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Université d'Auvergne Clermont I
Faculté de Sciences Economiques et de Gestion
Centre d'Etudes et de Recherche sur le Développement International

ESSAYS ON FISCAL DECENTRALIZATION,
INSTITUTIONS AND ETHNIC CONFLICT

THÈSE POUR LE DOCTORAT EN SCIENCES ECONOMIQUES
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Sous la direction de
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Résumé substantiel

Cette thèse en quatre chapitres aborde les relations entre qualité institutionnelle, décentralisation fiscale et conflit ethnique. L'étude des conflits armés est d'une importance cruciale du point de l'économie du développement. En effet, des travaux récents ont montré que les conflits armés exercent un fort impact négatif sur le taux de croissance des économies et sur les stocks de capital humain des ménages (Collier, Elliott, Hegre, Hoeffler, Reynal-Querol & Sambanis 2003, Hess 2003, Bundervoet, Verwimp & Akresh 2008, Justino 2007). D'un autre côté, les résultats de Paul Collier et ses associés (Collier 1998, Collier 2000, Collier et al. 2003, Collier & Hoeffler 2004) ont démontré que les guerres civiles étaient associées voire causées par l'absence de développement économique. La présence potentielle de cette double relation suggère que les conflits armés constituent une des causes de la divergence des trajectoires de développement de long terme entre les pays.

La littérature sur les causes des guerres civiles, à laquelle les économistes ont contribué depuis le milieu des années 1990, est organisée autour de l'affrontement entre les tenants de la mobilisation (*greed*) et ceux des injustices et des inégalités (*grievances*). Paul Collier et Anke Hoeffler ont mis en avant l'argument de la rapacité ou de la prédation pour expliquer l'émergence de groupes rebelles. La principale difficulté pour les chefs rebelles est de s'assurer que les troupes qu'ils recrutent s'engagent dans leur mouvement et y restent. La présence de ressources naturelles aisément

appropriables leur permet de distribuer les revenus qu'elles génèrent aux soldats de base, leur offrant un motif pour participer (*selective incentive*). A l'inverse, lorsque les chefs rebelles sont dans l'incapacité de produire de tels revenus, la rébellion ne produit qu'un bien public (sous la forme d'un nouveau gouvernement dans les zones contrôlées par les rebelles) et est donc particulièrement vulnérable au problème du passager clandestin. D'un autre côté, il existe une longue tradition en science politique et en sociologie d'attribuer les conflits violents à la présence d'injustices sociales et de privation relative (Davies 1962, Galtung 1964, Gurr 1968, Gurr 1970, Gurr & Duvall 1973, Feierabend & Feierabend 1972). Des travaux récents d'Homer-Dixon (1994) mettant en exergue la compétition pour les ressources rares et le concept d'inégalités horizontales proposé par Stewart (2008) sont des variations récentes de ce même thème.

Cette littérature, basée sur des études économétriques transversales au niveau des pays, a essentiellement mis au jour des facteurs structurels de conflits comme la présence de ressources naturelles, le niveau de développement, les inégalités intergroupes, la proportion de forêt ou de montagnes ou la composition ethnique ou religieuse de la population. Une autre approche du phénomène consiste à privilégier les facteurs institutionnels de conflit, qui, contrairement aux facteurs structurels pré-cités, peuvent être le fruit de décisions collectives et donc, dans une certaine mesure peuvent être modifié par les gouvernants. L'intérêt porté aux institutions est une nécessité, y compris pour les économistes car, ainsi que Murshed & Tadjeddin (2009) le montre, les guerres civiles ne sont rien d'autre qu'une faillite du contrat social et des institutions qui régissent la vie en société.

Le premier chapitre de la thèse, coécrit avec Jean-Louis Arcand, s'inscrit dans cette logique et est consacré au lien existant entre conflits ethniques et institutions. Les institutions sont ici définies comme l'ensemble des règles du jeu en société (North

& Thomas 1973) qui façonnent les comportements des acteurs. Une littérature récente sur institutions et développement a montré que la qualité des institutions jouait un rôle crucial dans la trajectoire de développement de long terme des pays. Ces mêmes institutions sont susceptibles, ainsi que nous le postulons, d'influer lourdement sur la présence ou non de conflits ethniques. Le mécanisme privilégié dans ce chapitre est celui de la capacité institutionnelle, ou puissance étatique, mesurée par la qualité de la bureaucratie. L'idée que les conflits violents émergent dans les Etats faibles est assez largement répandue chez le public, les praticiens et aussi les chercheurs. Fearon & Laitin (2003), par exemple, considèrent que le lien observé entre absence de développement et conflit doit en fait être interprété comme un lien entre faiblesse étatique et conflit. Un article de Djankov & Reynal-Querol (2007), écrit indépendamment de ce chapitre, a intégré les institutions dans une régression de guerre civile au côté du PIB par tête et conclut que seules les institutions sont significativement associées (négativement) aux guerres civiles. L'objet d'étude tout au long de cette thèse, les conflits ethniques, est cependant distinct de la guerre civile en ce que la plupart d'entre eux sont de faible intensité. Cela ouvre la possibilité qu'un certain nombre de conflits ne soient pas causés par une faiblesse étatique (ainsi que l'atteste la présence de conflits ethniques dans des pays développés comme l'Espagne ou l'Irlande du Nord). Au contraire, nous postulons que des conflits ethniques violents peuvent émerger à l'occasion de tentatives d'assimilation culturelle de minorités par un Etat puissant. De la même manière, seul un Etat capable est en mesure de projeter son autorité dans les territoires périphériques ou les minorités ethniques sont généralement concentrées et/ou de résister à l'occurrence de fortes mobilisations ethnopolitiques. Ainsi, toutes choses égales par ailleurs, la présence de discriminations ou d'assimilation ethnique est plus vraisemblable dans les Etats puissants ; discriminations ou assimilations qui sont susceptibles de nourrir les con-

flits violents. Pour tester la validité empirique de cette double relation, nous nous basons sur le modèle d'équations simultanées de Gurr & Moore (1997). Ce modèle, qui contient, au côté d'une équation de rébellion, une équation de mobilisation, une équation de *grievances* et une équation de répression est augmentée des institutions. Celles-ci sont instrumentées par les variables de colonisation proposées par Acemoglu, Johnson & Robinson (2001). Le résultat est qu'une forte qualité bureaucratique réduit directement les rébellions (comme dans Djankov & Reynal-Querol (2007)). En revanche, elle nourrit simultanément les mobilisations ethnopolitiques, qui indirectement causent aussi les rébellions. L'effet net des institutions est donc ambigu.

L'implication majeure du premier chapitre est que, contrairement au développement économique, il n'existe pas de relation linéaire entre institutions et conflits. Promouvoir de bonnes institutions ne garantit donc pas le reflux des conflits, peut être même au contraire. Il convient donc d'identifier des mécanismes institutionnels qui protègent les minorités ethniques et assurent la coopération inter-ethnique y compris dans les Etats puissants. Un de ces mécanismes pourrait être la décentralisation fiscale, largement promue par les politologues pour réduire les conflits et par les économistes pour améliorer la gouvernance et la provision de bien public. Par ailleurs, si les institutions au sens large sont décisives pour comprendre les conflits, ne faut-il pas évaluer l'impact d'institutions spécifiques telles que la décentralisation fiscale en tenant compte de l'environnement dans lequel elles se pratiquent ? Le chapitre 2, issu d'un article publié dans *Conflict, Security and Development* (Tranchant (2008)), s'attache à cette double problématique. Le premier apport de ce chapitre est d'inclure les institutions dans une régression visant à estimer l'impact de la décentralisation fiscale sur les conflits ethniques violents. Les estimations en système GMM sur la période 1985-2001 confirment que les institutions jouent un

rôle (de stimulation de conflits) et que dès lors, l'effet favorable de la décentralisation fiscale ne se fait jour que lorsque les institutions sont incluses dans les spécifications. Le deuxième objet du chapitre est de proposer et tester quelques hypothèses sur les interactions entre capacité institutionnelle et décentralisation fiscale. L'idée majeure est que pour être efficace, la décentralisation doit se dérouler dans un environnement institutionnel de qualité. Les résultats empiriques sont contrastés. D'un côté, il est montré que pour réduire la violence inter-ethnique, la décentralisation fiscale doit s'accompagner d'un niveau suffisant de développement économique (ce qui fait écho aux résultats de Murshed, Tadjoeeddin & Chowdhury (2009) et de Sanchez & Palau (2006)). D'un autre côté, lorsque les indices de qualité institutionnelle sont utilisés, il apparaît que les effets positifs de la décentralisation fiscale disparaissent quand les indices sont maximaux. Ce résultat surprenant peut donner du crédit à la critique de Cornell (2002) selon laquelle la décentralisation (ou autonomie territoriale) ne réduit pas la violence mais au contraire l'accroît en offrant aux minorités la légitimité et les moyens de la mobilisation ethnopolitique. À cette aune, plus les institutions sont efficaces, plus cet effet est fort.

Le troisième chapitre de la thèse est consacré aux effets de la décentralisation fiscale sur les majorités locales et les minorités locales. Alors que la plupart des études quantitatives soutiennent l'idée que la décentralisation fiscale est efficace pour réduire les conflits, les études de cas sont en général plus contrastées. L'une des raisons de cette différence est, nous le postulons, que la décentralisation fiscale exerce un impact différent sur deux types de groupes ethniques, à savoir les majorités locales et les minorités locales. Les deux sont des minorités au niveau national et sont concentrées géographiquement, mais les premières, à l'inverse des secondes, sont majoritaires dans leur région. Cette distinction est capitale car le mécanisme qui lie décentralisation fiscale et réduction des conflits met en exergue la capacité des

minorités ethniques de contrôler les gouvernements locaux, et partant, de conduire une politique qui reflète leurs préférences. Les minorités locales, bien qu'ancrées dans un territoire, ne sont pas assurées de bénéficier de ce processus. En conséquence, il est possible que ces minorités s'engagent dans des actions violentes contre la majorité locale (Roeder 1991) ou bien demandent, possiblement par la violence, que les frontières administratives soient redécoupées de telle sorte qu'elles puissent contrôler la politique décentralisée. Cette dernière hypothèse, basée sur des exemples relevés en Ouganda, en Indonésie et en Inde est une réinterprétation à l'aune de la dichotomie majorité/minorité locale de l'une des critiques de la décentralisation (fiscale), à savoir qu'elle accélère le processus de désintégration nationale et pousse à la sécession (Bunce 1999, Cornell 2002, Roeder 1991, Snyder 2000). Les différentes hypothèses relatives à l'impact de la décentralisation fiscale sur les conflits violents émanant de majorités locales et minorités locales sont présentées, puis testées sur un échantillon mondial de groupes ethniques sur la période 1985-2001. Les estimations en effets fixe confirment que la décentralisation est utile pour contenir les rebellions des majorités locales et qu'elle ne conduit nullement à la sécession. En revanche, elle provoque ou amplifie les rebellions des minorités locales, confirmant les craintes des sceptiques selon lesquelles la décentralisation fiscale est déstabilisante. Il est toutefois rassurant que pour la violence inter-ethnique, un tel hiatus n'apparaît pas. Comme les minorités locales sont moins nombreuses que les majorités locales, l'effet moyen, qui était jusqu'ici estimé, est négatif. Cependant la présence d'une telle hétérogénéité pose la question de la pertinence de cet instrument pour résoudre l'épineuse question des conflits ethniques.

Le dernier chapitre offre une perspective différente du reste de la thèse en ce qu'il ne consiste pas en une étude inter-pays mais d'une analyse microéconomique de l'interaction d'un programme de décentralisation décentralisé et des institutions

politiques locales au Sénégal. Une telle étude, coécrite avec Jean-Louis Arcand et Leandre Bassole, bien qu'elle ne soit pas consacrée aux conflits ethniques, est importante car elle informe comment la décentralisation opère au niveau local dans un pays multiethnique d'Afrique subsaharienne. En ce sens ce chapitre est une déclinaison locale de l'approche suivie dans la thèse de s'intéresser aux interactions entre institutions et décentralisation fiscale et de leur pouvoir de réduction des conflits. La discussion sur les mérites et limites de la décentralisation comme outil de développement inclut dans une large proportion des analyses d'économie politique (Platteau & Abraham 2002, Bardhan & Mookherjee 2000, Bardhan & Mookherjee 2005, Besley, Pande, Rahman & Rao 2004). Cependant si des études sur l'Inde ont été réalisées, il n'existe pas à notre connaissance d'analyse quantitative des facteurs d'économie politique sur la décentralisation en Afrique Subsaharienne. Nous procédons à cette étude dans le contexte du PNIR (Programme National D'Infrastructures Rurales), un projet de développement participatif (ou *Community-Driven Development*). Ce projet vise à accroître les infrastructures rurales en donnant le pouvoir aux conseils ruraux, le plus petit niveau administratif au Sénégal, dont les membres sont démocratiquement élus. Conformément à l'esprit du développement participatif, le PNIR est censé produire des biens publics adaptés aux besoins locaux. Cela étant, le risque de capture du projet par les élites locales mis en avant dans la littérature ne peut pas être rejeté a priori. Dans un premier temps nous évaluons si l'allocation géographique des projets au sein des communautés rurales dépend en partie de l'identité des présidents et vice-présidents des conseils ruraux. En se basant sur les prédictions d'un modèle théorique, nous démontrons empiriquement que les villages dont un des membres est président du conseil rural obtiennent significativement plus de projets que les autres. Une fois montré que l'identité des dirigeants locaux joue un rôle important, nous nous intéressons aux déterminants du leadership. Les résul-

tats, utilisant une base de données unique sur les conseillers ruraux, suggèrent que les loyautés politiques et géographiques sont cruciales. En revanche, et contrairement aux idées répandues, les loyautés ethniques ne jouent aucun rôle. Enfin, nous analysons l'efficacité des institutions créées par le programme pour contrebalancer les inégalités générées par le processus électoral. Dans le cadre du PNIR cette institution est le CCG (Comité de Concertation et de Gestion), dont les membres sont nommés par le président du Conseil Rural. Il apparaît que si des signes de cooptation basée sur des loyautés politiques sont visibles, d'autres signes que le CCG joue son rôle sont aussi apparents en ce que les villages peu représentés dans le CR sont favorisés et que les femmes n'y font pas l'objet de discriminations.

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Introduction

This dissertation investigates the relationships between institutions, fiscal decentralization and ethnic conflict. From the viewpoint of development economics, the study of violent conflicts is of primary importance given the tremendous effect civil wars or armed conflicts have been shown to exert on human development (Collier et al. 2003, Hess 2003, Bundervoet et al. 2008, Justino 2007) and because there is substantial evidence that civil wars are largely associated, if not caused, by underdevelopment and lack of economic growth (Collier & Hoeffler 2004, Miguel, Satyanath & Sergenti 2004, Fearon & Laitin 2003). If underdevelopment triggers civil wars and if civil wars permanently undermine the conditions of economic development, then violent conflict is one of the cause of the divergence in the long run path of development between countries (Collier et al. 2003, Ray 2007).

Empirical economists have only started to study violent conflict in the late 1990s thanks to the pioneering works by Paul Collier and Anke Hoeffler (Collier 1998, Collier 2000, Collier et al. 2003, Collier & Hoeffler 2004). Yet economists, as opposed to political scientists, have by and large restricted their attention to civil wars, which is only one form of violent conflict¹. In addition to civil wars, one can observe ethnic conflicts on a lower scale in nearly every part of the globe. From the ETA violence

¹We observe in the last years a change as the study of conflict shifts away from cross-country comparisons towards within-country or micro-level studies (See for instance Buhaug & Rod (2006) or the publications from the EU funded research projects Household in Conflict Network (<http://www.hicn.org>) and MICROCON (www.microconflict.eu)

in Spain to recent communal violence in Jos in Nigeria, the range of ethnic conflicts is far broader than that of sole civil wars, either because the scale of violence is too low to qualify for civil wars or because ethnic violence takes the form of communal violence pitting communities against each others without engaging the state as a direct actor.

The literature on the causes of large-scale internal violence points towards two main factors. On the one hand, the works by Collier and Hoeffler suggest that the feasibility of rebel organization is the key driver of conflict. The rationale underscores the difficulty to sustain a rebellion movement on the long run as rebel leaders have to overcome the acute issue of free-riding among the rebels. Presence of easily lootable resources enables rebel leaders to distribute the spoils of plunder to the rank-and-file soldiers thereby encouraging them to participate in the rebellion. Public economists refer to this as a 'selective incentive' (Olson 1965, Lichbach 1998) as such revenues are available only for those who participate in the movement. In countries where rebel leaders cannot generate such selective incentives the rebellion only produce a public good (in the form of an alternative government in rebel-held territories or at the national level in case of a complete victory of the rebels) whose consumption cannot be restricted to the rebels. The massive free-riding that ensues makes difficult to gather a big enough rebel force to challenge the state². On the other hand, many authors have put forward the injustices, discriminations and relative deprivation faced by some segments of the population as the main source of collective mobilization and violence (Davies 1962, Galtung 1964, Gurr 1968, Gurr 1970, Gurr & Duvall 1973, Feierabend & Feierabend 1972). Recent refinements of this strand of thought include Homer-Dixon (1994) who argues that the competition for resources

²There is in fact another way to overcome the free-riding in the form of social sanctions imposed on the non-participants. For a detailed conceptual and empirical analysis of mobilization into rebel movements, see Kalyvas (2006), Kalyvas & Kocher (2007) and Weinstein & Humphreys (2007).

resulting from resource scarcity explains the incidence of violence and Stewart (2008) who proposes to look at horizontal inequalities, i.e. inequalities between ethnic, religious or social groups as a potential source of conflict. The empirical results of Mancini (2008) or Ostby (2008) tend to support this view³. Such a contending view on the causes of violent conflict can be traced back within political science for the most part of the twentieth century and is since Collier's work known as greed versus grievances.

Most of the robust predictors of violence uncovered by cross-national studies turn out to be structural characteristics as presence of lootable resources, horizontal inequalities, absence of economic development but also geographic and demographic characteristics such as the proportion of forests or mountains or the ethnic composition of the population. Another view on the phenomenon of civil violence stresses its institutional or contingency determinants which, unlike the structural characteristics listed above, result from a collective choice and therefore can, at least to some extent, be modified. The need to closely look at this dimension is stressed by Murshed & Tadjoeeddin (2009) who argue that beyond the opposition between greed and grievance analysts of conflict must engage with the underlying institutional fabric as civil war is but a collapse of the social contract. Political scientists have also investigated whether specific institutions help preventing violent conflict. For instance, Hegre, Ellingsen, Gates & Gleditsch (2001) have explored the role played by democracy, Cohen (1997) that of the electoral system, and Bermeo (2002), Saide-man, Lanoue, Campenni & Stanton (2002) and Brancati (2006) that of federalism and decentralization. A substantial part of this dissertation follows this approach as chapters 2 and 3 will investigate whether fiscal decentralization helps accommodating ethnic violence. We shall return to this at length later in this introduction.

³On the other hand, there is no robust association between inter-personal based measures of inequality and conflict. See Cramer (2005) for a detailed review of this topic.

Further the dissertation intends to analyse the role of institutions by considering them as a deep-rooted factor of peace or violence. Institutional economists like Douglas North (North & Thomas 1973, North 1981, North 1990) have forcefully argued that the broad institutional arrangements in a country exert a powerful and lingering impact on economic, social and political outcomes. Institutions are here defined as a very broad set of formal and informal rules within the society which shape the incentives and behaviours of its actors. Since the mid-1990s and the pioneering work by Knack & Keefer (1995), empirical economists have seriously considered the role played by broad institutional arrangements in the long run path of development. Engerman & Sokoloff (1997, 2005) and Sokoloff & Engerman (2000) for instance looked at the distribution of productive factors inherited by American and Caribbean countries at their independence and demonstrated that the varying degree of inequality of the initial distribution explained to a great extent the subsequent diverging course of democracy and development between, for instance, the USA and Haïti. Institutions defined in such a way prove extremely difficult to alter even when they are inefficient. Unlike the electoral system or the degree of decentralization, these institutions are only partially controlled by the political power and result also from deep-rooted and hardly traceable social and historical factors⁴.

However historical events may dramatically change the institutions. In a widely cited set of empirical studies, Acemoglu, Johnson and Robinson (2001, 2002, 2004, 2005) argued that the European colonization in many parts of the world throughout the nineteenth century drastically shaped the institutions of colonized countries, even long after their independence. Moreover, depending on the local conditions faced by the colons, the institutions took different forms which still hinder or foster

⁴Even when the political power could dramatically improve some institutional arrangements, it may be detrimental to the interests of the ruling elite to do so. Acemoglu (2006) explains the persistence of inefficient institutions by such an argument.

economic development. How and why the set of institutions set up during colonization - as the respect of property rights, the extent of rule of law, the inclusiveness of the political system or the strength and reach of state apparatus - relate to the incidence of ethnic conflict today have been but overlooked so far⁵. Yet, many of the causal mechanisms at work within the institutions-development nexus, we argue, are also relevant in the realm of internal violence. This is the purpose of the first chapter of the dissertation, co-authored with Jean-Louis Arcand. We argue that the heterogeneity of colonial institutions translates into heterogeneous patterns of ethnic peace and conflict.

Acemoglu et al. (2001) distinguish between two main colonial institutions: i) the extractive institutions where a minimal number of colons extracted the maximum riches to take back to the home country and ii) settlement institutions where colons settled en masse (and in some instances outnumbered the local population). The archetypal example of extractive colony is provided by the Belgium Congo (now DR Congo) where the exploitation of the country was left to private companies which resorted to all kinds of means to coerce the local population to work for their interest while the development of the country was at best minimal⁶. In contrast,

⁵One exception is a working paper by Djankov & Reynal-Querol (2007)

⁶For a vivid account of how the population of Congo lived under the colonial rule, see *Heart of Darkness* by Joseph Conrad. One can find page 81 the following description of colonial rule.

Each chief was authorized to collect taxes; he did so by demanding that individuals should work for a specific period of time for a minimum payment. This, of course, was another name for slavery. The so-called taxpayers were treated like prisoners; their work was carried out under the supervision of armed sentries, and, as can be easily imagined, the system lent itself to all kinds of tyranny, brutality and subsequent reprisals by the natives. In one concession alone one hundred and forty-two Africans were killed. The spirit of bitterness and hatred generated in the people was quite terrifying, but little could be done about it as there was not enough control in the area to prevent the various agents from misusing their power.

André Gide in *Voyage au Congo* provides a similar insight for the territory north of the Bangui river (nowadays Central African Republic) where French companies were at work.

the so-called Neo-Europe (Australia, New-Zealand, USA, Canada) offer a clear-cut instance of settlement colonies where colons from Europe rapidly outnumbered the locals and then replicated its set of institutions. We argue in this chapter that the heterogeneity of colonial institutions translates into heterogeneous patterns of ethnic peace and conflict. The strength and reach of state apparatus inherited by newly independent countries is the channel we focus on. Extractive colonies are characterized by a weak state power as the colonizer had no interest to control the parts of the country where no resources were available. Herbst (2000) convincingly argues that the administrative control of colonial states was usually restricted to the capitals and the economically profitable areas. This, in contrast, was not true in settlement colonies where colonial interests spread over the whole territory.

We assume that former extractive colonies which have ended up with weak state apparatus are more prone to the creation of ethnic rebellions on their territories than the former settlement colonies. This argument is in line with Fearon & Laitin (2003) who consider that GDP per capita in civil wars regressions actually captures state power. We also posit that ethnic minorities are more threatened by strong states than by weak states. For a state to discriminate against an ethnic minority, it must be strong enough to be able to project its authority over remote parts of its territory and to be able to resist ethnic mobilization. It is a striking fact that the degree of ethnic heterogeneity decreases with the quality of institutions (see Acemoglu et al. (2001)). Ethnic heterogeneity is also lower in plains than in mountainous areas. The rationale is that state-building goes hand in hand with ethnic assimilation. In rough terrains, where minorities are out of reach, the density of ethnic minorities remains higher. We then empirically investigate whether good governance and strong institutions actually exert such a twofold effect on ethnic rebellion, i.e. a deterrence effect through the power of the state and a fuelling effect through the need minorities have

to better organize themselves against powerful states. The methodology is based on the state-of-the-art paper by Gurr & Moore (1997). We use a simultaneous equation model to explain rebellion, mobilization, repression and grievances. We include in this framework the institutions and instrument them with the set of colonization instruments put forward by Acemoglu et al. (2001). The results show that strong institutions indeed decrease the incidence of ethnic rebellion, through a deterrence effect, but also foster ethnic mobilization, which eventually spurs rebellion. Thus strong institutions are found to produce an ambiguous impact on ethnic rebellion.

Having shown that broad institutions matter, we turn in chapter 2 to the analysis of the impact of one specific institution, namely fiscal decentralization on conflict. If ethnic conflicts are the result of the institutional environment, is there nonetheless room for public policies to accommodate them? In addition, if state power increases ethnic mobilization (as suggested in the first chapter), state-building programmes in developing countries must be accompanied by an efficient mechanism to protect ethnic minorities. Decentralization (political, administrative or fiscal) has been one of the most commonly proposed institutional device to prevent or mitigate ethnic conflict (Lijphart 1977, Lustick, Miodownik & Eidelson 2004, Hechter 2000, Gurr 2000, Suberu 2001, Hooghe 2004). The proponents of decentralization put forward that granting large policy-making authority to ethnically homogeneous territories allows the minorities to implement policies of their own and protect them against threats from the central government. In the same time, fiscal decentralization is increasing throughout the world, and especially in the developing countries, as it is supposed to enhance good governance and a better delivery of public goods. Sceptics, on the other hand, point out that fiscal decentralization in multiethnic countries increases the risk of ethnic mobiliza-

tion and secessionism and exacerbates inter-regional inequalities and undermine national cohesion (Roeder 1991, Cornell 2002, Bunce 1999, Snyder 2000, Linz & Stepan 2000, Van Houten 1999).

The purpose of the second chapter, which is based on a paper published in *Conflict, Security and Development* (Tranchant (2008)), is to reappraise empirically the question of the efficacy of fiscal decentralization as a conflict-mitigating tool while bearing in mind the upshot of the first chapter. Hence we are interested in disentangling the interrelationships between fiscal decentralization, institutions and conflict in order to assess the causal impact of decentralization on ethnic conflict. Previous empirical studies on the topic have only considered the interplay of fiscal decentralization and conflict. But if fiscal decentralization does improve institutions and if, according to the results of the first chapter, institutions play a significant role in explaining the occurrence of ethnic conflict, those studies mis-specify the estimated models. How the interrelations between fiscal decentralization, institutions and conflict can be dealt with to provide a causal effect? The first answer is to explicitly bring the institutions into the analysis, so that the estimated effect of fiscal decentralization does not spuriously catches that of institutions. The second answer is to exploit the time dimension of panel data to remove any risk of reverse causation. As raised by Brancati (2006), there is a risk that the causal relation between decentralization and conflict goes in fact the other way round, i.e. from conflict to decentralization. Also, the use of system GMM allows us to deal with this issue. The results give some credence to the empirical strategy. In particular, fiscal decentralization appears as an effective device to manage ethnic rebellion and communal violence only when institutions are included in the analysis. The effect is stronger for minorities whose ethnic and cultural backgrounds are markedly distant from those of the rest of the population.

The second objective of the chapter is to investigate further the interrelations between fiscal decentralization, institutional quality and ethnic conflict. We test in this respect two hypothesis. Firstly, for fiscal decentralization to be effective, it is necessary that the subunits are endowed with sufficient bureaucratic competences and state capacities. Otherwise, the subunits would be unable to successfully take over the fiscal decentralization process (Bardhan (2002)). Secondly, the overall quality of institutions should matter for the success of fiscal decentralization. In a country characterized by bad institutions (absence of controls on the executive for instance), it seems unlikely that the devolution of powers is genuine. In contrast, fiscal decentralization may be opportunistically used by the central governments to sustain patron-clients relationships (Barkan & Chege (1989), Green (2008*a*), Ukiwo (2006)). Additionally, in a country characterized by weak state apparatus, the minorities could be induced to seek independence. The results differ with respect to the indicators used. When GDP per capita is used as a proxy for overall state capacities, it appears that fiscal decentralization is only desirable to reduce communal violence for countries rich enough. More specifically, only 25% of the countries in the sample meets the criterion. However, when governance indices are used, the findings are that fiscal decentralization is more efficient when institutions are bad. One interpretation hinges upon the conflict inducive effect of institutions uncovered in chapter 1. The likelihood that fiscal decentralization translates into genuine power procurement at the local level may in fact be higher in weak states than in strong states. This would suggest that despite a higher willingness to override local rule in badly governed countries, the capacity to do so is lower. Consequently fiscal decentralization in weak states grants larger effective power and/or a better insulation from predatory politics to ethnic minorities, which in turn translates into less rebellion.

The third chapter of the dissertation reflects on the mechanism through which fiscal decentralization reduces ethnic conflict. This mechanism, henceforth referred to as preference-matching, is that fiscal decentralization allows public policies to be tailored to local preferences whereas centralization results in a uniform policy within the countries. Spatially concentrated ethnic minorities which are too small and/or marginalized at the national level suffer from the distance between the national policy (dictated by the national median voter) and their preferences. In contrast, fiscal decentralization allows policies to vary across regions, hence reducing the gap between ethnic preferences and policies. This lowers the incentive for separatist violence and rebellion. In this chapter we seek to outline the conditions under which this mechanism works. Firstly, the argument presented above rests on the uniformity assumption. Unlike the standard approach of fiscal decentralisation latest models do not assume that centralisation involves the uniformity of the policies within the countries (Lockwood 2006). In alternative models like Besley & Coate (2003) central decisions are taken by a legislative assembly which agrees on a vector of region-specific policies (or public goods). In that light, it is no more automatic that fiscal decentralisation results in an improved preference-matching, though it is still highly plausible in presence of ethnic discriminations. In addition, we argue that the incentives brought by fiscal decentralization will drastically vary across local majorities and local minorities. According to the median voter assumption, local majorities will be able to take control of the decentralized policy as the local median voter belongs to the group. In contrast, members of local minorities are not ensured that their preferences will be reflected in the median voter policy. This is likely to feed ethnic violence as local minority groups, in face of a decentralization on which they have no grip, might claim to redraw the regional administrative boundaries so

that they are in position to bear upon the local policy-making process. Of course, such demands make less sense in a centralized country as the policy is decided at the center. Another potential response of local minorities is to clash against the local majority they face in their region in order to control local governments. In this chapter we propose several assumptions pertaining to the conflict behaviour of local majorities and minorities in the context of fiscal decentralization. These derive from a rational choice approach of ethnic conflict where violence is used when its gains dominates its costs.

These assumptions are then tested on a panel dataset of ethnic local majorities and minorities across the world on the period 1985-2001. The estimations are either fixed or random effects, and despite a somewhat limited number of local minorities, suggest that such a heterogeneity is taking place. In particular, results show that fiscal decentralization decreases rebellion amongst local majorities but increases rebellion by local minorities. The magnitude of the second effect is either similar or larger than that of the first depending on specifications. However local minorities are more scarce than local majorities in the database which explain why, when pooling these two groups together, fiscal decentralization appears as a conflict-mitigating strategy. The results reveal that, in fact, both advocates and sceptics of fiscal decentralization are right. Advocates are right when they consider that fiscal decentralization promotes ethnic peace rather than secessionism, but it seems that this is true only for local majorities and not for all regionally concentrated groups. Sceptics, on the other hand, are supported in their view that fiscal decentralization unleashes centrifugal movements in multiethnic countries. Local minorities, or even small local majorities, seem to be the vehicle of this mechanism. In contrast, the econometric results do not find a similar heterogeneity when it comes to communal violence. Here both local majorities and minorities turn out to engage less in com-

munal violence with fiscal decentralization. Overall, this chapter confirms that if, in average, fiscal decentralization is associated with lower level of ethnic violence, this hides dramatic variations across ethnic groups that must be considered for drawing policy-relevant recommendations.

The methodology used in the first three chapters is cross-national comparisons. While undisputably useful, such macro-studies tend to conceal the actual functioning of the mechanisms that take place on the ground. Hence, chapter 4 of the dissertation, drawn from a paper co-authored with Jean-Louis Arcand and Leandre Bassole, deals with a political economy analysis of the interaction between local politics and a decentralized development programme in rural Sénégal. By shedding light on the actual process of decentralized politics in an ethnically divided Sub-Saharan African country, this ultimate chapter of the dissertation offers a detailed insight into the particular way the broad notions of institutions and fiscal decentralization discussed above interact with each other and translate into actual practices and outcomes at the grassroots.

The discussion about the merits and drawbacks of decentralized development especially highlights political economy factors. In particular, Platteau & Abraham (2002) and Bardhan & Mookherjee (2000), Bardhan & Mookherjee (2005) underscore the risk of elite capture at the grassroots. If empirical studies have measured the effectiveness of decentralized development programmes (see Mansouri & Rao (2003) for a survey on CDD), only a few of them explicitly address the local political economic factors (see Besley et al. (2004) for India) and to the best of our knowledge, none quantitatively addresses the influence of local political factors in Africa. We do so in the context of a CDD programme, the *PNIR* (Rural Infrastructure National Programme) aimed at building rural infrastructures (health centers,

schools, roads) in Sénégal by empowering the *Conseils Ruraux* (CR). The *Conseils Ruraux* operate at the level of the smallest administrative unit in Sénégal, the *Communautés Rurales* which comprise on average 40 villages. The body members of the *Conseils Ruraux* are democratically elected and they exert authority on issues like allocation of land and shoulder responsibilities in social, economic, urbanistic, cultural and environmental issues.

Within the PNIR, the democratically elected *Conseils Ruraux* decide which infrastructures are to be built in the corresponding *Communautés Rurales*. In the logic of the CDD, such a bottom-up approach results in a better appropriation of the projects by the local population (therefore improving the maintenance of the equipments) and in policies that reflect the true needs of the population. However, the distribution of power and political influence is far from even at the grassroots. In addition, the relative weakness of local checks and balances opens space for local influential actors to channel the funds in their own profit at the expense of the poor. In India, Foster & Rosenzweig (2004) find that where local democracy is absent, projects tend to take the form of irrigation schemes which are especially beneficial to the landlords. In contrast, in local democratic environments, it appears that projects are primarily construction of roads, supposed to provide the poor with work. We first explore whether the distribution of the projects across the villages within a *Communauté Rurale* reflects some disproportionate influence of the president and vice-presidents of the *Conseil Rural*. *Ceteris paribus*, the results show that a village has indeed significantly more chances to get a project if the president of the *CR* comes from this village.

If the identity of the leader matters to the distribution of projects, a natural step further is to uncover the determinants of leadership. Thanks to a unique dataset on the characteristics of the members of the *Conseils ruraux*, we can assess which

characteristics of these members are relevant to explain who gets elected president and vice-president. It is commonplace to consider that politics in Sub-Saharan Africa are reduced to a mere ethnic competition (Easterly & Levine (1997)). In these respects our results shed a new light in the reality of African politics, at least for the Senegalese case. The ethnic affiliation is altogether irrelevant in the making of the leaders. In contrast, village and political loyalties are paramount. The presidents and vice-president tend to come from the most represented villages and political parties within each *Communauté Rurale*. In addition, we provide statistical evidences that in our database and in Sénégal as a whole political parties are not a veil for ethnic affiliations.

The design of CDD usually entails the creation of organisms aimed at increasing the voice of the segments of the population usually under-represented in local politics. Within the PNIR, the *CCGs* (Comité de concertation et de gestion) are such bodies. The president of the *Conseil Rural* is *de jure* president of the *CCG* and he nominates the members of the *CCG*. Our findings show that while there is some evidence that the president of the *CR* appoints individuals he shares some characteristics with, like e.g. the village of origin, it is also apparent that some segments of the population, e.g. the women which are under-represented in the *CR* are given more voice in the *CCG*.

Chapter 1

Institutions, mobilization and rebellion in post-colonial societies

1.1 Introduction

Over the past several decades, civil conflicts have constituted one of the major concerns of scholars in the field of political violence. Recent tragedies, such as the bloody wars in ex-Yugoslavia and Rwanda, have contributed to a high degree of attention being paid both by scholars and the public to the issue of ethno-political rebellion. Among political scientists, the debate has largely been articulated around the grievances-mobilization nexus.

A first approach, personified by Gurr (1968, 1970, 1993*a*, 1994), places grievances in the driver's seat. The principal cause of political violence is assumed to be the discrepancy between a group's aspirations and its achievements, often referred to as relative deprivation. The crux of Gurr's work has been ethno-political rebellion, in large part thanks to his creation of the *Minorities At Risk* (henceforth, MAR) database, which documents the situations faced by minority groups worldwide. Per-

vasive poverty, various forms of discrimination or unemployment among a population creates the necessary and sufficient conditions for upheaval through an underlying mechanism which is essentially psychological. This vision was challenged by the proponents of the "mobilization approach", personified by Tilly (1975, 1978). According to this alternative view, the necessary condition for violence is the capacity for a group to organize its interests. The presence of grievances among groups is too frequent in practice for it to be able to predict the outbreak of episodes of violence. A typical example is given by Jenkins & Perrow (1977) who explain that farm workers revolted in the late 1960s and not in the 1940s because of differences between the two periods in terms of their capacity for mobilization, whereas the level of their grievances was comparable throughout the period. Besides contrasting these two approaches, a number of scholars have tried to synthesize them, in particular by assuming that grievances affect mobilization, while both grievances and mobilization affect rebellion (see, for example, Gurr (1993b)).

A number of studies have tried to disentangle the puzzle econometrically. Broadly speaking, one can distinguish two approaches. A first strand of the empirical literature confines its attention to single-equation techniques. Examples include Collier & Hoeffler (2004), Reynal-Querol (2002) and Fearon & Laitin (1999, 2003) whose dependent variable is the outbreak of civil war. In these studies, potential endogeneity issues are dealt with by lagging the variables suspected of endogeneity, without resorting either to an explicit structural model or to a clear identification strategy. A second strand of the literature, typified by Gurr (1993b), Lindström and Moore (1995), or Gurr and Moore (1997) adopts a simultaneous equation approach in which the interactions between key variables are explicitly specified as are the exclusion restrictions that result in identification. The main goal of the present chapter is to attempt to clarify the identification strategy that must be adopted be it in a limited

or full-information context. Roughly speaking, our proposed identification strategy is based on introducing institutional factors explicitly into the analysis.

The first point that we make in this chapter is that accounting explicitly for the institutional environment is both conceptually important and empirically necessary if one is to consistently estimate the parameters of interest in a model such as Gurr and Moore's. North (1990) defines institutions to be "the rules of the game in a society, or, more formally, [as] the humanly devised constraints that shape human interactions". Acemoglu et al. (2001, 2002), Engerman & Sokoloff (1997, 2005) and Banerjee & Iyer (2005), among others, show that institutional arrangements are one of the main determinants of the observed pattern of economic development worldwide. Acemoglu, Johnson and Robinson (henceforth, AJR), in a widely-cited article, show that the form taken by colonization in the nineteenth century has had a persistent and quantitatively important impact on the GDP per capita of the colonized countries right up to the 1990s. They distinguish "extractive" institutions from "settlement" institutions. In the former case, the colonial power faced a high rate of settler mortality and often disposed of valuable natural resources in the colony, and therefore built a barbones administration whose sole goal was to secure the fruits of colonization and repatriate profits to the home country. In the latter case, in which the aforementioned conditions were reversed, colonization took the shape of stable and substantial settlement by white colonists.

The upshot is that when institutions are extractive, economic development does not obtain, whereas institutions of the "settlement" type have yielded the so-called neo-Europe (the USA, Canada, New Zealand and Australia). Given that the institutional environment is such an important determinant of economic development, it seems reasonable to posit that it is an important determinant of conflict as well, in that many of the same incentives are at work. More specifically, our hypothesis

is that when extractive institutions are in place, it is likely that the state confines its control to areas of economic value (such as mining, see Herbst (2000)) and is unlikely to furnish growth-promoting public goods since its role is largely confined to rent-seeking (McGuire & Olson (1996)). According to Fearon (2003), lack of control by the state over its jurisdiction as a whole is conducive to conflict, while dependence on natural resources has been found to be an important determinant of conflict both by Collier & Hoeffler (2004) and Collier et al. (2003).

The second point, which is related to the first, is that omitting institutional variables, as is done in many empirical papers on the determinants of rebellion, may lead one to identify a spurious correlation between two variables that is largely driven by a third, omitted, variable that influences both. A case in point is provided by the link between GDP per capita and the outbreak of civil war. In general, and in an effort to avoid problems of reverse causality, GDP per capita is often lagged by one period in a rebellion equation. But if GDP per capita and the outbreak of civil war are both explained by institutions, and institutions (which are likely to be highly persistent) are left out of the specification, then any purported link between GDP per capita and the outbreak of civil war may not, in fact, exist. In this chapter, we attempt to deal with just this sort of problem through our use of the AJR instrument set in the framework of a simultaneous equations model.

In what follows, we base ourselves on the model of Gurr & Moore (1997), which consists of four endogenous variables: rebellion, mobilization, repression and grievances. Gurr and Moore (henceforth, GM) estimate the system by three-stage least squares (3SLS) and show that mobilization affects rebellion, contrary to grievances, which do not. Grievances, on the other hand, are a strong predictor of mobilization. To begin with, we reconsider their identification strategy, which is based in part upon the assumption that political and economic discrimination are

exogenous. We argue that this maintained hypothesis is potentially dubious. We then propose to endogenize the discrimination variables by instrumenting them using the AJR instrument set. Though the results we obtain are unconvincing in terms of the underlying identification strategy (more specifically, the AJR instruments do not appear to be sufficiently "strong" with respect to the discrimination variables), they do highlight the key role played by institutions. In particular, bureaucratic quality appears to exert a significant negative effect on rebellion leading us delve more deeply into the relationships linking institutions, mobilization and grievances. Setting aside the instrumentation of the discrimination variables (and thus appealing to the same exogeneity assumption as GM), we focus on the role played by institutions, and include them in the mobilization and grievances equations. Our main finding within the 3SLS context is that bureaucratic quality exerts a significant positive effect on mobilization. Its net effect on rebellion is then ambiguous.

As a test of the robustness of our findings, we relax our functional assumptions consider two-stage least squares (2SLS) estimation of each individual equation. Though this results in a loss of efficiency, in that we do not exploit the information stemming from the correlations among the disturbance terms of all four equations, there is reason to be cautious concerning results based on 3SLS. This is because, in contrast to single-equation methods, 3SLS can result in the "contamination", through the joint variance-covariance matrix, of the results of a given equation if even one of the equations in the system is mis-specified. The outcome of this exercise is that our earlier results regarding institutions based on the 3SLS specification are confirmed, and that the omission by GM of the institutional variables in several of their equations is an unwarranted restriction.

As a final robustness check, we consider whether functioning institutions increase legally-based mobilization at the expense its military counterpart. Having found no

evidence of such a phenomena, we conclude that good institutions do indeed have an ambiguous effect on rebellion.

The outline of the chapter is as follows. In section 1.3 we briefly summarize the theoretical approaches based on grievances on the one hand, and mobilization on the other, as well as the attempts to synthesize the two. In section 1.3 we discuss the identification strategy adopted by GM as well as our initial approach based on endogenizing the discrimination variables. In section 1.4 we present our 3SLS estimation results and compare them with the GM specification. Section 1.5 is devoted to ascertaining whether the relationships that we identified linking institutions, mobilization and grievances using 3SLS hold up to single equation methods. We also delve more deeply into the relationship between institutions and mobilization. Section 1.6 concludes.

1.2 Grievances *versus* mobilization

The influential work of Gurr (1968, 1970, 1973) led to a widely-held belief that relative deprivation, also referred to as grievances, was the principal cause of political violence. Based on the frustration-aggression model of Davies (1962), Gurr (1968) defined relative deprivation as the perception by a group of a cleavage between their aspirations (in terms of what they perceive to be their rightful lot, materially and politically) and their capacities (that which they can actually achieve). For Gurr, as well as for Galtung (1964) or Feierabend & Feierabend (1966, 1972), such cleavages are the sources of violent collective action.

This approach was put in doubt by Snyder & Tilly (1972), Oberschall (1973), Tilly (1975, 1978), Gamson (1975), Jenkins & Perrow (1977), McCarthy & Zald (1977) and Collier & Hoeffler (2004), who highlighted the key role played by mo-

bilization as a source of conflict. Violent collective action is no longer seen as an "irrational" consequence of frustration, but rather as the result of cool economic calculus. The creation and survival of a critical mass of violent armed individual depends on their ability to generate private benefits through their actions, as has been stressed recently by Collier and Hoeffler, leading to a further weakening of the grievances hypothesis.

The Tilly *versus* Gurr dichotomy has led to a number of attempts at compromise, either by including mobilization in a theory of relative deprivation (Korpi (1974), Moore & Jagers (1990), Gurr (1993*a*, 1993*b*, 1997)), or by recognizing that grievances can facilitate mobilization. Gurr (1993*b*), for example, assumes that relative deprivation simultaneously affects rebellion (protest) and mobilization; relative deprivation and mobilization, in turn, then both affect the intensity of rebellion. On the other hand, his empirical results do not allow one to reject the null hypothesis that grievances have a direct impact on rebellion.

Lindström & Moore (1995) have called Gurr's (1993*b*) empirical strategy into doubt and suggest a simultaneous equations approach, which is also implemented with minor changes in Gurr & Moore (1997). Their principal empirical finding is that grievances do not have a direct effect on rebellion, in contrast to mobilization, which thereby becomes the key determinant of violent collective action. Moreover, the relative deprivation variables (economic and political discrimination) increase mobilization, thereby indirectly influencing (and increasing) violence.

1.3 Identification strategy

1.3.1 The Gurr and Moore approach

The empirical basis for both Lindström & Moore (1995) and GM is the estimation by 3SLS of a system of four equations: rebellion (protest), grievances, mobilization and repression (or group coherence). All variables stem from the MAR dataset.

In order to render our results comparable with those of GM, we begin by adopting their empirical framework, though we shall consider the instrumentation issue in greater detail. Ignoring intercepts, their basic econometric specification is then given by:

$$\begin{aligned} \textit{Rebellion} = & \beta_{11}\textit{Grievances} + \beta_{12}\textit{Mobilization} \\ & + \beta_{13}\textit{DemocraticPower} + \beta_{14}\textit{InternationalRebellion} \end{aligned} \quad (1.1)$$

$$\textit{Mobilization} = \beta_{21}\textit{GroupCoherence} + \beta_{22}\textit{Repression} + \beta_{23}\textit{Grievances} \quad (1.2)$$

$$\begin{aligned} \textit{Grievances} = & \beta_{31}\textit{PoliticalDiscrimination} + \beta_{32}\textit{EconomicDiscrimination} \\ & + \beta_{33}\textit{DemographicDistress} + \beta_{34}\textit{LostAutonomy} + \beta_{35}\textit{PastRepression} \end{aligned} \quad (1.3)$$

$$\textit{Repression} = \beta_{41}\textit{Democracy} + \beta_{42}\textit{PastRepressionSuccess} \quad (1.4)$$

Our first econometric critique of the GM approach focuses on the grievances equation which suffers, in our opinion, from significant endogeneity bias, given that it is difficult to argue that the two discrimination variables are exogenous. Intuitively, observed levels of discrimination stem from a rational decision by the state which is the outcome of a trade-off between institutional constraints on discriminatory behavior and the ability of the minority to resist. As such, excluding rebellion from the determinants of discrimination is untenable, leading to a failure of their identification strategy.

The ability to discriminate is an increasing function of effective political power. Following Acemoglu, Johnson & Robinson (2005) and Acemoglu & Robinson (2005, 2006), political power can be divided into *de jure* power (defined by constitutional constraints) and *de facto* power (which includes the ability of a minority to subject the state to costs). As an illustration of the trade-off between these two forms of power, Acemoglu & Robinson (2000) argue that it was only under the threat of worker revolt that the United Kingdom progressively extended the franchise during the course of the 19th century. Aumann & Kurz (1977) argues that a defeated minority can destroy its assets, while Acemoglu (2005) suggest that minorities may choose to evade their taxes. In the same paper, Acemoglu (2005) associates *de facto* power with the ability of the minority to engage in successful and violent rebellion, as in Grossman & Noh (1990). In the absence of minority *de facto* power, the state sets their taxation rate at the maximum level that is compatible with the Laffer curve (McGuire & Olson (1996)), and this remains potentially true in terms of other forms of discrimination. The upshot is that one would expect, in countries with working institutions and where the state is strong, to see, *ceteris paribus*, a greater capacity to discriminate.

1.3.2 The *AJR* instruments

Our identification strategy is based on the instruments initially introduced by Acemoglu et al. (2001). In particular, we assume that settler mortality at the time of colonization, as well as democracy, constraints on the executive, the proportion of white settlers in 1900, and population density in 1500, affect current levels of rebellion only *indirectly* through their impact on discrimination.

In order to be admissible, an instrumental variable must satisfy two conditions. First, it must be correlated with the endogeneous variable, once other exogenous co-

variables have been "partialled out" of the specification. This is known as the issue of instrument "strength" or "weakness", and has been the object of a great deal of recent econometric research. Second, a valid instrument must be orthogonal with respect to the disturbance term of the structural equation, meaning that it must have no *direct* effect on the dependent variable. This is known as an "exclusion restriction" in that it must be theoretically and empirically palatable for the instrument in question to be excluded from the structural equation that one is interested in estimating. Combining both conditions implies that a valid instrumental variable must only affect the dependent variable *indirectly* through the jointly endogenous right-hand-side variable. In section 1, we mustered various heuristic arguments that would lead one to expect a link between the AJR instruments and various measures of discrimination. The validity of the exclusion restriction, on the other hand, is predicated on controlling for observable covariates that may be correlated with the AJR instruments and which appear in the rebellion equation. Such covariates include ethnolinguistic fragmentation, GDP per capita and institutions, the latter being proxied by variables that quantify law and order and bureaucratic quality. In order to increase the likelihood that the exclusion restrictions on the AJR instruments are valid, we systematically control for these variables each time the AJR instruments come into play.

1.4 Results based on 3SLS

1.4.1 Discrimination variables assumed exogenous

Results are presented in Table 1.1. In column (1), we reproduce the GM results, while in column (2) we keep their specification while restricting ourselves to the subsample constituted by ex-colonies. The subsample of ex-colonies is almost ex-

clusively constituted by developing countries excepted three of the four so-called neo-Europes: Australia, the United States and Canada. As Australia and Canada disappear when additional variables are included, we decided to exclude the United States from the estimations in order to preserve a homogeneous sample of developing countries.¹

As should be obvious, very little changes with respect to the GM results when estimating over this subsample. In particular, in the rebellion equation, grievances remain statistically indistinguishable from zero, mobilization continues to exercise a positive and statistically significant impact (with the point estimate being even larger than that in the original GM results), and the coefficient associated with democratic power is negative and statistically significant at usual levels of confidence. The only minor difference is that the coefficient associated with international rebellion is estimated less precisely, although the point estimate is very similar.

In the mobilization equation, all variables continue to be statistically significant as in GM, while the magnitudes of the point estimates are somewhat smaller. In the grievances equation, the point estimates associated with demographic distress, lost autonomy, and past repression, as well as the associated standard errors, are similar to those reported by GM, while the statistical significance of the discrimination variables is enhanced: in GM, economic discrimination has a positive and statistically significant impact on grievances, with political discrimination's effect is negative and statistically indistinguishable from zero. For the ex-colonies subsample, in contrast, political discrimination exerts a negative, and statistically significant, effect on grievances while the effect of economic discrimination is still significant. Finally, in the repression equation, democracy continues to be statistically insignificant, while

¹The results are very similar if these countries are kept in the sample, except for specifications that include our institutional variables. We will discuss this point in greater detail in the next sections.

past repression success increases repression in a statistically significant manner for both samples.

1.4.2 Discrimination variables assumed jointly endogenous

In column (3) of Table 1.1, political and economic discrimination are allowed to be endogenous, and we achieve identification using the AJR instrument set. The coefficient associated with grievances in the rebellion equation becomes positive and statistically significant. Conversely, the effect of international rebellion vanishes, while the coefficient associated with mobilization is divided by more than three, though it remains statistically significant at the usual levels of confidence. The effect of democratic power is still indistinguishable from zero, as in GM.

Allowing the discrimination variables to be jointly endogenous increases their associated coefficients markedly. For political discrimination, the coefficient increases ten-fold, going from -0.36 to -3.69 . For economic discrimination, the increase is less impressive, though still substantial, with the coefficient increasing from 0.52 to 2.40 . As is to be expected once a variable is allowed to be jointly endogenous, the associated standard errors also increase, but to a lesser extent than the coefficients themselves.

In terms of the other equations that make up the system, very little changes except that the coefficients associated with group coherence and repression in the mobilization equation increase, with the former becoming statistically significant. The quantitative impact of lost autonomy increases in the third equation, while the coefficient associated with past repression success (in the repression equation) falls and is no longer statistically significant.

In summary, instrumenting the discrimination variables leads to grievances becoming significantly positive in the rebellion equation as well as strengthening the

impact of the discrimination variables on grievances. On the other hand, the specification presented in column (3) is questionable in that variables that are potentially affected by the instruments are not included. If those variables influence rebellion, then the exclusion restrictions that underly our results will no longer be valid. As such, columns (4) to (7) sequentially increase the richness of the specification of the rebellion equation, by adding the logarithm of GDP per capita (column (4)), ethnolinguistic fragmentation (column (5)), law and order (column (6)), and bureaucratic quality (column (7)). These last two variables should in large part control for the state of institutions today. Given that it is highly unlikely that GDP per capita and the current state of institutions are exogenous in this setting (the level of rebellion should affect both wealth and institutions), both GDP per capita and the institutional variables are also allowed to be jointly endogenous. We have enough degrees of freedom to do this because of the wealth of the AJR instrument set.

When GDP per capita is added in column (4), the coefficient associated with this variable displays the expected (negative) sign but the point estimate is very imprecise. The remaining results are unchanged with respect to the baseline specification. When we add ethnolinguistic fragmentation in 1960 in column (5) (the form taken by colonization may have affected the ethnic diversity of the population), its effect is indistinguishable from zero and the other coefficients and standard errors are unaffected.

Finally, the two last columns add the institutional variables. In column (6), law and order appears to have no effect on rebellion while all other coefficients remain unchanged. The exception is constituted by the coefficients associated with political and economic discrimination, which are significantly lower, though still statistically significant at the usual levels of confidence. This confirms that part of the effect of the instruments was incorrectly attributed to discriminations in the previous

regressions. When the bureaucratic quality replaces law and order in column (7), interesting changes in the results appear. First, the impact of grievances in the rebellion equation diminishes drastically and is no longer statistically significant. Conversely, the coefficient associated with mobilization increases to 1.79 and this point estimate is estimated more precisely. Second, bureaucratic quality exerts a significantly negative effect on rebellion. Third, the points estimates associated with political and economic discrimination in the grievances equation return to the levels they displayed in columns (3) to (6).

Table 1.2 presents the first-stage regressions that correspond to the 3SLS results reported in Table 1. As should be apparent, the instruments perform very poorly, explaining no more than 7% of the variance of the discrimination variables. As such, we are very far from the recommendations of Stock, Wright & Yogo (2002), namely, a partial R^2 of 20% and a partial F -statistic of 10. In addition, there is reason to be suspicious of the results presented in columns (3), (4) and (5) of Table 1.1. Given that these results do not control for the other channels through which the AJR instruments may also operate, the coefficients associated with the discrimination likely to be upwardly biased in these specifications. When we add bureaucratic quality, which is highly correlated with the AJR instruments, the effect of both forms of discrimination on rebellion vanishes, revealing that most of the impact attributed to discrimination in columns (3-5) actually stemmed from the omission of controls for the institutional environment. Given that law and order would appear to have no effect on rebellion, only the last column of Table 1.1 can be said to satisfy the exclusion restrictions that identify our specification.

To a certain extent, our results show that the GM findings are robust: grievances only affect rebellion indirectly through mobilization, while the latter is highly significant in the rebellion equation. The contribution of the preceding discussion,

however, has been to highlight the importance of taking the institutional context into account, with our preferred proxy being bureaucratic quality. In the next subsection, we delve more deeply into this question by investigating whether institutions have an impact on mobilization and grievances as well.

1.4.3 Institutions, mobilization and grievances

Table 1.3 reports 3SLS results in which institutions appear only in the mobilization equation (columns 1-2), in the rebellion and mobilization equations (columns 3-4) and in the rebellion, mobilization and grievances equations (columns 5-6). The discrimination variables are allowed to be exogenous given that we showed above that endogenizing these variables leads to a severe weak instruments problem². As should be obvious from the results presented in columns (1) and (2), our previous insights concerning the rebellion equation are preserved when institutions enter the mobilization equation instead of the rebellion equation: grievances have little or no direct effect on rebellion, while they affect mobilization. Somewhat surprisingly, bureaucratic quality appears to significantly increase mobilization, whereas the effect of law and order is statistically indistinguishable from zero. In the grievances equation, the coefficient associated with political discrimination is negative and statistically significant, whereas the coefficient associated with economic discrimination is statistically indistinguishable from zero, as in GM.

The specifications presented in columns (3-4), where institutions enter both the mobilization and the rebellion equations, confirms the result of columns (1-2). The only notable difference is that the logarithm of GDP per capita is now (surprisingly) positive in the rebellion equation when bureaucratic quality is the proxy for the

²Note, however, that the results presented in this section remain largely unchanged even when we assume that the discrimination variables are endogenous. The corresponding results are available upon request.

current institutional context.

Columns (5-6) report results in which institutions enter the first three first equations. While all results remains stable with respect to columns (3-4), it is apparent in column (6) that the coefficient associated with bureaucratic quality becomes insignificant in the mobilization equation whereas the corresponding coefficient in the grievances equation is positive and statistically significant. Once again, law and order is insignificant in all equations.

In our discussion of our identification strategy of section 3.1, we argued that strong states should be more able to discriminate against or tax minorities. An efficient and pliable administration is a prerequisite for such policies be implemented. If the maximization of the ruling elite's welfare implies a high level of taxation of minorities, it is necessary to possess an efficient bureaucracy that can collect taxes locally and hand them over to central authorities. Thus, predatory policies are predicated on the central government being able to impose its authority upon peripheral areas of the country. As such, bureaucratic quality should, indirectly, increase rebellion. In columns (3-4), bureaucratic quality is positively associated with mobilization, which may at first seem surprising as there is no obvious direct link between the two. However, the results reported in columns (5-6) reveal that bureaucratic quality significantly increases grievances, while its effect on mobilization is no longer statistically significant.

An obvious condition for the previous line of reasoning to hold water is that a system of democratic checks and balances on the central government's authority is lacking, thereby allowing the state's bureaucracy to be used in a predatory manner. Given that the sample of countries being considered here is largely drawn from the developing world, and does certainly not correspond to what would be termed "democracies" in the western sense of the word, this assumption is likely to be

reasonable.

Table 1.4 presents the first-stage reduced forms that correspond to the previous set of 3SLS results. The endogenous variables that we focus on are law and order and bureaucratic quality. In contrast to the discrimination reduced forms presented in Table 1.2, the quality of the instrument set is much more satisfactory, with the AJR instruments explaining 31% of the variation of law and order and 13% of bureaucratic quality. The corresponding partial F -statistics are close to the critical values advocated by the usual rules of thumb alluded to above.

The upshot of this section is that the complex interplay among rebellion, mobilization and grievances is both enriched and complicated when institutions are taken into account. On the one hand, it would appear that the institutional environment was a crucial omitted variable in the GM framework. Institutions, captured here by bureaucratic quality, exert a powerful preventive effect on rebellion, which one might term the "direct deterrence effect". When minorities face a strong state characterized by an efficient bureaucracy, there is little room to engage in military adventures. Fearon (2003) attributed this role to GDP per capita, which is negatively associated with the likelihood of civil conflict in almost all cross-country regressions. The results presented here suggest, on the other hand, that when institutions and GDP per capita are both taken into account, that the latter is insignificant whereas the former approximates the deterrence effect of state power. Moreover, bureaucratic quality also influences rebellion indirectly, through mobilization and grievances. Such indirect effects lead to an increase in the likelihood of conflict, probably because strong states are more prone to adopt predatory policies against minorities and since such states are less vulnerable to rebellions. Another way of putting this is that a strong state implies that rebellions do not constitute a serious threat to the authorities in power. There is an apt analogy here with the political economy of taxation litera-

ture (see, e.g., the classic paper by Buchanan & Faith (1987)): when the threat of secession is low, the level of taxes is high. The only minor difference here is that, in our analysis, the threat in question is not constituted by secession *per se*, but by the deleterious effects of the *attempted* secession.

One potential weakness of the analysis presented in the preceding sections is that (i) we restrict mobilization to an aggregate measure, without distinguishing between its military and institutional incarnations and (ii) that the simultaneous equation (full information) setup is predicated on the correct specification of *all four* equations that go into the model. The first point is that working institutions may increase the likelihood of mobilization through legal channels, while reducing mobilization that takes on a military form. In other words, the preceding analysis could be driven by aggregation bias over the form taken by mobilization. The second point is essentially econometric in nature. Though the 3SLS procedure increases efficiency by exploiting the variance-covariance matrix of the disturbance terms of all four equations, it is "fragile" in that specification error in one equation can thereby be transmitted to the others, even if they are correctly specified. Disaggregating our measure of mobilization and adopting a less demanding 2SLS approach are therefore the topics of the next section.

1.5 Results based on 2SLS

1.5.1 Institutions, mobilization and rebellion

Tables 1.5, 1.8, and 1.9 present the results of the GM model estimated by 2SLS. In the first column of each table, we report a benchmark OLS specification. In Table 1.5 we present results corresponding to the rebellion equation. All variables are highly significant and display the expected signs, except for grievances, which

are statistically insignificant. Column (2) reports the 2SLS estimation of the rebellion equation as it appears in the GM model. The coefficients associated with mobilization and repression increase dramatically with respect to OLS, while the effects of democratic power and international rebellion become statistically indistinguishable from zero. Note that the Hansen test of the overidentifying restrictions rejects, as shown by the extremely low reported p -value. Column (3) adds GDP per capita and makes use of the AJR instrument set. Column (4) adds institutions. In contrast to the specification of column (2), the overidentifying restrictions are not rejected, thereby providing support for our earlier intuition that the absence of GDP per capita and institutions in the GM model leads to severe omitted variable bias. While the overidentifying restrictions are no longer rejected, introducing GDP per capita and institutions, leaves the basic results unchanged: repression, institutions and mobilization are all statistically significant determinants of rebellion, whereas grievances are not.

Results of the corresponding first-stage reduced forms are reported in Tables 1.6 and 1.7. As is apparent in the columns labelled "(2)" (so as to correspond to column (2) of Tables 1.5, 1.8 and 1.9, which report the results that correspond to the GM specification for the structural equations) the quality of the GM identification strategy is questionable, with the grievances equation being the only when in which the partial R^2 and partial F -statistics achieve appropriate levels. Economic discrimination, demographic distress and past repression are significantly correlated with grievances and induce a substantial exogenous variation in grievances. The instrument for mobilization, group coherence, is significantly associated with this endogenous variable, but produces a low partial R^2 (5%). *None* of the instrumental variables appear to offer any identification for repression. In contrast, when GDP per capita and bureaucratic quality are added to the specification, the iden-

tifying power of the instruments is reduced somewhat for grievances but improves substantially for mobilization. Finally, as has been known since the publication of their highly influential papers, the AJR (2001, 2002) colonization instruments explain more than 60% of the variation in GDP per capita while the associated partial F -statistic is equal to 25%. For the case of bureaucratic quality, the reduced form is the same as the one presented in Table 1.4.

Table 1.8 reports similar results, but for the mobilization equation. Using OLS, only grievances are a significant determinant of mobilization. This remains true when one moves to 2SLS, with the coefficient associated with grievances being larger. In our preferred specification, which is reported in column (4), GDP per capita exerts a negative and significant effect on mobilization, while the opposite is true for bureaucratic quality. This result confirms our finding of section 4, concerning the two-pronged effect of institutions on rebellion. On the one hand, a good institutional environment deters rebellion by minorities while, on the other, the same institutional environment encourages the formation of organizations representing the minority. At first glance, it would appear to be reassuring that a bureaucratic quality promotes institutional lobbying at the expense of military activities. But once one recalls, from our previous results, that mobilization promotes violent conflict, the net effect of working institutions becomes ambiguous. At this stage in the analysis, however, we are unable to distinguish between legal (institutional) and illegal (military) forms of mobilization. Similarly, we do not know whether these two types of mobilization differ in terms of their impact on rebellion. This question will be dealt with in the last section of the chapter.

Finally, Table 1.9 presents OLS and 2SLS results for the GM grievances equation. The endogenous variables that we add are statistically insignificant while the test of the overidentifying restrictions rejects. Contrary to the two previous equations,

the GM grievances specification would therefore not appear to suffer from omitted variable bias.

1.5.2 The nature of mobilization

The MAR dataset codes type of mobilization as follows: 1 for open political organizations, 2 for non-legal and non-militant organizations, 3 for non-legal and militant organizations and 4 for clandestine and militant organizations. The type of mobilization for a given group is the average of type of mobilization for every organizations (up to three) representing the group. So as to ascertain whether the effect of institutions on mobilization is differentiated by the type of mobilization at work, we replace the previous mobilization variable either by the type of mobilization or by an interactive variable given by the original mobilization variable times the type of mobilization involved. The "type (continuous)" mobilization variable is therefore increasing in the violent and illegal nature of the organization. A second mobilization variable can be constructed as a dummy which is equal to 1 when the average organization is militant (i.e. coded strictly above 2 in the MAR dataset), and zero otherwise; we refer to this as the "type (binary)" variable. A third mobilization variable is constructed by multiplying the original mobilization variable by the "type (continuous)" variable.

We report 2SLS results in Table 1.10. Results based on 3SLS (not reported) are similar. In the right-hand portion of the table, we omit ethnolinguistic fragmentation from the specification in order to ascertain whether this variable, which is often associated with violent mobilization, is driving the results. Several findings stand out. First, only GDP per capita has a statistically significant impact on the type of mobilization, whether it appears in continuous or in binary form. The richer a country is, the less groups organize themselves into violent organizations.

Hence, GDP per capita, which does not significantly affect mobilization when this concept is taken at the aggregate level (see Sections 3 and 4 above), *does* affect the *form* taken by mobilization. Our empirical results therefore suggest that economic development is a manner of deterring the formation of violent and clandestine organizations in favor of groups that operate within the confines of the law. Second, bureaucratic quality has no significant impact on the form taken by mobilization. Given our previous findings that bureaucratic quality is a significant determinant of mobilization as a whole, this implies that the effect of institutions on mobilization was not driven by aggregation bias.

A robustness check of these results is provided by columns (3) and (6) of Table 1.10. Here, the dependent variable is mobilization weighted by the type taken by the organization. Given the manner in which type is coded in the MAR database, more weight is given to violent organizations than to those of a legal ilk. If institutions influenced mobilization solely through legal organizations, then the coefficient associated with bureaucratic quality in these regressions should vanish or, at least, should decrease with respect to our previous findings. The corresponding coefficient reported in Table 5, 0.70, remains largely unchanged in column (3) (0.68) and in column (6) (0.83) of Table 10. Though the point estimates are of a similar magnitude, they are estimated much less precisely, with a standard error in column (3) that is sufficiently large for the coefficient to be statistically indistinguishable from zero.

1.6 Concluding Remarks

In this chapter, we have reconsidered the well-known results of the Gurr & Moore (1997) simultaneous equations model of rebellion, mobilization, grievances and re-

pression by focusing both on the validity of the underlying identification strategy, and on the impact of institutions on the structural equations themselves. We have argued that institutions are likely to influence rebellion and mobilization given their key role in shaping the nature of the state as well as the incentives for the ruling elite to protect property rights and adhere to democratic norms.

Adding institutional variables to 3SLS and 2SLS estimation of the GM model suggests that they exert an ambiguous effect on rebellion. On one hand, bureaucratic quality directly prevents rebellion, probably through a deterrence effect linked to the strength of the state and its bureaucratic (including its military) apparatus. On the other hand, bureaucratic quality increases mobilization, which is itself an important determinant of rebellion. This effect of bureaucratic quality does not appear to be due to the emergence of institutional lobbying in response to a better institutional climate. To the contrary, working institutions increase all types of mobilization, probably as a result of predatory policies pursued by the state. Such policies are impossible to implement in the absence of an efficient and pliable bureaucracy at the service of the ruler. As such, bureaucratic quality, *ceteris paribus*, would appear to be a necessary condition for predatory policies, with these predatory policies provoking mobilization.

The findings reported in this chapter have identified a reduced-form relationship, directly linking state power to mobilization. What is lacking is an intermediate relationship connecting bureaucratic quality and the type of policies that are implemented, as it must these policies that affect grievances and mobilization. Contrary to our initial intuition, discrimination and grievances do not react to bureaucratic quality. Identifying the specific channels through which state power affects policies will be a stimulating topic for future research.

Sample	Original		Ex-colonies				
	Exogenous		Endogenous				
Discrimination variables assumed	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Equation 1: Rebellion</i>							
Grievances	-0.13 (0.12)	-0.51 (0.25)	0.59 (0.18)	0.69 (0.19)	0.67 (0.21)	0.98 (0.34)	0.13 (0.26)
Mobilization	1.83 (0.41)	3.12 (0.71)	0.89 (0.31)	0.78 (0.31)	0.75 (0.29)	0.79 (0.45)	1.79 (0.35)
Democratic Power	-0.05 (0.01)	-0.05 (0.02)	-0.07 (0.02)	-0.06 (0.02)	-0.06 (0.02)	-0.06 (0.03)	-0.01 (0.03)
International Rebellion	0.57 (0.16)	0.46 (0.27)	-0.03 (0.24)	-0.18 (0.26)	-0.13 (0.26)	-0.21 (0.30)	0.21 (0.30)
GDP per capita				-0.58 (0.48)	-0.64 (0.53)	-0.73 (0.69)	0.63 (0.69)
Ethnolinguistic fragmentation in 1960					0.00 (0.01)	0.01 (0.02)	0.02 (0.02)
Law and Order						-0.01 (0.44)	
Bureaucracy Quality							-3.09 (0.86)
<i>Equation 2: Mobilization</i>							
Group Coherence	0.27 (0.11)	0.19 (0.15)	0.49 (0.18)	0.48 (0.18)	0.60 (0.20)	0.50 (0.24)	0.67 (0.21)
Repression	-0.59 (0.31)	-0.46 (0.28)	-1.33 (0.35)	-1.43 (0.34)	-1.58 (0.36)	-1.19 (0.40)	-1.74 (0.40)
Grievances	0.34 (0.05)	0.41 (0.07)	0.42 (0.07)	0.43 (0.07)	0.51 (0.09)	0.63 (0.10)	0.61 (0.10)
<i>Equation 3: Grievances</i>							
Political Discrimination	-0.04 (0.21)	-0.36 (0.26)	-3.69 (0.70)	-3.64 (0.71)	-3.00 (0.70)	-1.25 (0.71)	-3.17 (0.81)
Economic Discrimination	0.67 (0.24)	0.52 (0.28)	2.40 (0.75)	2.35 (0.74)	2.10 (0.73)	1.55 (0.84)	2.69 (0.80)
Demographic Distress	0.34 (0.07)	0.34 (0.09)	0.35 (0.10)	0.36 (0.10)	0.33 (0.10)	0.32 (0.10)	0.34 (0.10)
Lost Autonomy	0.89 (0.30)	0.60 (0.36)	1.10 (0.47)	1.10 (0.47)	0.89 (0.50)	0.57 (0.60)	1.25 (0.54)
Past Repression	0.48 (0.15)	0.58 (0.17)	0.60 (0.20)	0.59 (0.20)	0.51 (0.20)	0.45 (0.21)	0.25 (0.21)
<i>Equation 4: Repression</i>							
Democracy	-0.02 (0.01)	0.01 (0.02)	0.02 (0.02)	0.01 (0.02)	0.02 (0.02)	0.02 (0.03)	0.02 (0.02)
Past Repression Success	0.34 (0.10)	0.32 (0.14)	0.24 (0.16)	0.19 (0.16)	0.16 (0.16)	0.12 (0.21)	0.14 (0.17)
Observations	202	120	101	99	94	80	91

Table 1.1: Rebellion, mobilization, grievances and repression: 3SLS estimates

Dependent variable Corresponding col. in Table 1.1	Political discrimination				Economic discrimination			
	(3)	(4)	(5)	(6)	(3)	(4)	(5)	(6)
<i>AJR</i> instruments								
Settler mortality	-0.15 (0.15)	-0.17 (0.15)	-0.15 (0.16)	-0.36 (0.20)	-0.29 (0.15)	-0.31 (0.15)	-0.25 (0.16)	-0.17 (0.19)
Democracy in 1900	-0.05 (0.14)	-0.05 (0.14)	-0.06 (0.14)	-0.21 (0.18)	-0.18 (0.14)	-0.18 (0.14)	-0.22 (0.14)	-0.27 (0.17)
Constr. on executive in 1900	0.00 (0.16)	0.00 (0.16)	0.02 (0.17)	0.16 (0.18)	0.09 (0.16)	0.09 (0.16)	0.18 (0.17)	0.25 (0.18)
Prop. of white settlers in 1900	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	-0.01 (0.02)	0.00 (0.01)	0.00 (0.01)	0.01 (0.01)	0.01 (0.02)
Log of population density in 1500	0.01 (0.11)	0.01 (0.11)	0.00 (0.12)	-0.19 (0.17)	0.05 (0.11)	0.04 (0.11)	0.03 (0.12)	0.09 (0.17)
Exogenous controls								
Demographic Distress	0.07 (0.03)	0.07 (0.03)	0.07 (0.03)	0.09 (0.03)	0.09 (0.03)	0.09 (0.03)	0.09 (0.03)	0.08 (0.03)
Lost Autonomy	0.20 (0.15)	0.20 (0.15)	0.18 (0.16)	0.22 (0.16)	-0.18 (0.15)	-0.19 (0.15)	-0.27 (0.16)	-0.32 (0.16)
Past Repression	0.04 (0.07)	0.04 (0.07)	0.01 (0.08)	-0.06 (0.08)	0.26 (0.07)	0.26 (0.07)	0.23 (0.07)	0.20 (0.08)
International Rebellion	-0.27 (0.10)	-0.26 (0.10)	-0.23 (0.10)	-0.28 (0.11)	-0.29 (0.10)	-0.28 (0.10)	-0.26 (0.10)	-0.27 (0.11)
Democratic Power	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)	0.00 (0.01)
Ethnolinguistic Fragmentation			0.00 (0.01)	0.01 (0.01)			0.01 (0.01)	0.01 (0.01)
Group Coherence	-0.13 (0.10)	-0.14 (0.10)	-0.17 (0.11)	-0.12 (0.12)	-0.17 (0.11)	-0.18 (0.10)	-0.18 (0.11)	-0.22 (0.12)
Democracy	-0.07 (0.03)	-0.06 (0.03)	-0.07 (0.03)	-0.06 (0.03)	0.03 (0.03)	0.03 (0.03)	0.02 (0.03)	0.00 (0.03)
Past Repression Success	0.10 (0.16)	0.12 (0.16)	0.14 (0.18)	0.36 (0.20)	-0.08 (0.16)	-0.07 (0.16)	-0.01 (0.17)	-0.01 (0.20)
R^2	0.23	0.23	0.23	0.29	0.40	0.42	0.42	0.44
F -statistic	2.00	1.99	1.66	1.93	4.40	4.76	4.01	3.69
"Partialled out" reduced form								
R^2	0.02	0.02	0.01	0.07	0.06	0.07	0.06	0.06
F -statistic	0.32	0.36	0.25	1.15	1.33	1.47	1.20	1.00
Observations	101	99	94	80	101	99	94	80

Table 1.2: Reduced forms for political and economic discrimination

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Equation 1: Rebellion</i>						
Grievances	0.36 (0.30)	0.48 (0.20)	0.43 (0.31)	-0.31 (0.25)	0.45 (0.31)	-0.18 (0.24)
Mobilization	1.40 (0.42)	1.08 (0.30)	1.29 (0.44)	2.47 (0.37)	1.28 (0.43)	2.43 (0.35)
Democratic Power	-0.04 (0.03)	-0.04 (0.03)	-0.04 (0.03)	0.02 (0.03)	-0.03 (0.03)	0.02 (0.03)
International Rebellion	0.18 (0.30)	0.02 (0.27)	0.20 (0.30)	0.48 (0.30)	0.19 (0.30)	0.35 (0.29)
GDP per capita	-0.23 (0.62)	-0.77 (0.53)	-0.27 (0.64)	1.28 (0.72)	-0.30 (0.63)	0.77 (0.66)
Ethnolinguistic fragmentation in 1960	0.00 (0.02)	-0.01 (0.02)	0.00 (0.02)	0.02 (0.02)	0.00 (0.02)	0.01 (0.02)
Law and Order			0.31 (0.41)		0.61 (0.47)	
Bureaucratic Quality				-4.51 (0.80)		-4.42 (0.78)
<i>Equation 2: Mobilization</i>						
Group Coherence	0.44 (0.23)	0.52 (0.19)	0.45 (0.23)	0.46 (0.18)	0.42 (0.23)	0.42 (0.17)
Repression	-0.83 (0.37)	-1.21 (0.35)	-0.87 (0.37)	-1.05 (0.35)	-0.84 (0.37)	-1.01 (0.34)
Grievances	0.64 (0.09)	0.57 (0.09)	0.64 (0.09)	0.56 (0.09)	0.65 (0.09)	0.54 (0.09)
Law and Order	0.17 (0.23)		0.32 (0.26)		0.36 (0.32)	
Bureaucratic Quality		0.58 (0.25)		0.62 (0.25)		0.30 (0.27)
<i>Equation 3: Grievances</i>						
Political Discrimination	-0.70 (0.30)	-0.60 (0.28)	-0.70 (0.30)	-0.47 (0.31)	-0.66 (0.30)	-0.47 (0.28)
Economic Discrimination	0.24 (0.32)	0.11 (0.29)	0.24 (0.32)	0.31 (0.31)	0.18 (0.32)	0.12 (0.29)
Demographic Distress	0.37 (0.09)	0.40 (0.09)	0.37 (0.09)	0.39 (0.09)	0.35 (0.09)	0.37 (0.09)
Lost Autonomy	0.42 (0.40)	0.39 (0.37)	0.43 (0.40)	0.43 (0.39)	0.37 (0.39)	0.47 (0.36)
Past Repression	0.49 (0.18)	0.59 (0.17)	0.48 (0.18)	0.44 (0.19)	0.50 (0.17)	0.54 (0.19)
Law and Order					-0.64 (0.42)	
Bureaucratic Quality						1.77 (0.51)
<i>Equation 4: Repression</i>						
Democracy	0.01 (0.03)	0.01 (0.02)	0.01 (0.03)	0.01 (0.02)	0.01 (0.03)	0.02 (0.02)
Past Repression Success	0.16 (0.12)	0.22 (0.18)	0.15 (0.22)	0.16 (0.18)	0.17 (0.22)	0.20 (0.17)
Observations	80	91	80	91	80	91

Table 1.3: GM model augmented with institutions: 3SLS estimates

Dependent variable Corresponding col. in Table 1.3	Law and Order (1-3-5)	Bureaucratic Quality (2-4-6)
<i>AJR</i> instruments		
Settler mortality	-0.37 (0.25)	-0.36 (0.16)
Democracy in 1900	0.44 (0.22)	-0.24 (0.14)
Constr. on executive in 1900	-0.21 (0.23)	0.09 (0.16)
Prop. of white settlers in 1900	-0.05 (0.02)	-0.01 (0.01)
Log of population density in 1500	-0.74 (0.22)	-0.12 (0.12)
Exogenous controls		
Political Discrimination	-0.15 (0.17)	0.12 (0.12)
Economic Discrimination	-0.03 (0.17)	0.09 (0.12)
Demographic Distress	0.01 (0.04)	-0.03 (0.03)
Lost Autonomy	-0.19 (0.21)	-0.09 (0.16)
Past Repression	-0.02 (0.11)	-0.22 (0.08)
International Rebellion	0.06 (0.15)	0.06 (0.11)
Democratic Power	-0.04 (0.01)	0.03 (0.01)
Ethnolinguistic Fragmentation	0.02 (0.01)	0.00 (0.01)
Group Coherence	0.27 (0.15)	0.14 (0.11)
Democracy	0.04 (0.04)	-0.01 (0.03)
Past Repression Success	-0.05 (0.26)	0.30 (0.17)
R^2	0.42	0.43
F -statistic	2.87	3.53
"Partialled out" reduced form		
R^2	0.31	0.13
F -statistic	6.81	2.63
Observations	80	91

Table 1.4: Reduced forms for rule of law and bureaucratic quality

Dependent variable	Rebellion			
	OLS	2SLS		
Estimator	(1)	(2)	(3)	(4)
<i>Endogeneous</i>				
Grievances	0.03 (0.08)	-0.23 (0.30)	0.14 (0.21)	-0.33 (0.31)
Mobilization	0.79 (0.19)	2.27 (0.73)	1.20 (0.30)	1.79 (0.52)
Repression	0.93 (0.19)	1.29 (0.80)	1.82 (0.50)	1.91 (0.75)
Log of GDP per capita			-0.46 (0.64)	0.66 (0.98)
Bureaucratic Quality				-3.02 (1.19)
<i>Exogenous controls</i>				
Democratic Power	-0.05 (0.01)	-0.06 (0.08)	-0.05 (0.02)	0.02 (0.04)
International Rebellion	0.74 (0.21)	0.27 (0.37)	0.16 (0.25)	0.46 (0.36)
Ethnolinguistic Fragmentation			-0.01 (0.02)	0.01 (0.03)
R^2	0.45			
F -statistic	19.03	11.29	6.28	7.01
Hansen p-value		0.06	0.37	0.96
Observations	120	111	94	91

Table 1.5: Rebellion equation: OLS and 2SLS estimates

Dependent variable Corresponding col. in Tab. 1.5	Grievances			Mobilization		
	(2)	(3)	(4)	(2)	(3)	(4)
Instruments						
Group coherence				0.35 (0.16)	0.41 (0.15)	0.41 (0.15)
Political Discrimination	0.30 (0.36)	0.12 (0.39)	-0.01 (0.41)			
Economic Discrimination	0.66 (0.34)	0.31 (0.39)	0.37 (0.41)			
Demographic Distress	0.23 (0.10)	0.22 (0.11)	0.26 (0.12)			
Lost Autonomy	0.42 (0.48)	0.66 (0.55)	0.68 (0.55)			
Past Repression	0.46 (0.23)	0.34 (0.26)	0.28 (0.27)			
Exogenous controls						
Democratic Power	0.02 (0.03)	0.04 (0.04)	0.04 (0.04)	0.00 (0.01)	-0.02 (0.01)	-0.02 (0.01)
International Rebellion	0.56 (0.26)	0.23 (0.36)	0.30 (0.37)	0.46 (0.12)	0.06 (0.15)	0.11 (0.15)
ELF		0.01 (0.02)	0.02 (0.02)		-0.01 (0.01)	0.00 (0.01)
Political Discrimination				0.15 (0.17)	0.08 (0.16)	0.01 (0.17)
Economic Discrimination				0.08 (0.16)	-0.01 (0.16)	0.05 (0.17)
Democracy	0.15 (0.09)	0.04 (0.11)	0.03 (0.11)			
Past repression success	-0.34 (0.44)	0.10 (0.57)	0.04 (0.60)			
Group Coherence	0.19 (0.34)	0.10 (0.37)	0.08 (0.37)			
Demographic Distress				0.09 (0.05)	0.10 (0.05)	0.11 (0.05)
Lost Autonomy				-0.26 (0.22)	-0.03 (0.22)	-0.01 (0.22)
Past Repression				0.30 (0.11)	0.36 (0.11)	0.34 (0.11)
Settler mortality		-0.54 (0.54)	-0.51 (0.54)		-1.23 (0.22)	-1.21 (0.22)
Democracy in 1900		0.17 (0.49)	0.17 (0.49)		0.06 (0.20)	0.07 (0.20)
Constr. on executive in 1900		-0.23 (0.56)	-0.18 (0.57)		-0.33 (0.23)	-0.32 (0.23)
Prop. of white settlers in 1900		0.10 (0.05)	0.10 (0.05)		-0.04 (0.02)	-0.03 (0.02)
Log of population density in 1500		0.86 (0.39)	0.80 (0.40)		-0.03 (0.16)	-0.04 (0.16)
R^2	0.35	0.37	0.38	0.32	0.55	0.57
F -statistic	5.32	2.89	2.84	4.69	5.93	6.18
"Partialled out" reduced form						
R^2	0.19	0.13	0.13	0.05	0.09	0.09
F -statistic	6.22	2.54	2.56	5.20	8.89	8.83
Observations	111	94	91	111	94	91

Table 1.6: Reduced forms for grievances and mobilization

Dependent variable Corresponding col. in Tab. 1.5	GDP per capita		Regression		
	(3)	(4)	(2)	(3)	(4)
Instruments					
Democracy			-0.02 (0.04)	-0.01 (0.05)	-0.01 (0.05)
Past Repression Success			0.29 (0.19)	0.24 (0.27)	0.06 (0.27)
Settler mortality	-0.31 (0.07)	-0.32 (0.07)			
Democracy in 1900	0.13 (0.07)	0.12 (0.07)			
Constr. on executive in 1900	-0.35 (0.08)	-0.35 (0.08)			
Prop. of white settlers in 1900	0.03 (0.01)	0.03 (0.01)			
Log of population density in 1500	-0.20 (0.05)	-0.20 (0.05)			
Exogenous controls					
Democratic Power	0.03 (0.01)	0.03 (0.01)	0.01 (0.01)	0.01 (0.02)	0.01 (0.02)
International Rebellion	-0.08 (0.05)	-0.10 (0.05)	-0.17 (0.11)	-0.30 (0.17)	-0.24 (0.17)
Group Coherence	-0.05 (0.05)	-0.05 (0.05)	0.20 (0.14)	0.17 (0.17)	0.17 (0.17)
Past Repression	-0.07 (0.03)	-0.06 (0.03)	-0.12 (0.10)	-0.08 (0.12)	-0.06 (0.12)
Political Discrimination	-0.08 (0.05)	-0.05 (0.05)	-0.12 (0.15)	-0.12 (0.18)	-0.14 (0.18)
Economic Discrimination	0.05 (0.05)	0.02 (0.06)	-0.12 (0.15)	-0.19 (0.18)	-0.12 (0.19)
Demographic Distress	-0.01 (0.02)	-0.01 (0.01)	0.10 (0.04)	0.13 (0.05)	0.13 (0.05)
Lost Autonomy	0.02 (0.08)	0.01 (0.07)	0.31 (0.20)	0.43 (0.25)	0.46 (0.25)
Past Repression Success	0.09 (0.08)	0.13 (0.08)			
Democracy	-0.05 (0.01)	-0.05 (0.01)			
ELF	-0.02 (0.01)	-0.02 (0.01)		0.01 (0.01)	0.01 (0.01)
Settler mortality				0.07 (0.25)	0.09 (0.24)
Democracy in 1900				-0.16 (0.23)	-0.12 (0.22)
Constr. on executive in 1900				0.16 (0.26)	0.11 (0.26)
Prop. of white settlers in 1900				0.01 (0.02)	0.01 (0.02)
Log of population density in 1500				0.17 (0.18)	0.21 (0.18)
R^2	0.84	0.85	0.14	0.17	0.18
F -statistic	25.10	26.69	1.57	1.01	1.01
"Partialled out" reduced form					
R^2	0.61	0.62	0.02	0.01	0.00
F -statistic	27.68	28.07	1.40	0.51	0.08
Observations	94	91	111	94	91

Table 1.7: Reduced forms for bureaucratic quality and GDP per capita

Dependent variable	Mobilization			
	OLS	2SLS		
Estimator	(1)	(2)	(3)	(4)
<i>Endogenous</i>				
Grievances	0.17 (0.04)	0.34 (0.06)	0.47 (0.11)	0.48 (0.11)
Repression	-0.05 (0.08)	-0.15 (0.50)	-0.94 (0.60)	-0.77 (0.58)
Log of GDP per capita			-0.17 (0.28)	-0.55 (0.27)
Bureaucratic Quality				0.70 (0.37)
<i>Exogenous controls</i>				
Group coherence	0.21 (0.15)	0.28 (0.19)	0.52 (0.22)	0.42 (0.26)
Ethnolinguistic Fragmentation			0.01 (0.01)	0.00 (0.01)
R^2	0.13			
F -statistic	6.68	10.47	5.95	4.25
Hansen p-value		0.27	0.38	0.19
Observations	120	111	94	91

Table 1.8: Mobilization equation: OLS and 2SLS estimates

Dependent variable	Grievances		
	OLS	2SLS	
Estimator	(1)	(2)	(3)
<i>Endogenous</i>			Log GDP per capita
Log of GDP per capita		0.61 (0.58)	0.30 (0.92)
Bureaucratic Quality			0.76 (1.01)
<i>Exogenous controls</i>			
Political Discrimination	-0.29 (0.30)	-0.29 (0.36)	-0.43 (0.40)
Economic Discrimination	0.86 (0.32)	0.48 (0.42)	0.43 (0.50)
Lost Autonomy	0.68 (0.42)	0.72 (0.37)	0.77 (0.40)
Demographic Distress	0.33 (0.10)	0.36 (0.11)	0.40 (0.11)
Past Repression	0.36 (0.19)	0.36 (0.18)	0.40 (0.27)
Ethnolinguistic Fragmentation		0.01 (0.02)	0.01 (0.02)
R^2	0.27		
F -statistic	8.46	3.14	3.13
Hansen p-value		0.03	0.01
Observations	120	94	91

Table 1.9: Grievances equation: OLS and 2SLS estimates

Dependent variable	Type	Type Mobilization		Type	Type Mobilization	
	(Continuous)	(Binary)	×Type	(Continuous)	(Binary)	×Type
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Endogenous</i>						
Grievances	−0.01 (0.04)	0.00 (0.03)	0.61 (0.20)	0.00 (0.03)	0.00 (0.02)	0.63 (0.17)
Repression	0.22 (0.15)	0.01 (0.67)	0.22 (0.15)	0.18 (0.16)	0.08 (0.08)	−0.23 (0.67)
Log of GDP per capita	−0.18 (0.13)	−1.28 (0.55)	−0.18 (0.13)	−0.28 (0.08)	−0.21 (0.05)	−1.57 (0.47)
Bureaucratic Quality	−0.05 (0.12)	−0.01 (0.07)	0.68 (0.55)	0.00 (0.11)	0.01 (0.07)	0.83 (0.47)
<i>Exogenous</i>						
Group Coherence	0.00 (0.11)	−0.04 (0.07)	0.26 (0.52)	−0.01 (0.13)	−0.04 (0.07)	0.20 (0.56)
ELF	0.00 (0.11)	0.00 (0.01)	0.01 (0.02)			
<i>F</i> -statistic	4.95	4.21	9.04	5.33	4.84	10.14
Hansen <i>p</i> -value	0.21	0.09	0.23	0.15	0.21	0.37
Observations	63	63	63	66	66	66

Table 1.10: Institutions and type of mobilization: 2SLS estimates

Chapter 2

Fiscal decentralization, institutional quality and ethnic conflict- A panel data analysis, 1985-2001

2.1 Introduction

Political and fiscal decentralization are widely promoted as good institutional devices to prevent or manage ethnic conflicts. Political decentralization, for instance, has been a crucial part of the the reconstruction of Iraq and Afghanistan (Brancati (2006)). Proponents of decentralization posit that giving groups more control over their own affairs protects them against predatory politics from the centre and allows them to implement policies of their own (Lijphart (1977), Lustick et al. (2004), Hechter (2000)). In the classical formulation of fiscal federalism by Oates (1972), a centralized entity cannot differentiate public policies along local preferences. Owing

to the asymmetrical information problem, the ruler is bound to implement the same policy across the territory. In contrast, in presence of decentralization, each subunit is allowed to implement public policies which correspond to local preferences. This comes, however, at the cost of non-cooperative behaviour between the subunits. This paper tests some implications of this model in the case of conflict involving minority groups. Those groups are by definition too small to influence national politics. In addition, they may be characterized by different types of preferences toward public policies than the rest of the population. As such, it has been largely hypothesized that to accommodate minority groups, countries should resort to some degree of fiscal decentralization (Hechter (2000), Lijphart (1977), Gurr (2000)).

Some scholars have cast doubt about the effectiveness of self-rule arrangements for promoting political stability (Roeder (1991), Cornell (2002), Bunce (1999), Snyder (2000)). According to Cornell, 'the institution of autonomous regions is conducive to secessionism because institutionalizing and promoting the separate identity of a titular group increases that group's cohesion and willingness to act, and establishing political institutions increases the capacity of that group to act' (Cornell (2002), p. 252). Recently, scholars have shifted their attention away from the question of the overall efficacy of decentralization to emphasize the conditions for its success and failure (Bakke & Wibbels (2006), Bermeo (2002), Brancati (2006), Hale (2004)).

Yet, quantitative studies have mainly focused on federalism or political decentralization measures while fiscal decentralization has generally been overlooked. In this paper, we intend to reappraise the role of fiscal decentralization in the management of ethnic violence by considering the conditions that enable it to work. In a first stage, we focus on the ethnic distance between the minority group and the rest of the population. The model of fiscal federalism states that decentralization is

preferable to centralization where preferences are widely heterogeneous across the regions. In the context of minority groups, it is hypothesized that those who come from a markedly different ethnic background from the rest of the population should be characterized by different preferences over public policies (Alesina, Baqir & Easterly (1999), Alesina & La Ferrara (2000)). Moreover, groups that are very different from the dominant population are also more likely to be politically marginalized. They are thus supposed to benefit the most from a downward shifting of policy-making. In a second stage, we assume that the institutional environment lies at the heart of the potential relationship between fiscal decentralization and ethnic conflict. The argument is threefold. First, the subunit must enjoy sufficient institutional capacities to implement its decentralization policies properly. Second, it is also more likely that fiscal decentralization is genuine in countries characterized by good institutions. Third, the state must be perceived as credible from the viewpoint of an ethnic minority. These hypotheses are discussed further in section 2.

Overall, this suggests that fiscal decentralization must be accompanied by strong state capacities at the national and subnational level in order to be effective. This paper tests the validity of these conclusions empirically. The empirical section uses as unit of analysis the minority group as defined by the minorities at risk (MAR) database. We are interested in the extent of rebellion and communal violence involving those groups. Fiscal decentralization is proxied by the share of subnational expenditures in the overall state spending (IMF). We proxy local capacities by an indicator of income differential between the group and the majority, which in the case of local majorities, is likely to capture the overall wealth of the region. The GDP per capita and indices of governance are used to measure state capacities and the quality of institutions. The estimation sample is a cross-section time series of 40 to 52 ethnic groups over the period 1985-2001. The empirical models consist

of ordered logit and of pooled OLS where fiscal decentralization interacts with the different factors mentioned above. Estimating the effect of decentralization on violent conflict is likely to be plagued by omitted variables and reverse causation. We thus make use of the panel structure of the data by using system GMM to instrument fiscal decentralization and other potentially endogenous variables of interest. In addition, we claim that it is necessary to include institutions explicitly in any empirical inquiry on ethnic conflict, all the more when fiscal decentralization is the variable of interest. Indeed, a greater degree of fiscal decentralization is supposed to lead to better governance and transparency, through greater accountability of local leaders as compared to appointed bureaucrats. Decentralization and institutions thus should be correlated. Two recent working papers stress the decisive role institutions play in the observed pattern of conflict. Resting on similar instrumentation procedures, both Djankov & Reynal-Querol (2007) and the first chapter of this dissertation find out that institutional quality may explain a large fraction of violent conflict incidence. It is then necessary to include institutions in the analysis.

Results suggest that controlling for the institutional environment is necessary to estimate the effect of fiscal decentralization properly. We also find that fiscal decentralization is more effective when the ethnic distance between the group and the rest of the population is largest. Results also confirm that fiscal decentralization works better in richer countries. Nonetheless, groups that are poorer than the rest of the population are those that benefit the most from fiscal decentralization. This is at odds with the expectations that fiscal decentralization must be accompanied by strong local state capacities. Alternatively, such an income differential between the group and the dominant population also reflects the political marginalisation of the group. This may help explain why decentralization remains beneficial for those groups. Finally, no support is found for the hypothesis that strong institutions

are needed for fiscal decentralization to work. On the contrary, a high score for bureaucratic quality tends to offset the effect of fiscal decentralization while the same is found with a high score of law and order in the communal violence estimations. This is a very counter-intuitive result and it is hard to imagine why GDP per capita and institutions yield opposite results. One could tentatively explain the result with reference to Cornell's argument about the strengthening of the legitimacy and resources of ethnically defined subunits that result from decentralization. This effect could indeed be stronger when groups can build strong autonomous subunits thanks to working institutions.

The remainder of the chapter is organized as follows: section 2.2 discusses why and under what conditions fiscal decentralization can manage ethnic conflict, section 2.3 presents the data and methods used in the study, section 2.4 presents the results while section 2.5 concludes.

2.2 Fiscal decentralization and ethnic conflict

Several authors have called for fiscal decentralization to deal with ethnic conflict (Lijphart (1977), Gurr (2000), Hechter (2000), Suberu (2001), Stepan (1999), Hooghe (2004), bachtinger). On the other hand, political decentralization in general, and fiscal decentralization in particular have been criticized as tending to foster violent collective action through the increase in the legitimacy of subnational identities and the access to institutional resources that decentralization gives to groups (Weiner (1978), Bunce (1999), Snyder (2000), Roeder (1991), Linz & Stepan (2000), Van Houten (1999), Leibfried & Pierson (1995)). Rather than inducing a departure from parochialism to favour nation-building, fiscal decentralization may freeze subnational identities over time (Cornell (2002)). The presence of inter-regional in-

equalities may spur conflict (Gurr (2000), Murshed & Gates (2005)). Other scholars argue that fiscal decentralization does not pre-empt discrimination against regional minorities from newly empowered regional majorities (Roeder (1991)). The rationale for resorting to fiscal decentralization to manage ethnic conflict dates back to the seminal work on fiscal federalism by Oates (1972). Oates considers that centralization implies a uniform policy over the whole territory. The rulers do not know local preferences and they are consequently bound to implement the same policy everywhere. In decentralized settings, each subunit is presumed to be aware of local preferences. This makes it possible to design policies that correspond to the preferences of the local median voter. Decentralization comes at the cost of non-cooperative behaviour among the subunits, which do not value the utility of the others. As such, decentralization results in an under-optimal supply of public goods associated with positive externalities and over than optimal supply of public goods associated with negative externalities. Thus, the fiscal federalism theory consists in a trade-off between a uniform policy and the non internalizing of spatial spillovers.

It follows that regionally concentrated minority groups should be better off under decentralization than under centralization. As they are small and/or politically marginalized, their preferences would not be reflected in a uniform policy. Moreover, they are supposed to be characterized by different preferences than the rest of the population. The distance between the centralized policy and the true preferences of the group are likely to be maximal. In contrast, in decentralization those groups would be granted the opportunity to design and implement public policies of their own. It should result in a substantial increase of the welfare of the groups.

Recently, some authors have restated the terms of the trade off proposed by Oates. The assumption of asymmetrical information has not been demonstrated empirically and is theoretically weak. Instead, Seabright (1996) has stressed the

greater accountability of politicians at the local level. In pure centralization, it is not possible for citizens to sanction the ruler for a local policy as the scope of the vote is national. In decentralization however, local leaders can be sanctioned or rewarded by local voters on the ground in relation to local policy. To put it differently, decentralization is expected to enhance the accountability of politicians, as they are responsible for only one level of policy. The argument works as well for ethnic conflict. Minorities have no means to sanction national leaders who ignore their demands, as the vote is national. In the presence of decentralization, however, minority groups that constitute a significant minority or a majority at the local level become politically crucial for local rulers. This ensues that their demands must be better taken in account. Tommasi & Weinschelbaum (2007) stress the coordination problem that arises in highly centralized systems. Under a centralized system the principals (the citizens) are many whereas the agents (the elected governments) are few. This poses a problem of coordination, as many principals must contract with a small number of agents. In contrast, in decentralization there is one agent per subunit, which helps alleviate the coordination problem. Bardhan & Mookherjee (2005, 2006*b*) develop an analytical framework in which centralization is characterized by little responsiveness of appointed bureaucrats to local needs whereas decentralization entails the risk of elite capture. In terms of public goods delivery it is unclear which of the systems dominates. Only where elite capture is not greater at the local level than at the central one does decentralization improve both efficiency and equity compared with centralization.

It follows from the discussion that fiscal decentralization is not equally appealing for all countries and ethnic groups. Two necessary conditions must be fulfilled for groups fully to benefit from the process: (i) the group must constitute a local majority (or at least be regionally concentrated); (ii) the preferences of the group

must be dramatically different from those of the rest of the population. The first condition relates to the capacity of the group to take over the policy-making process at the local level. It is obvious that a minority group, which was evenly spread over all the country would have no more leverage on the decision-making process in decentralization than in centralization. Throughout the literature, the focus is then put on regionally concentrated groups. In this paper, we will restrict the analysis to the minority groups that are local majorities. The second condition states that groups that are dramatically different from the rest of the population are characterized by preferences far away from those of the median national voter. It follows that fiscal decentralization must markedly increase the welfare of such groups by allowing them to design policies of their own. Alesina et al. (1999) have produced evidence that ethnic groups differ in their preferences in USA. However, even in the absence of such differences in preferences across groups, the presence of limited altruism toward other groups is enough to make different groups better off in decentralization. Luttmer (2001) has shown that the taste for redistribution was lower in heterogeneous communities. Similarly, Alesina & La Ferrara (2000) suggest that people from different communities dislike mixing. Hence, a minority group with a different ethnic background from the rest of the population is likely to get marginalized.

H1: The greater the distance between the ethnic background of the group and that of the rest of the population, the larger the beneficial impact of fiscal decentralization.

We assume that the local state capacities play a great role in the success or failure of fiscal decentralization. Hence, it is necessary that the subunits that are granted large decision making rights be endowed with enough technical and bureaucratic

competences. Bardhan (2002) suggests that this is not usually the case, especially in developing countries. For instance, Sanchez & Palau (2006) shows that local governments in Colombia are too weak to resist the grip of local irregular groups. Similarly, the results of Murshed et al. (2009) reveal that while fiscal decentralization is effective for tackling routine violence in Indonesia, the effect is stronger in richer districts that have the greatest state capacities.

H2: Fiscal decentralization is more effective where subunits dispose of strong state capacities.

Finally there are also reasons to believe that national state capacities and institutional quality matter. Fiscal decentralization requires that subunits really decide the policies for which they are granted legislative power. It is likely that when institutions and checks and balances are weak the central government tries to shape fiscal decentralization in its own interest. Central governments have been shown to use fiscal decentralization schemes opportunistically to sustain patron-clients relationships (Barkan & Chege (1989), Green (2008a), Ukiwo (2006)). Likewise, the likelihood that the state gives the means to subunits to deal with larger prerogatives is greater when institutions are good and the countries are rich. Finally, if the state is weak minorities may be tempted to seek more than fiscal decentralization and try to obtain secession.

H3: Fiscal decentralization is more effective where national state capacities are large and institutional quality is good.

2.3 Data and methods

Empirical studies aiming at estimating the impact of federalism or decentralization have been quite scarce and have given mixed results. Cohen (1997) has found on MAR data that decentralization increased ethnoregional protest and reduced rebellion. He interprets this as a regional containment of previously nationwide conflicts, preventing countries from throwing themselves into large-scale destabilizing violence. Saideman et al. (2002) using the same database suggest that federalism can help reducing ethnic conflict, but surprisingly enough this effect is stronger in autocracies. Bermeo (2002) suggests through bivariate analysis that federalism performs better than a unitary set-up in terms of peace building, the effect being stronger in wealthier countries. Brancati (2006) resorts to an instrumentation procedure to show that if decentralization is desirable overall, its effect is undermined by the presence of strong regional parties. Bakke & Wibbels (2006) find that the interaction of fiscal decentralization and inequalities is surprisingly conflict reducing while the interaction between fiscal transfers and ethnic fractionalization also reduces conflict.

This paper intends to add to the literature by focusing on fiscal decentralization. In particular, we will test the assumptions that fiscal decentralization is efficient at managing ethnic conflict when minority groups are ethnically distant from the rest of the population and when countries and regions in which the process takes place enjoy sufficient state capacities. In order to test these hypotheses, the following benchmark model will be used:

$$V_{ijt} = \beta_0 + \beta_1 \text{Fisc.Decentralization} + \beta_2 \text{StateCapacities} + \beta_3 \text{Institutions} + \beta_4 X_{ijt} + \epsilon_{ijt} \quad (2.1)$$

where the subscripts i denotes the group, j stands for the country and t denotes the year. V is an index of ethnic violence, which will alternatively be rebellion and

communal violence. X_{ijt} is a vector of control variables.

The unit of analysis is minority groups as defined by MAR. Furthermore, we restrict the analysis to local majorities, i.e. groups that are minorities at the national level but that constitute majorities at the local level. This is calculated from the variable of group concentration (Groupcon) and the variables of local population share of the group at relevant local levels (Reg1p, Reg2p, . . .) from minorities at risk (MAR).

The dependent variable V_{ijt} is operationalized through the two ethnic conflict variables provided by the MAR dataset. Rebellion is coded on a seven-point scale, which reports the extent of violent anti-regime activities. Communal violence ranges from zero to six and focuses on violence between groups.

The variable of interest, fiscal decentralization, is captured by the share of sub-national expenditures in overall state spending. It is computed by the International Monetary Fund and remains the most widely used variable for fiscal decentralization throughout the literature on fiscal federalism, despite evident flaws. In particular, there is not always a correspondence between the share of subnational expenditures and the real devolution of policy-making authority to lower tiers of government (Rodden (2004)).

Institutions are measured by the indices of bureaucratic quality and law and order provided by the International Country Risk Guide (ICRG). Law and order is measured on a six-point scale, which is based on the strength of the judicial system and the enforcement of the law. The indicator for bureaucratic quality goes from zero to four and measures the strength and independence of the bureaucracy.

In a first stage, we will test whether previous studies that did not include institutional quality as a regressor have yielded biased estimates for the role of fiscal decentralization. To do so we will compare results with and without institutions.

Then we will check whether groups that are the most ethnically distant from the rest of the population are those that benefit most from fiscal decentralization:

$$\begin{aligned}
 V_{ijt} = & \beta_0 + \beta_1 \text{Fisc.Decentralization} + \beta_2 \text{EthnicDistance} \\
 & + \beta_3 \text{Fisc.Decentralization} * \text{EthnicDistance} \\
 & + \beta_4 \text{StateCapacities} + \beta_5 \text{Institutions} + \beta_6 X_{ijt} + \epsilon_{ijt}
 \end{aligned}
 \tag{2.2}$$

Ethnic distance stem from MAR. It is constructed as the sum of the linguistic, racial, religious and cultural distances between the minority and the dominant group. The variable so created ranges from zero (no distance) to 11 (maximal distance).

Then we will consider the interaction between decentralization and various indicators of state capacities:

$$\begin{aligned}
 V_{ijt} = & \beta_0 + \beta_1 \text{Fisc.Decentralization} + \beta_2 \text{StateCapacities} \\
 & + \beta_3 \text{Fisc.Decentralization} * \text{StateCapacities} \\
 & + \beta_4 \text{Institutions} + \beta_5 X_{ijt} + \epsilon_{ijt}
 \end{aligned}
 \tag{2.3}$$

State capacities are proxied by four variables: income differential between the group and the rest of the population, GDP per capita and the two aforementioned indices of institutions. The first is intended to capture the subnational level of state capacities whereas the three others are country level variables. The income differential is provided by MAR and is on a scale from zero to two, with two being the largest differential. As the focus of the study is on local majorities, income differential is likely to reflect the relative wealth of the region as well. However, income differential

also plausibly indicates the political status of the group. A group that is significantly poorer than the rest of the population is likely to be marginalized by the central government and has then greater chances to benefit from fiscal decentralization. As this variable is imperfect, we will also consider the GDP per capita and institutions of the country. Bermeo (2002) has already contrasted the impact of federalism with respect to GDP per capita and found that richer countries were more successful. Countries with higher GDP per capita are also likely to have stronger state capacities (Fearon & Laitin (2003)). Finally, we will use bureaucratic quality, and law and order as additional measures of state capacities. By construction, those two variables entail a significant state power dimension. While GDP per capita and the indices of governance largely overlap and are strongly correlated with each other, results of Djankov & Reynal-Querol (2007) and those of the first chapter show that they produce different effects on civil wars and ethnic conflicts.

It is important to control for factors that can explain decentralization and conflict. That is why we include in all subsequent regressions the logarithm of population and the effective number of ethnic groups. Both have proved to be linked to the degree of decentralization and they are likely to affect ethnic conflict in one way or other. Similarly, democracy is also included. Democracy is approximated by the sum of autocracy and democracy score from the Polity IV dataset. The variable so created ranges from -10 , reflecting pure dictatorship, to $+10$ for pure democracy. By the same token, we created a variable measuring the number of ethnic minorities that are local majorities in a country. Finally, an index of group coherence and the relative size of the group are included. Both are derived from MAR. Therefore, the empirical setting is a cross-sectional time series database spanning the period 1985-2001 with ethnic groups as the unit of analysis. The last year for which data on fiscal decentralization are available for a wide range of countries is 2001.

Most existing empirical studies on the topic rely upon pooled OLS estimations. While useful to uncover multivariate correlations, this method is unlikely to yield any causal estimation. First, there is a possibility that the causal relationship runs from violent conflict to the level of decentralization as well as the opposite. Second, if a third factor is omitted that explains both decentralization and conflict in the long-term OLS estimations are equally flawed. Addressing the ensuing endogeneity bias is far from being an easy task. Brancati proposes an instrumentation procedure using the size of the country and its ethno-linguistic fractionalization as instruments for decentralization. In this chapter, we will apply system GMM to deal with omitted variable and reverse causation biases. System GMM combines an equation in first differences where endogenous variables are instrumented by their lagged levels and an equation in level where endogenous variables are instrumented by their lagged differences. The rebellion and communal violence are ordered categorical variables that call for the use of ordered logit regressions. We will then present results from those estimations. However, we consider that the endogeneity issue is serious enough to prefer the system GMM estimator even though it is a linear one. Findings with pooled OLS will be displayed to check whether the use of a linear model gives closed results to the ordered logit. The estimation sample consists of 40 to 50 groups depending on specifications over the period 1985-2001.

2.4 Results

In Tables 2.1 and 2.2, regressions on fiscal decentralization and ethnic violence with and without the institutional quality are provided. Rebellion and communal violence are successively considered. For each, ordered logit, pooled OLS, and system GMM estimations are provided.

Regarding rebellion (table 2.1), we can see that when institutions are omitted from the specification the coefficient associated with fiscal decentralization is negative but usually insignificant. The only exception is when ordered logit is used (column 1). Including institutions (bureaucratic quality) increases the magnitude of the coefficient associated with fiscal decentralization as well as the precision of the points estimate. This is valid for every estimator. When system GMM estimations are considered, the coefficient is tripled going from -0.011 to -0.034 while the standard error remains almost unaffected. The size of the coefficient remains small though. This implies that increasing the share of subnational expenditures by 20 points of percentage is expected to reduce rebellion by only 0.6 points. At the same time, bureaucratic quality turns out to foster rebellion systematically, though the effect is insignificant and clearly lower with system GMM. If we retain the pooled OLS estimations, we would expect that doubling the score of bureaucratic quality (from 2 to 4 for instance) will increase the rebellion index by roughly 0.4 points. As bureaucratic quality is strongly correlated with fiscal decentralization and as bureaucratic quality is found positively related to rebellion, it follows that omitting the institutions variable in the framework biases downward the estimated effect of fiscal decentralization on rebellion. This result strongly confirms the need to control for the institutional environment. The fact that better bureaucratic quality is associated with more rebellion suggests that the mobilization effect dominates the deterrence effect. To put it differently, this may reflect the fact that groups need to organize themselves better when they face a capable state rather than a weak one.

We can see from table 2.2 that including bureaucratic quality in the communal violence estimations increases the coefficient associated with fiscal decentralization as well as the precision of the estimation. However, with system GMM the effect of fiscal decentralization remains insignificant. As for rebellion, bureaucratic quality

is positively related with communal violence while the size of the effect is similar. However, the effect of institutions proves insignificant in our preferred specification, i.e. system GMM.

The control variables exhibit the expected signs. However, in the preferred system GMM specification very few reach usual levels of confidence. It appears that the logarithm of GDP per capita is strongly negatively associated with rebellion while the logarithm of the population increases rebellion. Regarding communal violence, only the logarithm of the population (surprisingly) is related negatively to the dependent variable whereas the number of local majorities in the country is associated with more communal violence. Having shown that institutional quality matters and should be included in the specifications, we will now turn to the analysis of the hypothesized mediating variables that may shape the effect of fiscal decentralization.

Columns 1 to 3 in Tables 2.3 and 2.4 display the interaction effect of fiscal decentralization with the ethnic distance between the group and the rest of the country. For rebellion (Table 2.3), the coefficient associated with the interaction term is negative and strongly significant across all specifications, while the coefficient of fiscal decentralization is also negative and significant with all estimators. This suggests that fiscal decentralization is an effective device for all local majority groups but that its effect is enhanced in the case of groups markedly distinctive from the dominant population. For the most distinctive groups that receive a score of 11 (as the Mizos in India or the Turkmens in Russia), the estimated impact on the rebellion index of an increase by 10 points of percentage of the share of subnational expenditures reaches 0.924 instead of 0.77 for a group without ascriptive difference with the rest of population. Although the size of the impact may seem low, it is in fact significant once we remember that 80% of groups are characterized with a rebellion score below 2. Hence, fiscal decentralization is an effective mechanism to

manage low or moderate rebellion. The standalone coefficient for ethnic difference is negative and usually insignificant (except in column 1) while bureaucratic quality continues to increase rebellion.

No similar findings emerge for communal violence. Neither the coefficient associated with the interaction nor the one associated with fiscal decentralization reach the usual levels of confidence. Ethnic difference is also unrelated to communal violence. This may be explained by the fact that communal violence does not involve a clash between the group and the state but violent conflicts between groups. As a result, the theoretical framework that highlights the difference of preferences between a minority and the dominant group is less appropriate in the case of communal violence. However, the role of state capacities and institutions in the outcome of fiscal decentralization is supposed to be the same for rebellion and communal violence. We will now turn to these estimations.

The first hypothesis that we will test concerns the role of subnational state capacities. Hypothesis 2 states that subunits that lack the organizational and bureaucratic capacity to implement fiscal decentralization would not benefit from the process. Unfortunately, no data on a cross-country basis exist for assessing subnational capacities. However, the MAR dataset makes available a measure of the income differential between the group and the rest of the country. As this study focuses on local majorities, this index of income differential should also proxy the income differential between the regions. It is then assumed that groups which are reported to be significantly poorer than the rest of the country dispose of less means to implement fiscal decentralization. Columns 4-6 of tables 2.3 and 2.4 present the results. Contrary to expectations, the interaction between income differential and fiscal decentralization exhibits a negative sign. This is true for both rebellion (table 2.3) and communal violence (table 2.4). However, the coefficient is not significant

once system GMM is used. This suggests that groups that are poorer than the rest of the country are not disadvantaged with respect to those that are not. However, this result does not rule out the hypothesis altogether. The variable used is a poor proxy of local state capacities as it is constructed as a differential between the wealth of the rest of the population and the wealth of the minority. Thus, the variable may also capture the extent of the political marginalization experienced by groups, the effect of which on fiscal decentralization runs in the opposite direction to the effect of local state capacities. The estimated coefficients are then the sum of two contradictory effects, which might explain the absence of results.

To alleviate this concern, we consider next three measures of state capacities and institutions that pertain to the state (H3). First, in columns 7 to 9 of tables 2.3 and 2.4 are presented the results with the logarithm of GDP per capita. It is likely that GDP per capita reflects the degree of state capacities (Fearon & Laitin (2003)). As far as rebellion is concerned, there is very little support for the claim that richer countries are better able to implement fiscal decentralization. The sign of the interaction effect between GDP per capita and fiscal decentralization is surprisingly positive although it reaches the usual levels of confidence only with pooled OLS. The direct impact of GDP per capita, however, is negative and significant. In contrast, when we turn to communal violence results are supportive of the assumption. The interaction term is consistently negative and precisely estimated, while the coefficient associated with fiscal decentralization becomes positive and very large. Overall, this suggests that fiscal decentralization is expected to increase communal violence in countries with a logarithm of GDP per capita lower than eight. In the estimation sample, only 25% of countries are thus expected to reduce communal violence through fiscal decentralization. This finding echoes those that highlight the importance of the level of GDP per capita in the context of local violence (Murshed

et al. (2009), Sanchez & Palau (2006)). It is worth noting however that the direct effect of greater GDP per capita is to foster communal violence. Results suggest thus the need to distinguish between GDP per capita as a factor in promoting destabilization and ethnic mobilization and GDP per capita as a necessary condition for benefiting from the conflict-mitigating effect of fiscal decentralization.

Finally, Tables 2.5 and 2.6 display the estimations with institutional quality as a mediating variable. Bureaucratic quality, and law and order are considered successively. Regarding rebellion, we can see from table 2.5 that the interaction between fiscal decentralization and bureaucratic quality is positive and significant. The global effect of fiscal decentralization appears then to be negative but it tends to zero for maximum values of bureaucratic quality. Nothing similar arises with law and order. The results for communal violence do not give more support to the theory as the interaction between fiscal decentralization and bureaucratic quality is negative but insignificant whereas that between fiscal decentralization and law and order is positive and significant (except for system GMM). This is at odds with expectations and with the findings regarding GDP per capita. This very counter-intuitive result is hard to explain. We found in the first chapter that working institutions increase ethnic mobilization. Though surprising at first glance this could make sense once we consider that minorities are more threatened by a working state than by a failed state, all other things being equal. In a strong state, the beneficial impact of fiscal decentralization is offset by the considerable mobilization that minorities need to oppose the state effectively. Such an argument is backed up by the fact that in these estimations institutions no longer foster violence directly. All the conflict-conducive impact of institutions, which was apparent before is captured by the interaction term. One could also argue that fiscal decentralization gives minorities' legitimacy and resources that motivates the group to fight the state. This is the negative impact

of decentralization put forward by Cornell, which suggests that the more effective the fiscal decentralization process is (thanks to the better institutions), the more conflict-prone it is.

2.5 Concluding remarks

Fiscal decentralization is an institutional device that has been implemented increasingly over the last decades. In the context of ethnic conflict, it is often thought to dampen strife by giving groups control over their own affairs and by insulating minorities from predatory politics from the centre. However, federalism or decentralization has not had uniform results, which has led scholars to question why some countries have benefited from it and others have not. In this chapter, we have focused specifically on fiscal federalism to uncover the conditions that must be fulfilled for fiscal decentralization to be effective in reducing conflict, controlling for institutional quality in order to reveal the true effect of fiscal decentralization. System GMM estimations confirm that governance matters in explaining violent conflict. Better bureaucratic quality is associated with more rebellion and communal violence. As fiscal decentralization and bureaucratic quality are strongly correlated, omitting institutions in estimations result in the under-estimation of the impact of fiscal decentralization. We explain this institutional impact by the increase in group mobilization produced by the presence of a capable state. Facing potential or effective threats from a strong state, it is necessary for minorities to organize themselves. Results also confirm that fiscal decentralization is more desirable for groups that are different from the rest of the population. With respect to state capacities, findings confirm that fiscal decentralization is more effective in richer countries. This effect is restricted to communal violence though. Finally no support

emerged for the hypothesis that fiscal decentralization requires a strong institutional environment to produce conflict-mitigating effects. On the contrary, the impact of fiscal decentralization tends to vanish at high levels of bureaucratic quality. This very counter-intuitive finding requires confirmation by other studies and justifies further research to investigate more thoroughly the complex links between fiscal decentralization, state capacities and institutions.

Dependent variable	Rebellion					
	Ordered logit (1)	Ordered logit (2)	Pooled OLS (3)	Pooled OLS (4)	System GMM (5)	System GMM (6)
Fiscal decentralization	-0.038 (0.010)	-0.060 (0.011)	-0.005 (0.007)	-0.017 (0.006)	-0.011 (0.019)	-0.034 (0.015)
Bureaucratic quality		0.289 (0.110)		0.257 (0.084)		0.116 (0.179)
Log of GDP per capita	-0.655 (0.133)	-0.690 (0.162)	-0.438 (0.085)	-0.465 (0.104)	-0.421 (0.172)	-0.355 (0.193)
Democracy	0.040 (0.021)	0.045 (0.028)	-0.011 (0.019)	-0.016 (0.019)	-0.008 (0.035)	0.018 (0.035)
Log of population	0.539 (0.119)	0.670 (0.143)	0.247 (0.073)	0.310 (0.077)	0.279 (0.158)	0.399 (0.161)
No. of effective ethnic groups	-0.294 (0.157)	-0.200 (0.159)	-0.103 (0.079)	-0.059 (0.074)	-0.076 (0.181)	0.046 (0.168)
No. of local majorities	-0.141 (0.097)	-0.112 (0.112)	-0.013 (0.085)	-0.026 (0.089)	-0.009 (0.172)	0.022 (0.190)
Group coherence	0.130 (0.031)	0.124 (0.034)	0.071 (0.021)	0.078 (0.023)	0.069 (0.053)	0.071 (0.058)
Group size	0.403 (0.690)	1.259 (0.823)	-0.776 (0.456)	-0.464 (0.466)	-0.733 (1.090)	-0.508 (1.114)
Observations	509	467	509	467	509	467
Hansen <i>p-value</i>					1	1
AR(1) <i>p-value</i>					0.106	0.101
AR(2) <i>p-value</i>					0.929	0.513
R^2	0.103	0.118	0.247	0.275		

Note: robust standard errors are in parentheses. All regressions include time dummies.

Table 2.1: Fiscal decentralization and rebellion: with and without institutional quality

Dependent variable	Communal violence					
	Ordered logit (1)	Ordered logit (2)	Pooled OLS (3)	Pooled OLS (4)	System GMM (5)	System GMM (6)
Fiscal decentralization	-0.004 (0.010)	-0.024 (0.014)	-0.005 (0.009)	-0.022 (0.009)	0.003 (0.019)	-0.010 (0.022)
Bureaucratic quality		0.299 (0.181)		0.312 (0.159)		0.201 (0.270)
Log of GDP per capita	0.069 (0.118)	0.206 (0.197)	0.108 (0.104)	0.204 (0.162)	0.099 (0.238)	0.233 (0.263)
Democracy	-0.010 (0.029)	-0.018 (0.043)	-0.008 (0.028)	-0.023 (0.036)	-0.023 (0.048)	-0.031 (0.055)
Log of population	-0.146 (0.108)	0.526 (0.236)	-0.140 (0.090)	-0.472 (0.144)	-0.153 (0.198)	-0.487 (0.236)
No. of effective ethnic groups	0.153 (0.152)	0.065 (0.212)	0.167 (0.138)	0.011 (0.177)	0.133 (0.281)	-0.009 (0.351)
No. of local majorities	0.302 (0.087)	1.168 (0.466)	0.372 (0.108)	1.117 (0.289)	0.352 (0.188)	1.089 (0.375)
Group coherence	0.129 (0.040)	0.086 (0.044)	0.112 (0.035)	0.088 (0.037)	0.113 (0.088)	0.090 (0.083)
Group size	2.045 (1.502)	2.817 (1.331)	2.262 (1.217)	3.183 (1.119)	2.438 (3.433)	3.187 (3.073)
Observations	320	286	320	286	320	286
Hansen <i>p-value</i>					1	1
AR(1) <i>p-value</i>					0.012	0.022
AR(2) <i>p-value</i>					0.115	0.177
R^2	0.047	0.082	0.123	0.206		

Note: robust standard errors are in parentheses. All regressions include time dummies.

Table 2.2: Fiscal decentralization and communal violence: with and without institutional quality

Dependent variable	Rebellion			Rebellion			Rebellion		
	Ordered logit (1)	Pooled OLS (2)	System GMM (3)	Ordered logit (4)	Pooled OLS (5)	System GMM (6)	Ordered logit (7)	Pooled OLS (8)	System GMM (9)
Fiscal decentralization	-0.057 (0.025)	-0.072 (0.015)	-0.077 (0.028)	-0.054 (0.018)	-0.013 (0.009)	-0.014 (0.014)	0.010 (0.072)	-0.098 (0.047)	-0.059 (0.074)
Bureaucratic quality	0.402 (0.123)	0.279 (0.075)	0.290 (0.129)	0.227 (0.110)	0.183 (0.077)	0.141 (0.144)	0.251 (0.113)	0.301 (0.085)	0.303 (0.164)
Fisc. dec. * ethnic difference	-0.017 (0.003)	-0.014 (0.002)	-0.014 (0.004)						
Ethnic difference	-0.304 (0.106)	-0.072 (0.078)	-0.060 (0.127)						
Fisc. dec. * income difference				-0.018 (0.008)	-0.016 (0.005)	-0.014 (0.011)			
Income difference				-0.469 (0.270)	-0.198 (0.181)	-0.259 (0.329)			
Fisc. dec. * log of GDP per capita							-0.009 (0.010)	0.010 (0.005)	0.005 (0.009)
Log of GDP per capita	-1.147 (0.211)	-0.811 (0.112)	-0.821 (0.166)	-0.513 (0.153)	-0.381 (0.094)	-0.349 (0.149)	-0.406 (0.319)	-0.835 (0.237)	-0.676 (0.363)
Observations	467	467	467	452	452	452	467	467	467
Hansen <i>p-value</i>			1			1			1
AR(1) <i>p-value</i>			0.096			0.099			0.090
AR(2) <i>p-value</i>			0.470			0.497			0.528
R^2	0.186	0.403		0.157	0.354		0.119	0.283	

Note: robust standard errors are in parentheses. All regressions include time dummies.

Table 2.3: Fiscal decentralization, ethnic distance, state capacities and rebellion

Dependent variable	Communal violence			Communal violence			Communal violence		
	Ordered logit (1)	Pooled OLS (2)	System GMM (3)	Ordered logit (4)	Pooled OLS (5)	System GMM (6)	Ordered logit (7)	Pooled OLS (8)	System GMM (9)
Fiscal decentralization	-0.022 (0.026)	-0.021 (0.025)	-0.023 (0.057)	0.000 (0.016)	0.002 (0.013)	0.001 (0.030)	0.445 (0.109)	0.356 (0.074)	0.359 (0.105)
Bureaucratic quality	0.292 (0.184)	0.312 (0.160)	0.245 (0.231)	0.296 (0.201)	0.366 (0.165)	0.377 (0.253)	-0.074 (0.170)	-0.051 (0.138)	-0.071 (0.210)
Fisc. dec. * ethnic difference	0.000 (0.004)	0.000 (0.004)	0.000 (0.008)						
Ethnic difference	0.108 (0.189)	0.022 (0.148)	0.007 (0.229)						
Fisc. dec. * income difference				-0.017 (0.008)	-0.016 (0.007)	-0.017 (0.015)			
Income difference				0.966 (0.413)	0.729 (0.267)	0.756 (0.563)			
Fisc. dec. * log of GDP per capita							-0.055 (0.012)	-0.044 (0.008)	-0.045 (0.012)
Log of GDP per capita	0.275 (0.299)	0.212 (0.201)	0.249 (0.344)	0.188 (0.224)	0.126 (0.161)	0.127 (0.259)	2.201 (0.463)	1.909 (0.309)	1.937 (0.500)
Observations	286	286	286	277	277	277	286	286	286
Hansen <i>p-value</i>			1			1			0.803
AR(1) <i>p-value</i>			0.017			0.014			0.027
AR(2) <i>p-value</i>			0.186			0.190			0.250
R^2	0.083	0.206		0.093	0.223		0.119	0.277	

Note: robust standard errors are in parentheses. All regressions include time dummies.

Table 2.4: Fiscal decentralization, ethnic distance, state capacities and communal violence

Dependent variable	Rebellion			Rebellion		
	Ordered logit (1)	Pooled OLS (2)	System GMM (3)	Ordered logit (4)	Pooled OLS (5)	System GMM (6)
Fiscal decentralization	-0.128 (0.029)	-0.082 (0.013)	-0.083 (0.028)	-0.070 (0.033)	-0.022 (0.022)	0.007 (0.034)
Bureaucratic quality	-0.037 (0.158)	-0.076 (0.105)	-0.066 (0.261)			
Law and order				-0.382 (0.183)	-0.248 (0.142)	-0.209 (0.226)
Fisc. dec. * bureaucratic quality	0.024 (0.009)	0.022 (0.004)	0.022 (0.010)			
Fisc. dec. * law and order				0.007 (0.007)	0.004 (0.005)	0.002 (0.008)
Log of GDP per capita	-0.731 (0.166)	-0.548 (0.106)	-0.550 (0.184)	-0.498 (0.155)	-0.369 (0.097)	-0.401 (0.179)
Observations	467	467	467	498	498	498
Hansen <i>p-value</i>			0			1
AR(1) <i>p-value</i>			0.071			0.095
AR(2) <i>p-value</i>			0.541			0.811
R^2	0.122	0.297		0.117	0.263	

Note: robust standard errors are in parentheses. All regressions include time dummies.

Table 2.5: Fiscal decentralization, institutions and rebellion

Dependent variable	Communal violence			Communal violence		
	Ordered logit (1)	Pooled OLS (2)	System GMM (3)	Ordered logit (4)	Pooled OLS (5)	System GMM (6)
Fiscal decentralization	0.038 (0.048)	0.021 (0.030)	0.015 (0.046)	-0.058 (0.028)	-0.050 (0.026)	-0.052 (0.032)
Bureaucratic quality	0.611 (0.259)	0.547 (0.191)	0.461 (0.293)			
Law and order				0.078 (0.192)	0.013 (0.191)	-0.034 (0.301)
Fisc. dec. * bureaucratic quality	-0.021 (0.016)	-0.015 (0.010)	-0.013 (0.014)			
Fisc. dec. * law and order				0.011 (0.006)	0.011 (0.006)	0.011 (0.008)
Log of GDP per capita	0.347 (0.285)	0.274 (0.192)	0.304 (0.266)	-0.029 (0.120)	0.038 (0.106)	0.042 (0.236)
Observations	286	286	286	315	315	315
Hansen <i>p-value</i>			1			1
AR(1) <i>p-value</i>			0.023			0.009
AR(2) <i>p-value</i>			0.190			0.193
R^2	0.088	0.214		0.065	0.155	

Note: robust standard errors are in parentheses. All regressions include time dummies.

Table 2.6: Fiscal decentralization, institutions and communal violence

Chapter 3

Fiscal decentralization, Preference-Matching and Violent Ethnic Conflict: The Heterogeneous Impact of Fiscal decentralization on Local Minorities and Local Majorities

3.1 Introduction

There has been a growing trend amongst economists and policy-makers since the 1990s to consider that fiscal decentralization improves the quality of governance, fosters political participation and helps designing and implementing policies that are closer to the local preferences of the people (see for instance United Nations De-

velopment Programme (1997) and World Bank (2000)). In the field of development, the idea to resort to community-driven development - entailing a strong participatory dimension from people at the grassroots - rather than to top-down approaches, is also gaining ground. Within political science, there is a much debated question about the role of decentralization on ethnic conflict. Because most conflicts around the world are within rather than between states, and as most of the latter entail a significant ethnic dimension (Sambanis 2001), the question of the desirability of decentralization for dealing with this issue is a crucial one.

Most of the literature focuses on political decentralization, federalism and territorial autonomy as potentially successful peace-preserving or conflict-mitigating institutions (Lijphart 1977, Hechter 2000, Hooghe 2004, Lustick et al. 2004, Suberu 2001, Gurr 2000). Fiscal decentralization is usually not seen as a separate dimension, and one with important consequences in its own right. In the quantitative literature indicators of fiscal decentralization are sometimes used (Bakke & Wibbels 2006, Brancati 2006), but the conceptual and empirical discussions are centered around political decentralization. In recent years, a handful of quantitative contributions have analysed specifically the role of fiscal decentralization in conflict affected countries. Murshed et al. (2009) investigated whether the fiscal decentralization process that was launched in Indonesia after the fall of president Suharto in 1998 had any impact on the extent of routine violence. Their argument was based on the club goods theory, stating that the needs of local population will be better accounted for by fiscal decentralization and therefore help to reduce violence. Aleman & Treisman (2005) carefully analysed the potential links between various aspects of fiscal policy and secessionist conflicts in four countries: Pakistan, India, Nigeria and former Yugoslavia. Fiscal decentralization was one of the aspects studied, and it was assumed that increased fiscal decentralization would improve the match be-

tween preferences and policies. The authors did not find support for this assumption across the four countries. They did find that fiscal appeasement reduced violence¹. Tranchant (2008) and Siegle & O'Mahony (2006) also tested directly the assumption that fiscal decentralization allows ethnic groups to design their own policies. Both papers find support for this effect in the data². The aim of this chapter is to re-test in a more systematic fashion, through cross-country comparisons, the hypothesis that fiscal decentralization reduces ethnic violence. In so doing the chapter will also discuss the hypothesis itself, thinking theoretically how and under which conditions does fiscal decentralization affects the likelihood of ethnic conflict. At the heart of this discussion lies the claim that the aforementioned hypothesis stems in fact from the combination of three distinct assumptions, which notably in light of the recent theory of fiscal decentralization, may not be as obvious as the literature tends to claim.

These assumptions are that i) ethnic minorities differ in their preferences over public goods from the rest of the population, ii) the match between minorities preferences and policies is better with fiscal decentralization than with centralization and iii) as welfare of the minorities increases, the likelihood of ethnic violence monotonically decreases³. The first assumption is necessary for fiscal decentralization to potentially increase the match between the preferences of minorities and the policies⁴. In light of the recent study by Habyarimana, Humphreys, Posner & Weinstein

¹Fiscal appeasement is the strategy to design central transfers to the most likely separatist regions.

²Sanchez & Palau (2006) offers another study of the role of fiscal decentralization in reducing conflict, but unlike the above papers, it does not relate fiscal decentralization to ethnic conflict but instead to the civil war in Colombia.

³We consider throughout the chapter the concept of violent ethnic conflict, accordingly excluding peaceful protests. Even when ethnic conflict is mentioned, this in fact refers to violent conflict only, i.e. rebellion and communal violence. The precise definitions of these two forms of violence are given in section 3.2.

⁴There are others channels through which fiscal decentralization may enhance the welfare of minority groups, the most important of them being accountability. Models by Seabright (1996) and Bardhan & Mookherjee (2006a) formalise this idea. To apply these models to the question of

(2007) which shows that preferences do not vary with ethnicity within an Ugandan slum, we will take into the consideration the fact that ethnic groups may share similar views on public goods. This is however most likely where ethnic groups live in the same locality but is arguably less so when ethnic groups live in different regions. The second assumption is the key point in the argument of using fiscal decentralization as a means to reduce ethnic conflict. Two elements are thus put forward: firstly, ethnic groups need to be a local majority in order to benefit from the decentralization process, and secondly the usual argument rests on the hypothesis that centralized policy is uniform within the countries. This has been questioned in the latest models of fiscal decentralization. Besley & Coate (2003) abandons this assumption and instead resort to a legislative model of centralized decision-making. This is compatible with a vector or region-specific policy so that the preference-matching argument is not so obvious any more. The implications for ethnic violence will have to be discussed accordingly. We do so by comparing the standard and the political economy approaches of fiscal decentralization. From the viewpoint of an ethnic minority, fiscal decentralization is necessarily better than centralization as long as the standard approach is taken. Using the political economy approach instead makes possible the situation in which an ethnic group loses out from the decentralization process. Finally, in order to address the third assumption we develop a simple framework which links welfare of minorities and conflict. Starting from a rational choice approach of conflict, we consider that ethnic violence is used when it is in the interests of the ethnic groups. Secession and the influencing of policy outcomes are the two potential gains from violence. Fiscal decentralization prevents secessionist violence if preference-matching processes result in a strong enough increase of the welfare of ethnic groups which makes secession (including the cost

ethnic conflict is undoubtedly an important research question that is yet beyond the scope of this chapter.

endured to achieve it) unprofitable. It has sometimes been argued that a benefit of fiscal decentralization is to lower the salience of nationwide politics thereby shifting the conflict from the centre - with all its destabilising consequences - to the periphery (Cohen 1997). We introduce the possibility that this may not be so. Fiscal decentralization has been shown to go hand in hand with a massive redrafting of internal administrative boundaries. In Uganda, Green(2008*a*, 2008*b*) remarks that the number of districts has soared from 33 in 1986, when the country embarked on decentralization, to 80 in 1997. In India the Mizos (a tribal group) have launched a rebellion that eventually receded only when the federal government granted them a distinct state, Mizoram. This points out to the fact that local minorities which do not control decentralized policy (as was the case of the Mizos when they were part of the state of Assam) may in fact be encouraged to mobilise, potentially using violence, in order to force the central government to grant them a region of their own. In addition, fiscal decentralization augments the value of controlling local governments thereby increasing the likelihood of local conflicts, pitting communities against each other.

Having discussed the three assumptions in turn, we come up with several conflicting hypotheses about the impact of fiscal decentralization on ethnic violence. These hypotheses are tested empirically on a panel dataset of 50 ethnic groups located in around 40 countries over the period 1985-2001. Fixed and random effects estimations are provided depending on the results of a prior Hausman test. The first result of the chapter is to show that within the category of concentrated groups (also referred to as 'territorial minorities'), the effect of fiscal decentralization changes dramatically with respect to the local majority status of the group. More specifically, the results suggest that if fiscal decentralization is effective at managing rebellion of local majorities, it also fuels rebellion amongst local minorities in the same pro-

portion. This suggests that in presence of fiscal decentralization, local minorities fight for obtaining their own region in which they could fully benefit from the decentralization. Fiscal decentralization therefore fails to completely shift conflict from the centre to the periphery, because of the incentives of local minorities. Countries find thus themselves in a bind: refusing decentralization will foster rebellion from local majorities, and promoting fiscal decentralization will fuel rebellion from local minorities. Thus, depending upon the number of each of these groups, the overall effect of decentralization can be null, negative or positive.

On the other hand results for communal violence are more encouraging as we find that fiscal decentralization is significantly associated with lower violence for every group. Fiscal decentralization thus does not appear to generate new local conflicts over the control of local governments. This set of results is at odds with the common wisdom which sees fiscal decentralization as means to lower the incidence of nationwide conflict at the cost of increased communal violence at the grassroots. By carefully distinguishing between local majorities and local minorities, which are not affected by fiscal decentralization in the same manner, this chapter offers an important perspective on the intricate effect of fiscal decentralization on ethnic conflict.

The rest of the chapter is organized as follows. Section 3.2 analyses how fiscal decentralization can impact ethnic conflict, distinguishing between local minorities and local majorities, and outlines hypotheses about the relationships between fiscal decentralization, group concentration, local majority and conflict behavior. Section 3.3 presents the empirical strategy and the data. Section 3.4 discusses the results. Section 3.5 concludes.

3.2 Fiscal decentralization, Ethnic Conflict and Demographic characteristics of Ethnic Groups

A significant literature studies the relationship between political decentralization (and/or federalism) and ethnic conflict. Much less has been written on the role of fiscal decentralization (Murshed et al. 2009, Tranchant 2008, Siegle & O'Mahony 2006, Aleman & Treisman 2005). This might reflect the fact that the literature is dominated by political scientists who tend to stress the political side of the decentralization process. The aim of this section is to identify the mechanisms relating fiscal decentralization and conflict by combining a rational choice approach of ethnic violence with the economic theory of fiscal decentralization. In so doing we will claim that there are compelling reasons to believe that the relationship between fiscal decentralization and violent conflict is worth examining empirically. In order to advance understanding of this relationship we introduce a fundamental distinction between local majorities and local minorities into the discussion. So far this central distinction in the size of ethnic groups has not been examined by the proponents of fiscal decentralization in contexts of high potential for ethnic conflict⁵.

3.2.1 Minority preferences over public goods

The principal argument in favour of fiscal decentralization is that it allows public policies and public goods to be tailored to fit the taste of ethnic minorities. This argument, referred to henceforth as preference-matching (Lockwood 2006), stems in fact from the combination of three assumptions. Firstly, it is stated that minorities differ from the other groups in a given country in terms of preferences over public

⁵Saideman et al. (2002) have distinguished between spatially concentrated and dispersed groups in their analysis of federalism as a means of reducing ethnic conflict. However within the former category are both local majorities and local minorities.

policies. Secondly, it is argued that decentralization results in an improved matching between preferences and policies with respect to centralization. Thirdly, the relation between the welfare of the minorities, which partly depends on the public policies and ethnic violence, is monotonically decreasing. Each of these steps of the reasoning deserves discussion.

Ethnic minorities may have different preferences because their members are not in the same situation than members of the other groups. For instance, ? make the case that the Black and Hispanic communities in US cities have diverging priorities over schooling policy with respect to the White communities. Even neutral public goods as motorways can give rise to conflicting demands as the various groups do not benefit in the same way from the infrastructure depending on their location. Similarly groups with a history of discrimination and under-provision of public goods will emphasise the priority of minority rights and fairness in public spending distribution above what is advocated by dominant groups. However, results from an experiment conducted in Uganda by Habyarimana et al. (2007) casts doubt on the argument that there is a commonality of preferences within ethnic groups. The authors found evidence that ethnicity matters in public good provision because while there exists norms and sanctions within homogeneous communities that supports collective action, those are lacking in heterogeneous communities ⁶. Yet the argument that preferences are partly dictated by ethnicity is necessary for fiscal decentralization to generate welfare gain through preference - matching. The view taken in this chapter is that preferences may be heterogeneous across ethnic groups as long as there is enough geographical segregation. Unlike in the Habyarimana et al. (2007) case where respondents lived in the same slum, when people from different ethnicity mostly live in separate regions, it may be assumed that their preferences differ.

⁶These results mirror those of Miguel & Gugerty (2005) on Uganda and Tanzania.

3.2.2 Fiscal decentralization and welfare of ethnic groups

The standard approach

The second assumption is drawn from the standard approach of fiscal federalism. In the seminal study in the field, Oates (1972) contrasted the impact of decentralization and centralization on aggregate welfare by emphasising externalities and heterogeneity of preferences. centralization dominates when inter-regional externalities are sizeable and preferences are relatively homogeneous across the regions. On the other hand, decentralization is Pareto superior when externalities are limited and heterogeneity of preferences is large. This is due to two assumptions: i) decentralization does not account for externalities as each subunit only cares for itself, and ii) lack of information and/or constitutional constraints involve that the policy is uniform across regions in centralization. In centralization, the standard approach supposes that a benevolent social planner maximises a welfare function subject to the uniformity constraint. The weight of a small minority group in the social planner function being small, it results that the policy will not reflect the preferences of the minority. On the other hand, in decentralization each region implements the policy of the regional median voter ⁷. If members of the minority are demographically dominant in their region, this will ensure that public policies will now reflect their preferences. The welfare of the minorities is thus greater in decentralization than in centralization. For instance, in decentralization concentrated ethnic minorities can set education in the language they wish. It is worth noting that to arrive at this proposition we made two assumptions on the way. The first is the uniformity assumption, the second is that the ethnic group is able to take over the decentralized policy, which in democratic setting boils down to state that the ethnic group is a

⁷This result stems from the assumption of a Downsian electoral competition or, under certain hypotheses, from a model of citizen candidate

local majority. We will now successively relax these two assumptions.

The political economy approach

The standard approach rests on the assumption that centrally designed policies are uniform within the country. This is relevant if the public good cannot be divided as, for instance, the diplomatic alliances the country favours, the fiscal policy or the pattern of the judicial system. Most public goods however are not of this sort. There is in fact little empirical evidence nor sound theoretical reasons which support the uniformity hypothesis (Lockwood 2006). An alternative approach, proposed by Besley & Coate (2003) is to replace the social planner by a political economy model. The case of decentralization is unchanged but central decisions are now taken by a legislature composed by a delegate from each region. Under certain assumptions, the delegate in each region maximises the utility function of the median voter. The legislative behavior is modelled as in Baron & Ferejohn (1989). Each delegate has equal chances to set the agenda. She therefore proposes a policy (a vector of region-specific policies or public goods) that is put to majority vote against some status quo. Other delegates cannot amend the proposal (closed-rule). If the proposal gets a simple majority of regions, the policy is implemented; otherwise another delegate is randomly selected to propose a policy which is put to vote and so forth. In such a setting, the case for decentralization is less obvious as policies and preferences can be matched even in centralization. The outcome of centralization is however uncertain and distorted as public goods are mostly supplied in the regions part of the winning coalition. Regions will be more likely to be part of the coalition if the cost of providing the local public good is low (Lockwood 2006), as well as their utility reserve under status quo and their size (Persson & Tabellini 2002), chapter 7. In contrast, when their taste for public goods is high, delegates tend to be part

of the coalition. All these characteristics make these regions cheaper to buy into the coalition than regions with opposite characteristics. Bearing this upshot in mind, it is so clear that ethnic minorities must not as automatically fare worse in centralized systems as is concluded with the standard approach. The aforementioned characteristics are not a priori systematically different between regions dominated by ethnic minorities and others. However, from the viewpoint of an ethnic minority, the case for decentralization loses some of its strength but certainly not all of it. Decentralization is still likely to be more desirable because the outcome of decentralization is both predictable and ensures preference-matching, while that of centralization is uncertain with still the possibility of ending up with nothing. In addition, ethnic minorities might be systematically discriminated in the legislative assembly. In presence of ethnicity-based distributive politics, delegates in the assembly may decide to finance public goods in the regions dominated by their own ethnic type. Fiscal decentralization is thus a way for an ethnic minority to escape discriminations. On the other hand if externalities are especially large and/or if the ethnic group is part of the winning coalition then centralization may dominate. This is an outcome that was altogether ruled out with the standard approach of fiscal decentralization.

The case of local minorities

As discussed above, the condition to benefit from fiscal decentralization is that the median voter is a member of the ethnic group. But what can be said about minority groups with population below 50% of the regional population? The outcome of decentralization now depends on the distribution of preferences within the country. If the regional median voter has similar preferences than the national median voter, decentralization and centralization are equivalent; conversely if preferences of the regional median voter are closer to those of the minority, decentralization increases

welfare. This might reflect that beyond ethnicity, groups which share geographical characteristics face similar challenges and opportunities. For instance, groups located in a remote part of the country will agree on boosting the investment on infrastructures to access the markets. The results of Habyarimana et al. (2007) about the absence of ethnic preferences in a slum of Kampala back this assumption. On the other hand, the preferences of the local majority can be further away from those of the minority. In centralization, the policy is the result of the agreement between several delegates. In decentralization however, the policy is the result of the preferences of one single group. And it is obvious that the policy chosen by one group might be more extreme than that chosen by a coalition. In addition, within a region ethnic groups may rely on different livelihood, resulting in conflicting demands (for instance between pastoralists and herders). It is assumed thus that decentralization involves a greater risk for a local minority than centralization.

We have now to come back to the third assumption, namely that welfare monotonically decreases conflict.

3.2.3 From fiscal decentralization to conflict

It is useful first to define the term ethnic violence. In what follows we consider two forms of ethnic violence, namely rebellion and communal violence. Rebellion stands for violent anti-regime activities and communal violence refers to inter-groups violent rivalries. The two definitions are those of the Minorities At Risk database whose data we use in the empirical section. Also, we refer in what follows to the region as a generic name for the relevant local layer of government in which the minority may or may not be concentrated. Depending on the country being considered, the term region must be replaced by state, province or district or any other name granted to local administrative units.

Having described how fiscal decentralization impacts the welfare of ethnic groups, we now need a theory of ethnic violence. According to the rational choice approach, we will assume that ethnic groups engage in violence when its gain outweighs its costs. The gain is either to obtain a separate state of its own or to influence the policy. Let us consider first the case of secession. Secessionist claims can be sincere or strategic. In the latter case the leaders use the threat of secession to obtain fiscal transfers from the centre or some territorial autonomy (Aleman & Treisman 2005). Each group is characterised by a welfare level in a separate state which positively depends on the taste for self-rule, the size of the group (economies of scale in the newly-formed country), the probability to secure independence (military and diplomatic strength), and some macro factors as the access to the world market and military threats (Alesina & Spolaore 1997, Bolton & Roland 1997). If the welfare of the minority in the country is below this welfare in secession (minus the costs of conflict), the group has a rational motive to engage in separatist violence. The case for decentralization arises when the welfare in centralization is lower than that in secession and the gain of decentralization is large enough to shift the utility above the reserve level. As such one can see that the effect of decentralization on ethnic conflict will depend on two elements: i) the extent to which decentralization increases groups' welfare and ii) the level of reserve utility. Most of these depend on group characteristics. For instance a very small group gains most from decentralization whereas its utility in secession is arguably very low (diseconomies of scale). Hence it is expected to be particularly responsive to decentralization. This is conditional on the fact that the group, however small, disposes of a regional majority. Local minorities are the other end of the spectrum. For them the outcome of decentralization is risky and although that of centralization is poor, there is no guarantee that fiscal decentralization will increase welfare and reduce violence.

As far as the second objective is concerned, i.e. influencing policy outcomes, it might seem that it falls in importance with increases in fiscal decentralization. Rebellion will change policy only if the policy is nationally decided. With fiscal decentralization, many decisions are taken locally and there are therefore less reasons to challenge the state (Cohen 1997). We consider that this may not be entirely true because fiscal decentralization will empower ethnic minorities in so far as they control the local government. Local minorities that may not benefit from fiscal decentralization are encouraged to claim the redrafting of internal boundaries so that they also benefit from decentralization. We stress here the idea that administrative boundaries are to some extent endogenous to the decentralization process. Green (2008b) and Diprose (2008) investigated this under-researched dimension of decentralization in respectively Uganda and Indonesia. Green shows that the tremendous multiplication of districts creation which happened during the decentralization process in Uganda had a lot to do with patron-client relationship on one hand, and claims from local minority ethnic groups to dispose of their own districts on the other hand. In some instances these claims took a violent form.

Finally fiscal decentralization has an impact on violence through the conflict over the control and definition of local governments. In the process of decentralization, local governments gain in importance, and in the relative absence of local checks and balances and mechanisms of conflict resolution (Bardhan & Mookherjee 2000, Bardhan 2002), conflicts over the control of the local governments are likely to turn violent.

To summarise the section, we will now combine the insights gained from the above discussion and outline various hypotheses about the role of fiscal decentralization on ethnic violence.

Fiscal decentralization and rebellion

The most likely outcome of fiscal decentralization is to increase the welfare of local majorities. When this is true, it reduces the incentives for rebellion. There exists the possibility that fiscal decentralization reduces welfare of local majorities. The reasons are firstly that, despite their local majority status, these groups are excluded from the local government which pursues a policy even further away from their preferences than the centralized policy and, secondly, that these groups enjoyed a dominant status in the legislative assembly.

If the median voter holds true, the fate of local minorities crucially depends on the distribution of preferences within the country. If groups living together do not develop specific preferences, then fiscal decentralization is likely to reduce rebellion. On the contrary, if local groups have distinct preferences, then fiscal decentralization leads to a heightened risk that preferences of local minorities will be further away from the actual policy. In addition, fiscal decentralization might spur armed movements representing local minorities aimed at gaining an autonomous region.

Fiscal decentralization and communal violence

Unless the local majorities are deprived of any influence in local governments, there is no reason why fiscal decentralization should not dampen communal violence instigated by local majorities. In the case that preferences are determined by the region more than by the ethnicity, this remains true for local minorities as well. On the contrary, if groups have diverging priorities for public goods, fiscal decentralization can foster communal violence from local minorities. This will be all the more true if the mechanisms of conflict resolution are weaker at the local level than at the national level.

3.3 Data and Methods

We will now turn to the empirical assessment of the aforementioned hypotheses. We define fiscal decentralization as the share of subnational expenditures in overall state spending. The data originally come from the Government Financial Statistics computed by the International Monetary Fund and have been gathered by the World Bank along with other indicators of fiscal decentralization. We make use of the levels of decentralized expenditures as opposed to the levels of revenue obtained from decentralization, since the discussion in the previous section made clear that what matters from the viewpoint of ethnic conflict is the groups's capacity to influence public spending at various levels of government. The decentralization data covers between 34 and 55 countries on a yearly basis between 1972 and 2001. This is a limited coverage as most of African countries are left out of the dataset. There exists another dataset, compiled by Daniel Treisman, which provide indicators of decentralization for a larger number of countries. But, unlike the IMF data, they are only available for one period (the mid-1990s), rendering impossible the use of panel data techniques. The issue of unobserved heterogeneity is of a crucial importance in this analysis, we therefore choose to work with the IMF data in order to be able to control for a potential omitted variables bias. The unit of analysis is the ethnic groups as defined by the Minorities At Risk (MAR) database. MAR covers 285 groups around the world. The groups selected are groups with a history and/or an ongoing experience of violence and/or discrimination. All of these groups are demographic minorities. Along with information on various forms of ethnic conflict and violence, the database makes available information on their demographic, political, social and cultural characteristics. This is what we need to test the effect of fiscal decentralization conditional on demographic groups's characteristics. In particular we use the binary variable 'regional base' which takes the value 1 if the group dis-

poses of a 'spatially contiguous region larger than an urban area that is part of the country, in which 25% or more of the minority resides and in which the minority constitutes the predominant proportion of the population' (MAR Codebook, p. 18). This variable captures well the notion of 'territorial minority' as a group having a regional base enjoys a territory it can claim. This means the group can rule this territory under decentralization, or can push for independence on the basis of this territory. Hence, groups that have a regional base do rebel significantly more than groups that lack one. Yet, this variable is imperfect as it does not distinguish between local majorities and local minorities. In the data it turns out that slightly more than 20% of the territorial minorities are not a simple majority of the regional population. We have stressed in the previous section the need to distinguish between the incentives provided by fiscal decentralization in terms of conflict behavior on local majorities and local minorities. Therefore we have constructed a new variable labelled 'local majority' which takes the value 1 if the group is majoritarian in its regional base and 0 otherwise⁸ Ethnic violence is measured by the intensity and the presence of rebellion and communal violence. It is important to distinguish between intensity and likelihood of conflict as it may be that fiscal decentralization is 'peace-preventing', namely that it has an influence on the likelihood of conflict but not on the intensity of ongoing conflicts, or 'conflict-mitigating', namely that it reduces the intensity of ongoing conflicts but fails to prevent the formation of new conflicts. Rebellion refers to the violent actions engaged by a group against the state as terrorism, guerilla or civil war. Communal violence differs from rebellion as it measures violence occurring between groups. It entails acts of anti-group demonstration, harassment and communal warfare. The intensity of conflict is assessed by MAR through an ordinal scale going from 0 to 7 for rebellion and 0 to 6 for

⁸I make use of the variable 'gc6b' which informs on the regional proportion of the population which belong to the groups.

communal violence. The variables of presence of conflict are dummies which take the value 1 when the intensity of conflict is positive and 0 otherwise. Annual data are available from 1985 for rebellion and from 1990 for communal violence.

The models to estimate are as follows.

$$y_{it} = \beta_0 + \beta_1 \text{Fisc.decentralization} + \beta_2 \text{Fisc.decentralization} * \text{Rbase} \\ + \beta_3 X_{it} + \beta_4 Z_{ijt} + c_j + \zeta_t + u_{ijt} \quad (3.1)$$

$$y_{it} = \beta_0 + \beta_1 \text{Fisc.decentralization} + \beta_2 \text{Fisc.decentralization} * \text{LocalMajority} \\ + \beta_3 X_{it} + \beta_4 Z_{ijt} + c_j + \zeta_t + u_{ijt} \quad (3.2)$$

The subscript i denotes the group, j the country and t the year of observation. y_{ijt} is an indicator of ethnic violence, $Rbase$ the regional base variable, X_{jt} a vector of country level controls and Z_{ijt} a vector of group level controls including $Rbase$ or $Localmajority$. Finally c_j is a country specific effect and ζ_t a time trend.

As the variable of interest is measured at the country level and the dependent variables are measured at the group level, one has to choose between including group or country specific effects (including both is not possible as the two dimensions are nested). We have decided to include a country specific effect as it is unlikely that some unobservable characteristic of an ethnic minority would influence alone the degree of fiscal decentralization in a country. This is confirmed by Hausman tests which show that for every specifications that will be considered thereafter a group specific effect is never correlated with fiscal decentralization. The estimator will therefore be either country fixed effect or country random effect. For each specification the choice follows the result of a Hausman test. Both fixed and random effects rest on the assumption of homoscedastic errors which is not supported by the data. Statistical tests reveal that errors are both serially correlated and that the

variance of the errors is not constant across time. The estimations therefore use a robust variance-covariance matrix.

The use of panel data estimators is an improvement with respect to previous studies which by and large resorted to pooling estimators. Fiscal decentralization is only one aspect of the institutional arrangements that prevail in a country, and which are correlated with one another. It is difficult to control for all the facets of institutional arrangements which can include the type of electoral system, the various aspects of decentralization, the openness of the political regime and so forth. Moreover it is likely that fiscal decentralization is correlated with some other geographic or historical characteristics of a country which are (especially for the latter) difficult to measure. For all these reasons the possibility to use panel data estimators which help isolating the effect of fiscal decentralization from its time-invariant correlates is a substantial improvement.

We will also control for variables that are time-varying and likely to be correlated with both fiscal decentralization and ethnic violence. These controls are the logarithm of the GDP per capita, stemming from the World Development Indicators (WDI), the logarithm of the population (WDI), the bureaucratic quality (computed by the International Country Risk Guide, ICRG), the level of democracy (from Polity IV), the ethnic fragmentation index (Alesina, Devleeschauwer, Easterly, Kurlat & Wacziarg 2003), the past autonomy status of the group (MAR) and the group coherence index (MAR).

3.4 Results

3.4.1 The effect of fiscal decentralization on territorial minorities and dispersed groups

We start the analysis by estimating equation (1) which aims to ascertain the effect of fiscal decentralization on territorial minorities (i.e. groups with a regional base) and dispersed groups. Amongst the former are both local majorities and local minorities. Although we claimed in the chapter that they needed to be distinguished, for now we intend to provide a benchmark analysis that can serve to compare the results to those stemming from the previous studies. It also serves to check whether fiscal decentralization only affect territorial minorities. The preference-matching hypothesis states that dispersed groups do not benefit from fiscal decentralization. If the results suggest otherwise, it would indicate that the emphasis put on the mechanism of preference-matching is misplaced. In a second stage, we will allow fiscal decentralization to exert an heterogeneous impact on local minorities and local majorities.

The estimated impacts of fiscal decentralization on intensity and likelihood of ethnic conflicts are found in the first panel of table 3.1. The coefficient associated with fiscal decentralization is allowed to be different for groups having a regional base on the one hand, and for those which do not have a regional base on the other. The lower part of the table presents the marginal effect of fiscal decentralization along with its standard error for each type of groups . For each measure of conflict we run country random effects or country fixed effects depending on the result of a prior Hausman test robust to heteroskedasticity. There are several findings worth noting. Firstly, the interaction term between fiscal decentralization and regional base is usually negative (except for the likelihood of communal violence in column 4) and nearly

always the coefficient is statistically significant (except in column 1). This confirms that the conflict behavior of ethnic groups in decentralization differs across groups, with respect to their demographic characteristics. Secondly, for groups lacking a regional base, the marginal effect of fiscal decentralization is surprisingly always negative. It even reaches the usual level of confidence for the likelihood of rebellion (column 2). Thirdly, the marginal effect of fiscal decentralization is consistently negative for territorial minorities. They are statistically significant for the presence of rebellion and both intensity and presence of communal violence. These results do not reveal a distinction as neat as expected between ethnic groups having a regional base and the others. In fact, if the interaction term between fiscal decentralization and regional base is negative and significant, the signs of the marginal effects are the same across groups. The only difference is that the marginal effects are more often statistically significant for groups having a regional base. Before going further, we check the robustness of the results by testing whether they are driven by outliers. I re-run the regressions without observations on India. Indian observations account for nearly 20% of the estimation sample as the country hosts many ethnic minorities, and as it is well covered by the decentralization data. The results are found in the lower panel of table 3.1. Insofar as territorial minorities are concerned, the results are very similar to those displayed in the upper panel of 3.1. However, for groups without a regional base, the effect of fiscal decentralization is now never statistically significant. This set of results tends then to confirm the hypotheses that fiscal decentralization is of no consequence for groups lacking a regional base and is effective at reducing rebellion and communal violence for groups having a regional base. In India though, this does not seem to be the case, as even groups without a regional base lower their level of violence when fiscal decentralization goes up. This is an interesting result of its own that will merit further research.

3.4.2 Fiscal decentralization, ethnic conflict and local majority status

An important claim made in the chapter is that within the category of regionally concentrated groups, fiscal decentralization provides different incentives to ethnic groups with respect to their local majority status. We will now consider the interaction between fiscal decentralization and the local majority variable. In so doing we will also ascertain which of the conflicting hypotheses are supported in the data. The introduction of the local majority variable leads to a drastic reduction in the number of observations. This is due to data limitations on the regional population of groups. After including the same set of controls as in the previous estimations, the sample is composed of only 12 local minorities in 9 countries and 42 local majorities in 29 countries. The results are displayed in the upper panel of table 3.2. They show that there is indeed a divide between local minorities and local majorities, but only for rebellion. For local majorities, the effect of fiscal decentralization is negative albeit statistically significant only for the likelihood of rebellion. In contrast, the effect of fiscal decentralization is positive for local minorities, and it reaches usual levels of confidence for both intensity and likelihood of rebellion. The interpretation is that fiscal decentralization prevents local majorities to engage in both separatist conflicts and rebellion aimed at challenging the government. In light of the hypotheses of the conceptual section, it means that the mechanism of preference-matching is powerful enough to increase the welfare of local majorities up to a point where violence is unnecessary and costly. In contrast, the results show that local minorities are encouraged to rebel. This is consistent with the claim that such ethnic groups do not benefit from fiscal decentralization, a situation that would be reversed in case they obtained their own region. This constitute a potential motive for violence that finds some support in the regressions.

In contrast, the results for communal violence do not support the presence of a divide between local minorities and local majorities. The impact of fiscal decentralization is negative for both and is always statistically significant. The magnitude of the effect is even larger for local minorities than for local majorities. The fear that decentralization would trigger inter-group violence - partly due to the weakness of local checks and balances - does not seem grounded. The lower panel of table 3.2 replicates the analysis without the Indian observations. The picture is similar to the one above, namely, that for local majorities fiscal decentralization significantly reduces the likelihood of rebellion and the intensity and likelihood of communal violence. For local minorities, fiscal decentralization fuels rebellion and detracts from communal violence. The positive point estimate of fiscal decentralization in the rebellion regression is even much larger than in the upper panel of table 3.2. It turns out then that excluding Indian observations strengthens the results. The pattern which emerges from the regressions is therefore the following: fiscal decentralization improves the fare of local majorities and reduce their motives for violence, on the other hand it fails to do so for local minorities. They in turn mobilise to obtain from the government either a change in the policy (as removing the discriminations they face) or a reorganisation of the local governments so that they would also benefit from fiscal decentralization. Interestingly, they do not turn against the other groups for control of the local governments. This echoes the idea that ethnic groups living in the same locality share similar preferences (Habyarimana et al. 2007).

These findings must be taken with caution given the low number of local minorities included in the sample. In order to broaden the estimation sample and to get reassurance about the robustness of the results, we present in tables 3.3 and 3.4 estimations with a fewer number of controls. Only rebellion is considered as only for rebellion the divide between local majorities and local minorities is relevant in

the data. Table 3.3 displays results for the intensity of rebellion whereas table 3.4 is concerned with the likelihood of rebellion. In column 1, we replace bureaucratic quality by law and order (also stemming from ICRG) which permits to enlarge the sample to 17 local minorities (in 10 countries) and 43 local majorities (in 29 countries). In both tables the point estimate of fiscal decentralization for local minorities is nearly unchanged and is still significant at the 5% level. This holds true when we use the sample without India. In column 2, we remove the institutional variable, increasing the number of local minorities to 19. The coefficient associated with fiscal decentralization is similar and is still significant. Finally in column 3, we drop the two variables of group cohesion and past autonomy status. The sample includes now 20 local minorities in 13 countries and 48 local majorities in 34 countries. Here again the results on local minorities are unaffected. In consequence, the finding that fiscal decentralization fuels rebellion for local minorities does not seem to be driven by the small size of the sample.

3.4.3 Large local majorities versus small local majorities

The previous set of results has shown that fiscal decentralization produces different incentives to ethnic groups even within the category of territorial minorities. The rationale is that according to the median voter theory, the mechanism of preference-matching functions for local majorities but not for local minorities. In imperfect democracies though, it is unsure that the median voter assumption is an accurate description of how local policies are decided. For instance small groups can control local governments, at the expense of bigger groups, if they are well connected to the central power through patronage relations. It is thus important to investigate whether the divide between groups which lower violence with fiscal decentralization and those which increase it appears only when one look at the simple majority rule,

or if, because of imperfect democracy, the cut-off is in fact different. Intuitively, in imperfect democracies the link between group's size and preference-matching is weakened with respect to the case with full democracy. But at some level of local demographic weight it becomes increasingly implausible that the local majority has no say on the local affairs. Pushing the reasoning at the extreme, a group living alone, even in autocracies, cannot be denied the control of local policies ⁹.

To check this possibility, we split the local majorities further into 2 categories: local majorities for which the group's proportion of the regional population is below 75% and local majorities for which the group's proportion of the regional population is above 75%. We call the first category 'small local majority' and the second one 'large local majority'. These categories are created with the MAR variable called 'gc6b'. The results shown in the upper panel of table 3.5 are based on respectively 12 local minorities, 14 small local majorities and 24 large local majorities. It turns out that as far as rebellion is concerned, the small local majorities behave similarly as the local minorities. For both, fiscal decentralization fosters rebellion. Even the magnitude of the coefficient is similar. In contrast, large local majorities significantly reduce their level of rebellion with fiscal decentralization. However the magnitude (in absolute value) of the effect is roughly only half of that for the other groups. Regarding the likelihood of rebellion, the results in column 2 show that fiscal decentralization increases the risk of rebellion for local minorities and lowers it for the large local majorities. Small local majorities are not affected by fiscal decentralization. As in table 3.2, fiscal decentralization does not provide different group incentives for communal violence. The marginal effect is negative for all 3 types of groups, but statistically significant only for the local minorities and the large local majorities. The results are unaffected when we increase the sample size

⁹It would signal otherwise that the apparent decentralization is in fact inexistant because decisions are still taken by the central government.

by dropping some of the controls.

The lower panel of table 3.5 presents the same estimations conducted on a sample excluding India. While the signs of the different effects are strictly similar to those obtained on the full sample, there is some noticeable changes in the magnitudes of those effects. In fact, it appears that the rebellion-producing effect of fiscal decentralization on local minorities and small local majorities alike is dramatically enhanced. Roughly, the size of this effect is doubled whereas the size of the rebellion-mitigating effect of fiscal decentralization on large local majorities stays unaffected. Together these results mean that the desirable effect of fiscal decentralization is concentrated on one category of ethnic group (the large local majorities) while the undesirable effect of fiscal decentralization hits both the local minorities and the small local majorities. In addition, the undesirable effect is twice as large as the desirable effect. It is only because the large local majorities are more common than the local minorities and the small local majorities that the average effect of fiscal decentralization on the sample of territorial minorities at large appears as desirable (see table 3.1). Before to discuss the implications of this result, we must try to explain it.

The fact that only large local majorities reduce their level of rebellion with fiscal decentralization suggests that the median voter is not sufficient to explain the decentralized policy. Given the non democratic nature of many countries within the sample, it is not surprising that a mechanism which relies on democratic politics is not completely relevant here. The weakened relationship between group's majority and control of the policy manifest itself in the fact that small local majorities do not seem to benefit from fiscal decentralization. However, even in imperfect democracies it is unlikely that large local majorities which represent more than three quarters of the local population cannot bear upon the decentralized policy.

3.5 Concluding Remarks

This chapter was motivated by the relative scarcity of quantitative studies looking at the impact of fiscal decentralization on ethnic conflict. The chapter discussed the conditions under which fiscal decentralization may increase the welfare of ethnic groups through preference-matching and how this in turn may affect ethnic violence. The discussion led us to outline several conflicting hypotheses with a particular focus on the local majority status of the groups. The chapter finds that this variable affected dramatically known effects of fiscal decentralization on the likelihood, nature and intensity of ethnic conflict.

The empirical results show that fiscal decentralization is effective at reducing rebellion amongst local majorities but is counter-productive for local minorities. This is because local minorities are more scarce than local majorities that previous studies found that decentralization was always desirable to reduce ethnic conflict. The results have a strong policy recommendations. They show that if an ethnically fragmented country would engage in a fiscal decentralization process (to improve the quality of the governance for instance) it could generate sizeable and complex consequences on the level and likelihood of ethnic rebellions. At first glance the magnitudes of the marginal effects displayed in tables 3.1 - 3.5 seem low. However, the results imply that a one standard deviation increase in the level of fiscal decentralization would result in a 80% increase of the intensity of rebellion amongst the average local minorities in the sample considered. It would also result in a 69% increase of the intensity of rebellion of the average small local majority and a 32% decrease of the intensity of rebellion of the average large local majority. These are very important effects, and as they point to opposite directions with respect to ethnic groups characteristics, these findings suggest that policymakers must be extremely careful in designing and implementing decentralization processes as a way

to mitigate ethnic rebellion. In contrast, the results do not find support for the hypothesis that fiscal decentralization spurs communal violence, and so for both local minorities and local majorities.

The present study suffers from some limitations which point to further research. Firstly, the N dimension of the panel dataset is somewhat small. Although robustness checks presented in the analysis give reassurance that the results are not driven by the smallest sample we used, caution should be exerted before we can make an out-of-sample generalisation. This is especially due to the paucity of data for Africa. Secondly, the variables used are relatively simple. It would be interesting to dispose of data that allows to directly check how the relationship between fiscal decentralization and ethnic violence is determined through the match between preferences and policies. Gathering information on the precise policies that are conducted at the local level would also inform us on the deprivations suffered by local minorities. In this chapter these are only inferred from the theoretical discussion. Thirdly, fiscal decentralization is hard to operationalise with one indicator. The issue of fiscal autonomy and fiscal transfers between levels of government are important because a given level of fiscal decentralization has a different meaning if the subunits raise their own taxes or if they rely on grants from the central government. Analysing fiscal decentralization at the micro-level, with a rich set of original data, would be a promising way to overcome some of these shortcomings.

Despite these limitations, the results are still important because they confirm that fiscal decentralization (and not only political decentralization) does exert an impact on ethnic conflict. They also show that this impact is in fact more complex than usually assumed. The presence in the results of this heterogeneous impact of fiscal decentralization on different types of ethnic groups adds to our knowledge and can be used by policy-makers in order to mitigate its undesirable consequences.

Dependent variable	Intensity of rebellion	Likelihood of rebellion	Intensity of communal violence	Likelihood of communal violence
Sample	Full sample			
Estimator	Fixed effects (1)	Random effects (2)	Fixed Effects (3)	Fixed effects (4)
Fisc. decentralization	-0.009 (0.009)	-0.004 (0.002)	-0.012 (0.023)	-0.002 (0.005)
Fisc. dec.*regional base	-0.001 (0.006)	-0.003 (0.001)	-0.045 (0.011)	0.009 (0.003)
Marginal effect of fiscal decentralization for:				
Non territorial minorities	-0.009 (0.009)	-0.004 (0.002)	-0.012 (0.023)	-0.002 (0.005)
Territorial minorities	-0.010 (0.009)	-0.008 (0.002)	-0.057 (0.021)	-0.011 (0.005)
Observations	970	970	605	605
Sample	Without India			
Estimator	Fixed effects (1)	Random effects (2)	Fixed Effects (3)	Fixed effects (4)
Fisc. decentralization	0.009 (0.008)	-0.003 (0.002)	-0.031 (-0.023)	-0.005 (0.006)
Fisc. dec.*regional base	-0.015 (0.005)	-0.005 (0.001)	-0.024 (0.011)	-0.004 (0.003)
Marginal effect of fiscal decentralization for:				
Non territorial minorities	0.009 (0.008)	-0.003 (0.002)	-0.031 (-0.023)	-0.005 (0.006)
Territorial minorities	-0.006 (0.008)	-0.008 (0.002)	-0.055 (0.022)	-0.010 (0.005)
Observations	835	835	515	515

Robust standard errors in parentheses. The choice between fixed and random effects follow a Hausman test robust to heteroskedacity. The estimations entail the other following controls: logarithm of GDP per capita, logarithm of population, democracy, bureaucratic quality, number of effective ethnic groups, group cohesion index, autonomy claims, time trend.

Table 3.1: Fiscal decentralization, ethnic conflict and territorial minorities

Dependent variable	Intensity of rebellion	Likelihood of rebellion	Intensity of communal violence	Likelihood of communal violence
Sample	Full sample			
Estimator	Fixed effects (1)	Fixed effects (2)	Fixed Effects (3)	Fixed effects (4)
Fisc. decentralization	0.036 (0.017)	0.009 (0.005)	-0.084 (0.028)	-0.019 (0.007)
Fisc. dec.*local majority	-0.046 (0.012)	-0.016 (0.003)	0.033 (0.017)	0.010 (0.004)
Marginal effect of fiscal decentralization for:				
Local minorities	0.036 (0.017)	0.009 (0.005)	-0.084 (0.028)	-0.019 (0.007)
Local majorities	-0.009 (0.012)	-0.008 (0.004)	-0.051 (0.021)	-0.008 (0.005)
Observations	562	562	358	358
Sample	Without India			
Estimator	Fixed effects (1)	Random effects (2)	Fixed Effects (3)	Fixed effects (4)
Fisc. decentralization	0.109 (0.017)	0.036 (0.006)	-0.054 (-0.028)	-0.008 (0.007)
Fisc. dec.*local majority	-0.112 (0.015)	-0.044 (0.006)	0.002 (0.018)	0.001 (0.005)
Marginal effect of fiscal decentralization for:				
Local minorities	0.109 (0.017)	0.036 (0.006)	-0.054 (-0.028)	-0.008 (0.007)
Local majorities	-0.004 (0.010)	-0.008 (0.004)	-0.052 (0.021)	-0.008 (0.005)
Observations	457	457	288	288

Robust standard errors in parentheses. The choice between fixed and random effects follow a Hausman test robust to heteroskedacity. The estimations entail the other following controls: logarithm of GDP per capita, logarithm of population, democracy, bureaucratic quality, number of effective ethnic groups, group cohesion index, autonomy claims, time trend.

Table 3.2: Fiscal decentralization, ethnic conflict and local majorities

Dependent variable	Intensity of rebellion	Intensity of rebellion	Intensity of rebellion	Intensity of rebellion	Intensity of rebellion	Intensity of rebellion
Sample	Full sample	Full sample	Full sample	Without India	Without India	Without India
Estimator	Fixed effects (1)	Fixed effects (2)	Fixed Effects (3)	Fixed effects (4)	Fixed Effects (5)	Fixed effects (6)
Robustness check	Law and Order	Without institutions	Without group variables	Law and Order	Without institutions	Without group variables
Fisc. decentralization	0.033 (0.017)	0.040 (0.016)	0.035 (0.016)	0.028 (0.019)	0.033 (0.018)	0.033 (0.019)
Fisc. dec.*local majority	-0.052 (0.013)	-0.051 (0.012)	-0.047 (0.012)	-0.035 (0.020)	-0.032 (0.018)	-0.032 (0.019)
Marginal effect of fiscal decentralization for:						
Local minorities	0.033 (0.017)	0.040 (0.016)	0.035 (0.016)	0.028 (0.019)	0.033 (0.018)	0.033 (0.019)
Local majorities	-0.019 (0.012)	-0.011 (0.011)	-0.011 (0.011)	-0.007 (0.011)	0.001 (0.011)	0.001 (0.011)
Observations	601	655	675	496	550	570

Robust standard errors in parentheses. The choice between fixed and random effects follow a Hausman test robust to heteroskedacity. The estimations entail the other following controls: logarithm of GDP per capita, logarithm of population, democracy, bureaucratic quality, number of effective ethnic groups, group cohesion index, autonomy claims, time trend. In columns (1) and (4) bureaucratic quality is replaced by law and order, in columns (2) and (5) law and order is dropped and in columns (3) and (6) autonomy claims and group cohesion index are dropped.

Table 3.3: Fiscal decentralization, intensity of rebellion and local majorities: robustness checks

Dependent variable	Likelihood of rebellion	Likelihood of rebellion	Likelihood of rebellion	Likelihood of rebellion	Likelihood of rebellion	Likelihood of rebellion
Sample	Full sample	Full sample	Full sample	Without India	Without India	Without India
Estimator	Fixed effects (1)	Fixed effects (2)	Fixed Effects (3)	Fixed effects (4)	Fixed Effects (5)	Fixed effects (6)
Robustness check	Law and Order	Without institutions	Without group variables	Law and Order	Without institutions	Without group variables
Fisc. decentralization	0.007 (0.004)	0.009 (0.004)	0.006 (0.004)	0.014 (0.004)	0.014 (0.004)	0.015 (0.005)
Fisc. dec.*local majority	-0.018 (0.002)	-0.017 (0.002)	-0.014 (0.003)	-0.024 (0.004)	-0.021 (0.004)	-0.022 (0.004)
Marginal effect of fiscal decentralization for:						
Local minorities	0.007 (0.004)	0.009 (0.004)	0.006 (0.004)	0.014 (0.004)	0.014 (0.004)	0.015 (0.005)
Local majorities	-0.010 (0.003)	-0.008 (0.003)	-0.008 (0.003)	-0.010 (0.004)	-0.007 (0.003)	-0.007 (0.003)
Observations	601	655	675	496	550	570

Robust standard errors in parentheses. The choice between fixed and random effects follow a Hausman test robust to heteroskedacity. The estimations entail the other following controls: logarithm of GDP per capita, logarithm of population, democracy, bureaucratic quality, number of effective ethnic groups, group cohesion index, autonomy claims, time trend. In columns (1) and (4) bureaucratic quality is replaced by law and order, in columns (2) and (5) law and order is dropped and in columns (3) and (6) autonomy claims and group cohesion index are dropped.

Table 3.4: Fiscal decentralization, likelihood of rebellion and local majorities: robustness checks

Dependent variable	Intensity of rebellion	Likelihood of rebellion	Intensity of communal violence	Likelihood of communal violence
Sample	Full sample			
Estimator	Fixed effects (1)	Fixed effects (2)	Fixed Effects (3)	Fixed effects (4)
Fisc. decentralization	0.051 (0.017)	0.012 (0.004)	-0.066 (0.028)	-0.018 (0.007)
Fisc. dec.*small majority	0.000 (0.017)	-0.006 (0.003)	0.063 (0.022)	0.013 (0.005)
Fisc. dec.*large majority	-0.075 (0.013)	-0.022 (0.003)	0.009 (0.019)	0.009 (0.004)
Marginal effect of fiscal decentralization for:				
Local minorities	0.051 (0.017)	0.012 (0.004)	-0.066 (0.028)	-0.018 (0.007)
Small majorities	0.051 (0.019)	0.006 (0.004)	-0.003 (0.025)	-0.004 (0.006)
Large majorities	-0.024 (0.012)	-0.011 (0.003)	-0.057 (0.020)	-0.009 (0.005)
Observations	562	562	358	358
Sample	Without India			
Estimator	Fixed effects (1)	Fixed effects (2)	Fixed Effects (3)	Fixed effects (4)
Fisc. decentralization	0.093 (0.017)	0.032 (0.006)	-0.057 (-0.028)	-0.008 (0.007)
Fisc. dec.*small majority	0.011 (0.028)	-0.012 (0.008)	0.066 (0.037)	-0.002 (0.014)
Fisc. dec.*large majority	-0.116 (0.015)	-0.045 (0.006)	0.000 (0.018)	0.000 (0.005)
Marginal effect of fiscal decentralization for:				
Local minorities	0.093 (0.017)	0.032 (0.006)	-0.057 (-0.028)	-0.008 (0.007)
Small majorities	0.104 (0.023)	0.020 (0.006)	0.009 (0.035)	-0.010 (0.013)
Large majorities	-0.024 (0.010)	-0.013 (0.004)	-0.058 (0.021)	-0.008 (0.005)
Observations	457	457	288	288

Robust standard errors in parentheses. The choice between fixed and random effects follow a Hausman test robust to heteroskedacity. The estimations entail the other following controls: logarithm of GDP per capita, logarithm of population, democracy, bureaucratic quality, number of effective ethnic groups, group cohesion index, autonomy claims, time trend.

Table 3.5: Fiscal decentralization, ethnic conflict and small versus large minorities

Chapter 4

Making a (Vice-) President: Party Politics, Ethnicity, Village Loyalty and Community-Driven Development

4.1 Introduction

What determines the choice of local political leaders in Africa, within the context of nominally democratic institutions? And does the identity of these leaders matter in terms of development policy, particularly with respect to the attribution of projects that are the bread and butter of CDD programs? Using a unique dataset stemming from an important CDD program in Senegal, this chapter attempts to shed light on these two important questions. In particular, we show that the village of origin of democratically-elected leaders at the local level is a significant determinant of which villages get projects and which do not, and that leaders are chosen largely on the

basis of geographical loyalties, party politics and various individual characteristics, though not on account of their ethnicity.

There is a widespread belief in the economics profession that ethnicity is the root of many evils in Africa, as crystallized in the influential paper by Easterly & Levine (1997).¹ But what about party politics? Contrary to economists, political scientists working on Africa have focused not only on ethnicity but on democratic politics as well.² Indeed, Smith (2000) notes that:

Perhaps the two most prominent issues of interest in political studies of Africa in the past decade have been ethnicity and democracy. The spectre of ethnic conflict so prominent in popular press accounts of Africa has been balanced to some extent by an academic interest in issues of democratization.

One of the purposes of this chapter is to provide an empirical assessment, at least for the Senegalese case, of what actually matters in terms of policy choices taken at the grassroots level. Moreover, given the recent interest in the empirical impact of leadership on economic growth at the cross-national level (Jones & Olken 2005), it would seem useful to carry out similar analyses at the local level.

This chapter also contributes to a growing body of literature dealing with decentralized development. Key references include work by Bardhan & Mookherjee (2000, 2005, 2006*b*, 2006*a*), Foster & Rosenzweig (2004), Besley & Burgess (2001, 2002), and Besley & Coate (2003). In contrast to this corpus of work, which is essentially inspired by the Indian experience, our chapter provides rare microeconomic evidence in an African context. In terms of its empirical strategy, our

¹See also Alesina et al. (1999) on the US.

²Note, however, that political scientists are not immune to this criticism: Hyden (1994) refers to the electoral system as often being forgotten in analyses of policymaking in Africa. See Cowen & Laakso (1997) and Golder & Wantchekon (2004) for thorough overviews of electoral studies in Africa.

work follows in the footsteps of Besley et al. (2004) on the allocation of public goods in India, although we go beyond the determinants of the allocation of funds and focus additionally on the determinants of leadership. As with Besley et al. (2004), this chapter can also be seen as a test of the Weingast, Shepsle & Johnsen (1981) model of universalistic overspending *versus* agenda setting models in the tradition of Romer & Rosenthal (1978) or Baron (1993).

While the impact of political representation on the distribution of government spending has been extensively documented in the developed world (Atlas, Gilligan, Hendershott & Zupan (1995), Lee (1998, 2000), Ansolabehere, Gerber & Snyder (2002), Rodden (2002), Horiuchi & J. (2003)) and in some middle-income countries (Gibson, Calvo & Falletti (2004)), we know of no evidence on this topic at the local level in Africa. Moreover, the additional value-added that we bring is that our data allow us to study the determinants of political leadership *per se*, and to disentangle the various characteristics that determine who is a democratically-elected leader and who is not.

The structure of this chapter is as follows. In section 4.2, we provide a concise summary of local politics in Senegal and the role played by sub-regional political institutions in terms of the allocation of CDD funds to individual villages. Next we show, for the case of one of the major CDD project in Senegal – the *Programme National d'Infrastructures Rurales* (PNIR) – that (i) village representation at the local government level and (ii) the identity (village origin) of leaders matter in terms of who gets funds and who does not. Having established that leadership is one of the main determinants of the allocation of funds, section 4.3 then turns to uncovering the determinants of leadership, with a particular focus on whether ethnic concerns are empirically important. Having demonstrated that *Conseil rural* presidencies and vice-presidencies are won on the basis of party politics, political experience,

geographical loyalty, educational attainment and professional affiliation, but *not* on the basis of ethnicity, we then consider the determinants of *Comité de concertation et de gestion* (CCG) committee presidencies, since the CCG is the coopted body that identifies eligible village-level projects through a participative process and thus has a major agenda-setting role in terms of the attribution of CDD funds. Section 4.4 concludes by offering some thoughts on lines for further research on local democratic politics in Africa, and its interaction with decentralized development programs.

4.2 Local politics & community-driven development in Senegal

4.2.1 Political decentralization in Senegal

Political decentralization has been an ongoing process in Senegal since the early 1990s (Vengroff and Johnston 1987, 1989; Ndoye, Ibrahima and Philippe 1994), which came to full fruition with the 1996 local elections. At the local level, the key institution is constituted by the *Conseil rural*, a body whose members are elected by universal suffrage for a five year mandate and that operates at the level of the smallest administrative unit in Senegal, the *Communauté rurale* (henceforth, CR).³ Each CR, of which there are 320 in the country, takes in 40 villages on average. The *Conseil rural* is composed of 20, 24, 28 or 32 members, depending upon whether the population of the associated CR is less than 5,000, between 5,000 and 10,000, between 10,000 and 15,000 or more than 15,000 inhabitants, respectively.⁴ The median size of the *Conseil ruraux* considered in this chapter is 32 members.

³Article 290 of the Electoral Code. For a full description of the functioning of the *Conseil rural*, the reader is referred to Senegal (1999).

⁴Article 285 of the Electoral Code.

While Senegal has sometimes been dubbed a "semi-democracy" (Beck 1997), it is clear that the *Conseil rural* constitutes a vibrant expression of party politics at the local level. The 1996 local elections, as described by Vengroff & Ndiaye (1998), were fiercely contested and, despite some interference by the ruling Socialist Party of President Abdou Diouf, were largely seen as free and fair.

The *Conseil ruraux* have limited powers of taxation, with the lion's share of their resources coming from transfers from the central government.⁵ At the local level, their main sources of revenues are the *taxe rurale* (a poll tax), as well as licenses, patentes, land and real estate taxes.⁶ According to the Local Community Code (*Code des collectivités locales*), the *Conseil rural* is responsible for the allocation of all land in the CR (though traditional *Chefs de terre* often play an important role), and shoulders a share of responsibilities concerning environmental, educational, health, cultural, and urbanistic issues.

The key actors in the *Conseil rural* are its president and vice-presidents (of which there are often two), elected by a simple majority of members. The president is essentially in charge of all of the *Conseil rural*'s workings, including procedural matters and the timing of meetings. His responsibility for the *Conseil rural*'s budget (under the supervision of the *sous-préfet*) and his twin roles both as the representative of the CR and the state's representative at the local level confer undoubted agenda-setting power on the office. Decisions in the *Conseil rural* are taken by a simple majority of those representatives present at meetings, as long as a quorum of 50% of members present is satisfied. An indication of the explicit institutional wish, embodied in the *Conseil rural*, to run counter to traditional power structures in rural

⁵These transfers are essentially earmarked for investment purposes (as opposed to consumption expenditures), as codified in the administrative documents describing the *Fonds de dotation de la décentralisation* (Art. 58 of L. 96-07).

⁶Article 251 of the Local Community Code.

Senegal is that village chiefs can be neither president nor vice-president.⁷ In some sense, this "negative reservation" policy (to paraphrase the Indian terminology) provides us with an interesting natural experiment in which individual preferences can be revealed in a manner that is legislatively divorced from choices that might be made on the basis of traditional social norms.

4.2.2 Political institutions created by CDD

A feature of CDD programs is that they often create an additional tier of local institutions geared towards allocating funds between different uses and different communities in the administrative units that fall under their purview. These institutions are also meant to increase the "voice" of groups viewed as being under-represented in local political institutions. In this respect, the first phase of the PNIR was no exception in that a functioning *Conseil de concertation et de gestion* (henceforth, CCG) was a *sine qua non* for villages in a PNIR-eligible CR to be able to access funds.⁸

Designed to ensure the representation of vulnerable/marginalized groups that might not make it onto the *Conseil rural* through the electoral process (the young, women, specific castes), through their cooptation by the *Conseil rural* president (who is also de jure the CCG president), the CCG was responsible for the participative identification of projects to be funded by the PNIR. Its composition was in part determined on the basis of a diagnostic process, designed to enhance the participation by the potential beneficiaries, and implemented by the *Conseil rural* with the assistance of the facilitator alluded to above.

The CCG approved the CR's annual investment plan, reviewed the implementa-

⁷Article 203 of the Local Community Code.

⁸A description of the functioning of the CCG is provided by PNIR (2001).

tion progress of microprojects, mobilized the contributions of the CR and the local communities, and ensured the transparency of procurement and financial management. The median size of the CCGs in our dataset is 27 members. Its main internal body was the *Bureau*, which comprised, in addition to the *Conseil rural* president, a secretary, an assistant secretary, and five commission presidents (with responsibilities for (i) local investment fund projects, (ii) rural roads, (iii) procurement, (iv) training and communication, and (v) income-generating activities, respectively). In terms of the allocation of PNIR projects the CCG played an essential role in that it received project proposals, determined whether the proposals respected the criteria for eligibility, and either accepted or rejected the proposals. When the CCG accepted a proposal, it was then included in the annual investment plan and local development plans which were in turn transmitted to the *Conseil rural*, which adopted them by a simple majority vote. These were then transmitted to the PNIR's *Bureaux régionaux de coordination* which were responsible for disbursements.

The upshot of administrative decentralization in Senegal in terms of CDD is that the identity of *Conseil rural* presidents and vice-presidents, as well as village representation both on the *Conseil rural* and on the corresponding CCG are likely to be key determinants of the allocation of PNIR funds among the different villages in a given CR. The outcome of the interaction of local political structures and the PNIR is therefore likely to be an essential ingredient in terms of the success or failure of CDD-based development in rural Senegal.

4.2.3 Who gets projects?

Theoretical model

While the main topic of this chapter - what determines who gets to be a *Conseil rural* president or vice-president - is interesting in and of itself from the political

economy perspective, the issue is also important from the operational standpoint in the context of CDD, where local political institutions, as shown above for the case of Senegal, play an important role in determining the pattern of attribution of development funds. If the identity of political leaders matters in terms of the attribution of these funds, then the analysis of the determinants of leadership becomes an essential factor in any analysis of decentralized development policy. Before doing so, it is therefore of some importance to consider whether leadership is a statistically significant determinant of the allocation of CDD funds.

In order to organize our thoughts and provide a theoretical basis for the first portion of our empirical work, we consider a simple adaptation of Dixit & Londregan (1998) to the *Conseil rural* context. We assume that the purpose of the *Conseil rural* president is to maximize his expected level of support within the *Conseil rural* by allocating (i) PNIR funds and (ii) seats on the CCG to various villages.

In conformity with the administrative process set up by the PNIR, we consider a sequential decisionmaking process in which the *Conseil rural* president first allocates seats on the CCG, and then proposes budgetary allocations. We will refer to the allocation of seats on the CCG as the period 1 decisionmaking problem, while the choice of budgetary allocations, given the distribution of seats on the CCG, will be referred to as the period 2 problem. Given the sequential nature of this process, we solve the model by backward induction.

Assume that the *Conseil rural* president from CR c can propose the allocation g_{vc} to village $v = 1, \dots, V$ within CR $c = 1, \dots, C$. The total allocation of funds within the CR must satisfy the budget constraint:

$$\sum_{v=1}^{v=V} g_{vc} = G_c \tag{4.1}$$

where G_c represents the total budget for PNIR projects within CR c . This corresponds to the functioning of the PNIR, as well as many other CDD programs, in which budgets are often fixed at the sub-regional level on a per capita basis. A *Conseil rural* representative from village v is assumed to have preferences given by:

$$\begin{aligned}
 & U \left(g_{vc}, N_{vc}^{CCG}, N_{vc}^{CR}, x_{vc}, z_{vc}, \varepsilon_{vc}, \theta_{kc} \right) \\
 = & \exp\{x_{vc}\alpha + z_{vc}\beta\} \left(\frac{1 + N_{vc}^{CCG}}{1 + N_{vc}^{CR}} \right)^\delta \frac{[\varepsilon_{vc}(1 + g_{vc})]^{(1-\gamma)}}{1 - \gamma} - \theta_{kc}, \gamma \in (0, 1) \quad (4.2)
 \end{aligned}$$

where x_{vc} represents characteristics of village v , z_c represents characteristics of the *Conseil rural* president, while θ_{kc} represents the reservation level of utility of representative k , which depends, among other things, on his political ideology (which is independent of the level of expenditures in his village).

The term in $\left(\frac{1+N_{vc}^{CCG}}{1+N_{vc}^{CR}} \right)^\delta$ represents the impact on the utility of a representative of the distribution by the president of seats on the CCG, where N_{vc}^{CR} is the number of elected representatives sent by village v to the *Conseil rural*, and N_{vc}^{CCG} is the corresponding number of villagers named to the CCG by the president. Representatives from villages that are over-represented on the CCG ($N_{vc}^{CCG} > N_{vc}^{CR}$) are more likely to support the president, *ceteris paribus*, with the intensity of this effect being parameterized by $\delta > 0$. Conversely, representatives from villages that are under-represented on the CCG are less likely to support the president. In the Political Science literature, the "representativeness" of a polity is often measured using indices of *disproportionality* or *malapportionment* (the general problem being one of measuring *inequity*, as opposed to inequality). Disproportionality refers to the divergence between the number of votes (seats) in a polity attributed to a given political party or social group with respect to their relative importance in the population, whereas malapportionment refers to the same type of divergence, but

based on geographical location (for example, Vermont and California both have two Senators, despite the important difference in their relative shares of the US population). Though it would be possible to specify this CCG over-representation effect in terms of some form of disproportionality or malapportionment index such as those proposed by Loosemore & Hanby (1971) or Rae (1971), the chosen parameterization allows for a simple closed-form solution to the two-stage optimization problem of the president.⁹ We adopt an additive specification in terms of over-representation on the CCG in order to allow for situations in which a village is not represented, either on the *Conseil rural*, or on the CCG.

Returning to the specification of preferences given in (4.2) the parameter ε_{vc} allows for heterogeneity in the weighting by representatives of village and *Conseil rural* president characteristics, as well as malapportionment in the allocation of seats on the CCG, on the one hand, and obtaining funds, on the other. In terms of the Dixit & Londregan (1998) model, ε_{vc} would be interpreted as being a measure of the "core support" that the president enjoys in a given village. The parameter $1 - \gamma$, for its part, represents the elasticity of a representative's utility with respect to obtaining funds. The additive specification in terms of funds (i.e. the $1 - g_{vc}$ term) is chosen in order to allow for situations in which a representative might support a president even in the absence of funding for his village, if village characteristics warrant this or presidential attributes are particularly to his liking.

The basic intuition of this simple model is that the *Conseil rural* president can "buy" some degree of support by over-representing certain villages on the CCG, though this process is constrained by the ill-will generated in villages with large numbers of representatives on the *Conseil rural* and which are under-represented.

⁹On the manner of measuring disproportionality or malapportionment, see also Rose (1984), Lijphart (1985), Gallagher (1991), Cox & Shugart (1991), Fry & McLean (1991), Monroe (1994) and Chiaramonte (1995). Pennisi (1998) provides a recent survey.

The fundamental tradeoff captured by the model is therefore that between allocating PNIR funds, on the one hand, and allocating seats on the CCG, on the other. Representative k will support the president when:

$$U\left(g_{vc}, N_{vc}^{CCG}, N_{vc}^{CR}, x_{vc}, z_{vc}, \varepsilon_{vc}, \theta_{kc}\right) > 0 \quad (4.3)$$

The *Conseil rural* president is uncertain about the preferences of representatives but assumes that θ_{kc} is distributed in his CR c according to the uniform probability density function (*pdf*) with mean μ_c and defined over the interval $\left[\mu_c - \frac{1}{2dc}, \mu_c + \frac{1}{2dc}\right]$; $\frac{1}{2dc}$ is thus a measure of heterogeneity among representatives in a given CR in terms of their reservation utility (and therefore in terms of their ideology).

Given this functional assumption on the *pdf* of θ_{kc} , it is then easy to show that the probability that a representative in *Conseil rural* c supports the president's allocation of projects is given by:

$$\begin{aligned} & \Pr\left[U\left(g_{vc}, N_{vc}^{CCG}, N_{vc}^{CR}, x_{vc}, z_{vc}, \varepsilon_{vc}, \theta_{kc}\right) > 0\right] \\ &= d_c \exp\{x_{vc}\alpha + z_c\beta\} \left(\frac{1 + N_{vc}^{CCG}}{1 + N_{vc}^{CR}}\right)^\delta \frac{[\varepsilon_{vc}(1 + g_{vc})]^{(1-\gamma)}}{1 - \gamma} - \mu_c \end{aligned} \quad (4.4)$$

For a given pattern $(N_{1c}^{CCG}, \dots, N_{vc}^{CCG}, \dots, N_{Vc}^{CCG})$ of representatives on the CCG, it follows that the period 2 optimization problem for the president of *Conseil rural* c is given by:

$$\max_{\{g_{1c}, \dots, g_{vc}, \dots, g_{Vc}\}} \sum_v \Pr\left[U\left(g_{vc}, N_{vc}^{CCG}, N_{vc}^{CR}, x_{vc}, z_{vc}, \varepsilon_{vc}, \theta_{kc}\right) > 0\right] \quad s.t. \quad \sum_{v=1}^{v=V} g_{vc} = G_c \quad (4.5)$$

Letting λ_c denote the Lagrange multiplier associated with the budget constraint,

the FOCs for this problem are then given by:

$$(1 + g_{vc})^\gamma = \lambda_c^{-1} d_c \exp\{x_{vc}\alpha + z_c\beta\} \left(\frac{1 + N_{vc}^{CCG}}{1 + N_{vc}^{CR}} \right)^\delta \varepsilon_{vc}^{1-\gamma}, \quad v = 1, \dots, V \quad (4.6)$$

Taking logarithms and adding a time dimension t yields the specification:

$$\ln(1 + g_{vct}^*) = x_{vct}\zeta + \left[\ln(1 + N_{vc}^{CCG}) - \ln(1 + N_{vc}^{CR}) \right] \pi + \theta_{ct} + \eta_{vct} \quad (4.7)$$

where $\zeta = \gamma^{-1}\alpha$, $\pi = \gamma^{-1}\gamma$, $\theta_{ct} = \gamma^{-1}(z_{ct}\beta - \ln\lambda_{ct} + \ln d_{ct})$ and $\eta_{vct} = \gamma^{-1}(1 - \gamma) \ln\varepsilon_{vct}$

Substituting back into the president's objective function yields his initial, period 1, optimization problem in terms of the allocation of seats on the CCG:

$$\begin{aligned} & \max_{\{N_{1c}^{CCG}, \dots, N_{vc}^{CCG}, \dots, N_{Vc}^{CCG}\}} \Pr[U(g_{vc}, N_{vc}^{CCG}, N_{vc}^{CR}, x_{vc}, z_{vc}, \varepsilon_{vc}, \theta_{kc}) > 0] \\ & \text{s.t.} \quad \sum_{v=1}^V N_{vc}^{CCG} = N_c^{CCG} \end{aligned} \quad (4.8)$$

where g_{vct}^* is given by 4.7. Solving for N_{vc}^{CCG} and substituting back into 4.7 yields an alternative specification given by:

$$\ln(1 + g_{vct}^*) = x_{vct}\tilde{\zeta} + \ln(1 + N_{vc}^{CR}) \tilde{\pi} + \tilde{\theta}_{ct} + \tilde{\eta}_{vct} \quad (4.9)$$

where

$$\begin{aligned} \tilde{\zeta} &= (\gamma - \delta)^{-1} \alpha, \quad \tilde{\pi} = -(\gamma - \delta)^{-1} \delta, \quad \tilde{\eta}_{vct} = (\gamma - \delta)^{-1} (1 - \gamma) \ln \varepsilon_{vct} \\ \tilde{\theta}_{ct} &= (\gamma - \delta)^{-1} \left[\delta \ln \left(\frac{\delta}{\gamma(1 - \gamma)} \right) + z_{ct}\beta - (1 - \delta) \ln \lambda_{ct} - \delta \ln \varphi_c + \ln d_{ct} \right] \end{aligned}$$

and where φ_c is the Lagrange multiplier associated with (4.8).

Equation (4.7) is instructive in terms of the appropriate empirical specification. On the one hand, the evolution over time of the Lagrange multiplier associated with

the CR budget constraint (λ_{ct}), the characteristics of the *Conseil rural* president (z_{ct}) and heterogeneity in the distribution of ideology across representatives in the CR, as parameterized by d_{ct} , are all accounted for by CR-period-specific effects θ_{ct} . In equation (4.9), $\tilde{\theta}_{ct}$ also accounts for any variation in the severity of the constraint on the total number of CCG members. On the other hand, note that the village-CR-time effects represented by ε_{vct} are assumed in the error term η_{vct} (or $\tilde{\eta}_{vct}$) of the specification. Though it is possible that some degree of correlation will persist between the explanatory variables x_{vct} , N_{vc}^{CR} (and N_{vc}^{CCG} in (4.7)) and this disturbance term, we can reduce the likelihood of this by including time-invariant village-specific effects alongside the CR-period-specific effects. Nevertheless, keeping this last point in mind, it is wise to exercise caution in drawing *causal* inference concerning the determinants of who gets projects and who does not on the basis of equation (4.7). Note that equation (4.9) is arguably less likely to be affected by endogeneity issues than (4.7) in that it excludes the number of villagers on the CCG, which is a choice variable available to the president. On the other hand, CCG membership is determined well before the allocation of projects, and can therefore be taken as being predetermined. In what follows, we shall present results that correspond both to (4.7) and to (4.9).

Data and econometric evidence

The data used in this section to study the allocation of PNIR funds stem in part from a unique set administrative databases from village panel databases collecting for a quasi-experimental impact evaluation of the PNIR over a period of two years (2003 - 2005). It covers 71 villages in which we conducted household surveys, most of these villages are observed over 5 periods, for a total of 341 observations. Here, we restrict the sample to eligible villages, i.e. only 193 observations of 52 villages.

Of these 193 village-time periods, 22 boasted a *Conseil rural* president and 16 a *Conseil rural* vice-president.

	mean	min	max	SD
Village has received a completed PNIR project	0.47	0	1	0.50
Villager is:				
<i>Conseil rural</i> /CCG president	0.11	0	1	0.31
<i>Conseil rural</i> vice-president	0.08	0	1	0.27
CCG commission president	0.10	0	1	0.30
Number of villagers:				
on <i>Conseil rural</i>	1.73	0	17	3.14
on CCG	2.01	0	23	3.67
Village characteristics:				
Population of village	1,180	135	8,516	1,253
Electricity in village	0.25	0	1	0.43
Literacy program in village	0.51	0	1	0.50

Table 4.1: Descriptive Statistics

As can be seen from Table 4.1, on average, a village-period in this sample sends 1.73 representatives to the *Conseil rural* ($std. = 3.14$) and 2.01 members to the CCG ($std. = 3.67$). Most villages in this subsample (75%) were not connected to the national electricity grid, whereas 51% benefited from a national literacy program. Mean village size was 1,180 inhabitants ($std. = 1,253$).

In Table 4.2, we present simple tests of the difference in the unconditional means of village characteristics in the eligible group between these with completed project and these without. We observe that the number of *Conseil rural* vice-president is significantly important in the village with completed project than in non-completed villages, whereas there is no statistically difference in terms of *Conseil rural* president. In addition, most CCG commission presidents are from village with completed projects, and the difference compared to non-completed villages is statistically significant. There is a same pattern with the number of villagers on a *Conseil rural* and on CCG. This simple statistical descriptive analysis show that there is an important

variables	Mean (standard deviation)		H_0 : no difference in means [p -value]	H_0 : equality of distributions	
	completed project yes	no		Bartlett [p -value]	Kolmogorov [p -value]
Villager is:					
<i>Conseil rural/CCG</i> president	0.152 (0.361)	0.079 (0.271)	0.072 [0.112]	7.701 [0.006]	0.073 [0.944]
<i>Conseil rural</i> vice-president	0.141 (0.350)	0.029 (0.170)	0.111 [0.004]	46.250 [0.000]	0.586 [0.522]
<i>CCG</i> commission president	0.163 (0.371)	0.049 (0.218)	0.113 [0.009]	26.141 [0.000]	0.113 [0.500]
Log number of villagers on:					
<i>CCG minus</i> that on <i>Conseil rural</i>	0.089 (0.745)	-0.010 (0.421)	0.099 [0.250]	29.743 [0.000]	0.192 [0.040]
<i>Conseil rural</i>	0.768 (0.741)	0.559 (0.721)	0.208 [0.049]	0.072 [0.788]	0.187 [0.048]
<i>CCG</i>	0.857 (0.859)	0.549 (0.742)	0.307 [0.008]	2.000 [0.157]	0.174 [0.081]
Log village population	6.897 (0.710)	6.577 (0.856)	0.319 [0.005]	3.283 [0.070]	0.266 [0.001]

Testing the null that the distributions of the variables are identical between villages in CRs that have completed project and non-completed project. Tests of the equality of means, Bartlett and Kolmogorov-Smirnov tests of the equality of the distributions.

Table 4.2: Test of equality of means and distribution of villages characteristics

difference between villages with completed projects and those without in terms of the composition of the *Conseil rural* and the CGG, where the last decision for the allocation of PNIR is taken.

In order to test our theoretical prediction, we implement a linear probability model based on Equations (4.7) and (4.9). Our dependent variable is defined as:

$$y_{vct} = \begin{cases} 1 & \text{if } g_{vct} > 0, \\ 0 & \text{if } g_{vct} = 0, \end{cases} \quad (4.10)$$

It takes on the value 1 when the village receives a completed PNIR project and thus $g_{vct} > 0$, whereas it is equal to zero when the village has no PNIR project and therefore $g_{vct} = 0$. Of the 193 observations (village-periods) in our dataset, 92 benefited (30 villages) from a completed PNIR project, with the three main forms of infrastructure being potable water, a primary school, and a health center. The key

elements of x_{vct} are two dummy variables that indicate whether a villager is *Conseil rural* president or vice-president. The matrix x_{vct} also includes dummy variables that indicate whether the village is connected to the national electricity grid and whether the village is the beneficiary of a national literacy program, as well as the logarithm of village population. Our linear probability model is:

$$y_{vct} = \alpha + x'_{vct}\beta + \theta_{ct} + \eta_{vct} \quad (4.11)$$

where θ_{ct} and η_{vct} are defined in Equation (4.7); θ_{ct} allow to control for CR-specific effect and η_{vct} controls for village-CR-time effects.

The result of estimating Equation (4.11) based on Equations (4.7) and (4.9) are presented in Table 4.3. Two empirical results stand out in column (1). First, a villager being president of the *Conseil rural* significantly increases the likelihood of the village receiving a PNIR project. In quantitative terms, the *Conseil rural* presidency increases this likelihood by 20% and is highly significant (p -value = 0.011). Second, holding the *Conseil rural* vice-presidency does not significantly affect a village's likelihood of receiving a PNIR project.

In column (2) we add the number of villagers present on the *Conseil rural* ($\ln(1 + N_{vc}^{CR})$), which corresponds to the theoretical specification given by equation (4.9). The coefficient associated with holding the presidency increased to 0.361, while that associated with the number of villagers present on the *Conseil rural*, $\tilde{\pi}$ is equal to -0.124 (p -value = 0.026) and is *negative* as predicted by our theoretical model (since $\tilde{\pi} = -(\gamma - \delta)^{-1}$, $\delta < 0$). In column (3) we include time-invariant village random effects in order to control, in a nested fashion, for at least a portion of $\tilde{\eta}_{vct}$: their orthogonality with respect to the explanatory variables is not rejected by the appropriate Hausman test. None of the essential results reported in column (2) are significantly affected.

Dependent variable	Village has received a completed PNIR Project				
Villager is:	(1)	(2)	(3)	(4)	(5)
<i>Conseil rural/CCG</i> president	0.205 (0.08)	0.361 (0.11)	0.345 (0.13)	0.207 (0.06)	0.289 (0.08)
<i>Conseil rural</i> vice-president	-0.037 (0.08)	-0.076 (0.08)	-0.056 (0.12)	-0.058 (0.08)	-0.076 (0.08)
<i>CCG</i> commission president				-0.106 (0.09)	-0.074 (0.08)
Log number of villagers on:					
<i>CCG minus</i> that on <i>Conseil rural</i>				0.135 (0.05)	
<i>Conseil rural</i>		-0.124 (0.05)	-0.120 (0.08)		-0.168 (0.06)
<i>CCG</i>					0.103 (0.04)
Log village population	-0.099 (0.03)	-0.084 (0.03)	-0.061 (0.03)	-0.093 (0.03)	-0.087 (0.03)
CR-period specific effects included	yes	yes	yes	yes	yes
Village-specific <i>RE</i> included	no	no	yes	no	no
Hausman test [<i>p</i> -value]			0.700 [0.999]		
Number of observations	193	193	193	193	193
Number of villages	52	52	52	52	52
σ	0.217	0.210	0.144	0.208	0.207
\overline{R}^2	0.810	0.823	0.903	0.826	0.828

Linear probability model; 5 periods, 22 communautés rurales, 52 villages, 104 Communautés rurales-time periods, 193 observations (92 observations correspond to villages that received a PNIR project; Huber-White standard errors in parentheses below coefficients); dummy variables for connection to the national electricity grid and presence of a literacy program included in all specifications.

Table 4.3: The determinants of which villages receive a PNIR project .

In column (4) we estimate the model given by (4.7) in which we include $\ln(1 + N_{vc}^{CCG}) - \ln(1 + N_{vc}^{CR})$ instead of $\ln(1 + N_{vc}^{CR})$. We also include a dummy variable that is equal to one when a villager is a CCG commission president. Two results are worth noting. First, as with *Conseil rural* vice-presidencies, CCG commission presidencies do not affect the likelihood of a village receiving a PNIR project. Second, and in conformity with the theoretical model presented in (4.7), the likelihood of obtaining a PNIR project is an increasing function of $\ln(1 + N_{vc}^{CCG}) - \ln(1 + N_{vc}^{CR})$. In column (5) we relax the restriction (which is rejected with a p -value of 0.112) that the coefficients associated with $\ln(1 + N_{vc}^{CCG})$ and $\ln(1 + N_{vc}^{CR})$ sum to zero, yielding a slightly less restrictive version of (4.7). As suggested by our theoretical model, the coefficient associated with $\ln(1 + N_{vc}^{CCG})$ is positive and statistically significant, whereas that associated with $\ln(1 + N_{vc}^{CR})$ is negative and also statistically significant. The negative coefficient associated with $\ln(1 + N_{vc}^{CR})$ in columns (2), (3), (5) and (6) (and the positive coefficient associated with $\ln(1 + N_{vc}^{CCG}) - \ln(1 + N_{vc}^{CR})$ in column (4)) provides compelling evidence that malapportionment between seats on the *Conseil rural* and on the CCG is an important component of the preferences of representatives. In contrast, the positive coefficient associated with $1 + N_{vc}^{CCG}$ is compatible with a model in which the feasible set from which the vector $(g_{1c}, \dots, g_{vc}, \dots, g_{Vc})$ is drawn is determined by the allocation of CCG seats. This would be the case, for example, in a bargaining model of bicameral legislatures in which the malapportioned house (the CCG here) has proposal power, such as that recently proposed by Ansolabehere, Snyder & Ting (2003).¹⁰ In both cases, agenda setting would appear to provide the most reasonable theoretical framework within which to interpret our econometric results.

¹⁰See, in particular, their Proposition 4. If proposal power were vested in the *Conseil rural* (which is not the case here) then their model would predict no impact of CCG representation on the likelihood of obtaining a PNIR project.

A final remark on our findings involves the impact of village population on the likelihood of obtaining a PNIR project. Contrary to what one might imagine, but in conformity with the negative coefficient associated with village representation on the *Conseil rural*, the probability of obtaining a PNIR project is a significantly *decreasing* function of village population. A potential explanation for this result might be that the CCG malapportionment effect in (4.2) takes a slightly more complex, composite, form given by:

$$\left(\frac{1 + N_{vc}^{CCG}}{1 + N_{vc}^{CR}} \right)^\delta \left[\frac{1 + \left(N_{vc}^{CCG} / \sum_v N_{vc}^{CCG} \right)}{1 + \left(P_{vc} / \sum_v P_{vc} \right)} \right]^\xi$$

where P_{vc} represents the population of village v . In this context, representatives will be more (less) likely to support the president not only when their village is over (under)-represented on the CCG with respect to its representation on the *Conseil rural*, but also when it is over (under)-represented on the CCG with respect to its population.

The jist of these empirical results is (i) that the pattern of allocation of PNIR funds is consistent with an agenda-setting model in which the preferences of *Conseil rural* representatives are a function of the malapportionment in the "bicameral" structure established by CDD and (ii) that the identity of leaders - in this case the village of origin of the *Conseil rural* president - is one of the key determinants of whether a village receives a PNIR project or not. In quantitative terms, holding the presidency increases the likelihood of a village receiving a completed project by between 20 and 36%, depending upon the specification, and these marginal effects are always estimated quite precisely.

4.3 Who gets elected president of the *Conseil rural*?

4.3.1 Observables characteristics

Having established, in the Senegalese case, that leadership is one of the most important determinants of which villages receive CDD projects and which do not, we now turn to understanding the determinants of leadership *per se*. There are at least five observable dimensions along which candidates for the presidency may appeal to members of the *Conseil rural*. The first is their political party. Though there is a plethora of political parties in our sample, there are four that are empirically relevant: the *Parti Démocratique Sénégalais* (PDS) of President Wade, the *Parti Socialiste* (PS) of former president Abdou Diouf, the *Alliance des Forces de Progrès* (AFP) and the *Union pour le Renouveau Démocratique* (URD).¹¹ Political experience, as measured for example by one's tenure on the *Conseil rural*, is likely to be an important factor that could increase the likelihood of election of incumbent members to the presidency.

The second dimension is ethnicity: as noted above, ethnicity has been identified by many researchers as the essential individual characteristic in modern African societies. In Senegal, however, there is a widespread belief that ethnicity is not as important as in many other African countries, though the rebellion in Casamance (and the conflict between the local Diola ethnic group and Wolof "colonizers") can in part be attributed to ethnic tensions. Senegal is also particular in that, apart

¹¹Note that, in his analysis of the 1996 local elections, using a nationally-representative sample, Vengroff & Ndiaye (1998) identify the PDS and the PS as being in the "big four", whereas two parties, the *Ligue Démocratique* (LD) and the *And Jëf-Parti Africain pour la Démocratie et le Socialisme* (AJ) are not in our list. There are two reasons for this difference. First, as noted earlier, our sample is not representative of Senegal as a whole, but rather of poor rural communities. Second, given that our data correspond to the 2003-5 period, things have evolved since their work.

from French, Wolof has become the *lingua franca* (on Wolofisation in Senegal see O'Brien (1998)).

Human capital is a third dimension through which candidates can differentiate themselves. This is in part due to the important degree of social differentiation in Senegal that is based on educational attainment (Patterson 1998), though this simplistic linear picture is complicated by the relative importance of the Islamic movement in general and Islamic education in particular (Villalon 1995). Pure age effects are also likely to be a prominent determinant of an individual being categorized as "presidentiable". This last characteristic is even embodied in Article 203 of the Local Community Code which determines the procedure to be followed during the election of the *Conseil rural* president: if one reaches a third vote, because no candidate has obtained an absolute majority during the first two votes, in which case a plurality determines the winner, and if that third or any subsequent votes are tied, it is the oldest candidate who is declared the winner. Other procedural specificities confirm the importance of age: the meeting of the *Conseil rural* in which the president is elected is presided over by the *Conseil rural*'s oldest member.

Professional affiliation, based in part on traditional cleavages between various castes (warriors, *griots*, slaves), but more concretely on differences between peasants, merchants, artisans or civil servants, is a fourth dimension of a candidate that might also be hypothesized to play some role in determining whether he is worthy of, or sufficiently representative for, the *Conseil rural* presidency.

Finally, geographical loyalties, based on one's village of origin, are likely, as everywhere else in the world, to play a leading role in the selection of the *Conseil rural* president. In what follows, we shall contrast the role played by those factors that determine who is president from those that determine the vice-presidency.

4.3.2 How different are *Conseil rural* presidents and vice-presidents from the average member?

Tables 4.7 and 4.8 present descriptive statistics on the members of the *Conseil rural*, and contrast the characteristics of the 1,080 members at large with those of the 42 presidents and 71 vice-presidents (in many, though not in all, *Conseil ruraux* there are two vice-presidents). The p -values from simple t-tests of the equality, for a given characteristic, between members overall and presidents and vice-presidents, respectively, are also presented.

Conseil rural presidents and vice-presidents are similar to their members in terms of mean age - 48 years, with almost identical standard deviations. In contrast, no women are presidents, and only 2.8% of vice-presidents are women, compared with 9% of all representatives. Almost more than one-third of members have no schooling, and the proportion of individuals with no schooling who are presidents and vice-presidents is significantly lower. Concomitantly, presidents and vice-presidents are significantly more likely to have attained secondary education, with presidents being much more likely to have some higher (post-secondary) education. In contrast, presidents are significantly less likely than *Conseil rural* members to have attended Koranic school.

More than three-quarters of members belong to the ethnic majority on the *Conseil rural*, and this proportion is not statistically different for presidents and vice-presidents. In contrast, while 68.7% of members at large belong to the majority political party on the *Conseil rural*, 92.8% of presidents do, and this difference is highly significant; vice-presidents, for their part, have roughly the same probability of being a member of the political majority as the average member. The political experience of members and presidents is roughly similar 1.4 terms on the *Conseil rural* - while the experience of vice-presidents is 0.27 times greater than that of the

average member, with the difference being highly significant. On average, members and vice-presidents both belong to village delegations of slightly more than 5 representatives, with presidents stemming from significantly larger delegations of over 7 members.

Peasants account for over 50% of all members, and are grossly under-represented in terms of *Conseil rural* presidents - 26%, with the difference being highly significant; the proportion of vice-presidents who are peasants is roughly in line with the overall average. Private (14.2%) and public sector (16.6%) employees are over-represented among presidents (the corresponding proportions for average members are 3.7% and 5.4%, respectively), while public sector employees are over-represented among vice-presidents. Individuals whose livelihood is based on livestock - herders for the most part - account for roughly 10% of members, and the same proportion of presidents, with the proportion being significantly lower for vice-presidents.

Breaking political affiliation down by specific party (in the upper portion of Table 4.8) reveals the dominant role played by the PDS, with 55.7% being members of that party. The proportion of presidents and vice-presidents who belong to the PDS is not significantly different from the average for all representatives. In contrast, PS party members, who represent 16.7% of all representatives, are significantly more likely to be vice-presidents, of whom they account for 25.3%, while, at the 10% significance level, PIT party members are over-represented as presidents, while URD party members are under-represented as vice-presidents. In terms of ethnic origin, on the other hand, there is almost no statistically significant difference between the proportions of each ethnic group overall and presidents or vice-presidents, though the very small Soninké/Sarakholé and Mandjag ethnic minorities claim one *Conseil rural* presidency each and are therefore technically over-represented.

The picture that emerges from these descriptive statistics and univariate com-

parisons is that: (i) the average *Conseil rural* member is a 48 year old Wolof peasant who belongs to the PDS party, with either no schooling or Koranic school, who belongs to the ethnic majority (whether the latter is Wolof or is not), who belongs to a village delegation of 5 members, and half of whom have already served one term; (ii) in contrast, *Conseil rural* presidents and vice-presidents are significantly better educated, and are more likely to be wage-earning employees (of the public sector, in particular); the distinguishing features of vice-presidents, with respect to presidents, is that the former are more likely to be peasants, have significantly more political experience, are more likely to be PS party members, and stem from average-sized village delegations, whereas presidents have a significantly larger village power base in the *Conseil rural*. Geographical and partisan political support are key for *Conseil rural* presidents, whereas political experience and belonging to the opposition at the national level (the PS) is the key distinguishing feature of vice-presidents, who are closer to the average *Conseil rural* member than are presidents. No ethnic group appears to be significantly over-represented, with respect to the average member, among presidents or vice-presidents.

4.3.3 The making of a *Conseil rural* (vice-) president

We now turn to identifying those characteristics that determine whether a member is a president or a vice-president in a multivariate framework, while controlling for unobserved *Conseil rural* - or village-specific heterogeneity. An intuitively appealing theoretical basis for the empirical work that follows is provided by a simple model of multidimensional voting.

We assume that the preferences of *Conseil rural* members, when it comes to

choosing a president, are linear, and that they can be represented by:

$$U(\alpha, x) = \alpha \cdot x \quad (4.12)$$

with $x = (x_1, \dots, x_j, \dots, x_N) \in X$, and where $X \subset R^N$ is the set of characteristics of a given candidate for the presidency. In our case $N = 6$, with x being composed of (i) educational attainment, (ii) ethnicity, (iii) geographic (village) origin, (iv) political affiliation and experience, (v) professional activity and (vi) unobservables. The vector $\alpha \in R^N$ represents the preferences of a representative. According to (4.12), each representative is assumed to evaluate a candidate for the *Conseil rural* presidency as a weighted sum of the candidate's position along each dimension. The *mean representative* is defined by:

$$\bar{\alpha} = (\bar{\alpha}_1, \dots, \bar{\alpha}_j, \dots, \bar{\alpha}_N) \quad \bar{\alpha}_j = \int_{\alpha \in R^N} \alpha_j f(\alpha) d\alpha \quad (4.13)$$

where $f(\alpha)$ is the *pdf* according to which α is distributed across the population of *Conseil rural* members.¹² We assume that $f(\alpha)$ is ρ -concave as defined in the version of the Prékopa-Borell Theorem presented in Caplin & Nalebuff (1991). The mean representative's most preferred presidential candidate is denoted by:

$$\bar{x} = \arg \max_{\{x\}} \bar{\alpha} \cdot x \quad (4.14)$$

By Theorem 1 in Caplin & Nalebuff (1991) a candidate with characteristics given

¹²Note that the usual Median Voter Theorem due to Black (1948) cannot be applied once candidates differ in more than one dimension.

by \bar{x} will win a vote where the winning majority is given by:

$$1 - \left(\frac{N + 1/\rho}{N + 1 + 1/\rho} \right)^{N+1/\rho} \quad (4.15)$$

which is approximately equal, for $N = 6$ and $\rho \rightarrow \infty$, to 60%. Though this is higher than the 50% rule that holds in practice, it is likely that the theoretical foundation for our results is not a bad approximation of what takes place in the electoral arena that is constituted by the *Conseil rural*. Moreover, the theoretical model provides an extremely simple framework within which to interpret what matters in terms of election to the *Conseil rural* presidency or vice-presidency.

Our purpose in what follows is to uncover the values of $(\bar{\alpha}_1, \dots, \bar{\alpha}_j, \dots, \bar{\alpha}_N)$ by estimating a linear probability model over all representatives in our sample in which the dependent variable is equal to 1 when the representative in question is elected *Conseil rural* president and 0 otherwise, and where the explanatory variables are given by the representatives' observable characteristics, which correspond to the vector $(x_1, \dots, x_j, \dots, x_{N-1})$. Unobservable characteristics x_N of the representative will be subsumed in the error term of the model. Our basic empirical specification is a direct consequence of combining (4.12) and (4.13) and is given by :

$$y_{ic} = \bar{\alpha}x_{ic} + \lambda_c + \varepsilon_{ic} \quad (4.16)$$

where $i = 1, \dots, I$ indexes individual representatives and $c = 1, \dots, C$ indexes *Conseil ruraux*; λ_c is a *Conseil rural*-specific effect and ε_{ic} is a disturbance term that accounts for the unobservable component of x and which is assumed to satisfy the usual hypotheses; in particular, for our estimates to be consistent, we must assume that a representative's unobservable characteristics are orthogonal with respect to those that are observable and included in (4.16). Though this is a matter of econo-

metric faith, our inclusion of a broad spectrum of individual characteristics in x_{ic} , as well as the *Conseil rural* effects λ_c , heightens our confidence in the consistency of our estimates. An alternative specification replaces the Conseil rural index with a village-level index, where (as before) $v = 1, \dots, V$ denotes the representative's village of origin. The dependent variable is:

$$y_{ic} = \begin{cases} 1 & \text{when representative } i \text{ is } \textit{Conseil rural} \text{ president of CR } c \\ 0 & \text{otherwise} \end{cases} \quad (4.17)$$

Tables 4.9 and 4.10 presents the results of a linear-probability estimation of (4.16) for the *Conseil rural* president and the vice-president respectively. The column 1 of both tables is pooling. In column 2 we control for *Conseil rural* specific effects λ_c , and in column 3, we control for village of origin effects λ_v . According to the Hausman specification test, our preferable results are when we control for village of origin effects (column 3).

On the basis of our simple theoretical model, the parameters $\bar{\alpha}$ estimated by our linear probability specification correspond to the mean preferences of representatives. Though we cannot interpret individual coefficients in absolute terms, since a voter's preferences are, of course, only determined up to a monotonically increasing transformation, we can interpret them in relative terms. For example, if the coefficient associated with characteristic j is statistically significant whereas the coefficient associated with characteristic k is not, we can infer that the mean representative cares about characteristic j while placing very little weight on characteristic k .

The results confirm and sharpen a number of regularities that were already apparent in the context of the descriptive statistics. First, controlling for other characteristics, older representatives are more likely to be *Conseil rural* presidents: a one percent increase in age increases one's likelihood of being *Conseil rural* president

by between 10.9%, when we control for village of origin specific effects (column 3 of Table 4.9). Age does not affect the probability of being a vice-president (Table 4.10).

Second, as one would expect from the descriptive statistics, being a woman significantly reduces one's chance of being either a president or a vice-president. Third, educational attainment increases a member's probability of being a president or a vice-president. For example, possessing post-secondary education increases one's probability of being a president by almost 16% when one controls for village of origin specific effects, with respect to the "no education" baseline category. For vice-presidents, it is secondary education that plays this role (9.6%), although its quantitative effect is smaller. Individuals who are literate in a "national language" are slightly more likely to become vice-presidents. Koranic schooling is not associated with any significant effects in terms of becoming president or vice-president.

Fourth, ethnicity would appear to play no role in determining whether a member becomes a *Conseil rural* president. Belonging to the ethnic majority on the *Conseil rural* is not a statistically significant determinant of presidencies. The same is true of vice-presidencies. Fifth, professional affinities play an important role in determining presidencies (this is not the case for vice-presidencies), with the "member of the largest professional group" dummy being largely significant and the principal activity dummies being jointly significant when one accounts for village specific effects.

Sixth, political factors appear to be of paramount importance in determining both presidencies and vice-presidencies, as the "member of the majority political party" dummy is significant for both offices, while our measure of political experience is a significant determinant of vice-presidencies. As appeared in the descriptive statistics, vice-presidents appear to be chosen largely on the basis of their previous terms on the *Conseil rural*.

Finally, as was apparent in the descriptive statistics, geographical loyalties are an important determinant of presidencies (column 1), while they have no impact on the probability of a member becoming vice-president. The difference in the size of village delegations between presidents and the average member (2 members) accounts for roughly a one percent difference in the likelihood of being *Conseil rural* president (Column 1 of Table 4.9).

As was already apparent in the context of the descriptive statistics, it is therefore obvious that ethnicity plays almost no role in determining who becomes *Conseil rural* president or vice-president, while party politics, geographical loyalties and, to a lesser extent, professional affinities, are the key determinants, alongside age, political experience (for vice-presidents) and educational attainment.

4.3.4 Are political parties just a veil for regional or ethnic cleavages?

While the results presented so far suggest that ethnic issues are not a significant factor in determining who becomes *Conseil rural* president or vice-president, it may be that we are missing something and that our results hide cleavages along regional or ethnic lines. In other words, perhaps the relative importance of party politics in determining presidencies and vice-presidencies is only a screen behind which ethnic concerns are lurking.

Our focus is on the four big political parties in our sample (PDS, PS, AFP and URD), which account for 90% of the representatives. At the CR level of disaggregation, the PDS is present in 41 out of a total of 42 *Conseil ruraux*, the PS is present in 35, with the AFP and the URD holding seats in 26 and 12 *Conseil ruraux*, respectively. A first, extremely crude measure of the geographical concentration of political parties is given by the relative importance of the CR that accounts for the

largest number of a given party's representatives. For the PDS, the *Communauté rurale* of Keur Samba Kane (Djiourbel region) accounts for the largest contingent of its representatives, and this represents a mere 4.49% of the total. For the PS, the corresponding CR is Thilmaka (Thiès region), which accounts for 11.60% of all PS members. For the AFP, Lour Escale (Kolda region in Casamance) accounts for 18.60% of its members in our sample. Finally, for the URD, the most important CR is Déali (Louga region) which accounts for 29.85% of the party's representatives in our sample. These figures are a first indication that the AFP and URD are more concentrated regionally than are the PDS and the PS.

A second, synthetic, measure of the geographical concentration of political parties is given by a Herfindahl (1950) index computed on the basis of the relative importance of each CR as a share of a party's total stock of representatives. It is defined as follow:

$$H_p = \sum_i^n \left(\frac{p_i}{\sum_i^n p_i} \right)^2$$

where n equal the number of *Conseil rural* (i.e. 42) and p_i is the number of representatives from party p in the *Conseil ruraux i*.

If all of a party's representatives were concentrated in a single CR, the index would equal 100%, whereas an evenly distributed stock of representatives over the 42 CRs of our sample would yield an empirical minimum value of $42 \times \left(\frac{1}{42}\right)^2 \times 100 \approx 2.38\%$. The PDS is the most evenly distributed political party in our sample with a CR Herfindahl of 3.04% (close to the minimum), followed by the PS with 4.83%. The AFP and URD are more locally concentrated with CR Herfindahls of 7.55% and 12.71%, respectively.

If we move to a higher level of aggregation – the regional, rather than the CR level – the differences between the first two parties and the latter two are even more apparent. As shown by the statistics presented in Table 4.4, the AFP is

	Political Party				Total
	PDS	PS	AFP	URD	
Region:					
Diourbel	114	11	10	0	135
Fatick	34	12	13	1	60
Kolda	47	12	16	1	76
Kaolack	36	22	61	0	119
Louga	32	39	1	59	131
Saint-Louis	110	13	9	5	137
Tambacounda	84	18	14	0	116
Thiès	106	49	4	1	160
Ziguinchor	39	5	1	0	45
Total	602	181	129	67	979

Table 4.4: The four major political parties in poor regions of rural Senegal

extremely powerful in the Kaolack region, where it accounts for 61 representatives out of a total of 119, compared with the AFP's total stock 129 representatives in our dataset. Similarly, the URD is mainly present in the Louga region, where it accounts for 59 out of 131 representatives: this region accounts for 88.05% of the URD representatives in our sample.

If we compute Herfindahl indices at the regional level (the empirical minimum for our dataset would be an Herfindahl of $\frac{100}{9} \approx 11.11\%$, the least regionally concentrated party is the PDS, with a regional Herfindahl of 13.21%, followed by the PS with 16.13%, and the AFP with 28.09%. The URD, for its part, comes in at 78.75%, thereby confirming the regional nature of this political grouping.

Tables 4.11 and 4.12 present breakdowns of party membership as a function of profession and ethnic group. These data are then combined with personal characteristics in a multivariate framework in Tables 4.13, 4.14 and 4.15, where we consider the determinants of membership in the four main parties of our sample, for the four main ethnic groups (Wolof/Lébou, Pular, Serèr, Manding/Socé) in a multinomial

logit (MNL) framework.¹³

Let y be the dependent variable with J nominal outcomes (here four political parties). The categories are numbered 1 through J , but are not assumed to be ordered. Let $\Pr(y = m|x)$ be the probability of observing outcome m given X , a vector of covariates. Then, formally, the MNL probability model can be written as¹⁴:

$$\Pr(y_i = m|X_i) = \frac{\exp(X_i\beta_{m|b})}{\sum_{j=1}^J \exp X_i\beta_{j|b}} \quad (4.18)$$

where b is the base category, which is also referred to as the comparison group.

The MNL can also be expressed in terms of the odds¹⁵. The odds of outcome m versus outcome b given X , indicated by $\Omega_{m|b}(X)$ equal:

$$\Omega_{m|b}(X) = \frac{\Pr(y_i = m|X_i)}{\Pr(y_i = b|X_i)} = \frac{\exp(X_i\beta_{m|b})}{\exp(X_i\beta_{b|b})} = \exp(X_i[\beta_{m|b} - \beta_{b|b}]) \quad (4.19)$$

Since $\beta_{b|b} = 1$, taking logs shows that the MNL is linear in the logit:

$$\ln \Omega_{m|b}(X) = X_i(\beta_{m|b}) \quad (4.20)$$

The coefficient $\beta_{m|b}$, is the effect of X on the logit of outcome m versus base category outcome b . The excluded political party that constitutes the reference group is the PDS. Before, starting the interpretation of the results, we present tests in order to ensure the robustness of our findings.

Firstly, we implement the Independence of Irrelevant Alternatives (IIA) which is an important restrictive. McFadden (1973) suggested that IIA implies that the

¹³The Manding/Socé dummy drops out of the estimations presented in Tables 4.13, 4.14 and 4.15, due to the tiny number of representatives from these ethnic groups.

¹⁴For a good introduction to the MNL see Long (1997), and Long & Freese (2006).

¹⁵The odds indicate how often something ($y = 1$) happens relative to how often it does not happen ($y = 0$), and range from 0 when $\Pr(y = 1|X) = 0$ to ∞ when $\Pr(y = 1|X) = 1$.

multinomial should only be used in cases where the outcome categories "can plausibly be assumed to be distinct and weighted independently in the eyes of each decision maker." Similarly, Amemiya (1981) suggests that the MNL works well when the alternatives are dissilar. Care in specifying the model to involve distinct outcomes that are not substitutes for one another seems to be reasonable. Therefore, Hausman & McFadden (1984) proposed a Hausman-type¹⁶ test of IIA property which is presented in Table 4.5. Although non of the tests reject H_0 that IIA holds, the results differ considerably, depending on the outcome considered. However, one statistic is negative. According to Hausman & McFadden (1984), this is very common, and it is an evidence that IIA has not been violated.

Secondly in Table 4.13, 4.14 and 4.15, we implement the Likelihood Ratio (LR)¹⁷ specification test which suggest that the MNL of the the determinants of membership in the four main parties is not misspecified. In Table 4.14 we control for CR-specific effects using the Mundlak (1978) procedure (see e.g. Wooldridge (2002) pp 290-291), whereas Table 4.15 do the same but controlling for village of origin effects. The interpretation will be based on the odds ratio as well as on the raw coefficients sign too.

Several aspects of the results are worth noting. First, the simple multinomial logit results (Table 4.13) indicate that PS members are significantly older than their PDS counterparts, whom are older than URD members, whereas there is no age

¹⁶For the MNL, the maximum-likelihood estimator is consistent and efficient if the model is correctly specified. A consistent but inefficient estimator is obtained by estimating the model on a restricted set of outcomes (Ben-Akiva & Lerman 1985). If other alternatives are irrelevant in computing the odds for two outcomes, then omitting those alternatives should not affect the estimates of the parameters that affect the two outcomes.

¹⁷This test can be thought of as a comparison between the estimates obtained after the constraints (excluding variable x_k) implied by the hypothesis have been imposed to the estimates obtained without the constraints. The LR test assesses the constraint by comparing the log likelihood of the unconstrained model, $\ln L(\hat{\beta}_U)$, to the likelihood of the constrained model, $\ln L(\hat{\beta}_C)$. If the constraint significantly reduces the likelihood, then the null hypothesis that all the coefficient associated with x_k are simultaneously equal to 0 is rejected.

difference for AFP members. The odds of PS members relative to PDS members are 3.325 times greater for the older persons than for the young. However, for URD members relative to PDS members, they are 0.182 times less for the older persons than for the young ones. The significant age difference for PS and URD members disappears once village of origin specific effects are controlled for (Table 4.15) .

Second, the URD appears to be the only party that is significantly more feminine than the PDS, and this is also the case when village of origin specific effects are controlled for. The odds ratio confirm this situation with a high value in term of preferences (Tables 4.13 and 4.15). Third, individuals who completed Koranic schooling or are literate in a "national language" are more likely to be AFP or URD members than they are to be PDS members, though this effect disappears once CR or village of origin specific effects are allowed for. In almost all specifications, education does not have any effect on political affiliation that varies with respect to the PDS baseline. Only individuals with higher education are more likely to be members of the URD than of the PDS when we control for village of origin specific effects.

Fourth, ethnicity only plays a role in terms of membership of the URD: in the simple multinomial logit results and with the CR specific effects results, members of the Pular ethnic group are more likely to be members of the URD, whereas they are less likely to be AFP members once village of origin effects are included. Note that there are no other significant differences in the results concerning ethnicity between the raw multinomial logit results and those which control for CR or village of origin effects: the village of origin effects are thus not obscuring the presence of any significant ethnic concerns, as one might be led to believe.

Finally, belonging to the "other" professional category increases the likelihood of

being a member of the URD, as does being in the construction or livestock sectors. However, professional categories like public sector, artisan, "none", and transport are less likely to be member of the URD. Being in "trade" also increases the likelihood of one being in the AFP or the URD. Other professional categories appear to have no impact on the party to which one belongs.

The upshot is that, apart from a relatively mild (negative) effect of being Serèr (controlling for village of origin) on the likelihood of being a URD member, ethnicity plays no role in determining political allegiance. Though the AFP and URD political parties do display a relatively high degree of regional concentration, this does not appear to be particularly correlated with ethnicity. Political parties therefore do not appear to be a veil for ethnic fractionalization in the Senegalese context, and those factors that determine *Conseil rural* presidencies and vice-presidencies can safely be said not to include ethnic allegiance.

4.3.5 From the *Conseil rural* to the CCG

So far, we have focused our attention on the determinants of Conseil rural presidencies and vice-presidencies. However, as mentioned in section 4.2, the *Conseil rural* is not the only body that has decisionmaking and agenda-setting power concerning the identification and attribution of microprojects. Indeed, as we showed earlier, the size of village representation on the CCG also increases the likelihood of receiving PNIR funds (see Table 4.3). The question we now pose is the following: does the CCG actually play the role that it is supposed to according to CDD rhetoric, in terms of ensuring the voice of disenfranchised groups in CR-level institutions? Or is the CCG simply a toothless offshoot of the *Conseil rural*, which essentially reinforces the importance of those factors that already determine *Conseil rural* presidencies and vice-presidencies?

One simple manner of comparing the representativity of the *Conseil ruraux* versus that of the CCGs is to compute the effective number of villages, parties, ethnic groups, and professions represented in each body. The *effective number* of parties, for example, is simply the inverse of the corresponding Herfindahl index (expressed in absolute, not percentage, terms). These numbers are presented in Table 4.6, for those cases where both institutions exist. On average, there are two effective parties, two ethnic groups, three professions and between eight and nine villages. The only variable where the CCG can be deemed to be significantly more representative than the *Conseil rural* is professional affiliation. The result that the effective number of professional categories is greater on CCGs than on the *Conseil ruraux* provides some evidence in favor of the hypothesis that the coopted nature of CCGs allows them to redress the vagaries of the results from the ballot box. It does not, however, demonstrate that *Conseil rural* presidents systematically attempt to redress the balance of power that results from the electoral process.

In order to study this phenomenon more clearly, Table 4.16 considers the determinants of who becomes a CCG commission president, which provides evidence on the outcome of the interaction between the preferences of the president of the *Conseil rural* (and thus the president of the CCG) and the wish for additional voice for under-represented groups that underlies the formation of the CCG. Though CCG commission presidencies do not directly affect the allocation of PNIR funds (as we demonstrated empirically in part 2), the interaction between the two tiers of leadership established by CDD "bicameralism" is of independent interest, and might indirectly affect the attribution of PNIR projects if CCG commission presidencies affect the set of feasible projects among which the president chooses.¹⁸ We present

¹⁸In order to study this phenomenon clearly one would need information on the set of potential projects from which those actually implemented were chosen. Though we do have some information on rejected projects, it is not, unfortunately, sufficiently detailed or complete for us to be able to study this process econometrically.

different specifications in terms of the power of the ethnic group, political party, village or profession to which each representative belongs.

The most commonly used indices of political power are those developed by Shapley & Shubik (1954) and Banzhaf (1965).¹⁹ Based on the concept of the value of an n -person cooperative weighted voting game, power indices, which are sometimes referred to as *semivalues* (Dubey, Neyman & Weber 1981), measure a given group's a priori possibilities of influencing the outcome of a vote in the *Conseil rural*. The Shapley-Shubik index, for example, represents the expected number of times a set of representatives (belonging to a given ethnic group, village, political party or profession) will be in a *pivotal* position, where being pivotal means that one's defection from a winning coalition would turn it into a losing one, and assumes that all permutations (i.e. vote sequences) are equally probable. The Banzhaf index, on the other hand, assumes that all coalitions are equiprobable. Here we use the Penrose version of this measure, also known as the Absolute Banzhaf index.

In addition to the individual characteristics included in our analysis of *Conseil rural* presidencies and vice-presidencies, we include variables describing the similarity between a given member of the CCG and the *Conseil rural* president (in terms of ethnic group, political party, professional category and village of origin). Three results are worth noting.

First, age and gender are not significant determinants of CCG commission presidencies, whereas primary education is. The absence of a significant negative gender effect, in contrast to the *Conseil rural* results (where women were found to be significantly less likely to be *Conseil rural* presidents), indicates, at least, that there is no gender-bias in terms of the allocation of CCG commission presidencies.

¹⁹Note that our specification in which the power of a village is simply given by the number of representatives that it sends to the *Conseil rural* is compatible, in a unicameral setting, with the model of legislative bargaining proposed by Snyder, Ting & Ansolabehere (2005), who question the power index approach.

Second, and contrary to the results concerning *Conseil rural* presidencies and vice-presidencies, the various measures of political power considered earlier (whether dummy variables or power indices) do *not* significantly affect the probability of obtaining a CCG commission presidency, with the notable exception of the political weight of the village. Indeed, the coefficient associated with village political power, as measured by its Shapley- Shubik index in terms of CCG representatives, is *negative* and statistically significant at usual levels of confidence. This result is robust to changes in the measure of village political power using, for example, two different Coleman indices or simply the number of representatives, and it is only with the Penrose index (as shown in the first column of the Table 4.16) that the effect is statistically insignificant. The finding implies that villages with more representatives on the CCG are systematically less likely to have one of their representatives become a CCG commission president, in contrast to the *Conseil rural*, where belonging to a powerful village delegation increased the likelihood of obtaining the presidency. What this means is that the political process within the CCG results in what appears to be a conscious effort to reequilibrate the geographical concentration of power that is the outcome of the choice of the *Conseil rural* president.

Third, despite the negative impact of village power on the likelihood of obtaining a CCG commission presidency, hailing from the same village as the *Conseil rural* president, increases this likelihood, while belonging to the same professional group reduces it. The importance of being from the same village as the *Conseil rural* president highlights the power wielded by the holder of this office and confirms the importance of geographical loyalties. The last result probably stems from an attempt to reequilibrate the relative under-representation of peasants in terms of *Conseil rural* vice-presidencies, with the CCG commission presidencies constituting the consolation prizes.

In summary, our empirical findings concerning the CCG reinforce the view that ethnicity does not matter in terms of local political institutions in Senegal, whereas geographical loyalties are paramount. Concomitantly, the differences between those factors that determine *Conseil rural* presidencies and those that determine CCG commission presidencies reveal an interesting and subtle process by which the weight of village loyalties is tempered in favor of broader geographical and professional representativity.

4.4 Concluding remarks

In this chapter we have showed that democratic leadership is not a vacuous concept in Senegal, and it leads directly to political power that affects the decentralized allocation of resources in the context of CDD. As such, our results are in tune with recent empirical work based on cross-country evidence by Brambor, Clark & Golder (2007), who argue that electoral systems are no different in Africa than elsewhere in the world, contrary to the competing notion of African exceptionalism promoted, for example, by Mozaffar, Scarritt & Galaich (2003). A village that holds the *Conseil rural* presidency significantly increases its likelihood of receiving a CDD project. Given that leadership is not the product of ethnic concerns, it follows that the allocation of CDD funds in Senegal is largely driven by the competitive party (pork-barrel) politics and the usual workings of geographic loyalties. In Senegal, as elsewhere, the old adage holds: all politics is local – and so are the mechanisms by which the spoils of CDD are divided.

Second we have considered the interaction between local politics and CDD operations in Senegal. In our opinion, there are two findings that are particularly interesting. First, political leadership at the local level in Senegal is essentially a

function of party politics and geographic loyalties, as well as personal characteristics such as educational attainment, but is not based on ethnicity. Moreover, party politics are not a veil behind which ethnic issues are hiding. In light of the focus of much of the economics literature dealing with Africa on the problems induced by ethnic conflict, this is comforting, and calls for a closer look at the role played by political institutions and party politics. There are also subtle interactions between local political institutions (the *Conseil rural*) and those created specifically by CDD (the CCG), which reveal an attempt to increase the representation of groups that may be somewhat left out in the competitive political arena. The participative rhetoric of CDD is therefore not all rhetoric, at least in Senegal, and actually does translate into facts on the ground.

Omitted	χ^2	df	$Pr > \chi^2$	Evidence
PDS	16.345	33	0.993	for H_0
PS	0.000	5	1.000	for H_0
AFP	-1.441	34	--	for H_0
URD	0.000	1	1.000	for H_0

H_0 : Odds (Outcome-J vs Outcome-K) are independent of other alternatives.

Table 4.5: Hausman test of IIA

	<i>Conseil rural</i>	<i>CCG</i>	<i>p</i> -value of difference
Political parties	2.10 (0.75)	2.26 (1.12)	0.493
Villages	8.43 (5.43)	8.90 (4.88)	0.614
Ethnic groups	1.70 (0.72)	1.77 (0.66)	0.582
Professions	2.60 (1.16)	3.30 (1.22)	0.024

Standard deviations in parentheses

Table 4.6: Effective number of parties, villages, ethnic groups and professions for the Conseil rural and the corresponding CCG.

	All members	Presidents	<i>p</i> -value of difference with members	Vice -presidents	<i>p</i> -value of difference with members
Age	47.90 (10.89)	48.11 (10.24)	0.898	47.71 (10.54)	0.879
Female	0.090 (0.287)			0.028 (0.160)	0.057
No schooling	0.334 (0.471)	0.190 (0.397)	0.044	0.183 (0.389)	0.005
Primary education	0.167 (0.373)	0.119 (0.327)	0.390	0.225 (0.420)	0.177
Secondary education	0.182 (0.386)	0.309 (0.467)	0.029	0.309 (0.465)	0.004
Higher education	0.046 (0.210)	0.190 (0.397)	0.000	0.042 (0.202)	0.867
Literate in "national language"	0.090 (0.287)	0.095 (0.297)	0.917	0.098 (0.300)	0.811
Koranic schooling	0.178 (0.383)	0.095 (0.002)	0.150	0.140 (0.350)	0.389
Member of ethnic majority	0.767 (0.422)	0.785 (0.415)	0.776	0.802 (0.400)	0.467
Member of largest professional grp.	0.828 (0.376)	0.785 (0.415)	0.451	0.774 (0.420)	0.211
Member of majority political party	0.687 (0.463)	0.928 (0.260)	0.000	0.760 (0.429)	0.172
Number of terms on <i>Conseil rural</i>	1.401 (0.857)	1.476 (0.772)	0.566	1.676 (0.982)	0.005
Number of members from rep.'s vilg.	5.327 (5.433)	7.095 (5.681)	0.031	5.647 (5.477)	0.607
Peasant	0.5037 (0.500)	0.2619 (0.445)	0.001	0.4647 (0.502)	0.497
Trade	0.1314 (0.338)	0.0952 (0.297)	0.478	0.1549 (0.364)	0.545
Livestock	0.1018 (0.302)	0.0952 (0.297)	0.885	0.0563 (0.232)	0.189
Other	0.0879 (0.283)	0.1904 (0.397)	0.016	0.1126 (0.318)	0.447
Public sector employee	0.0546 (0.227)	0.1666 (0.377)	0.001	0.1267 (0.335)	0.005
Private sector employee	0.0370 (0.188)	0.1428 (0.354)	0.000	0.0422 (0.202)	0.809
None	0.0212 (0.144)				
Artisan	0.0222 (0.147)				
Construction	0.0129 (0.113)			0.0140 (0.118)	0.931
Transportation sector	0.0092 (0.095)	0.0476 (0.215)	0.008	0.0281 (0.166)	0.085
Fisherman	0.0083 (0.090)				
Mechanic	0.0046 (0.067)				
Blacksmith	0.0018 (0.043)				
Cobbler	0.0009 (0.030)				
Carpenter	0.0009 (0.030)				

Standard deviations in parentheses; 42 Conseils ruraux and Conseil rural presidents, 78 vice-presidents and 1,080 representatives from a total of 537 villages.

Table 4.7: Characteristics of members, presidents and vice-presidents

	All members	Presidents	p -value of difference with members	Vice -presidents	p -value of difference with members
Political affiliation:					
PDS	0.5574	0.5476	0.896	0.6056	0.397
PS	0.1675	0.1666	0.986	0.2535	0.045
AFP	0.1194	0.1190	0.993	0.0704	0.187
URD	0.0620	0.0714	0.797	0.0140	0.083
LD/MPT	0.0250	0.0238	0.959		
Independent	0.0185	0.0476	0.153	0.0140	0.774
AJ/PADS	0.0175			0.0140	0.816
ADN	0.0111			0.0281	0.156
PIT	0.0055	0.0238	0.104		
CDP/GARAB-GI	0.0046				
APJ/JËF-JËL	0.0037				
PLS	0.0027				
RND	0.0009				
PARENA	0.0018				
PRC	0.0009				
PH	0.0009				
Ethnic group:					
Wolof/Lébou	0.4814	0.4285	0.484	0.4507	0.591
Pular	0.2518	0.2619	0.878	0.2394	0.803
Serèr	0.1148	0.0952	0.685	0.1126	0.953
Manding/Socé	0.0537	0.0714	0.603	0.0704	0.518
Diola	0.0287	0.0476	0.454	0.0563	0.149
Soninké/Sarakholé	0.0027	0.0238	0.008	0.0140	0.061
Mandjag	0.0037	0.0238	0.028	0.0140	0.136
Balante	0.0018				
Other Senegalese ethnic group	0.0601	0.0476	0.727	0.0422	0.511
Other Senegalese	0.0009				

42 Conseils ruraux and Conseil rural presidents, 71 vice-presidents and 1,080 representatives from a total of 537 villages.

Table 4.8: Political affiliation and ethnic group

Dependent variable	<i>Conseil rural</i> president			
	Estimator	<i>Conseil</i> rural FE	Village of origin FE	
	OLS	(1)	(2)	(3)
Personal characteristics:				
Log age		0.0416 (0.028)	0.0659 (0.028)	0.1092 (0.040)
Female		-0.0398 (0.009)	-0.0448 (0.009)	-0.0688 (0.017)
Educational attainment (excluded category: no schooling):				
Primary education		0.0020 (0.016)	0.0059 (0.017)	0.0010 (0.030)
Secondary education		0.0403 (0.021)	0.0467 (0.022)	0.0240 (0.033)
Higher education		0, 0966 (0.047)	0, 1229 (0.048)	0, 1528 (0.069)
Literate in "national language"		0.0272 (0.022)	0.0302 (0.025)	0.0232 (0.048)
Koranic schooling		-0.0001 (0.012)	-0.0096 (0.018)	-0.0603 (0.045)
Ethnicity:				
Member of ethnic majority		0.0089 (0.012)	0.0023 (0.014)	-0.0127 (0.028)
Profession:				
Member of largest professional group		0.0303 (0.019)	0.0303 (0.019)	0.0424 (0.021)
Politics and political experience:				
Member of majority political party		0.0606 (0.008)	0.0673 (0.008)	0.0866 (0.018)
Number of terms on <i>Conseil rural</i>		0.0047 (0.006)	0.0022 (0.006)	0.0021 (0.012)
Geographical loyalty:				
Number of members from representative's village		0.0023 (0.001)	0.0038 (0.001)	
Joint significance of:				
Ethnic group dummies: p -value		0.251	0.454	0.056
Profession dummies: p -value		0.000	0.000	0.011
Political affiliation dummies: p -value		0.002	0.001	1.008
Hausman test [p -value]			8.477 [0.999]	408.539 [0.000]
σ		0.188	0.188	0.219
ρ			0.407	0.296
R^2		0.051	0.061	0.099

Linear probability model: dependent variable equals 1 when member is president, zero otherwise (standard errors in parentheses, clustered at *Conseil-rural* level); 42 *Conseils ruraux* and *Conseil rural* presidents, 1,080 representatives from a total of 537 villages; for joint significance tests, excluded ethnic group is "Wolof/Lébou", excluded political party is "PDS" and excluded profession is "peasant".

Table 4.9: The making of a *Conseil rural* president

Dependent variable	<i>Conseil rural</i> vice-president			
	Estimator	<i>Conseil</i> OLS	Village of rural FE	origin FE
Personal characteristics:	(1)	(2)	(3)	
Log age	-0.0039 (0.035)	0.0184 (0.035)	0.0314 (0.046)	
Female	-0.0468 (0.016)	-0.0490 (0.016)	-0.0364 (0.022)	
Educational attainment (excluded category: no schooling):				
Primary education	0.0479 (0.025)	0.0651 (0.028)	0.0221 (0.046)	
Secondary education	0.0719 (0.028)	0.0975 (0.034)	0.0961 (0.054)	
Higher education	-0.0211 (0.037)	-0.0006 (0.039)	-0.0237 (0.046)	
Literate in "national language"	0.0331 (0.026)	0.0568 (0.031)	0.0685 (0.058)	
Koranic schooling	0.0203 (0.023)	0.0239 (0.029)	0.0167 (0.053)	
Ethnicity:				
Member of ethnic majority	0.0260 (0.016)	0.0181 (0.018)	0.0316 (0.034)	
Profession:				
Member of largest professional group	-0.0261 (0.024)	-0.0329 (0.025)	-0.0303 (0.028)	
Politics and political experience:				
Member of majority political party	0.0350 (0.012)	0.0489 (0.013)	0.0522 (0.023)	
Number of terms on <i>Conseil rural</i>	0.0237 (0.009)	0.0209 (0.010)	0.0285 (0.013)	
Geographical loyalty:				
Number of members from representative's village	-0.0010 (0.002)	-0.0010 (0.002)		
Joint significance of:				
Ethnic group dummies: p -value	0.000	0.003	0.000	
Profession dummies: p -value	0.000	0.000	0.000	
Political affiliation dummies: p -value	0.006	0.000	0.000	
Hausman test [p -value]		33.54 [0.964]	188.338 [0.000]	
σ	0.2457	0.1231	0.4239	
ρ		0.2463	0.2554	
R^2	0.062	0.069	0.060	

Linear probability model: dependent variable equals 1 when member is vice-president, zero otherwise (standard errors in parentheses, clustered at *Conseil-rural* level); 42 *Conseils ruraux* and *Conseil rural* presidents, 1,080 representatives from a total of 537 villages; for joint significance tests, excluded ethnic group is "Wolof/Lébou", excluded political party is "PDS" and excluded profession is "peasant".

Table 4.10: The making of a *Conseil rural* president

	Political Party				Total
	PDS	PS	AFP	URD	
Profession:					
Peasant	347	95	59	8	509
Trade	70	31	24	6	131
Livestock	30	25	10	41	106
Other	45	11	16	8	80
Public sector employee	35	4	10	0	49
Private sector employee	18	5	3	2	28
Artisan	12	4	3	0	19
None	16	2	2	0	20
Contruction	7	2	0	1	10
Transportation sector	7	2	1	0	10
Fisherman	8	0	0	0	8
Mechanic	5	0	0	0	5
Total	600	181	128	66	975

Table 4.11: Major political parties by profession

	Ethnic group									Total
	Wolof /Lébou	Pular	Serèr	Manding /Socé	Diola	Soninké /Sarakholé	Mandjag	Balante	Other	
Political affiliation:										
PDS	307	128	75	29	21		2	1	39	602
PS	92	44	17	17	3	1	1		6	181
AFP	64	29	18	7		1			10	129
URD	13	52	1						1	67
LD/MPT	15	6	3	1				1	1	27
Independent	14	1	2		3					20
AJ/PADS	2	2	7	1	4				3	19
ADN	6	3					1		2	12
PIT				3					3	6
CDP/GARAB-GI	4	1								5
APJ/JËF-JËL		4								4
PLS	2					1				3
RND			1							1
PARENA		2								2
PRC	1									1
PH									1	1
Total	520	272	124	58	31	3	4	2	66	1,080

Table 4.12: Political affiliation of Conseil rural representatives by ethnic group.

	Multinomial logit					
	PS	AFP	URD	PS	AFP	URD
	raw coefficient			odds ratio = $\frac{\Omega_{m b}(X, x_k + \delta)}{\Omega_{m b}(X, x_k)}$		
Personal characteristics:						
Log age	1.201 (0.533)	-0.502 (0.454)	-1.703 (0.710)	3.325	0.605	0.182
Female	0.037 (0.330)	0.004 (0.355)	1.105 (0.351)	1.037	0.995	3.019
Educational attainment (excluded category: no schooling):						
Prim. educ.	0.444 (0.284)	0.528 (0.378)	-0.392 (0.916)	1.559	1.695	0.675
Sec. educ.	0.145 (0.318)	0.353 (0.416)	-1.194 (0.799)	1.156	1.423	0.302
Higher educ.	-0.532 (0.622)	0.478 (0.641)	0.268 (1.125)	0.587	1.612	1.308
Lit. "natl. lan."	0.552 (0.337)	1.333 (0.356)	0.042 (0.625)	1.737	3.792	1.043
Koranic sch.	0.212 (0.255)	1.168 (0.330)	1.059 (0.404)	1.236	3.216	2.885
Ethnicity (excluded ethnic group: Wolof/Lébou):						
Pular	-0.120 (0.275)	0.136 (0.342)	1.571 (0.552)	0.886	1.145	4.814
Serèr	-0.192 (0.311)	0.234 (0.364)	-0.948 (1.209)	0.824	1.264	0.387
Profession (excluded profession: peasant):						
Trade	0.576 (0.331)	0.660 (0.325)	0.815 (0.479)	1.779	1.935	2.261
Livestock	1.310 (0.346)	0.771 (0.431)	2.995 (0.546)	3.708	2.162	19.992
Other	0.082 (0.408)	0.795 (0.365)	2.035 (0.661)	1.085	2.215	7.654
Pub. sec. emp.	-0.464 (0.483)	0.622 (0.435)	-33.752 (0.722)	0.628	1.863	0.000
Priv. sec. emp.	0.239 (0.487)	0.079 (0.923)	1.281 (0.761)	1.271	1.082	3.601
Artisan	0.444 (0.594)	0.195 (0.730)	-33.934 (0.785)	1.560	1.216	0.000
None	-0.598 (0.700)	0.012 (0.881)	-34.367 (0.824)	0.549	1.012	0.000
Transp. sec.	-0.047 (0.875)	-0.178 (0.825)	-32.941 (0.667)	0.954	0.836	0.000
Construction	0.089 (0.808)	-35.122 (0.462)	2.493 (1.024)	1.093	0.000	12.099
Number of observations	979					
Log-likelihood value	-911.973					
LR test p -value	0.000					
BIC	-4525.435					
McFadens Adj- R^2	0.068					

We use members of the four largest ethnic groups (Wolof/Lébou, Pular, Serèr, Manding/Socé); excluded party is PDS (standard errors in parentheses clustered at village level); 979 representatives from 508 villages in 41 Conseils ruraux.

Table 4.13: Multinomial logit estimations of the determinants of membership in the four big parties (PDS, PS, AFP, URD)

	Multinomial logit CR FE					
	PS	AFP	URD	PS	AFP	URD
	raw coefficient			odds ratio = $\frac{\Omega_{m b}(X, x_k + \delta)}{\Omega_{m b}(X, x_k)}$		
Personal characteristics:						
Log age	1.365 (0.572)	-0.209 (0.665)	-1.871 (1.089)	3.917	0.811	0.154
Female	0.226 (0.410)	0.320 (0.541)	0.934 (0.991)	1.254	1.378	2.547
Educational attainment (excluded category: no schooling):						
Prim. educ.	0.475 (0.360)	0.323 (0.408)	0.177 (0.611)	1.609	1.382	1.194
Sec. educ.	0.289 (0.428)	0.355 (0.478)	-0.933 (1.055)	1.335	1.426	0.393
Higher educ.	-0.726 (0.891)	0.994 (0.562)	0.927 (1.312)	0.483	2.703	2.526
Lit. "natl. lan."	0.612 (0.435)	0.647 (0.521)	0.112 (0.649)	1.844	1.910	1.118
Koranic sch.	-0.102 (0.345)	0.662 (0.447)	-0.000 (0.683)	0.902	1.939	0.999
Ethnicity (excluded ethnic group: Wolof/Lébou):						
Pular	-0.332 (0.365)	-0.584 (0.390)	1.414 (0.724)	0.717	0.557	4.113
Serèr	-0.140 (0.588)	0.156 (0.642)	-0.399 (1.073)	0.868	1.169	0.670
Profession (excluded profession: peasant):						
Trade	-0.205 (0.389)	-0.423 (0.404)	-0.056 (1.105)	0.813	0.654	0.945
Livestock	0.688 (0.549)	1.319 (0.527)	1.207 (0.949)	1.991	3.742	3.346
Other	0.290 (0.524)	0.904 (0.514)	0.575 (1.074)	1.337	2.471	1.777
Pub. sec. emp.	-0.162 (0.793)	1.246 (0.491)	-39.513 (0.711)	0.849	3.478	0.000
Priv. sec. emp.	0.631 (0.785)	0.256 (0.824)	0.675 (0.997)	1.880	1.292	1.964
Artisan	0.382 (0.662)	-0.669 (0.788)	-38.970 (0.864)	1.465	0.512	0.000
None	0.147 (0.802)	-0.596 (0.650)	-32.525 (1.906)	1.159	0.550	0.000
Transp. sec.	0.385 (0.833)	0.359 (1.152)	-41.064 (0.701)	1.469	1.432	0.000
Construction	-0.495 (1.055)	-41.861 (0.744)	0.931 (1.077)	0.609	0.000	2.537
Number of observations	979					
Log-likelihood value	-577.631					
LR test p -value	0.000					
BIC	-4760.268					
McFadens Adj- R^2	0.329					

We use members of the four largest ethnic groups (Wolof/Lébou, Pular, Serèr, Manding/Socé); excluded party is PDS (standard errors in parentheses clustered at village level); 979 representatives from 508 villages in 41 Conseils ruraux.

Table 4.14: Multinomial logit estimations of the determinants of membership in the four big parties (PDS, PS, AFP, URD), CRs FE

	Multinomial logit village FE					
	PS	AFP	URD	PS	AFP	URD
	raw coefficient			odds ratio = $\frac{\Omega_{m b}(X; x_k + \delta)}{\Omega_{m b}(X; x_k)}$		
Personal characteristics:						
Log age	1.528 (0.925)	0.352 (1.378)	-0.203 (1.990)	4.612	1.422	0.816
Female	0.292 (0.617)	-0.454 (0.945)	5.554 (1.519)	1.340	0.634	258.435
Educational attainment (excluded category: no schooling):						
Prim. educ.	0.469 (0.684)	0.298 (0.782)	0.453 (1.539)	1.599	1.347	1.574
Sec. educ.	-0.173 (0.915)	0.043 (1.081)	-2.068 (1.507)	0.840	1.044	0.126
Higher educ.	0.272 (1.337)	1.632 (1.104)	10.725 (2.746)	1.313	5.116	4.55
Lit. "natl. lan."	-0.306 (0.819)	1.427 (0.975)	-1.151 (1.723)	0.736	4.167	0.316
Koranic sch.	0.185 (0.793)	1.666 (1.150)	-1.723 (1.701)	1.203	5.292	0.178
Ethnicity (excluded ethnic group: Wolof/Lébou):						
Pular	-0.961 (0.667)	-2.182 (0.868)	0.818 (1.748)	0.382	0.112	2.266
Serèr	-2.276 (2.590)	-2.231 (2.524)	-5.343 (3.283)	0.102	0.107	0.004
Profession (excluded profession: peasant):						
Trade	-0.482 (0.787)	-0.453 (0.816)	-0.533 (2.517)	0.617	0.635	0.586
Livestock	-0.228 (1.472)	2.392 (1.482)	4.532 (1.638)	0.795	10.938	92.984
Other	1.178 (1.167)	2.635 (1.072)	5.779 (1.559)	3.251	13.956	323.590
Pub. sec. emp.	0.878 (1.133)	1.863 (0.761)	-32.370 (1.557)	2.406	6.445	0.000
Priv. sec. emp.	0.904 (0.956)	0.665 (1.069)	-0.059 (1.602)	2.469	1.946	0.941
Artisan	2.238 (2.160)	-0.145 (2.405)	5.537 (2.973)	9.382	0.864	254.160
None	-0.909 (1.170)	0.673 (0.674)	1.977 (2.296)	0.402	1.962	7.223
Transp. sec.	2.481 (1.275)	-3.010 (1.406)	-30.293 (1.745)	11.956	0.049	0.000
Construction	-4.200 (1.240)	-39.607 (1.551)	-5.523 (2.656)	0.015	0.000	0.004
Number of observations	979					
Log-likelihood value	-288.299					
LR test p -value	0.000					
BIC	-5338.932					
McFadens Adj- R^2	0.607					

We use members of the four largest ethnic groups (Wolof/Lébou, Pular, Serèr, Manding/Socé); excluded party is PDS (standard errors in parentheses clustered at village level); 979 representatives from 508 villages in 41 Conseils ruraux.

Table 4.15: Multinomial logit estimations of the determinants of membership in the four big parties (PDS, PS, AFP, URD), Village FE

Dependent variable	Representative is CCG commission president			
	CCG FE	Village of origin FE	CCG FE	Village of origin FE
Personal characteristics:				
Log age	0.023 (0.035)	0.060 (0.059)	0.022 (0.035)	0.059 (0.057)
Female	-0.019 (0.027)	-0.037 (0.041)	-0.018 (0.027)	-0.038 (0.041)
Educational attainment (excluded category: no schooling):				
Primary education	0.050 (0.028)	0.077 (0.046)	0.050 (0.028)	0.077 (0.046)
Secondary education	0.090 (0.031)	0.077 (0.048)	0.093 (0.030)	0.077 (0.048)
Higher education	0.095 (0.044)	0.123 (0.070)	0.105 (0.044)	0.123 (0.070)
Literate in "national language"	0.018 (0.029)	0.045 (0.053)	0.019 (0.029)	0.044 (0.053)
Koranic schooling	0.000 (0.032)	0.057 (0.057)	0.002 (0.032)	0.057 (0.057)
Ethnicity:				
Penrose index of ethnic group	0.010 (0.030)	-0.042 (0.064)		
Shapley-Shubik index of ethnic group			0.008 (0.030)	-0.036 (0.063)
Profession:				
Penrose index of profession	0.029 (0.032)	0.069 (0.054)		
Shapley-Shubik index of profession			0.031 (0.033)	0.071 (0.055)
Politics:				
Penrose index of political party	-0.003 (0.057)	-0.089 (0.095)		
Shapley-Shubik index of political party			0.003 (0.058)	-0.070 (0.096)
Geographical loyalty:				
Penrose index of village	-0.049 (0.035)			
Shapley-Shubik index of village			-0.096 (0.038)	
Alignment with president's characteristics:				
Same village	0.106 (0.032)		0.121 (0.030)	
Same ethnic group	-0.025 (0.029)	-0.054 (0.060)	-0.026 (0.029)	-0.056 (0.059)
Same political party	0.006 (0.045)	0.069 (0.075)	0.000 (0.045)	0.055 (0.074)
Same profession	-0.059 (0.024)	-0.063 (0.038)	-0.061 (0.024)	-0.062 (0.038)
Joint significance of:				
Ethnic group dummies: p -value	0.342	0.236	0.334	0.252
Profession dummies: p -value	0.725	0.715	0.794	0.697
Political affiliation dummies: p -value	0.366	0.279	0.479	0.150
σ	0.199	0.218	0.199	0.218
ρ	0.254	0.353	0.253	0.354
R^2	0.104	0.121	0.104	0.120

Linear probability model: dependent variable equals 1 when member is vice-president of CCG, zero otherwise (standard errors in parentheses); 30 CCGs (and CCG vice-presidents) and 697 representatives from a total of 314 villages; for joint significance tests, excluded ethnic group is "Wolof/Lébou", excluded political party is "PDS" and excluded profession is "peasant".

Table 4.16: The making of a CCG commission president

Conclusion

This dissertation has explored the role played by institutions, and amongst them fiscal decentralization, in the observed patterns of ethnic conflicts. The first departure from the literature was to consider that specific institutional features at work in a country must be analysed within the context of the broader institutional setup. Acemoglu & Johnson (2005) show that institutional arrangements tend to be correlated to each other and that one broad institution (like the respect of property rights) is in general enough to characterize the broad type of institutions that prevails in a country. This is so because respect of property rights tends to go hand in hand with the level of democracy or the presence of constraints on the executive power. This of course makes the task of unbundling institutions and informing the detailed mechanisms at work extremely difficult (Pande & Udry 2005). It raises the question of the interpretation of the results and therefore of drawing policy relevant conclusions. On the other hand, it has been argued and demonstrated in chapter 2 that to not take into account the broad institutional environment leads to spuriously estimating the impact of one specific institution (in our case fiscal decentralization) on conflict.

In the first chapter of the thesis, we attempted to econometrically assess whether institutions are associated with ethnic violence. The methodology used mirrored that of Acemoglu et al. (2001) in that we stressed one indicator of institutions (in

our case, bureaucratic quality) instrumented by the set of colonization variables. The interpretation we gave to bureaucratic quality was that of state power and we controlled for economic development and degree of democracy to help isolating this effect. The results are that low bureaucratic quality is directly causing ethnic violence, which is consistent with the results of Djankov & Reynal-Querol (2007) and the arguments of Fearon & Laitin (2003). On the other hand, we also uncovered that high bureaucratic quality is associated with more grievances and more mobilisation from ethnic minorities, which indirectly also cause ethnic violence. Once again, the results are consistent with our supposed partial equilibrium effect of state power in the context of absence of constraints on the executive. Although reassuring, this consistency does not warrant us to remain cautious in the interpretation of the findings as state power may be associated with other unobservable institutional features. The first implication of these results is that, although ethnic violence tends to persist in time, this is not due to institutions. Indeed, in the case we had found that state weakness was causing conflict, together with the fact that conflicts may further weaken the state, this would have meant the presence of a self-reinforcing mechanism between state weakness and conflict akin to that described by Paul Collier between civil war and development. However, in our case, breaking free of state weakness will not suppress ethnic violence since our results in chapters 1 and 2 show that state power is also associated with ethnic violence. This finding is of primary importance given the stress put on state building in developing countries. We consider that increasing state building (which is desirable for development) must not come at the cost of minorities oppression and new ethnic conflicts. Protection to minorities must thus be granted to ensure that the build-up of a working state machinery does not cause new conflicts. One such mechanism that is widely thought of is fiscal decentralization. The chapters 2 and 3 of the dissertation have investigated

whether this was indeed a good idea.

It has been done with the upshot of chapter 1 in mind, namely, by including broad institutions into the analysis. The chapter 2 examined the potential relationships between institutions and fiscal decentralization. Three results emerged from the analysis. Firstly, econometric results support the view that fiscal decentralization is associated with less ethnic violence (anti-regime rebellion and communal violence). This finding emerges when broad institutions are included in the estimation. In their absence fiscal decentralization is found to have no distinguishable effect on ethnic violence. The reason is that good institutions go hand in hand with fiscal decentralization while they encourage ethnic violence. The second result is that fiscal decentralization successfully reduces ethnic conflict (communal violence) in countries sufficiently developed. This finding echoes those of Murshed et al. (2009) and Sanchez & Palau (2006). The third result is that fiscal decentralization is especially relevant for groups markedly distinct for the rest of the population and/or economically disadvantaged viz. the rest of the country. This last result gives credence to the idea that fiscal decentralisation reduces ethnic by improving the match between minority preferences and the actual policy. The chapter 3 was devoted to a further investigation of this mechanism. We posited that to relate fiscal decentralization with ethnic conflict one needed to make three assumptions about minority preferences, the preference-matching hypothesis and conflict behavior. The chapter discussed each assumption, taking into account latest models of fiscal decentralization which abandon the naive requirement that a centralized policy must be uniform. We also introduced a fundamental distinction between local majorities and local minorities for which the preference-matching hypothesis and conflict behaviors were shown to differ. The results support that fiscal decentralization lowers ethnic violence through the preference-matching hypothesis. However, insofar as

rebellion is concerned, they also show that this average effect hides a heterogeneity between local majorities and local minorities. While the former reduces violence with increased decentralization, the opposite is true for local minorities. Results for communal violence do not support such heterogeneity, on the contrary fiscal decentralization dampens communal violence for both types of groups.

These results taken together suggest that it is difficult to provide a straightforward answer to the question of the desirability of fiscal decentralization as a way to reduce or prevent ethnic violence. Rather, both chapters highlight that the effect of fiscal decentralization must be considered within the national environment in which it takes place and that fiscal decentralization might be good for some ethnic groups but detrimental to some others. The message of the chapters is therefore to call for caution before to advocate fiscal decentralization, although in average, its efficacy is not questioned.

Chapters 1-3 revealed how complex are the interplay between fiscal decentralization, institutions and ethnic conflict. This conceptual complexity is compounded by the difficulty to precisely measure the mechanisms at work at the country level. Hence, the chapter 4 of the dissertation aimed at looking at the functioning of fiscal decentralization within one country, namely Senegal. We were especially interested in the interaction between one decentralized development programme and local politics. It has been shown that the decentralized programme is to some extent captured by political interests. Geographic loyalties are for instance an important determinant of the allocation of the funds. In a second stage, we tried to uncover the characteristics that make a president of a rural council, provided that presidents significantly influence the allocation of spendings. Once again geographic loyalties proved determinant, along with political affiliations and experience. In contrast we did not find any evidence of an ethnic factor in the making of a president. The re-

sults also suggested that the specific institution created by the programme to redress potential imbalances within the rural councils showed some signs of effectiveness although there remains evidence of co-optation. The chapter demonstrated that to understand the outcome of fiscal decentralization, one needs to analyze the political and institutional context in which it takes place.

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