Population, Resources and Political Violence: A Sub-National Study of India 1956-2002*

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Abstract:

Recent cross-national studies have found only moderate support for the idea that population pressure and resource scarcities may lead to political violence, contrary to much of the case study literature in the field. This article suggests that the level of analysis may be at heart of this discrepancy. In a time-series study of 27 Indian states for the period of 1956-2002, propositions that violent conflict may be associated with high population pressure on renewable natural resources, with youth bulges and with differential growth rates between ethnic and religious groups are tested. The study analyzes the relationship between population pressure and political violence, using three different and independently collected datasets measuring armed conflict, political violence events and Hindu-Muslim riots. The great availability of disaggregated demographic, socioeconomic and environmental data for India makes possible a more detailed assessment of the population pressure hypotheses than can be tested for a global sample of states. The results generally provide more support for the resource scarcity and conflict scenario than recent global studies, supporting claims that the scarcity-violence nexus may be better studied at a sub-national level. Scarcity of productive land is associated with higher risks of political violence, particularly when interacting with high rural population growth and low agricultural yield. Other central aspects of the resource scarcity scenario are not supported; structural scarcity, measured by rural inequality, as well as high urbanization rates are not associated

with higher levels of political violence. The study further suggests that youth bulges increase the risk of all three forms of political violence, especially in states with great male surpluses. Youth bulges, when coinciding with high levels of urban inequality, is the only form of demographic pressure to statistically increase the risk of Hindu-Muslim rioting. Finally, there is some indication that relatively high Hindu growth rates are positively related to armed conflict, while religious heterogeneity in itself appears to be unrelated to political violence in India.

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1. Introduction

Although there has been a marked decrease in the number of both interstate and internal armed conflicts since the peak just after the end of the Cold War, the number of internal armed conflicts is still high. In 2005, 31 internal armed conflicts were active in 22 different countries worldwide (Harbom et al., 2006). The recent decline in conflicts has not been evenly distributed geographically. In particular Sub-Saharan Africa and South and South-East Asia have been pockets of continued armed conflict. In 2005, nearly half of all active conflicts in the world took place in South and South-East Asia, five of them within India. Perpetual violent conflict is one of the greatest obstacles to economic and social development worldwide (Collier, 1999), and may have detrimental effects on the environment (Austin & Bruch, 2000).

Recent civil war literature has focused on national-level characteristics to explain the global distribution of armed conflict, in particular on the significance of poverty, state incapacity and governance (see Sambanis (2002) for a review of recent quantitative literature). Among the more broadly accepted empirical regularities are the findings that poor and institutionally weak countries are more susceptible to internal conflict (Collier & Hoeffler, 2004; Fearon & Laitin, 2003), as are semi-democracies as opposed to both democratic and autocratic states (Hegre et al., 2001). As summarized by Sambanis (2002: 216) 'well-established democracies with high levels of per capita income are highly unlikely to have a civil war'.

Using India as an illustration, Lacina (2005) argues that many countries which are not normally considered to be weak, and certainly not failed, face low-intensity armed conflicts that can be best understood as political lobbying by the insurgent groups. Rebel organizations may use moderate violence to signal political demands that echo sentiments among their constituents. In democratic societies, the political costs of a military solution to such conflicts are potentially very high, and states may be willing to make political concessions rather than to use coercive means.

The structural factors discussed above are the primary factors determining the opportunities for rebellion. However, state characteristics do not address how and why conflicts arise in certain local areas and not in other. Most conflicts are located in a limited geographical area; it is rarely the case that all parts of a country at war are equally affected (Buhaug & Gates, 2002). An important question is then: given state characteristics, what are the local determinants of conflict? This study addresses

causes of regional variation in political violence in India, and thus implicitly controls for macro-level characteristics such as state strength and regime type.

After the end of the Cold War, an increased interest in demographic factors as potential causes of armed conflict has emerged. The debate about demography and conflict originates from a position often referred to as neo-Malthusian. Neo-Malthusian scholars voice concerns that rapidly growing populations, especially in developing countries, outpace the local natural resource base, eventually forcing groups to fight over resource access. While some observers have clearly overstated the significance of population and environmental factors (Kaplan, 1994; Myers, 1993), more cautious approaches have examined the subtle mechanisms that may link population growth and environmental change to armed conflict (Bächler, 1999; Homer-Dixon & Blitt, 1998). More recently, a much broader debate on security implications of demographic factors has emerged (Goldstone, 2001; JIA, 2002; Weiner & Russel, 2001; Weiner & Teitelbaum, 2001). Common to these approaches is that they see demographic change as processes that fundamentally and continuously influence and change society, and they assume that such change may stimulate violent conflict under certain conditions.

Previous cross-national studies employing national-level measures of population pressure and resource scarcity have found only marginal if any support for the neo-Malthusian conflict scenario (de Soysa 2002b; Esty et al., 1998; Hauge & Ellingsen, 1998; Theisen 2006; Urdal, 2005). The level of analysis may be at heart of the discrepancies in findings between cross-national and case studies. National demographic aggregates may not capture the diversity of local population dynamics very well, and such local processes may be argued to cause local, low-intensity conflicts. This study combines the rigor of quantitative studies with the need to go below national aggregates to see if regional population pressure may influence the distribution of violent conflict in India. To the best of my knowledge, no other studies have previously attempted to test this relationship using such design.

India is an ideal case for a disaggregated study of population pressure and political violence, both because of the great variance in political violence and because of the good Indian record keeping. Demographically, India is very diverse,[1] and demographic, socio-economic and environmental data are readily available from

[1] For an updated status on India's demography and environment, see Dyson et al. (2004).

census publications and other surveys. The availability of such data provides opportunities for testing some of the more specific claims of the resource scarcity perspective than can be tested in cross-national studies.

2. Population Pressure and Political Violence

While this study is primarily concerned with the issue of whether scarcity of natural resources may increase the risk of political violence, it also addresses two other prominent demographic concerns in the security literature: youth bulges and differential growth between ethnic groups. While all three perspectives primarily fall into what is generally referred to as the motive tradition in recent empirical studies of political violence, youth bulges have also been argued to potentially increase the opportunity (e.g. Collier & Hoeffler, 2004) for violence.

2.1 Population Pressure and Resource Scarcity

According to a neo-Malthusian or resource scarcity perspective, population growth and density may lead to scarcity of renewable natural resources such as productive land, freshwater, and forests. Resource scarcity is assumed to lead to increased inter-group competition, and under unfavorable economic and political conditions, such competition can take the form of violent conflict. Poor countries are argued to be particularly susceptible to resource conflicts as they often lack the capacity to adapt to environmental change.

A major reference point in this debate is Thomas Homer-Dixon (1991; 1994; 1999; Homer-Dixon & Blitt 1998). He distinguishes between three main sources of resource scarcity (e.g. Homer-Dixon & Blitt, 1998: 6). *Supply-induced scarcity* results from degradation or depletion of natural resources. It simply becomes less of a resource as a result of non-sustainable use that does not allow the resource to regenerate.[2] *Demand-induced scarcity* is primarily caused by population growth. If a resource base is constant, the availability of resources per person will diminish with the increasing number of people that have to share it. Such scarcity can also arise

from an increase in demand per capita. A third form is *structural scarcity*. This is a form of scarcity that only applies to certain groups that, relative to other groups, are excluded from equal access to particular resources. Such unequal social distribution of a resource does not presuppose actual scarcity if the resource was distributed evenly. The likelihood of violent conflict is greatest when these three forms of scarcity interact.

The resource scarcity perspective is challenged by a resource optimistic or *cornucopian* view. Cornucopians concede the neo-Malthusians premise that more people means less resources per person. They believe, however, that an increased pressure on resources leads to innovation and implementation of new technology that make resource scarcity and resource dependency increasingly less likely. Population pressure is thus believed to be either a neutral factor among determinants of armed conflict, or even a possible contributor to economic growth that can reduce conflict propensity in the longer run (Boserup, 1981; Simon, 1989; Boserup & Schultz, 1990). Optimists also claim that population pressure on natural resources will be less of a problem in the future as world population growth is slowing down (Lomborg 2001: 45–49).

Most of the empirical work on the population-resource-conflict nexus has been conducted through case studies. Many of these, including Homer-Dixon's own empirical research, have been criticized for methodological deficiencies related to the careful selection exclusively of cases where both resource scarcity and armed conflict are present (Gleditsch, 1998). More rigorous empirical research has so far found ambiguous evidence for a neo-Malthusian conflict scenario. Both Hauge & Ellingsen (1998) and de Soysa (2002b) have found some support for a link between high population density and internal armed conflict in large cross-national time-series studies. The State Failure Task Force (Esty et al. 1998), on the other hand, found no statistical relationship between population growth and density and different forms of state failure, while Theisen (2006) found no effect of population growth and density on either civil conflict or inter-communal conflict. Urdal (2005) concluded that there was no clear support for a relationship between population pressure and internal

[2] Homer-Dixon focuses mainly on degradation of natural resources resulting from human activity. But he acknowledges that natural resources may also be degraded and depleted from causes that are not human-induced, such as natural disasters or less dramatic natural variation.

armed conflict. On the contrary, scarcity of arable land on an aggregate level appeared to reduce the risk of conflict, as proposed by Boserup and Simon.

Homer-Dixon mentions India as a particularly pivotal state because of high population growth, serious water scarcity, cropland fragmentation, erosion, deforestation and desertification. He claims that these factors threaten to cause major internal violence or disintegrate the whole state (Homer-Dixon, 1999: 19–21). The aim of this study is to investigate whether states in India that experience the greatest demographic pressures on natural resources are indeed more violence prone.

The great availability of Indian data enables a more specific test of some of the claims advanced by proponents of the resource scarcity perspective. The study addresses both aspects of resource demand, supply and distribution, their interactions, and social consequences assumed to be potential triggers of violence. *Rural population growth* and *per capita availability of potentially productive land* is seen as indicators of resource demand, expecting that the greatest level of scarcity-driven grievances and thus the greatest potential for political violence, is found in states with high rural population growth and already high levels of land scarcity. *Agricultural yield* is seen as an indicator of resource supply, while *rural inequality,* measured by an income distribution measure (GINI coefficient), is presumed to capture inequalities in land ownership and used to proxy structural scarcity. We would expect to see that the risk of violence is greatest where different forms of scarcity interacts, in particular when high per capita land scarcity occurs simultaneous with either low agricultural output or great rural inequality.

Furthermore, the study addresses two of Homer-Dixon's 'key social effects' of resource scarcity (Homer-Dixon & Blitt, 1998: 9). First, high rural population growth and declining agricultural return is expected to depress *agricultural wages*. Secondly, if people are less likely to be able to survive on their rural livelihood due to greater pressure on resources, this is likely to offset rural to *urban migration*. Both these factors may be argued to potentially increase the risk of political violence. Homer-Dixon is not very specific as to what kind of political violence that may be caused by resource scarcity. The analysis of several different political violence measures may tell us whether population pressure on natural resources is more likely to produce some forms of violence rather than others.

Hypotheses:

H_1: The higher the rural population growth rates, the greater the risk of political violence.

H_2: The higher the rural population density relative to productive land, the greater the risk of political violence.

H_3: High rural population density is more likely to be associated with political violence the higher the rural population growth.

H_4: High rural population density is more likely to be associated with political violence the greater the rural inequality.

H_5: High rural population density is more likely to be associated with political violence the lower the agricultural productivity.

H_6: The lower the growth in agricultural wages, the greater the risk of political violence.

H_7: The higher the urban population growth rates, the greater the risk of political violence.

2.2 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).

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; Goldstone, 1991; 2001; Cincotta et al., 2003). In India, the youth unemployment is particularly high, especially among educated youths (McNally et al., 2004: 162). This study will investigate two specific claims, whether youth bulges are more likely to be associated with political violence when urbanization is high (Goldstone, 1991, 2001; Lia, 2005), and if they may pose a greater risk in states where the sex ratios are particularly skewed. 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.

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.

Hypotheses:

> H_8: The larger the proportion of youth relative to the total adult population, the greater the risk of political violence.
>
> H_9: Youth bulges are more likely to be associated with political violence the greater the relative size of the male population.

H_{10}: Youth bulges are more likely to be associated with political violence the greater the urban growth.

2.3 Ethnic Heterogeneity and Differential Growth

There are a number of rigorous studies investigating the relationship between ethnic competition[3] and armed conflict cross-nationally (Ellingsen, 2000; Henderson & Singer, 2000; Fearon & Laitin, 2003; Sambanis, 2001). A general finding of these studies is that ethnicity matters, although not as much as portrayed in popular media. This study addresses whether religious or linguistic factionalization may account for some of the variation in political violence between Indian states. But it also investigates a largely neglected aspect of cross-national studies of ethnicity[4], namely the impact of changes in the relative strength of groups. When ethnic groups grow at different rates, this may lead to fears of an altered political balance, potentially causing political instability and violent conflict (Horowitz, 2001; Lake & Rotschield, 2001; Toft, 2002; Weiner & Teitelbaum, 2001). Horowitz argues that it is not only the numbers as such that matter, but that the 'apprehensions about numbers are equally important' (2001: 170). Fears of being outnumbered may cynically be exploited for political purposes even where higher minority growth poses no real threat to overwhelm a majority. DeVotta (2002) shows how differential growth has been used in political agitation in India, particularly by radical Hindu leaders who have argued that high Muslim growth rates will outnumber Hindus.

Weiner & Teitelbaum (2001: 22) claim that over the past years, many episodes of violent conflict 'seem to be driven in part by competitive fears resulting from […] compositional shifts'. Toft (2002) provides support for hypotheses stating that democratic states are more likely than autocratic states to be destabilized by differential growth, and that the greater the difference in growth and the closer in magnitude the two growing groups are, the greater is the risk that democratic states are destabilized. Differential growth is assumed to influence conflict behavior by

[3] Here, the term ethnic competition is used in a very crude way to describe societies and countries shared between two or more ethnic, religious or linguistic groups above a certain size.

[4] For simplicity, 'ethnic' is here used for groups distinguished by ethnic, religious or linguistic factors.

shaping the *perception*[5] of individuals and groups of being losers or winners of a demographic battle. As Horowitz (1985: 194, 196) notes: 'Numbers are an indicator of whose country it is [...] it is clear that a census needs to be "won". So the election is a census, and the census is an election'.

On the global level, Toft (2005) did not find any support for the differential growth hypothesis. As a culturally diverse country with a long history of democratic governance, India is a good case for testing whether changes in group strength may have a greater impact on the sub-national level. Toft (2002) identifies several formulations the differential growth hypothesis. National majorities may react violently out of fear of loosing power if minority populations grow at high rates. But national minority populations that form majority populations locally may also react violently if the national majority population is growing at a pace that is perceived as a potential threat to local self-governance. While the Hindus make up more than 80 per cent of the total Indian population, the variation is great between states. Given the relatively high level of autonomy enjoyed by Indian states, we may expect to see that high Hindu growth rates compared to other religious groups may provoke violent response. Weiner (1978) suggests for instance that the high number of Bengali migrants, both Hindus and Muslims, to Assam has produced violent conflict in that state. I will also investigate whether this effect is stronger the larger the most numerous non-Hindu religious group.

Hypotheses:

> H_{11}: The greater the religious heterogeneity, the greater the risk of violent political conflict.
>
> H_{12}: The greater the linguistic fractionalization, the greater the risk of violent political conflict.
>
> H_{13}: Regions with a non-Hindu majority are more likely to experience violent political conflict.

[5] Such an approach also allows for factors such as changes in census categories and changes in people's own perception of national/ethnic identity to influence the magnitude of differential growth.

H_{14}: The greater the growth of the Hindu population relative to that of the largest non-Hindu religious group in a state, the greater the risk of violent political conflict.

3. Research Design and Operationalizations

The study covers the 27 largest Indian states for the period from 1956 to 2002 (see Appendix A).[6] The current Indian state system came into effect in 1956 following the 'States Reorganisation Act', with a differentiation between states that enjoy substantial autonomy, and union territories that are mostly geographically small units run by a Governor appointed by the federal government. Language has been the most central criterion for delineating states, but the Indian federal government has been strongly opposed to the idea that states should encompass religious groups. Since 1956 there have been several changes in the state system, with larger states splitting and some union territories achieving statehood.

There are three different and independently collected measures for political violence analyzed in this study.[7] Data on *internal armed conflict* (Appendix B) is based on the PRIO/Uppsala dataset (Gleditsch et al., 2002; Eriksson et al. 2003). For a conflict to be listed, it has to be between the federal or local government and one or more organized opposition groups, and there has to be at least 25 annual battle-related casualties. The incompatibility is defined as being over either governance or territory. During this period there were 11 conflicts taking place in nine different states. Two of the conflicts are defined as being over government while nine were over territorial issues. However, this analysis does not distinguish between the two forms of conflict. I have been using the conflict location dataset developed by Halvard Buhaug (Buhaug & Gates, 2002) to identify the state associated with each conflict. The total number of state years in conflict is 119. The variable is coded as a dummy variable with the value 1 for years in conflict and 0 for years in peace. Following de Soysa (2002a), I

[6] For Jammu & Kashmir, data is only available from the parts of the territory controlled by India.

[7] Initially, also a fourth measure, of terrorism (SATP, 2004), was analyzed. This analysis provided very similar results to those of the armed conflict data.

analyze all years in conflict rather than onset only.[8] I am using logistic regression with a control for *conflict previous year* to account for dependence between years of continuing conflict, and the models are clustered on states to account for dependence between observations over time within states.

The second data source is a count measure of *political violence events* collected from Keesing's Record of World Events covering the 1960-2000 period, called the 'India Problem Set' (IPS). The data have been collected for the State Failure Task Force project (Marshall, 2001), and covers a total of 793 events, most of which involved at least one death. While these data covers events related to organized armed conflicts, they also encompass forms of political violence that are less organized like inter-communal violence, political assassinations and rioting.[9] A third dependent variable, a strict event count measure of *Hindu-Muslim riots*, is constructed on the basis of an event dataset collected by Ashutosh Varshney and Steven Wilkinson (Varshney & Wilkinson, 2004). I use negative binomial regression to analyze the event count data. This is the proper approach due to the skewed distribution of events between a few high-violence areas and a majority of relatively peaceful states. Also, the negative binomial model does not generate implausible negative predictions as might OLS. I include a *lagged dependent variable* to control for previous violent events. Like Wilkinson I use a set of *state dummies* to control for state specific factors.

Demographic explanatory variables are based on data from the Indian censuses of 1951, 1961, 1971, 1981, 1991 and 2001. Census information on *population growth*, *urban and rural populations*, and *religious composition* and *change* are published annually in the Statistical Abstract India (CSO, annual). The

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[8] Predictors of conflict are thus assumed to influence aspects both of why conflicts break out, and why they continue. A valid concern when using such design is the potential problem of endogeneity. For most of the demographic factors I study I assume that the potential problem of endogeneity is small, although large-scale migration may be a result of major armed conflicts. I would assume that growth rates of religious groups would be among the most likely factors to be influenced by ongoing conflict. This potential problem is mitigated by lagging the religious growth rate variables.

[9] That violence is categorized as less organized does not necessarily imply that it is entirely spontaneous, only that violence is not committed within strict organizational settings. See Brass (2003) and Wilkinson (2004a) for excellent accounts of the organization of riots in India.

Statistical Abstract publishes data for current states, taking inter-census territorial changes into account. All population growth rates are for entire decades. Growth rates for urban and rural populations are assigned to the actual decade the growth took place (the decadal growth rates for the period 1961–1971 are for example assigned to the years 1961…1970). For growth of religious groups, however, the rates are assigned to the following decade (i.e. growth rates for the 1961–71 period are assigned to the years 1971…1980). The rationale for lagging this variable is, as previously argued, the assumption that it is the perception of imbalances in growth between groups that matters to conflict behavior.

Data on land utilization, used to calculate an index of rural per capita availability of productive land (termed *rural population density*), were collected from the Statistical Abstract (CSO, annual). Rural population density is measured as the number of rural inhabitants per hectare of productive land, defined as the state's total reporting area for land utilization statistics less area classified as 'forests' and 'not available for cultivation'. Data on *agricultural yield* is defined as the total production of food grains (cereals and pulses) divided by the total area reported to be under the relevant crops. These data are also collected from the Statistical Abstract, as is data on *literacy*.

Data on age structure used to construct the age composition variables are not available from the Statistical Abstract and have been collected from census publications (Census of India 1961, Census of India 1971, Census of India 1981, Census of India 1991). Religious and age composition data from the 2001 census are not yet released. The index of *linguistic fractionalization* is produced by Wilkinson (2004b). Data on rural and urban inequality and poverty, as well as agricultural wages originate from a World Bank project on poverty in India (Özler et al., 1996). *Inequality* is measured by income distribution (the GINI coefficient, where a higher value indicates greater inequality), while *poverty* is measured as the percentage of people below the poverty line set by India's government. Based on the World Bank data on agricultural sector real wage, I have calculated short-term (annual) and long-term (average of annual fluctuations over five years) changes in *agricultural wages*.

Generally, Indian census data are considered to be quite reliable, and data are assumed to be comparable over geographical units and over time. Compared to cross-national studies, within-country sub-national statistical studies have a great advantage because data are collected and disseminated by highly similar procedures for different

regions and local communities. While collection procedures may have changed somewhat over time, the discrepancies are likely to be negligible compared to the variation between countries over time.

4. Results

Correlating demographic data for India with the armed conflict data (Table 1) provides support for some aspects of neo-Malthusian concerns. Rural population density is negatively associated with armed conflict, and so is the interaction between rural density and agricultural yield[10] (Model 2), indicating that states with land scarcity combined with low agricultural output are particularly susceptible to armed conflict. Furthermore, long-term declines in agricultural wages are associated with an increased risk of conflict (Model 3), as expected according to a resource scarcity perspective. On the other hand, rural land scarcity is not associated with a particularly increased risk of conflict when interacting with high rural population growth or rural inequality.[11] Urbanization is furthermore associated with a clearly statistically significant reduction in conflict propensity. Rural poverty is associated with a lower risk of conflict, and urban inequality with an increased risk.

Youth bulges increase the risk of armed conflict, and particularly in states with large male compared to female populations (Model 5). These results are also robust to different model specifications. Urbanization does not appear to be important to the effect of youth bulges on armed conflict propensity. While conflict is not more common in religiously heterogeneous states nor in states with non-Hindu majorities, the states that experience strong growth rates among the Hindu population compared to the largest non-Hindu religious group are considerably more conflict prone.[12] This

[10] The agricultural yield variable has been inverted so that a high value on the interaction variable reflects high density and *low* agricultural yield.

[11] Other results of environmental variables not reported here include clearly statistically insignificant results for deviations in rainfall, income from mineral resources, and forest cover. These factors have been suggested to influence the distribution of armed conflict on the global level, but were statistically insignificant for all three forms of political violence studied for India.

[12] The risk of conflict is not affected, however, by the size of the ethnic groups, or by whether there is a non-Hindu majority population. This holds true for all three forms of political violence.

result is also highly robust. Linguistic fractionalization is associated with a greater risk of conflict. While cross-national studies find level of development to be one of the strongest predictors of conflict, the development measure employed here, literacy, appears to be unrelated to conflict risk. States with smaller populations are more likely to experience conflict, a result that is driven by the many secessionist conflicts in small states in North-East India.

- Table 1 here -

The analysis of political violence events data from the State Failure project (Table 2) supplements the findings from the armed conflict data. Also here, the results provide some support for the resource scarcity perspective. In particular, where there is little potentially productive land, high rural population growth is strongly associated with an increased risk of armed conflict. Similarly, where land scarcity goes together with low agricultural yields, the risk of conflict is significantly higher (Model 7). As for the armed conflict data, there does not seem to be any relationship between rural inequality and violence, not even when interacting with land scarcity (Model 9). Urbanization and growth in agricultural wages is not associated with higher risks of violence.

Youth bulges are also associated with increased risks of political violent events, as are male surpluses. But urbanization does not appear to be a factor in youth-generated violence. States with non-Hindu majorities experience lower levels of violence, as do linguistically fractionalized states. However, high Hindu growth rates, as well as other measures of differential growth, are not associated with higher risks of political violence.

- Table 2 here -

Overall, demographic variables appear to matter little to the production of Hindu-Muslim riots in India. It is not so surprising to see that resource scarcity in rural areas are not affecting rioting, primarily an urban phenomenon, directly. In fact, rural land scarcity is negatively associated with rioting. However, given the expectations that rural scarcity is likely to produce pressures on urban centers, we would expect to see an effect of high urbanization rates. But urban pressures do not seem to be important

for levels of rioting. The only possible link between resource scarcity and rioting may be found in Model 13b. Short-term reductions in agricultural wages increase the risk of lethal riots. This may reflect the significance of shocks in the agricultural sector, assumed to push rural unemployed into urban areas. Such short-term effects would not be captured well by the inter-census measure for urban growth used here, and may be better proxied by agricultural wage data. Contrary to the resource scarcity expectation, long-term growth in agricultural wages is associated with *higher* levels of rioting.

Youth bulges are associated with higher levels of rioting in states where urban inequality is great. Unlike Wilkinson (2004a), I find that urban inequality is an important predictor of riots also in its own right. High levels of urban poverty, however, appear to suppress rioting. Neither religious or linguistic fractionalization, nor differential growth between Hindus and Muslims seem to affect levels of rioting, but higher levels of literacy appear to have an inhibiting effect, as one may expect.[13]

- Table 3 here –

5. Conclusions

This analysis of the nexus between population pressure and political violence in India provides support for several of the hypotheses derived from the literature. Some forms of demographic pressure identified in the resource scarcity literature seem to have an impact on violence propensity. Organized armed conflict is more likely in states where potentially productive land is scarce, and particularly when the agricultural yield is low. Conflict is also more likely when agricultural wages are declining over time.[14] All these three factors reflect key expectations in the causal scheme of Thomas Homer-Dixon. Similar results are found for the political violence data from the State

[13] Wilkinson finds that literacy is positively associated with higher levels of rioting for a sample of only 11 states. Table 3 indicates that this may be a selection effect. Like Wilkinson I also find a positive effect between elections and riots when including data for time since last election (Election Commission of India, 2004).

[14] This finding is also coherent with the opportunity literature, as declining agricultural wages lower the opportunity cost of rebel labor.

Failure project. Scarcity of productive land increases the risk of violence when the rural population is growing at a high rate, and when the agricultural yield is low. Again, these findings are supportive of a resource scarcity perspective. There are, however, central aspects of Homer-Dixon's scheme that are not supported by the empirical evidence for India. First, rural inequality does not appear to have an impact on any form of political violence, even when interacting with high land scarcity. Second, urban growth is described in the resource scarcity literature as a negative outcome of rural resource scarcity pressuring rural landless to urban centers. But it does not appear to increase the risk of political violence, not even rioting, which is a predominantly urban phenomenon. On the contrary, high urbanization rates are associated with significantly lower risks of armed conflict, similarly to what has been found in several cross-national studies (Homer-Dixon, 1999: 160; Urdal, 2005).

Overall, the resource scarcity perspective fares much better on the sub-national level for India than it does in recent cross-national studies, providing support to those who claim that national aggregates may conceal local links between resource scarcity and political violence. One great advantage of sub-national quantitative studies compared to cross-national studies is the greater availability of comparable data. India's good record keeping provides an opportunity to test more specific hypotheses derived from the resource scarcity perspective than cross-national data availability allows. While this study represents a more specific test of the resource scarcity perspective, the relatively strong performance of scarcity-related factors do not necessarily represent a similar pattern between environmental scarcity and political violence in other countries. The discrepancy between globally and locally oriented studies may further suggest that it is not overall scarcity as such that matters, but states' and individuals' inability to overcome local scarcity issues because of political, economic or social factors.

The study also reports considerable support for the youth bulge hypothesis. Youth bulges is the only population pressure variable that is statistically associated with increasing risks of all three forms of political violence. The risk of armed conflict is particularly pronounced when youth bulges go together with great male surpluses, while riots are more likely in states where youth bulges coincide with greater levels of urban inequality. But youth bulges do not appear to be particularly linked to violence when urban growth rates are high. Overall, these results are consistent with those of a recent global study (Urdal, 2006). In states where the Hindu population has a

relatively high growth rate, the risk of armed conflict is higher, as suggested by Weiner (1978) and Toft (2002). But differential growth does not increase the risk of other forms of political violence. The general lack of significance for the fractionalization measures is notable. States where the two largest religious groups are more equal in size do not display an increased risk of conflict, and the results for linguistic fractionalization are inconclusive. Most surprisingly, perhaps, is that none of the cultural variables appear to have any impact on levels of rioting between Hindus and Muslims. Generally, demographic variables appear to be unimportant for levels of rioting, underpinning accounts focusing on the political aspects of Hindu-Muslim riots (Brass, 2003: Wilkinson, 2004a).

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Table 1: Population, resources and organized armed conflict in India 1956-2002

Explanatory Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Rural population growth β st.e.	-0.001 (0.015)	0.010 (0.019)	-0.018 (0.044)	0.037 (0.064)	-0.066** (0.027)
Rural population density	0.154* (0.084)	0.232* (0.131)	-0.129 (0.387)	0.169 (0.385)	0.276** (0.136)
Rural population growth * Rural population density	-0.006 (0.006)	-0.009 (0.008)	0.014 (0.017)	0.045 (0.055)	0.002 (0.006)
Rural share	0.016 (0.034)	0.043 (0.041)	0.015 (0.048)	0.127* (0.073)	0.041 (0.043)
Urban growth	-0.019*** (0.005)	-0.023*** (0.005)	-0.016** (0.008)	-0.018 (0.015)	-0.033*** (0.008)
Agricultural yield (inverted)		-0.051 (0.037)			
Rural density * Agricultural yield (inverted)		0.037* (0.022)			
Growth agricultural wages (5 yr avg)			-0.155** (0.066)		
Rural inequality				-0.008 (0.177)	
Rural population density * Rural inequality				0.023 (0.061)	
Rural poverty				-0.067** (0.033)	
Urban poverty				-0.010 (0.063)	
Urban inequality				0.086* (0.045)	
Youth population					21.78* (12.25)
Sex ratio					3.77 (8.12)
Youth population * Sex ratio					811.79*** (198.63)
Youth population * Urban population growth					0.364 (0.583)
Religious heterogeneity					-1.187 (1.361)
Non-Hindu majority					0.364 (1.030)
Hindu relative growth					0.009*** (0.003)
Linguistic fractionalization					3.635*** (1.372)
Total population (ln)	-0.351** (0.175)	-0.347** (0.172)	-1.182 (0.945)	-0.141** (0.440)	-0.339** (0.136)
Literacy	-0.001 (0.001)	-0.002 (0.001)	0.003 (0.003)	0.002 (0.003)	-0.001 (0.001)
Conflict previous year	5.74*** (0.49)	5.55*** (0.42)	5.97*** (1.01)	5.49*** (0.98)	5.15*** (0.51)
Constant	-0.632 (3.182)	-2.17 (3.84)	5.93 (10.74)	-12.13*** (4.27)	-5.41 (4.57)
N Log Likelihood Pseudo R^2	945 -110.57 0.66	945 -107.40 0.67	475 -36.01 0.69	559 -47.09 0.66	804 -96.30 0.65

* Sign at 0.1 ** Sign at 0.05 ***Sign at 0.001

Table 2: Population, resources and political violence events in India 1960-2000

Explanatory Variables	Model 6	Model 7	Model 8	Model 9	Model 10
Rural population growth β st.e.	-0.001 (0.013)	-0.006 (0.014)	0.038 (0.025)	0.018 (0.024)	-0.019 (0.017)
Rural population density	-0.0003 (0.067)	0.040 (0.078)	-0.029 (0.147)	-0.009 (0.143)	0.006 (0.089)
Rural population growth * Rural population density	0.010*** (0.004)	0.009** (0.004)	0.010 (0.011)	0.004 (0.010)	0.017*** (0.005)
Rural share	0.014 (0.037)	0.063 (0.042)	-0.078 (0.075)	-0.137* (0.070)	-0.006 (0.054)
Urban growth	0.0001 (0.004)	-0.009* (0.005)	0.0005 (0.010)	-0.006 (0.009)	-0.005 (0.006)
Agricultural yield (inverted)		-0.032 (0.021)			
Rural density * Agricultural yield (inverted)		0.025*** (0.008)			
Growth agricultural wages (5 yr avg)			0.002 (0.017)		
Rural inequality				-0.043 (0.029)	
Rural population density * Rural inequality				0.002 (0.013)	
Rural poverty				0.019* (0.010)	
Urban poverty				-0.003 (0.014)	
Urban inequality				0.032 (0.022)	
Youth population					25.50*** (7.32)
Sex ratio					7.40* (4.11)
Youth population * Sex ratio					24.75 (104.04)
Youth population * Urban population growth					-0.275 (0.197)
Religious heterogeneity					-2.930 (1.981)
Non-Hindu majority					-2.385** (1.081)
Hindu relative growth					0.002 (0.003)
Linguistic fractionalization					-3.849** (1.691)
Total population (ln)	-0.128 (0.546)	-0.025 (0.626)	-1.591* (0.946)	-1.517* (0.847)	-0.339** (0.136)
Literacy	0.001 (0.001)	0.0005 (0.001)	0.004* (0.002)	0.002 (0.002)	0.004** (0.002)
Violent events previous year	0.115*** (0.018)	0.109*** (0.018)	0.098*** (0.021)	0.092*** (0.021)	0.098*** (0.019)
Constant	-0.260 (7.41)	-4.25 (8.63)	21.42 (14.27)	-23.95* (12.88)	22.19 (12.74)
N Number of states Log Likelihood	845 23 -857.96	845 23 -850.84	431 14 -504.50	523 16 -590.05	766 21 -811.12

* Sign at 0.1 ** Sign at 0.05 ***Sign at 0.01. For state dummies see appendix.

Table 3: Population, resources and riots in India 1956-1995

Explanatory Variables	Model 11	Model 12	Model 13	Model 13b lethal	Model 14	Model 15
Rural population growth β st.e.	0.002 (0.019)	0.0005 (0.019)	0.008 (0.020)	0.017 (0.023)	-0.001 (0.023)	0.003 (0.029)
Rural population density	-0.239* (0.136)	-0.303** (0.148)	-0.132 (0.155)	-0.090 (0.198)	-0.249 (0.159)	-0.190 (0.166)
Rural population growth * Rural population density	-0.004 (0.008)	-0.005 (0.009)	-0.0007 (0.009)	0.008 (0.012)	0.007 (0.009)	0.006 (0.010)
Urban share	0.065 (0.063)	0.060 (0.068)	0.062 (0.069)	0.088 (0.089)	0.116 (0.092)	0.160* (0.092)
Urban growth	-0.003 (0.007)	-0.004 (0.007)	-0.007 (0.007)	-0.005 (0.009)	-0.0006 (0.011)	-0.0004 (0.010)
Agricultural yield (inverted)		-0.031 (0.030)				
Rural density * Agricultural yield (inverted)		-0.004 (0.011)				
Growth agricultural wages from previous year			-0.006 (0.005)	-0.017*** (0.006)		
Growth agricultural wages (5 yr avg)			0.033** (0.015)	0.046** (0.019)		
Rural inequality					-0.024 (0.027)	
Rural population density * Rural inequality					-0.004 (0.011)	
Rural poverty					0.004 (0.010)	
Urban poverty					-0.047*** (0.014)	
Urban inequality					0.042* (0.023)	
Youth population * Urban inequality					2.167** (0.924)	
Youth population * Urban poverty					-0.587 (0.381)	
Youth population					14.81 (9.146)	9.54 (9.98)
Sex ratio						-7.19 (7.50)
Youth population * Sex ratio						-101.56 (136.28)
Religious heterogeneity						5.66 (5.12)
Non-Hindu majority						0.375 (3.42)
Hindu-Muslim differential growth						0.008 (0.014)
Linguistic fractionalization						-1.44 (4.04)
Total population (ln)	2.378*** (0.876)	2.400*** (0.880)	1.746* (0.980)	1.289 (0.982)	0.439 (1.480)	0.277 (1.56)
Literacy	-0.004** (0.0015)	-0.004** (0.0015)	-0.0007 (0.002)	0.001 (0.002)	-0.003 (0.002)	-0.002 (0.002)
Riots previous year	0.037*** (0.009)	0.038*** (0.009)	0.027*** (0.010)	0.029* (0.017)	0.025** (0.010)	0.033*** (0.009)
Constant	-26.27*** (8.01)	-26.22*** (8.15)	-20.48** (8.96)	-17.07 (12.53)	-7.79 (13.36)	-8.49 (14.45)

N	791	791	475	475	520	671
Number of states	23	23	14	14	16	21
Log Likelihood	-833.22	-832.59	-700.04	-511.41	-743.87	-764.88

* Sign at 0.1 ** Sign at 0.05 ***Sign at 0.01. For state dummies see appendix.

Appendix A. Indian States Included in the Analysis

Name	Start	End
ANDHRA PRADESH	1956	2002
ARUNACHAL PRADESH	1972	2002
ASSAM	1956	2002
BIHAR	1956	2002
BOMBAY	1956	1959
CHHATTISGARH	2001	2002
GUJARAT	1960	2002
HARYANA	1967	2002
HIMACHAL PRADESH	1956	2002
JAMMU AND KASHMIR	1956	2002
JHARKHAND	2001	2002
KARNATAKA (MYSORE)	1956	2002
KERALA	1956	2002
MADHYA PRADESH	1956	2002
MAHARASHTRA	1960	2002
MANIPUR	1956	2002
MEGHALAYA	1972	2002
MIZORAM	1972	2002
NAGALAND	1964	2002
ORISSA	1956	2002
PUNJAB	1956	2002
RAJASTHAN	1956	2002
TAMIL NADU	1956	2002
TRIPURA	1956	2002
UTTAR PRADESH	1956	2002
UTTARANCHAL	2001	2002
WEST BENGAL	1956	2002

Appendix B. Armed Conflicts in India 1956-2002

State	Opposition	Territory	Begin	End
Andhra Pradesh	Naxalites/PWG, MCC	(Government)	1989	1994
Andhra Pradesh	Naxalites/PWG, MCC	(Government)	1996	2002
Assam	NNC, NSCN	Nagaland	1956	1959
Assam/Nagaland	NNC, NSCN	Nagaland	1961	1968
Assam	MNF	Mizoram	1966	1968
Assam	ABSU, BPAC	Assam	1989	1990
Assam	ULFA	Assam	1991	1991
Assam	BDSF, ULFA, BLTF, NDFB	Assam	1992	2002
Bihar	Jharkand Mukti Morcha	Jarkhand	1993	1993
Jammu and Kashmir	Kashmir Insurgents	Kashmir	1989	1989
Jammu and Kashmir	Kashmir Insurgents	Kashmir	1990	1993
Jammu and Kashmir	Kashmir Insurgents	Kashmir	1994	1998
Jammu and Kashmir	Kashmir Insurgents	Kashmir	1999	2002
Manipur	PLA	Manipur	1982	1989
Manipur	PLA	Manipur	1991	1994
Manipur	UNLF, KNF, PLA	Manipur	1997	2000
Nagaland	NNC, NSCN	Nagaland	1989	1997
Orissa	Naxalites/CPI (-Marxist)	(Government)	1967	1972
Punjab	Sikh insurgents	Punjab/Khalistan	1983	1986
Punjab	Sikh insurgents	Punjab/Khalistan	1987	1987
Punjab	Sikh insurgents	Punjab/Khalistan	1988	1992
Punjab	Sikh insurgents	Punjab/Khalistan	1993	1993
Tripura	TNV	Tripura	1978	1988
Tripura	ATTF	Tripura	1993	1993
Tripura	ATTF, NLFT	Tripura	1995	2002

Appendix C. Descriptive statistics

Variable	Obs.	Mean	Std	Min	Max
Rural pop density	1,351	2.8	3.1	0.04	22
Total pop (ln)	1,380	8.5	2.3	3.0	12.0
Rural share	1,380	75.6	20.3	6.4	100
Rural growth	1,349	25.0	19.1	-5.2	130.1
Urban growth	1,324	54.0	44.1	-6.9	316.7
Agricultural yield	1,226	12.5	6.2	3.7	40.3
Agricultural wage growth (annual)	487	2.1	12.4	-46.1	69.7
Agricultural wage growth (5 yr avg)	487	2.1	4.3	-11.7	18.4
Rural inequality	578	29.0	4.4	18	46
Urban inequality	578	32.8	4.1	19	48
Rural poverty	578	51.1	14.2	11	81
Urban poverty	578	43.0	13.2	7	80
Youth bulges	1,225	0.30	0.02	0.25	0.36
Sex ratio	1,380	922.8	75.3	617	1076
Religious heterogen	1,354	0.36	0.22	0	0.95
Non-Hindu majority	1,374	0.18	0.38	0	1
Hindu relative gr.	1,160	1.6	54.7	-114.4	461.3
Hindu-Muslim differential growth	1,160	40.0	99.3	0.1	820.3
Linguistic fractionalization	1,038	0.40	0.23	0.08	1.0
Armed conflict	1,380	0.09	0.28	0	1
Political violence	1,226	0.7	1.6	0	19
Riots	1,150	0.9	3.0	0	41

Appendix E. State Dummies from Table 2

Explanatory Variables	Model 6	Model 7	Model 8	Model 9	Model 10
Andra Pradesh β	-0.34	-0.47	0.22	0.68	0.33
st.e.	(0.43)	(0.48)	(0.59)	(0.58)	(0.71)
Arunachal Pradesh	-25.47	-23.61			
	(54,168)	(28,251)			
Assam	-0.09	-0.60	-0.70	0.40	0.06
	(0.62)	(0.63)	(0.95)	(0.95)	(1.19)
Bihar	0.07	-0.74	1.99	2.43*	2.33**
	(0.67)	(0.79)	(1.22)	(1.11)	(1.11)
Gujarat	-0.95*	-0.28	-2.13***	-1.95**	-3.28***
	(0.55)	(0.61)	(0.70)	(0.69)	(0.94)
Haryana	-1.42*	-1.69**		-1.84*	-6.01***
	(0.77)	(0.83)		(1.00)	(1.49)
Himachal Pradesh	-3.43**	-4.01***			-9.11***
	(1.41)	(1.47)			(2.39)
Jammu & Kashmir	-1.19	-1.37		-3.11*	0.41
	(1.11)	(1.23)		(1.66)	(1.11)
Karnataka	-1.13**	-0.69	-1.67***	-1.50***	-0.68
	(0.48)	(0.50)	(0.55)	(0.56)	(0.72)
Kerala	-1.47*	-1.60**	-2.38**	-1.59	-3.02**
	(0.78)	(0.80)	(1.17)	(1.15)	(1.26)
Madhya Pradesh	-1.22**	-1.07*	-0.51	-0.08	-1.50
	(0.54)	(0.58)	(0.81)	(0.80)	(0.93)
Maharashtra	-0.57	0.42	-1.16*	-1.35**	0.52
	(0.51)	(0.58)	(0.66)	(0.65)	(0.63)
Manipur	-1.07	-0.50			-4.06
	(2.01)	(2.29)			(3.22)
Meghalaya	-2.41	-2.26			-2.94
	(1.87)	(2.07)			(2.17)
Mizoram	-4.19	-2.26			
	(2.87)	(3.32)			
Nagaland	-0.58	0.15			-1.37
	(2.31)	(2.60)			(3.14)
Orissa	-1.75***	-2.14***	-1.82*	-0.59	-3.17***
	(0.63)	(0.65)	(1.03)	(0.98)	(1.14)
Punjab	-0.25	-0.77	-1.58	-0.82	
	(0.63)	(0.73)	(0.96)	(0.93)	
Rajasthan	-3.32***	-2.94***	-25.19	-2.67**	-4.76***
	(1.05)	(1.06)	(67,390)	(1.14)	(1.16)
Tamil Nadu	-0.66	-0.50	-1.24**	-1.47**	-0.87
	(0.44)	(0.44)	(0.57)	(0.59)	(0.76)
Tripura	-0.91	-1.06			-4.96*
	(1.65)	(1.83)			(2.76)
Uttar Pradesh	0.003	-0.54	2.22*	2.89**	1.45
	(0.76)	(0.91)	(1.34)	(1.26)	(1.18)

* Sign at 0.1 ** Sign at 0.05 ***Sign at 0.01. Reference category: West Bengal, Bombay, Chhattisgarh, Jharkand and Uttaranchal (the latter four representing a total of only ten units of observation). Several of the states were lacking information on one or more variables in Models 8 through 10, and the corresponding dummy variables were automatically dropped due to collinearity.

Appendix F. State Dummies from Table 3

Explanatory Variables	Model 11	Model 12	Model 13	Model 13b	Model 14	Model 15
Andra Pradesh β	-0.72	-0.90	-0.06	-0.03	0.32	0.63
st.e.	(0.55)	(0.57)	(0.61)	(0.82)	(0.83)	(1.33)
Arunachal Pradesh	-14.66	-14.66				
	(74,598)	(69,561)				
Assam	2.14**	2.06**	1.95**	1.97*	0.38	0.84
	(0.88)	(0.97)	(0.90)	(1.08)	(1.18)	(1.96)
Bihar	-0.02	-0.06	0.67	1.47	2.38	2.63
	(1.09)	(1.13)	(1.20)	(1.65)	(1.80)	(2.06)
Gujarat	0.99	0.95	1.18*	0.90	0.46	0.16
	(0.63)	(0.66)	(0.70)	(0.87)	(1.04)	(1.47)
Haryana	1.14	0.88			-2.16	0.01
	(1.08)	(1.15)			(1.87)	(2.28)
Himachal Pradesh	-18.57	-18.65				-20.03
	(58,124)	(54,306)				(38,819)
Jammu & Kashmir	4.47***	4.38***			0.30	
	(1.61)	(1.64)			(2.75)	
Karnataka	0.32	0.23	0.44	0.18	-0.13	0.11
	(0.47)	(0.51)	(0.53)	(0.63)	(0.63)	(1.39)
Kerala	3.07***	3.03**	1.89*	1.04	2.54*	-0.97
	(0.94)	(0.99)	(1.04)	(1.35)	(1.38)	(2.04)
Madhya Pradesh	-0.77	-0.92	0.09	0.46	0.46	1.37
	(0.72)	(0.73)	(0.79)	(1.07)	(1.03)	(1.71)
Maharashtra	-0.44	-0.43	-0.02	-0.59	0.02	-0.46
	(0.55)	(0.70)	(0.63)	(0.76)	(0.65)	(0.94)
Manipur	6.27*	6.33*				-2.82
	(3.40)	(3.41)				(6.38)
Meghalaya	-17.28	-17.34				-24.47
	(77,269)	(72,876)				(39,254)
Mizoram	-14.78	-14.61				
	(84,584)	(78,264)				
Nagaland	-15.11	-15.02				-22.27
	(55,575)	(50,493)				(33,301)
Orissa	0.41	0.28	0.56	0.77	0.95	1.99
	(0.84)	(0.89)	(0.86)	(1.04)	(1.00)	(1.91)
Punjab	-0.85	-1.19	-0.96	-19.90	-23.93	-25.97
	(0.96)	(1.07)	(1.07)	(9,142)	(20,114)	(37,295)
Rajasthan	-0.81	-0.98	-0.21	-0.39	-0.76	0.04
	(0.60)	(0.63)	(0.70)	(0.94)	(0.70)	(1.19)
Tamil Nadu	-1.13**	-1.25**	-1.24**	-1.12	-1.01	-1.14
	(0.55)	(0.57)	(0.61)	(0.69)	(0.70)	(1.23)
Tripura	5.56**	5.53**				0.38
	(2.59)	(2.65)				(4.45)
Uttar Pradesh	-1.14	-1.29	-0.11	0.85	2.11	2.26
	(1.23)	(1.24)	(1.37)	(1.91)	(2.16)	(2.14)

* Sign at 0.1 ** Sign at 0.05 ***Sign at 0.01. Reference category: West Bengal, Bombay, Chhattisgarh, Jharkand and Uttaranchal combined (the latter four representing a total of only ten units of observation). Several of the states were lacking information on one or more variables in Models 13 through 15, and the corresponding dummy variables were automatically dropped due to collinearity.