

Differential population dynamics, inequality and political violence in India

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Abstract

Certain forms of demographic change have been claimed to render states more susceptible to political violence. This project addresses the interaction of two such processes, age structure transitions leading to large 'youth bulges', and differential population growth between religious and ethnic groups. While previous works have indicated that both youth bulges and differential growth rates affect low-intensity conflict risks, this study asks whether cycles of violence follow peaks in age structure transitions within religious and ethnic groups as suggested by Samuel P Huntington. An analysis of cross-regional, time-series violence data for Indian states (1989-2009) serves as the empirical illustration, testing whether differential demographic dynamics may contribute to explain trends in violence. It is further addressed how the impacts of demography on conflict may be conditioned by levels of vertical and horizontal (i.e. inter-group) inequalities, by migration, and by levels of education. The study uses Indian census and survey data, including newly developed inequality measures based on individual-level survey data, and age- and gender-specific educational attainment data for religious groups. It further employs new georeferenced conflict events data from the Uppsala Conflict Data Program (UCDP).

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1.0 Introduction

This paper addresses two major political demography literatures, namely the significance for political conflict and violence of age structure transitions ('youth bulges') and of differential growth between religious and ethnic groups. It further addresses internal and external migration as a specific form of differential growth, and also considers the impact of differential education trends and of systematic differences in living conditions ('horizontal inequalities') between religious groups. These perspectives have previously been kept distinct theoretically and have been tested separately. Future iterations of this paper will better integrate these perspectives and ask whether the impact of age structure transitions and differential growth on violence is aggravated by systematic grievances such as low education, and systematic group inequalities in education levels and household assets. The current version includes some very preliminary analysis.

2.0 Theoretical perspectives

2.1 Differential population growth

In states where numbers of people matter, conventional wisdom has it that the prospect of a majority being overtaken by a minority is fraught, at a minimum, with tension, and one which might eventually lead to conflict and violence (Levy and Krebs 2001, Toft 2002, and Strand and Urdal 2005). The logic could work in two ways. Either declining majorities fearful of being overtaken might launch a preventive war – either by passing legislation designed to prevent a rising minority from acquiring influence commensurate with its increasing numbers or by outright assault – or a rising minority might make redistributive demands, ranging from increased access to offices, contracts, wealth, or even outright independence.

Consider contemporary Israel. Its post-1967 occupation of Gaza and the West Bank of the Jordan River put this young parliamentary democracy in nominal control of millions of Palestinian Arabs, whose birthrates in the past forty years have far outstripped those of Israelis as a whole. Only successive waves of Jewish immigration have kept Jews in the majority within Israel. But those waves of immigration have now ebbed, while birthrates among Israeli and Palestinian Arabs remain high. At anything like current comparative birthrates, the proportion of Jews in Israel will drop from 82 percent of the population today to 77 percent by 2020. Demographic shifts are thus a major issue – encompassing both identity and security issues – within Israeli politics.

At root, then is the *relative* shifts in population proportions of identity groups within a multinational state such as India, and more specifically, the two largest groups. Could a shift in populations make conflict more likely? Is peace more or less likely when group populations are distributed asymmetrically or evenly?

The basic hypothesis explored here is then that differential population growth among identity groups within a state leads to pressure to change the current political order, which leads to an increase in conflict, and possibly violence. Or, fundamental shifts in group balances among contenders produce conflict and violence.

H1: Shifts in the numerical strength of religious groups on the state level are associated with higher levels of violence

H2: The effect on violence of shifts in the numerical strength of religious groups is greater the greater parity of the targets groups

We further investigate migration as a specific form of demographic shifts. In a recent study, Fearon and Laitin (2011) estimate that as many as one-third of ethnic civil wars can be labeled “sons-of-the-soil” conflicts. The term “sons of the soil” were initially coined by Weiner (1978) to categorize conflicts between the original inhabitants of an area and more recent settlers. The label suggests that those who are native to a given territory see themselves as prioritized in terms of access to the resources of that territory. The typical case, as depicted by Fearon and Laitin, is a large country with an overpopulated lowland plains area, inhabited by the country’s dominant ethnic group. These plains are surrounded by peripheral hill areas populated by ethnic minorities, sometimes tribal. To counteract the population pressure in the lowlands, people move (or are promoted to move as part of a government resettlement policy) to the hill areas. Although such migration has marginal impact on mitigating the population pressure in the plains, it may have significant effects for sparsely populated peripheral areas (Tirtosudarmo, 2001). Thus, when migrants come to an area, the original population may both perceive a significant risk that the demographic and/or political balance changes to its disadvantage and increasing competition over resources, e.g. cultivable land or attractive employment opportunities. Migration, especially if large-scale, may thus create anti-foreigner sentiments among the native population. Partly depending on the reaction (or inaction) of the state government, the situation can turn into violent insurgencies or communal conflicts (Fearon and Laitin, 2011).

As noted by e.g. Goldstone (2001), migration per se is not necessarily linked to an increased risk of conflict. For example, within-country population movements such as processes of urbanization are commonplace – violent conflict, however, is not. Migration of certain types, and migration under certain conditions, may on the other hand be connected to conflict. We expect that the type of migration discussed here – i.e., when the migrants come to an area inhabited by indigenous groups who view the territory as their traditional homeland – are more likely to see violent conflict, partly because such processes are likely to affect the local power balance, or the distribution between different ethnic or religious groups.

Several of the ongoing insurgencies in India fit the description of a typical “sons-of-the-soil” conflict. In particular some of the armed conflicts in the northeast corner are clearly driven by the indigenous people’s fear of being outnumbered by settler communities. Based on the above discussion we thus expect that areas with larger number of immigrants are more likely to experience violent events.

H3: Areas with larger number of immigrants are associated with an increased probability of violent conflict events.

The “sons-of-the-soil” dynamics outlined by Fearon and Laitin (2011) emanate primarily from within-country migration – from lowlands to hill areas. However, violent conflict may also arise as a result of international migration. International migration, especially if large-scale, also has the potential of creating significant demographic changes and lead to a perceived loss of power among the autochthonous population. That state government sponsor or encourage migration to tribal areas are not limited to domestic resettlement processes. The government may, for example, choose to bring in cheap labor from abroad to exploit the local resources. In addition, the native population may perceive that the government is encouraging people to migrate as a deliberate strategy of diluting the local population. This may lead to resentment towards the government, and has the potential of turning into violent armed conflict.

The anti-foreigner agitation of some of the rebel groups in Northeast India has focused on the presence of *illegal* immigrants, which by definition come from other countries. For instance, both All Tripura Tribal Force (ATTF) and National Liberation Front of Tripura (NLFT) sprung from an anti-immigrant agenda. Although the anti-foreigner agitation is especially pronounced in Assam and Tripura, fear of mass-migration and agitation over “foreign nationals” and “infiltrators” have been seen in the other states of Northeast India as well, in particular in Meghalaya and Manipur (Abbi, 1984: 273, Singh, 1987: 25, 141). Recently in Meghalaya, the local Khasi communities have become increasingly hostile towards the region’s Nepali migrant workers. Hence, we suggest that areas with large numbers of immigrants from abroad are linked to higher risks of conflict events.

H4: Areas with larger number of foreign immigrants are associated with an increased probability of violent conflict events.

2.2 Horizontal inequality

Civil wars, as well as other forms of political violence, often seem to have an ethnic or religious dimension in terms of well-defined identity groups fighting each other. However, there is mixed empirical evidence regarding the link between group identity and violent conflict (see, e.g., Fearon and Laitin, 2003; Reynal-Querol, 2002). The critical question, then, becomes: Why do certain multiethnic countries (or subnational areas for that sake) experience civil conflict, while others do not? To answer this question one needs to go beyond the sheer cultural differences between groups and explore what contextual factors may contribute to an increased risk of inter-group conflict. Woodward (1995) holds that so-called ethnic conflicts are in fact driven by underlying economic inequalities, which in turn politicize ethnic identities. This line of reasoning is captured by the concept of horizontal inequalities (HIs), or systematic inequalities between identity groups. (see e.g. Stewart, 2008). The focus on groups distinguishes the concept of horizontal inequalities from that of vertical inequalities, which pertains to inequalities between individuals.

According to the horizontal inequality argument, members of disadvantaged groups are likely to feel frustration and antagonism, especially when their relative deprivation is the result of actual exploitation and discrimination. It is not only resentment by the disadvantaged groups that may cause political instability. The relatively privileged can also attack the

unprivileged, fearing that they may demand more resources and political power or because of the loss of a privileged position. In either case, a society characterized by high horizontal inequalities has a higher risk of political violence, which has been demonstrated in many qualitative case studies (see e.g. Stewart, 2008). The horizontal inequality argument has also received support in recent statistical studies (e.g. Cederman, Gleditsch & Weidmann, forthcoming; Deiwijs, Cederman & Gleditsch, 2010; Østby, 2008; Østby, Nordås & Rød, 2009; Østby et al., 2011). Most of these studies, however, tend to focus exclusively on civil war and ignore other forms of political violence.

As pointed out by Fjelde & Østby (2010), however, the scope of the inequality-conflict argument does not clearly restrict itself to cases where the state is a participant in the violence. Mobilization and militarization around collective demands for redistribution or in defense of the status quo distribution should be expected to lead societal groups to fight against each other. In fact, we should expect lower organizational barrier for inter-group violence than for creating and sustaining an armed challenge against the state. Within the broader literature on causes and dynamics of conflict in the developing world, attention to non-state (or ‘communal’) conflict has increasingly been focused on explaining the Hindu–Muslim riots in particular areas of India (Brown & Langer, 2010). A range of explanations have been proposed from those that focus on the instrumental role of ‘riot entrepreneurs’ (Brass, 1997) and electoral competition (Wilkinson, 2004) to those that focus on the robustness of civil society (Varshney, 2002). To the best of our knowledge, none of these accounts explicitly consider a possible role of horizontal inequalities.² On the other hand, there is growing evidence from in-debt case studies of communal conflicts in other countries which support the proposition that horizontal inequalities may provoke non-state conflict (see e.g. Mancini, 2008 on Indonesia; Ukiwo on Nigeria). It is not unlikely that similar dynamics could play out as regards inter-group conflict in India. Indeed, since certain forms of non-state violence is by definition inter-ethnic, or inter-religious (such as e.g. Hindu-Muslim), we assume that horizontal inequality may be particularly related to this form of violence (see e.g. Tadjoeiddin and Murshed, 2007).

The many conflicts in India have also been affected by one-sided violence against civilians, which has been carried out both by the government of India and by a wide range of rebel groups across the country.³ However, the debate about horizontal inequalities has also been quite mute among those who study the determinants of state repression or one-sided violence more broadly (Østby & de Soysa, 2008). Why should horizontal inequalities increase the level of such violence? The mechanisms underlying this relationship can be conceptualized in two ways: On the one hand, horizontal inequalities may increase the level of dissent from below due to heightened grievances by relatively deprived groups, which in turn can lead to repression. On the other hand, horizontal inequalities may increase the level of dissent from above. We assume that leaders will take more seriously potential threats from disadvantaged ethnic groups because the shared identity of such groups may overcome the collective action problems whereby people are unable to cooperate because of mutual suspicions (Olson, 1965), and hence be more likely to form a rebellion.

² This is possibly due to the lack of systematic data on inter-religious inequalities in India.

³ See the UCDP database: <http://www.ucdp.uu.se>

H5: States with severe socio-economic inequalities between religious groups are more likely to experience political violence

2.3 Youth bulges

Much of the developing world has experienced a recent mortality decline, while fertility many places has remained high. This has produced youthful populations in many countries, often referred to as 'youth bulges'. The literature on youth bulges and political violence has focused in particular on spontaneous and low-intensity violence, but recent empirical results suggest that youth bulges may also increase the risk of more organized forms of political violence like internal armed conflict. Following September 11 2001, youth bulges have been argued to be an important driver of Islamic fundamentalism and international terrorism (Sciolino, 2001; Zakaria, 2001). Huntington argues that the resurgence of Islamism has been fueled by the young age structures of many predominantly Islamic countries, increasing the risk of instability and violence (1996: 116-118). More demographically dynamic ethnic groups experiencing higher growth rates and younger populations exert political, economic, and social pressures on less dynamic groups (ibid.:261). In Sri Lanka, cycles of political violence have apparently followed changes in the age structure of the perpetrator groups (ibid.:259).

Youth bulges have been argued to provide both opportunities and the motives for political violence. Collier (2000: 94) has suggested that relatively large youth cohorts may be a factor that reduces recruitment costs through the abundant supply of rebel labor with low opportunity cost, increasing the risk of armed conflict. According to the opportunity perspective, rebellion is feasible only when the potential gain from joining is so high and the expected costs so low that rebel recruits will favor joining over alternative income-earning opportunities. Studies in economic demography also suggest that large cohorts are likely to experience a pressure on wages, so that the opportunity cost of a person belonging to a large cohort is on average lower than that of a person belonging to a smaller cohort (Easterlin, 1987; Machunovich, 2000).

Much literature also focuses on how youth bulges may provide motives for political violence. Large youth cohorts are likely to be motivated for violence if they face unemployment, expansions in higher education with limited employment opportunities, lack of political openness, and crowding in urban centers (Moller, 1968; Choucri, 1974; Braungart, 1984; Huntington 1996; Goldstone, 1991; 2001; Cincotta et al., 2003). In India, the youth unemployment is particularly high, especially among educated youths (McNally et al., 2004: 162). While we do not have unemployment rates, we will use education as a proxy for youth opportunities. Further, we also address the issue of serious gender imbalances. Hudson & den Boer (2004) have suggested that great surpluses of young males represent a considerable security risk, and mention India as a particularly vulnerable country due to high male to female ratios in certain states. This study thus investigates two specific claims under the youth bulge heading, namely whether youth bulges are more likely to be associated with political violence in states where the sex ratios are particularly skewed towards men, and whether the conflict risk is particularly elevated when education is low (Goldstone, 1991, 2001).

Previously, Fearon & Laitin (2003) as well as Collier & Hoeffler (2004) have not found any support for the youth bulge hypothesis in cross-national studies of civil war. Esty et al. (1998) found a statistical relationship between youth bulges and ethnic conflict, while Urdal (2006) has found an effect of youth bulges on low-intensity internal armed conflict, as well as on terrorism and rioting.

H6: The greater the proportion of young men relative to the total adult population, the greater the risk of political violence.

H7: The greater the difference in age structure between religious groups the greater the risk of political violence

H8: The lower the education among young men, the greater the risk of political violence.

3.0 Data, Operationalizations, Model

The study builds on and uses the data structure of Urdal (2006). It covers all Indian states and union territories for the 1989-2009 period. However, only 22 states are covered in all the data sources used.

3.1 Dependent variables

This paper employs new unique data on the location and timing of conflict events assembled by the Uppsala Conflict Data Program (UCDP). UCDP has recently transformed all of its dyad-year data into an events data format and assigned each event with attributes concerning its time and space, as part of the UCDP Geo-referenced Event Dataset (GED) (Sundberg et al., 2010). An event is defined as “the use of armed force by an organized actor against another organized actor, or against civilians, resulting in at least 1 direct death[...]at a specific location and a specific temporal duration” (Sundberg, et al., 2010).⁴ This definition is intended to capture the three types of organized violence of relevance to the UCDP: (1) state-based conflicts between the government of a state and another government (inter-state armed conflict), or against an organized opposition group (intra-state armed conflict); (2) one-sided violence carried out by an organized group (opposition group or government) directed at civilians and (3) non-state conflicts between two organized opposition groups.⁵

In this paper, each event identified by the UCDP-GED in India 1989-2009 has been categorized according to its state location within India and its year. All types of violent events identified by the UCDP are of relevance to the present study (with the exception of events part of interstate conflicts) thus, a number of dependent variables have been constructed. First, a measure called *Armed conflict fatalities* sums the total number of fatalities resulting from armed conflict violence, that is between an organized opposition group and the government,

⁴ For specific coding criteria regarding each element of this definition, please consult the codebook (Sundberg, et al., 2010)

⁵ For full definitions of these three types of violence, see (Pettersson and Themnér, 2010 pp 23, 145, 203).

in a state a given year.⁶ Second, *Armed conflict events* sums the total number of events assigned to a state-year. Third, the variable *One-sided fatalities* sums the number of fatalities in one-sided violence taking place in a state a given year. Fourth, *One-sided events* are the number of such events. Fifth, the number of deaths in so-called non-state conflict are categorized according to its state and year location in the variable *Non-state fatalities*. Last, the number of such events per state-year is provided by *Non-state events*. Note that for all types of violence, although some rebel groups have a clear link to a specific territory⁷, their activity has often transcended into other areas. Therefore, also states without a coherent rebel presence may be the location of violent events. For this iteration of the paper we are using two operationalizations of the conflict data, both summarizing events in all three sub-categories of violence. First, we have created a dummy variable coded '1' if five or more people were killed in political violence in a state within one year, second we use a count measure of all events within a state-year.

3.2 Demographic measures, education

Data on the age and gender structure as well as measures of educational status have been collected by Vegard Skirbekk and Marcin Stonawski at the International Institute for Applied Systems Analysis at Vienna (REF). While data on the age structure and gender balance broken down on ethnic groups are not publicly available from the Indian census authorities, Skirbekk and Stonawski have used individual 2001 census files (check) and survey data to construct a dataset of five-year age groups for each of the three major religions (Hindus, Muslims, Christians) and a category of 'others' covering 22 states. These data are further broken down by gender and education. The education variable distinguishes between three levels of analysis; no education (Illiterate; Literate without educational level; Below primary), medium education (Primary, Middle, Matric/Secondary), and higher education (Higher secondary/Intermediate, Pre-University/Senior secondary, Non-technical diploma or certificate not equal to degree, Technical diploma or certificate not equal to degree, Graduate & above).

Based on this rich dataset we have calculated the following variables:

Youth bulges, total and by religion: population aged 15-24/adult population (aged 15+)

Young male bulges, total and by religion: males aged 15-24/adult population (aged 15+)

% young males aged 15-24 with no education as share of the total male population aged 15-24, total and by religion

% % young males aged 15-24 with no education as share of the total population, total and by religion

3.3 Measuring Inequalities

Variables measuring vertical and horizontal inequality are calculated using individual level data from the Demographic and Health Surveys (DHS) conducted in India during the years

⁶ Since we focus on intrastate armed conflict, events belonging to the interstate conflict India vs. Pakistan are excluded.

⁷ Specifically the rebel groups that have a stated incompatibility concerning territory, such as all groups in Northeast India.

1992, 1998, and 2005.⁸ In a DHS, women between the ages 15 and 49 are interviewed about health, fertility, child survival, and other issues, such as ethnic or religious affiliation and ownership of various household assets. This provides a very rich data source from which one can construct indicators of horizontal as well as vertical inequalities (Østby, 2008). The Indian surveys include information on the respondents' religious affiliation and whether they are classified as 'scheduled tribe' or 'scheduled caste'.

Based on the DHS we measure state level horizontal inequalities as systematic differences in household asset ownership and educational length among religious groups. More precisely we measure the gap between the largest religious group and the other groups within each state. First, however, in order to test whether political violence is more likely in states with high inter-individual inequality, we calculate regional Gini coefficients for household assets and education years.

The DHS survey lack information on household income or consumption expenditures. Instead we use the questionnaire to generate a household asset index, based on information on whether the household has electricity, a radio, a television, a refrigerator, a bicycle, a motorcycle, and/or a car. In India, where a large share of the population is part of the informal sector, household assets might actually better capture variation in welfare than conventional GDP pc measures (Filmer and Pritchett 2001). As an alternative welfare indicator we use data on completed education years. We apply the asymmetric inequality measures from Deiwiks, Cederman & Gleditsch (2010) to generate inter-religious HI measures based on household assets and education years respectively. Their point of departure is a measure for overall regional inequality:

$$lineq2 = [\log(g/G)]^2$$

where g is the largest religious group's wealth and G is the average wealth for all other groups within the state. This measure is positive if the largest religious group's wealth deviates from the average for other groups in either direction, and 0 for states with no welfare differentials between the largest religious groups and the rest.

In order to maximize the number of observations, the values from 1992 are applied to the period 1989–1994; values from 1998 are applied to 1995–2001, and values from 2005 are applied to the period 2002–2009.

3.4 Data on migration

Data on migration in India is collected as part of each census. These censuses are held every decade, the last ones being in 1991 and 2001 and with the 2011 census recently finalized (and data currently being processed). These reports provide data on, for instance, intrastate, interstate and international migration in India. From the data, we have constructed measures of migration where we use the 1991 census data to cover the years 1989 to 1996 and the 2001 data is used for all years 1997-2009 (Census of India, 2001, Census of India, 1991).

^{8 8} See the DHS webpage: <http://www.measuredhs.com/>

First, the measure *Born abroad* sums the number of people in a given state that reported some country other than India as their place of birth in the census data.⁹ We use this estimate to calculate *Proportion born abroad*, which is the proportion of the state's population that according to the census data are born abroad. As stated in the theoretical section, not only international migration is of relevance. Hence, we also estimate migration within India. *Born other state* counts the number of people in a state that had a place of birth outside of the state they currently reside in, but within India. This is used to construct *Proportion born other state*, which is the share of the state's population reportedly born in another state of India.

3.5 Control variables

Total population, share of population that is rural, and literacy are collected from various Indian census sources.

3.6 Method: we are using a logit model for the binary variable measuring whether there were at least five casualties in a given state-year and a negative binomial regression model for the count data.¹⁰

4.0 Results

4.1 Descriptive Analysis of Violent Events in India 1989-2009

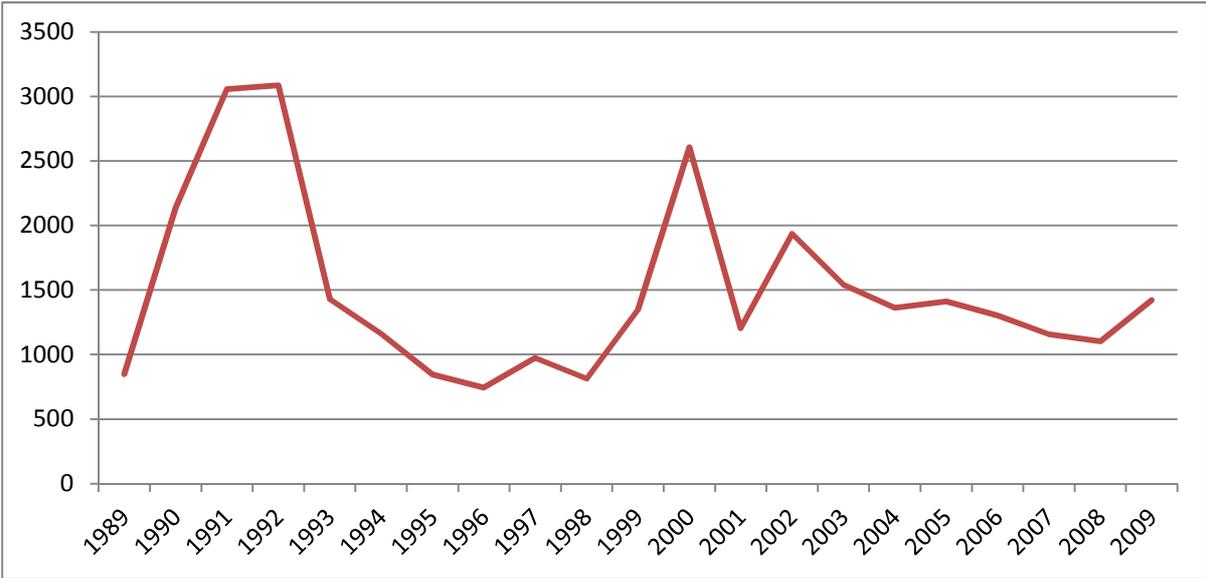
As mentioned previously, the UCDP Geo-referenced Event Dataset (GED) provides information on conflict events for three types of conflict (state-based armed conflict, one-sided violence, and non-state conflict). Starting with the first type of conflict, UCDP-GED has coded about 7000 separate events in India 1989-2009 (excluding the interstate conflict with Pakistan), resulting in over 31000 battle-related deaths. These violent events involve 20 different dyads, in eleven different armed conflicts (one over government and ten over territories). These events are geographically dispersed; indeed, fatal events have taken place in 25 out of the 35 states and Union Territories.¹¹ Table 1 shows the number of fatalities in these events over time.

⁹ It should be noted that self-reported census data on the place of birth is likely to be underestimated when it comes to international migrants. Especially migrants who have entered India illegally are unlikely to report their true place of birth fearing deportation. However, this is likely to be systematic across regions and we should hence be able to assess the relative impact of migration.

¹⁰ We also did initial runs with a zero-inflated negative binomial model, but admittedly we do not have a good theoretical model for the inflation model. The results from these models are quite volatile and thus inconclusive.

¹¹ See Appendix 1 for maps of the geographical distributions of the three event measures.

Table 1: Annual number of fatalities state-based intrastate conflict, India 1989-2009



The second category, one-sided violence against civilians carried out by governments or organized opposition groups, amounts to approximately 2700 separate events resulting in over 9000 fatalities in India 1989-2009. In total, twenty-one opposition groups and the government of India has reached the level of inclusion in at least one year. This type of event is almost as geographically spread as regular state-based conflict, and has been identified in 23 Indian states in the time period. Table 2 illustrates that the annual number of fatalities in direct violence against civilians in India is relatively constant, with fatalities typically in the hundreds.

Table 2: Annual number of fatalities one-sided violence, India 1989-2009

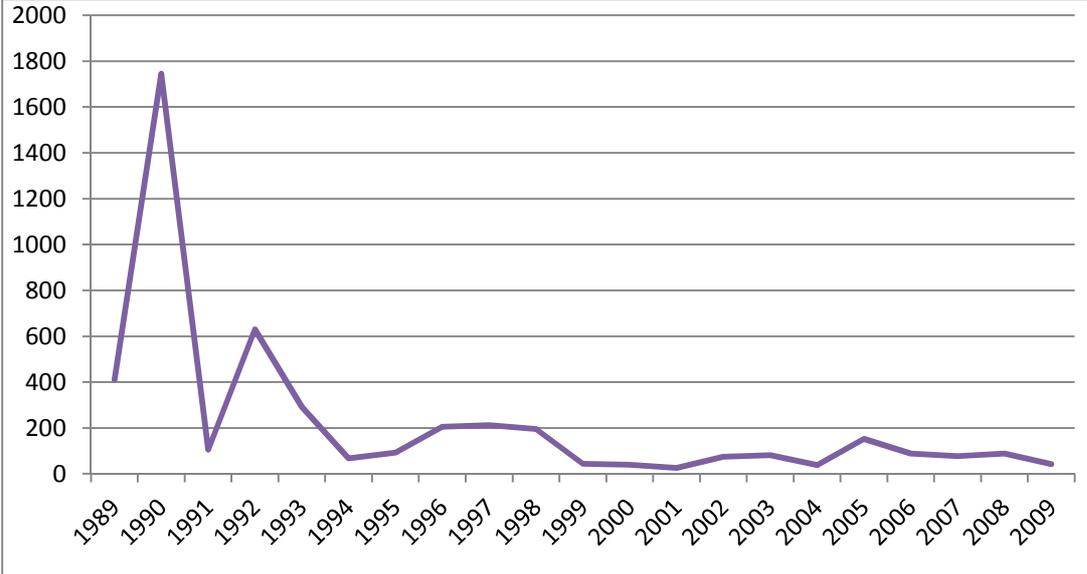


The third category of events is non-state conflict, i.e. when two groups fight each other. This category both includes dyads consisting of two groups that are highly organized, such as NSCN-IM vs. NSCN-K in Nagaland but also groups bound together by a shared ethnic

identity, such as the dyad Naga vs. Kuki. The UCDP identifies eight non-state conflicts in India, with clashes that have resulted in about 4700 deaths in approximately 400 separate events. This type of violence has been less geographically spread than state-based conflict and one-sided violence. Nevertheless, about half of all Indian states have experienced such events in the time period studied.

The table below illustrates a clear temporal trend regarding non-state violence in India. After a flare-up in 1990, the annual number of fatalities from non-state violence have decreased significantly. The over 1700 fatalities identified in 1990 was attributed to mainly Hindu-Muslim violence throughout a large number of Indian states, e.g. Gujarat, Bihar, West Bengal, and Uttar Pradesh.

Table 3: Annual number of fatalities non-state conflict, India 1989-2009



4.2 Multivariate Analysis

Models 1 and 2 illustrate some early tests of the data and main hypotheses. Here, we only show the results for all the conflict data across the sub-categories, as there are initially no clear patterns emerging from the different forms of violence.

Model 1, using the binary conflict measure, suggests that conflict as expected is statistically associated with greater differences in age structure between the two largest religious groups, with greater differential growth the greater the parity of the groups, and with an increasing presence of foreign born in the population. More unexpectedly, lower levels of education in the 15-24 year group are associated with less conflict, as are greater horizontal inequalities. Among the control variables, lower literacy and greater rural populations are also associated with increased conflict risks. Model 2, analyzing a count measure of all violent events, supports many of the findings from the logit model. The only statistically significant findings that differ from the first model are the share of the population that is rural, and the proportion of foreign-born, which both turn statistically insignificant in Model 2.

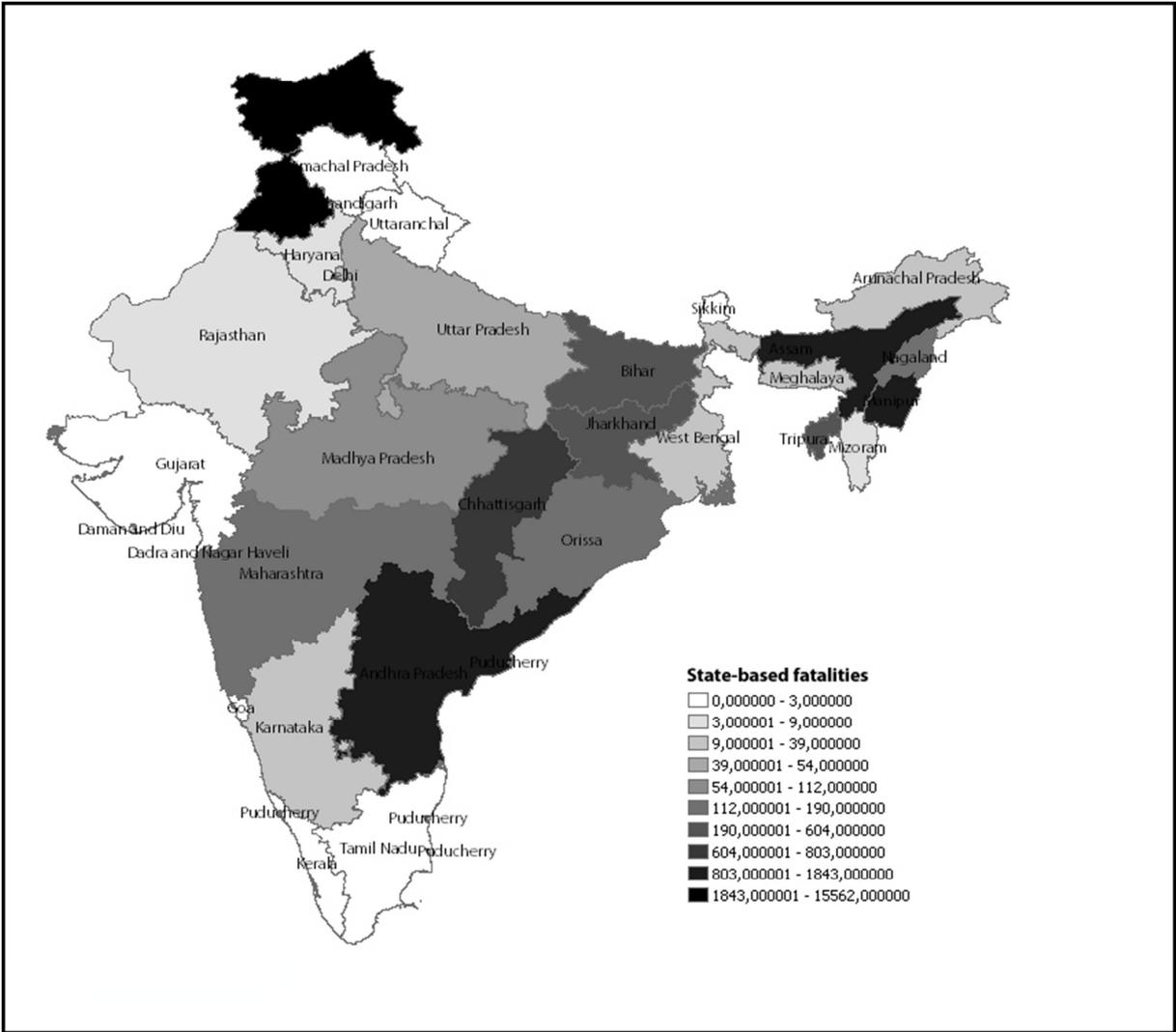
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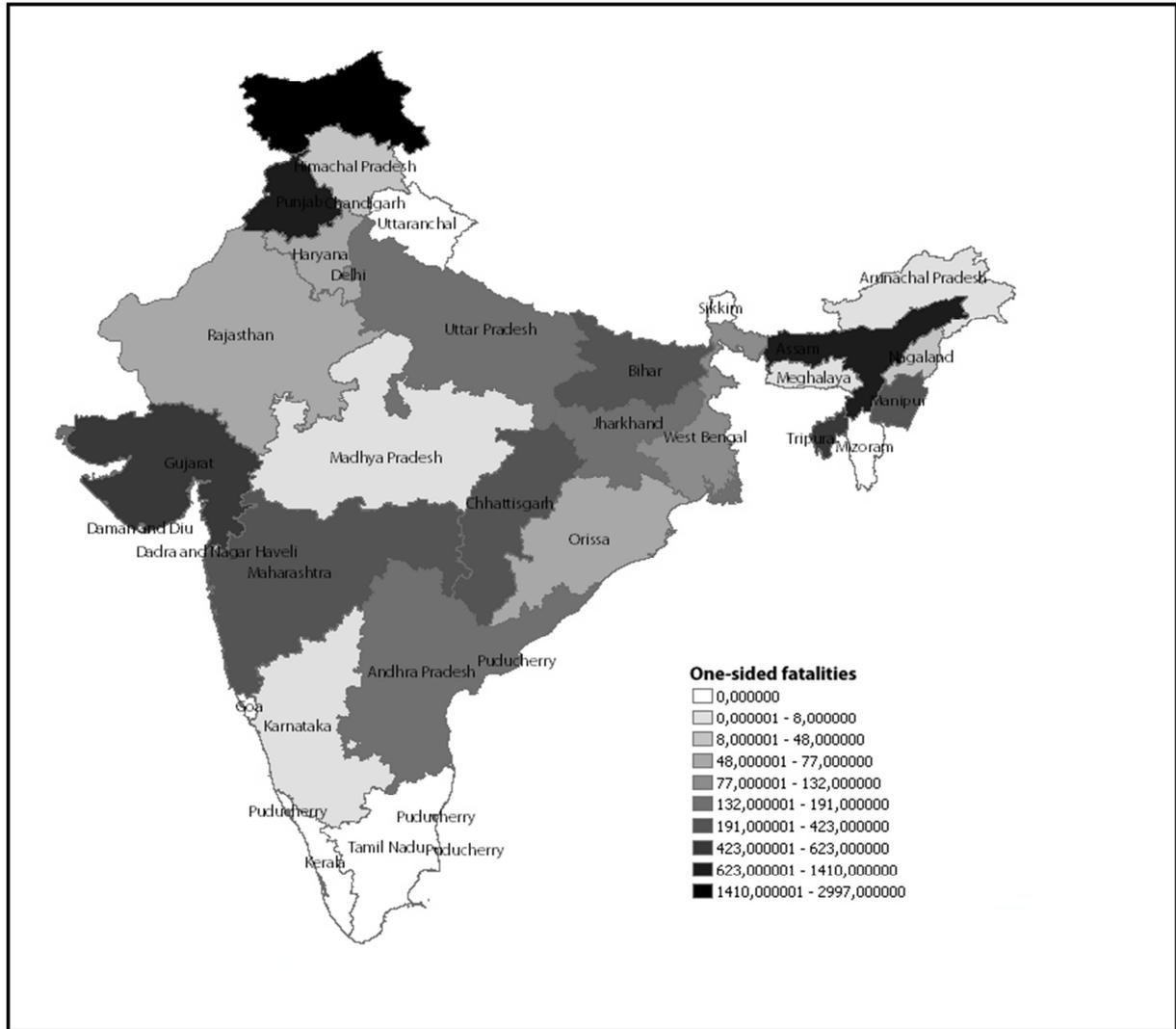
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Appendix 1 Maps

Map 1: State-based fatalities



Map 2: One-sided fatalities



Map 3: Non-state fatalities

