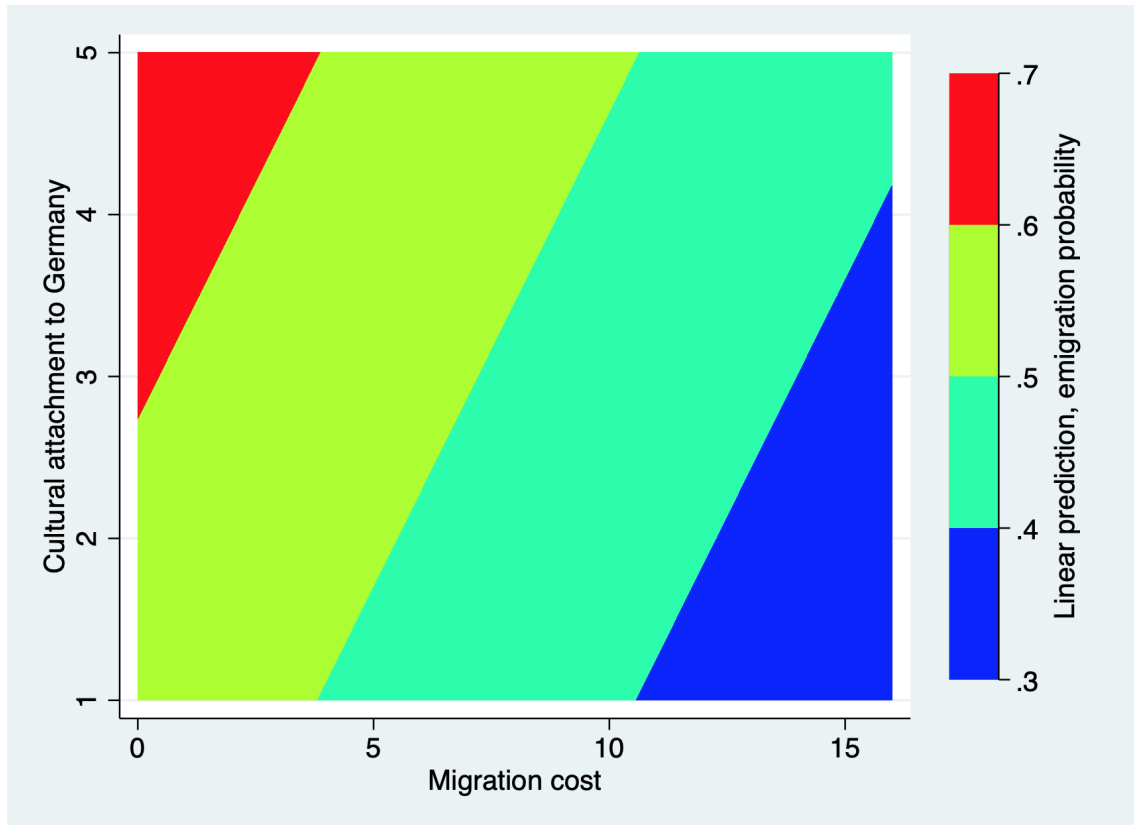
This specifications 1 to 3, this table shows several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application days, a negative coefficient represents an earlier application date. The mean application date is the 13th June 1940, with a standard deviation of 300 days. Specifications 4 to 6, show several regressions of "Emigration probability" on a set of explanatory variables. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The average emigration probability is 0.57 on a scale between 0 and 1. The set of control variables includes "family migrates", "neighbors migrate", "current job = learnt job", "notable property", "currently working", "age", "female", "children in HH", "previous military service", "illnesses", "police record", "previous migration", "divorced", "married", "widowed".

Figure 17: Predicted probability of leaving: culture index 1



On the Y-axis we plot the degree of cultural attachment to Germany, i.e. the quintile index between 1 and 5, where 1 is the lowest degree of attachment and 5 the highest degree of attachment. On the X-axis we plot the migration cost. The predicted emigration probability ranges between 30 percent and 70 percent, and changes in terms of colors from dark blue (30 percent) to red (70 percent). In this figure we rely on the cultural attachment variable constructed from an average of the cultural ties variables.

Figure 18: Predicted probability of leaving: culture index 2



On the Y-axis we plot the degree of cultural attachment to Germany, i.e. the quintile index between 1 and 5, where 1 is the lowest degree of attachment and 5 the highest degree of attachment. On the X-axis we plot the migration cost. The predicted emigration probability ranges between 30 percent and 70 percent, and changes in terms of colors from dark blue (30 percent) to red (70 percent). In this figure we rely on the cultural attachment variable constructed through the Principal Component Analysis.

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## 7 Appendix

### 7.1 A1: Theoretical frame for the determination of the emigration threshold

In this section, we develop a theoretical framework which is based on the work by Bisin and Verdier (2000, 2001) on inter-generational cultural transmission and aims at giving a structure to the empirical discussion for the importance of cultural factors relative to economic factors in the emigration decision. It is a simple compositional framework, where we work in a two country setting and allow for international migration with a migration cost and heterogeneity within cultural types. The purpose of this section is to identify the conditions under which we expect the heads-of-households to take the emigration decision. There are counter-balancing forces at work. On one hand, individuals are tied to their home country by economic factors (e.g. physical property, economic opportunities), on the other hand individuals have an incentive to emigrate to a country with more similar cultural traits. In this framework, we therefore define the *cultural factors* as a social externality from being surrounded by individuals from the same cultural group, whereas we define as migration cost the *economic factors* introduced in the earlier chapters.

Let  $\kappa \in \{h, d\}$  be two countries and  $\tau \in \{i, j\}$  be two cultural types. Let  $q_\tau^\kappa \in (0, 1)$  be the fraction of agents of cultural type  $\tau$  in country  $\kappa$ . We denote the share of agents of cultural type  $i$  with  $q_i$ , and the share of agents of cultural type  $j$  with  $q_j = (1 - q_i)$ . We assume  $q_i^\kappa + q_j^\kappa = 1$ . Agents of each cultural type derive an additional utility from interacting with agents of the same cultural type, which we call *social externality*  $e$ . Contrary to previous work on inter-generational cultural transmission (Bisin and Verdier, 2000, 2001; Olivier et al., 2008; Maystre et al., 2014), we assume that this social externality is non-homogeneous within cultural types and that agents derive their social externality  $e$  from a distribution with density  $f$  and cumulative distribution function  $F$ . The expected utility of an agent of cultural type  $i$  is:

$$U_i^\kappa = (1 - q_i^\kappa) + (1 + e_i)q_i^\kappa = 1 + e_i q_i^\kappa \quad (10)$$

with  $0 < e_i < 1$ . The utility function encompasses the idea that additional to the pure utility from living their cultural type, individuals experience an extra utility  $e_i$  that only comes into play if they meet someone with the same cultural preference. Applying this concept to our case, if an individual has strong preferences for the German culture, they have an extra utility (social externality) if they meet someone who is also of German culture. An agent who is not of their cultural type will not benefit from the social externality.



Now we introduce the possibility for agents to emigrate. We assume that there are two countries  $h$  and  $d$ , who each are home to both cultural groups  $q_i$  and  $q_j$ , and that the equilibrium share of type  $i$  agents is larger in the destination country than it is at home:  $q_i^h < q_i^d$ . We also assume that there is a migration cost  $M$  and that migration is one-directional, going from  $h$  to  $d$ . Furthermore, following the policy setting of the "Option Agreement", we assume that cultural group  $j$  is not allowed to emigrate.<sup>42</sup> We will, hence, concentrate the analysis on the case of cultural group  $i$ . We define the migration cost  $M$  as a function of direct and indirect economic migration costs (Borjas, 1999): the *direct costs*,  $CD$  (e.g. physical costs of moving like train tickets, transport of valuables etc.), and the *forgone value costs*,  $CFV$  (e.g. the opportunity cost of leaving income sources behind to a more uncertain future) and define the migration cost  $M = m(CD, CFV)$ .<sup>43</sup>

An agent chooses to migrate if and only if the migration gain covers the cost:

$$\Delta U_i = U_i^d - U_i^h \geq M$$

We know that the share of cultural type  $i$  agents is higher at destination than at home,  $q_i^h < q_i^d$ , hence  $U_i^d > U_i^h$ . Furthermore, from equation 10 we know that the utility is an increasing function of the social externality, because  $\frac{dU_i}{dq_i} = e_i \in (0, 1)$ . Consequently, there is a threshold level of the social externality that we denote  $e^*$  above which the agent's utility from emigrating exceeds the migration cost. Any agent of type  $i$  migrates if and only if

$$e_i \geq e^* = \frac{M}{q_i^d - q_i^h}$$

Figure 19 shows the comparative statics of our framework. We assume that the social externality  $e$  is normally distributed. The red line in the left and right figure in 19 depicts the probability density of the social externality,  $f(e)$ , on the Y-axis, and the level of the externality  $e$  on the X-axis, for cultural group  $i$ .

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<sup>42</sup>Following the assumptions in this model, in case they were allowed to, they would only emigrate for a negative migration cost (or a monetary incentive to emigrate).

<sup>43</sup>Borjas furthermore speaks about a third category of migration costs, the so called *psychic costs* related to losing their social network when moving away. In our case, we add family and neighborhood ties to our analysis, however, not as part of the *economic* migration cost.

Figure 19: Emigration threshold.

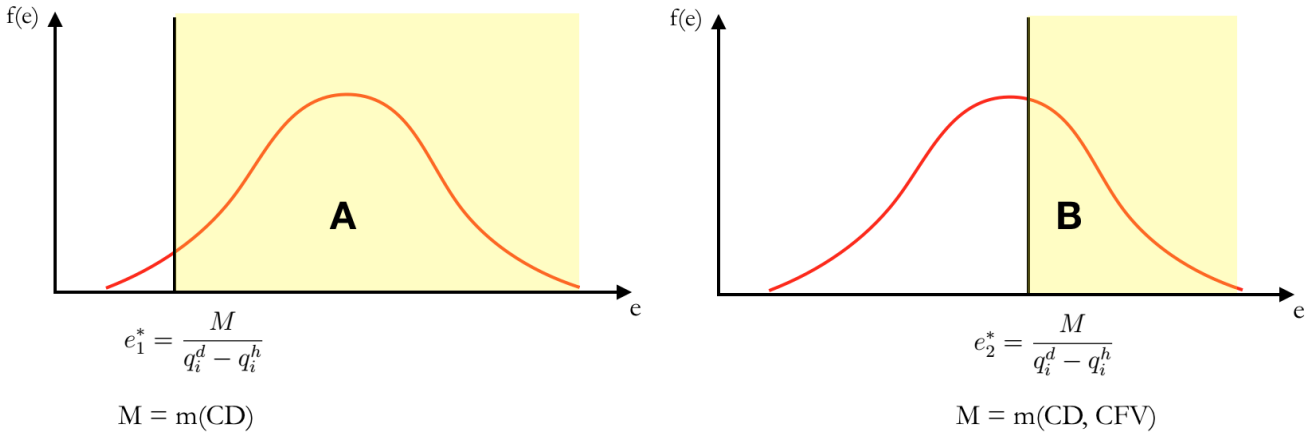


Figure 19 shows the social externality distribution of agents of cultural type  $i$ . Without any cost attached to emigration, if the cultural group  $i$  is overrepresented at destination with respect to home, then the net migration gain of agents of cultural type  $i$  is strictly positive. More formally,

**Proposition 1.** *If  $q_i^d > q_i^h$ , then the net migration gain  $e_i(q_i^d - q_i^h) > 0$  for agents of cultural type  $i$  is strictly positive for any  $e_i \in (0, 1)$ .*

However, figure 19 shows that once a migration cost is introduced, the emigration threshold level of the social externality  $e^*$  varies depending on the migration cost  $M$ . For a low migration cost, say we consider only the *direct cost* (hence  $M = m(CD)$ ), all agents in the yellow surface area  $A$  of the distribution will emigrate. This comprehends also the agents at the lower end of the distribution. Looking at the second part of figure 19, where we introduce additional migration costs, the *forgone value costs* (hence  $M = m(CD, CFV)$ ), only agents of cultural group  $i$  in surface area  $B$  emigrate. This surface area is significantly smaller than in the case of a lower migration cost, fewer agents choose to emigrate, comprehending only agents at the upper end of the distribution. I formalize this mechanism in the proposition below.

**Proposition 2.** *If emigration entails a strictly positive cost  $M$ , then the emigration threshold  $e^*$  is increasing in  $M$ .*

The example introduced in this part, and discussed leaning on figure 19, relies on simplifying assumptions to highlight the underlying mechanisms which help us interpret the empirical results.

Figure 20: Interviews by Palfrader, P. (2004), chapter 3.1.1 "The Option - a question of conflict between ethos and economic interests"

*Palfrader, P. (2004), pp. 20-21:*

*„3.1.1. Die Option – eine Frage des Gegensatzes zwischen Gesinnung und ökonomischem Interesse*

*Für Deutschoptanten ist beispielsweise das folgende Argument typisch:*

*(...) ja natürlich, ja wir wählen deutsch (...), ((Die Entscheidung)) ist nicht ein mal so schwer ((gefallen)). Die (= ihre Eltern) waren so (...) deutsch, eigentlich österreichisch gesinnt. (Frau A., Z. 34–36)*

*Laut Frau A. liegt der Grund für dieses klare prodeutsche Bekenntnis in der elterlichen Gesinnung. Die Eltern fühlten sich mit dem deutschsprachigen Raum aufgrund der Geschichte, der Bräuche und der Mentalität tief verbunden, woraus sich schlussendlich ihre Identität und damit auch ihr Wahlverhalten ableiten lässt. Die Optionsentscheidung hatte demnach viel mit Gefühlen, Einstellungen und also auch mit Identität zu tun.*

*Interessant ist darüber hinaus, dass – wie aus all meinen Interviews mit Deutschoptanten hervorgeht – die Option anscheinend genutzt wurde, um sich öffentlich zur Situation vor 1918 zu bekennen. Man sehnte sich nach einer Erneuerung der Verbindung zwischen Österreich und Südtirol, wie dies auch Frau K. in der folgenden Textstelle deutlich anspricht:*

*(...) viele haben gemeint, ja jetzt wenn wir deutsch wählen, da = da werden wir wieder wie damals. (Frau K., Z. 67–69)*

*Jedoch wird in den Interviews die Frage der Gesinnung niemals als Grund für eine Option für Italien genannt. Daraus kann man schließen, dass andere Motive bei der Herausbildung der bei dieser Option entscheidenden Motive maßgeblich waren. Oftmals werden den Italienischoptanten von der Deutschoptanten rein ökonomische Gründe "unterstellt", wie Frau A. zu berichten weiß:*

*Nur wegen des Profits, nicht menschlich, (...) mehr wegen dem Geschäft, dass es ihm besser geht, net ((hat er italienisch optiert)). (Frau A., Z. 59–60) 21*

*Hinsichtlich ihrer Gesinnung waren jedoch auch die Italienischoptanten pro- österreichisch eingestellt, ganz so wie der Vater von Frau A. Daraus kann man schließen, dass sich die Dableiber diesbezüglich von den Gehern nicht unterschieden und aus ihrer gesinnungsmäßigen Einstellung gegenüber dem alten Österreich nicht das zentrale Kriterium für ihre Optionsentscheidung machten.*

*Die Erzählerin versucht in dieser Textstelle, einerseits die Haltung des Herrn T. zu verstehen, andererseits prangert sie dennoch seine Beweggründe für die Wahlentscheidung an. In ihrer Werteskala scheint eine Wahlentscheidung aufgrund einstellungsspezifischer Motive "ehrbarer" – im Sinne von "untadeliger" bzw. "einwandfreier" – als aufgrund ökonomischer Motive zu sein. Diese Bewertung ist aus der Sicht der Erzählerin insofern verständlich, als ihre Familie die Gesinnungsfrage als Hauptkriterium für ihre Deutschoption angibt. Man darf allerdings in diesem Zusammenhang nicht vergessen, dass auch bei Deutschoptanten wirtschaftliche Gründe eine Rolle spielten.*

*Zusammenfassend kann man sagen, dass neben der Schilderung der eigenen Optionsgründe – deren Zweck ja die Rechtfertigung der eigenen Entscheidung ist – der jeweils anderen Optantengruppe entweder unlautere Motive unterstellt oder deren Argumente negativ ausgelegt werden. Dies zeigt sich vor allem bei den Deutschoptanten aus St. Vigil. So werden latente Konflikte zwischen "Gehern" und "Dableibern" durch die Formulierung der Motive für die jeweilige Option aufgedeckt."*

Table 32: Determination of the 2 percent sample (with ADERSt data Bolzano).

Responsible local office	Option Identifiers	German Opters	3%	2%
Zweigst. Meran	200000-239160	20001-23347	1175	783
Zweigst. Brixen	300000-334500	30001-30898	1035	690
Zweigst. Bruneck	400000-440021	40001-40889	1321	880
Hauptst. Opt.ber. im Dt Reich	700001-723105		693	426
N of identifiers = 141930				
N of potential observations 3% = 4258				
N of potential observations 2% = 2839				

Data source: National Archive of the Province of Bolzano

Figure 21: Histogram: German first name index

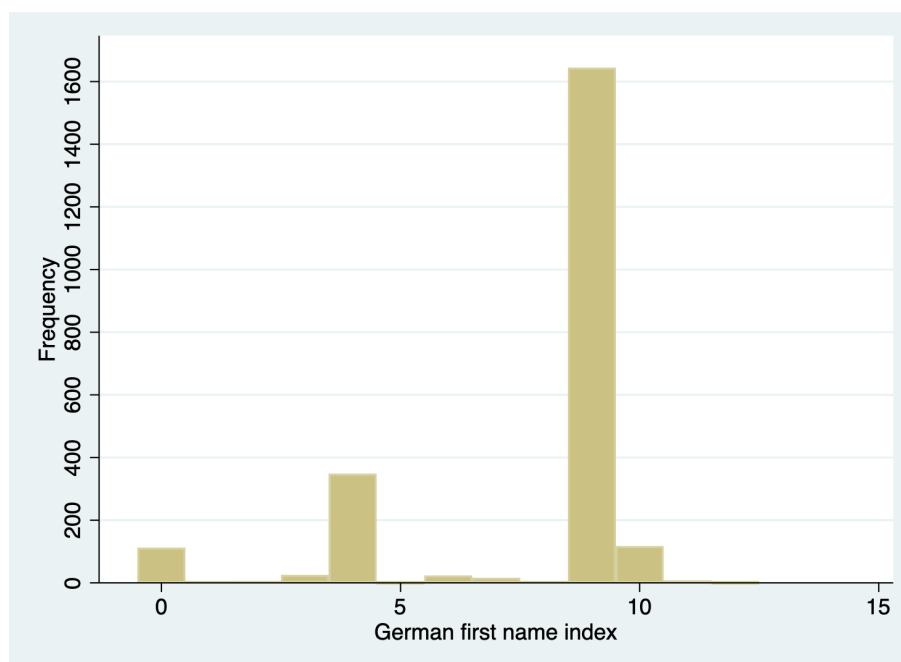


Figure 22: Sample file: cover and "Option request" page 1

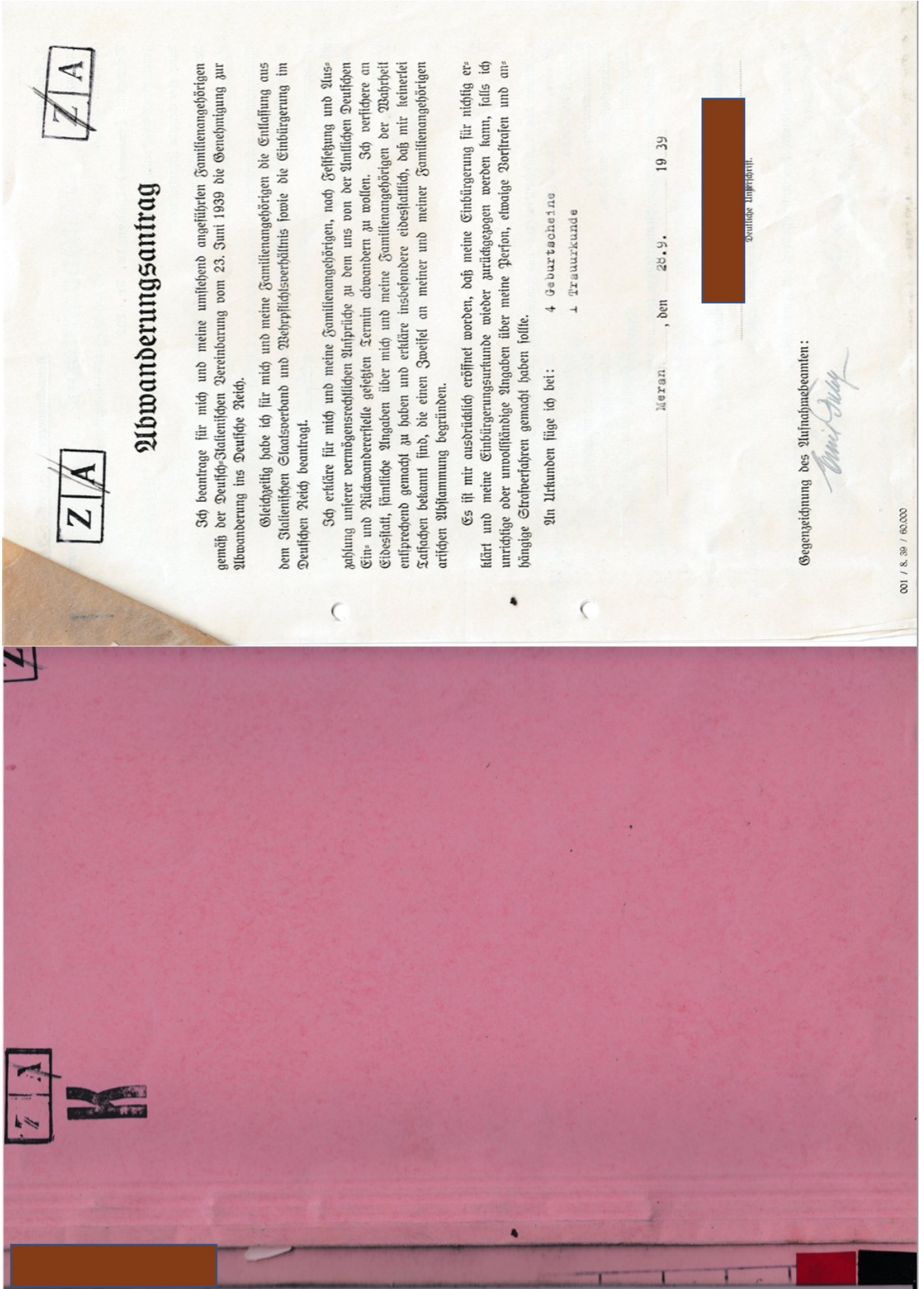




Table 33: Heterogeneity of effects: single men

		Heterogeneity of effects: single men					
		Application date			Emigration probability		
		1	2	3	4	5	6
Cultural ties GER	Germanic first name	-21.453 [19.592]	1.025 [18.688]	8.159 [18.909]	0.052* [0.030]	-0.012 [0.020]	-0.022 [0.020]
	Previous migration to GER or AUT	-38.158 [38.242]	-17.775 [37.444]	-11.056 [37.668]	0.119** [0.054]	0.067** [0.033]	0.056* [0.033]
	Family ties to GER or AUT	41.715*** [10.857]	-5.627 [13.809]	-5.247 [13.845]	-0.040** [0.016]	0.018* [0.010]	0.018* [0.010]
Economic Ties IT	Personal property	88.796*** [33.665]	-7.169 [37.502]	3.384 [35.913]	-0.267*** [0.070]	0.102** [0.047]	0.091** [0.045]
	Neighborhood property	9.100** [4.454]	17.858*** [4.884]	19.984*** [4.985]	0.003 [0.010]	-0.012** [0.006]	-0.015** [0.006]
	Family property	17.798 [12.952]	12.488 [11.964]	8.579 [11.109]	-0.064*** [0.023]	-0.056*** [0.015]	-0.051*** [0.014]
Control Variables		NO	YES	YES	NO	YES	YES
Commune Fixed Effects		NO	NO	YES	NO	NO	YES
Observations		859	812	812	861	814	814
R-squared		0.080	0.222	0.237	0.134	0.675	0.682

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Specifications 1 to 3 in this table show several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application days, a negative coefficient represents an earlier application date. The mean application date for single men is the 20th April 1940, with a standard deviation of 282 days. Specifications 4 to 6, show several regressions of "Emigration probability" on a set of explanatory variables. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The average emigration probability for single men is 0.69 on a scale between 0 and 1. The set of control variables includes "family migrates", "neighbors migrate", "current job = learnt job", "notable property", "currently working", "age", "children in HH", "previous military service", "illnesses", "police record", "previous migration".

Table 34: Heterogeneity of effects: single women

		Heterogeneity of effects: single women					
		Application date			Emigration probability		
		1	2	3	4	5	6
Cultural ties GER	Germanic first name	20.120 [51.750]	28.863 [49.198]	47.873 [49.012]	-0.021 [0.058]	0.006 [0.035]	-0.011 [0.035]
	Previous migration to GER or AUT	-161.070*** [37.882]	-120.210*** [38.070]	-104.894*** [38.198]	0.185*** [0.054]	0.081** [0.037]	0.066* [0.037]
	Family ties to GER or AUT	8.292 [10.192]	9.689 [15.054]	11.345 [14.365]	-0.001 [0.013]	0.011 [0.009]	0.009 [0.009]
Economic Ties IT	Personal property	63.355* [35.811]	-8.198 [40.676]	-2.108 [41.732]	-0.215*** [0.062]	-0.025 [0.036]	-0.031 [0.036]
	Neighborhood property	-3.065 [6.160]	20.772*** [6.507]	20.571*** [6.304]	0.026** [0.012]	-0.017** [0.007]	-0.018** [0.008]
	Family property	13.887 [12.297]	1.417 [11.990]	-3.958 [11.864]	-0.061** [0.024]	-0.034** [0.013]	-0.028** [0.013]
Control Variables		NO	YES	YES	NO	YES	YES
Commune Fixed Effects		NO	NO	YES	NO	NO	YES
Observations		676	641	641	676	641	641
R-squared		0.034	0.133	0.159	0.091	0.670	0.679

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Specifications 1 to 3 in this table show several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application days, a negative coefficient represents an earlier application date. The mean application date for single women is the 21st August 1940, with a standard deviation of 344 days. Specifications 4 to 6, show several regressions of "Emigration probability" on a set of explanatory variables. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The average emigration probability for single women is 0.48 on a scale between 0 and 1. The set of control variables includes "family migrates", "neighbors migrate", "current job = learnt job", "notable property", "currently working", "age", "children in HH", "previous military service", "illnesses", "police record", "previous migration".



Table 35: Heterogeneity of effects: couples without children

		Heterogeneity of effects: couples without children					
		Application date			Emigration probability		
		1	2	3	4	5	6
Cultural ties GER	Germanic first name	-18.359 [41.608]	-52.377 [42.716]	-50.323 [43.168]	-0.032 [0.093]	0.033 [0.031]	0.030 [0.033]
	Previous migration to GER or AUT	-149.049*** [39.428]	-104.704*** [38.897]	-104.831*** [38.387]	0.201** [0.100]	0.068 [0.046]	0.053 [0.042]
	Family ties to GER or AUT	11.289 [10.057]	18.039 [13.637]	17.828 [14.219]	0.034* [0.019]	0.022* [0.012]	0.027* [0.014]
Economic Ties IT	Personal property	160.636** [62.813]	-12.743 [66.322]	-8.696 [65.064]	-0.526*** [0.147]	0.124 [0.139]	0.087 [0.137]
	Neighborhood property	10.981* [6.616]	18.482** [7.262]	19.593** [9.231]	0.026 [0.025]	0.014 [0.013]	0.008 [0.011]
	Family property	-2.120 [26.476]	27.943 [25.666]	25.708 [26.642]	0.061 [0.067]	-0.102 [0.065]	-0.090 [0.061]
Control Variables		NO	YES	YES	NO	YES	YES
Commune Fixed Effects		NO	NO	YES	NO	NO	YES
Observations		140	132	132	140	132	132
R-squared		0.269	0.429	0.429	0.210	0.848	0.857

Robust standard errors in brackets

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Specifications 1 to 3 in this table show several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application days, a negative coefficient represents an earlier application date. The mean application date for couples without children is the 15th June 1940, with a standard deviation of 248 days. Specifications 4 to 6, show several regressions of "Emigration probability" on a set of explanatory variables. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The average emigration probability for couples without children is 0.51 on a scale between 0 and 1. The set of control variables includes "family migrates", "neighbors migrate", "current job = learnt job", "notable property", "currently working", "age", "female", "previous military service", "illnesses", "police record", "previous migration".

Table 36: Heterogeneity of effects: couples with children

		Heterogeneity of effects: couples with children					
		Application date			Emigration probability		
		1	2	3	4	5	6
Cultural ties GER	Germanic first name	16.922 [26.308]	30.968 [25.358]	24.647 [26.244]	0.087* [0.049]	0.036 [0.024]	0.041* [0.024]
	Previous migration to GER or AUT	-113.295*** [24.530]	-113.659*** [28.682]	-127.517*** [27.814]	0.148** [0.063]	0.048* [0.027]	0.056* [0.030]
	Family ties to GER or AUT	11.830 [11.732]	10.877 [12.292]	13.450 [12.807]	-0.033* [0.020]	-0.020 [0.013]	-0.020 [0.013]
Economic Ties IT	Personal property	114.933*** [32.090]	29.065 [33.511]	51.501 [32.233]	-0.209*** [0.069]	0.040 [0.039]	0.026 [0.041]
	Neighborhood property	18.722*** [4.939]	29.027*** [6.284]	31.665*** [6.281]	0.023* [0.013]	-0.010 [0.009]	-0.011 [0.009]
	Family property	13.623 [11.191]	5.490 [10.859]	1.756 [10.543]	-0.062*** [0.023]	-0.033** [0.014]	-0.031** [0.015]
Control Variables		NO	YES	YES	NO	YES	YES
Commune Fixed Effects		NO	NO	YES	NO	NO	YES
Observations		434	415	415	435	416	416
R-squared		0.157	0.255	0.272	0.167	0.824	0.825

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Specifications 1 to 3 in this table show several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application days, a negative coefficient represents an earlier application date. The mean application date for couples with children is the 19th June 1940, with a standard deviation of 250 days. Specifications 4 to 6, show several regressions of "Emigration probability" on a set of explanatory variables. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The average emigration probability for couples with children is 0.47 on a scale between 0 and 1. The set of control variables includes "family migrates", "neighbors migrate", "current job = learnt job", "notable property", "currently working", "age", "female", "previous military service", "illnesses", "police record", "previous migration".

Table 37: Heterogeneity of effects: age &lt; 20

		Heterogeneity of effects: age < 20					
		Application date			Emigration probability		
		1	2	3	4	5	6
Cultural ties GER	Germanic first name	-114.334*	-2.226	-3.425	0.046	-0.008	-0.006
		[58.804]	[51.011]	[50.582]	[0.064]	[0.026]	[0.026]
	Previous migration to GER or AUT	-175.610***	-118.303	-65.366	0.190***	0.078	0.042
		[45.389]	[90.299]	[75.273]	[0.039]	[0.057]	[0.047]
	Family ties to GER or AUT	-113.574	-79.360	-62.316	-0.016	-0.083	-0.093
		[71.964]	[96.206]	[98.285]	[0.138]	[0.087]	[0.081]
Economic Ties IT	Personal property	177.266	-164.739	-144.032	-0.258	-0.004	-0.022
		[222.880]	[327.625]	[325.721]	[0.357]	[0.149]	[0.141]
	Neighborhood property	38.498	27.257	26.559	-0.021	0.011	0.012
		[32.521]	[34.311]	[32.947]	[0.031]	[0.012]	[0.012]
	Family property	99.150	130.083	138.334*	-0.069	-0.032	-0.039
		[62.510]	[81.849]	[79.358]	[0.082]	[0.046]	[0.044]
Control Variables		NO	YES	YES	NO	YES	YES
Commune Fixed Effects		NO	NO	YES	NO	NO	YES
Observations		153	145	145	154	146	146
R-squared		0.082	0.412	0.431	0.050	0.810	0.820

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Specifications 1 to 3 in this table show several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application days, a negative coefficient represents an earlier application date. The mean application date for opters aged less than 20 is the 19th April 1940, with a standard deviation of 395 days. Specifications 4 to 6, show several regressions of "Emigration probability" on a set of explanatory variables. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The average emigration probability for opters aged less than 20 is 0.81 on a scale between 0 and 1. The set of control variables includes "family migrates", "neighbors migrate", "current job = learnt job", "notable property", "currently working", "female", "children in HH", "previous military service", "illnesses", "police record", "previous migration", "divorced", "married", "widowed".

Table 38: Heterogeneity of effects: age  $\geq 20$  and  $< 40$ 

		Heterogeneity of effects: age $\geq 20$ and $< 40$					
		Application date			Emigration probability		
		1	2	3	4	5	6
Cultural ties GER	Germanic first name	-12.469 [19.118]	18.523 [19.114]	27.139 [19.442]	0.077*** [0.029]	0.018 [0.020]	0.011 [0.020]
	Previous migration to GER or AUT	-57.797* [33.024]	-36.393 [34.411]	-35.663 [35.637]	0.103** [0.047]	0.088** [0.035]	0.089** [0.035]
	Family ties to GER or AUT	22.368 [17.103]	20.403 [16.004]	21.901 [15.957]	-0.024 [0.019]	-0.003 [0.014]	-0.004 [0.014]
Economic Ties IT	Personal property	72.952*** [26.828]	25.238 [34.342]	41.771 [34.207]	-0.263*** [0.051]	0.007 [0.034]	-0.009 [0.035]
	Neighborhood property	9.886*** [3.486]	24.865*** [3.867]	26.578*** [3.735]	0.020** [0.008]	-0.016*** [0.005]	-0.017*** [0.006]
	Family property	18.563* [10.093]	6.867 [9.351]	2.125 [8.823]	-0.072*** [0.017]	-0.046*** [0.010]	-0.042*** [0.010]
Control Variables		NO	YES	YES	NO	YES	YES
Commune Fixed Effects		NO	NO	YES	NO	NO	YES
Observations		1,120	1,067	1,067	1,121	1,068	1,068
R-squared		0.043	0.181	0.203	0.136	0.647	0.652

Robust standard errors in brackets

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Specifications 1 to 3 in this table show several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application days, a negative coefficient represents an earlier application date. The mean application date for opters aged between 20 and 40 is the 9th May 1940, with a standard deviation of 286 days. Specifications 4 to 6, show several regressions of "Emigration probability" on a set of explanatory variables. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The average emigration probability for opters aged between 20 and 40 is 0.61 on a scale between 0 and 1. The set of control variables includes "family migrates", "neighbors migrate", "current job = learnt job", "notable property", "currently working", "female", "children in HH", "previous military service", "illnesses", "police record", "previous migration", "divorced", "married", "widowed".

Table 39: Heterogeneity of effects: age  $\geq 40$  and  $< 60$ 

		Heterogeneity of effects: age $\geq 40$ and $< 60$					
		Application date			Emigration probability		
		1	2	3	4	5	6
Cultural ties GER	Germanic first name	-3.296 [34.185]	15.820 [34.631]	18.521 [35.311]	0.078 [0.052]	0.052*** [0.017]	0.045*** [0.017]
	Previous migration to GER or AUT	-153.949*** [33.667]	-89.891** [37.454]	-83.388** [37.599]	0.280*** [0.054]	0.066** [0.028]	0.062** [0.027]
	Family ties to GER or AUT	22.756* [12.750]	18.005 [12.654]	17.140 [12.509]	-0.040** [0.016]	-0.001 [0.005]	-0.000 [0.005]
Economic Ties IT	Personal property	41.770 [35.597]	-5.818 [34.284]	-1.611 [34.761]	-0.149** [0.070]	0.042 [0.036]	0.040 [0.035]
	Neighborhood property	-0.049 [5.631]	15.681** [6.176]	16.247** [6.440]	0.035** [0.014]	0.005 [0.006]	0.003 [0.006]
	Family property	30.443** [13.946]	12.634 [12.787]	11.750 [12.952]	-0.068** [0.028]	-0.040** [0.017]	-0.038** [0.017]
Control Variables		NO	YES	YES	NO	YES	YES
Commune Fixed Effects		NO	NO	YES	NO	NO	YES
Observations		477	453	453	478	454	454
R-squared		0.089	0.240	0.246	0.157	0.859	0.862

Robust standard errors in brackets

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Specifications 1 to 3 in this table show several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application days, a negative coefficient represents an earlier application date. The mean application date for opters aged between 40 and 60 is the 15th August 1940, with a standard deviation of 308 days. Specifications 4 to 6, show several regressions of "Emigration probability" on a set of explanatory variables. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The average emigration probability for opters aged between 40 and 60 is 0.46 on a scale between 0 and 1. The set of control variables includes "family migrates", "neighbors migrate", "current job = learnt job", "notable property", "currently working", "female", "children in HH", "previous military service", "illnesses", "police record", "previous migration", "divorced", "married", "widowed".

Table 40: Heterogeneity of effects: age &gt; 60

		Heterogeneity of effects: age > 60					
		Application date			Emigration probability		
		1	2	3	4	5	6
Cultural ties GER	Germanic first name	-62.230 [38.483]	-28.706 [40.928]	-26.943 [41.365]	0.032 [0.073]	-0.004 [0.022]	-0.003 [0.023]
	Previous migration to GER or AUT	-173.791*** [33.491]	-128.469*** [36.020]	-126.666*** [37.370]	0.119* [0.068]	-0.011 [0.027]	-0.012 [0.028]
	Family ties to GER or AUT	-2.280 [9.406]	-0.404 [8.921]	0.101 [9.194]	0.035** [0.016]	0.008 [0.008]	0.008 [0.008]
Economic Ties IT	Personal property	49.145* [28.567]	-1.278 [28.985]	-0.709 [28.811]	-0.208** [0.090]	0.028 [0.048]	0.028 [0.048]
	Neighborhood property	11.065** [5.435]	13.020** [5.833]	13.793* [7.040]	-0.008 [0.014]	-0.001 [0.003]	-0.001 [0.004]
	Family property	-4.803 [11.093]	-5.829 [11.877]	-7.072 [11.034]	-0.023 [0.034]	-0.029 [0.024]	-0.029 [0.024]
Control Variables		NO	YES	YES	NO	YES	YES
Commune Fixed Effects		NO	NO	YES	NO	NO	YES
Observations		359	345	345	359	345	345
R-squared		0.088	0.186	0.186	0.097	0.887	0.887

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Specifications 1 to 3 in this table show several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application days, a negative coefficient represents an earlier application date. The mean application date for opters aged above 60 is the 12th August 1940, with a standard deviation of 266 days. Specifications 4 to 6, show several regressions of "Emigration probability" on a set of explanatory variables. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The average emigration probability for opters aged above 60 is 0.51 on a scale between 0 and 1. The set of control variables includes "family migrates", "neighbors migrate", "current job = learnt job", "notable property", "currently working", "female", "children in HH", "previous military service", "illnesses", "police record", "previous migration", "divorced", "married", "widowed".

Table 41: Cultural and economic factors and application date: non-binary cultural ties index.

		Application date					
		1	2	3	4	5	6
Cultural ties GER	Germanic first name	1.801 [4.689]	2.069 [4.800]	-3.996 [4.760]	-4.291 [4.739]	-2.800 [4.529]	-1.959 [4.547]
	Previous migration to GER or AUT	-110.587*** [19.164]	-103.620*** [19.868]	-109.785*** [20.716]	-104.368*** [20.851]	-70.552*** [20.373]	-63.853*** [20.540]
	Family ties to GER or AUT	25.506*** [5.664]	15.937** [6.698]	4.812 [8.170]	6.025 [8.319]	4.448 [7.811]	5.519 [7.767]
Economic Ties IT	Personal property	68.673*** [18.169]	31.057 [21.828]	38.887* [21.441]	43.757** [21.265]	9.550 [20.294]	17.466 [20.157]
	Neighborhood property	8.976*** [2.795]	7.960*** [2.857]	7.883*** [2.916]	8.020*** [2.916]	22.250*** [3.107]	23.949*** [3.117]
	Family property	20.886*** [6.975]	18.438*** [7.054]	11.417* [6.932]	11.002 [6.917]	6.952 [6.527]	3.437 [6.338]
Economic var.	Capitalist		-41.040 [25.331]	41.119 [28.280]	46.166 [30.464]	33.497 [29.731]	29.017 [29.897]
	Worker		-118.468*** [24.640]	-49.882* [28.271]	-56.163* [29.612]	-39.308 [28.837]	-34.963 [29.012]
	Current job = learnt job		47.257*** [15.193]	52.977*** [14.976]	51.545*** [14.998]	34.075** [14.369]	29.481** [14.579]
Demographic var.	Age		1.136* [0.680]	1.662** [0.687]	1.407** [0.664]	1.249* [0.667]	
	Female			122.645*** [20.335]	127.459*** [21.317]	117.211*** [20.385]	116.030*** [20.540]
	Previous military service			5.700 [14.782]	5.534 [14.843]	7.568 [14.156]	8.277 [14.086]
	Police record			-11.879 [29.629]	-9.519 [29.608]	12.892 [28.350]	5.863 [28.368]
	Illnesses			66.460*** [20.191]	61.421*** [20.283]	39.906** [19.430]	39.861** [19.645]
	Previous migration			21.989 [16.333]	25.918 [16.109]	-68.114*** [17.826]	-82.575*** [17.330]
	Children in HH				-20.839 [18.032]	-26.364 [17.142]	-23.667 [17.005]
Family structure var.	Divorced				-100.714*** [33.117]	-89.185*** [29.605]	-82.326*** [28.538]
	Married				-14.141 [20.780]	-12.598 [19.757]	-8.615 [19.661]
	Widowed				-58.773* [30.376]	-46.480 [29.344]	-41.530 [29.480]
	Family migrates					-97.777*** [12.219]	-90.189*** [13.150]
Network related var.	Neighbors migrate					-6.918*** [0.556]	-6.149*** [0.574]
	Commune Fixed Effects	NO	NO	NO	NO	NO	YES
Observations	2,109	2,011	2,000	2,000	2,000	2,000	
R-squared	0.067	0.088	0.126	0.131	0.200	0.210	

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

This table shows several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application days, a negative coefficient represents an earlier application date. The mean application date is the 13th June 1940, with a standard deviation of 300 days. The reference category to "Currently working" and "Notable property" is "Out of the labor market". The reference category to "Married", "Widowed", and "Divorced" is "Single".

Table 42: Cultural and economic factors and emigration probability: non-binary cultural ties index.

		Emigration probability					
		1	2	3	4	5	6
Cultural ties GER	Germanic first name	-0.003 [0.007]	-0.002 [0.008]	0.007 [0.007]	0.008 [0.007]	0.001 [0.005]	0.000 [0.005]
	Previous migration to GER or AUT	0.154*** [0.031]	0.150*** [0.031]	0.201*** [0.031]	0.194*** [0.031]	0.067*** [0.018]	0.061*** [0.018]
	Family ties to GER or AUT	-0.026*** [0.008]	-0.016* [0.009]	0.000 [0.010]	-0.005 [0.010]	0.007 [0.006]	0.005 [0.006]
Economic Ties IT	Personal property	-0.228*** [0.037]	-0.130*** [0.044]	-0.122*** [0.042]	-0.125*** [0.042]	0.020 [0.024]	0.010 [0.024]
	Neighborhood property	0.016** [0.006]	0.017*** [0.006]	0.007 [0.006]	0.007 [0.006]	-0.012*** [0.008]	-0.014*** [0.008]
	Family property	-0.068*** [0.014]	-0.063*** [0.014]	-0.046*** [0.013]	-0.046*** [0.013]	-0.042*** [0.008]	-0.038*** [0.008]
Economic var.	Capitalist		-0.068 [0.045]	-0.201*** [0.047]	-0.172*** [0.049]	-0.084*** [0.028]	-0.080*** [0.028]
	Worker		0.113*** [0.035]	0.000 [0.038]	0.033 [0.039]	-0.006 [0.022]	-0.011 [0.022]
	Current job = learnt job		-0.079*** [0.023]	-0.091*** [0.023]	-0.086*** [0.023]	-0.034** [0.014]	-0.028** [0.014]
Demographic var.	Age			-0.001 [0.001]	-0.003*** [0.001]	-0.001** [0.001]	-0.001** [0.001]
	Female			-0.187*** [0.027]	-0.194*** [0.028]	-0.127*** [0.019]	-0.125*** [0.019]
	Previous military service			-0.019 [0.025]	-0.007 [0.025]	-0.009 [0.016]	-0.010 [0.016]
	Police record			0.151*** [0.041]	0.148*** [0.041]	0.041 [0.028]	0.047* [0.028]
	Illnesses			-0.128*** [0.030]	-0.116*** [0.030]	-0.035** [0.017]	-0.035** [0.017]
	Previous migration			-0.406*** [0.025]	-0.415*** [0.026]	-0.003 [0.028]	0.011 [0.027]
	Children in HH				-0.051* [0.031]	-0.017 [0.019]	-0.020 [0.018]
Family structure var.	Divorced				0.194*** [0.069]	0.140*** [0.032]	0.135*** [0.031]
	Married				0.060 [0.037]	0.041* [0.022]	0.037* [0.022]
	Widowed				0.182*** [0.042]	0.123*** [0.023]	0.118*** [0.023]
	Family migrates					0.551*** [0.026]	0.542*** [0.026]
Network related var.	Neighbors migrate					0.008*** [0.001]	0.007*** [0.001]
Commune Fixed Effects		NO	NO	NO	NO	NO	YES
Observations		2,112	2,014	2,003	2,003	2,003	2,003
R-squared		0.133	0.155	0.251	0.260	0.712	0.717

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

This table shows several regressions of "Emigration probability" on a set of explanatory variables. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The average emigration probability is 0.57 on a scale between 0 and 1. The reference category to "Currently working" and "Notable property" is "Out of the labor market". The reference category to "Married", "Widowed", and "Divorced" is "Single".



Table 43: Cultural and economic factors and application date: children sample, binary index.

		Application date					
		1	2	3	4	5	6
Cultural ties GER	Nibelungen Index: binary	-34.664 [22.402]	-45.517** [20.744]	-41.728** [20.485]	-41.363** [20.313]	-41.442** [20.090]	-37.403* [19.980]
	Previous migration to GER or AUT	-104.361*** [23.813]	-105.809*** [24.651]	-118.577*** [27.375]	-125.293*** [27.150]	-96.168*** [26.510]	-109.364*** [26.977]
	Family ties to GER or AUT	26.671* [15.680]	29.976* [16.675]	30.014 [18.557]	30.147* [18.195]	28.024 [17.067]	32.107* [17.421]
Economic Ties IT	Personal property	103.178*** [26.448]	46.381 [29.345]	55.093* [28.754]	55.405* [29.182]	42.949 [28.082]	61.623** [27.076]
	Neighborhood property	16.269*** [3.969]	16.911*** [4.132]	19.254*** [4.365]	18.720*** [4.529]	26.983*** [4.997]	30.642*** [4.992]
	Family property	14.785 [10.284]	10.606 [10.395]	9.698 [10.444]	8.430 [10.425]	1.944 [9.899]	-0.821 [9.581]
Economic var.	Capitalist		58.053 [59.674]	100.867 [61.917]	122.513* [64.956]	90.514 [62.485]	85.409 [62.257]
	Worker		-35.062 [59.267]	0.946 [57.891]	27.307 [61.779]	34.637 [59.409]	53.632 [58.592]
	Current job = learnt job		34.922 [24.710]	44.757* [24.620]	51.309** [24.715]	56.324** [23.969]	62.297*** [23.273]
Demographic var.	Age		0.187 [1.117]	-0.514 [1.117]	-0.263 [1.261]	-0.263 [1.194]	-0.344 [1.185]
	Female			53.131 [38.256]	74.574* [43.279]	89.880** [42.200]	90.302** [41.958]
	Previous military service			-21.148 [26.987]	-17.106 [27.360]	-7.132 [26.359]	-2.058 [26.150]
	Police record			24.148 [57.972]	19.268 [57.641]	30.573 [54.219]	33.863 [54.156]
	Illnesses			12.951 [37.806]	11.275 [37.558]	-4.667 [37.045]	-0.541 [37.425]
	Previous migration			61.847* [33.596]	61.283* [33.683]	-34.269 [36.525]	-36.720 [35.626]
	Children in HH				201.129*** [31.597]	261.582*** [32.104]	232.302*** [35.612]
Family structure var.	Divorced				-13.041 [65.199]	-12.363 [57.325]	-18.838 [53.247]
	Married				62.268* [33.639]	72.357** [33.890]	65.379** [32.893]
	Widowed				98.208* [58.444]	92.678 [56.623]	86.149 [56.226]
	Family migrates					-105.758*** [24.784]	-90.154*** [25.137]
Network related var.	Neighbors migrate					-4.287*** [1.195]	-4.145*** [1.253]
	Commune Fixed Effects	NO	NO	NO	NO	NO	YES
Observations	594	567	565	565	565	565	
R-squared	0.141	0.172	0.187	0.195	0.254	0.278	

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

This table shows several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application days, a negative coefficient represents an earlier application date. The mean application date is the 18th June 1940, with a standard deviation of 265 days. The reference category to "Currently working" and "Notable property" is "Out of the labor market". The reference category to "Married", "Widowed", and "Divorced" is "Single". The sample is restricted to opters with children.

Table 44: Cultural and economic factors and emigration probability: children sample, binary index.

		Emigration probability					
		1	2	3	4	5	6
Cultural ties GER	Nibelungen Index: binary	-0.034 [0.040]	-0.028 [0.040]	-0.017 [0.039]	-0.022 [0.039]	-0.008 [0.025]	-0.013 [0.026]
	Previous migration to GER or AUT	0.200*** [0.051]	0.221*** [0.052]	0.255*** [0.052]	0.252*** [0.054]	0.089*** [0.026]	0.094*** [0.027]
	Family ties to GER or AUT	-0.015 [0.017]	-0.012 [0.018]	-0.027 [0.019]	-0.025 [0.019]	-0.010 [0.010]	-0.011 [0.010]
Economic Ties IT	Personal property	-0.171*** [0.061]	-0.044 [0.070]	-0.045 [0.067]	-0.044 [0.067]	0.017 [0.033]	0.008 [0.034]
	Neighborhood property	0.029*** [0.010]	0.029*** [0.010]	0.011 [0.010]	0.011 [0.010]	-0.008 [0.007]	-0.008 [0.007]
	Family property	-0.084*** [0.021]	-0.070*** [0.021]	-0.058*** [0.020]	-0.058*** [0.020]	-0.029** [0.012]	-0.028** [0.012]
Economic var.	Capitalist		-0.171 [0.117]	-0.223* [0.121]	-0.215* [0.123]	-0.043 [0.046]	-0.038 [0.047]
	Worker		0.084 [0.114]	0.041 [0.117]	0.061 [0.120]	0.009 [0.046]	0.002 [0.046]
	Current job = learnt job		0.081* [0.048]	0.054 [0.049]	0.064 [0.049]	0.014 [0.022]	0.010 [0.023]
Demographic var.	Age		0.004* [0.002]	0.002 [0.002]	0.002 [0.002]	0.001 [0.001]	0.001 [0.001]
	Female			0.043 [0.065]	0.154* [0.078]	0.068 [0.052]	0.061 [0.053]
	Previous military service			0.109** [0.050]	0.111** [0.050]	0.056* [0.033]	0.052 [0.034]
	Police record			0.159** [0.077]	0.144* [0.078]	0.070** [0.036]	0.071** [0.036]
	Illnesses			-0.101* [0.058]	-0.103* [0.058]	-0.031 [0.029]	-0.036 [0.029]
	Previous migration			-0.456*** [0.064]	-0.450*** [0.066]	0.058 [0.060]	0.061 [0.058]
	Children in HH				0.352*** [0.060]	0.079** [0.040]	0.087** [0.043]
Family structure var.	Divorced				0.161 [0.164]	0.144** [0.064]	0.148** [0.066]
	Married				0.193*** [0.066]	0.112** [0.044]	0.114** [0.044]
	Widowed				0.101 [0.084]	0.113*** [0.043]	0.118*** [0.043]
	Family migrates					0.674*** [0.056]	0.668*** [0.058]
Network related var.	Neighbors migrate					0.007*** [0.002]	0.007*** [0.002]
Commune Fixed Effects		NO	NO	NO	NO	NO	YES
Observations		595	568	566	566	566	566
R-squared		0.169	0.205	0.279	0.289	0.794	0.797

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

This table shows several regressions of "Emigration probability" on a set of explanatory variables. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The average emigration probability is 0.46 on a scale between 0 and 1. The reference category to "Currently working" and "Notable property" is "Out of the labor market". The reference category to "Married", "Widowed", and "Divorced" is "Single". The sample is restricted to opters with children.

Table 45: Cultural and economic factors and application date: German first name index.

		Application date					
		1	2	3	4	5	6
Cultural ties GER	German first name index	-37.496*** [7.184]	-39.796*** [7.427]	-14.402* [7.906]	-14.133* [7.931]	-7.890 [7.567]	-12.136 [7.620]
	Previous migration to GER or AUT	-103.458*** [19.395]	-98.112*** [20.185]	-106.984*** [21.069]	-101.969*** [21.195]	-68.549*** [20.705]	-61.210*** [20.875]
	Family ties to GER or AUT	23.521*** [5.718]	14.095** [6.741]	5.223 [8.290]	6.565 [8.446]	5.061 [7.930]	6.098 [7.887]
Economic Ties IT	Personal property	75.379*** [18.018]	33.525 [21.744]	40.413* [21.634]	45.414** [21.438]	11.288 [20.449]	18.958 [20.302]
	Neighborhood property	7.790*** [2.798]	6.728** [2.863]	7.404** [2.921]	7.578*** [2.918]	22.200*** [3.114]	23.815*** [3.118]
	Family property	19.481*** [6.990]	16.822** [7.083]	11.513* [6.984]	11.165 [6.967]	7.173 [6.573]	3.533 [6.397]
Economic var.	Capitalist		-29.921 [25.797]	39.769 [28.414]	44.089 [30.679]	32.053 [29.936]	26.622 [30.107]
	Worker		-114.725*** [24.833]	-52.069* [28.461]	-58.737** [29.877]	-40.664 [29.123]	-37.476 [29.280]
	Current job = learnt job		44.714*** [15.273]	50.917*** [15.179]	49.378*** [15.220]	32.209** [14.593]	27.555* [14.793]
Demographic var.	Age		1.087 [0.698]	1.615** [0.702]	1.384** [0.678]	1.204* [0.683]	
	Female			111.650*** [21.051]	116.720*** [22.092]	111.756*** [21.170]	107.941*** [21.311]
	Previous military service			3.729 [14.960]	6.297 [14.996]	6.829 [14.287]	6.829 [14.223]
	Police record			-6.781 [30.044]	-4.608 [30.024]	16.526 [28.775]	9.721 [28.720]
	Illnesses			64.563*** [20.351]	59.678*** [20.441]	38.447** [19.586]	38.295* [19.810]
	Previous migration			22.925 [16.446]	27.170* [16.268]	-68.088*** [18.026]	-82.480*** [17.435]
	Children in HH				-20.104 [18.345]	-25.710 [17.420]	-23.479 [17.290]
Family structure var.	Divorced				-95.322*** [32.879]	-83.624*** [29.154]	-76.025*** [27.833]
	Married				-14.568 [21.040]	-13.855 [19.964]	-9.380 [19.836]
	Widowed				-60.733* [30.975]	-48.682 [29.933]	-44.215 [30.063]
	Family migrates					-97.298*** [12.322]	-89.502*** [13.287]
Network related var.	Neighbors migrate					-7.007*** [0.556]	-6.191*** [0.576]
Commune Fixed Effects		NO	NO	NO	NO	NO	YES
Observations		2,085	1,987	1,976	1,976	1,976	1,976
R-squared		0.078	0.099	0.127	0.132	0.202	0.212

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

This table shows several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application days, a negative coefficient represents an earlier application date. The mean application date is the 13th June 1940, with a standard deviation of 300 days. The reference category to "Currently working" and "Notable property" is "Out of the labor market". The reference category to "Married", "Widowed", and "Divorced" is "Single".

Table 46: Cultural and economic factors and emigration probability: German first name index.

		Emigration probability					
		1	2	3	4	5	6
Cultural ties GER	German first name index	0.065*** [0.011]	0.073*** [0.011]	0.040*** [0.012]	0.039*** [0.012]	0.006 [0.007]	0.010 [0.007]
	Previous migration to GER or AUT	0.141*** [0.031]	0.139*** [0.031]	0.194*** [0.031]	0.187*** [0.031]	0.064*** [0.018]	0.057*** [0.018]
	Family ties to GER or AUT	-0.022*** [0.008]	-0.012 [0.009]	0.000 [0.010]	-0.005 [0.010]	0.006 [0.006]	0.005 [0.006]
Economic Ties IT	Personal property	-0.242*** [0.037]	-0.136*** [0.044]	-0.125*** [0.042]	-0.127*** [0.042]	0.018 [0.024]	0.008 [0.024]
	Neighborhood property	0.019*** [0.006]	0.020*** [0.006]	0.009 [0.006]	0.008 [0.006]	-0.011*** [0.004]	-0.014*** [0.004]
	Family property	-0.064*** [0.013]	-0.059*** [0.014]	-0.045*** [0.013]	-0.045*** [0.013]	-0.041*** [0.008]	-0.037*** [0.008]
Economic var.	Capitalist		-0.091** [0.045]	-0.200*** [0.047]	-0.169*** [0.049]	-0.084*** [0.028]	-0.079*** [0.028]
	Worker		0.105*** [0.035]	0.004 [0.038]	0.037 [0.039]	-0.008 [0.022]	-0.012 [0.022]
	Current job = learnt job		-0.073*** [0.023]	-0.086*** [0.023]	-0.081*** [0.023]	-0.031** [0.014]	-0.026* [0.014]
Demographic var.	Age		-0.001 [0.001]	-0.003*** [0.001]	-0.003*** [0.001]	-0.001** [0.001]	-0.001** [0.001]
	Female			-0.155*** [0.029]	-0.162*** [0.030]	-0.121*** [0.020]	-0.116*** [0.020]
	Previous military service			-0.014 [0.025]	-0.002 [0.025]	-0.008 [0.016]	-0.009 [0.016]
	Police record			0.141*** [0.041]	0.138*** [0.041]	0.037 [0.028]	0.044 [0.028]
	Illnesses			-0.118*** [0.030]	-0.108*** [0.030]	-0.029* [0.017]	-0.028* [0.017]
	Previous migration			-0.410*** [0.025]	-0.419*** [0.026]	-0.002 [0.028]	0.012 [0.027]
	Children in HH				-0.055* [0.031]	-0.019 [0.019]	-0.022 [0.019]
Family structure var.	Divorced				0.193*** [0.070]	0.136*** [0.032]	0.132*** [0.032]
	Married				0.060 [0.037]	0.043* [0.022]	0.039* [0.022]
	Widowed				0.179*** [0.042]	0.121*** [0.023]	0.117*** [0.023]
	Family migrates					0.551*** [0.026]	0.541*** [0.027]
Network related var.	Neighbors migrate					0.008*** [0.001]	0.007*** [0.001]
Commune Fixed Effects		NO	NO	NO	NO	NO	YES
Observations		2,088	1,990	1,979	1,979	1,979	1,979
R-squared		0.143	0.168	0.252	0.261	0.712	0.717

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

This table shows several regressions of "Emigration probability" on a set of explanatory variables. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The average emigration probability is 0.57 on a scale between 0 and 1. The reference category to "Currently working" and "Notable property" is "Out of the labor market". The reference category to "Married", "Widowed", and "Divorced" is "Single".

Table 47: Cultural and economic factors and emigration probability: different neighborhood property index.

		Main specification: neighborhood property index					
		Application date			Emigration probability		
		1	2	3	4	5	6
Cultural ties GER	Germanic first name	-33.241** [15.196]	5.107 [14.937]	11.387 [15.116]	0.082*** [0.022]	0.008 [0.014]	0.008 [0.014]
	Previous migration to GER or AUT	-109.415*** [18.927]	-73.034*** [20.127]	-64.945*** [20.253]	0.151*** [0.030]	0.061*** [0.018]	0.061*** [0.018]
	Family ties to GER or AUT	23.142*** [5.584]	2.457 [7.342]	3.058 [7.287]	-0.021*** [0.008]	0.005 [0.005]	0.005 [0.005]
Economic Ties IT	Personal property	76.874*** [18.909]	13.920 [23.134]	21.415 [23.032]	-0.234*** [0.037]	0.026 [0.024]	0.026 [0.024]
	Neighborhood property: index	-0.031 [7.482]	22.482*** [8.285]	23.658*** [8.373]	0.028** [0.012]	-0.028*** [0.009]	-0.028*** [0.009]
	Family property	22.016*** [6.856]	11.901* [6.487]	8.760 [6.365]	-0.065*** [0.013]	-0.041*** [0.008]	-0.041*** [0.008]
Control Variables		NO	YES	YES	NO	YES	YES
Commune Fixed Effects		NO	NO	YES	NO	NO	YES
Observations		2,153	2,035	2,035	2,156	2,038	2,038
R-squared		0.066	0.186	0.195	0.137	0.718	0.718

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Specifications 1 to 3 in this table show several regressions of "Application date" (in days) on a set of explanatory variables. A positive coefficient represents a later application days, a negative coefficient represents an earlier application date. The mean application date is 13th June 1940, with a standard deviation of 300 days. Specifications 4 to 6, show several regressions of "Emigration probability" on a set of explanatory variables, the mean emigration probability is 0.57 on a range between 0 and 1. A positive coefficient represents a higher emigration probability, a negative coefficient represents a lower leaving probability. The set of control variables includes "family migrates", "neighbors migrate", "current job = learnt job", "notable property", "currently working", "age", "female", "children in HH", "previous military service", "illnesses", "police record", "previous migration", "divorced", "married", "widowed".

Table 48: Oster (2019) Test for the cultural ties variables.

	Application date			Emigration probability		
Germanic first name	-35.371** [15.202]	4.163 [14.853]	10.335 [15.030]	0.086*** [0.022]	0.016 [0.014]	0.010 [0.014]
<i>delta</i>	7.09	-0.26	-0.56	10.5	0.48	0.29
Previous migration to GER or AUT	-108.937*** [19.147]	-70.824*** [20.182]	-63.125*** [20.329]	0.153*** [0.030]	0.069*** [0.018]	0.062*** [0.018]
<i>delta</i>	118.77	5.91	4.33	14.88	1.8	1.59
Family ties to GER or AUT	22.110*** [5.626]	1.781 [7.344]	2.552 [7.308]	-0.019** [0.008]	0.008 [0.006]	0.006 [0.006]
<i>delta</i>	22.4	0.15	0.22	9.23	-0.46	-0.42
Economic Ties Variables	YES	YES	YES	YES	YES	YES
Control Variables	NO	YES	YES	NO	YES	YES
Commune Fixed Effects	NO	NO	YES	NO	NO	YES
R-squared	0.068	0.198	0.207	0.259	0.714	0.719

The dependent variables are "Application date" in specifications 1 to 3, and "Emigration probability" in specifications 4 to 6. The reported coefficients are those of "Germanic first name", "Previous migration to Germany or Austria" and "Family ties to Germany or Austria". *Delta* is calculated using the *psacalc* command by Oster (2013), assuming  $R_{max} = 1.3 * R\text{-squared}$  and  $\beta = 0$ .

## 4 Fake News and Cultural Identity: Evidence from South Tyrol in 1939

### Abstract

Does misleading information affect cultural preferences? Using an event history study coupled with a regression discontinuity design, we study whether parents changed the naming patterns of their newborn children following a historical episode of *fake news* around a policy of forced emigration. We use newly digitized household-level data to carry out an extensive event history study around the announcement date of the fake news, relying on three methodological approaches. Constructing a proxy for cultural preferences, we call "Nibelungen Index", we show that these fake news lead people to strengthen their cultural identity and specifically to name their offspring in a more German way. We find that women who were pregnant between the 3rd and 6th month at the time of fake news announcement were particularly prone to change the newborn's first name, and carry out a heterogeneity of effects analysis for gender and birth order of the newborns. Analyzing different channels for the change in naming patterns, we find an overall change in cultural preferences to be more pronounced than a change in economic incentives. We find interesting results for different channels by gender and birth order, which reflect the decision making strategies of the family nucleus. The results are in line with historic literature, as well as economic literature on the role of children in the family nucleus of agricultural societies. Finally, we carry out a set of robustness tests. These results suggest three possible repercussions from the exposure to fake news: an immediate behavioral response, a persistent information bias, and possible externalities on others.

*Keywords:* cultural identity, misleading information, event history study.

*JEL classification:* J15, Z10, Z13, N34.

## 1 Introduction

Recently, the internet age and especially social media have rendered *fake news* a pertinent topic of discussion. Fake news can be defined as generally false information, that is spread between people in real life, between connections and followers on social media as well as through more traditional media such as newspapers both in a digital and analog form.<sup>44</sup> These alternative truths are credible, though often completely wrong, and partly spread by people without bad intent, in a sense that they often do not know the low content of truth in their statements. Rectification of these fake news is *aposteriori* quite ineffective as the news has already been spread and internalized.

Fake news can, thus, have temporary or persistent repercussions on the subjects and groups consuming them, for instance, the *persistence* of the information bias, an immediate *behavioral response*, and possible *externalities* to others. In this research paper we focus on these three possible repercussions. The first repercussion is that fake news permanently shape our information set on the specific issue and rectification of the fake news has little effect on people's convictions. The fake news often seems more believable and initially sensationally sinister that we have a hard time revisiting alternative thoughts afterwards. Basically, once it starts spreading it is on the one hand hard to contain the contagion, but also relatively hard to clean up the surface it has already reached. If fake news only affected people's information sets, then targeted education programs or repeated rectification calls, could potentially help achieving a more truthful knowledge in the affected society. However, the second repercussion is the one element that renders fake news particularly useful from the point of the spreader: it can immediately trigger actions at the individual and group level, that result in changes in behavioral patterns. Finally, the third repercussion is tied to the externalities that the fake news can cause for individuals that lack the ability to judge for themselves, for example, children.

Although the discussion of fake news is very much *in vogue* now, historical examples of the impact of fake news on people's decisions are plentiful, but understudied. In this paper we investigate the impact of the spread of fake news on the decisions of parents to assign more ethnic names to their children. The setting, in detail outlined below, is the autonomous province of South Tyrol in the 1930s, in the context of a peculiar migration choice policy (the "South Tyrol Option agreement") between Fascist Italy and Nazi Germany, which forced all German speaking heads-of-households (a wide majority in South Tyrol) to decide whether to stay in South Tyrol but accept full cultural assimilation, or move to the Third Reich but abandon their home. The fake news, also known as the "Sicilian Legend", spread after the announcement of this policy and told German speakers that if they did not leave the country to emigrate to the Third Reich, they would be transferred to Southern Italy, most notably to farms in Sicily, which would at that point be an economic and psychological threat for anyone of German ethnicity. This historical episode of fake news could

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<sup>44</sup>For more detail, see definition on the *Cambridge Dictionary*.



potentially entail all three above discussed negative repercussions. The aim of this paper is to analyze whether this is the case. First, the "Sicilian Legend" is false information, that could have affected the information set of the exposed individuals permanently. There is historical evidence (see Eisterer, 1939), that states that when the fake news was officially rectified, months later in November 1939, it had little effect on the perceived truth as well as on the behavior of the affected individuals. Second, the "Sicilian Legend" potentially affected the behavior of the individuals exposed to it: historical evidence speaks about changes in the assimilation behavior to the Italian culture, as well as increased willingness to emigrate (see Eisterer, 1989). Whereas there is historical evidence for the first two repercussions, the third repercussion is not yet analyzed in any historical or non-historical context. We argue that due to the increased migration pressure and changed cultural behavior, children of the affected households might suffer from the fake news as well, as they potentially lack the ability to judge for themselves.

The research question we aim at answering is, hence, three-fold. First, we aim at determining whether the fake news around the "Sicilian Legend" provoked an immediate behavioral response in the affected individuals. Second, in a comprehensive analysis of the heterogeneity of effects, we look at how this response translated into possible effects for the children of the affected households. And third, we investigate whether the rectification of the fake news had an effect on the behavior of the households, to examine possible persistence of the information bias.

Our main outcome variable is the naming pattern of newborn children, more precisely, the "Germanic-ness" of the first names of the newborns. The choice of this variable derives from three considerations. First, we follow the hypothesis that the first name of a newborn child is a manifestation of the parents' cultural preferences, and an observed change is a strong signal for a *permanent behavioral response* triggered by the fake news. Second, if we find fake news to affect cultural preferences, this is an alarming signal in terms of impact of false information on economic development in a broader sense. In his 2012 article "Culture and the Historical Process", Nathan Nunn explains and emphasizes the importance of cultural values and beliefs in the history of economic development. Nunn describes "culture" as an input factor in decision making, and argues that culture is an important mechanism in the explanation of persistent effects of historical shocks, discussing several empirical studies which confirm this hypothesis. An example of how intertwined cultural norms and economic development are, is illustrated in recent research by Eden and Halla (2020), who establish a link between traditional agricultural production and long lasting effects on cultural norms, in particular illegitimacy. Not only are cultural values an important mechanism that explains the persistence of historical shocks, but cultural values *per se* are, in turn, shaped by historic economic development. We investigate whether an information shock can affect cultural values, through immediate behavioral response, and if the effect is persistent. Third, if we find an effect on the naming patterns, this is evidence

for *externalities* that exposure to fake news can have on others; in this case, the effect that parents' exposure to fake news can have on their children.

In order to proxy cultural preferences with the first name of newborn children, we measure the "Germanic-ness" of the name, by creating an index of cultural proximity to Germany that we call "Nibelungen Index", relying on Lochmann (2020). We do so following the hypothesis that giving children Germanic first names reflects strong cultural proximity to Germany. We find that parents tend to give their newborn children more Germanic first names after the announcement of the fake news. Exploring the mechanisms, we try to determine whether this effect stems from a *change* in cultural identity, an *activation* of cultural identity or a change in *incentives* in prospect of future emigration. To disentangle these potential channels, we build on the framework developed by Algan et al. (2013) and find that the effect is mostly due to *strengthened* cultural preferences. We make, hence, an important attempt in trying to distinguish whether the change in ethnicity of first names is a result of a difference in future incentives or rather the increased feeling of belonging, while trying to bridge the non-evident link between fake news and identity politics.

This research is framed by a peculiar historical context. In 1939, the so-called "South Tyrol Option Agreement" between Mussolini and Hitler asked all German-speaking heads of households in Northern Italy whether they wanted to stay in their homeland and accept the inevitable Italianization, or to emigrate to Germany and preserve their cultural identity. Almost 90 percent of the German speaking population declared to leave their homeland and move to Germany. Historians attribute this high percentage not only to the volition of individuals, who studied the possible implications of the policy, but also to the dissemination of misleading information. On July 3rd, 1939, the widely read Swiss Newspaper "Neue Züricher Zeitung", published an article claiming that all individuals, who did not agree to move to Germany, would be deported to the Southernmost parts of Italy. This spread of fake news is now referred to as the "Sicilian Legend" (Eisterer and Steiniger, 1989; Pallaver and Steurer, 2011). This story in the media led the German speaking individuals to believe that if they did not want to emigrate to Germany, they would not only lose their culture but also lose their homeland by being deported to Southern Italy. The fake news story was officially rectified in November 1939 and until then people took this information into account when taking their decision for departure. The date of publication of the fake news creates a discontinuity in exposure and allows us to employ a regression discontinuity design in the context of an event history study.

Our empirical analysis hence uses the unexpected nature of the publication of the fake news together with an event history study setting, which allows us to claim causality on the impact of fake news on differing ethnically motivated behavior. For our analysis we rely on three different approaches: a non-parametric approach with local linear smoother, a parametric approach with distance from cutoff as polynomial function, and a household fixed-effects approach. We present specifications with at four different bandwidths, with

different parametric functional forms, with and without control variables, town fixed effects and month-of-the-year fixed effects. We find evidence that, following the exposure to the fake news, parents gave their newborn children more Germanic first names. An event history study by post-treatment intervals shows that women who were between the 3rd and 6th month of pregnancy when first exposed to the fake news, tended to react more strongly in terms of ethnic naming. Furthermore, we discuss possible heterogeneity of effects by male and female newborn children and firstborn and later born children, and find the effect to being more pertinent for firstborn and male children. Finally, we attempt in trying to distinguish whether the change in ethnicity of first names is a result of a difference in economic incentives, tied to emigration prospects, or rather the increased feeling of belonging. We find interesting patterns in the naming strategies of girls versus boys and firstborn children; and we find that the fake news also affect the relative importance of emigration prospects versus increased feeling of belonging when choosing the name of the firstborn. Confirming, hence, the hypothesis of *immediate behavioral response* as a result to expose to fake news, as well as the hypothesis of *externalities* on others, we then run specifications around the rectification date of the fake news. We find evidence that supports the hypothesis around the *persistence* of the information bias, as we find no changed behavior after the rectification date.

We add to two strands of academic literature. First, this paper adds to the literature that studies how identity is shaped in response to policies that aim at assimilation and integration. The concept was first theoretically introduced by Bisin and Verdier (2000, 2001) and Bisin et al. (2011), and first empirically evaluated by Fouka (2020) examining the prohibition to teach German language classes in US schools after WWI. She finds similar backlash from the German population as in Carvalho (2013), who finds that bans on veiling Muslim women can increase religiosity. Carvalho and Koyama (2016) show that when education is a means to transfer cultural traits, minorities can form a cultural resistance and under-invest in education. Laitin (1998) discusses the identity crisis of Russian speakers living in the post-Soviet republics and the possible implications.

Second, this paper aims to contribute to the literature on the effects of fake news. Recent research analyses the relationship between misleading information and voting outcomes. Allcott and Gentzkow (2017) study data on consumption of fake news prior to the 2016 US election and discuss the economics of fake news. Barrera et al. (2020) run a randomized experiment studying the effectiveness of fact checking in countervailing misleading information by politicians and find that fact checking increases the knowledge of the voters but does not affect their voting intentions.

This article is structured as follows. Section two introduces the historical background, with a focus on the "Sicilian Legend", section three describes the data we use for our analysis, section four explains the methodology, section five discusses the results and robustness

tests, and section six concludes.

## 2 Historical Background

The historical background of this analysis is set in Northern Italy, in 1939. More precisely, Italy's northernmost province "South Tyrol", which, until the end of WWI belonged to Austria, when it was separated from Northern and Eastern Tyrol. After the annexation to Italy, the aim was to integrate and culturally assimilate the newly acquired provinces. Ettore Tolomei, an official from the province of Trento, was made responsible for organizing and implementing the assimilation strategies, then called "Italianization", in South Tyrol (Alcock, 2001). This policies entailed the use of Italian as exclusive language in the entire Italian territory, in all private and public institutions including schools. Written and spoken German was abolished, and whoever did not speak Italian was dismissed from their post, and Italians filled the posts. Official documents, signs, town names, first and last names were italianized. The only teaching language allowed in schools was Italian, taught by Italian teachers. Nonetheless, the assimilation attempts were of no success: the people of South Tyrol would not accept to give up their language and German cultural heritage. An often mentioned example are the so-called "Catacomb" schools. Even though the risk of being discovered entailed high fines, even a jail sentence, underground schools were organized, where children were taught the German language (Alcock, 2001).

In the light of the situation, and with Benito Mussolini recognizing the economic potential and strategic position of this province connecting Fascist Italy and Nazi Germany, in June 1939 in Berlin, Benito Mussolini and Adolf Hitler signed the "South Tyrol Option Agreement". According to this agreement, the German-speaking population of South Tyrol had to confront a decision: they had time until December 31, 1939 to decide whether they wanted to stay in South Tyrol but agree to fully italianize, or whether to emigrate to the Third Reich (Germany or Austria, mostly) giving up their homeland but following their culture and language.<sup>45</sup> The agreement was designed to facilitate Mussolini's effort to fully italianize South Tyrol, and to advance Hitler's plans to assemble all Germans in one empire. Under relentless propaganda from Fascist and Nazi organizations, who respectively defined "opters" (people who opted to leave) and "stayers" as traitors, more than 80 per cent of the population decided to leave, by the end of 1939 (Eisterer and Steininger, 1989). In the end, however, only around half of the "opters" left, with (initially) no return option. Figure 24 shows the percentage of linguistic groups in South Tyrol over the past century. The population shift around the period of the Option Agreement is clearly observable. After WW II, the emigrated population from South Tyrol, and their children, were allowed to migrate back to Italy and re-acquiring Italian citizenship. Decades of struggle for the recognition of the German culture and language followed. First, though the request to

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<sup>45</sup>The agreement was also valid for other northern provinces, like the province of Trento, which had, though significantly smaller shares of German population.

get re-annexed to Austria. As these attempts failed, the fight continued towards a recognized autonomy within the Italian State. The result of negotiations, in part accompanied by violent acts, was the Gruber-DeGasperi Agreement signed on September 5th, 1956, which assigned the first legal autonomy to the province (followed by the Second Autonomy Statute in 1972, signed by the United Nations) (Alcock, 2001). Austria until today has the right to act as the “minority’s protecting power” in case of violation of the clauses. Despite the troubled path during the 20th century, up to 1972, the economically vulnerable, agriculture-based society, which suffered severe intra-cultural tensions, the province managed to become one of the top 20 NUTS-2 provinces in Europe in terms of GDP per capita by the beginning of the 21st century (Eurostat). Here fore, it is oftentimes mentioned a successful example in the search for solutions to problems in culturally divided communities.

## 2.1 Fake news "Sicilian Legend": July 3, 1939

*"[...] that you will soon have to go to Sicily. Best wishes"*  
(translated from: *Sturzflüge N. 29/30*)

The history of the "South Tyrol Option Agreement" was compiled and elaborated in several books and movies (to cite a few, Eisterer and Steininger, 1989; Alexander et al., 1993; Pallaver and Steurer, 2011; *Verkaufte Heimat Vol. 1 - 4*, 1989). None of them goes without mentioning, rather extensively, an episode of fake news that appeared to be a major driver in the emigration decision.

We rely on the comprehensive book chapter by Klaus Eisterer (1989) " 'Hinaus oder Hinter!' Die sizilianische Legende: eine taktische Meisterleistung der Deutschen", translated " 'Outward or downward!' The Sicilian Legend: a tactical feat of the Germans", as introduction to the "Sicilian Legend".

On July 3, 1939, the evening edition of the "Neue Zürcher Zeitung" ("New Zurich Newspaper", NZZ) shocked the German speaking population of Italy with the headline on the front page "Resettlement of German-speaking South Tyroleans?" (see newspaper article in the appendix, figure 31). Until the day, there were rumors around some resettlement policy between Italy and Germany, and a certain tension was to be felt in the population. The population knew about the "Option Agreement", i.e. the decision they had to take of whether to stay home but abandon their culture or to leave and follow their culture. However, what the population read in the NZZ of July 3, was new to them. The newspaper reported on the front page about the announcement of General Counselor Bene from Milano that the German-speaking population of South Tyrol had to move to Germany, and if they refused to, they would be resettled to Southern Italy - notably Sicily.

The newspaper article did not give much detail on the policy and on the resettlement implications. Nonetheless, according to history books, the news spread like bush fires and

shortly after, most of the population of South Tyrol was convinced the "Sicilian Legend" was true. There were rumors even, that the resettlement would take place in the African colonies.

According to Eisterer (1989), the publication of the "Sicilian Legend" was purposefully carried out in the NZZ, since it was one of the most popular newspapers in the days in South Tyrol and was always carefully distributed within the next day. Today we know that the publication and spread of the "Sicilian Legend" is due to General Counselor Otto Bene, a German diplomat who worked for the Nazi regime and was responsible to organize the implementation of the Option Agreement in South Tyrol. Eisterer (1989) writes that Otto Bene thought of the South Tyrolean population as "too rooted in their land" and feared out of 230,000, only a couple of thousand people would be willing to leave their homeland and move to the Third Reich. Hence, the manipulation efforts. Mussolini claimed for the release a joint official statement by Hitler and him, to clarify that the emigration to Germany would be *voluntary* and the people who decided not to emigrate, would be allowed to *stay* in South Tyrol. However, the Nazi regime feared that an early rectification of the misleading information would lead to low emigration rates, and prolonged the discussions around a joint statement. The population in South Tyrol did not question the "Sicilian Legend" much. By then, the distrust and hatred towards the Fascist regime was deeply anchored, providing fertile ground for a quick spread, and perceived truth, of the fake news. Attempts by Italian officials, like Mastromattei, to emphasize the true implications of the Option Agreement, were ephemeral: mistrusted by the population, and questioned by the newspapers. Once it was clear, that an extremely high percentage of people were voting to leave (as we know, by the end it was far more than 80 percent of the population), the Italian officials realized the severity and urgency of the situation. Many historians claim that, when the rectification attempts became more serious, it was too late: the population had taken their decision.

Only on November 18th, 1939 the newspaper "Dolomiten" printed an official explanation of the policy and its implications and a rectification of the fake news: indeed, South Tyroleans were allowed to stay if they wanted. Nonetheless, according to historians, people did not believe it and sent a delegation to Rome where they wanted the confirmation by Mussolini that the "Sicilian Legend" was not true. However, the meeting never took place, which left the population with a doubt about its untruth. Shortly before, in October 1939, the "Sicilian Legend" lived another upswing: news about the creation of 20,000 farms in Sicily, which was falsely interpreted as the farms for the South Tyroleans in Sicily. Today we know, the "Sicilian Legend" was only a legend. Back in the days, it was hard for people to believe it was not, although no official statement confirmed it.

We use novel household level data around this historical episode of the spread of misleading information to investigate the effects of the latter on the cultural preferences of the affected individuals.

### 3 Data

The data used in this research paper stems from the detailed documentation of the "Option Agreement" procedure, held by the National Archive of the Province of Bolzano. The Archive holds four sets of files related to the Option Agreement: the "option request file" by the Italian authorities, the "personal file" by the German authorities ("ADERSt: Deutsche An- und Rückwanderungsstelle"), the comprehensive property statement of each opter, and the back-option requests from 1948. Whereas each of these files reveals a different important part of the puzzle, for our purpose we rely on the "personal file" by the ADERSt. The documentation within each personal file varies greatly, including personal letters, photos, official correspondence. Nonetheless, there are two standardized documents in each file, which provide detailed socio-demographic and economic information on the opter and their family. We use the information on the children to collapse our data, and hence, get an exhaustive database of all children in the sample, with the information of their respective family.

This data is newly digitized, and is presented more in detail in Lochmann (2020). For this draft, we rely on a 2 percent sample, randomly drawn, stratified by commune and representative for the leaving request filing date (see Lochmann ,2020, for more detail). This data gives have a total of 1867 children in our sample, 51% female and 49% male. Families in the sample of children have between 1 and 10 children, on average families have 2.7 children with a median of 2. 34% of the children in the sample are firstborns in their family, 66% later born.

Looking at the family, more precisely head-of-household characteristics, we find that, on average 41% of the opters in the sample emigrated to Germany (long after the fake news episode), whereas 59% stayed. The average age of the head-of-household in our sample is 46. About 21% of the heads-of-households are female. This is a somewhat mechanical number, since by default the man was considered head-of-household. Women in the sample are, thus, single, widowed or divorced. Indeed, we find that the vast majority of the heads-of-households in our sample are married: 82%; the remainder are widowed, single, or divorced (8%, 8% and 1% respectively). 56% in the sample own personal property, and 53% are farmers. A majority of opters, 93% have previously migrated (anywhere in Italy, Germany, Austria or other countries). Figure 25 shows the distribution of birthdays, on the full sample and in a one-year window around July 3, 1939. From these histograms we see a certain seasonality of births, which could be tied to a seasonality of first names, too. Hence, in our regression specifications we control for the distance to cutoff, as well as introduce month-of-the-year fixed effects to capture seasonality.

The creation of the indicator for cultural preferences follows in the next section, and with it the description of the data.

### 3.1 Nibelungen Index

Cultural identity is tricky to capture, yet has been shown to influence preferences and behavior significantly (see e.g. Akerlof and Kranton, 2000; Hoff and Pandey, 2006; Benjamin, Choi and Strickland, 2010; Benjamin, Choi and Fisher, 2016; Bisin et al., 2016; Fouka, 2020). In this analysis we follow Lochmann (2020), and rely on the sociology literature on the role of children first names as indicator for parents' cultural preferences (see, e.g. Fryer Jr et al., 2004; Rubinstein et al., 2013; Biavaschi et al., 2017). More precisely, we create the so-called "Nibelungen index", where we follow the proposition that individuals who are most culturally connected to Germany, give their children Germanic first names. This anecdotal evidence that Germanic first names - in particular in the early 20th Century - were a strong reflection of attachment to the German race, is supported by scientific evidence by Jesus Casquete in 2016, in his article in the *European Journal of Cultural and Political Sociology*, about "The importance of being Horst" which discusses the encouragement of Nazis to give Germanic first names to newborn children, boys in particular. We follow Lochmann (2020) and use a list of Wikipedia listing all German first names with Germanic roots and use an algorithm to determine the proximity of the names of the first-born children in our sample to the Germanic names.<sup>46</sup> Finally, we create a discrete index from this continuous variable. Since many German-Germanic names are best-known from Richard Wagner's operas, as in Lochmann (2020) we choose the name "Nibelungen index".

An example of how this procedure works is explained based on in the following table. Suppose we have four different first names: Josef, Michael, Berta and Siglinde. According to the Stata "relink" algorithm, the first name "Josef" has a zero percent correspondence to any Germanic name in our list, so the index will be zero, on a possible range between zero and one.<sup>47</sup> The first name "Michael" has a similarity index equal to 0.5231, the similarity could stem from the Germanic first name "Emich". The first name "Berta" has a similarity index of 0.9917, which could stem from the high similarity to the Germanic first name "Bertha". Finally "Siglinde" has a similarity index of 1, since "Siglinde" is a Germanic first name. From this continuous variable, we create a discrete index from four quartiles of our data. Josef's "Nibelungen Index" will be equal to 1, Michael's "Nibelungen Index" will be equal to 2 and Berta and Siglinde's "Nibelungen Index" will be equal to 4. Table 59 in the appendix summarizes this example.

The average "Nibelungen Index" is 2.64 with a standard deviation of 1.32. In each of the following regression specifications we report the average "Nibelungen Index" for the respective specification.

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<sup>46</sup>This list stems from Wikipedia.

<sup>47</sup>The "relink" algorithm is, in short, an algorithm which allows for a fuzzy merge. It uses record linkage methods and matches observations between two datasets where no perfect key fields exists.



## 4 Methodology

The methodology we use in this study is based on an event history study, following Boes and Stillman (2017), and Clark et al. (2017), while also relying on fundamental Regression Discontinuity Design (RDD) literature (e.g., Lee and Lemieux 2010). When carrying out this event history study, we follow three approaches. The first approach is a non-parametric approach, with time before and after the threshold flexibly estimated through a local linear smoother. The second approach, which will be our main approach for diverse heterogeneity-of-effects and robustness specifications, is a parametric approach with the distance-in-time functions specified as polynomial functions. Using the same approach, we carry out an additional specification where we rely on a step-wise function, allowing the effect to vary for different intervals after the cutoff day (0-3 months, 3-6 months, and so on). Third, and final approach, we run a specification adding a full set of household fixed-effects, to capture within-household variation in naming patterns. Details on the implementation of the respective approaches are explained in the results section.

Equation 11 formally expresses the model we estimate.

$$Y_i = \beta_0 + \beta_1 T_i + \beta_2 f(D_i) T_i + \beta_3 f(D_i) (1 - T_i) + \beta_4 X_i + \varepsilon_i \quad (11)$$

$Y_i$  is the outcome variable, in our case the Nibelungen Index of newborns' first names. It is observed either before or after the announcement day (i.e.  $Y_0$  or  $Y_1$ ), never twice for the same individual. Our treatment dummy  $T_i$  is equal to 0 for birthdays before the day of the fake news announcement, and 1 for birthdays after.  $X_i$  is a vector of control variables of the head of household (more precisely: age, gender, family status, property status, farmer dummy, job satisfaction, previous migration and gender of the child). In some specifications we add town fixed effects. Furthermore, in all specifications, we include month-of-the-year fixed effects, and year-before fixed effects, to control for seasonality of children's first names.  $f(D_i)$  is a polynomial function of the distance in days from the fake news announcement date interacted with the treatment variable  $T_i$ , to allow for a different functional form on either side of the cutoff. We stop at the second order polynomial, following the suggestions of Gelman and Imbens (2019) about the flaws of controlling for higher-order polynomials.

### 4.1 Validity of the methodology

First, we must exclude that the cutoff date coincides with any other major event, which, to the best of our knowledge, we can. Second, in order for any RD design to be a valid empirical strategy, we must exclude the possible manipulation around the threshold. In our case, like in most studies that rely on a discontinuity in time, this is highly unlikely. First of all, the individuals did not know about the fake news, so they could not anticipate its announcement. Second, even if they could, it's very difficult to artificially delay or

anticipate a birth. It is even more unlikely that the newspaper chose the date of announcement according to specific birth dates.

Nonetheless, we carry out and plot the McCrary density test, and show it in figure 12. The vertical axis shows the McCrary density of the running variable (birthday) by the days before or after July 3, 1939. The corresponding McCrary density test validates our empirical strategy, as it shows that there is no statistical evidence of systematic manipulation of the running variable (the p-value is 0.6249).

Finally, we follow the literature on RD design and carry out a test of balance of pre-treatment characteristics, in order to further check whether there is sorting around the threshold. We regress each of the covariates (gender, age, property status, family status, job satisfaction, farmer dummy, and previous migration) on a dummy variable equal to 1 if the birthday is after announcement days, and 0 before, including polynomials of the forcing variable (centered around the threshold) to the second degree. Ideally, we expect no significant coefficients, which would confirm random sorting around the threshold. In table 49 see that only two variables are weakly significant in this exercise: whether the head-of-household is female, and whether the head-of-household is a farmer. We include both variables in the set of control variables used for all our specifications.

## 5 Main results

*First approach: non-parametric approach with local linear smoother*

The first approach that we present, is the non-parametric approach. Here fore we apply a local linear smoother on a running average of the Nibelungen Index over 60 days, each bin containing about 20 observations. Figures 27 to 30 show the results from the non-parametric estimates, each for a different bandwidth from smallest to largest. The first bandwidth, 365 days, was arbitrarily chosen, whereas the bandwidths 868 days, 1743 days and 3558 correspond to the bandwidth suggested by three different bandwidth estimators: the one proposed by Calonico, Cattaneo, and Titiunik (2014) (CCT), the one proposed by Imbens and Kalyanaraman (2012) (IK), and the cross-validation method proposed by Ludwig and Miller (2007) (CV), respectively.

We examine the Nibelungen Index  $bandwidth$ -days after and  $bandwidth$ -days prior to the announcement date of the fake news (365 days in figure 27, 868 in 28, etc.). The estimates are residuals from a regression of the Nibelungen Index on a full set of control variables as well as town fixed effects, and, to consider potential seasonality in births and names, we use data of the year prior to the fake news, and add month-of-the-year fixed effects. The dots in each graph are 60-days-bins and contain on average, 20 births. The line in each graph shows the predicted values of a local linear smoother. The dashed vertical line shows July 3, 1939: the day of announcement of the "Sicilian Legend". The graphs show an observable discontinuity around the cutoff day, for each bandwidth: after the fake news announcement, there appears to be a change in the naming patterns of new born children,

towards more Germanic first names.

*Second approach: parametric approach, with distance from cutoff as polynomial functions*

We now look at the results from the implementation of our second approach, following equation 11. For this approach, we examine data at the daily level (daily births), *bandwidth*-days after and *bandwidth*-days prior to the announcement date of the fake news. Here, too, we rely on four different bandwidths, the 365-days-bandwidth, the CCT bandwidth, the IK bandwidth and the CV bandwidth. We regress the variable Nibelungen Index on a treatment variable (0/1 before and after the announcement date), the distance in days from the cutoff, and the distance in days from the cutoff multiplied by the treatment variable. Furthermore, we add a variable equal to one for all days between 3558 (the largest bandwidth) and the actual bandwidth, and zero otherwise, as well as a set of month-of-the-year fixed effects, in all specifications, in order to account for potential seasonality. We then add specifications, where we add the second order polynomial of the distance in days, and distance\*treatment variable, and other specifications adding a set of control variables as well as town fixed effects.

More precisely, in table 51, we have 24 different columns: 6 columns for each bandwidth, from smallest to largest bandwidth. For each bandwidth, the six columns are organized as follows. Column 1: linear specification, without control variables, without town fixed effects. Column 2: linear specification, with control variables, without town fixed effects. Column 3: linear specification, with control variables, with town fixed effects. Column 4: quadratic specification, without control variables, without town fixed effects. Column 5: quadratic specification, with control variables, without town fixed effects. Column 6: quadratic specification, with control variables, with town fixed effects. All regressions are run with robust standard errors. The mean Nibelungen Index of the *bandwidth*-days before the announcement day are reported for every specification.

The results from table 51 mostly confirm what we see in figures 27 to 30: there appears to be a change towards more Germanic names after the announcement of the fake news. The coefficients of the treatment variable, in the tables called "after", are positive, and significant across most quadratic specifications. The size of the effect, when significant, ranges between 0.352 and 0.543 which is about one third to half of one standard deviation of the Nibelungen Index for the respective specification.

Using the same approach, we divide the post-treatment time in intervals: 0-90 days, 90 - 180 days, 180 days - 365 days, and so on. Table 52 reports the estimates, again for the four bandwidths, this time with four columns each: linear - without controls and town FE, linear - with controls and town fixed effects; quadratic - without controls and town FE, quadratic - with controls and town FE. We see that, although the coefficients are positive throughout the first year, they are significant only for the period of three to six months after the fake news. In other words, this result suggests that the fake news most strongly affected the preferences of households who were in the 3rd to 6th month of preg-

nancy when they were first exposed to the fake news. In terms of deciding the name of a new-born, this makes sense. The risk of losing the baby is highest in the first three months of conception, hence many women wait with making the pregnancy official until then. After the 6th month of pregnancy, the discussion about a newborn's first name has probably already taken place extensively. So finding the strongest effect for the names of newborn babies of households between the 3rd and 6th month of pregnancy at the time of fake news exposure, is in line with the steps associated to the natural cycle of pregnancy.

*Third approach: household fixed-effects approach*

Finally, in our third approach, we run a specification which regresses the Nibelungen Index on the "after" variable and the full set of household fixed-effects, on the full sample. This way we capture the variation *within* households. In table 50 we present the estimates, and find a significantly positive change of the naming patterns towards more Germanic names after the announcement of the "Sicilian Legend", even within households.

In the following sections, when looking at potential channels at work, potential heterogeneity of effects, and when carrying out additional robustness tests, we rely on our second approach - the parametric approach - as main approach. We will, in each table, present 16 columns, showing the estimates for the four different bandwidths, with four specifications for each bandwidth (linear - without controls and town FE, linear - with controls and town fixed effects; quadratic - without controls and town FE, quadratic - with controls and town FE). All regressions are run with robust standard errors.

## 5.1 Channels: Change in preferences or change in incentives?

From our results we see that after the announcement of the fake news, parents gave their newborn children, on average, more Germanic names. However, we do not know what precisely this change in naming patterns reflects. It might, on one hand, reflect a change in parents' preferences, but might as well be a strategy envisioning future emigration. A more Germanic first name could potentially help the economic and social integration in Germany, when emigration is anticipated. We discuss, hence, several hypotheses of potential channels at play.

One hypothesis for the change in naming patterns is related to cultural preferences: the announcement of the fake news affected cultural preferences of the parents directly. The two potential channels related to this hypothesis are a *change in cultural identity* and an *activation of cultural identity*. A *change* in cultural identity implies that new identity traits were formed as a result of the exposure to the fake news. An *activation* implies the manifestation of already existing identity traits that were not manifested before.

The second hypothesis is tied to economic incentives, as mentioned earlier, when emigration to Germany is envisioned, giving the newborn a more Germanic first name could help them

integrate economically and socially in the German society.

In order to disentangle these three potential channels, we rely on the framework proposed by Algan et al. (2013), who introduce a simple random utility model of how parents choose the names of their baby. We follow Algan et al. (2013) and rely on a discrete choice model for this part of our analysis. From the results in the robustness checks section we see, that the main results don't differ if we rely on a binary version of the Nibelungen Index. We define the utility of a household  $i$ , living in neighborhood  $k$  from a given child first name at date  $t$  as

$$U_{ik,t}(childname) \equiv V_{ik,t}(childname) + \varepsilon_{ik,t}(childname) \quad (12)$$

where  $childname \in 0, 1$  reflects the Nibelungen Index, hence the Germanic-ness of a first name. In this specification, it is either zero (i.e. first name is not Germanic) or one (i.e. first name is Germanic).  $V_{ik,t}$  is the observed part of the utility and  $\varepsilon_{ik,t}$  is the unobserved part. Following equation 2,  $childname_{ik,t} = 1$  if and only if  $\Delta U_{ik,t} \equiv U_{ik,t}(1) - U_{ik,t}(0) \geq 0$ . We denote the difference in the observed part as  $\Delta V_{ik,t} \equiv V_{ik,t}(1) - V_{ik,t}(0)$  and the difference in the unobserved part  $\varepsilon_{ik,t} \equiv \varepsilon_{ik,t}(1) - \varepsilon_{ik,t}(0)$ , and

$$\begin{aligned} \Delta U_{ik,t}(childname) &= \Delta V_{ik,t} + \varepsilon_{ik,t} \\ &= \alpha_0 + \alpha_1 parents_i + \alpha_2 E\left[\frac{1}{N_{k,t}} \sum_{j \in k, j \neq i} childname_{jk,t}\right] + \alpha_3 E[C_{ik}] + \varepsilon_{ik,t} \quad (13) \\ &= \alpha_0 + \alpha_1 VerticalChannel + \alpha_2 HorizontalChannel + \alpha_3 EconomicCost + \varepsilon \end{aligned}$$

Following Algan et al. (2013) we specify the three channels which influence the naming decision.

The first channel '*Vertical Channel*' refers to the first name of the parents. In our particular case, we look at the Germanic-ness of the first name of the head of household. If we observe a change in the importance of this channel before and after the announcement of the fake news, this hints towards *changed cultural preferences* of the parents. More specifically, if this channel strengthens the existing cultural preferences, we expect the Germanic-ness of the first name of the head of household to be *less* important after the announcement of the fake news than before. If it rather weakens the existing cultural preferences, we expect the Germanic-ness of the first name of the head of household to be *more* important after the announcement of the fake news than before. We proxy this variable with the Germanic-ness of the first name of the head of household (constructed the same way as the "Nibelungen Index" for children's first names, following Lochmann, 2020).

The second channel '*Horizontal Channel*' looks at the first names of children born in the

same period of time and the same community and reflects, hence, the social influence. If we observe a change in the importance of this channel before and after the announcement of the fake news, this points towards *activated cultural preferences* of the parents. More specifically, if this channel is at work, we expect the social influence to be *more* important after the announcement of the fake news than before. We proxy this variable with the Germanic-ness of the first names of the children born in the same period of time in the same community (following Algan et al., 2013).

Finally, the third channel, the '*Economic Cost*' of choosing a child's first name, reflects the economic incentives. In our case, this reflects the head of household's willingness-to-leave to Germany. However, the emigration decision is highly endogenous, hence the indicator whether the head-of-household decided to leave or not, is not an ideal proxy for the economic cost in the first-name choice. We, hence, proxy the economic cost with the "Economic Ties to Germany" variables discussed in Lochmann (2020), and construct the '*Economic Cost*' proxy as follows: we sum of all property owned by the opter with the property present in their surroundings and the opters' family's property. We find that a combination of these three indicators forms a major migration cost, hence significantly impacts the emigration decision (see Lochmann, 2020). If we observe a change in the importance of this channel before and after the announcement of the fake news, this hints towards *change in incentives* of the parents, who anticipate the emigration decision.

Table 53 shows the results to these estimates, relying on our main estimation approach. Again, we present 16 columns, showing the estimates for the four different bandwidths, with four specifications for each bandwidth (linear - without controls and town FE, linear - with controls and town fixed effects; quadratic - without controls and town FE, quadratic - with controls and town FE). The results in table 53 show that, by far, the most relevant channel in terms of size and significance is the '*Vertical Channel*'. We find that the '*Vertical Channel*' has a strong positive impact by default: parents with more Germanic names tend to give their children Germanic first names. Interacting the three channel variables with the treatment dummy, we find a significant *negative* effect this time for the '*Vertical Channel*'. Even parents with weaker inherited cultural preferences (i.e. less Germanic first names) give their newborn children Germanic names. Furthermore, we find some specifications to show a significance of the average community naming patterns as well, both positive before and after the announcement of the fake news, but to a much lesser magnitude. In sum, our results hints towards a *change in cultural preferences*, more specifically a strengthening, rather than an *activation of cultural preferences* or a *change in incentives* due to the expected emigration decision.

In the coming section, when looking into possible heterogeneity of effects, we also look at heterogeneity of effects for the channels and find surprising effects as to why we might not find an overall effect of the incentives and community naming channel.

## 5.2 Heterogeneity of effects

In this section, we aim at investigating whether male and female children, and firstborn and not firstborn children assume different roles in a family nucleus, hence might be subject to differential treatments even in naming patterns. After finding a significant effect of exposure to fake news on the behavior of the exposed individuals, this section explores possible repercussions related to *externalities* to others, in this case, children.

First, we look at heterogeneity of effects for male and female newborn children. Along the vast literature in sociology and economics that looks at gendered heterogeneity of effects, we rely on Alesina et al. (2011, 2013), who connect gender roles to agriculture. More precisely, they look into the case of the plow, and find that societies who, historically, introduced the plow to agriculture show more unequal gender norms today. This stems from the higher physical strength of men, who specialized in field work with the plow, whereas women and children centered their work within the domestic sphere, in the house. Since in the early 20th century, the population we look at in our event study was highly agricultural, we assume different roles in the family for girls and boys. Furthermore, we know that the usage of Germanic first names for children as a sign of belonging to the cultural race was particularly pronounced for boys (see Casquete, 2016), which leads us to believe that there could be differential naming patterns for girls vs boys, even beyond their roles in the agricultural nucleus.

Tables 54 and 55 look at heterogeneity of effects for male vs female newborn children, with and without considering the channels, respectively. Table 54 shows clear heterogeneity of effects between the first names of newborn male and female children: the effect seems to be entirely driven by male children. We find robust significant positive coefficients for male children across specifications, with the effect as large as one standard deviation (1.217). The picture becomes more interesting and insightful when comparing the channels for both genders, table 55. For male children, we find that, by default, the vertical and horizontal channel are significant for the name choice. When interacting the channels with our treatment variable, we find a significant effect of the treatment on the horizontal channel and the incentives channel - not the vertical channel. After the announcement of the fake news, a higher 'Economic cost' of emigrating resulted in a *higher* Germanic-ness first names for boys. Furthermore, after the announcement date, even in communities with a lower average Nibelungen Index, families tend to give their boys more Germanic first names.

Interestingly, the picture looks quite different when looking at female newborn children. First, where, like for boys, the vertical channel is a strong predictor of the Germanic-ness of the first name by default, opposite to the boys, for girls this channel sees a strong change after the announcement date: even families where the head-of-household has a less Germanic first name, give their newborn girls more Germanic first names.

Furthermore, when looking at the 'horizontal channel' and the 'economic cost' channel, we

find inverted effects for girls with respect to boys. After treatment, the a higher 'economic cost' resulted in a *less* Germanic first name for girls, and the Nibelungen Index of newborn girls increases with the average Nibelungen Index in communities.

Our interpretation of these results is mostly in line with the literature on the gendered roles in agricultural societies, as well as the relevance of a Germanic first name for boys. We find that a higher economic cost results in a more Germanic first name for boys, whereas a higher economic cost results in a less Germanic first name for girls. From Borjas (1987) framework and Lochmann (2020), we know that the higher the migration cost, the lower the emigration probability. Choosing a more Germanic first name for newborn boys can be seen as a counter balancing force for a high migration cost. Since a high emigration cost lowers the emigration probability of the nucleus, one option was for the head-of-household to stay in the homeland and take care of the property, while sending the son abroad. And for him to succeed, a more Germanic name is helpful. For girls, the picture might be different: she is more likely to remain at home in the nucleus. For her to find a husband at home, in Italy, a highly Germanic name might not be helpful. The results we find for the "social networks" channel - our 'horizontal channel' - is in line with this interpretation: while for girls it is more important to "fit in" the current society, for boys it is important to "fit in" the destination country's society.

The results from the gendered heterogeneity of effects is striking, in that it highlights the different roles of boys and girls in the nucleus. The opposite 'economic cost', and 'horizontal channel' effects for boys and girls explains why we do not find overall effects: they average out.

Second, we look into possible heterogeneity of effects by birth order: first born vs later born children. In agricultural societies, especially in the Alps region, there was, and still is nowadays a particular role attributed to first born children in the family nucleus. As an example, we discuss the "closed farm" law that still exists in South Tyrol. According to this law, the farms are called "closed", because all the surface structures form an indivisible unity. Therefore, the farm properties cannot be individually inherited or sold or split. It is even impossible to modify the structure: building a new house means tearing down an old one. Nowadays the law is less restrictive as to who is the heir of the structure, but a century ago the entire "closed farm" was inherited by the first male child only. The current legal frame is defined by the "Höfegesetz", LG N. 17 of November 28, 2001.

Tables 56 and 57 show the specifications for first born vs not first born children. From both tables we find the effect to be entirely driven by first born children, with large effects, up to 2.241, almost twice the standard deviation. We find that, by default, the 'vertical channel' to be significant for the determination of the Germanic-ness of the first name, not the others. But once interacted with the treatment variable, we find a significant effect of the 'economic cost' channel: a higher 'Economic cost' of emigrating resulted in *less* Germanic first names for first born children. The interpretation here is in line with the



"closed" farm law: firstborn children are more likely not to emigrate in the future, but stay at home because they will be the legal heirs of the property. Ideally, we would run a specification looking at firstborn boys of farmers, but our data sample is not large enough to have sufficient power for this specification.

### 5.3 Persistence of the effect

After discussing whether the fake news have triggered an immediate behavioral response in the main results and channels section, and how this response translates into externalities for children in the heterogeneity of effects section, we now ask if there is *persistence* in the effect we find. We want to see whether we observe a change in naming patterns around the date, when the fake news was for the first time officially rectified. Only on November 18th, 1939 the newspaper "Dolomiten" printed an official explanation of the policy and its implications and a rectification of the fake news: indeed, South Tyroleans were allowed to stay if they wanted. In table 58 we find no significant effect in any of our specifications, suggesting no significant change in naming patterns caused by the rectification of the fake news. This is, first of all, in line with the historic literature, recalling what we saw in section 2, where we cite historians who believe that the rectification was not taken seriously. Second, this provides evidence for the repercussion of fake news related to the *permanence* of the information set, hence persistence of the information bias.

### 5.4 Robustness Tests

In this section we carry out several robustness tests. First, we re-define our "Nibelungen Index", by generating a binary variable where we define as one only the children whose first name is an exact match with a Germanic name, and as zero children with a zero match, to make sure our results aren't distorted by the calibration of the matching index. Appendix table 60 shows that the results of our main specification remain robust, although the effect is of a slightly lower magnitude. This could also be due to the smaller sample, using only 1s and 0s for the Nibelungen Index.

Next, we try to find a proxy for exposure to newspapers. To proxy the exposure, we collect data on the meters above sea level of each village, following the hypothesis that more remote communities had a more difficult access to newspapers in general. Since the region is very mountainous, there is a high variation in altitude: the minimum altitude is 270m, and the maximum is 1645m. The average is 907m, and the standard deviation 338m. We use the meters above sea level of the village of residence, and interact it with our treatment variable as well. The results to this specification are presented in appendix table 61 and show that the results are robust, even the magnitude is the same as in our main specification in table 51.

Furthermore, we are concerned that our effects in the channels section might be driven by an "upper bound" of Germanic-ness of the head-of-household's first name, and that the

effect we find is mechanical. To control for a possible bias arising through this issue, we run our main channels specification reducing the sample to heads-of-households who do not have a fully Germanic name (Nibelungen Index = 1), the results represented in appendix table 62. We find the results to be robust and in line with table 53.

Our final specification is not necessarily a robustness test for our results, as much rather a look at a possible change in fertility behavior due to the announcement of the fake news on July 3rd, 1939. We use, hence, the same approach as for our main specifications, and use as outcome variable the number of children per family nine months after July 3rd. In appendix table 63 we find a negative coefficient across specifications, yet no consistent significance. This points towards a possible decrease in fertility, which is not robustly statistically significant. This could reflect the uncertainty of the situation, which leads to a decrease in the desired number of 'mouths to feed', and a precaution to provide children an uncertain future.

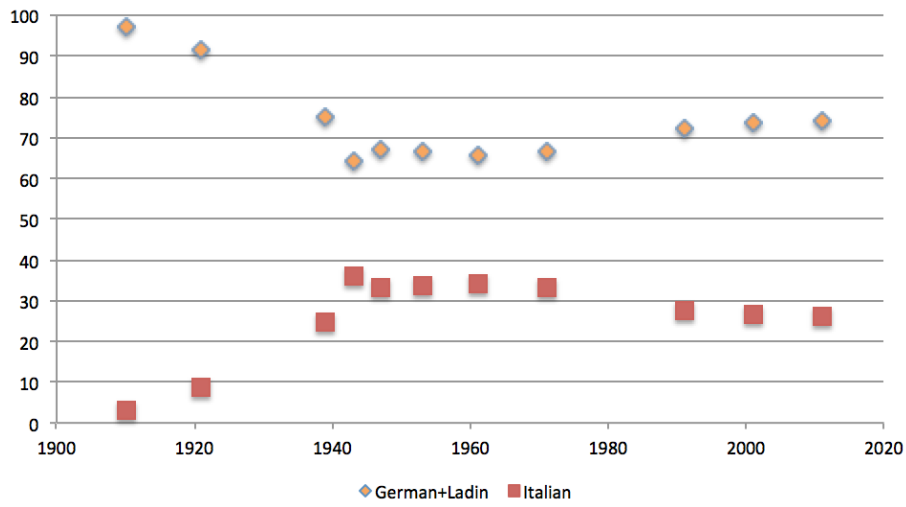
## 6 Conclusion

Does misleading information affect cultural preferences? Using an event history study coupled with a regression discontinuity design, we study whether parents changed the naming patterns of their newborn children following a historical episode of fake news. In 1939, the "South Tyrol Option Agreement" between Mussolini and Hitler posed all German-speaking heads of households in Northern Italy to decide whether to stay in their homeland and or to emigrate to Germany. Remaining implied the inevitable Italianization, whereas emigration allowed the local population to preserve their cultural identity. During the period of decision making of the household, a widespread fake news named the "Sicilian Legend" was spread through the media. According to this legend, individuals who did not want to emigrate to Germany would be deported to the southernmost regions of Italy, leaving behind family, possessions and to a great extent having to give up their cultural identity. We use newly digitized household-level data to carry out an extensive event history study around the announcement date of the fake news, relying on three methodological approaches. Constructing a proxy for cultural preferences, we call "Nibelungen Index", we show that this fake news lead people to strengthen their cultural identity and specifically to name their offspring in a more German way. We find that women who were pregnant between the 3rd and 6th month at the time of fake news announcement were particularly prone to change the newborn's first name, and carry out a heterogeneity of effects analysis for gender and birth order of the newborns. Analyzing different channels for the change in naming patterns, we find an overall change in cultural preferences to be more pronounced than a change in economic incentives. We find interesting results for different channels by gender and birth order, which reflect the decision making strategies of the family nucleus. The results are in line with historic literature, as well as economic literature on the role of children in the family nucleus of agricultural societies. Finally, we carry out a set of

robustness tests.

The results found in this research paper aim at shedding light on the negative repercussions from exposure to misleading information, in particular, the *permanent* carving of our information set, an immediate *behavioral response*, and *negative externalities* to others. We find evidence for all three repercussions, which in the context of cultural identity emphasize how deeply rooted the consequences of misleading information can become.

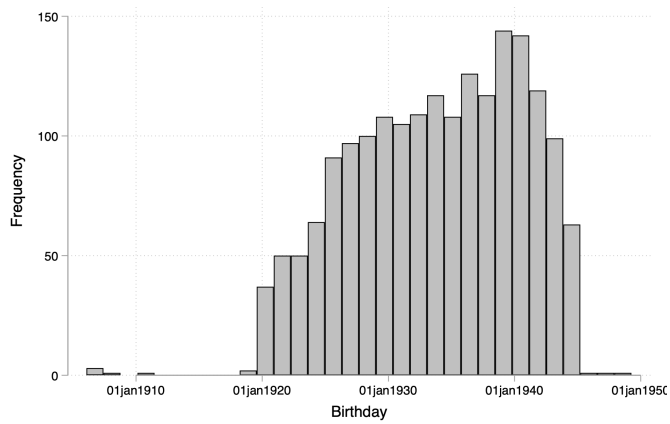
Figure 24: Percentage of linguistic groups in South Tyrol 1910-2011.



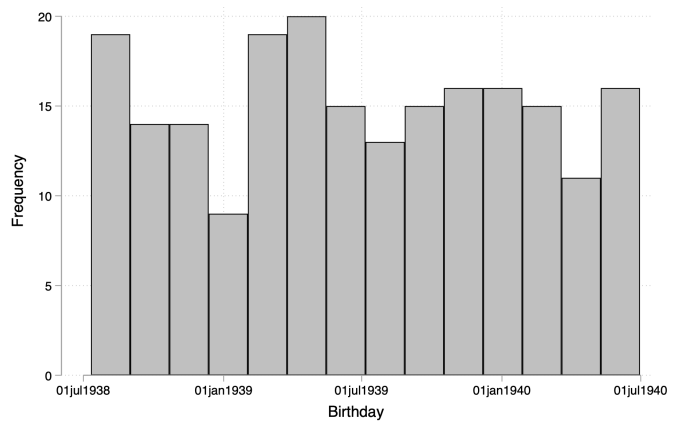
Data source: ASTAT - Institute for Statistics of the Province of Bolzano.

Figure 25: Distribution of the children's birthdays.

(a) Full sample

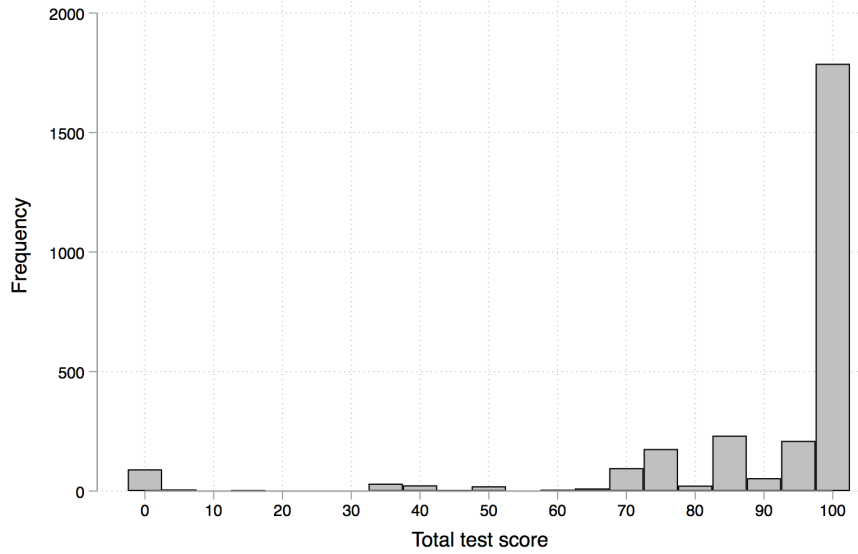


(b) 1-year window around July 3, 1939



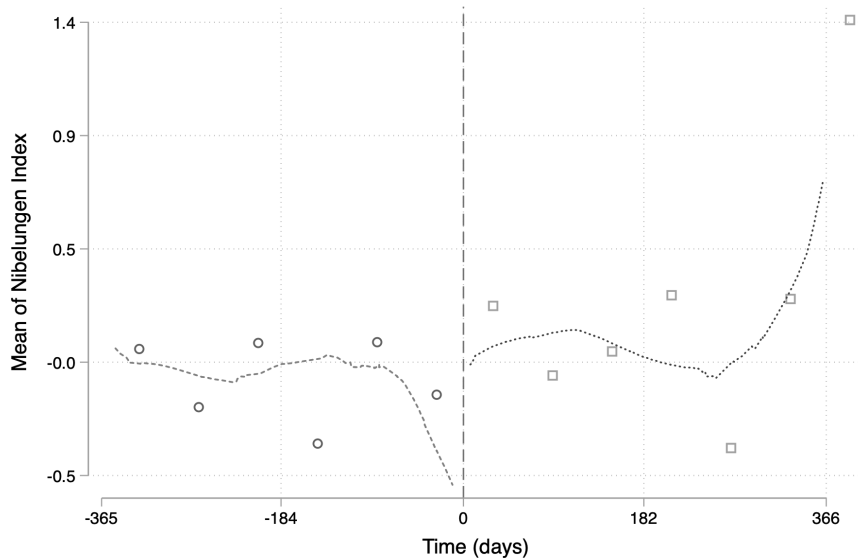
Data source: National Archive of the Province of Bolzano

Figure 26: McCrary Test. July 3, 1939.



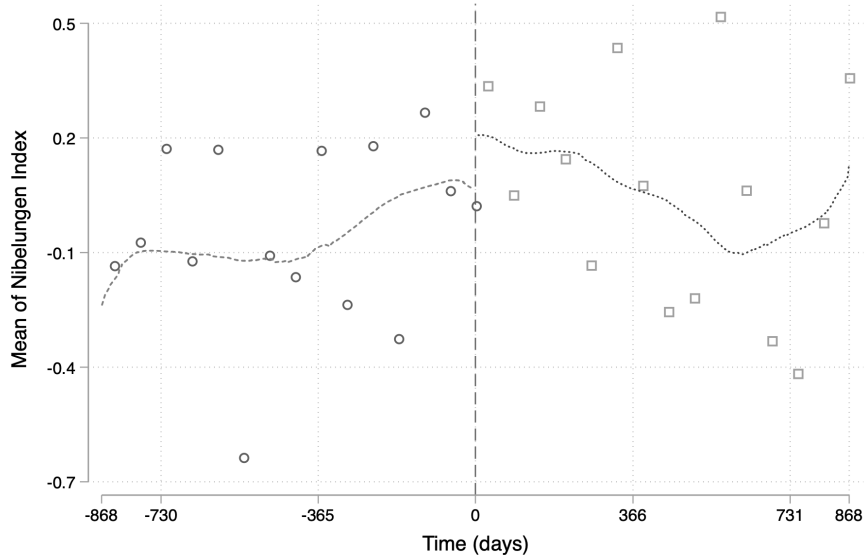
The vertical axis shows the McCrary density of the running variable (birthday) by the days before or after July 3, 1939. The corresponding McCrary density test validates our empirical strategy, as it shows that there is no statistical evidence of systematic manipulation of the running variable (the p-value is 0.6249).

Figure 27: Event history analysis for the exposure to fake news, 365 days



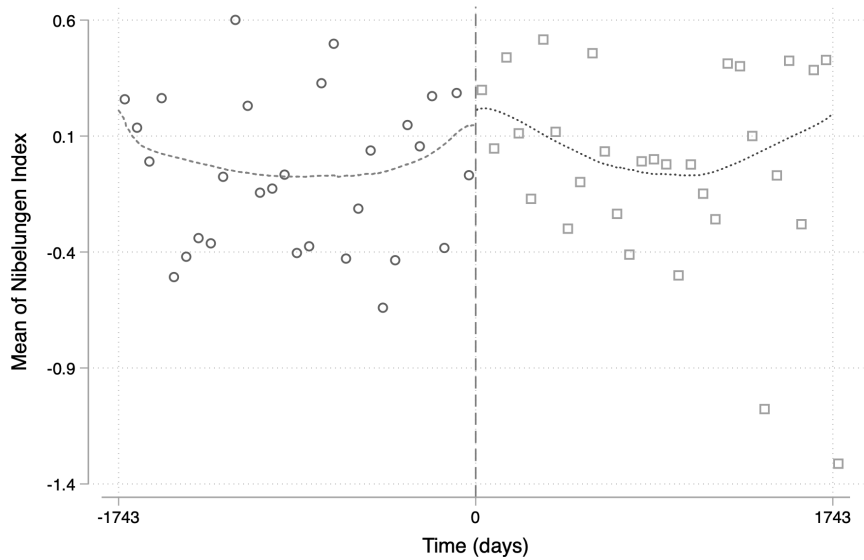
The estimates are residuals from a regression of the Nibelungen Index on a full set of control variables (gender, age, property status, family status, job satisfaction, farmer dummy, previous migration) as well as town fixed effects, and month-of-the-year fixed effects. The dots in each graph are 60-days-bins and contain on average, 20 births. The line in each graph shows the predicted values of a local linear smoother. The dashed vertical line shows July 3, 1939: the day of announcement of the "Sicilian Legend".

Figure 28: Event history analysis for the exposure to fake news, 868 days



The estimates are residuals from a regression of the Nibelungen Index on a full set of control variables (gender, age, property status, family status, job satisfaction, farmer dummy, previous migration) as well as town fixed effects, and month-of-the-year fixed effects. The dots in each graph are 60-days-bins and contain on average, 20 births. The line in each graph shows the predicted values of a local linear smoother. The dashed vertical line shows July 3, 1939: the day of announcement of the "Sicilian Legend".

Figure 29: Event history analysis for the exposure to fake news, 1743 days



The estimates are residuals from a regression of the Nibelungen Index on a full set of control variables (gender, age, property status, family status, job satisfaction, farmer dummy, previous migration) as well as town fixed effects, and month-of-the-year fixed effects. The dots in each graph are 60-days-bins and contain on average, 20 births. The line in each graph shows the predicted values of a local linear smoother. The dashed vertical line shows July 3, 1939: the day of announcement of the "Sicilian Legend".

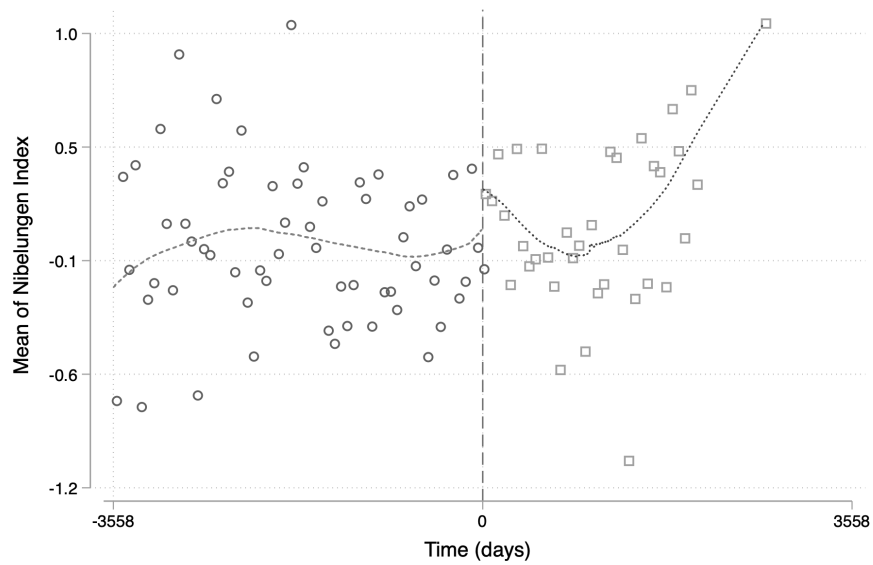
Table 49: Test of balance of pre-treatment characteristics

	Female	Age	Personal property	Family status	Curr. job = learnt job	Farmer	Previously migrated
After	0.078* [0.041]	0.059 [0.069]	-6.313 [4.031]	0.050 [0.052]	-0.010 [0.046]	0.105* [0.064]	-0.015 [0.036]
Observations	1,856	1,828	1,856	1,856	1,848	1,849	1,856
R-squared	0.047	0.003	0.007	0.049	0.004	0.006	0.007

Robust standard errors in brackets  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We regress each of the covariates on a dummy variable equal to 1 if the birthday is after announcement days, and 0 before, including polynomials of the forcing variable (centered around the cutoff) to the second degree.

Figure 30: Event history analysis for the exposure to fake news, 3558 days



The estimates are residuals from a regression of the Nibelungen Index on a full set of control variables (gender, age, property status, family status, job satisfaction, farmer dummy, previous migration) as well as town fixed effects, and month-of-the-year fixed effects. The dots in each graph are 60-days-bins and contain on average, 20 births. The line in each graph shows the predicted values of a local linear smoother. The dashed vertical line shows July 3, 1939: the day of announcement of the "Sicilian Legend".

Table 50: Fake news and Nibelungen Index: Household fixed-effects

Nibelungen Index	
<i>Full sample</i>	
After	0.205* [0.115]
<i>Observations</i>	1,867
<i>R-squared</i>	0.396
<i>Avg. Nibelungen Index</i>	2.61
<i>Female children</i>	
After	-0.036 [0.208]
<i>Observations</i>	836
<i>R-squared</i>	0.503
<i>Avg. Nibelungen Index</i>	2.65
<i>Male children</i>	
After	0.491** [0.218]
<i>Observations</i>	814
<i>R-squared</i>	0.501
<i>Avg. Nibelungen Index</i>	2.49

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We regress the Nibelungen Index a full set of household fixed-effects. There are a total of 634 households in the sample.



Table 51: Fake news and Nibelungen Index: main specifications

	Nibelungen Index Bandwidth 365 days						Nibelungen Index Bandwidth 868 days (CCT BW estimate)						Nibelungen Index Bandwidth 1743 days (IK BW estimate)						Nibelungen Index Bandwidth 3558 days (CV BW estimate)					
	Linear			Quadratic			Linear			Quadratic			Linear			Quadratic			Linear			Quadratic		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
After	0.123 [0.287]	0.188 [0.314]	0.170 [0.319]	0.257 [0.417]	0.449 [0.450]	0.508 [0.492]	0.215 [0.191]	0.363* [0.207]	0.352* [0.207]	0.525* [0.290]	0.600* [0.317]	0.543* [0.319]	-0.009 [0.154]	0.076 [0.164]	0.068 [0.165]	0.355 [0.231]	0.437* [0.239]	0.425* [0.240]	-0.038 [0.143]	0.053 [0.151]	0.051 [0.151]	0.447* [0.202]	0.502* [0.217]	0.478* [0.218]
Dist. days to cutoff	-0.000 [0.000]	-0.000 [0.000]	-0.000 [0.000]	-0.001** [0.000]	-0.001** [0.000]	-0.001** [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	-0.000 [0.000]	-0.000 [0.000]	-0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
Dist. *After	-0.000 [0.001]	0.000 [0.001]	0.000 [0.001]	0.001 [0.005]	0.001 [0.005]	-0.003 [0.006]	-0.000 [0.000]	-0.001 [0.000]	-0.001 [0.000]	-0.001 [0.000]	-0.001 [0.000]	-0.001 [0.000]	-0.001 [0.000]	-0.001 [0.000]	-0.001 [0.000]	-0.001 [0.000]	-0.001 [0.000]	-0.001 [0.000]	-0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	-0.001* [0.000]	-0.001* [0.000]	-0.001* [0.000]
(Dist. days to cutoff) ^2				-0.000** [0.000]	-0.000** [0.000]	-0.000** [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
(Dist*After)^2				0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
Female		-0.332 [0.303]	-0.399 [0.297]	0.000 [0.417]	-0.306 [0.450]	-0.372 [0.291]	0.000 [0.291]	-0.188 [0.273]	-0.247 [0.268]	-0.192 [0.274]	-0.192 [0.268]	-0.111 [0.267]	0.000 [0.000]	0.000 [0.000]	-0.191 [0.231]	-0.169 [0.231]	-0.169 [0.231]	-0.205 [0.230]	-0.049 [0.228]	-0.079 [0.227]	-0.079 [0.227]	-0.079 [0.228]	-0.111 [0.227]	-0.111 [0.227]
Personal property		-0.014 [0.116]	-0.066 [0.117]	0.000 [0.000]	-0.027 [0.116]	-0.080 [0.116]	0.000 [0.116]	0.035 [0.108]	-0.016 [0.108]	-0.033 [0.108]	-0.033 [0.108]	-0.033 [0.108]	0.000 [0.000]	0.000 [0.000]	-0.071 [0.098]	-0.071 [0.098]	-0.071 [0.098]	-0.036 [0.098]	-0.076 [0.096]	-0.076 [0.096]	-0.076 [0.096]	-0.068 [0.096]	-0.068 [0.096]	-0.094 [0.096]
Age		0.001*** [0.000]	0.001*** [0.000]	0.001*** [0.000]	0.001*** [0.000]	0.001*** [0.000]	0.001*** [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
Divorced		1.065** [0.481]	1.044** [0.474]	1.029** [0.466]	1.102** [0.466]	1.086** [0.458]	1.265*** [0.436]	1.265*** [0.432]	1.264*** [0.432]	1.259*** [0.441]	1.260*** [0.441]	1.259*** [0.437]	1.201*** [0.382]	1.201*** [0.382]	1.214*** [0.384]	1.187*** [0.384]	1.187*** [0.384]	1.201*** [0.382]	1.305*** [0.386]	1.305*** [0.386]	1.316*** [0.386]	1.293*** [0.390]	1.293*** [0.386]	1.304*** [0.386]
Married		0.016 [0.312]	-0.064 [0.311]	0.038 [0.305]	0.038 [0.305]	0.042 [0.303]	0.192 [0.269]	0.192 [0.269]	0.136 [0.266]	0.191 [0.270]	0.191 [0.270]	0.191 [0.267]	0.235 [0.194]	0.235 [0.194]	0.195 [0.194]	0.195 [0.194]	0.229 [0.194]	0.229 [0.194]	0.348* [0.183]	0.348* [0.183]	0.348* [0.183]	0.309* [0.185]	0.309* [0.185]	0.309* [0.186]
Widowed		-0.191 [0.332]	-0.190 [0.330]	-0.190 [0.330]	-0.190 [0.330]	-0.182 [0.327]	-0.136 [0.309]	-0.112 [0.305]	-0.112 [0.305]	-0.134 [0.309]	-0.134 [0.309]	-0.111 [0.305]	-0.047 [0.278]	-0.047 [0.278]	-0.043 [0.278]	-0.043 [0.278]	-0.047 [0.278]	-0.047 [0.278]	0.038 [0.278]	0.038 [0.278]	0.038 [0.278]	0.063 [0.278]	0.063 [0.278]	0.079 [0.274]
Current job = leamt job		-0.033 [0.151]	-0.038 [0.149]	-0.042 [0.148]	-0.047 [0.148]	-0.047 [0.148]	-0.113 [0.139]	-0.112 [0.136]	-0.112 [0.136]	-0.110 [0.139]	-0.110 [0.139]	-0.110 [0.136]	-0.130 [0.130]	-0.130 [0.130]	-0.126 [0.126]	-0.126 [0.126]	-0.137 [0.130]	-0.137 [0.130]	-0.138 [0.128]	-0.138 [0.128]	-0.126 [0.126]	-0.126 [0.127]	-0.122 [0.127]	-0.122 [0.127]
Farmer		-0.121 [0.118]	-0.087 [0.118]	-0.110 [0.117]	-0.076 [0.117]	-0.076 [0.117]	-0.105 [0.109]	-0.071 [0.109]	-0.071 [0.109]	-0.105 [0.109]	-0.105 [0.109]	-0.071 [0.109]	-0.045 [0.101]	-0.045 [0.101]	-0.027 [0.101]	-0.027 [0.101]	-0.045 [0.101]	-0.045 [0.101]	-0.049 [0.099]	-0.049 [0.099]	-0.033 [0.099]	-0.033 [0.099]	-0.051 [0.099]	-0.051 [0.099]
Previously migrated		0.004 [0.208]	-0.014 [0.210]	-0.035 [0.211]	-0.035 [0.211]	-0.055 [0.211]	-0.020 [0.190]	-0.020 [0.192]	-0.043 [0.192]	-0.043 [0.192]	-0.043 [0.192]	-0.043 [0.192]	0.143 [0.170]	0.143 [0.170]	0.163 [0.172]	0.163 [0.172]	0.143 [0.170]	0.143 [0.170]	0.200 [0.172]	0.200 [0.172]	0.205 [0.172]	0.172 [0.169]	0.172 [0.169]	0.177 [0.172]
Child female		0.005 [0.095]	-0.007 [0.095]	0.012 [0.095]	0.012 [0.095]	0.001 [0.095]	0.017 [0.088]	0.017 [0.088]	0.008 [0.088]	0.018 [0.088]	0.018 [0.088]	0.009 [0.088]	0.009 [0.088]	-0.005 [0.081]	-0.005 [0.081]	-0.012 [0.081]	-0.012 [0.081]	0.001 [0.081]	-0.002 [0.079]	-0.002 [0.079]	-0.010 [0.079]	-0.010 [0.079]	-0.008 [0.079]	-0.008 [0.079]
Before-BW-Dummy	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Month of the year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Town Fixed Effects	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Observations	944	866	866	944	866	866	1,072	927	927	1,072	927	927	1,262	1,112	1,112	1,262	1,112	1,112	1,297	1,145	1,145	1,297	1,145	
Req-squared	0.009	0.026	0.037	0.017	0.033	0.044	0.011	0.024	0.038	0.043	0.025	0.039	0.014	0.022	0.031	0.047	0.025	0.034	0.008	0.021	0.030	0.016	0.028	
Adj. Nibelungen Index, BW before d-dtde	2.69	2.69	2.69	2.69	2.69	2.69	2.59	2.59	2.59	2.59	2.59	2.59	2.60	2.60	2.60	2.60	2.60	2.60	2.64	2.64	2.64	2.64	2.64	
Robust standard errors in brackets																								
*** p<0.01, ** p<0.05, * p<0.1																								

We regress the variable Nibelungen Index on a treatment variable (0/1 before and after the announcement date), the distance in days from the cutoff, and the distance in days from the cutoff multiplied by the treatment variable, to different polynomial degrees. The set of control variables includes gender, age, property status, family status, job satisfaction, farmer dummy, previous migration.

Table 52: Fake news and Nibelungen Index: event history analysis by post-treatment intervals

	Nibelungen Index		Nibelungen Index		Nibelungen Index		Nibelungen Index	
	1	2	3	4	5	6	7	8
0 - 3 months	0.154 [0.293]	0.281 [0.333]	0.266 [0.280]	0.424 [0.322]	0.221 [0.272]	0.360 [0.312]	0.184 [0.268]	0.318 [0.308]
3 - 6 months	0.354 [0.258]	0.358 [0.277]	0.445* [0.241]	0.502* [0.258]	0.390* [0.229]	0.454* [0.244]	0.355 [0.224]	0.406* [0.238]
6 - 12 months	-0.044 [0.222]	0.029 [0.233]	0.047 [0.203]	0.154 [0.209]	0.062 [0.195]	0.170 [0.201]	0.029 [0.190]	0.132 [0.196]
1 - 2 years			-0.081 [0.159]	0.018 [0.166]	-0.101 [0.146]	0.003 [0.150]	-0.135 [0.139]	-0.026 [0.143]
2 - 3 years			0.043 [0.294]	0.010 [0.312]	-0.214 [0.163]	-0.158 [0.169]	-0.251 [0.158]	-0.188 [0.163]
3 - 4 years					-0.215 [0.168]	-0.036 [0.181]	-0.250 [0.163]	-0.057 [0.174]
4 - 5 years					0.065 [0.199]	0.302 [0.206]	0.079 [0.173]	0.278 [0.181]
<i>Observations</i>	944	806	1,072	927	1,262	1,112	1,297	1,145
<i>R-squared</i>	0.011	0.038	0.012	0.040	0.016	0.036	0.016	0.039
<i>Avg. Nibelungen Index, BW bef. d-date</i>	2.69	2.69	2.59	2.59	2.60	2.60	2.64	2.64
Before-BW-Dummy	YES	YES	YES	YES	YES	YES	YES	YES
Month of the year	YES	YES	YES	YES	YES	YES	YES	YES
Fixed Effects	NO	YES	NO	YES	NO	YES	NO	YES
Control variables	NO	YES	NO	YES	NO	YES	NO	YES
Town Fixed Effects	NO	YES	NO	YES	NO	YES	NO	YES

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We regress the variable Nibelungen Index on a treatment variable (0/1 before and after the announcement date), the distance in days from the cutoff, and the distance in days from the cutoff multiplied by the treatment variable, to different polynomial degrees. The set of control variables includes gender, age, property status, family status, job satisfaction, farmer dummy, previous migration.

Table 53: Channels: change in preferences or change in incentives

Channel	Variable	Nibelungen Index Bandwidth 365 days				Nibelungen Index Bandwidth 868 days (CCT BW estimate)				Nibelungen Index Bandwidth 1743 days (IK BW estimate)				Nibelungen Index Bandwidth 3558 days (CV BW estimate)			
		Linear		Quadratic		Linear		Quadratic		Linear		Quadratic		Linear		Quadratic	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
After	After	0.235 [0.381]	0.273 [0.397]	0.532 [0.465]	0.587 [0.505]	0.214 [0.270]	0.321 [0.308]	0.343 [0.349]	0.375 [0.384]	0.183 [0.219]	0.186 [0.241]	0.461* [0.275]	0.502* [0.301]	0.148 [0.208]	0.184 [0.232]	0.549** [0.279]	0.577** [0.273]
After*Vertical Channel	After* Head of HH: Nibelungen index	-0.262** [0.111]	-0.204* [0.115]	-0.257** [0.110]	-0.198* [0.116]	-0.105 [0.079]	-0.053 [0.082]	-0.108 [0.079]	-0.054 [0.082]	-0.126* [0.064]	-0.075 [0.068]	-0.124* [0.065]	-0.073 [0.069]	-0.113* [0.062]	-0.073 [0.067]	-0.114* [0.062]	-0.073 [0.067]
After*Horizontal Channel	After*Community: Nibelungen index	0.002** [0.001]	0.003 [0.003]	0.002** [0.001]	0.003 [0.003]	0.001 [0.001]	-0.000 [0.002]	0.001 [0.001]	-0.000 [0.002]	0.000 [0.001]	0.000 [0.001]	0.000 [0.001]	-0.000 [0.001]	0.000 [0.001]	0.000 [0.001]	0.000 [0.001]	-0.000 [0.001]
After*Incentives Channel	After*Economic incentives index	-0.003 [0.034]	-0.011 [0.036]	-0.001 [0.034]	-0.009 [0.036]	0.016 [0.029]	0.020 [0.030]	0.017 [0.029]	0.020 [0.030]	-0.009 [0.025]	-0.008 [0.026]	-0.009 [0.024]	-0.008 [0.026]	-0.014 [0.024]	-0.013 [0.026]	-0.012 [0.024]	-0.012 [0.026]
Vertical Channel	Head of HH: Nibelungen index	0.378*** [0.039]	0.325*** [0.045]	0.378*** [0.039]	0.324*** [0.045]	0.377*** [0.038]	0.316*** [0.045]	0.376*** [0.039]	0.316*** [0.045]	0.376*** [0.038]	0.321*** [0.044]	0.375*** [0.038]	0.320*** [0.044]	0.377*** [0.038]	0.322*** [0.044]	0.376*** [0.038]	0.322*** [0.044]
Horizontal Channel	Community: Nibelungen index	0.001** [0.000]	0.000 [0.001]	0.001** [0.000]	0.000 [0.001]	0.001** [0.000]	0.000 [0.001]	0.001** [0.000]	0.000 [0.001]	0.001** [0.000]	0.001 [0.001]	0.001** [0.000]	0.001 [0.001]	0.001** [0.000]	0.001 [0.001]	0.001** [0.000]	0.001 [0.001]
Incentives Channel	Economic incentives index	-0.004 [0.015]	0.002 [0.022]	-0.004 [0.015]	0.002 [0.022]	-0.003 [0.015]	-0.003 [0.021]	-0.003 [0.015]	-0.003 [0.021]	-0.003 [0.015]	-0.003 [0.021]	-0.003 [0.015]	-0.003 [0.021]	-0.003 [0.015]	-0.003 [0.020]	-0.003 [0.015]	-0.003 [0.021]
Observations		881	773	881	773	1,006	893	1,006	893	1,196	1,078	1,196	1,078	1,231	1,111	1,231	1,111
R-squared		0.132	0.108	0.137	0.113	0.130	0.106	0.130	0.106	0.117	0.093	0.119	0.096	0.115	0.092	0.120	0.099
Avg. Nibelungen Index, BW bef. d-date		2.69	2.69	2.69	2.69	2.59	2.59	2.59	2.59	2.60	2.60	2.60	2.60	2.64	2.64	2.64	2.64
Before-BW-Dummy		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Month of the year Fixed Effects		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Control variables		NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Town Fixed Effects		NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Robust standard errors in brackets																	

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We regress the variable Nibelungen Index on a treatment variable (0/1 before and after the announcement date), the distance in days from the cutoff, and the distance in days from the cutoff multiplied by the treatment variable, to different polynomial degrees. The set of control variables includes gender, age, property status, family status, job satisfaction, farmer dummy, previous migration.

Table 54: Heterogeneity of effects: male vs female children

	Nibelungen Index Bandwidth 365 days				Nibelungen Index Bandwidth 868 days (CCT BW estimate)				Nibelungen Index Bandwidth 1743 days (IK BW estimate)				Nibelungen Index Bandwidth 3558 days (CV BW estimate)			
	Linear		Quadratic		Linear		Quadratic		Linear		Quadratic		Linear		Quadratic	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<i>Female children</i>																
After	-0.230 [0.402]	-0.111 [0.430]	-0.203 [0.567]	0.182 [0.568]	0.080 [0.268]	0.151 [0.280]	-0.059 [0.393]	0.071 [0.417]	0.001 [0.217]	0.079 [0.223]	0.024 [0.306]	0.059 [0.318]	-0.130 [0.199]	-0.045 [0.203]	0.035 [0.273]	0.070 [0.284]
Observations	421	410	421	410	486	475	486	475	585	574	585	574	601	590	601	590
R-squared	0.038	0.068	0.066	0.088	0.039	0.067	0.048	0.076	0.029	0.062	0.048	0.077	0.019	0.053	0.039	0.070
Aug. Nibelungen Index, BW bef. d-date	2.80	2.80	2.80	2.80	2.61	2.61	2.61	2.61	2.58	2.58	2.58	2.58	2.60	2.60	2.60	2.60
<i>Male children</i>																
After	0.451 [0.450]	0.458 [0.472]	0.733 [0.696]	0.895 [0.762]	0.591* [0.308]	0.594* [0.311]	1.247** [0.485]	1.217** [0.493]	0.083 [0.242]	0.036 [0.246]	0.851** [0.355]	0.781** [0.363]	0.158 [0.225]	0.143 [0.227]	0.973*** [0.333]	0.945*** [0.341]
Observations	421	410	421	410	486	475	486	475	585	574	585	574	601	590	601	590
R-squared	0.038	0.068	0.066	0.088	0.039	0.067	0.048	0.076	0.029	0.062	0.048	0.077	0.019	0.053	0.039	0.070
Aug. Nibelungen Index, BW bef. d-date	2.40	2.40	2.40	2.40	2.33	2.33	2.33	2.33	2.46	2.46	2.46	2.46	2.54	2.54	2.54	2.54
Before-BW-Dummy	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Month of the year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Control variables	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Town Fixed Effects	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Robust standard errors in brackets																

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We regress the variable Nibelungen Index on a treatment variable (0/1 before and after the announcement date), the distance in days from the cutoff, and the distance in days from the cutoff multiplied by the treatment variable, to different polynomial degrees. The set of control variables includes gender, age, property status, family status, job satisfaction, farmer dummy, previous migration.

Table 55: Channels, heterogeneity of effects: male vs female children

Channel	Variable	Nibelungen Index Bandwidth 365 days				Nibelungen Index Bandwidth 868 days (CCT BW estimate)				Nibelungen Index Bandwidth 1743 days (IK BW estimate)				Nibelungen Index Bandwidth 3558 days (CV BW estimate)			
		Linear		Quadratic	Linear		Quadratic	Linear		Quadratic	Linear		Quadratic	Linear		Quadratic	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<i>Female children</i>																	
After	After	0.476	0.523	0.568	0.695	0.253	0.265	0.165	0.208	0.418	0.424	0.344	0.304	0.345	0.335	0.401	0.371
After*Vertical Channel	After*Vertical Channel	[0.509]	[0.523]	[0.589]	[0.599]	[0.430]	[0.435]	[0.502]	[0.508]	[0.317]	[0.388]	[0.388]	[0.395]	[0.305]	[0.314]	[0.354]	[0.361]
After*Horizontal Channel	After*Horizontal Channel	-0.500***	-0.480***	-0.499***	-0.479***	-0.318***	-0.296**	-0.324***	-0.305**	-0.309***	-0.284***	-0.314***	-0.288***	-0.276***	-0.250***	-0.291***	-0.264***
After*Incentives Channel	After*Community: Nibelungen index	0.01***	0.01***	0.01***	0.01***	0.007***	0.008***	0.008***	0.007***	0.004**	0.004**	0.004**	0.004**	0.004**	0.004**	0.004**	0.004**
Vertical Channel	After*Economic incentives index	-0.098**	-0.106**	-0.098**	-0.105**	-0.047	-0.052	-0.046	-0.052	-0.055*	-0.056	-0.053	-0.056	-0.061*	-0.062*	-0.057*	-0.059*
Horizontal Channel	Head of HH: Nibelungen index	0.392***	0.375***	0.392***	0.375***	0.391***	0.365***	0.394***	0.367***	0.391***	0.381***	0.395***	0.384***	0.391***	0.376***	0.394***	0.381***
Incentives Channel	Community: Nibelungen index	-0.002	-0.002	-0.002	-0.002	-0.002	-0.001	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	Economic incentives index	0.008	0.012	0.008	0.012	0.011	0.006	0.011	0.007	0.010	0.014	0.009	0.015	0.010	0.017	0.009	0.017
		[0.020]	[0.027]	[0.020]	[0.027]	[0.020]	[0.027]	[0.021]	[0.028]	[0.020]	[0.027]	[0.021]	[0.027]	[0.020]	[0.026]	[0.020]	[0.027]
Observations		378	377	378	377	434	433	434	433	520	519	520	519	537	536	537	536
R-squared		0.194	0.216	0.194	0.216	0.157	0.179	0.160	0.183	0.127	0.145	0.134	0.153	0.128	0.145	0.140	0.158
Avg. Nibelungen Index, BW bef. d-date		2.80	2.80	2.80	2.80	2.61	2.61	2.61	2.61	2.58	2.58	2.58	2.58	2.60	2.60	2.60	2.60
<i>Male children</i>																	
After	After	0.019	0.074	0.516	0.602	0.522	0.562	0.811	0.857	-0.094	-0.103	0.665	0.634	-0.037	-0.028	0.798*	0.819*
After*Vertical Channel	After*Head of HH: Nibelungen index	[0.589]	[0.595]	[0.740]	[0.792]	[0.448]	[0.452]	[0.593]	[0.599]	[0.357]	[0.368]	[0.471]	[0.479]	[0.341]	[0.350]	[0.446]	[0.456]
After*Horizontal Channel	After*Community: Nibelungen index	-0.031	-0.026	-0.018	-0.012	0.111	0.095	0.107	0.092	0.118	0.099	0.133	0.113	0.111	0.081	0.130	0.098
After*Incentives Channel	After*Economic incentives index	0.157	0.161	0.161	0.165	[0.111]	[0.113]	[0.111]	[0.114]	[0.096]	[0.098]	[0.096]	[0.098]	[0.095]	[0.097]	[0.093]	[0.096]
Vertical Channel	Head of HH: Nibelungen index	-0.003	-0.003	-0.002	-0.003	-0.008**	-0.008**	-0.008**	-0.008**	-0.004	-0.004	-0.003	-0.003	-0.004	-0.004	-0.004	-0.004
Horizontal Channel	Community: Nibelungen index	0.079*	0.082	0.081	0.086*	0.086**	0.090**	0.086**	0.089**	0.040	0.049	0.034	0.043	0.035	0.043	0.031	0.038
Incentives Channel	Economic incentives index	0.263***	0.263***	0.261***	0.262***	0.267***	0.264***	0.264***	0.261***	0.264***	0.269***	0.258***	0.256***	0.270***	0.272***	0.264***	0.267***
		[0.063]	[0.067]	[0.062]	[0.066]	[0.062]	[0.065]	[0.062]	[0.065]	[0.062]	[0.064]	[0.061]	[0.064]	[0.062]	[0.064]	[0.061]	[0.064]
		0.003**	0.002*	0.003**	0.002*	0.003**	0.003**	0.003**	0.002*	0.003**	0.003**	0.003**	0.002**	0.003**	0.003**	0.003**	0.002**
		-0.006	-0.016	-0.006	-0.013	-0.007	-0.020	-0.005	-0.018	-0.012	-0.015	-0.009	-0.014	-0.011	-0.011	-0.009	-0.008
		[0.026]	[0.033]	[0.026]	[0.033]	[0.026]	[0.031]	[0.026]	[0.032]	[0.026]	[0.031]	[0.026]	[0.031]	[0.026]	[0.026]	[0.026]	[0.031]
Observations		396	396	396	396	460	460	460	460	559	559	559	559	575	575	575	575
R-squared		0.108	0.130	0.130	0.149	0.138	0.156	0.140	0.159	0.118	0.137	0.132	0.151	0.109	0.131	0.127	0.148
Avg. Nibelungen Index, BW bef. d-date		2.40	2.40	2.40	2.40	2.33	2.33	2.33	2.33	2.46	2.46	2.46	2.46	2.54	2.54	2.54	2.54
Before-BW-Dummy		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Month of the year Fixed Effects		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Control variables		NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Town Fixed Effects		NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Robust standard errors in brackets																	

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We regress the variable Nibelungen Index on a treatment variable (0/1 before and after the announcement date), the distance in days from the cutoff, and the distance in days from the cutoff multiplied by the treatment variable, to different polynomial degrees. The set of control variables includes gender, age, property status, family status, job satisfaction, farmer dummy, previous migration.

Table 56: Heterogeneity of effects: firstborn vs not-firstborn children

	Nibelungen Index Bandwidth 365 days				Nibelungen Index Bandwidth 868 days (CCT BW estimate)				Nibelungen Index Bandwidth 1743 days (IK BW estimate)				Nibelungen Index Bandwidth 3558 days (CV BW estimate)			
	Linear		Quadratic		Linear		Quadratic		Linear		Quadratic		Linear		Quadratic	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<i>Firstborn children</i>																
After	1.151* [0.589]	2.071*** [0.542]	0.636 [0.953]	1.677* [0.873]	0.797** [0.364]	1.244*** [0.402]	1.679*** [0.570]	2.241*** [0.595]	0.691** [0.295]	1.006*** [0.321]	0.873** [0.434]	1.376*** [0.457]	0.657** [0.277]	0.942*** [0.297]	1.029** [0.401]	1.361*** [0.421]
Observations	288	218	288	218	330	257	330	257	356	283	356	283	360	286	360	286
R-squared	0.057	0.068	0.066	0.088	0.047	0.149	0.060	0.162	0.055	0.140	0.057	0.143	0.049	0.139	0.053	0.144
Aug. Nibelungen Index, BW bef. d-date	2.61	2.61	2.61	2.61	2.46	2.46	2.46	2.46	2.40	2.40	2.40	2.40	2.49	2.49	2.49	2.49
<i>Not firstborn children</i>																
After	-0.187 [0.333]	-0.269 [0.359]	-0.010 [0.468]	-0.020 [0.509]	-0.025 [0.227]	0.013 [0.241]	0.120 [0.337]	0.123 [0.363]	-0.231 [0.180]	-0.210 [0.192]	0.079 [0.257]	0.091 [0.276]	-0.253 [0.167]	-0.205 [0.176]	0.209 [0.235]	0.196 [0.250]
Observations	656	588	656	588	742	670	742	670	906	829	906	829	937	859	937	859
R-squared	0.014	0.046	0.024	0.055	0.012	0.044	0.013	0.045	0.015	0.036	0.018	0.039	0.011	0.035	0.018	0.040
Aug. Nibelungen Index, BW bef. d-date	2.90	2.90	2.90	2.90	2.68	2.68	2.68	2.68	2.63	2.63	2.63	2.63	2.67	2.67	2.67	2.67
Before-BW-Dummy	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Month of the year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Control variables	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Town Fixed Effects	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Robust standard errors in brackets																

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We regress the variable Nibelungen Index on a treatment variable (0/1 before and after the announcement date), the distance in days from the cutoff, and the distance in days from the cutoff multiplied by the treatment variable, to different polynomial degrees. The set of control variables includes gender, age, property status, family status, job satisfaction, farmer dummy, previous migration.

Table 57: Channels, heterogeneity of effects: first born vs not first born children

Channel	Variable	Nibelungen Index Bandwidth 365 days				Nibelungen Index Bandwidth 868 days (CCT BW estimate)				Nibelungen Index Bandwidth 1743 days (IK BW estimate)				Nibelungen Index Bandwidth 3558 days (CV BW estimate)			
		Linear		Quadratic	Linear		Quadratic	Linear		Quadratic	Linear		Quadratic	Linear		Quadratic	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<i>Firstborn children</i>																	
After	After	0.414	0.529*	0.715*	0.713*	0.416**	0.318	0.448**	0.386*	0.281*	0.248	0.288	0.301	0.209	0.155	0.234	0.211
	After*Vertical Channel	[0.344]	[0.291]	[0.372]	[0.376]	[0.172]	[0.210]	[0.221]	[0.233]	[0.163]	[0.178]	[0.194]	[0.219]	[0.140]	[0.166]	[0.184]	[0.209]
	After*Horizontal Channel	0.095	-0.036	-0.009	-0.027	0.025	0.030	0.014	0.022	0.033	0.048	0.031	0.044	0.040	0.058*	0.036	0.053
	After*Incentives Channel	0.001	0.084	[0.082]	[0.074]	[0.033]	[0.040]	[0.031]	[0.038]	[0.029]	[0.034]	[0.034]	[0.034]	[0.029]	[0.034]	[0.028]	[0.034]
	Vertical Channel	0.002	0.002	0.002	0.002	-0.000	0.000	-0.000	0.001	-0.000	-0.000	-0.000	-0.001	-0.000	-0.000	-0.000	-0.000
	Horizontal Channel	-0.046*	-0.021	-0.042*	-0.020	[0.000]	[0.001]	-0.046***	-0.038*	-0.041***	-0.035*	-0.041***	-0.043***	[0.000]	[0.001]	[0.000]	[0.001]
	Incentives Channel	0.986**	0.989**	0.987**	0.990**	0.983**	0.986**	0.986**	0.987**	0.985**	0.986**	0.988**	0.988**	0.984**	0.985**	0.987**	0.987**
	Observations	0.003	[0.021]	[0.013]	[0.021]	[0.012]	[0.019]	[0.012]	[0.019]	[0.012]	[0.018]	[0.012]	[0.019]	[0.012]	[0.018]	[0.012]	[0.018]
	R-squared	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Avg. Nibelungen Index, BW bef. d-date	0.000	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
		0.002	-0.003	0.002	-0.003	0.002	-0.003	0.002	-0.002	0.002	-0.003	0.002	-0.001	0.003	0.000	0.003	0.003
		[0.010]	[0.015]	[0.010]	[0.015]	[0.010]	[0.014]	[0.010]	[0.015]	[0.010]	[0.015]	[0.010]	[0.015]	[0.011]	[0.015]	[0.010]	[0.015]
	Observations	267	210	267	210	308	248	308	248	334	274	334	274	338	277	338	277
	R-squared	0.889	0.888	0.890	0.889	0.894	0.893	0.895	0.894	0.891	0.890	0.893	0.892	0.891	0.888	0.893	0.891
	Avg. Nibelungen Index, BW bef. d-date	2.61	2.61	2.61	2.61	2.46	2.46	2.46	2.46	2.40	2.40	2.40	2.40	2.49	2.49	2.49	2.49
<i>Not firstborn children</i>																	
After	After	-0.070	-0.182	0.188	0.004	-0.073	-0.077	0.047	0.030	-0.189	-0.233	0.100	0.065	-0.177	-0.173	0.247	0.222
	After*Vertical Channel	[0.456]	[0.489]	[0.533]	[0.576]	[0.328]	[0.369]	[0.408]	[0.450]	[0.264]	[0.288]	[0.321]	[0.353]	[0.255]	[0.279]	[0.301]	[0.330]
	After*Horizontal Channel	-0.163	-0.133	-0.163	-0.137	-0.054	-0.034	-0.053	-0.033	-0.012	-0.002	-0.009	0.000	0.011	0.013	0.012	0.015
	After*Incentives Channel	0.003**	0.005	0.003**	0.005	[0.098]	[0.100]	[0.098]	[0.100]	[0.077]	[0.082]	[0.078]	[0.082]	[0.075]	[0.079]	[0.075]	[0.079]
	Vertical Channel	0.001	0.003	0.001	0.003	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.001	0.000	0.000	-0.000	0.000
	Horizontal Channel	-0.033	-0.028	-0.031	-0.028	[0.001]	[0.002]	[0.001]	[0.002]	[0.001]	[0.002]	[0.001]	[0.002]	[0.001]	[0.002]	[0.001]	[0.002]
	Incentives Channel	0.055	0.020	0.056	0.021	0.056	0.011	0.054	0.009	0.057	0.017	0.055	0.016	0.058	0.019	0.056	0.021
	Observations	0.001*	0.000	0.001**	0.000	0.001**	0.000	0.001**	0.000	0.001**	0.001	0.001**	0.001	0.001**	0.001	0.001**	0.001
	R-squared	0.001	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
	Avg. Nibelungen Index, BW bef. d-date	-0.001	-0.000	-0.002	0.000	0.000	-0.004	0.001	-0.003	-0.001	0.006	-0.001	0.006	-0.001	0.010	-0.000	0.010
	Observations	0.020	[0.028]	[0.020]	[0.028]	[0.020]	[0.027]	[0.020]	[0.027]	[0.020]	[0.026]	[0.020]	[0.026]	[0.020]	[0.026]	[0.020]	[0.026]
	R-squared	0.036	0.051	0.045	0.059	0.027	0.044	0.028	0.045	0.028	0.036	0.031	0.039	0.024	0.034	0.031	0.040
	Avg. Nibelungen Index, BW bef. d-date	2.90	2.90	2.90	2.90	2.68	2.68	2.68	2.68	2.63	2.63	2.63	2.63	2.67	2.67	2.67	2.67
	Before-BW-Dummy	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
	Month of the year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
	Control variables	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
	Town Fixed Effects	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Robust standard errors in brackets																	
*** p<0.01, ** p<0.05, * p<0.1																	

We regress the variable Nibelungen Index on a treatment variable (0/1 before and after the announcement date), the distance in days from the cutoff, and the distance in days from the cutoff multiplied by the treatment variable, to different polynomial degrees. The set of control variables includes gender, age, property status, family status, job satisfaction, farmer dummy, previous migration.

Table 58: Rectification of the fake news and Nibelungen Index, main specifications

	Nibelungen Index				Nibelungen Index				Nibelungen Index				Nibelungen Index			
	Bandwidth 365 days		Bandwidth 868 days (CCT BW estimate)		Bandwidth 1743 days (IK BW estimate)		Bandwidth 3558 days (CV BW estimate)		Bandwidth 365 days		Bandwidth 868 days (CCT BW estimate)		Bandwidth 1743 days (IK BW estimate)		Bandwidth 3558 days (CV BW estimate)	
	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
After 18th November	0.307 [0.265]	0.276 [0.274]	0.536 [0.349]	0.451 [0.361]	0.172 [0.182]	0.253 [0.186]	0.398 [0.271]	0.342 [0.286]	-0.099 [0.158]	-0.027 [0.166]	0.315 [0.215]	0.330 [0.226]	-0.093 [0.146]	-0.008 [0.150]	0.247 [0.193]	0.231 [0.204]
Observations	952	815	952	815	1,079	936	936	936	1,249	1,100	1,249	1,100	1,268	1,119	1,268	1,119
R-squared	0.013	0.043	0.017	0.046	0.017	0.041	0.018	0.041	0.015	0.031	0.020	0.036	0.012	0.033	0.018	0.037
Aug. Nibelungen Index, BW bef. d-date	2.69	2.69	2.69	2.69	2.63	2.63	2.63	2.63	2.60	2.60	2.60	2.60	2.66	2.66	2.66	2.66
Before-BW-Dummy	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Month of the year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Control variables	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Town Fixed Effects	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Robust standard errors in brackets																

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We regress the variable Nibelungen Index on a treatment variable (0/1 before and after the announcement date), the distance in days from the cutoff, and the distance in days from the cutoff multiplied by the treatment variable, to different polynomial degrees. The set of control variables includes gender, age, property status, family status, job satisfaction, farmer dummy, previous migration.



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## 7 Appendix

Table 59: An example of the creation of the "Nibelungen Index".

First name	Germanic first name	<i>reclink</i> -outcome	Nibelungen Index
Josef	/	0	1
Michael	Emich	0.5231	2
Berta	Bertha	0.9917	4
Siglinde	Siglinde	1	4

Data source: National Archive of the Province of Bolzano.



Table 60: Fake news and Binary Nibelungen Index, main specifications

	Nibelungen Index: binary Bandwidth 365 days				Nibelungen Index: binary Bandwidth 868 days (CCT BW estimate)				Nibelungen Index: binary Bandwidth 1743 days (IK BW estimate)				Nibelungen Index: binary Bandwidth 3558 days (CV BW estimate)			
	Linear		Quadratic		Linear		Quadratic		Linear		Quadratic		Linear		Quadratic	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
After	0.100 [0.433]	0.128 [0.159]	0.202 [0.229]	0.340 [0.293]	0.081 [0.088]	0.137 [0.097]	0.259* [0.138]	0.282* [0.160]	-0.018 [0.070]	0.016 [0.076]	0.155 [0.103]	0.203* [0.113]	-0.033 [0.065]	0.011 [0.069]	0.196** [0.093]	0.224** [0.102]
Observations	719	612	719	612	818	705	818	705	973	856	973	856	999	880	999	880
R-squared	0.011	0.046	0.016	0.050	0.013	0.049	0.017	0.051	0.045	0.039	0.021	0.045	0.009	0.038	0.019	0.047
Aug. Nibelungen Index, BW bef. d-date	2.69	2.69	2.69	2.69	2.59	2.59	2.59	2.59	2.60	2.60	2.60	2.60	2.64	2.64	2.64	2.64
Before-BW-Dummy	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Month of the year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Control variables	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Town Fixed Effects	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Robust standard errors in brackets																

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We regress the variable Nibelungen Index on a treatment variable (0/1 before and after the announcement date), the distance in days from the cutoff, and the distance in days from the cutoff multiplied by the treatment variable, to different polynomial degrees. The set of control variables includes gender, age, property status, family status, job satisfaction, farmer dummy, previous migration.

Table 61: Exposure to newspapers, main specifications

	Nibelungen Index				Nibelungen Index				Nibelungen Index				Nibelungen Index			
	Bandwidth 365 days		Bandwidth 868 days (CCT BW estimate)		Bandwidth 1743 days (IK BW estimate)		Bandwidth 3558 days (CV BW estimate)		Bandwidth 365 days		Bandwidth 868 days (CCT BW estimate)		Bandwidth 1743 days (IK BW estimate)		Bandwidth 3558 days (CV BW estimate)	
	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic
After	0.088 [0.274]	0.267 [0.306]	0.299 [0.418]	0.559 [0.462]	0.178 [0.189]	0.359* [0.207]	0.473* [0.287]	0.564* [0.319]	0.084 [0.150]	0.158 [0.161]	0.395* [0.224]	0.500** [0.247]	-0.035 [0.143]	0.061 [0.152]	0.409** [0.202]	0.482** [0.220]
After*Village meters above sea level	0.000 [0.000]	-0.000* [0.000]	-0.000 [0.000]	-0.000* [0.000]	0.000 [0.000]	-0.000** [0.000]	0.000 [0.000]	-0.000** [0.000]	-0.000 [0.000]	-0.000** [0.000]	-0.000 [0.000]	-0.000** [0.000]	-0.000 [0.000]	-0.000** [0.000]	-0.000 [0.000]	-0.000** [0.000]
Village meters above sea level	-0.000 [0.000]	-0.001* [0.000]	-0.000 [0.000]	-0.001* [0.000]	-0.000 [0.000]	-0.001* [0.000]	-0.001** [0.000]	-0.001** [0.000]	-0.000 [0.000]	-0.001* [0.000]	-0.000 [0.000]	-0.001* [0.000]	-0.000 [0.000]	-0.001 [0.000]	-0.000 [0.000]	-0.001* [0.000]
Observations	930	800	930	800	1,056	920	1,056	920	1,245	1,104	1,245	1,104	1,280	1,137	1,280	1,137
R-squared	0.024	0.043	0.026	0.044	0.024	0.044	0.026	0.045	0.020	0.035	0.023	0.038	0.017	0.035	0.023	0.041
Aug. Nibelungen Index, BW bef. d-date	2.69	2.69	2.69	2.69	2.59	2.59	2.59	2.59	2.60	2.60	2.60	2.60	2.64	2.64	2.64	2.64
Before-BW-Dummy	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Month of the year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Control variables	NO	YES	NO	YES	NO	YES	YES	YES	NO	YES	NO	YES	NO	YES	NO	YES
Town Fixed Effects	NO	YES	NO	YES	NO	YES	YES	YES	NO	YES	NO	YES	NO	YES	NO	YES

Robust standard errors in brackets

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We regress the variable Nibelungen Index on a treatment variable (0/1 before and after the announcement date), the distance in days from the cutoff, and the distance in days from the cutoff multiplied by the treatment variable, to different polynomial degrees. The set of control variables includes gender, age, property status, family status, job satisfaction, farmer dummy, previous migration.

Table 62: Reduced sample, channels

Channel	Variable	Nibelungen Index Bandwidth 365 days				Nibelungen Index Bandwidth 866 days (CCT BW estimate)				Nibelungen Index Bandwidth 1743 days (IK BW estimate)				Nibelungen Index Bandwidth 3558 days (CV BW estimate)			
		Linear		Quadratic	Linear		Quadratic	Linear		Quadratic	Linear		Quadratic	Linear		Quadratic	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
After*Vertical Channel	After	0.083 [0.445]	0.185 [0.478]	0.277 [0.557]	0.362 [0.618]	0.198 [0.310]	0.328 [0.357]	0.292 [0.409]	0.357 [0.462]	0.172 [0.252]	0.185 [0.280]	0.384 [0.321]	0.454 [0.359]	0.127 [0.238]	0.182 [0.269]	0.475 [0.304]	0.548 [0.339]
	After*Head of HH: Nibelungen index	-0.270** [0.115]	-0.236* [0.125]	-0.269** [0.115]	-0.236* [0.126]	-0.114 [0.086]	-0.067 [0.084]	-0.118 [0.080]	-0.070 [0.084]	-0.132** [0.066]	-0.086 [0.070]	-0.131** [0.066]	-0.084 [0.070]	-0.119* [0.064]	-0.083 [0.068]	-0.120* [0.064]	-0.083 [0.068]
	After*Community: Nibelungen index	0.002** [0.001]	0.003 [0.003]	0.002** [0.001]	0.003 [0.003]	0.000 [0.001]	-0.001 [0.002]	0.000 [0.001]	-0.001 [0.002]	0.000 [0.001]	-0.001 [0.002]	0.000 [0.001]	-0.001 [0.002]	0.000 [0.001]	-0.001 [0.002]	0.000 [0.001]	-0.001 [0.002]
	After*Economic incentives index	0.012 [0.028]	-0.009 [0.044]	0.013 [0.028]	-0.009 [0.044]	0.018 [0.033]	0.025 [0.036]	0.019 [0.033]	0.025 [0.036]	0.002 [0.028]	0.003 [0.031]	0.002 [0.028]	0.002 [0.028]	0.002 [0.028]	-0.001 [0.028]	-0.002 [0.027]	-0.000 [0.027]
Vertical Channel	0.386*** [0.040]	0.330*** [0.047]	0.385*** [0.046]	0.330*** [0.047]	0.384*** [0.046]	0.326*** [0.046]	0.384*** [0.040]	0.327*** [0.046]	0.384*** [0.039]	0.334*** [0.046]	0.383*** [0.046]	0.333*** [0.046]	0.385*** [0.039]	0.338*** [0.045]	0.384*** [0.046]	0.337*** [0.046]	
Horizontal Channel	0.001* [0.000]	0.001 [0.001]	0.001* [0.000]	0.001 [0.001]	0.001** [0.000]	0.001 [0.001]	0.001** [0.000]	0.001 [0.001]	0.001 [0.001]	0.001** [0.000]	0.001 [0.001]	0.001** [0.001]	0.001 [0.001]	0.001** [0.000]	0.001 [0.000]	0.001** [0.000]	
Incentives Channel	-0.010 [0.017]	-0.002 [0.026]	-0.010 [0.017]	-0.002 [0.026]	-0.007 [0.017]	-0.017 [0.026]	-0.008 [0.017]	-0.017 [0.026]	-0.008 [0.017]	-0.008 [0.017]	-0.009 [0.024]	-0.008 [0.017]	-0.010 [0.025]	-0.008 [0.017]	-0.006 [0.024]	-0.008 [0.017]	
Observations		671	575	671	575	671	772	671	917	813	917	813	943	837	943	837	
R-squared		0.162	0.134	0.165	0.137	0.156	0.156	0.126	0.145	0.113	0.146	0.115	0.142	0.110	0.146	0.116	
Aug. Nibelungen Index, BW bef. d-date		2.69	2.69	2.69	2.69	2.59	2.59	2.59	2.60	2.60	2.60	2.60	2.64	2.64	2.64	2.64	
Before-BW-Dummy		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Month of the year Fixed Effects		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Control variables		NO	YES	NO	YES	NO	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	
Town Fixed Effects		NO	YES	NO	YES	NO	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	

Robust standard errors in brackets  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We regress the variable Nibelungen Index on a treatment variable (0/1 before and after the announcement date), the distance in days from the cutoff, and the distance in days from the cutoff multiplied by the treatment variable, to different polynomial degrees. The set of control variables includes gender, age, property status, family status, job satisfaction, farmer dummy, previous migration.



Table 63: Change in fertility, 9 months after the fake news, main specifications

	Number_children Bandwidth 365 days				Number_children Bandwidth 868 days (CCT BW estimate)				Number_children Bandwidth 1743 days (IK BW estimate)				Number_children Bandwidth 3558 days (CV BW estimate)			
	Linear		Quadratic		Linear		Quadratic		Linear		Quadratic		Linear		Quadratic	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
9 months after 3rd July	-6.179 [3.862]	-6.346* [3.831]	30.031 [60.468]	-43.906 [58.263]	-0.297 [0.618]	-0.591 [0.567]	1.381 [1.972]	0.727 [1.833]	-0.173 [0.307]	-0.575** [0.286]	0.153 [0.625]	0.004 [0.572]	-0.105 [0.275]	-0.518** [0.258]	-0.262 [0.494]	-0.482 [0.461]
Observations	869	739	869	739	997	860	997	860	1,187	1,045	1,187	1,045	1,222	1,078	1,222	1,078
R-squared	0.014	0.251	0.015	0.255	0.014	0.245	0.015	0.248	0.019	0.240	0.019	0.243	0.020	0.239	0.021	0.242
Aug. Number children, BW bef. d-date	4.12	4.12	4.12	4.12	4.20	4.20	4.20	4.20	4.35	4.35	4.35	4.35	4.45	4.45	4.45	4.45
Before-BW-Dummy	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Month of the year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Control variables	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Town Fixed Effects	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
Robust standard errors in brackets																

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We regress the variable Nibelungen Index on a treatment variable (0/1 before and after the announcement date), the distance in days from the cutoff, and the distance in days from the cutoff multiplied by the treatment variable, to different polynomial degrees. The set of control variables includes gender, age, property status, family status, job satisfaction, farmer dummy, previous migration.

## 5 Résumé

### Essais sur l'Economie des Migrations et de l'Identité Culturelle

Cette thèse vise à mettre en lumière l'interaction entre la mobilité humaine, l'identité culturelle et la mondialisation. Le rôle essentiel que la mobilité humaine et l'identité culturelle jouent dans l'histoire du développement économique est indéniable, car ces deux phénomènes accompagnent l'humanité dans l'espace et le temps. Les questions auxquelles je réponds dans cette thèse se concentrent sur trois aspects de ces phénomènes, qui sont au cœur du débat public actuel. J'aborde ces questions en utilisant des dossiers historiques que j'ai numérisés dans le cadre de ma thèse afin de construire une base de données originale. Je fournis des cadres conceptuels, historiques et théoriques pour chaque sujet, tout en m'appuyant sur des méthodes économétriques rigoureuses pour déduire la causalité. Après une introduction sur l'économie de la migration et de la diversité, le cœur de cette thèse comprend trois articles scientifiques. Le premier article évalue les effets de la formation linguistique sur l'intégration économique des immigrants, le deuxième met en évidence le rôle de l'identité culturelle et des facteurs économiques dans la décision d'émigrer, et le troisième étudie les effets que des informations fausses peuvent avoir sur la formation de l'identité culturelle.

*Mots clés:* intégration des immigrants, formation linguistique, régression sur discontinuité, choix de migration, identité culturelle, histoire européenne, informations trompeuses, étude de l'histoire des événements.

# Summary

## Essays on the Economics of Migration and Cultural Identity

This dissertation aims at shedding light on the interplay between human mobility, cultural identity and globalization. The critical role that human mobility and cultural identity play in the history of economic development is undeniable, for both phenomena accompany humankind throughout space and time. The questions I answer in this dissertation intend to focus on three aspects of these phenomena, that are at the core of the current public debate. I address these questions using novel data, partly coming from recently digitized historical files in the context of this doctorate. I provide conceptual, historical and theoretical frames for each topic, while relying on rigorous state-of-the-art econometric methods to infer causality. Following an introduction on the economics of migration and diversity, the core of this dissertation comprises three research papers. The first paper evaluates the effects of language training on the economic integration of immigrants; the second highlights the role of cultural identity and economic factors when taking the decision to emigrate, and the third investigates the effects that misleading information can have on the formation of cultural identity.

*Keywords:* immigrants' integration, language training, regression discontinuity design, migration choice, cultural identity, European history, misleading information, event history study.

## List of Figures

2	Cultures mixtes à travers l'espace et le temps. . . . .	3
3	Examples of historic population movements. . . . .	4
4	Mixed cultures across space and time. . . . .	23
5	Examples of historic population movements. . . . .	25
6	Figure 1: First stage graph (1) Number of assigned training hours . . . . .	71
7	Figure 2: Reduced form graph (1) Entire sample . . . . .	72
8	Figure 3: Test score of the language entry exam . . . . .	73
9	Figure 4a: Baseline variables and entry test results . . . . .	74
10	Figure 4b: Baseline variables and entry test results . . . . .	75
11	Net migration in South Tyrol from 1940-1955. . . . .	123
12	Net migration in percentage of population in 1940. . . . .	123
13	Step-wise emigration procedure. . . . .	124
14	Socio-demographic characteristics. . . . .	125
15	Histogram of the match variable: first names and Germanic names . . . . .	126
16	Histogram of the match variable: first names and Germanic names, children sam- ple . . . . .	126
17	Predicted probability of leaving: culture index 1 . . . . .	136
18	Predicted probability of leaving: culture index 2 . . . . .	137
19	Emigration threshold. . . . .	143
20	Interviews by Palfrader, P. (2004), chapter 3.1.1 "The Option - a question of conflict between ethos and economic interests" . . . . .	144
21	Histogram: German first name index . . . . .	145
22	Sample file: cover and "Option request" page 1 . . . . .	146
23	Sample file: "Option request" pages 2 and 3 . . . . .	147
24	Percentage of linguistic groups in South Tyrol 1910-2011. . . . .	185
25	Distribution of the children's birthdays. . . . .	185
26	McCrary Test. July 3, 1939. . . . .	186
27	Event history analysis for the exposure to fake news, 365 days . . . . .	186
28	Event history analysis for the exposure to fake news, 868 days . . . . .	187
29	Event history analysis for the exposure to fake news, 1743 days . . . . .	187
30	Event history analysis for the exposure to fake news, 3558 days . . . . .	188

31 Newspaper article "Neue Zürcher Zeitung", July 3, 1939 . . . . . 202

## List of Tables

1	Test of Balance of Pre-Treatment Characteristics, in 2010. . . . .	73
2	Assigned French Language Training and Labor Force Participation. . . . .	76
3	Assigned French Language Training and LFP. Robustness Tests. . . . .	77
4	Assigned French Language Training and Labor Force Participation. Heterogeneity of effects by education level. . . . .	78
5	Assigned French Language Training and LFP. Heterogeneity of effects by migra- tion category. . . . .	79
6	Assigned French Language Training and LFP. Heterogeneity of effects by gender and age. . . . .	80
7	Assigned French Language Training and Other Measures of Labor Market Inte- gration. . . . .	81
8	Mechanisms. Improvement in Language Skills and Networks. . . . .	82
9	Mechanisms. Information Effect and Behavioral Effect. . . . .	83
10	Table A1: Summary Statistics . . . . .	91
11	Table A2: Descriptive statistics, labor market outcomes by gender (in percentages, standard deviation in brackets) . . . . .	92
12	Table A3: Descriptive statistics, test score by birth country groups (out of 100 points) . . . . .	92
13	Table A4: Grades of entry test and assignment to language training. . . . .	93
14	Table A5: Dependent variable: Number of assigned hours of French language training/100. . . . .	94
15	Table A6: Positive Selection out of Language Training: Labor Force Participation. . . . .	95
16	Tables A7 and A8: Positive Selection out of Training . . . . .	96
17	Tables A9 and A10: Positive Selection out of Training. . . . .	97
18	Table A11: Positive Selection out of Training: Income per Household Individual. . . . .	98
19	Table A12: Assigned French Language Training and LFP: Excluding Test Result = 0. . . . .	98
20	Table A13: Assigned French Language Training and Other Measures of Labor Market Integration. Excluding Test Result = 0. . . . .	99
21	Table A14: Robustness Checks Using Different Ways of Clustering the Standard Errors: Assigned French Language Training and Labor Force Participation. . . . .	100

22	Descriptive statistics of a sample of 2338 heads-of-households, by leaving status.	124
23	Economic factors and application date.	127
24	Economic factors and emigration probability.	128
25	Cultural and economic factors and application date.	129
26	Cultural and economic factors and emigration probability.	130
27	Cultural and economic factors and application date: children sample.	131
28	Cultural and economic factors and emigration probability: children sample.	132
29	Selection into migration by governments: vulnerable population	133
30	Selection into migration by governments: farmers	134
31	Main specification: including officer fixed effects	135
32	Determination of the 2 percent sample (with ADERSt data Bolzano).	145
33	Heterogeneity of effects: single men	148
34	Heterogeneity of effects: single women	149
35	Heterogeneity of effects: couples without children	150
36	Heterogeneity of effects: couples with children	151
37	Heterogeneity of effects: age < 20	152
38	Heterogeneity of effects: age >= 20 and < 40	153
39	Heterogeneity of effects: age >= 40 and < 60	154
40	Heterogeneity of effects: age > 60	155
41	Cultural and economic factors and application date: non-binary cultural ties index.	156
42	Cultural and economic factors and emigration probability: non-binary cultural ties index.	157
43	Cultural and economic factors and application date: children sample, binary index.	158
44	Cultural and economic factors and emigration probability: children sample, binary index.	159
45	Cultural and economic factors and application date: German first name index.	160
46	Cultural and economic factors and emigration probability: German first name index.	161
47	Cultural and economic factors and emigration probability: different neighborhood property index.	162
48	Oster (2019) Test for the cultural ties variables.	163

49	Test of balance of pre-treatment characteristics . . . . .	188
50	Fake news and Nibelungen Index: Household fixed-effects . . . . .	189
51	Fake news and Nibelungen Index: main specifications . . . . .	190
52	Fake news and Nibelungen Index: event history analysis by post-treatment intervals	191
53	Channels: change in preferences or change in incentives . . . . .	192
54	Heterogeneity of effects: male vs female children . . . . .	193
55	Channels, heterogeneity of effects: male vs female children . . . . .	194
56	Heterogeneity of effects: firstborn vs not-firstborn children . . . . .	195
57	Channels, heterogeneity of effects: first born vs not first born children . . . . .	196
58	Rectification of the fake news and Nibelungen Index, main specifications . . . . .	197
59	An example of the creation of the "Nibelungen Index". . . . .	201
60	Fake news and Binary Nibelungen Index, main specifications . . . . .	203
61	Exposure to newspapers, main specifications . . . . .	204
62	Reduced sample, channels . . . . .	205
63	Change in fertility, 9 months after the fake news, main specifications . . . . .	206