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Can Mandated Political Representation Increase Policy Influence for Disadvantaged Minorities? Theory and Evidence from India

By Rohini Pande*

A basic premise of representative democracy is that all those subject to policy should have a voice in its making. However, policies enacted by electorally accountable governments often fail to reflect the interests of disadvantaged minorities. This paper exploits the institutional features of political reservation, as practiced in Indian states, to examine the role of mandated political representation in providing disadvantaged groups influence over policy-making. I find that political reservation has increased transfers to groups which benefit from the mandate. This finding also suggests that complete policy commitment may be absent in democracies, as is found in this case. (JEL D72, D78, H11, H50)

There are strong moral and economic arguments suggesting that it is in the interest of society to improve the economic standing of historically disadvantaged minority groups.[1] In democracies, the use of legislative policy to bring about such improvements remains contingent on legislator behavior, and arguably, a significant barrier to the introduction of such policies is the political underrepresentation of individuals belonging to minority groups who might vote in their own interest.[2] Both sets of arguments are particularly compelling in the case of India, where the hierarchical caste system has contributed to the economic deprivation of those born into lower castes. At independence, the Indian State committed to use public policy to end caste-based discrimination, and to improve the economic status of disadvantaged groups. A centerpiece of this endeavor has been the implementation of the constitutional mandate which ensures the presence of legislators belonging to minority groups in state and national legislatures. This paper examines the impact of this mandated political representation on policy outcomes in India at the state level.

While many countries have experimented with mandates which seek to increase minority representation in the political process, the Indian experiment remains, by far, the most radical (Bernard Grofman and Arend Lijphart, 1986). Prior to every state election, specified jurisdictions are declared reserved for disadvantaged castes and for tribes. Only members of the group which benefit from reservation can stand for election. However, the entire electorate votes over the set of candidates. The effect of the mandate is to alter legislator identity without

[1] Historically disadvantaged groups are commonly defined as groups which have been systematically excluded from institutions and cultural practices that provide skills and resources. An important moral argument for directing public policy at such groups is that historical discrimination against a group should not be allowed to perpetuate itself and inhibit the groups' right to well-being. Moreover, such policies may enhance efficiency by improving the talent allocation across different occupations (Harry Holzer and David Neumark, 2000).

[2] Cross-country evidence documents the fact that members of minority groups are less likely to get selected as candidates by parties, and are therefore underrepresented in the legislature (Wilma Rule and Joseph Zimmerman, 1994).

affecting voter identity. The placing of requirements on candidate identity in reserved jurisdictions directly increases the political representation afforded to minority groups in the legislature. Political reservation has had a profound effect on the Indian political landscape—a quarter of all legislators in India, at both the national and state level, come from reserved jurisdictions.

The use of mandates to enhance minority political representation is predicated on the assumption that legislative capture by nonminority individuals adversely affects the policy interests of minority groups, and that parties cannot fully control candidate behavior after elections (for if they could, candidate identity would be irrelevant to the policy process). This assumption is, however, invalid if a party's preferred policy is independent of its candidates' identity, and parties and voters can ensure that candidate behavior after elections is guided by the commitments they made beforehand—a standard assumption in many political economy models (Anthony Downs, 1957). An analysis of the impact of political reservation on policy provides a direct empirical test of this assumption.

In the first part of the paper, I develop a simple model of political competition to show that the effectiveness of political reservation in altering policy depends on the nature of the contract between the electorate and the elected. Two important elements in this contract are whether a party can commit its candidates to policies and how legislators resolve policy differences within the legislature. In situations where candidate entry is mediated by political parties with policy preferences which are independent of their candidates identity, changes in legislator identity brought about by reservation can only affect policy in the absence of full policy commitment. Moreover, such changes may not be significant unless every legislator has voice in the policy-making process.

In the remainder of the paper I use an Indian state-level panel data set to examine whether political reservation for scheduled castes and scheduled tribes in state elections has affected policy-making. A state-level analysis is appropriate as India is a federal democracy, with states enjoying substantial independent policy-making powers (Jean Dreze and Amartya Sen, 1995). Moreover, the choice of affirmative action policies in favor of scheduled castes and

scheduled tribes has been an important element of policy activism by state governments (Sunita Parikh, 1997).

The Indian constitution requires that the extent of state-level political reservation enjoyed by a group reflect the group's population share in the state. But, the extent of political reservation can be revised only when new census population estimates are received. Thus, while a group's population share varies continuously, the proportion of jurisdictions reserved for it changes with a lag—that is, only at the point of election, and after fresh census population estimates for the group are received. I exploit this institutional feature of reservation to isolate its impact on policy outcomes. I use changes in the extent of political reservation, which are specific to a given state, to identify how changes in the group shares of minority legislators affect policy outcomes. Since the response of political reservation to population changes is characterized by a lag I can separately control for the variable which causes changes in reservation—the census population shares of the two groups. This allows me to disentangle the effects of changes in the political representation afforded to a group on policy from those due to changes in its population share.

The main finding is that political reservation in Indian states has increased redistribution of resources in favor of the groups which benefit from political reservation. Such increases have been accompanied by increases in overall spending and decreases in spending on education programs. I interpret these findings as evidence that reservation can enhance a group's influence on policy-making, and that legislators belonging to minority groups have used this influence to increase the incidence of targeted redistribution. Whether these changes in government spending away from general redistribution programs toward targeted programs improve the well-being of either the minority groups or the polity at large remains an open question.

In conjunction with the theoretical arguments presented in this paper, the findings suggest that complete policy commitment may be absent in democracies, as is found in this case. These findings are consonant with recent political economy papers which assume that existing political institutions cannot enforce full policy commitment (see, for example, Martin Osborne

and Al Slivinski, 1996; Timothy Besley and Stephen Coate, 1997). Such models of policy-making predict that increases in political representation afforded to a group will enhance its influence on policy.[3]

My findings are also in line with recent empirical papers on the relationship between politician identity and policy outcomes. Joseph Kalt and Mark Zupan (1984) and Steven D. Levitt (1996) show that a candidate's personal "ideology" is a key determinant of observed policy outcomes. Besley and Anne Case (2000) and Raghabendra Chattopadhyay and Esther Duflo (2001) document significant differences between the policies favored by male and female politicians. Evidence on how a country's choice of political institutions mediates the relationship between legislator identity and policy outcomes is, however, limited. My paper addresses this question in the context of a specific institution—political reservation.

The remainder of the paper is organized as follows. Section I sets out a simple model of political competition which identifies how parties' ability to commit their candidates to policies affects the impact of political reservation on policy. Section II describes the institution of political reservation, as practiced in India and the data set used in the empirical analysis. Section III presents the empirical findings, and Section IV is the conclusion.

I. Political Reservation and the Political Process

In this section I use a theoretical example to illustrate the link between my empirical analysis and the literature on political competition in representative democracies. The objective is to show that, in a world where individuals choose representatives to select and implement policy and where parties mediate candidate entry, the possibility of policy commitment on the part of candidates affects the impact of political reservation on policy in an empirically identifiable manner.

Consider a large population of N individuals who differ in their earning potential. Each individual supplies one unit of labor, and depending

TABLE 1—PREFERRED REDISTRIBUTIVE POLICY, BY CASTE AND INCOME

Group	Preferred redistributive policy
Rich high caste	$t = 0$ and no redistribution
Poor high caste	$t = 1$ and general redistribution
Rich low caste	$t = 1$ and targeted redistribution
	if $\lambda_L^p < \lambda* \equiv \dfrac{\lambda_H^p y^p + \lambda_H^r y^r}{y^r - y^p}$;
	else $t = 0$ and no redistribution
Poor low caste	$t = 1$ and targeted redistribution

on her/his earning potential either earns y^r and is rich or earns y^p and is poor, where $y^r > y^p$. Individuals also differ with respect to an unalterable attribute, which I call caste—an individual is born either a high (H) or a low (L) caste. Let λ_c^k denote the population share of individuals who belong to caste $c \in (H, L)$ and earn income y^k, where $k \in (r, p)$. I assume low-caste citizens constitute a population minority ($\lambda_L < \frac{1}{2}$). In addition, they are more likely to be poor, i.e., $\dfrac{\lambda_L^p}{\lambda_L^r} > \dfrac{\lambda_H^p}{\lambda_H^r}$.

Individual income, if taxed, is taxed at rate t. Taxes can be redistributed in up to two ways. First, via a general transfer T to all individuals and second, via a targeted transfer δ to low-caste individuals (that is, $\delta = 0$ for high-caste individuals). The former redistributes income from rich to poor individuals, and the latter from high- to low-caste individuals. I assume that the selected redistribution policy must be budget balancing. Individual utility is increasing with own posttax income, and is denoted u_c^k. Formally, $u_H^k = (1 - t)y^k + T$ and $u_L^k = (1 - t)y^k + T + \delta$. Table 1 describes an individual's preferred redistributive policy, by income and caste. The redistributive preferences of rich low-caste individuals vary with the demographic makeup of the population. These individuals favor no redistribution to targeted redistribution if, and only if, the population share of poor low-caste individuals exceeds

$$\lambda* \equiv \frac{\lambda_H^p y^p + \lambda_H^r y^r}{y^r - y^p}.[4]$$

Individuals elect legislators to select and implement the levels of general and targeted redistribution. For expositional clarity I assume

[3] Thomas Husted and Lawrence Kenny (1997) and Lena Edlund and Pande (2002), among others, provide empirical evidence that an individual's group identity is correlated with their policy preferences.

[4] When $\lambda > \lambda*$ the targeted transfer a rich low-caste individual receives is less than the tax she pays.

the population is divided into Z jurisdictions, with one legislator elected per jurisdiction.[5] Political competition is mediated by two political parties. The political process has three stages. At stage 1, the two parties choose one candidate per jurisdiction. At stage 2, individuals choose for whom to vote. In the final stage, elected legislators choose the type and extent of redistribution. These stages are described in reverse order.

The elected legislators select the type and extent of redistribution in the legislature. I assume that the policy influence of a legislator is proportional to, and increasing in, the group size of legislators which share her policy preferences.[6] The Mathematical Appendix defines the policy determination rule.

In every jurisdiction a fraction α of the individuals are rational voters, and the remaining $(1 - \alpha)$ fraction are noise voters. With two-party competition, sincere voting is rational.[7] Rational voters know whether or not parties can commit their candidates to policies, and vote accordingly. Such policy commitment, if feasible, renders candidate identity irrelevant to the political process. Therefore, with full policy commitment a rational voter directly conditions her/his vote on the policies associated with a candidate. In the absence of such commitment a candidate will instead pursue her/his own preferred policies in the legislature, and a rational voter will condition her/his vote on both the candidate's party and group identity. In contrast, a noise voter's choice of candidate is uncorrelated with the policies associated with the candidate. The concept of noise voting captures the idea that some individuals base their voting decisions on nonpolicy aspects of candidate identity, such as a candidate's personal

charisma. The presence of noise voters, by making election outcomes probabilistic, also ensures the existence of a voting equilibrium. The voting equilibrium is defined in the Mathematical Appendix.

Candidate selection is undertaken by two political parties, indexed by $J \in (R, P)$. Parties are ideologically differentiated on income—party R favors the rich, and party P the poor. Each party consists of individuals who share the party's income preferences. That is, party R has rich individuals as members, and party P poor individuals. Another way of saying this is that parties function as brand names.[8] Depending on party membership costs, an individual will either join the party which favors her/his income group or not join any political party.

Each party seeks to maximize its average member's utility. Formally, party J's payoff is

$$W_J = (1 - t)y^k + T + \xi_J \delta,$$

where ξ_J is the share of low-caste members in a party. I assume this share is independent of any single individual's party affiliation decision. Since the income identity of party candidates (y_k) is fixed, a party's entry decision reduces to a decision over the proportion of jurisdictions in which it fields low-caste candidates. I denote this proportion as π.

A political equilibrium is a pair of party entry decisions which constitute best responses. Every such equilibrium is associated with a probability distribution over policy outcomes. The probability that the policies associated with the election of a party's candidates are implemented equals the party's probability of electoral success.

In this setting, a party's membership base affects its entry decision in two ways. First, a party can only field members as candidates. Second, a party's payoff, and therefore its preferred policies, vary with the caste composition of its membership pool. Party membership is potentially open to all individuals who share the party's income identity. However, if, relative to high-caste individuals, low-caste individuals face higher party membership costs then low-caste

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[5] Qualitatively identical results also hold if we instead consider a single jurisdiction but proportional representation. In this environment political reservation would take the form of a requirement that party lists include low-caste candidates, and that those candidates form a strict proportion of legislators.

[6] Barry Weingast (1979), among others, provides the micro-foundations for such a "universalistic" legislative bargaining procedure.

[7] If possible, a voter will seek to move policy towards her preferred outcome. Since she/he can only affect the electoral outcome in the jurisdiction where she/he votes, she/he will vote for the candidate whose policies she prefers.

[8] James Snyder and Michael Ting (2002) and Anouk Riviere (2000), among others, develop political economy models which focus on the role of parties as brand names.

underrepresentation in political parties can re-sult.[9] The idea that minority underrepresenta-tion in political parties can, in turn, cause their underrepresentation in the legislature is shown in the following result.

RESULT 1: *If the proportion of low-caste members in each party is below their population share then an equilibrium with no low-caste candidates and no targeted redistribution exists.*

To see why the above result is true in my setup, observe that low- and high-caste individ-uals in a party (potentially) differ in their pref-erence for targeted redistribution. Low-caste underrepresentation in a party implies that, rel-ative to their population share, the party payoff function gives "too high" a weight to the policy preferences of high-caste individuals. Result 1 tells us that in such a scenario the potential electoral gain for either party from deviating away from only fielding high-caste candidates (or equivalently, committing its candidates to zero-targeted redistribution) is strictly less than the utility loss it incurs from the increased like-lihood of targeted redistribution.

Result 1 demonstrates that the underrepresen-tation of individuals belonging to minority groups in political parties can adversely affect their chances of gaining representation in the legislature. The introduction of political reser-vation in India was motivated by a desire to remove such legislative underrepresentation, and provide these groups with influence over policy. Political reservation, by requiring par-ties to field low-caste candidates in specified jurisdictions, ensures the presence of low-caste legislators. The demographic composition of the electorate is, however, unaffected by the introduction of such a mandate. To explore the impact of reservation I examine how policy outcomes are altered by the imposition of res-ervation, relative to a scenario in which no low-caste candidates are fielded. In line with the Indian experience, I assume that the fraction of

jurisdictions reserved for low-caste individuals equals their population share.[10] Result 2 cap-tures the idea that the impact of political reser-vation on policy depends on the ability of parties to commit their candidates to their pre-ferred policies.

RESULT 2: *If parties can commit their candi-dates to policies then political reservation does not affect policy outcomes. However, if such commitment is absent then, relative to an equi-librium with no low-caste candidates, political reservation increases the likelihood of targeted redistribution.*

Political reservation forces parties to field low-caste candidates in a certain fraction of jurisdictions. If possible, a party will commit its candidates, both high and low caste, to its pre-ferred policies. A party's preferred policies de-pend on the caste composition of its membership pool and the demographic compo-sition of the electorate. Since neither are af-fected by political reservation a party's preferred policies are invariant to the introduc-tion of reservation. Hence, with full policy com-mitment electoral and policy outcomes are unaffected by reservation.

Result 2 tells us that in the absence of full policy commitment reservation increases the likelihood of targeted redistribution (relative to an equilibrium with no low-caste candidates). To see why this is true, remember that poor low-caste individuals favor targeted redistribu-tion. Reservation causes party P to field poor low-caste candidates who, if elected, will im-plement targeted redistribution. Since both par-ties enjoy a positive probability of winning reservation increases the likelihood of targeted redistribution. However, the magnitude of this increase will vary with the composition of the electorate.

If the population share of poor low castes is below λ^*, then all low-caste individuals favor targeted redistribution. In this case, with reser-vation targeted redistribution will occur with certainty. If, however, the population share of poor low-caste individuals exceeds λ^* then rich

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[9] In general, individuals belonging to minority groups remain underrepresented in the main national political parties—see Rule and Zimmerman (1994) for cross-country evidence, and Pradeep Chhibber (1999) for evidence from India. Possible reasons include discrimination by party elite, and financial costs of participating in party activities.

[10] Pande (1999) shows that in this environment a party will not field low-caste candidates in unreserved jurisdic-tions.

low-caste individuals, like their high-caste counterparts, oppose redistribution. Reservation will, therefore, only alter the policies associated with party P candidates. Hence, with reservation, the likelihood of targeted redistribution will equal the probability of party P's electoral success.[11]

The analysis has assumed that a legislator's influence on policy is increasing in the group size of legislators who share her/his preferences. An alternative is to assume that policies favored by the majority group of legislators are implemented. Clearly, under this assumption, political reservation will increase targeted redistribution only if it is implemented in a majority of jurisdictions.

In sum, this model of political competition affords predictions on the conditions under which reservation will affect policies, and on which policies will be affected. Two key assumptions are that candidate entry is mediated by political parties, and that a party's preferred policy does not vary with its candidates' identity.[12] Given these assumptions, the model demonstrates that a statistically significant link between changes in the fraction of jurisdictions reserved for a minority group and the extent of redistribution targeted towards the same group can be interpreted as evidence that political parties cannot enforce policy commitment on part of their candidates and that the bargaining procedure adopted in the legislature allows these legislators influence over policy. In the remainder of this paper I use data from Indian states to test these predictions.

II. Institutional Background and Data

Reservation of jurisdictions in favor of scheduled castes and scheduled tribes has ensured them representation in Indian state legislatures (Lelah Dushkin, 1972, Marc Galanter, 1979, and Oliver Mendelsohn and Marika Vicziany, 1998, among others, provide detailed evidence on this issue). Quantitative evidence on how such representation has affected electoral and policy outcomes is, however, lacking, and political commentators remain divided on this issue. Some argue that party control of candidates' policy activism, and the structure of state legislative bargaining procedures imply political reservation has had little to no impact on policy. For instance, Upendra Baxi (1995) argues that scheduled caste and scheduled tribe legislators need to appeal both to upper-caste constituents in reserved jurisdictions and to the primarily upper-caste membership of party plenary committees; as a result, they do not pursue their personal policy preferences in the legislature. Others, such as Dushkin (1972), Barbara Joshi (1982), and Galanter (1984), claim that minority legislators act en bloc, and have succeeded in increasing transfers to their own group. These, they argue, include cabinet positions in state governments, educational scholarships and reservations in higher educational institutions, and above all, government jobs.[13]

In Section III I exploit the institutional features of political reservation and data on its practice to provide evidence on the impact of political reservation on policy outcomes in Indian states. In the remainder of this section I describe the institution of political reservation and the data set which will be used in the analysis.

A. Political Reservation in Indian States

The 1950 Indian constitution mandates political reservation in favor of scheduled castes and scheduled tribes in every state and national election. In addition, it explicitly directs state governments to use public policy to improve the economic well-being of these two groups.

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[11] If the population share of poor low castes is above λ^*, then reservation can reduce party P's probability of electoral success (relative to the case where no party fields low-caste candidates). In particular, if the extent of reservation (π) exceeds $\dfrac{\lambda^r(y^r - y^p)}{\lambda^p y^p + \lambda^r y^r}$ then poor high-caste individuals will switch their vote from party P to R.

[12] State elections in India are party-based. In addition, qualitative evidence demonstrates significant differences in the membership pool of Indian political parties, and that these differences are reflected in the stated policy preferences of the political parties (Chhibber, 1999).

[13] Dushkin (1972) cites as instances of such activism during the 1967–1972 national parliamentary session the defeat of the Congress party 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" due to bloc voting by minority legislators; the liberalization of job reservation policy (July 1968, 1970), increased flexibility in targeted educational subsidies (1969), and the hardening of the untouchability offenses act (1970).

TABLE 2—LEGAL IDENTIFICATION OF SCHEDULED CASTES AND SCHEDULED TRIBES

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

Selection criteria for scheduled tribes
1. Tribal origin
2. Primitive ways of life and habitation in remote and less accessible areas
3. General backwardness in all respects

Note: The above criteria were the required basis for the selection of "scheduled caste" and "scheduled tribe" communities, as stated in the Constitutional (scheduled caste and scheduled tribe) orders of 1950.

TABLE 3—ECONOMIC CHARACTERISTICS OF SCHEDULED CASTES AND SCHEDULED TRIBES: 1991

Variable	Scheduled castes	Scheduled tribes	Non-SC/ST population
Overall population share	16.4	7.9	75.4
Within-group characteristics:			
Urban population share	18.7	7.3	29.2
Literacy rate	37.4	29.6	57.8
Labor force participation rate	36	42	32.8
Percent labor force in the primary sector	77.1	90	62.1
Percent population below poverty line	48.3	52.0	31.4

Notes: All numbers are from 1991 census, except poverty figures which are from the Indian National Sample Survey (1993–1994), Planning Commission Estimates. The primary sector includes those employed in agricultural and allied activities. Within-group characteristics are reported as a percentage of the group population.

The constitutional (scheduled caste and scheduled tribe) orders of 1950 established state-specific lists which identified the castes and tribes that fall in the categories of scheduled castes and scheduled tribes respectively. The caste identification criteria of the 1931 census formed the basis for the selection of scheduled castes, and a tribal identification criteria developed by a 1950 Parliamentary the basis for choosing scheduled tribes. Table 2 describes these criteria. The scheduled caste and scheduled tribe lists have been revised twice—in 1956 to remove anomalies arising from the linguistic reorganization of states, and in 1976 to remove within-state discrepancies in the identification of certain castes and tribes as scheduled castes and scheduled tribes respectively.

Scheduled castes make up roughly 16 percent of the Indian population, and scheduled tribes another 8 percent. Relative to the rest of the population, individuals belonging to these two groups remain socially and economically disadvantaged. The incidence of poverty in these groups is roughly one and a half times that in the rest of the population (see Table 3). The economic backwardness of scheduled castes can be directly traced to the caste system.[14] Members of scheduled castes were traditionally assigned to menial occupations such as skinning animal carcasses and removing human waste, and faced restrictions on asset ownership.[15] In

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[14] Roughly 85 percent of the Indian population is Hindu. Every Hindu belongs to a caste, and caste membership is hereditary. The genesis of the caste system is usually traced to the Aryan invasion of India in approximately 1500 B.C. Caste groupings are, in general, endogamous. The caste system is hierarchical, with a caste's rank the primary determinant of its members' occupation.

[15] For instance, Manu Smriti, the definitive treatise on caste system, decrees that the dwellings of low castes be

TABLE 4—THE TIMING AND REASONS FOR RESERVATION CHANGES

Year of change	Reason for change	Commission responsible
1962	Double member jurisdictions abolished	Election Commission
1965	Creation of Haryana	Election Commission
1967	Revised in line with 1961 census	Delimitation Commission
1972, 1974, 1976	Revised in line with 1971 census	Delimitation Commission
1977, 1978, 1980	Revised in line with 1976 area restriction removal act	Election Commission

the case of scheduled tribes, their geographic isolation, combined with their dependence on traditional agricultural practices for subsistence, has contributed to their poverty.

Article 332 of the Indian constitution provides for political reservation in state elections. In a jurisdiction reserved for scheduled castes (scheduled tribes), only a scheduled caste (scheduled tribe) individual may stand for election. The entire electorate, however, participates in choosing among candidates so qualified. The article states that two independent national-level commissions will be responsible for implementing this mandate. The orders of these commissions will have the force of law, and cannot be questioned in court. These commissions are the Election Commission and the Delimitation Commission. The Election Commission is a national-level body which oversees state and national elections. The Delimitation Commission is responsible for redistricting, and is constituted whenever new census population estimates are announced.[16] The article also requires that in selecting reserved jurisdictions, preference be given to jurisdictions with a higher population share of the group in whose favor reservation is being practiced, while ensuring a sufficient dispersal of reserved jurisdictions within the state.[17]

My empirical analysis exploits the diachronic variation in the extent of political reservation enjoyed by a group in a state. The cause of such variation is defined by Section 3 of Article 332. Section 3 states that the proportion of jurisdictions reserved for scheduled castes (scheduled tribes) should equal, as nearly as possible, the population share of scheduled caste (scheduled tribe) in the state. Moreover, the only permissible basis for changes in the extent of reservation enjoyed by a group in a state is changes in the census estimates of the group's population share in that state.

Table 4 lists the years in which the proportion of jurisdictions reserved for a group changed, the stated reason for change, and the commission responsible. As elections across states are not synchronized, a single commission's recommendations are often implemented in multiple years. Table 4 tells us that changes in the proportion of jurisdictions reserved for a group were always caused by changes in the census population estimate for the group. In every case, the extent of change in reservation for a group equaled the change in its census population estimate. Changes in census population estimates for a group are, in turn, either caused by the arrival of new census population estimates or by a centrally mandated institutional change which altered the existing census population estimate for the group. These institutional changes include the national shift to single member jurisdictions in 1962, the creation of the state of Haryana in 1965, and the 1976 national mandate which required that a caste or tribe which was identified as a scheduled caste or scheduled tribe in any part of the state be so defined for the entire state.[18] Finally, due to a national decision to disallow further changes in

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outside the village, and their wealth be confined only to dogs and donkeys. It states that a member of the upper caste may take possession of the property of a low caste with perfect impunity (Manu Smriti VIII:417, X:52).

[16] Membership to the Delimitation Commission is restricted to a retired national court judge, a sitting state court judge and the chief election commissioner.

[17] Scheduled castes are a population minority in every jurisdiction, irrespective of its reservation status. Relative to nonreserved jurisdictions the population share of scheduled castes is, on average, 5–6 percentage points higher in reserved jurisdictions. In contrast, scheduled tribes are a population majority in roughly half the jurisdictions reserved in their favor (Galanter, 1984).

[18] Such within-state differences in the definition of a caste/tribe as a scheduled caste/scheduled tribe arose due to the reorganization of state boundaries over time.

TABLE 5—DESCRIPTIVE STATISTICS

Variable	Mean	Standard deviation
Policy variables		
Total spending	153	(87.36)
Of which:		
Education spending	21.51	(4.48)
SC welfare spending	3.2	(2.19)
ST welfare spending	2.95	(4.07)
Land reform index	0.12	(0.45)
Job quota	22.61	(10.39)
Political variables		
SC reservation	14.04	(5.36)
ST reservation	7.25	(7.69)
Election dummy	0.22	(0.41)
Demographic variables		
SC census population share	14.19	(6.47)
SC current population share	14.52	(6.02)
ST census population share	7.15	(7.57)
ST current population share	7.27	(7.47)
Census population density	205.46	(132.3)
Other economic variables		
State income per capita	1,036.22	(357.49)

Notes: The Data Appendix describes the construction and sources of variables. The data are for the 16 major Indian states, and the period 1960–1992. For Haryana, which split from Punjab in 1965, I use data for the period 1967–1992 and for Jammu/Kashmir I use data for 1962–1992. This gives a sample size of 519; deviations from this are accounted for by missing observations (on which, see the Data Appendix). SC and ST welfare spending is available post-1974.

the number of jurisdictions in a state the extent of reservation in place for a group in a state has remained constant since 1980.

B. *Data and Descriptive Statistics*

The unit of observation in my analysis is the Indian state. I use a data set of the 16 major Indian states which spans the period 1960–1992. These states account for over 95 percent of the Indian population. Table 5 provides descriptive statistics.

I measure the political reservation afforded to a group in a state as the fraction of jurisdictions reserved for that group in the state. The reservation variables for scheduled castes and scheduled tribes are denoted as "SC reservation" and "ST reservation," respectively. In the sample, the average SC reservation is 13 percent, and the average ST reservation is 7 percent. Three states in the sample have no scheduled tribe

population, and therefore no ST reservation. The data set includes two measures of a group's population share. The first is the group's population share as measured by the census in the year when reservation was determined, and is denoted "SC/ST census population share." This variable is used by the Election and Delimitation Commissions to determine the extent of reservation for a group. The second measure is the group's population share as measured in the current year; this variable is denoted as "SC/ST current population share."

The Indian constitution provides for a federal structure of government, with state governments enjoying independent jurisdiction on most types of social-sector spending. In addition, the constitution explicitly allows state governments to target welfare programs towards scheduled castes and scheduled tribes. In the analysis I distinguish between two types of state public policies—policies whose benefits are not restricted to scheduled castes and/or scheduled tribes (henceforth, "general" policies), and policies whose benefits are so restricted (henceforth, "targeted" policies).

In the category of general policies, I first consider the size of the state government, as measured by log real per capita state government spending. Second, I consider the share of a state's total spending going to education. Education spending, on average, makes up 21 percent of an Indian state's budget, and is the single largest category of general social-sector spending in every Indian state. The final general policy I consider is an asset-based redistribution policy—land reform. This variable is of interest, both because landlessness is high among scheduled castes and scheduled tribes and because land reform has been a politically contentious issue in most Indian states. Land reform is measured by an indicator variable which takes the value one in years when a state passes a land reform act, and the value zero otherwise.[19]

In the category of targeted policies, I consider two measures of targeted spending. These are the fraction of government spending devoted to scheduled caste and scheduled tribe welfare

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[19] I use a measure of land reform activism created by Besley and Robin Burgess (2000), who show that land reform had a significant negative effect on rural poverty across Indian states.

programs, and are denoted as "SC welfare spending" and "ST welfare spending" respectively. The programs financed by such spending include, among others, group housing projects, hostels for students belonging to these groups, and the provision of public goods in scheduled caste and scheduled tribe hamlets. The average state spends between 3–4 percent of its budget on each of these two categories of targeted spending. Finally, I consider job quotas which is the fraction of state government jobs reserved for scheduled castes and scheduled tribes. In the sample, the mean fraction of state government jobs so reserved is 20 percent. Arguably, increases in the extent of job reservation has been the most important political concession granted to scheduled castes and scheduled tribes in postindependence India (Parikh, 1997, Mendelsohn and Vicziany, 1998).[20]

III. Results

Variation in the percentage of jurisdictions reserved for a group in a state is attributable to changes in the census population estimates for the group. Such changes are caused by the arrival of fresh population census estimates and national institutional changes, as outlined in Table 4. Hence, reservation for a group is a nonlinear function of the group's population in the most recent census. I exploit this feature of political reservation to identify its impact on policy.

A. Basic Results

For the sth state at time t, I can write:

$$Y_{st} = \alpha_s + \beta_t + \gamma R_{st} + \varepsilon_{st},$$

where Y_{st} is a policy outcome, and R_{st} is a vector whose elements are SC reservation and ST reservation, respectively. α_s and β_t are state and year fixed effects, and ε_{st} is the state-level error term. The reservation coefficient γ is the parameter of primary interest. State effects control for the influence of unobserved time-invariant state characteristics on policy. Year effects control for the policy effects of national events which affect all states in a similar manner; they, however, do not control for national events which affect different states differentially.

In this empirical specification identification of the effect of political reservation on policy outcomes is obtained from within-state variation, i.e., state-specific changes in reservation. As discussed above, such changes are caused by changes in a group's census population share. The main threat to the validity of this identification strategy is omitted effects of the factors which determine reservation, of which lagged population effects of a group seem most likely to be of concern. To guard against such omitted variable bias I sequentially expand the set of covariates. I start by including the vector P_{st*} whose elements are SC and ST census population shares as right-hand-side variables. I then add as a covariate the two groups' current population shares, denoted by the vector P_{st}. Finally, I include as covariates three variables which are potentially correlated with scheduled caste and scheduled tribe population shares in a state; this vector is denoted as X_{st}. Here I include state income per capita lagged by one period as changes in a state's income may directly affect groupwise fertility rates. In addition, cross-state income differences may induce migration, and thereby alter group population shares.[21] Since changes in a group's population share are likely to be correlated with changes in population density I include a state's population density, as measured when reservation was determined. The final element in this vector is an election year dummy. Reservation changes only occur in an election year; the election dummy is to ensure that the reservation variables do not simply pick up election year effects. To summarize, the final specification is of the form:

$$Y_{st} = \alpha_s + \beta_t + \gamma R_{st} + \phi P_{st*}$$

$$+ \delta P_{st} + \eta X_{st} + \varepsilon_{st}.$$

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[20] Job quotas for different population groups was first introduced in India by the British on the basis of the 1922 Miller report. Parikh (1997) describes the evolution of job reservation policy in India.

[21] I use state income lagged by one period as this variable is potentially endogenous. The results are robust to lagging state income by different periods, see Pande (1999).

Tables 6 and 7 report the findings for general and targeted policies, respectively. For each policy I report four specifications, where I sequentially expand the set of covariates. Columns (1)–(4) of Table 6 consider total spending. Increases in ST reservation, but not SC reservation, raise total spending in a state. The estimated effect is robust to the inclusion of additional population and economic controls [columns (2)–(4)]. Columns (5)–(8) examine the impact of reservation on education spending. ST reservation has a significant negative impact on education spending. The column (8) estimate suggests that a 1-percent increase in ST reservation reduces education spending by slightly under 0.4 percentage points. Given the high levels of illiteracy among scheduled tribes, the finding that ST legislators choose not to prioritize education spending is striking. SC reservation is also negatively correlated with education spending; this relationship, however, is statistically insignificant. Finally, in columns (9)–(12) we observe that increases in the number of legislators belonging to scheduled castes and scheduled tribes does not affect the likelihood of land reform legislation.

I next consider policies whose benefits are explicitly targeted towards scheduled castes and/or scheduled tribes. The results in Table 7 suggest a significant relationship between reservation and these policies. Moreover, the impact of SC reservation and ST reservation on policy differs. The results in columns (1)–(4) reveal a positive correlation between SC reservation and job quotas. The effect is large and significant, and robust to the inclusion of population and other controls. To give some idea of magnitudes, the estimates in column (4) tells us that a 1-percent rise in SC reservation is associated with a 0.6-percent increase in job quotas. In contrast, SC reservation is unrelated to the level of SC welfare spending [columns (5)–(8)], and ST welfare spending [columns (9)–(12)]. These findings stand in sharp contrast to those for ST reservation. Columns (1)–(3) show that increases in ST reservation do not significantly affect job quotas; there is weak evidence of a negative effect in column (4). However, ST reservation has a significant positive effect on ST welfare spending. The estimates in column (12) suggest that a one

point increase in ST reservation increases the share of total state spending devoted to ST welfare programs by 0.8 percentage points.[22]

The finding that SC reservation increases job quotas while ST reservation increases spending on ST welfare programs is consistent with differences in scheduled caste and scheduled tribe group characteristics. Relative to scheduled tribes, scheduled caste individuals are both more educated and geographically more dispersed. Hence, their relative returns from individual-specific policies, such as job quotas, are higher. In contrast, relative to scheduled castes, the benefits to scheduled tribe individuals from geographically localized welfare programs such as housing schemes are greater. The finding that ST, but not SC, reservation increases targeted spending also helps us make sense of the finding in Table 6 that increases in ST reservation reduce education spending, and raise overall spending. Taken together, these results suggest that some of the observed increases in targeted redistribution have come at the expense of general redistribution.

Finally, Tables 6 and 7 reveal interesting differences in the relationship that SC and ST current population share variables bear to the policy outcomes. Increases in SC current population shares are associated with increases in job quotas and reductions in ST welfare spending. In contrast, increases in ST current population share are negatively correlated with most policy outcomes. While the potentially endogenous nature of these population variables prevents a causal interpretation, these findings are consistent with the fact that the political activism of members of these two groups differs significantly. While scheduled castes have emerged as an important political bloc in post-Independence India, scheduled tribes remain, by and large, politically marginalized.[23]

B. *Robustness*

The empirical analysis exploits state-specific variation in political reservation to examine its

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[22] *F*-tests reject the null that SC and ST reservation have same impact on job quotas and ST welfare spending.

[23] These findings are in line with Abhijit Banerjee and Rohini Somanathan (2001). They find that Indian districts with a higher scheduled tribe population get fewer public goods. This, however, is not the case with scheduled castes.

TABLE 6—POLITICAL RESERVATION AND GENERAL POLICY OUTCOMES

	Total spending				Education				Land reform			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
SC reservation	−0.005	−0.009	−0.006	−0.004	−0.15	−0.141	−0.129	−0.115	0.007	0.008	0.01	0.016
	(0.005)	(0.005)	(0.005)	(0.007)	(0.122)	(0.121)	(0.116)	(0.146)	(0.013)	(0.013)	(0.013)	(0.015)
ST reservation	0.023***	0.028***	0.019***	0.019***	−0.542***	−0.385***	−0.252*	−0.380**	0.008	0.007	0.003	0.013
	(0.003)	(0.006)	(0.006)	(0.006)	(0.082)	(0.136)	(0.151)	(0.155)	(0.010)	(0.019)	(0.019)	(0.019)
SC census population share		0.011***	0.006	0.006		−0.039	−0.044	−0.068		−0.001	−0.005	−0.007
		(0.004)	(0.006)	(0.006)		(0.050)	(0.070)	(0.079)		(0.006)	(0.008)	(0.008)
ST census population share		−0.004	−0.011**	−0.011**		−0.168	0.015	0.078		0	−0.001	0.001
		(0.005)	(0.005)	(0.005)		(0.104)	(0.128)	(0.121)		(0.015)	(0.016)	(0.017)
SC current population share			0.012	0.011			0.025	0.17			0.01	0.016
			(0.008)	(0.009)			(0.101)	(0.141)			(0.015)	(0.015)
ST current population share			0.028***	0.029***			−0.587***	−0.691***			0.009	−0.014
			(0.007)	(0.008)			(0.177)	(0.192)			(0.020)	(0.020)
Other controls	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	YES
Adjusted R^2	0.96	0.96	0.96	0.96	0.72	0.73	0.76	0.78	0.11	0.11	0.11	0.11
Number of observations	519	519	519	505	513	513	513	499	519	519	519	505

Notes: Robust standard errors are in parentheses. Regressions include state and year dummies. The Data Appendix describes the construction and source of variables. The data are for the 16 main states, and the period 1960–1992. For Haryana, which split from Punjab in 1965, the data starts in 1967, and for Jammu-Kashmir in 1962. This gives 519 observations. Deviations from this are due to missing data (on which, see the Data Appendix). Total spending is the log real state per capita expenditure. Education spending is expressed as a share of total spending. Land reform is a dummy variable which equals one in years a state passes a land reform act. SC/ST population variables are expressed as a share of total state population. SC/ST census population share refers to population shares as measured by the census when reservation was determined; SC/ST current population share is the population share measured in the current year. Other controls include census population density, state income per capita lagged one period and the election dummy.

  * Significant at the 10-percent level.
  ** Significant at the 5-percent level.
  *** Significant at the 1-percent level.

TABLE 7—POLITICAL RESERVATION AND TARGETED POLICY OUTCOMES

	Job quotas				SC welfare spending				ST welfare spending			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
SC reservation	0.539***	0.493***	0.659***	0.675***	0.011	0.082	0.083	0.126	−0.524	−0.511	−0.436	−0.305
	(0.120)	(0.115)	(0.108)	(0.135)	(0.181)	(0.196)	(0.200)	(0.198)	(0.324)	(0.324)	(0.289)	(0.301)
ST reservation	0.199*	−0.316	−0.301	−0.371*	0.092	0.067	0.076	−0.024	0.713**	0.693**	1.019***	0.863***
	(0.109)	(0.204)	(0.225)	(0.223)	(0.103)	(0.104)	(0.108)	(0.127)	(0.335)	(0.330)	(0.301)	(0.325)
SC census population share		0.188***	−0.071	−0.113		−0.052	−0.055	−0.104		−0.063	−0.145	−0.195
		(0.065)	(0.073)	(0.081)		(0.077)	(0.080)	(0.068)		(0.151)	(0.170)	(0.169)
ST census population share		0.559***	0.842***	0.861***		−0.033	−0.028	0.07		0.033	0.19	0.317*
		(0.170)	(0.190)	(0.192)		(0.077)	(0.080)	(0.081)		(0.138)	(0.161)	(0.187)
SC current population share			0.648***	0.699***			−0.052	−0.092			−0.435**	−0.347**
			(0.132)	(0.172)			(0.121)	(0.123)			(0.189)	(0.172)
ST current population share			−0.675**	−0.689**			−0.12	−0.163			−0.576**	−0.706***
			(0.294)	(0.313)			(0.136)	(0.131)			(0.233)	(0.257)
Other controls	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	YES
Adjusted R^2	0.88	0.9	0.9	0.91	0.76	0.76	0.76	0.76	0.83	0.83	0.84	0.84
Number of observations	519	519	519	505	274	274	274	274	298	298	298	298

* Significant at the 10-percent level.
** Significant at the 5-percent level.
*** Significant at the 1-percent level.

Notes: Robust standard errors are in parentheses. Regressions include state and year dummies. The Data Appendix describes the construction and source of variables. The data are for the 16 main states, and the period 1960–1992. For Haryana, which split from Punjab in 1965, the data starts in 1967, and for Jammu-Kashmir in 1962. This gives 519 observations. Deviations from this are due to missing data (on which, see the Data Appendix). Total spending is log real state per capita expenditure. Education spending is expressed as a share of total spending. Land reform is a dummy variable which equals one in years a state passes a land reform act. SC/ST population variables are expressed as a proportion of total state population. SC/ST census population share is population shares as measured by the census when reservation was determined; SC/ST current population share is the population share measured in the current year. Other controls include census population density, state income per capita lagged one period and the election dummy.

effects on policy outcomes. In this empirical setup key robustness checks are the sensitivity of the results to the introduction of additional controls for variables that may be in the function determining reservation. As discussed, changes in reservation are attributable to changes in the groups' population shares, as reported by the census.[24] Table 8 examines the robustness of the findings to including additional population controls as covariates. For expositional ease, I restrict the analysis to the subset of policies which have been shown to be affected by political reservation.

All regressions reported in Table 8 include the SC and ST reservation variables, the SC and ST census and current population share variables, and the controls for state income, population density, and election year as covariates. Reservation for a group is a nonlinear function of the group's lagged (census) population share. It is, therefore, relevant to check that the observed results are robust to the inclusion of nonlinear and lagged population share variables. In column (1), I include quadratic controls for SC and ST census population shares as additional covariates. SC and ST reservation variables do not appear to be proxying for the nonlinear effects of the census population variables. In the case of education spending, the inclusion of quadratic controls reduces the statistical significance of the estimated effect of ST reservation. However, the economic magnitude of this effect remains unchanged. In all other cases, the impact of reservation on policy is unaffected by this change in specification (see Panel A through Panel D). In column (2), I include the one- and two-period lagged values of SC and

ST current population shares as covariates. Once again, the size and significance of the estimated relationship between SC and ST reservation and policy outcomes is largely unchanged. In column (3), I include a state-specific piecewise linear trend. For any given state, this trend variable increases by increments of one in years in which reservation for a group changed in a state. This trend variable can be viewed as partially controlling for any omitted variables which also change at the point when reservation for a group changes. I find no significant change in the estimated relationship between reservation and policy outcomes.

As a final check, I examine whether the results are robust to restricting the sample for each state to five-year periods that are centered around an election in which the proportion of jurisdictions reserved for a group changed. The idea is to check whether the discontinuous changes in political reservation which occur in an election year are associated with subsequent policy changes. The results are presented in column (4). Reductions in the sample imply greater imprecision in the estimated relationship between reservation and policy outcomes, i.e., the standard errors tend to be larger. However, both the size and significance of the estimated effects are robust to the reduction in sample size. The only exception is total spending—in this case, the effect of ST reservation is statistically insignificant (though the economic magnitude of the estimated effect remains comparable to earlier specifications). This specification increases our confidence that omitted variable bias is not driving the observed relationship between political reservation and policy outcomes—there is less reason to believe that the impact of omitted population variables on policy outcomes would follow a similar discontinuous pattern.

In Pande (1999) I report additional robustness checks. I show that the results are robust to including an array of contemporaneous state economic, demographic, and political variables. I also check that the results are robust to including controls for interstate migration—the concern being that policy-induced migration may underlie observed population, and therefore reservation, changes. The results are also robust to using a two-stage least-square procedure where I use SC and ST census population shares to

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[24] The main reason for changes in the population shares of these groups has been differential fertility rates. Between 1961 and 1971, relative to the general population, population growth was slightly lower among scheduled caste and scheduled tribe populations. This was mainly driven by higher infant mortality rates among these two groups. However, by the end of the 1960's, infant mortality rates had converged across groups, and since 1971 the Indian census consistently reports higher fertility, and population growth rates among these groups. This finding is also corroborated by other surveys—for instance, the Indian Demographic and Health survey for 1993 reports all-India total fertility rates among scheduled castes, scheduled tribes, and the rest of the population as 3.15, 3.06, and 2.60, respectively.

TABLE 8—POLITICAL RESERVATION AND POLICY OUTCOMES: ROBUSTNESS CHECKS

	Nonlinear census population controls	Lagged current population controls	State-specific piecewise linear trend	Discontinuity sample
	(1)	(2)	(3)	(4)
PANEL A: Dependent variable: Total spending				
SC reservation	0.001	−0.005	−0.001	0.011
	(0.009)	(0.007)	(0.006)	(0.008)
ST reservation	0.016**	0.020***	0.025***	0.011
	(0.008)	(0.006)	(0.006)	(0.009)
PANEL B: Dependent variable: Education spending				
SC reservation	0.03	−0.103	−0.205	−0.238
	(0.197)	(0.157)	(0.135)	(0.223)
ST reservation	−0.358	−0.474***	−0.560***	−0.558**
	(0.247)	(0.159)	(0.150)	(0.236)
PANEL C: Dependent variable: Job quotas				
SC reservation	0.709***	0.590***	0.558***	0.345**
	(0.219)	(0.111)	(0.135)	(0.161)
ST reservation	−0.716**	−0.560**	−0.607***	−0.319
	(0.309)	(0.222)	(0.233)	(0.288)
PANEL D: Dependent variable: ST Welfare spending				
SC reservation	0.092	−0.233	−0.303	0.058
	(0.321)	(0.316)	(0.302)	(0.303)
ST reservation	0.705**	0.841**	0.864***	1.516***
	(0.303)	(0.353)	(0.326)	(0.359)

Notes: Robust standard errors are reported in parentheses. All regressions include (i) state and year fixed effects, (ii) state income per capita lagged one period, population density and election year dummy, and (iii) SC/ST census population share and SC/ST current population share as controls. Panel A includes as covariates SC/ST census population shares squared/100; panel B includes SC/ST one- and two-period lagged current population shares. Panel C includes a state-specific trend which increases by units of one in years in which reservation changes. The data are for the 16 main states, and the period 1960–1992. For Haryana, which split from Punjab in 1965, the data spans 1967–1992, and for Jammu-Kashmir 1962–1992. This gives 519 observations. Deviations are accounted for by missing data (on which, see the Data Appendix). Panel D regressions restrict the sample for each state to data for two years prior to an election in which the proportion reserved jurisdictions changed, the election year and two subsequent years. The number of observations is 187, except for ST spending for which it is 82.
    * Significant at the 10-percent level.
   ** Significant at the 5-percent level.
  *** Significant at the 1-percent level.

instrument for SC and ST current population share.[25]

In summary, the regressions reported in Table 8 control, in different ways, for arguments of the function which determines the extent of reservation enjoyed by a group in an Indian state. In every case, I continue to find a significant relationship between reservation and policy outcomes. Increases in both SC and ST reservation are associated with increases in targeted redistribution. In addition, increases in ST reservation lower education spending while raising overall government spending.

[25] This specification checks for possible measurement error bias in the regression induced by the use of interpolated population data for inter-census years.

Taken together, the results in this section suggest that changes in legislator identity in India have exerted a significant influence on state-level policies in a way that is consistent with a model of political competition in which parties have policy preferences, but cannot commit their candidates to policies.

IV. Discussion

A number of countries, including the United States, have experimented with mandates that seek to enhance minority representation in the legislature. However, most of these experiments stop short of directly changing legislator identity. For instance, in the 1980's, U.S. courts succeeded in increasing African-American representation in the legislature by requiring states

to alter the composition of the electorate in some jurisdictions in favor of this group (Charles Cameron et al., 1996; Marvin Overby and Kenneth Cosgrove, 1996). However, in this case both voter and legislator identity were altered. As a result, isolating the effects of changes in legislator identity on policy has proven difficult. The nature of the political reservation mandate in India allows us to make progress on this issue.

To isolate the effect of legislator identity on policy outcomes I use time lags in the response of political reservation to population changes. Such time lags arise because the fraction of jurisdictions reserved for a group is adjusted to take account of changes in a group's population share only when new population census estimates arrive. Using decennial census estimates for electoral purposes is a commonly adopted practice in most democracies. This suggests that it may be possible to use variants of the identification strategy adopted in this paper to provide empirical evidence on other features of the political process. For instance, in many countries jurisdiction boundaries are redrawn after every decennial census to ensure equal populations in each jurisdiction. The time lags between actual population growth across jurisdictions and the equalization of population across jurisdictions may be used to isolate the political consequences of legislative redistricting.

This paper provides evidence that increased political representation for disadvantaged minorities can allow them greater influence on policy-making. I show that political reservation for scheduled castes and scheduled tribes in India has, in part, been responsible for the observed rise in targeted redistribution towards these groups over the last half-century. These findings also shed light on the functioning of the political process in India. In general, political reservation can affect policy outcomes only when parties cannot enforce policy commitment on the part of their candidates, and even then its effect remains sensitive to the decision-making procedures adopted in the legislature.

It would, however, be premature to view this paper's findings as suggesting that political reservation is a welfare-enhancing policy. To start with, neither the theoretical nor the empirical analysis has examined the implications of political reservation for candidate

quality. It is wholly feasible that the restrictions on candidate entry which are required by a policy of political reservation adversely affect the quality of candidates. Such restrictions may also reduce the ability of voters (and parties) to punish candidates who engage in wasteful redistribution or corrupt political practices. Policies chosen by minority legislators may also be more likely to reflect the policy preferences of special interest groups. For instance, minority individuals may be more easily intimidated by members of the majority social group. Alternatively, they may be more willing to curry favors along group identity lines. Finally, a candidate's social identity as a primary prerequisite may lead to individuals belonging to nonminority groups becoming more disengaged from, and disaffected by, the political process. All these factors go to suggest that the extent to which enhanced political representation for a group translates into improved welfare outcomes for members of these groups, and the polity at large, remains an open and important question for future research. Clearly, the findings in this paper suggest that one important element of any such research agenda must involve understanding the relative successes of targeted and broad-based redistribution in affecting the welfare of such groups.

MATHEMATICAL APPENDIX

The Appendix is structured as follows. First, the voting equilibrium and the decision-making rule in the legislature are described. Second, the proof for Result 1 is provided.

Voting Equilibrium.—In every jurisdiction a fraction α of the voters are rational, and a fraction $(1 - \alpha)$ are noise voters. A fraction β of these noise voters vote for party P, where β is a random variable with support $[0, 1]$ and cumulative distribution function $G(\beta)$. The function is symmetric, such that $G(\beta) = 1 - G(1 - \beta)$ for all β. That is, noise voters are unbiased. The electoral outcome depends on rational voters' voting choices, and the draw of β. Let ε denote the difference between the number of voters who favor party P, and those who favor party R. The party P candidate wins if

$$\alpha\varepsilon + (1 - \alpha)\beta > (1 - \alpha)(1 - \beta),$$

or,

$$\beta > \frac{1}{2} - \frac{a\varepsilon}{2(1-\alpha)}.$$

In probability terms a party P candidate wins in every jurisdiction with probability $\phi(\varepsilon)$, where $\phi(\varepsilon) = 0$ if $\varepsilon \leq \dfrac{1-\alpha}{\alpha}$; $\phi(\varepsilon) = 1$ if $\varepsilon \geq \dfrac{1-\alpha}{\alpha}$; and $\phi(\varepsilon) = 1 - G\left(\dfrac{1}{2} - \dfrac{a\varepsilon}{2(1-\alpha)}\right)$, otherwise. I assume that the fraction of noise voters in a jurisdiction is sufficiently high, so that $\lambda^k_{-c} + \lambda^{-k} - \lambda^k_c < \dfrac{1-\alpha}{\alpha}$. Under this assumption, a party which only attracts a single demographic group's vote will enjoy a positive probability of winning.

Legislative Procedure.—Identical jurisdictions imply that the same electoral outcome occurs in every jurisdiction. Hence, all legislators share the same party identity. If possible, a party will commit its candidates to the party preferred policy. Hence, with full policy commitment the policy favored by the winning party will be implemented by its legislators (all of whom will have been committed to this policy).

In the absence of full policy commitment legislative conflict may arise. Let δ_{Jc} and T_{Jc} be the levels of targeted and nontargeted redistribution favored by a caste c legislator belonging to party J. I assume that the policy influence of a legislator is increasing in the group size of legislators who share her/his policy preferences. Here, this group size is given by the number of legislators with the same income and caste identity. Given that income identity is fixed within a party, the legislative policy determination rule is defined as:

$$T^*_J = (1 - \psi(\pi_J))T_{JH} \text{ and } \delta^*_J = \psi(\pi_J)\delta_{JL}.$$

I assume $\psi(0) = 0$, and $\dfrac{\partial \psi(\pi_J)}{\partial \pi_J} > 0$.

RESULT 1: *If the proportion of low-caste members in each party is below their population share, then an equilibrium with no low-caste candidates and no targeted redistribution exists.*

PROOF:

This proof considers the case where the low-caste party membership share is less than their population share, i.e., $\xi_J < \lambda_L$. If policy commitment is feasible then prior to an election each party will commit its candidates to its preferred policies. Since candidate identity is irrelevant to the political process, $\pi_P = \pi_R = 0$ constitutes a pair of best responses.

Now consider the case where full policy commitment is infeasible. If $\pi_P = \pi_R = 0$, then party P will be associated with general redistribution and party R with no redistribution. Rational voters will vote for the party which represents her/his income group, and party P will win with probability $\phi(\lambda^P - \lambda^r)$. In equilibrium no targeted redistribution will occur. I now show that $\pi_P = \pi_R = 0$ constitute a pair of best responses for the two parties.

(i) If $\lambda^P > \lambda^*$ then rich low-caste individuals favor no redistribution. Hence, irrespective of caste identity, all party R candidates will favor no redistribution. $\pi_R = 0$ constitutes a best response. In contrast, low- and high-caste members of party P will favor different policies. If party P deviates to $\pi_P > 0$, then election of its candidates causes both targeted and general redistribution (see legislative procedure definition). Such a deviation, however, cannot improve party P's payoff. First, as rich citizens do not favor redistribution this deviation can not increase its probability of electoral success. Second, under the assumption $\xi_J < \lambda_L$ this deviation lowers the party's expected payoff. Hence $\pi_P = 0$ is a dominant strategy for party P.

(ii) If $\lambda^P < \lambda^*$ then rich low-caste individuals favor targeted redistribution. In this case given $\pi_R = 0$, $\pi_P = 0$ is a best response. Consider a deviation by party P to $\pi_P > 0$. Such a deviation leaves the voting decisions of rich high-caste and poor low-caste individuals unaffected. It causes rich low-caste individuals to vote for party P if

$$(1 - \psi(\pi_P))(\lambda^P y^p + \lambda^r y^r) + \psi(\pi_P)$$

$$\times \left(\frac{\lambda^P y^p + \lambda^r y^r}{\lambda_L}\right) > y^r.$$

Poor high-caste citizens continue voting for party P if

$$(1 - \psi(\pi_P))(\lambda^P y^P + \lambda^r y^r) > y^P.$$

These two conditions are jointly satisfied if $\lambda_H^r > \lambda_L^P$. In this case, the deviation maximizes party P's payoff if

$$\phi(\hat{\lambda})(W_P(\delta_P^*(\pi_P); T_P^*(\pi_P)))$$

$$+ (1 - \phi(\hat{\lambda}))(W_P(\delta_R^*(0); T_R^*(0)))$$

$$> \phi(\lambda^P - \lambda^r)(W_P(\delta_P^*(0); T_P^*(0)))$$

$$+ (1 - \phi(\lambda^P - \lambda^r))$$

$$\times (W_P(\delta_R^*(0); T_R^*(0)))$$

where $\hat{\lambda} = \lambda^P + \lambda_L^r - \lambda_H^r$. Solving this out gives:

$$\psi(\pi_P)(\phi(\hat{\lambda}))\left(\frac{\lambda^P y^P + \lambda^r y^r}{\lambda_L}\right)(\xi_P - \lambda_L)$$

$$> (\phi(\hat{\lambda}) - \phi(\lambda^P - \lambda^r))(\lambda^r(y^r - y^P)).$$

This inequality cannot hold if the share of low-caste members in a party is less than its population share, i.e., $\xi_P < \lambda_L$. For, in this case, the left-hand side is negative while the right-hand side is positive. It follows that given $\pi^R = 0$, $\pi^P = 0$ is a best response. A symmetric argument establishes that $\pi^R = 0$ constitutes a best response to $\pi^P = 0$.

DATA APPENDIX

The data set used in this paper builds on an Indian state-level data set which was collated by Berk Ozler et al. (1996), and updated by Besley and Burgess (2000). The data set spans 1960–1992 and includes the 16 major Indian states. These states are Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Jammu-Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal. Jammu-Kashmir enters the data set in 1962, and Haryana in 1967.[26]

Political data come from Shankar Bose and

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[26] Haryana was created in 1965, by splitting up Punjab. Political data for Haryana exists from 1967.

V. B. Singh (1987) and Election Commission state election reports. The variable "SC (ST) reservation" is the proportion of jurisdictions in a state reserved for scheduled castes (scheduled tribes). The election dummy takes a value one in the year of a state election, and zero otherwise.

Population data are from the decennial Indian censuses, 1951 through 1991 (Census of India, Registrar General). In accordance with the scheduled castes and scheduled tribes orders (Amendment) Act, 1976 fresh census estimates of scheduled caste and scheduled tribe population were issued in 1977. Data have been interpolated for inter-censal years. The variable "SC (ST) census population share" is the scheduled caste (scheduled tribe) population share as reported by the census at the time when reservation was determined. This variable is updated to reflect new census estimates for a state in the year of the first election held in the state after the new census estimates have been declared and the Delimitation Commission has met. The variable is held constant between two such elections. The SC (ST) current population share is the interpolated SC (ST) population share from the census, as measured in the current year. Population density is the ratio of interpolated total population data from the census as measured when reservation was determined in the state divided by total land area of the state, as reported in the Census Atlas. The variable is updated for a state in the year of the first election held in the state after the new census estimates have been declared and the Delimitation Commission has met.

Public finance variables: The general expenditure variables are from the Reserve Bank of India Report on Currency and Finance, and the targeted expenditure variables are from the annual Ministry of Welfare handbook. The variable descriptions are as below:

1. Total spending is the log total state expenditure during the budget year expressed in real per capita terms.
2. Education spending is the share of total state expenditure going to elementary, secondary, university and higher, technical, and adult education. 1972 data are missing for Bihar and Gujarat, and 1972, 1973 data for Haryana and Tamil Nadu.
3. SC welfare spending is the share of total

state expenditure going to scheduled caste welfare programs. This variable exists from 1975. 1981 data are missing for Jammu-Kashmir, and 1984 data for all states except Andhra Pradesh, Assam, and Jammu-Kashmir.

4. ST welfare spending is the share of total state expenditure going to scheduled tribe welfare programs. 1974 data are missing for Maharashtra, Tamil Nadu, and Uttar Pradesh, 1975 data for Uttar Pradesh, and 1986 data for Andhra Pradesh and Uttar Pradesh.

Land Reform is a dummy variable which equals one for an Indian state in the year in which the state legislature passed a land reform legislation, and is zero otherwise. This variable was created and used in Besley and Burgess (2000).[27]

Job quota is the proportion of state government jobs which are reserved for scheduled castes and scheduled tribes. The data source is the annual scheduled caste and scheduled tribe commissioner's reports.

State income is the log of the real per capita state income. The data source is: Estimates of State Domestic Product, published by Ministry of Planning, Government of India.

Price deflators: The "Consumer Price Index for Agricultural Laborers" (CPIAL) and Consumer Price index for Industrial Workers' (CPIIW) are used to deflate all monetary variables. The reference period for the deflator is 1973–1974. The deflators are obtained from Government of India publications (Indian Labor Handbook, the Indian Labor Journal, the Indian Labor Gazette, and Reserve Bank of India Report on Currency and Finance).

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[27] Four types of reforms were considered: tenancy reform, abolition of intermediaries, ceilings on land holdings, and consolidation of land plots.

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