

Minority Representation and Policy Choices: The Significance of Legislator Identity*

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Abstract

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Keywords: Political Economy, Minorities, Electoral Law, India, Panel data

JEL classification: J78, H79, D72, C23, O10

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Abstract

Disadvantaged groups tend also to constitute population minorities. One consequence of this is that the policies implemented by electorally accountable governments often fail to reflect minority interests. A policy solution is to enhance the political power of minority groups as a vehicle for promoting their policy interests. This paper analyzes the success of an electoral law, which does so by reserving seats for minority groups in legislatures, in promoting minority interests. The paper develops a theoretical model of the political process to analyze the policy impact of such a law. The key theoretical assumption, that candidates cannot commit to policies, implies that identity is relevant to policy choices. The analysis identifies economic reasons why this may lead parties to never field minority candidates. In such cases the model predicts that an electoral law of political reservation will influence policies. The paper takes advantage of the existence of such a law in India to test this prediction empirically. The principal finding is that minority representation has increased transfers to minorities. This suggests that political representation is central to the design of strategies that aim at promoting minority interests. More generally, the results indicate that legislator identity influences policies, and provide some support for the contention that politicians cannot fully commit to policies.

1 Introduction

Economists have identified important equity and efficiency reasons for targeting resources at historically disadvantaged groups. However, as these groups often constitute population minorities, there is no guarantee that electorally accountable governments will enact such transfers. A policy solution is to enhance the political power of disadvantaged groups as a vehicle for promoting their policy interests. Such considerations have led a number of countries to put in place electoral laws that aim to provide minorities political power through increased political representation. This paper takes advantage of a unique experiment of this form in India to examine the role of an electoral law that influences legislator identity in promoting minority interests.

Whilst a substantial political science literature analyzes the role of political representation as a policy response¹, there is very little in the economics literature on this topic. Yet the issues concerned are of central importance to economists interested in policy analysis. Recent research in political economy has identified significant reasons why political markets may fail to deliver desirable policy outcomes— one such reason being the form of political institutions (Besley and Coate 1999, and Persson and Tabellini 1998). Such research suggests that an understanding of the relationship between a country’s choice of political institutions and observed policy outcomes is key to the design of effective public policies.

This is particularly true in the case of developing countries. Post colonialism, a majority of these countries adopted new constitutions. Often these constitutions marked a sharp change from the traditional forms of governance in these countries (Horowitz 1995). Since then, these countries have exhibited sharp variations in both policy choices and subsequent economic performance. A number of authors have attributed this to the varying success of the countries’ political institutions in aggregating multiple, and often conflicting policy interests (Easterly and Levine 1997). However, no systematic economic analyses of this phenomenon exists.

This paper undertakes such an analysis in the context of a prominent developing country— India, and a specific political institution— electoral laws for political representation. It examines how a country’s choice of electoral laws, by affecting the extent of representation afforded to minorities, influences policy outcomes.

In general, electoral laws for political representation work either by altering voter composition (gerrymandering in the US), or by directly affecting legislator identity (political reservation in India). This paper focuses on the latter set of laws. A large political science literature documents the fact that most electoral laws for minority representation have been successful in increasing minority presence in legislatures (Grofman and Lijphart 1994). However, much less is known about the relationship between increased minority representation and policy outcomes. Analyzing the pol-

¹The political science literature distinguishes between *descriptive* representation which relates to how well the electoral system reflects the electorate’s demographic characteristics and *substantive* representation which identifies how well it reflects their policy interests (Pitkin 1967, Guiner 1994). This chapter focuses on the role of electoral laws in influencing policies i.e. in providing substantive representation. Related political science papers include Cameron, Epstein and O’Halloran (1996) and Gerber, Morton and Reitz (1998).

icy influence of electoral laws that directly alter legislator identity provides a clear examination of this relationship. Further, the existence of such an electoral law in India makes it possible to examine the quantitative importance of this relationship.

One important reason why electoral laws that only influence legislator identity may not influence policies is the possibility of ex ante policy commitment by politicians. A number of political economy papers argue that if politicians can commit to policies during the election campaign then electoral incentives will cause candidates to commit to policy vector preferred by a majority of voters² (a classic statement of this proposition is the median voter theorem³). As policy outcomes in these models are fully determined by the electorate's demographic composition these models predict that any electoral law which leaves the demographic composition of the electorate unaffected will not alter policy outcomes⁴.

However, in many situations full policy commitment on the part of politicians is not feasible. Reasons for this include politicians and voters inability to write down a full set of state contingent policy contracts prior to election, and/or the lack of institutions that can enforce campaign promises. A number of recent papers show that in such cases policy choices are sensitive to legislator policy preferences - on this, see Alesina (1988), Osborne and Slivinski (1996) and Besley and Coate (1997a). In so far as a legislator's ethnic identity is informative of her policy preferences these models predict that an electoral law which increases minority representation in legislatures will affect policy outcomes

This paper develops a theoretical model of the political process to precisely identify this channel of influence. The model assumes that citizens have both an income and an ethnic identity. Parties compete in the political process by fielding candidates. The elected legislators select the levels of income transfers which may target citizens on the basis of their income and (or) ethnic identity. The model is used to identify the relationship between a country's choice of political institutions and the extent of policy representation afforded to a minority.⁵ The model predicts that in situations of minority under-representation the introduction of an electoral law of political reservation will alter both legislator identity and policy outcomes. Further, this policy influence will mainly take the form of increased targeted transfers.

These theoretical predictions rely heavily on the assumption that politicians cannot commit to policies. Therefore, to discriminate between the predictions of competing political economy models I devise an empirical test to examine whether legislator identity influences policy outcomes. The test is based on a state level panel data

²Formally, the candidates will commit to the the policy vector that beats all others policies in pairwise competition, and therefore constitutes a Condorcet winner.

³The median voter theorem is attributed to Hotelling (1929) and Downs (1957). These authors considered a single dimensional environment and showed that the median voter's preferred policy constitutes a Condorcet winner. There also exist examples of multidimensional political economy models that assume policy commitment. These include most probabilistic voting models e.g. Lindbeck and Weibull (1987); Dixit and Londregan (1995).

⁴To be precise, such an electoral law will not affect the existence of the political equilibrium.

⁵In particular, we show that the combination of a lack of political institutions which may ensure policy commitment and the existence of plurality rule based majoritarian electoral systems imply that legislator ethnic identity affects policy outcomes. This, in turn, may lead to minority under-representation.

set for sixteen major Indian states from 1958-92. India is a relevant and interesting ground for testing the theory as it is amongst the most ethnically diverse societies in the world. Of equal, if not more importance, is the fact that it is also home to a unique experiment in electoral engineering. The Indian constitution provides for political representation of minorities via political reservation. That is, prior to every election a certain number of jurisdictions are declared as reserved. Only members of the minority group so targeted can stand for election in reserved jurisdictions. The composition of the electorate in these jurisdictions is, however, left unaltered (1950 Indian constitution).

The Indian constitution specifies that the extent of reservation in place for a minority should reflect its population share. Therefore, cross state and time variation in a minority's population share are associated with variations in the extent of political reservation it is afforded. Time lags in such population based readjustment implies that it is possible to empirically distinguish between the policy influence of demographic and minority representation variables. This forms the basis of the empirical identification strategy. Using variation in minority representation induced by population changes to measure changes in legislator identity also allows us to deal with endogeneity concerns. Specifically, since the extent of reservation afforded to a minority group is independent of the functioning of the political process, the extent of minority representation in an Indian state can be considered exogenous to the policy-making process.

The paper's principal empirical finding is that improved minority representation has increased the levels of targeted transfers going to minorities. This finding provides substantial empirical credence to the idea that political representation is central to the design of policies that aim at promoting minority interests. More generally, the results indicate that legislator identity influences policies, and provide some support to the contention that politicians cannot fully commit to policies.

The remainder of the paper is structured as follows. Section 2 discusses the related literature. Section 3 develops a theoretical model to analyze the causes of minority under-representation and the subsequent influence of an electoral law of political reservation on policy outcomes. Section 4 describes the institutional details of political reservation in India. Section 5 uses a panel data set for 16 Indian states to empirically test the relationship between legislator group identity and policy choices. Section 6 discusses the results and concludes. All proofs are in the appendix.

2 Related Literature

This section discusses the existing theoretical and empirical literature which is related to the work reported in this paper.

The theoretical framework developed in this paper is based on the citizen candidate model of political economy (Osborne and Slivinski 1996 and Besley and Coate 1997a). The main assumptions underlying such a model of the political process are that candidates for elections are members of the polity, and that these candidates cannot commit to policies during the campaign stage. Together, these assumptions imply that candidate identity influences policy outcomes. This paper extends the ambit of

such research by analysing both how a country's choice of political institutions may affect the choice of citizen candidates, and the relative importance of income and ethnic based voter coalitions in determining political outcomes. The latter issue has also been the focus of some political economy papers which consider multi-dimensional policy-making –Besley and Coate 1998c; Dixit and Londegran 1995.

This paper also undertakes an empirical analysis of the model's main theoretical predictions. The empirical analysis examines the role of an electoral law of political reservation in providing minorities with policy representation across Indian states. The identification strategy used seeks to exploit exogenous variation in an economically relevant variable (legislator identity) induced by the functioning of a political institution (the electoral law of political reservation). This econometric strategy is similar to that adopted in papers which exploit variation in the functioning of political institutions across US states to analyze questions of economic interest⁶. Besley and Case (1995) utilize variation in when gubernatorial term limits bind to identify the relative weight voter and state governors' preferences receive in policy-making, and Levitt (1997) uses electoral cycles in police hiring to estimate the effect of policing on crime.

To date, empirical public economics research on the determinants of public policies has largely focused on the relationship between the demographic composition of political jurisdictions and the kind of transfers provided by governments. Examples include Alesina, Baqir and Easterly (1997), Cutler, Elmendorfer and Zeckhauser (1993) and Poterba (1997). This paper extends such research by examining how changes in legislator identity influence the transfers chosen in situations where the demographic composition of jurisdictions is unchanged.

This analysis of the relationship between legislator identity and policy choices also relates to the large empirical literature that tests for the relevance of the median voter theorem in the US. A summary of this literature is provided in Poole and Rosenthal (1997). Most of these studies find very weak or no support for the median voter model. Instead papers such as Kalt and Zupan (1985) and Levitt (1996) show that legislator's own policy preferences (or ideology) are a primary determinant of roll call voting behavior in US legislatures.⁷ This finding supports the paper's theoretical prediction that in the absence of political institutions which ensure policy commitment observed policy outcomes will vary with changes in legislators ethnic (or non income) identity.⁸

⁶The approach may be contrasted with papers that instead utilize information on variations induced by changes in the political institution. For example Husted and Kenny (1997) use information on changes in the restrictions on the voting franchise to analyze the relationship between median voter's identity and the policy choices.

⁷My analysis can be interpreted as examining the relationship between a legislator's identity and the ideology she espouses. In a similar vein Besley and Case (1997b) examine the relationship between increased female participation in U.S. state legislatures and state level policy making. They find robust evidence in support of the thesis that the gender identity of legislators influences policy outcomes.

⁸A similar argument has been put forward in papers which examine the relationship between the gender identity of transfer (cash/credit) recipients and economic outcomes (Pitt and Khandker 1998; Dufflo 1999). These papers find that transfer recipients gender identity has a significant effect on subsequent expenditure patterns.

3 Theory

This section analyzes the determinants of minority under-representation in a representative democracy, and the role of an electoral law of political reservation in affecting such representation. To do so it develops a model in which candidates cannot commit to policy announcements. Hence parties and voters influence policies only by their choice of candidates and legislators respectively.

3.1 Economic Environment

Consider an economy populated by citizens who differ along two dimensions. First, citizens differ in the income they earn. A citizen is either rich or poor, with her income identity denoted as $i \in I = \{r, p\}$. For notational simplicity I assume that a citizen's income identity is perfectly informative of her total income (y_i). That is, rich citizens earn $y_r = r$ (and symmetrically $y_p = p$), where $y_r > y_p$ (i.e. $r > p$). Second, citizens differ in their social identity. A social norm assigns every citizen at birth to one of two social groups, which I term castes. Every citizen is born a *high* or a *low* caste, with her caste identity denoted $c \in C = \{h, l\}$. Membership of a social group does not have any direct economic significance⁹.

It follows that there are four citizen types in this economy. The total number of type (i, c) citizens' is denoted N_{ic} (with $\sum_{i \in I} \sum_{c \in C} N_{ic} \equiv N$); caste c citizens as N_c and income i citizens as N_i . Citizens are uniformly distributed across \mathcal{N} identical jurisdictions¹⁰. The number of type (i, c) citizens in any single jurisdiction is $\frac{N_{ic}}{\mathcal{N}}$.

A citizen's identity is informative of her policy preferences¹¹. The available policy instruments are the (triple) parameters of an income based redistribution scheme. These are (i) an anonymous tax rate $t \in [0, 1]$ and the levels of (ii) a non-targeted transfer $T \in \mathfrak{R}$ and (iii) a targeted transfer $\delta_l \in \mathfrak{R}$, which only benefits low caste citizens¹². The analysis restricts attention to feasible transfers. That is $(T, \delta_l) \in Z$, where Z is the set of transfers which, together with the associated tax rate t , satisfies the budget constraint:

$$t \sum_{i \in I} \sum_{c \in C} y_{ic} = NT + N_l \delta_l \tag{1}$$

⁹The analysis considers redistribution based on citizen's income and/or ethnic identity. Hence, the correlation between citizens ethnic and income identities affects policy choices (on this, also see Akerlof 1978). More generally, the analysis is robust to the introduction of some amount of ex ante correlation between these two identities.

¹⁰I discuss the implications of inter-jurisdiction heterogeneity later in the paper.

¹¹A citizen's caste identity affects her policy preferences because it is the basis for targeted transfers. An alternative approach would be to assume that citizen utility is directly enhanced by having a representative who shares her identity. Possible microfoundations for this assumption include group altruism, or (and) the observation that in situations of incomplete policy commitment candidate identity approximates a form of commitment (since the probability that someone who shares one's caste identity will share one's policy preferences is, in general, non zero).

¹²Increasing the set of policy instruments so as to allow for symmetric transfers which only target high castes leave the qualitative aspects of the analysis unaffected.

A type (i, c) citizen's utility given the policy vector (t, T, δ_l) is:

$$\begin{aligned} U_{ih} &= (1-t)y_{ih} + T, \quad i = r, p \\ U_{il} &= (1-t)y_{il} + T + \delta_l, \quad i = r, p \end{aligned}$$

Therefore, her preferred choice of transfers will maximize her post redistribution income. The actual choice of policies are, however, determined via a political process characterized by electoral competition between two parties, labelled rich R and poor P .

This paper models parties as institutions that mediate between citizens and candidates in the political process. They do so by fielding candidates for election in every jurisdiction¹³. Parties select candidates from the set of citizens. Importantly, candidates cannot commit to policies during election campaigns. Therefore, an elected candidate will always implement the policies which maximize her utility. A candidate's policy preferences are determined by her caste and income identity. Hence candidate identity will matter in the political process. Specifically, a party will anticipate the policies associated with every candidate and select that candidate set which maximizes the party's expected utility.

In most countries major political parties are associated with ideological differences on some, but not all, policy issues (Caillaud and Tirole 1998).¹⁴ Therefore, I allow for partial party ideological differences by postulating fixed income identities for parties.¹⁵ That is, party P represents the poor and party R the rich. Since parties affect policy via their selection of candidates this translates into an assumption on candidate selection. Specifically, party P only fields poor candidates, and party R rich.

In contrast, I take party caste preferences (and therefore party candidates caste identity) to be flexible. I assume that in choosing its candidates caste identity a party's primary concern is electoral. That is, it seeks to maximize the number of jurisdictions (n) in which it wins¹⁶. However, if the electoral outcome is invariant to the caste identity of a party's candidates then it will field high caste candidates. This last assumption captures the often discussed fact that minority under-representation on party selection boards leads to an ex ante bias in party selection procedures against these groups. Overall, this characterization of party preferences implies that a party's choice variable is the proportion of jurisdictions in which it fields low caste citizens. This variable is denoted as $\pi_K \in \Pi \equiv \{0, \frac{1}{N} \dots 1\}$ where $K \in \{P, R\}$.

Finally, I describe the electoral and legislative institutions in this economy. My modelling of these institutions derives from the Indian experience. In India elections are characterised by single member plurality rule, and the legislature is Parliamentary. A number of recent political economy papers document the fact that Parliamentary

¹³A number of authors have argued for such a candidate centred view of (party) policy-making. For an overview see Aldrich (1995)

¹⁴In general, these ideological differences tend to differentiate parties along the left right axis.

¹⁵The assumption of fixed income preferences captures long term party ideological differences. For similar analyses, see Grossman and Helpman (1994) and Dixit and Londregan (1995).

¹⁶The analysis is unchanged if parties instead seek to maximize their probability of winning a majority in the legislature.

systems of governance are usually associated with majority rule in the legislature and voting along party lines (Diermier and Feddersen 1996).¹⁷ These two features of a Parliamentary democracy are incorporated in the analysis. That is, I assume that legislators vote along party line, and that the transfers preferred by the majority party legislators are selected.

As a party's legislators share the same income identity, intra-party policy differences only arise from differences in legislators' caste identities. The final assumption regarding the functioning of political institutions concerns intra-party policy-making. The analysis assumes that party policies are a convex combination of the preferences of legislators belonging to the two caste groups. The weight attached to the preferences of legislators of each caste equal its share of the total.¹⁸

The analysis examines how the political equilibrium is affected by the introduction of an electoral law of political reservation. The implementation of such a law affects the functioning of the political process by restricting parties' feasible candidate set. Specifically, it forces parties to field low castes in (at least) the proportion $\hat{\pi}$ of jurisdictions that are declared reserved.

3.2 Policy Choices

The sequence of events in the economy is as follows— the two parties select the proportion of jurisdictions in which to field low caste candidates. Then, citizens in every jurisdiction vote over the pair of candidates fielded by the parties. Finally, elected representatives select policies in the legislature.

As jurisdictions are identical I restrict attention to the case of identical electoral outcomes across jurisdictions. Therefore a party either enjoys (expected) electoral success in all jurisdictions, or in none. One implication of this is that the majority party's candidate and legislator sets coincide. This observation simplifies the analysis. It implies that the final policies associated with a party are completely characterized by two parameters: its (fixed) income identity and the proportion of jurisdictions in which it fields low caste candidates. The pair of transfers associated with a party may be denoted as $\delta^K(\pi_K; y_K)$ and $T^K(\pi_K; y_K)$ where $K \in \{R, P\}$.

In voting citizens seek to maximize their post redistribution incomes¹⁹. Majority rule implies that citizens will condition their voting strategy on the final policies associated with a party, rather than on those associated with any single candidate. A citizen's optimal strategy is to vote sincerely for that party's candidate whose final

¹⁷For instance, in India this rule is enforced by party whips on most issues voted on in legislatures. Strict penalties exist for those who do not follow the whip.

¹⁸In a parliamentary democracy the majority party needs to maintain the support of its legislators. Hence this assumption can be justified as a solution to a bargaining game in which all legislators have some bargaining power.

¹⁹A type (r, h) citizen favors no redistribution and a type (p, h) citizen non-targeted redistribution. A type (r, l) citizen favors targeted redistribution only if the group of poor low castes is small enough (on this, see proposition 1). Type (p, l) citizens always favor targeted redistribution.

policies maximize her payoff.^{20,21} The proof is straightforward. If a voter doesn't affect the electoral outcome, then sincere voting can be maintained as an equilibrium outcome. If she does, then she will wish to vote so as to shift the final policy outcome towards her desired policy. In two candidate competition models (with weakly dominated voting strategies ruled out) this implies sincere voting.

I assume that indifferent voters abstain. If all citizens abstain, then the probability that either party is declared the majority party is a half.

In this setup, party P 's optimal choice of the proportion of jurisdictions in which to field low caste candidates (π) solves:

$$\begin{aligned}\pi_P^* &= \arg \max_{\pi} n(\pi) \\ \text{if } n(0) &= n(\pi) \text{ for all } \pi \in [0, 1] \text{ then } \pi_P^* = 0\end{aligned}$$

where n is the number of jurisdictions. Party R 's optimization problem is similarly defined.

I focus on pure strategy equilibria of this entry game. With two-dimensional policy-making such equilibria may not exist, if the losing party can always affect the electoral outcome by changing π_k (i.e., no policy vector constitutes a Condorcet winner). However, as the strategy space is finite a mixed strategy equilibrium of the entry game will exist²².

A *political equilibrium* consists of a pair of party entry decisions $\pi (\equiv \{\pi_P, \pi_R\})$ and a vector of voting decisions, such that (π_P, π_R) is an equilibrium of the entry game supported by sincere voting by all citizen types. Let the probability that party P is the majority party be denoted as $\rho(\pi)$. Then, the probability that the policy outcome²³ is $\{T^P(\pi_P); \delta^P(\pi_P)\}$ is $\rho(\pi_P, \pi)$ and a type (i, c) citizen's expected utility is:

$$u_{ic}(\pi) = \rho(\pi) U_{ic}^P(\pi_P) + (1 - \rho(\pi)) U_{ic}^R(\pi_R)$$

²⁰Formally, let a type (i, c) citizen's voting decision be $\alpha_{ic} \in \{P, R\} \cup \{0\}$ with $\alpha(\cdot) = \{\alpha_{il}, \alpha_{ih}\}_{i \in I}$ the associated type distribution of voting decisions. Citizens vote strategically (and no citizen uses weakly dominated strategies) s.t.

$$\alpha_{ic}^* = \arg \max_{\alpha_{ic}} \rho(\pi) U_{ic}^P(\pi_P) + (1 - \rho(\pi)) U_{ic}^R(\pi_R)$$

²¹In general sincere voting is not optimal if the elected legislature potentially consists of legislators from multiple parties (Austen-Smith 1989). However, with majority rule there exists a one to one mapping between the majority party's identity and policy outcomes such that sincere voting is optimal.

²²The set of possible mixed strategies is the probability distribution over Π . Let $\sigma_K(\pi_K, \pi)$ be party K 's strategy. An entry game equilibrium is a pair of mixed strategies (σ_P, σ_R) s.t. each party maximises its expected utility, given the other party's entry choice. A pure strategy political equilibrium exists if for some (π_P, π_R) , $\sigma_P(\pi_P, \pi) = \sigma_R(\pi_R, \pi) = 1$.

²³For mixed strategy equilibria, the probability that the final policy pair is $\{T^P(\pi_P), \delta^P(\pi_P)\}$ is $\sum_{\pi \in \Pi} \sigma_P(\pi_P) \sigma_R(\pi) \rho(\pi_P, \pi)$ and that it is $\{T^R(\pi_R), \delta^R(\pi_R)\}$ is $\sum_{\pi \in \Pi} \sigma_R(\pi_R) \sigma_P(\pi) (1 - \rho(\pi_R, \pi))$. Let the probability distribution over policies associated with some (σ_P, σ_R) be $\phi(\sigma_P, \sigma_R)$. Then a type (i, c) citizen's expected utility associated with an entry stage equilibrium $(\sigma_P(\pi), \sigma_R(\pi))$ is $u_{ic}(\phi(\sigma_P(\pi), \sigma_R(\pi)))$.

where U_{ic}^K is her utility conditional on party K being the majority party.

The analysis examines how the introduction of an electoral law of political reservation affects the political equilibrium. Imposition of such a law restricts a party's feasible set of π . Each party must (at least) field low caste candidates in the reserved jurisdictions (that is $\pi_P^* = \arg \max_{\pi} u_P(\pi)$ s.t. $\pi \geq \hat{\pi}$). I define a political equilibrium as *non-neutral* if the policy outcomes differ before and after the introduction of an electoral law of political reservation. If policy outcomes are invariant to the introduction of political reservation, then the equilibrium is *neutral*.

3.3 Analyzing Minority Representation

The analysis first identifies some reasons for why parties may not field low caste candidates. It, then, examines the policy effect of the introduction of an electoral law of political reservation in such situations. The analysis assumes that no single citizen type constitutes a population majority, but that the poor constitute a population majority ($N_p > \frac{1}{2}$). Throughout, the terms 'low caste' and 'minority' are used interchangeably.

Proposition 1 (*Budget Constraint effect*) *There exists a critical number of poor low caste citizens $\hat{N}_{pl} \equiv \frac{N_{rh}r + N_{ph}p}{r-p}$, such that all legislators are high caste if $N_{pl} > \hat{N}_{pl}$. In this case only non-targeted redistribution occurs.*

This proposition states that, if the number of poor low caste citizens is too large, then low castes fail to obtain political representation. The reasoning is as follows. The fact that the sum total of transfers must satisfy a budget constraint implies that increases in the poor low caste population share decreases the maximum feasible per-head level of targeted transfers. Whilst this does not affect poor low caste citizens preference for targeted redistribution, it adversely influences rich low castes preference for targeted redistribution. If $N_{pl} > \hat{N}_{pl}$, then rich low castes favor no redistribution to targeted redistribution.

This, in turn, implies that the winning party will only field high castes. To see this consider a political equilibrium in which both parties only field high caste candidates. In this case no party is associated with targeted redistribution. However, parties' fixed income identities implies their preferred levels of non targeted redistribution differs. Hence citizens vote along income lines, and party P wins. Now consider the losing party's (party R) ability to affect this equilibrium. As long as $N_{pl} > \hat{N}_{pl}$ rich citizens, irrespective of their caste, favor zero redistribution. Consequently all potential party R candidates are associated with no redistribution. Hence the losing party - party R cannot affect the level of redistribution it is associated with, and therefore citizens' optimal voting decisions by it's choice of π . The equilibrium in which all legislators are poor high caste citizens is stable. As it maximizes party P 's payoff, it is also the unique equilibrium.

The main insight afforded by this proposition is that increases in the group size of (some) beneficiaries of targeted transfers which leave them less than a majority can adversely affect their policy influence. In this model, this also implies that minorities (poor low castes) will fail to obtain political representation.

Corollary to Proposition 1: *The equilibrium is non-neutral. There exists a critical value of political reservation $\tilde{\pi} \equiv \frac{N_r(r-p)}{N_p p + N_r r}$. If $\hat{\pi} < \tilde{\pi}$, then political reservation increases targeted transfers. If $\hat{\pi} > \tilde{\pi}$ then political reservation alters the winning party's identity such that a no redistribution outcome obtains.*

With political reservation parties must (at least) field low caste candidates in reserved jurisdictions. This does not affect the policies associated with party R (since all rich citizens favour no redistribution). Party P , however, is now also associated with targeted redistribution. The extent of targeted redistribution it chooses is increasing in the proportion of low caste candidates it fields (i.e. in π).

Therefore, rich citizens will continue to vote for party R . Interestingly, poor high caste citizens may switch to voting for party R if the proportion of jurisdictions reserved (and therefore the targeted redistribution associated with party P) is too high. That is, political reservation affects the political equilibrium by making citizens' caste based redistributive preferences relevant to their optimal voting decision.²⁴ This, in turn, may alter both the electoral outcome and the policies chosen. If $\hat{\pi} > \tilde{\pi}$ then the ensuing equilibrium the policies favored by the rich will be undertaken²⁵ (i.e. there will be no redistribution).

If, however, the proportion of jurisdictions reserved remains below $\tilde{\pi}$ then citizens' continue to vote along class lines and Party P wins. The policy outcomes, however, differ in that both targeted and non-targeted redistribution is undertaken. In both cases the winning party only fields low caste candidates in those jurisdictions which are declared reserved.

I now examine whether minority under-representation may persist even when all low castes favor targeted redistribution. Therefore assumption 1 holds for the rest of the analysis.

Assumption 1:

$$N_{pl} < \frac{N_{rh}r + N_{ph}p}{r - p}$$

Proposition 2 (Demographic Effect) *All legislators are high caste if (i) high caste citizens form a population majority and (ii) caste preferences are politically decisive (that is, $N_{ph} < N_{rl}$). In this case only non-targeted redistribution occurs.*

If both parties only field high caste candidates, then party P wins (by the same logic as in proposition 1). However, the difference from proposition 1 is that assumption 1 holds. Therefore, the losing party (party R) can affect citizens' voting decisions by appealing to their caste based redistributive preferences. However, proposition 2 tells us that if $N_{ph} < N_{rl}$ and $N_h > \frac{1}{2}$ then party R cannot so affect the electoral outcome. The reason is that if $N_{ph} < N_{rl}$ then citizens' caste based preferences are *politically decisive*. That is, it is not possible for party R to choose a portfolio of candidates such that low, but not high, caste citizens vote along caste lines. Therefore, in situations where party R fields a non zero proportion of low caste candidates and gains the low caste vote it will lose the rich high caste vote. In the ensuing

²⁴There exists some qualitative evidence suggesting that legislation which targets a specific social group is often associated with the emergence of a politics of identity (Bardhan 1996).

²⁵It is possible to interpret this as a situation in which policy is captured by the 'minority elite'.

equilibrium all citizen types will vote along caste lines. High caste citizens will vote for party P which is associated with no targeted redistribution. As $N_h > \frac{1}{2}$ party P will win. Therefore, while party R can affect the basis of citizens' voting decisions it cannot affect the electoral outcome. Here it is the demographic composition of the population combined with the fact that citizens caste based preferences are politically decisive which militates against low caste political representation.

Corollary to Proposition 2 *The equilibrium is non-neutral. Political reservation increases targeted redistribution, but leaves the winning party's identity unaffected.*

The proof shows that with political reservation parties field low caste candidates in the reserved jurisdictions. Party P continues to enjoy electoral success. Party R cannot influence the electoral outcome by further increasing the proportion of low caste candidates it fields. The reason is the same as in proposition 2. Namely, that any such increase leads to citizens' voting on the basis of their caste preferences. High caste citizens vote for the party fielding fewer low castes - party P . As they form a population majority party P continues to win. Once again, it is the demographic composition of the polity which limits the extent of minority representation. The difference, of course, is that with political reservation the final policy vector includes both targeted and non-targeted redistribution.^{26, 27}

A key assumption in this model is that candidates cannot commit to policies. This leads to parties conditioning candidate selection on candidate identity. In particular, the analysis shows that the winning party selects the candidates who share the policy preferences of a majority of voters. In situations in which the majority prefers zero targeted transfers are situations in which low castes fail to obtain political representation. The reason is straightforward. Since (poor) low castes favor targeted redistribution a party cannot both field low caste citizens and be associated with zero targeted redistribution.

The analysis identified two such situations.²⁸ In both cases the demographic composition of the political jurisdictions played a crucial role. Situations in which low castes formed a population minority and caste based preferences are politically decisive are characterized by minority under-representation. Importantly, situations in which the population share of poor low caste citizens was relatively large (but less than half) are also characterized by minority under-representation. In this case

²⁶If $N_h > \frac{1}{2}$ but $N_{ph} > N_{rl}$ then in many cases only mixed strategy equilibria exist. Conditional on party P fielding high castes party R can attract a majority of votes by fielding some proportion of low caste candidates. This leads to cycles where for each candidate mix a party puts forward there is another candidate set that the losing party can use to defeat it.

²⁷This analysis focuses on the relationship between the demographic composition of political jurisdictions and the extent of minority under-representation. Another reason why minority under-representation may arise is extreme party prejudice. Such a case would arise if a party prefers electoral defeat to winning but having to undertake targeted redistribution. Such situations may arise when the main national parties are ethnic parties. In these cases political reservation is, again, a powerful tool by which low castes may achieve policy representation.

²⁸In the cases analyzed parties' equilibrium choice of π coincided. This feature of the model can be related to papers such as Lindbeck and Weibull (1986) and Dixit and Londegran (1997). These papers show that if party policy potentially differs along a 'fixed' and a 'pliable' dimension then in equilibrium party policies on the pliable dimension will coincide, with party differences on the fixed policy dimension determining the winning candidates party identity.

all other citizens (including rich low castes) unite in their opposition to targeted transfers.²⁹ The subsequent introduction of an electoral law of political reservation by forcing parties to alter their candidate set affects policy outcomes.

I now examine the real world relevance of this thesis. To do so, I exploit the existence of an electoral law of political reservation across Indian states. In particular, I use Indian state level data on the functioning of political reservation to examine the relationship between the presence of minority legislators and state level policy outcomes. Before doing so, I briefly discuss some empirically relevant generalisations of the theory.

3.4 Generalizing the Results

This subsection discusses the robustness of the model to changes in some of its underlying assumptions. The focus is on assumptions which are relevant to the subsequent empirical analysis.

3.4.1 Choice of electoral law

The analysis modelled the introduction of political reservation as an exogenous change in the existing set of political institutions. In reality, such changes are also determined by the political process. This would suggest that the determination and policy consequences of such laws should be jointly modelled.

One way would be to consider a two period variant of our model— in period one elections are held and the elected legislators choose whether to change the electoral institution; in period two elections are held under the new electoral arrangements and the elected legislators select the levels of redistribution. Clearly, in stage 1 rational voters will anticipate the choice of political institutions associated with a policy-maker and will vote accordingly. In the situations identified in this model the electoral law of political reservation would not be implemented. For in period one a majority of citizens will vote for high caste legislators, whose policy preferences are for no political reservation.³⁰

A second way of modelling the choice of electoral institutions- which fits the Indian reality - is to postulate a constitution design stage prior to the game analysed in this section. In many countries members of constituent assemblies are nominated not elected. If these include a sufficient number of minority members (who would push for the introduction of such a law) then an electoral law of political reservation may be implemented. In India the fact that the head of the Constituent assembly was a low caste played a crucial role in the implementation of the policy of political reservation.

The empirical analysis deals with the potential endogeneity of the electoral law of political reservation by only analysing data for the post Independence period in

²⁹Papers such as Cutler, Elmendorf and Zeckhauser (1993), Poterba (1997) and Gelbach and Pritchett (1997) make the same point

³⁰In general, this is a reason often cited for the observed persistence of the status quo political institutions in most countries.

India. The electoral law of political reservation was in existence for the entire period. However, the population basis of reservation induced exogenous cross state and time variation in the *extent of reservation*. The empirical analysis exploits this data variation. From the theoretical analysis we know that in situations of initial minority under-representation the introduction of a law of political reservation will lead to the winning party fielding low caste candidates (only) in the reserved jurisdictions. This suggests that subsequent population induced variations in the extent of political reservation will be associated with variations in both the number of minority legislators and policy outcomes.

3.4.2 Multiple minority groups

This analysis examines the case of a single minority group— low caste citizens. In most countries (India being no exception) multiple minority groups exist. Extending our analysis to cover such a case alters the quantitative results as the size and number of feasible voter coalitions changes. However, as long as (i) the minority groups are reasonably symmetric and (ii) the groups, taken together, do not constitute a population majority the qualitative aspects of the results generalize.

3.4.3 Inter jurisdiction heterogeneity

The analysis assumed that the demographic composition of jurisdictions is identical. However, in reality jurisdictions within a state differ in their demographic composition. In such a case, as long as policy-making occurs at the state level and policy outcomes are common across jurisdictions, citizens will continue to condition their vote on a party’s entire vector of candidates. However, the identity of the winning candidates (and therefore a party’s candidate set) is potentially affected by inter-jurisdictional heterogeneity. In general, introducing inter-jurisdiction heterogeneity in models of policymaking concentrates electoral competition in some ‘swing’ jurisdictions (for an example of this, see Persson and Tabellini 1998). That is, parties select the set of candidates favored by a majority of citizens in these jurisdictions.

It is clear that Indian states are likely to be characterised by substantial inter-jurisdiction heterogeneity. Therefore, for the theoretical analysis to be relevant for a state level analysis of policymaking I need two identifying assumptions. First, that the demographic characteristics of swing jurisdictions be such that minority under-representation results. The second identifying assumption related to the fact that I capture the effect of demographic features on policy outcomes via state-level demographic data. For this to be appropriate it must be true that a state’s demographic composition is correlated with the demographic composition of the swing jurisdictions.

3.5 Empirical Predictions

To conclude, I outline the main empirically testable predictions of the theory.

Prediction 1: *In situations where low castes constitute a population minority, they will fail to obtain political representation if :*

- (i) (budget constraint effect) Poor low castes population share is large
- (ii) (demographic effect) Poor low castes population share is relatively low, but caste preferences are politically decisive.

Prediction 2: *In situations of initial minority under-representation, variations in the extent of political reservation affect policy outcomes. This policy influence takes the form of increased targeted transfers (unless the extent of reservation is too high).*

Prediction 3: *Variations in the extent of political reservation may or may not affect electoral outcomes.*

Finally, I note that a significant effect of legislator identity on the policies chosen may also be taken as evidence for, but not proof of, the lack of policy commitment on the part of legislators³¹.

4 The Context: Political Reservation in India

In this section I use a state level panel data set from India to empirically examine the relationship between minority representation and policy outcomes. To do so, I exploit the cross state and time variation in legislator identity induced by the functioning of the electoral law of political reservation across Indian states.

The main principles which guide elections in India were laid down in the Indian constitution in 1950. The constitution states that India is a federal democracy in which citizens elect representatives in single-member jurisdiction elections. The elections are winner-take-all elections with the top vote receiver being elected. Importantly, the 1950 constitution also provided for political reservation. Article 330 and 332 of the constitution state that prior to every state and national election a certain number of jurisdictions will be reserved. Only candidates belonging to a specified population group may stand for election in these jurisdictions. The entire electorate, however, participates in choosing amongst candidates so qualified.

The constitution provides such political reservation for two population groups: scheduled castes and scheduled tribes. For expositional ease, these groups are referred to as minority 1 (scheduled castes) and minority 2 (scheduled tribes). Together, the groups make up roughly 25 percent of the Indian population, of which minority 1 accounts for roughly two thirds (1991 census). The existence of the ‘minority 1’ population group relates to the Hindu caste system³² which assigns every individual at birth to a caste. Every caste occupies a (largely) determinate position in a hierarchical scale of ranks. Between two to three thousand castes exist, of which 779 of the most socially disadvantaged castes are identified³³ as members of minority 1. The population category ‘minority 2’ covers members of India’s indigenous tribal population. Whilst the legal basis for group identification is social and common across

³¹As with any such empirical test I cannot rule out other competing hypotheses. For in so far as I cannot isolate a single policy dimension in my empirical analysis I cannot directly test for the extent to which policy commitment is absent.

³²Hindus make up approximately 85 percent of the Indian population (1991 Census). The genesis of the caste system is usually traced to the Aryan invasion of India in 1500 B.C. Caste groupings are endogamous with hereditary membership.

³³This group was first identified in a Government of India Act of 1935.

states (Table 1), members of these groups tend also to be economically disadvantaged (Table 2).³⁴

The electoral law of political reservation (as set out in the Indian constitution) states that prior to every state level election a certain number of jurisdictions will be reserved (separately) for each of the two minorities. Two criteria for the selection of reserved jurisdictions. These are (i) the population concentration of the minority group in that jurisdiction and (ii) sufficient dispersal of reserved jurisdictions within the state. In case of minority 1 criteria (ii) has been the main determinant of reservation. Minority 1 citizens form a population minority in almost every state assembly level jurisdiction reserved for them³⁵. In case of minority 2 both criteria have been used. Minority 2 citizens constitute a population minority in approximately half of the jurisdictions reserved for them.

Regarding the extent of reservation, the Indian constitution states that the proportion of jurisdictions reserved for a minority should reflect its population share— as defined in the decennial census (Article 322, 1950 Indian constitution). The constitution also provides for population based readjustment of the proportion of jurisdictions reserved for a group.

The extent of political reservation for a minority in an Indian state is determined by the group's population share. However, changes in a group's population share and the extent of reservation it is afforded have not been contemporaneous. There are two reasons for this. The Indian constitution states that the basis for such readjustments must be the decennial census. Adjustment on the basis of anticipated population figures is disallowed. Hence, during a single census period the proportion of seats reserved for a group is usually adjusted twice - once on the basis of provisional census figures, and once on the basis of final census figures. The second reason for time lags in the population based readjustment of the number of seats reserved is that such adjustments can only occur at the point of election.

It is widely agreed that the presence of minority legislators in Indian state legislatures is mainly due to political reservation (Galanter 1978; Dushkin 1972). Table 3 shows that during the 1960s and 1970s almost all minority legislators³⁶ were elected from reserved jurisdictions. An analysis of minority representation in the upper houses of state legislatures (where no reservation exists) suggests that this is not just a displacement effect wherein minority legislators simply shift to contesting reserved seats (Table 3).

There exists very little formal literature which analyses the influence that minority representation has had on state level policy-making across Indian states. Qualitative evidence on whether minority legislators have altered state level policy-making is mixed. Some authors, such as Baxi (1984), argue that increased minority representa-

³⁴In case of minority 1 the cause is caste based restrictions on their social interaction and employment opportunities (Akerlof 1976). In contrast, the economic backwardness of minority 2 members is mainly due to their ecological and social isolation from the mainstream.

³⁵The minority 1 population share in reserved jurisdictions tends to be at best five to six percentage points higher than in unreserved jurisdictions.(Galanter 1984)

³⁶We were unable to get data for the 1980s and 1990s. However, the literature suggests that there have not been any dramatic changes in this trend (Mendelsohn and Vicziany 1998).

tion has not affected state level policy-making in India. Instead, minority legislators' policy behavior has been largely determined by their need to appeal both to upper caste constituents in reserved jurisdictions and to the primarily upper caste membership of party plenary committees.³⁷ In contrast, authors such as Dushkin (1972), Joshi (1982) and Galanter (1984) claim that minority representation has influenced policy-making. Their main thesis is that minority legislators have tended to act *en bloc* and concentrate effort on increasing transfers to their own group: more cabinet positions for themselves, more scholarships and reservations in higher educational institutions and, above all, more government jobs³⁸.

Both theory and the existing qualitative literature provide important reasons for why increased minority representation in state legislatures may not have influenced state level policy-making. I, therefore, turn to an econometric analysis to formally assess the success of political reservation in influencing state level policy-making in India.

5 Testing for the Determinants of Policy Choices

The unit of observation in the econometric analysis is an Indian state. The federal nature of the Indian constitution implies that Indian state governments have important independent policy-making powers. Further, many of the subjects on which states enjoy sole jurisdiction relate to minority welfare. This suggests that it is appropriate to use an Indian state level panel data set to analyze the relationship between minority representation and policy outcomes. Whilst the electoral law of political reservation has been in force during the entire data period, the extent of political reservation has exhibited cross state and time series variation. The analysis exploits this exogenous variation in legislator identity, induced by the functioning of the electoral law, to examine the relationship between minority representation and state level policy choices.

To do so, I use a data set which covers 16 major Indian states and spans the years 1957-1992. These states account for over 95 percent of the Indian population. The data set contains state level data on policy outcomes, the proportion of seats reserved for minority 1 and minority 2 in state legislatures and other variables characterizing state demographic composition and income distribution. Due to data availability reasons the precise time coverage varies across regressions.

Table 4 describes some salient economic and demographic features of these states. Minority population shares exhibit considerable inter state variation. Whilst all states

³⁷The relative poverty of minority group members has meant that attempts at forming minority political parties or interest groups have been largely unsuccessful.

³⁸Dushkin (1977) quotes instances of such activism during the 1967-72 national parliamentary session. The main national party Congress was defeated on the amendment, 'the opinion of the House (that) safeguards provided in the Constitution for the scheduled castes and tribes are not being fully implemented'. The defeat was primarily due to bloc voting by minority legislators. She also attributes the liberalisation of job reservation policy (July 1968, 1970), increased flexibility in targeted educational subsidies (1969), and a stiffening of the untouchability offences act (1970) to their influence.

have some minority 1 population, three states do not have any minority 2 population³⁹. The economic characteristics of Indian states— measured by per capita state income, Gini coefficient and levels of state expenditure and revenue, also exhibit significant cross state differences.

Table 5 provides means and deviations for the variables entering the analysis. I control for minority presence in a state’s legislature by including data on the proportion of seats reserved for each of the two minorities in the state legislature. As discussed earlier this is a very good proxy for total minority presence in the legislature. I use data on minority population shares to control for voter identity. Time-lags in the population based readjustment of the extent of reservation afforded to a group implies that the correlation between contemporaneous changes in the population and reservation series is weak (on this also see the further results section). Hence the population and reservation series are not observationally equivalent.

To control for other time varying state specific controls I include public finance data on state income per capita and federal grants per capita. These provide a measure of the state budget constraint. I also include information on state level income inequality. However, this data is only used for robustness checks. This is both due to restricted data availability for these series, and the more general worry that these variables are partially determined by the dependent policy variable.

In taking theory to the data, the first question that arises is whether the demographic features of Indian states are such that minority under-representation is likely (for the reasons discussed in the theory section). Table 4 shows that the first requirement of our theory— that, the two minority groups constitute a population minority is satisfied in every state. Unfortunately, due to the lack of caste wise income data we cannot further test the theoretical predictions regarding the causes of minority under-representation. However, the summary statistics in Table 2 show that the incidence of poverty is much higher amongst minorities (the poverty rates amongst minority 1 and minority 2 groups were one and a half times that of the general population in 1987). Also, if we regress state-level income inequality measure (Gini) on minority population shares we find that increases in minority 1’s population share are associated with greater inequality. The same is true of minority 2, though the effect is less significant.⁴⁰ These results are suggestive of the thesis that, absent political reservation, these two minorities would have been politically under-represented for two reasons. First, because they constitute a population minority. Second, because of the relatively high poverty rates in these groups (the budget constraint effect).

The data analysis focusses on analysing the influence of minority representation on an array of state level public policy. This provides a direct test of the relationship between legislator identity and policy outcomes (after controlling for voter effects).⁴¹ The analysis, I distinguishes between policies on the basis of who the intended benefi-

³⁹Three states contain nearly half of the minority 2 population: Madhya Pradesh, Orissa, and Bihar. In contrast Punjab, Haryana, J&K and UP until 1974 have no jurisdictions reserved for minority 2.

⁴⁰The point estimates are 0.42 for minority 1 (with a t-statistic of 5.2) and 0.16 for minority 2 (with a t-statistic of 1.76).

⁴¹This can be seen as a weak test of the policy commitment model. If there is full policy commitment then policy variation should be related to variation in demographic composition.

ciaries are. Policies that do not use group identity to discriminate between recipients are termed general policies. Policies that aim to transfer resources only to minority members are termed targeted⁴². This characterization applies both to the public finance and asset redistribution variables considered.

The general public finance variables considered are *total state expenditure per capita* and the share going to *education*. Roughly 21 percent of an average Indian state's budgetary expenditure is allocated to education.⁴³ The determinants of these general policies are contrasted with those of two targeted policies: the share of state expenditure going to '*minority 1 welfare*' and '*minority 2 welfare*'. On average, between three to four percent of an average Indian state's expenditure is allocated to these two categories. Due to data non-availability, the public finance regressions are for the shorter time period 1974-1992. In case of minority 1 welfare, the available data series is for an even shorter period (1980-92).⁴⁴

Two asset redistribution policies are also examined. The general policy analyzed is a cumulative land reform index⁴⁵. The targeted policy analyzed is total state level job quotas for minority 1 and 2. The variable considered in the analysis is the determinants of total reserved jobs (i.e. minority 1 jobs + minority 2 jobs).⁴⁶ The Indian constitution provides for job quotas for the two minority groups in government services. The precise extent of job quotas in any state government service is under the state government's jurisdiction⁴⁷. The regressions that consider asset redistribution policies span the time period 1957-1992. Further details of variables that enter the analysis are in the data appendix.

5.1 Empirical Model

Empirically, I wish to estimate the impact of variations in the extent of minority representation on state level policy outcomes, while controlling for the state's demographic composition. Such an estimation procedure serves two purposes. First, it allows us to examine whether legislator identity matters. Second, including additional data on state demographic composition allows a (weak) test of the competing models of political economy. Specifically, with full policy commitment (and controlling for the demographic composition) we should not expect variations in minority representation to affect policy outcomes. However, with incomplete policy commitment, we expect variations in the extent of political representation to affect policy

⁴²The Indian constitution explicitly provides for 'group' identification for purposes of public policy making.

⁴³Expenditure on education (the general policy considered) forms roughly half of the government expenditure on social services and includes state expenditure on elementary, secondary, university and higher, technical and adult education.

⁴⁴Since, the data period covered by regressions vary, I always check that the results are not sensitive to the time-period considered.

⁴⁵This variable was constructed by Besley and Burgess. It is a count data series that cumulates the land reform acts passed by a state. For details, see Besley and Burgess (1998).

⁴⁶The reason for this is that some states have legislated on job quotas for these two groups jointly

⁴⁷A number of authors have discussed the high levels of political activism associated with the determination of job quotas. See for example, Narayana (1980) as well as various reports of the Commissioner for Scheduled Castes and Scheduled Tribes.

outcomes. In particular, our theory predicts that increased minority representation should be associated with increased targeted redistribution. In contrast, non-targeted redistribution should either fall or be largely unaffected.

Therefore, in the reported regressions I include minority population shares in a state (P_{jt}) and the proportion of seats reserved for the minority in the state legislature (R_{jt}) as explanatory variables. I start by using the Indian state level panel data set to estimate linear equations of the form:

$$O_{jt} = \alpha_j + \beta_t + \gamma_1 R_{jt} + \gamma_2 P_{jt} + \gamma_3 D_{jt} + \varepsilon_{jt} \quad (2)$$

where O_{jt} is some state level public policy outcome in state j at time t , R_{jt} is a vector whose two elements characterize the proportion of seats reserved for the two minority groups. The vector P_{jt} denotes minority state population shares. D_{jt} is an electoral dummy which takes a value of one in the election year, and zero otherwise.

The constitutionally specified basis for state level reservation is population. Therefore, this estimation strategy is appropriate if changes in a group’s population share are uncorrelated with contemporaneous changes in policy outcomes (an issue to which I return later). As changes in the extent of reservation can only occur at the point of election, it is important to ensure that policy variation attributed to changes in the extent of reservation is not simply proxying the electoral cycle. Hence, I include an electoral dummy variable D_{jt} . α_j is a state specific fixed effect and β_t is a year dummy variable. State fixed effects⁴⁸ control for time invariant differences across states which may influence policies. These include, among others, permanent differences in state economic structures. Year effects take account of any impact of time related macro shocks to the economy as a whole on policy outcomes. Examples include political shocks (e.g. declaration of the nationwide ‘emergency’ in 1977), climatic shocks (e.g. droughts) and wars.

The main coefficients of interest are γ_1 and γ_2 . If γ_1 is insignificant then variations in extent of minority representation have no independent policy effect. The coefficient γ_2 captures the voter group size effects. Theory suggests that this variable’s significance should differ across general and targeted policies. In the former case, γ_2 captures minority groups direct ‘voter influence’. In the latter case, it has an additional indirect effect. As increases in a minority’s population share make provision of the same level of per head targeted transfers a more expensive proposition, this would tend to negatively affect non-minority citizens’ preferred levels of targeted transfers.

The rest of this section proceeds as follows. I first report the basic results where policy outcomes are conditioned on the proportion of seats reserved for the two minority groups and their population shares. I, then, provide a series of robustness checks and extensions. These include a discussion of exogeneity and identification concerns, an analysis of the relative importance of legislator party and group identity in influencing policy and an examination of how regional (North-South) differences influence the relationship that legislator identity bears to policy outcomes.

⁴⁸The inclusion of state level fixed effects implies that the impact of political reservation and demographic and economic variables on policy outcomes is identified from deviations from state means over this period.

5.2 Basic Results

Table 6 reports the regression results for the basic specification. Columns (1)-(3) analyze general policies, while columns (4)-(6) consider targeted policies. All regressions are estimated by OLS, except the land reform index. As land reform data is count data, Poisson regressions are reported for this case.

The principal empirical finding is that variations in the proportion of minority legislators (as measured by the proportion of seats reserved for them) are not associated with any significant changes on general policy outcomes. In marked contrast, targeted policies respond significantly to changes in the extent of minority representation. Minority 2 legislators have a positive and significant effect on both the percentage of total state expenditure going to minority 2 welfare (column (5)), and on job quotas. Similarly, job quotas responds positively to the extent of political reservation afforded to minority 1. The only targeted policy unaffected by political reservation is minority 1's welfare expenditure.⁴⁹

The results strongly support the thesis that increased minority representation has affected state level policy making in India—mainly, by raising the levels of targeted transfers. An analysis of the point estimates suggests that the effect is non-trivial. For instance, a one percentage point increase in the proportion of seats reserved for minority 2 raises the minority 2's welfare expenditure share by 0.9 percentage points. Back of the envelope calculations suggest that the implied elasticity is over one.

Turning to the relationship between a minority group's population share and policy outcomes, the evidence is mixed. General policies such as education expenditure share and land reforms enacted are positively influenced by minority 1's population share. A one percentage point increase in minority 1's population share raises education spending by 0.8 percentage points. One interpretation is that the demand for education and land reform is high among members of this group. This is a reasonable interpretation as both illiteracy and landlessness are prevalent amongst members of minority 1. In contrast, minority 2's population share has a significant negative influence on both policies. This finding, while surprising at first, is consistent with the very low levels of political activism amongst minority 2 members (Galanter 1984).

A similar pattern exists for targeted transfers. In general, increases in minority 1's population share raises job quotas and reduces expenditure on minority 2 welfare spending. Minority 2's population share exerts a negative but insignificant influence on policy outcomes.

To address the concern that political reservation variables may simply be proxying for omitted time varying state specific variables table 7 reports results that include additional controls. Two measures of the state budget constraint are included—per capita state income and per capita federal grants. Changes in the budget constraint may be expected to influence the shares of expenditure going to different categories. I also include an additional control for voter preference—the Gini coefficient. These controls are lagged as unobserved shocks to such variables may be correlated with

⁴⁹It is worth noting that the data available for this series is much more restricted. Results reported later in the paper also suggest that this insignificance is partly driven by the netting out of opposing party and regional effects.

contemporaneous shocks to policy outcomes. As data availability for some of these series is restricted, the number of observations per regression differ from table 6.

The main difference is that the influence of minority 2 legislators on job quotas is not robust to the inclusion of additional variables. Data analysis shows that this is mainly driven by the state income variable. All other results are robust to this specification. Minority legislators continue to positively influence the levels of own group targeted transfers. Per capita state income, while positively correlated with total per capita expenditure, has no significant effect on the sectoral distribution of general expenditure shares, and a negative effect on targeted expenditures.⁵⁰ The same is true of the state level income inequality variable.

5.3 Further Results

Exogeneity and Identification

The Indian constitution states that the proportion of jurisdictions reserved for a minority group should reflect its population share. Further, the extent of reservation should be readjusted after every decennial census. Time lags in the population based readjustment of reservation implies that the population-reservation relationship can be captured by an equation of the form:

$$R_{jt} = \phi P_{jt-n} + \nu_{jt}$$

If changes in group population shares are not correlated with changes in the policy-making process then the extent of reservation may be considered exogenous to the policy-making process.

Linguistic and cultural differences across Indian states have meant that interstate migration rates are very low (they constituted roughly 5% of an average state's total migration in 1991 – see Cassen and Sahay 1996). Net interstate migration rates, on average, account for less than 1% of the population growth rate. Further, census data suggest that no significant cross group migration differences exist, and that the main cause for changes in group population shares is differentials in birth and death rates. Therefore, as long as these fertility changes are not driven by contemporaneous changes in state level policy variables state level population changes in India are relatively exogenous to the policy-making process.

I, now, turn to the issue of identification. My identification strategy is based on the fact that while minority population shares vary annually, adjustments in the proportion of seats reserved for a group occur with a time lag. This is for two reasons. The proportion of seats reserved for a group can only be adjusted at the point of election. Further, the Indian constitution states that the basis for such readjustments

⁵⁰This finding squares with the conventional wisdom that the growth in public expenditure across Indian states is primarily due to increased expenditure on non-developmental items, such as wages and interest payments (Rao and Sen 1995). One may also conjecture that these findings are consistent with the thesis that state level policy-making in India has not had a primarily developmental basis - for in that case we would have expected a state's level of development (as measured by state income or more generally by the gini coefficient) and the sectoral distribution of government expenditure to be inversely related.

must be the decennial census.^{51,52} Both these facts imply low correlation between contemporaneous changes in the population and reservation series (as we are running panel regressions the relevant correlations are correlations of deviations from the mean for the two series). These correlations are 0.22 and 0.18 for minority 1 and minority 2 respectively (table 2.8a).

Table 8b provides a regression analysis of the same. Columns (1) and (3) examine the raw correlation between a minority group’s population share and the proportion of jurisdictions reserved for it. The correlation is positive and high, confirming that population shares are the primary basis for reservation. Columns (2) and (4) examine the role of the election dummy and time and state effects in mediating this relation. The difference is dramatic. The relationship between population and reservation series remains positive and significant, but both the point estimate and the t-statistic fall. Whilst this suggests that movements in these two series is not identical, multicollinearity remains a potential worry - especially in case of minority 2. Therefore, I re-ran the reported regressions with either only the population series or the reservation series entering the regression⁵³. There were no major swings in parameter values or sign changes in coefficient values across regressions.

As a further check, I considered two variants of the basic regression. These regressions used alternative measures of voter strength. The first utilized information about the electoral cycle. I entered a weighted population share of a group as the population variable, where the weight took a value of one in an election year and values less than one in non-election years⁵⁴. The identifying assumption underlying this specification is that as citizens mainly influence policy-making by voting⁵⁵. Therefore their influence is strongest in election years. The regression results were robust to this specification. The second case used census age distribution data to measure voter strength. Specifically, only population shares of citizens over the age of 18 were included. Again, the results were robust to this specification.

A final concern is that the true relationship between policy outcomes and population shares is non-linear, and that it is this effect which is being picked up by the reservation series. I, therefore, ran a number of regressions in which the population variable entered non-linearly. The results were not affected.

Party Identity versus Group Identity

The theoretical analysis assumed long term income based ideological differences between political parties. The analysis suggested that these differences should be reflected in party candidate choice. If this is correct, then changes in both a legislator’s

⁵¹Often within a single census (ten year) period the extent of reservation is changed twice. Once on the basis of the provisional census figures and once on the basis of final population figures.

⁵²The constitutional requirements imply that the election commission never uses projected population as the basis of reservation.

⁵³These results are available from the author

⁵⁴Minority population share were weighted in non election years by a weight x where $x = \frac{1}{\text{no. of years to election}}$.

⁵⁵There could be the alternative thesis that voters lobby. In that case the identification strategy would be invalid. However qualitative evidence suggests that there have been very few successful minority political lobby groups.

group and party identity should be correlated with changes in policy outcomes. The model also predicted that variations in the extent of political reservation may affect electoral outcomes. This section examines the empirical validity of these theoretical predictions regarding the role of political parties in mediating the relationship between legislator identity and policy outcomes.

The empirical analysis restricts attention to two Indian political party groupings - the Congress party and a Left party grouping⁵⁶. The latter includes major national left wing parties and Janta parties. In general such a grouping may obscure important inter-party differences. However, in this case further subdivision of each party grouping into its constituent parties leaves results unaffected.

The empirical analysis is in two parts. Table 9 examines the relationship between a party's electoral performance, minority population shares and the extent of political reservation. Party ideological differences, if present, should affect the electoral support that parties command from different population groups. The results support this thesis. Minority 1's population share is positively correlated with the left party's share of seats. Given the relative poverty of minority 1 members, it is hardly surprising that they support the party associated with greater redistribution. In contrast, minority 2's population share does not significantly influence either party's electoral performance. This is probably due to the group's relatively small size, and the fact that members of this group have remained isolated from the mainstream. The regression results also suggest that variations in the extent of political reservation influence party performance. Increases in the proportion of seats reserved for minority 1 improve the left party grouping's electoral performance.

Table 10 report the results of regressions where we estimate the relationship between legislator party and group identity and policy outcomes. These regressions include as explanatory variables both the total proportion of seats reserved for a minority and the proportion of reserved seats won by each of the two party groupings. The main empirical findings support the theoretical predictions. While the total proportion of seats reserved for a group remains a significant determinant of targeted policy outcomes, the results show that minority legislators party identity is also important. In particular, the presence of left party minority legislators positively increase the extent of targeted transfers. The evidence in case of Congress legislators is weaker. Further, for every targeted policy I am able to reject the hypothesis that legislators' belonging to the same party but different groups exhibit similar policy behavior.

North-South Differences

Our model of legislator behavior assumed that the marginal policy influence of an additional minority legislator is constant. This section examines the validity of this assumption.

⁵⁶The parties contained in the the political groupings are: (i) Congress party (Indian National Congress + Indian Congress Socialist + Indian National Congress Urs + Indian National Congress Organization) (ii) Non Congress Parties: (a) Hard Left parties (Communist Party of India+ Communist Party of India Marxist) , (b) Soft Left parties (Praja Socialist Party + Socialist Party) and (c)Janta Parties (Janta Party + Janta Dal Party + Lok Dal Party)

The first hypothesis examined is whether the level of societal prejudice affects minority legislators’ policy influence. If a minority legislator’s absolute policy influence is greater in states where minorities face less oppression, then we should expect minority 1 legislators policy influence to be higher in South Indian states. The caste structure in Southern states is both less hierarchical and less oppressive. In addition, these states have been witness to long-lived successful anti-caste movements. The second hypothesis examined is whether minority legislators policy influence is increasing in their numerical strength. If yes, then minority 2 legislators in Northern states should exhibit higher policy activism. The population share of minority 2 is below 5% in all Southern states.

To examine these hypotheses I run regressions of the form:

$$P_{jt} = \alpha_j + \beta_t + \gamma_{1s}R_{jt} + \gamma'_1R_{jt}D'_{jt} + \gamma_2C_{jt} + \gamma_3D_{jt} + \varepsilon_{jt} \quad (3)$$

where D'_{jt} is a dummy which takes the value of one for North Indian states. The coefficient γ_{1s} is a measure of the impact of political reservation in Southern states while the coefficient of $R_{jt}D'_{jt}$ is informative of North South differences ($H_0 : \gamma'_1 \equiv \gamma_{1n} - \gamma_{1s} = 0$).

Table 11 presents estimates of equation (3). Political reservation continues to have a largely insignificant effect on general policy outcomes. As before, the presence of minority legislators affects policy outcomes. There is also evidence of regional differences. Minority 1’s welfare expenditure is largely unaffected by variations in the extent of political reservation, though there is weak evidence of opposing North-South effects. In case of minority 2 welfare expenditure, we find that the positive influence of minority 2 legislators is driven by minority 2 legislators in North Indian states. This finding supports the thesis that the numerical strength of legislators matters.

In case of job quotas, there is evidence of significant North South differentials for both groups. Further, the positive relationship between the political reservation and job quotas appears to be driven by political activism by minority legislators in Northern states.

Overall, the empirical results support two thesis. First, that minority representation affects (some) policy outcomes. Second, the extent to which minority representation affects policy outcomes depends on factors such as the party identity of legislators, the overall level of societal discrimination and the total numerical strength of minorities in the legislature.

6 Concluding Remarks

This paper makes two main contributions. First it provides a theoretical framework for thinking about the policy influence of electoral laws that increase minority representation. Second, it uses an Indian state level panel data set to examine the relationship between minority representation in state legislatures and policy outcomes. The empirical results demonstrate that increased minority representation in Indian state legislatures have raised the level of transfers going to these groups. The findings

have significant implications for policies that try to change outcomes by increasing political power of disadvantaged groups.⁵⁷

The theory developed in this paper has three key features. First, both a citizen's income and ethnic identities may form the basis for redistribution. Second, electoral candidates cannot commit to policy announcements. Third, the political process is characterised by Plurality rule in elections and a Parliamentary form of legislature. The analysis identifies reasons for why these features of the model imply that a legislator's identity influences final policy outcomes. Further, the analysis identifies circumstances under which this leads to parties not fielding minority candidates. In such situations of minority under-representation, introduction of an electoral law of political reservation will alter policy outcomes, primarily by increasing the level of targeted transfers.

This prediction is in sharp contrast to that afforded by political economy models which assume that politicians can commit to policies during elections⁵⁸. In such models, parties directly commit to policies that maximize their expected utility. Party candidates are rendered mere vehicles of party policy and candidate identity is irrelevant to the choice of final policies. Instead, the winning party⁵⁹ directly commits to policies favored by a majority of voters⁶⁰. Therefore, the extent of minority 'policy' under-representation only depends on the composition of the electorate. Whilst the introduction of an electoral law of political reservation may increase the number of minority legislators, it will not influence policy outcomes.

To discriminate between the predictions of these two competing models of political economy I develop an empirical test using Indian data. My principal empirical finding is that legislator identity has influenced policy choices across Indian states. This influence has primarily taken the form of increased targeted transfers. These results provide some credence to the idea that politicians are unable to commit to policy announcements.⁶¹ More generally, the empirical analysis stresses the importance of taking political economy models to data. Only in this way are we able to discriminate between the predictions of competing models as regards factors such as the policy significance of legislator identity, and whether politicians can commit to policy announcements.

This paper's findings are encouraging to the idea that electoral data is an important resource in analyzing the determinants of policies undertaken by governments of developing countries. This is significant as, unlike much other data from these countries, electoral data is usually easily available and easily verifiable. In addition,

⁵⁷Clearly, further research is needed to analyze fully the welfare implications of such increased targeted transfers.

⁵⁸A similar reasoning applies if we instead assume that candidates only care about electoral success.

⁵⁹This is conditional on there existing a pure strategy political equilibrium.

⁶⁰That is, the policy that constitutes a (strict) Condorcet winner. In many economic environments, this is the median voter's preferred policy.

⁶¹The results echo the findings of papers that test for the median voter theorem in the US (Levitt 1996). These papers conclusively reject the median voter theorem for the US and find evidence that senators' simply vote according to their ideology without regard for the interests of the electorate or party ideology. We conjecture that this paper sheds some light on senator ideology. Specifically, it appears that one economically relevant component of 'ideology' is a legislator's ethnic identity.

electoral data exhibits sufficient time series and cross section variation to be of use in analyzing issues of economic interest. Political economy concerns strongly constrain which types of policies are implementable in developing countries. Therefore, gaining a better understanding of the determinants of the policy formation process is critical to the formation of effective policy. This type of analysis, which relies on a blend of theory and empirical testing, is well suited to such purpose. Finally, it is worth noting that analyses such as this also provide important insights regarding the optimal design of political constitutions - an issue of particular significance for those countries or regions which are ethnically, culturally or religiously diverse.

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7 Appendix

7.1 Mathematical Appendix

The proofs use the notation $U_{ic}^K(\pi_K)$ to denote a type (i, c) citizen's utility when party K fields π_K proportion of low caste candidates and is the majority party. The voting decision of a type (i, c) citizen is denoted as $\alpha_{ic} \in \{P, R\} \cup \{0\}$

Proof of Proposition 1

Let $\hat{N}_{pl} \equiv \frac{N_{rh}r + N_{ph}p}{r-p}$. I demonstrate that if $N_{pl} > \hat{N}_{pl}$ then in the ensuing political equilibrium parties choose $\{\pi_K = 0\}_{K \in \{R, P\}}$; citizens vote sincerely and party P 's candidate wins in every jurisdiction s.t. $\rho(0, 0) = 1$. The proof proceeds as follows. I first characterize the political equilibrium when $\{\pi_K = 0\}_{K \in \{R, P\}}$. I then verify that $\{\pi_K = 0\}_{K \in \{R, P\}}$ form a pair of best responses.

With $\{\pi_K = 0\}_{K \in \{R, P\}}$ party R is associated with the following policies:

$$\delta_i^R(0) = 0; T^R(0) = 0 \quad \forall \pi_R \in \Pi \quad (4)$$

and party P with

$$\delta_i^P(0) = 0; T^P(0) = \frac{N_p p + N_r r}{N} \quad (5)$$

In voting, citizens anticipate these policies and vote sincerely. A type (i, c) citizen votes for the party who's final policies maximize her utility U_{ic} . In identifying citizens optimal voting behavior I can restrict attention to a single jurisdiction. This is because both the demographic composition of jurisdictions and the level of transfers provided across jurisdictions are identical. Therefore identical electoral outcomes can be sustained in every jurisdiction.

In any single jurisdiction citizens compare policies of the two parties such that the optimal (sincere) voting strategies (α_{ic}) are:

- (i) For type (r, h) citizens $U_{rh}^R(0) > U_{rh}^P(0)$ as $r > \frac{N_p p + N_r r}{N}$. Therefore $\alpha_{rh}^* = R$
- (ii) For type (p, h) citizens: $U_{ph}^R(0) < U_{ph}^P(0)$ as $p < \frac{N_p p + N_r r}{N}$. Therefore $\alpha_{ph}^* = P$
- (iii) For type (r, l) citizens: $U_{rl}^R(0) > U_{rl}^P(0)$ as $r > \frac{N_p p + N_r r}{N}$. Therefore $\alpha_{rl}^* = R$
- (iv) For type (p, l) citizens: $U_{pl}^R(0) < U_{pl}^P(0)$ as $p < \frac{N_p p + N_r r}{N}$. Therefore $\alpha_{pl}^* = P$

These voting strategies are easily understood. With $\{\pi_K\}_{K \in \{R, P\}}$ no party undertakes targeted redistribution. Hence, citizens vote along income lines. Types (r, h) and (r, l) citizens vote for party R and types (p, h) and (p, l) for party P . Further, as $N_p > \frac{1}{2}$ party P 's candidate wins. By symmetry, party P 's candidate wins in every jurisdiction. The final policies are given by (5).

This constitutes an equilibrium if and only if $\{\pi_K = 0\}_{K \in \{R, P\}}$ constitute a pair of best responses. Before I prove this, note that rich low caste citizens do not desire targeted redistribution if $r > \frac{N_p p + N_r r}{N_i}$. By rearranging terms, this condition can be rewritten as $N_{pl} > \widehat{N}_{pl}$. That is, if $N_{pl} > \widehat{N}_{pl}$ then irrespective of the value π_R takes party R is associated with no redistribution (as given in (4)). This is as (4) is the preferred policy outcome of all rich citizens.

This, in turn, implies that conditional on $\pi_P = 0$ any deviation by party R to $\pi_R > 0$ will leave party R 's policies unaffected. Hence the voting decisions will remain unaltered such that $\rho(0, 0) = \rho(0, \pi_R) = 1$. Consequently $u_R(0, 0) = u_R(0, \pi'_R) \forall \pi'_R \in \Pi \setminus \{0\}$. Therefore party R cannot alter its final payoff by its choice of π_R and $\pi_R = 0$ is a best response for party R . For party P it is easily shown that $u_P(\pi'_P, 0) < u_P(0, 0) \forall \pi'_P \in \Pi \setminus \{0\}$. Clearly, as party P 's expected utility is maximised with $\pi_P = 0$, it constitutes a best response ■

Corollary to Proposition 1

Introduction of an electoral law of political reservation restricts parties feasible set of entry choices, such that $\pi_K \in \Pi' = \{\widehat{\pi}, \dots, 1\} \forall K \in \{R, P\}$. The proof demonstrates that conditional on $N_{pl} < \widehat{N}_{pl}$ the ensuing political equilibrium is characterized by party entry choices $\{\pi_K = \widehat{\pi}\}_{K \in \{R, P\}}$; sincere voting by citizens and $\rho(\widehat{\pi}_P, \widehat{\pi}_R) = 1$ if $\widehat{\pi} < \frac{N_r(r-p)}{N_p p + N_r r}$; and $\rho(\widehat{\pi}_P, \widehat{\pi}_R) = 0$ if $\widehat{\pi} < \frac{N_r(r-p)}{N_p p + N_r r}$. For simplicity, I assume $\widehat{\pi} \neq \frac{N_r(r-p)}{N_p p + N_r r}$. The proof proceeds as in proposition 1.

With $\{\pi_K = \widehat{\pi}\}_{K \in \{R, P\}}$ then party R 's policies are

$$T^R(\widehat{\pi}) = 0; \delta_i^R(\widehat{\pi}) = 0 \quad (6)$$

while those associated with party P are

$$T^P(\hat{\pi}) = (1 - \hat{\pi}) \left(\frac{N_p p + N_r r}{N} \right); \delta_l^P(\hat{\pi}) = \hat{\pi} \left(\frac{N_p p + N_r r}{N_l} \right) \quad (7)$$

The associated voting behaviour in a jurisdiction are:

(i) For type (r, h) citizens: $U_{rh}^R(\hat{\pi}) > U_{rh}^P(\hat{\pi})$ as $r > (1 - \hat{\pi}) \left(\frac{N_p p + N_r r}{N} \right)$. Therefore $\alpha_{rh}^* = R$.

(ii) For type (p, h) citizens: $U_{ph}^R(\hat{\pi}) > U_{ph}^P(\hat{\pi})$ if $p > (1 - \hat{\pi}) \frac{N_p p + N_r r}{N}$

$$\Rightarrow \hat{\pi} > \frac{N_r(r - p)}{N_p p + N_r r} \quad (8)$$

Therefore $\alpha_{ph}^* = R$ if (8) holds, else $\alpha_{ph} = P$.

(iii) For type (r, l) citizens: $U_{rl}^R(\hat{\pi}) > U_{rl}^P(\hat{\pi})$ if $r > (1 - \hat{\pi}) \left(\frac{N_p p + N_r r}{N} \right) + \hat{\pi} \left(\frac{N_p p + N_r r}{N_l} \right)$.

This is true as long as $N_{pl} > \hat{N}_{pl}$. Therefore $\alpha_{rl}^* = R$.

(iv) For type (p, l) citizens: $U_{pl}^R(\hat{\pi}) < U_{pl}^P(\hat{\pi})$ as $p < (1 - \hat{\pi}) \left(\frac{N_p p + N_r r}{N} \right) + \hat{\pi} \left(\frac{N_p p + N_r r}{N_c + N_d} \right)$.

Therefore $\alpha_{pl}^* = P$.

To characterize the electoral outcome I distinguish between two cases, depending on whether (8) holds.

I. If (8) holds then types (r, h) , (p, h) and (r, l) citizens vote for party R 's candidate. By assumption, $N_{pl} < \frac{1}{2}$. Therefore, party R 's candidate wins in every jurisdiction. In this case $\rho(\hat{\pi}, \hat{\pi}) = 0$ and the final policies are given by (6).

To prove that this constitutes a political equilibrium, I need to show that $\{\pi_K = \hat{\pi}\}_{K \in \{R, P\}}$ constitute a pair of best responses. Note that the existence of an electoral law of political reservation implies that neither party can deviate to $\pi < \hat{\pi}$. It follows from my characterization of citizens' voting strategies that a deviation by party P to $\pi' > \hat{\pi}$ leaves voting decisions unaffected. Hence $\rho(\pi', \hat{\pi}) = \rho(\hat{\pi}, \hat{\pi}) \forall \pi' \in \Pi' \setminus \{\hat{\pi}\}$ and $u_P(\hat{\pi}, \hat{\pi}) = u_P(\pi', \hat{\pi})$. Therefore, $\pi_P = \hat{\pi}$ constitutes a best response for party P . For party R , as $u_R(\hat{\pi}, \pi') < u_R(\hat{\pi}, \hat{\pi}) \forall \pi' \in \Pi' \setminus \{\hat{\pi}\}$, $\pi_R = \hat{\pi}$ constitutes a best response.

II. I now consider the case when (8) does not hold. In this case, citizens continue to vote along income lines: type (r, h) and (r, l) citizens vote for party R and types (p, h) and (p, l) citizens for party P . As $N_p > \frac{1}{2}$ party P 's candidate s.t. $\rho(\hat{\pi}, \hat{\pi}) = 1$. The final policies are given by (7).

To check that $\{\pi_K = \hat{\pi}\}_{K \in \{R, P\}}$ constitute a pair of best responses note that with $\pi_P = \hat{\pi}$ a deviation by party R to $\pi' > \hat{\pi}$ leaves the policies it is associated with and voting decisions unaffected. Hence $\rho(\pi', \hat{\pi}) = \rho(\hat{\pi}, \hat{\pi}) \forall \pi' \in \Pi' \setminus \{\hat{\pi}\}$. Therefore $u_R(\hat{\pi}, \hat{\pi}) = u_R(\hat{\pi}, \pi')$ s.t. $\pi_R = \hat{\pi}$ is a best response for party R . For party P , as $u_P(\pi', \hat{\pi}) < u_P(\hat{\pi}, \hat{\pi}) \forall \pi' \in \Pi' \setminus \{\hat{\pi}\}$, $\pi_P = \hat{\pi}$ constitutes a best response ■

Proof of Proposition 2

The proof demonstrates that if (i) assumption 1 holds, (ii) $N_{rl} > N_{ph}$ and (iii) $N_h > \frac{1}{2}$ then $\{\pi_K = 0\}_{K \in \{R, P\}}$ constitutes an entry game equilibrium. Citizens vote sincerely and in the ensuing equilibrium $\rho(0, 0) = 1$.

I first characterize the political equilibrium with $\{\pi_K = 0\}_{K \in \{R, P\}}$ and then check that $\{\pi_K = 0\}_{K \in \{R, P\}}$ constitute a pair of best responses. With $\{\pi_K = 0\}_{K \in \{R, P\}}$ party R and party P 's policies are given by (4) and (5) respectively. Therefore the voting decisions are exactly the same as those identified in the proof of Proposition 1. That is, types (r, h) and (r, l) vote for party R and types (p, h) and (p, l) for party P . As $N_p > \frac{1}{2}$ party P 's candidate wins in every jurisdiction and final policies are given by (5).

I now check that $\{\pi_K = 0\}_{K \in \{R, P\}}$ constitute a pair of best responses. Given $\pi_P = 0$ if party R deviates to some $\pi_R > 0$ then the policies associated with it alter to:

$$\delta_l^R = \pi_R \left(\frac{N_p p + N_r r}{N_l} \right) \text{ and } T^R = 0$$

Given assumption 1, the voting decisions induced are:

(i) For type (r, h) voters $U_{rh}^R(\pi_R) > U_{rh}^P(0)$ if $(1 - \pi_R)r > \frac{N_p p + N_r r}{N}$. Therefore $\alpha_{rh}^* = R$ if and only if $\pi_R < \bar{\pi}$ where

$$\bar{\pi} \equiv \frac{N_p(r - p)}{N_r} \quad (9)$$

(ii) For type (p, h) voters $U_{ph}^R(\pi_R) < U_{ph}^P(0)$ as $(1 - \pi_R)p < \frac{N_p p + N_r r}{N}$. Therefore $\alpha_{ph}^* = P$.

(iii) For type (r, l) voters $U_{rl}^R(\pi_R) > U_{rl}^P(0)$ if $(1 - \pi_R)r + \pi_R \left(\frac{N_p p + N_r r}{N_l} \right) < \frac{N_p p + N_r r}{N}$. Assumption 1 implies this holds, such that $\alpha_{rl}^* = R$.

(iv) For type (p, l) voters: $U_{pl}^R(\pi_R) > U_{pl}^P(0)$ if $(1 - \pi_R)p + \pi_R \left(\frac{N_p p + N_r r}{N_l} \right) > \frac{N_p p + N_r r}{N}$. Therefore $\alpha_{pl}^* = R$ if $\pi_R \geq \underline{\pi}$ where:

$$\underline{\pi} \equiv \frac{N_l N_r (r - p)}{N((N_p - N_l)p + N_r r)} \quad (10)$$

Note that if $\bar{\pi} < \underline{\pi}$ then $\exists \pi \in \Pi$ such that (9) and (10) are simultaneously satisfied. Solving (9) and (10), I find that a necessary and sufficient condition for $\bar{\pi} < \underline{\pi}$ is

$$N_{rl} > N_{ph} \quad (11)$$

Given that (11) holds, this implies that $\rho(0, 0) = 1$ and the final policies are given by (5).

To ensure that $\{\pi_K = 0\}_{K \in \{R, P\}}$ constitutes an equilibrium I need to consider potentially three possible deviations by party R , given $\pi_P = 0$.

(i) If party R deviates to $\pi_R \in]0, \bar{\pi}[$ then citizen voting decisions remain unaffected. Therefore, $\rho(0, \pi) = \rho(\pi_R, \pi) = 0$ such that $u_R(0, 0) = u_R(0, \pi_R)$.

(ii) If party R deviates to $\pi_R \in]\bar{\pi}, \underline{\pi}[$ then citizens' optimal voting decision are affected. Specifically, it follows from citizens' optimal voting decisions that types (r, h) , (p, h) and (p, l) will vote for party P . Further, $\rho(0, \pi) = \rho(\pi_R, \pi)$ such that $u_R(0, 0) = u_R(0, \pi_R)$

(iii) If party R deviates to $\pi_R \in]\underline{\pi}, 1]$ then types (r, l) and (p, l) will vote for party R and types (r, h) and (p, h) for party P . As $N_h > \frac{1}{2}$, $\rho(0, 0) = \rho(0, \pi_R) = 0$. Therefore $u_R(0, 0) = u_R(0, \pi_R)$.

Taken together, (i) - (iii) imply that party R cannot affect the electoral outcome by its choice of π_R . Hence $\rho(0, 0) = \rho(0, \pi_R) = 0 \forall \pi_R \in \Pi \setminus \{0\}$. Therefore, I can conclude that $\pi_R = 0$ constitutes a best response for party R . Further as $u_P(0, 0) > u_P(\pi', 0) \forall \pi' \in \Pi \setminus \{0\}$ $\pi_P = 0$ constitutes a best response for party P ■

Corollary to Proposition 2

The proof demonstrates that with the law of political reservation in place $\{\pi_K = \hat{\pi}\}_{K \in \{R, P\}}$ constitutes an entry game equilibrium, supported by a vector of sincere voting decisions such that $\rho(\hat{\pi}, \hat{\pi}) = 1$.

With $\{\pi_K = \hat{\pi}\}_{K \in \{R, P\}}$ party R and party P 's are given by (6) and (7) respectively. The voting decisions are as in the corollary to proposition 1 and $\rho(\hat{\pi}, \hat{\pi}) = 1$.

I demonstrate that $\{\pi_K = \hat{\pi}\}_{K \in \{R, P\}}$ constitute a pair of best responses. To do so, I consider a possible deviation by the losing party party R to $\pi_R = \pi'$ ($\in \Pi' \setminus \{\hat{\pi}\}$) when $\pi_P = \hat{\pi}$. In this case party R 's policies change to: $T^R = 0$ and $\delta_l^R = \pi' \left(\frac{N_p p + N_r r}{N_l} \right)$. The associated voting decisions are:

(i) For type (r, h) citizens: $U_{rh}^R(\pi') > U_{rh}^P(\hat{\pi})$ if

$$(1 - \pi')r > (1 - \hat{\pi}) \left(\frac{N_p p + N_r r}{N} \right) \quad (12)$$

Therefore $\alpha_{rh}^* = R$ if (12) holds.

(ii) For type (p, h) citizens: for $\pi' > \hat{\pi}$ $U_{ph}^R(\pi') < U_{ph}^P(\hat{\pi})$ as $(1 - \pi')p < (1 - \hat{\pi}) \left(\frac{N_p p + N_r r}{N} \right)$. Therefore $\alpha_{ph}^* = P$

(iii) For type (r, l) citizens: $U_{rl}^R(\pi') > U_{rl}^P(\hat{\pi})$ as $(1 - \pi')r + \pi' \left(\frac{N_p p + N_r r}{N_l} \right) > (1 - \hat{\pi}) \left(\frac{N_p p + N_r r}{N} \right) + \hat{\pi} \left(\frac{N_p p + N_r r}{N_l} \right)$. Therefore $\alpha_{rl}^* = R$.

(iv) For type (p, l) citizens: $U_{pl}^R(\pi') > U_{pl}^P(\hat{\pi})$ if

$$(1 - \pi')p + \pi' \left(\frac{N_p p + N_r r}{N_l} \right) > (1 - \hat{\pi}) \left(\frac{N_p p + N_r r}{N} \right) + \hat{\pi} \left(\frac{N_p p + N_r r}{N_l} \right) \quad (13)$$

Therefore $\alpha_{pl}^* = R$ if (13) holds.

However, it is easily shown that if $N_{rl} > N_{ph}$ then any $\pi' \in \Pi'$ which satisfies (13) violates (12). Therefore by the same logic as in proposition 2, it follows party R cannot influence its probability of winning by changing π_R to some $\pi' > \hat{\pi}$. Hence $\rho(\hat{\pi}, \hat{\pi}) = \rho(\hat{\pi}, \pi') = 1 \forall \pi' \in \Pi' \setminus \{\hat{\pi}\}$. Therefore party R 's expected utility is invariant to its choice of π_R and $\pi_R = \hat{\pi}$ is a best response. For party P as $u_P(\hat{\pi}, \pi) > u_P(\pi', \pi) \forall \pi' \in \Pi' \setminus \{\hat{\pi}\}$, $\pi_P = \hat{\pi}$ constitutes a best response ■

8 Data Appendix

Relevant Provisions in the Constitution of India (1950)

Identification of minority 1 and minority 2:

Article 341 and 342 of the Indian constitution define the mechanism for declaring communities as belonging to minority 1 and minority 2 respectively. The Article(s) state: ‘the President after consultation with the Governor of the state by public notifications specifies the castes, races or tribes or parts of or groups within castes, races or tribes which for the purposes of this Constitution shall be deemed to be minority 1 (scheduled castes) or specify the tribes or tribal communities or parts of it as minority 2 (scheduled tribes) respectively in that state.’

In keeping with this article a scheduled caste order and a scheduled tribe order was promulgated by the President in 1950. These were based on the 1931 census criteria and 1950 tribal identification criteria, respectively (see Table 1). In 1956 this list were revised to remove anomalies. The lists remained stable until 1976 when a Parliamentary bill eliminated intra-state area restrictions on identification of these groups (our population measure takes account of this change). The criteria for identification of these groups has, however, remained unaltered since 1950.

Composition of State Legislature and provisions for political reservation⁶²

Article 170 of the Constitution states that a uniform ratio of population be maintained in the division of a State into territorial assembly constituencies. Section 3 of Article 170 states that upon the completion of each census the total number of seats be adjusted.

Article 330 provides for the reservation of seats for minority 1 and minority 2 in the National Parliament. *Article 332* provides for political reservation for minorities 1 and 2 in State Legislative Assemblies.

Section 3 of *Article 332* identifies the basis for political reservation. It states that, ‘the number of seats reserved shall bear as nearly as may be, the same proportion to the total number of seats in the Assembly as the population of minority 1 in the state or the minority 2 in the state, as the case maybe, in respect of which seats are so reserved, bears to the total population in the state’.

Administration of Elections and Delimitation of Constituencies

The Indian Constitution provides for the establishment of an Election Commission fully independent of the Union and State Governments. The Constitution vests in the Election Commission the power of superintendence, direction and control of elections.

After Independence, the Parliament passed a law entrusting the work of delimitation to a three member commission called the Delimitation Commission. This commission consists of a retired Supreme Court judge, a sitting High Court Judge and the Chief Election Commissioner.(for further details, see Galanter 1984). The

⁶²The constitutional provision of reserved seats is complemented by statutory provisions to enhance political participation by these groups- Smaller election deposits are required from them and they enjoy more permissive residence requirements.

delimitation commission and election commission are together responsible for division of a state into constituencies. The orders of the delimitation commission and election commission have the force of law and cannot be called into question in any court.

Delimitation Commissions were constituted in 1953 (the same commission continued reallocation of seats in 1956) and after the census in 1961 and 1971. The election commission was entrusted with the duty of readjusting the proportion of seats reserved after the 1976 area delimitation act.

Finally, we should note that in 1976 the total number of constituencies in the Legislative assembly of a state were frozen by a National act of Parliament. Therefore post 1976 there has been an increased discrepancy between the proportion of minority 1 and 2 in a state and proportion of seats reserved.

Details of dataset

The dataset used in this paper has been put together from a number of sources. It builds on a Indian state level panel dataset collated by Ozler, Datt and Ravallion (1996) and Tim Besley and Robin Burgess (1998). The main variables used from the Ozler, Datt and Ravallion (1996) dataset are the price indices and output data. The main variables used from the Besley and Burgess dataset are the basic public expenditure and electoral data. To this, I have added data on targeted expenditure across Indian states and electoral data pertaining to reserved seats.

The data covers the sixteen main Indian states (see table 4). Until 1965 there were 15 states. In 1965 Haryana split from Punjab and is entered as a separate variable thereafter.

Public finance data: The primary source for the public finance data regarding non targeted expenditure is the Reserve Bank of India annual publication Report on Currency and Finance.

The first measure of targeted expenditure ‘**minority 1 welfare**’ is the state outlays on the ‘special component plan’. The Special component plan was begun in 1980. The state outlays under the SCP are designed to channelise the flow of outlays and benefits from the general sectors in the plans of States for development of minority 1 members.

‘**Minority 2 welfare**’ includes expenditure under the state plan on ‘tribal sub plan’. This scheme began in 1974. The purported aim is that under these schemes every state department must allocate a certain amount of its budgetary resources for minority 2 welfare.

Data on these categories was obtained directly from ministry of welfare documents.

Asset redistribution data: The cumulative land reform index was created by Besley and Burgess (1998d). The variable is a cumulative measure the total number of land reform legislations passed by a state.⁶³ For further details on construction of this variable, see Besley and Burgess 1998.

Articles 16(4), 320(4) and 335 provide for job reservations for members of minority 1 and 2 in state government services. In a few states both groups share a common

⁶³These reforms can broadly be divided into tenancy reform, abolition of intermediaries, ceilings on land holdings and consolidation of land plots.

reservation. Jobs in the state government services are divided into four classes. The job quota variable measures the average reservation for the four classes.⁶⁴ For consistency we consider the total job quotas in a state. The variable has been constructed using information given in the annual reports of the Scheduled Caste and Scheduled Tribe Commissioner.

Inequality data: The measure of state level inequality used is the Gini coefficient. It is taken from the Ozler, Datt and Ravallion (1996) dataset. The measure is based on consumption data from the 22 rounds of consumption expenditure survey conducted by the Indian National Sample Survey.

Population data: Population estimates are derived from the five censuses for 1951, 1961, 1971, 1981 and 1991. We derive yearly population estimates by assuming that between any two censuses population grew at a constant (exponential) growth rate, derived from the respective population totals. The census provides information on the general, minority 1 and minority 2 populations separately. In 1976, change in the legal classification of minority 1 and minority 2 led to an increase in their population. We treat this in the following way- we calculate annual population for the period 1961-1976 using the estimates for 1961 and 1971. For 1977-1981 we use 1971 census estimates recalculated using new population figures and the 1981 figure. There is therefore a break in the population series in 1977.

Political reservation data

Data on the proportion of seats reserved in every state legislature for minority 1 and minority 2 has been collated from the Election Commission document relating to election in a state. The data on the party distribution of these seats also derives from the same source.⁶⁵

⁶⁴In most cases the job quota is constant across the four classes.

⁶⁵I am grateful to Dr. Prannoy Roy for providing me with access to constituency level electoral data in computerised form.

TABLE 1: LEGAL IDENTIFICATION OF MINORITY GROUPS IN INDIA¹

Selection Criteria for minority 1 (1931 Census)

- Can be served by clean Brahmans or not
- Can be served by the barbers, water-carriers, tailors etc. who serve the caste Hindus
- Pollutes a high-caste Hindu by contact or by proximity
- Is one from whose hands a caste Hindu can take water
- Is debarred from using public amenities, such as roads, ferries, wells or schools
- Will be treated as an equal by high caste men of the same educational qualification in ordinary social intercourse
- Is depressed on account of the occupation followed and whether, but for that, occupation would be subject to no social disability

Selection Criteria for minority 2 (1950 Presidential List)

- Tribal origin
 - Primitive ways of life and habitation in remote and less accessible areas
 - General backwardness in all respects
-

¹ The constitution of India (article 341 and 342) states that the designation of castes and tribes as belonging to minority 1 and 2 groups respectively will be undertaken by Presidential orders. The criteria in this table have formed the basis for such Presidential orders.

TABLE 2: ECONOMIC CHARACTERISTICS OF MINORITY GROUPS IN INDIA²

	total population	non minority population	minority 1 population	minority 2 population
% population share	100	75.4	16.4	7.9
% urban population	25.7	29.2	18.7	7.3
literacy rate	52.2	57.8	37.4	29.6
% main work force		32.8	36	42
% workers employed in the Primary sector ³	67.5	62.1	77.1	90
% population below poverty line ⁴	36.9	31.15	53.1	58.4

TABLE 3: REPRESENTATION OF MINORITY GROUPS IN UNRESERVED LEGISLATURE SEATS⁵

Lower house of state legislatures					
year	number of unreserved seats	of which: minority 1 legislators	of which: minority 2 legislators		
1967	2723	4	8		
1975	2958	4	-		
Upper house of state legislatures					
	Number of seats	of which: minority 1 legislators	of which: minority 2 legislators		
1964 ⁶	750	12	7		
1974 ⁷	294	23	3		

² Source: *Census of India 1991*

³ This sector primarily includes those employed in the agricultural sector

⁴ Source: Centre for Monitoring Indian Economy for 1983-84

⁵ Source: *Scheduled caste and Scheduled tribe Commissioner's reports*- various years

⁶ for 10 states

⁷ for 7 states

TABLE 4: MAIN STATE ECONOMIC AND DEMOGRAPHIC VARIABLES

state	minority 1 popn. (%)	minority 2 popn. (%)	minority 1 Seats (%)	minority 2 Seats (%)	state income (rs. p.c)	minority1 expenditure (% of total)	minority2 expenditure (% of total)	education expenditure (% of total)	Job quota (%)	Cum total landrefo legisln.
Andhra Pradesh	14 (0.96)	4 (1)	13.6 (0.52)	4.3 (0.67)	1004 (260)	3.7 (1.39)	1.33 (0.33)	20.05 (1.67)	18.11 (1.56)	1.52 (0.50)
Assam	6 (0.3)	13 (3)	6.1 (0.9)	16.34 (4.93)	903 (196)	1.41 (0.74)	3.89 (0.47)	25.2 (1.99)	17.41 (1.29)	2.00 (1.06)
Bihar	14 (0.3)	7 (1)	13.9 (0.91)	9.16 (0.59)	633 (110)	3.97 (0.72)	8.86 (2.99)	24.74 (2.55)	36.9 (9.6)	4.30 (1.92)
Gujarat	7 (0.3)	14 (0.5)	6.9 (0.35)	13.65 (0.55)	1176 (272)	1.38 (0.54)	4.29 (1.87)	21.84 (2.94)	17.93 (3.2)	3.05 (1.26)
Haryana	19.17 (0.28)	0 (0)	18.7 (0.18)	0 (0)	1444 (357.4)	4.24 (1.62)	0 (0)	17.7 (0.81)	20.1 (0.89)	0 (0)
Jammu Kashmir	8 (0.5)	0 (0)	7.5 (0.98)	0 (0)	1021 (228)	1.96 (0.9)	0 (0)	15.67 (1.51)	4 (4.05)	1.33 (0.71)
Karnataka	14 (1.2)	2 (1.7)	13.9 (0.64)	0.78 (0.19)	1037 (216)	3.87 (1.29)	0.27 (0.16)	20.25 (1.33)	19.75 (3.07)	2.83 (1.38)
Kerala	9 (0.7)	1 (0.1)	8.76 (0.43)	1.05 (0.37)	864 (182)	2.35 (0.45)	0.36 (0.19)	31.2 (3.7)	10 (0.1)	5.44 (3.37)
Madhya Pradesh	13 (0.5)	21 (1.4)	13.7 (0.81)	21.06 (1.94)	843 (190)	3.48 (0.60)	8.55 (4.02)	19.12 (1.98)	31.09 (7.23)	2.80 (0.71)
Maharashtra	7 (1.6)	7 (1.6)	7.7 (2.9)	6.46 (1.02)	1288 (331)	1.35 (0.38)	2.26 (0.63)	19.47 (1.01)	18.10 (2.9)	1.86 (0.42)
Orrissa	15 (0.5)	22 (0.5)	15.82 (1.34)	22.68 (1.31)	873 (186)	4.76 (2.17)	11.72 (4.8)	20.38 (1.09)	39.8 (1.25)	5.05 (3.11)
Punjab	28 (4)	0	23.1 (1.54)	0 (0)	1732 (384)	2.85 (1.16)	0 (0)	21.96 (2.88)	22.6 (2.72)	0.58 (0.50)
Rajasthan	16 (0.6)	12 (0.3)	16.17 (0.42)	11.51 (0.37)	785 (136)	4.22 (0.77)	3.45 (1.41)	21.59 (1.32)	23.86 (6.75)	0.94 (0.23)
Tamil Nadu	18 (0.4)	0.8 (0.1)	17.96 (0.03)	0.9 (0.32)	1015 (272)	4.65 (1.05)	0.24 (0.07)	21.41 (1.91)	16.69 (1.09)	4.91 (2.54)
Uttar Pradesh	21 (0.16)	0.7 (0.9)	21.03 (0.38)	0.12 (0.11)	874 (140)	4.6 (1.01)	0.03 (0.01)	21.13 (1.79)	32.58 (6.67)	3.75 (1.25)
West Bengal	20 (3.2)	5 (0.13)	19.3 (0.94)	5.8 (0.09)	1173 (191)	2.78 (0.48)	1.2 (0.37)	23.45 (1.65)	27.08 (7.59)	6.13 (5.58)
TOTAL	14.5 (6.16)	7.29 (7.49)	14.01 (5.28)	7.30 (7.70)	1030.52 (346.12)	3.24 (1.57)	2.95 (4.07)	21.33 (4.56)	22.29 (10.3)	2.91 (2.74)

Standard deviations are in parenthesis. The data appendix provides further details.

TABLE 5: DESCRIPTIVE STATISTICS FOR ALL VARIABLES

	units	mean	standard deviation	years
Policy choices				
1. state expenditure p.c. of which:	rs. per person	197.88	86.2	1974-92 ⁸
2. minority 1 welfare share ⁹	%	3.24	1.57	1980-92
3. minority 2 welfare share ¹⁰	%	2.96	4.08	1974-92
4. education share	%	21.59	3.95	1974-92
5. cumulative land reform index	absolute nos.	2.9	2.74	1957-92
6. minority job quota	%	22.29	10.62	1957-92
Political reservation¹¹				
Seats reserved for				
1. minority 1 in state legislatures	%	14.01	5.28	1957-92
2. minority 2 in state legislatures	%	7.30	7.7	1957-92
Budget constraint variables				
1. state income p.c. ¹²	rs. per person	1030.5	346	1960-92
2. federal grants p.c. ¹³	rs. per person	29.31	35.31	1958-92
Income distribution and demographic variables				
1. gini coefficient ¹⁴	%	29.7	3.8	1958-92
2. minority 1 population	%	14.19	5.62	1957-92
3. minority 2 population.	%	7.40	7.49	1957-92
Political variables¹⁵				
1. seats won by congress party of which	%	49.1	25.1	1957-92
(a) minority 1 seats		7.09	4.53	
(b) minority 2 seats		4.1	5.19	
2. seats won by left parties of which:	%	23.3	22.5	1957-92
(a) minority 1 seats		2.93	4.16	
(b) minority 2 seats		.93	2.42	

⁸ missing for J&K for 1992

⁹ missing for 1984 for all states except andhrapradesh & assam, missing for 1980 and 1981 for J&K

¹⁰ for andhra we lack 1986 data, for maharashtra & tamilnadu 1974 data and 1974, 1975 & 1986 for UP

¹¹ For J&K the series starts in 1962, and for Punjab and Haryana in 1966

¹² 1992 data is missing for Haryana, Punjab and J&K

¹³ 1992 data is missing for J&K

¹⁴ we lack 1958 data for Gujarat, 1960 and 1992 data for J&K, 1958 data for maharashtra

¹⁵ for haryana the data begins in 1966, for J&K we lack data for 1957-61

TABLE 6: MINORITY REPRESENTATION AND POLICY CHOICES

model	general policies			targeted policies		
	total state expenditure p.c. (rs./person)	education spending (%)	cum. land reform legislation (no.)	minority 1 welfare spending (%)	minority 2 welfare spending (%)	total job quotas (%)
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	Poisson	OLS	OLS	OLS
% seats reserved for minority 1	0.588 (0.164)	-0.746 (2.854)	0.057 (1.524)	-0.468 (0.991)	-0.310 (1.116)	0.611 (4.443)
% seats reserved for minority 2	-2.305 (1.168)	0.209 (1.028)	-0.0003 (0.011)	-0.644 (1.318)	0.949 (3.388)	0.376 (2.191)
% minority 1 population	-4.305 (1.280)	0.786 (3.352)	0.140 (3.384)	0.076 (0.529)	-0.461 (2.413)	0.683 (4.338)
% minority 2 population	5.211 (2.639)	-0.616 (3.185)	-0.106 (2.531)	0.269 (0.759)	-0.460 (1.943)	-0.210 (0.860)
F-test : reservation & population variables	F(4, 264)=2.21 (0.06)	F(4, 264)=7.4 (0)	Chi2(4)=17.9 (0.001)	F(4,158)=1.6 (0.17)	F(4,258)=6.3 (0.0001)	F(4,490)=13.6 (0)
election dummy	2.809 (0.644)	0.079 (0.294)	0.006 (0.093)	0.120 (0.464)	-0.346 (1.481)	-0.282 (0.602)
cumulative land reform (t-4)			0.085 (4.124)			
state indicators?	yes	yes	yes	yes	yes	yes
year indicators?	yes	yes	yes	yes	yes	yes
R ²	0.98	0.99	(pseudo):0.41	0.93	0.90	0.97
sample size	303	304	501	192	298	553

All OLS regressions are reported with robust standard errors. For OLS regressions t-statistics are in parenthesis, and for Poisson regression z-statistic. The data is for sixteen states. For all public finance regressions, except minority 1, expenditure regressions we use 1974-1992 data. Lack of 1992 state income data for Jammu and Kashmir reduces the sample size in the column (1) regression. Lack of minority 2 expenditure data for 6 observations (for details, see descriptive statistics) reduces sample size in the column (5) regression. The minority 1 expenditure regression uses data for 1980-92. 16 observations on minority 1 expenditure are missing (for details, see descriptive statistics). The land reform regression uses data from 1961-1992. The job quota regression uses data from 1957-1992. In both cases the sample size is reduced by the fact that the data on political reservation begins in 1966 for Punjab and Haryana, and in 1962 for Jammu and Kashmir.

TABLE 7: MINORITY REPRESENTATION AND POLICY CHOICES:
CONTROLLING FOR OMITTED VARIABLES

model	general policies			Targeted policies		
	total state expenditure p.c. (rs./person)	education spending (%)	cum. land reform legislation (no.)	minority 1 welfare spending (%)	minority 2 welfare spending (%)	total job quotas (%)
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	Poisson	OLS	OLS	OLS
% seats reserved for minority 1 in legislature	-0.587 (0.198)	-0.509 (1.858)	0.041 (0.838)	-0.474 (1.004)	-0.255 (0.916)	0.538 (1.976)
% seats reserved for minority 2 in legislature	-1.169 (0.631)	0.227 (1.059)	-0.028 (0.556)	-0.574 (1.054)	0.946 (3.374)	-0.011 (0.035)
% minority 1 population	-4.898 (1.784)	1.072 (4.520)	0.154 (3.181)	-0.015 (0.108)	-0.407 (2.03)	1.120 (6.322)
% minority 2 population	2.592 (1.387)	-0.649 (3.303)	-0.109 (2.234)	0.291 (0.705)	-0.445 (1.814)	-0.499 (1.895)
electoral dummy	2.390 (0.584)	0.173 (0.655)	0.003 (0.045)	0.110 (0.411)	-0.325 (1.370)	-0.333 (0.802)
state income p.c. (t-4)	0.110 (4.827)	-0.002 (1.670)	-0.0003 (0.602)	0.001 (0.758)	-0.001 (0.910)	-0.004 (2.781)
federal grants to state p.c. (t-4)	0.471 (1.811)	0.046 (3.551)	0.002 (0.780)	-0.001 (0.092)	0.008 (0.909)	0.026 (2.039)
gini coefficient (t-4)	0.728 (0.877)	-0.013 (0.243)	0.003 (0.227)	-0.033 (0.723)	-0.02 (0.408)	-0.065 (0.638)
cumulative land reform (t-4)			0.06 (2.747)			
state indicators?	yes	yes	yes	yes	yes	yes
year indicators?	yes	yes	yes	yes	yes	yes
R ²	0.99	0.99	(pseudo): 0.40	0.93	0.91	0.98
sample size	303	304	443	192	298	443

All OLS regressions are reported with robust standard errors. For OLS regressions t-statistics are in parenthesis, and for Poisson regression z-statistic. The data are for the sixteen major states. For the public finance regressions the time period covered is as in table 2.6. For the asset redistribution regressions (columns 3 and 6) we have data from 1964-92 for 12 states. For Haryana (which was formed from Punjab in 1965) we have data from 1970-92. For Punjab we have data from 1969-92. For Jammu and Kashmir we have data from 1968-92 and for Assam we have data for 1964, 1969 and 1972-92.

TABLE 8a: THE POPULATION AND RESERVATION CORRELATION COEFFICIENTS

Population group	Correlation coefficient (variables considered: deviations from mean of the population and reservation series respectively)
minority 1	0.22
minority 2	0.18

TABLE 8b: POPULATION AND RESERVATION REGRESSION

model	% seats reserved for minority 1		% seats reserved for minority 2	
	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	OLS
% minority 1 population	0.965 (190.756)	0.099 (1.431)	1.000 (135.585)	
% minority 2 population				0.870 (11.811)
Election dummy		-.008 (0.083)		-0.032 (0.248)
state effects	no	yes	no	yes
year effects	no	yes	no	yes
R squared	0.98	0.99	0.98	0.99
sample size	553	553	553	553

All regressions are reported with robust standard errors. The t-statistics are in parenthesis. The regressions uses data from 1957-1992 for the sixteen major states. The sample size is reduced by the fact that the data on political reservation begins in 1966 for Punjab and Haryana, and in 1962 for Jammu and Kashmir.

TABLE 9: POLITICAL RESERVATION AND PARTY PERFORMANCE

model	% seats won by congress	% seats won by left party grouping
	(1)	(2)
% seats reserved for minority 1	-1.139 (1.270)	1.047 (2.194)
% seats reserved for minority 2	0.347 (0.488)	0.599 (0.892)
% minority 1 population	-2.287 (3.372)	2.472 (4.198)
% minority 2 population	0.442 (0.552)	-0.886 (0.971)
state indicators?	yes	yes
year indicators?	yes	yes
R ²	0.90	0.79
sample size	553	553

All regressions are reported with robust standard errors. The t-statistics are in parenthesis. The regressions uses data from 1957-1992 for the sixteen major states. The sample size is reduced by the fact that the data on political reservation begins in 1966 for Punjab and Haryana, and in 1962 for Jammu and Kashmir.

TABLE 10 : PARTY IDENTITY AND CASTE IDENTITY

model	general policies			targeted policies		
	total state expenditure p.c. rs./person	education spending (%)	cum. land reform legislation (no.)	minority 1 welfare spending (%)	minority 2 welfare spending (%)	total job quotas (%)
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	Poisson	OLS	OLS	OLS
Proportion seats reserved for minority 1	0.997 (0.294)	-0.735 (2.783)	0.066 (1.580)	-0.871 (1.907)	-0.303 (1.107)	0.401 (2.806)
Proportion seats reserved for minority 2	-5.089 (1.816)	0.257 (1.158)	-0.004 (0.122)	-0.332 (0.593)	0.866 (2.913)	0.524 (2.723)
% seats reserved for minority 1 won by:						
congress party	-1.591 (1.643)	-0.018 (0.318)	-0.005 (0.388)	-0.001 (0.003)	.0003 (0.013)	0.09 (1.321)
left party grouping	-2.865 (2.403)	0.013 (0.187)	-0.001 (0.113)	0.107 (1.778)	-0.048 (1.263)	0.271 (3.431)
% seats reserved for minority 2 won by						
congress party	2.638 (2.403)	-0.065 (1.045)	0.008 (0.536)	-0.105 (2.442)	0.218 (2.355)	-0.257 (2.666)
left party grouping	3.707 (3.180)	-0.066 (0.981)	0.007 (0.427)	-0.050 (0.562)	0.267 (2.483)	-0.213 (2.091)
% minority 1 population	-5.141 (1.519)	0.780 (3.331)	0.143 (3.283)	0.128 (0.910)	-0.508 (2.698)	0.502 (3.121)
% minority 2 population	5.718 (2.960)	-0.641 (3.259)	-0.108 (2.568)	0.314 (0.874)	-0.390 (1.692)	-0.268 (1.102)
election dummy	3.231 (0.747)	0.036 (0.136)	0.004 (0.066)	0.080 (0.322)	-0.256 (1.174)	-0.317 (0.664)
cum. land reform(t-4)			0.080 (3.594)			
state indicators?	yes	yes	yes	yes	yes	yes
year indicators?	yes	yes	yes	yes	yes	yes
R ²	0.98	0.99	(pseudo)0.41	0.94	0.91	0.99

TABLE 10(continued)

F-tests for legislators						
elected from minority 1 seats (p value)	2.44 (0.089)	3.63 (0.027)	2.30 (0.31)	3.81 (0.024)	2.31 (0.101)	4.21 (0.015)
elected from minority 2 seats (p value)	4.82 (0)	1.03 (0.358)	0.09 (0.95)	0.30 (0.739)	2.29 (0.103)	4.85 (0.008)
congress ¹⁶ legislators (p value)	4.80 (0.029)	0.19 (0.663)	0.09 (0.76)	1.52 (0.219)	4.33 (0.038)	5.82 (0.016)
left legislators (p value)	8.95 (0.003)	0.40 (0.527)	0 (.11)	1.52 (0.219)	6.71 (0.010)	10.26 (0.001)
sample size	303	304	501	192	298	553

All OLS regressions are reported with robust standard errors. For OLS regressions t-statistics are in parenthesis, and for Poisson regression z-statistic. The data is for sixteen states. The years covered in each regression and resulting sample size is as in Table 2.6 (see endnote of table 2.6 for details).

¹⁶ This F-test is a joint test of the equality of the coefficients for any party: (proportion SC legislators)=(proportion ST legislators)=(proportion gen. Legislators)

TABLE 11: NORTH-SOUTH DIFFERENCES

model	general policies			targeted policies		
	total state expenditure p.c. rs./person	education spending (%)	cum. land reform legislation (no.)	minority 1 welfare spending (%)	minority 2 welfare spending (%)	total job quotas (%)
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	Poisson	OLS	OLS	OLS
% seats reserved for minority 1 in south ¹⁷	-2.416 (0.353)	-1.463 (1.785)	0.039 (0.239)	-2.972 (1.251)	-0.647 (1.017)	-2.892 (3.650)
north south differences	9.718 (1.296)	1.011 (1.215)	0.219 (0.133)	2.606 (1.076)	0.029 (0.043)	3.554 (4.354)
% seats reserved for minority 2 in south	15.939 (1.690)	0.284 (0.281)	0.067 (0.363)	3.905 (0.603)	-0.492 (0.707)	-5.306 (6.246)
north south differences	-22.448 (2.508)	-0.292 (0.297)	-0.070 (0.395)	-4.698 (0.735)	1.612 (2.169)	5.525 (7.008)
% minority 1 population	-5.341 (1.613)	0.761 (3.256)	0.139 (3.356)	0.073 (0.503)	-0.393 (2.139)	0.726 (4.744)
% minority 2 population	5.594 (2.571)	-0.531 (2.360)	-0.105 (2.263)	0.248 (0.697)	-0.416 (1.486)	0.221 (0.801)
election dummy	2.447 (0.572)	0.086 (0.313)	0.006 (0.095)	0.093 (0.346)	-0.312 (1.331)	-0.142 (0.311)
cumulative land reform (t-4)			0.087 (4.128)			
state indicators?	yes	yes	yes	yes	yes	yes
year indicators?	yes	yes	yes	yes	yes	yes
R ²	0.98	0.99	(pseudo):0.41	0.93	0.91	0.98
sample size	303	304	501	192	298	553

All OLS regressions are reported with robust standard errors. For OLS regressions t-statistics are in parenthesis, and for Poisson regression z-statistic. The data is for sixteen states. The years covered in each regression and resulting sample size is as in Table 2.6 (see endnote of table 2.6 for details).

¹⁷ The regressions included the variable % seats reserved for minority1 and the same interacted with a North India dummy. The dummy took the value of one for north Indian states and zero for South Indian states.