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Reservation Policy and Criminal Behavior in India: The Link Between Political Reservation and Atrocities Against Scheduled Castes and Tribes

Raahil Madhok, McGill University[1]

In the world's largest democracy the institution of caste has incited a form of discrimination that has, for centuries, remained a haunting experience for a large populace of society. The caste system alone has created a section of sub-human beings, comprised of Scheduled Castes (SCs), or dalits, and Scheduled Tribes (STs), whose human rights have been trampled since ancient times (Khandare 2005). After independence, the Constitution of India prescribed certain protection and safeguards for SCs and STs with the objective of promoting their educational, economic, and political interests (Karade 2008). One such policy measure was mandated political representation, where seats are reserved for SCs and STs in federal or state legislative assemblies and at all levels of the Panchayat system (the system of decentralized decision making) (Duflo 2005). However, even after five and a half decades of state intervention, these groups remain at the bottom of most human development indicators (Chakraborty et al. 2006).

What makes SCs and STs a distinct group, however, is not so much their poverty—because poor people are found in most social groups—but the endemic violence (termed "atrocities") to which they are frequently subjected. Although ample research has been conducted on whether political reservation for minorities influences certain development indicators, it remains an open question whether it affects behavioral outcomes. I attempt to fill this research gap by investigating the question: what is the relationship between political reservation for SCs and STs and the number of cases of atrocities committed against them?

While these two variables have yet to be examined together in the academic circle, Pande (2003) sets the stage by examining the role of mandated political representation in providing disadvantaged groups influence over policy-making. Her main finding is that political reservation for minority groups in Indian states can allow them greater influence in policy-making, accompanied by increases in overall spending on public goods for their benefit. Furthermore, legislators belonging to minority groups use this increased policy influence to increase the incidence of targeted redistribution.

Chakraborty et al (2006) note that past Indian policy-makers have assumed that the constitutional safeguards for SCs and STs, and the resulting redistribution of goods in their favor, will lead to the termination of violence and discrimination against them. The basis for this assumption comes from the Indian constitution, which guarantees protection from social injustice and all forms of exploitation (Art.46). It guarantees equality before law (Art. 14), and enjoins upon the State not to discriminate against any citizen on grounds of caste (Art. 15 (1)). Untouchability is abolished and its practice in any form is forbidden (Art. 17). This allows for the formation of the hypothesis that mandated political reservation for SCs and STs, and atrocities committed against them, are characterized by an inverse relationship.

On the other hand, Chakraborty et al (2006) also note that atrocities against SCs and STs are a societal response to increased dalit mobility. In this sense, the enhanced policy-

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influence for SCs and STs found by Pande (2003) can be construed as fostering upward mobility. As minority groups gain political representation, their assertive comportment tends to provoke non-dalits and attract atrocities (Chakraborty et al. 2006). I call this the social mobility hypothesis. Furthermore, this could be presumptively amplified by an increase in the reporting and registration of cases. As SCs and STs gain more influence over policy-making, it could also be hypothesized that they would feel more comfortable reporting crimes against them since there is a higher probability that their voice will be heard. A second, and converse, hypothesis can thus be formulated: mandated political reservation for SCs and STs, and atrocities committed against them, are characterized by a positive relationship**.** Whether the true relationship is negative or positive however remains theoretically unclear. Moreover, since the examination of crime against SCs and STs was left out of Pande (2003), there is no empirical support for either hypothesis. It is against this background that my contribution is made.

I employ the same primary methodology as Pande (2003), mainly a state-level panel data set, to examine whether political reservation in state elections affects the number of atrocities committed against SCs and STs (as reported under the SC/ST act). I collect data on total number of seats in the Lok Sabha (the lower house of the Parliament of India) for 28 states, along with the number of reserved seats for SCs and STs from 1989-2009. Data are also collected on atrocities against SCs and STs (separately and combined) for the same time period. I standardize this data by million population to allow for clearer interpretation of the regression output.

A general problem when estimating the effect of minority political reservation is that the reservation variable is likely endogenous (Prakash 2007). For example, states that elect more minorities to office might also treat minorities better in schools and the labor market. This could potentially confound the interpretation of the estimated coefficients in a regression of crime against SC/STs on political reservation, since the estimated effect may not be causal. Fortunately, in the case of India, the way in which the federally mandated political reservation policy is implemented facilitates the identification of a causal effect. In particular, the Indian Constitution stipulates that in each state the extent of political reservation for SCs and STs must reflect their respective shares of total state population as tabulated in the most recent population census (Prakash 2007; Pande 2003). This policy rule generates plausibly exogenous variation in political reservation for minorities, permitting identification of the causal effect of reservation on crimes against SCs and STs.

I account for intercensal fluctuations in minority population shares in order to avoid confounding the effect of political reservation with other state-level changes likely to be correlated with atrocities against SCs and STs. It is erroneous to expect a minority population's share to only affect atrocities against them through the federally mandated political reservation policy. Instead, the identification strategy exploits the fact that the share of seats reserved for SCs and STs can only change with a lag with respect to both the current population share and the population share in the most recent census. There are two sources of the lag: (1) the current population varies continuously, but the number of reserved seats is based on the census, which is taken only decennially; and (2) there is an administrative lag between when the census is taken and when the number of reserved seats is adjusted to reflect the new census data (Prakash 2009). These jumps and administrative lags generated by the policy rule allow me to disentangle the effect of political reservation for minorities on atrocities against them from the effect of contemporaneous changes in their population.

The current literature shows that mandated political representation for minorities leads to increased volumes of transfers toward them in the form of public goods (Pande 2003; Duflo and Chattopadhyay 2004). Besley et al (2004) found that reservation of a leadership position for a SC or ST increases (by about 7 percentage points) the chance that a SC or ST household in that village would have access to a toilet and electricity connection. While these findings may suggest SCs and STs are realizing socio-economic development as a result of the reservation policy, Ajay (2010) states that reservation is actually a foolproof recipe of equality that has done little to mitigate the oppression of dalits, and atrocities against them are daily phenomena. This paper contributes by empirically testing the effect of this "foolproof recipe" on atrocities against SCs and STs. The main finding is that political reservation for SCs and STs in Indian states has increased the number of atrocities committed against them. More specifically, a 1-percent increase in the percentage of seats reserved for SCs increases the number of atrocities committed against SCs and STs (combined) by 200 per million population, while ST representation did not affect the number of atrocities at any conventional level of significance. Both the underreporting and social mobility hypotheses are plausibly responsible for the positive relationship, but the current analysis cannot identify which one is a more significant explanation for the results. This is a main limitation of the paper and an interesting area for further research.

In a period when socio-economic development, equality, and protection of human rights for all citizens is at the core of the Indian constitution (Ajay 2010)—and economic development programs in general—it is imperative to understand the effect of this unique policy on atrocities against minority groups. An evaluation of the mandated political reservation policy should be of interest for a number of reasons. First, I am not aware previous studies that quantify the effect of this policy on criminal behaviour against minority groups. Yet, it is the largest federally mandated political reservation policy in the world (Prakash 2010). Second, this paper adds to the existing literature on the effects of affirmative action. Finally, affirmative action policies are a subject of heated debates in many countries, and it is important to understand whether they benefit the intended beneficiaries in the first place before adopting or continuing them.

The remainder of this paper proceeds as follows: Section I briefly discusses the related literature on political reservation and atrocities against SCs and STs. Section II provides the methodology and empirical framework. Section III describes the panel data set and provides descriptive statistics. The main results are described in Section IV. Section V concludes with a discussion on the importance of the findings for understanding how federally mandated political reservation policies for historically disadvantaged minority groups affects atrocities committed against them, and how the optimal design of affirmative action policies are more complex than assumed by Indian policy-makers.

I. LITERATURE REVIEW

The political economy of affirmative action is a comprehensively studied area in economics. The first set of studies provides the theoretical underpinning, such as the classic median voter model suggested by Hotelling in 1929, which states that in a democratic setting the outcome of the decision is the one most preferred by the median voter. In his eminent paper *A Theory of Bureaucracy*, Downs (1965) introduces the idea that bureaucratic officials are motivated by their own self-interest. Furthermore, since the vote motive provides re-

election seeking politicians with strong incentives to respond to the demands of small, well-organized elite groups, representative democracies frequently lead to a tyranny of the minority. Theoretical models introduced by Osborne and Slivinski (1996) called citizen-candidate models predict that legislator identity influences policy determination. This model thus predicts that legislators elected to fill reserved seats will favor policies that benefit groups with the same identity. In a similar vein, Kalt and Zupan (1984) show that policy outcomes are significantly influenced by a candidate's personal ideology.

The second set of studies consists of empirical papers that test the effects of reservation policies on various development outcomes, and argue that policy preferences differ by group. Duflo (2005) notes that even if the potential beneficiaries of reservations have different political preferences than the majority, this is not sufficient to ensure that reservations have any impact, as long as candidates can commit to a policy platform in advance. As Hotellings (1929) and Downs (1957) model predicts, the elected candidate would be the one who commits to the policy that the median voter prefers. In practice however, Duflo (2005) finds that there is a shift in the allocation of public expenditures in the direction of the members of the group who benefit from the reservation policy. Pande (2003) finds that mandated political reservation for SCs and STs in India has led to increased welfare transfers for them. Specifically, a 1-percent rise in SC reservation is associated with a 0.6 percent increase in job quotas for them. By mapping where public goods are located within Indian villages, Chattopadyay and Duflo (2004) found that out of all repair or construction of public goods in a given Panchayat village, the share going to SC hamlets is on average 11% larger when the village is located in a hamlet reserved for SC. Prakash (2009) finds that job reservations benefit SCs by decreasing the incidence of child labor and increasing household consumption expenditure, children's school enrollment, and the probability of acquiring a salaried job. In another paper, Howard and Prakash (2010) find that employment reservation increases the probability of SCs choosing high-skill occupations. Cassan (2011) finds that reservation in the education system has no effect overall. However, the vital question left unanswered in all the empirical analyses is whether these beneficial effects of reservation policies, and changes in government redistribution programs towards targeted programs, improve the well-being of the minority groups. Using state-level panel data and the same methodology as Pande (2003), Prakash (2007) attempts an answer. Using the Head Count Ratio, Poverty Gap Index, and Squared Poverty Gap as measures of poverty, he finds that increasing ST reservation significantly reduces poverty in both urban and rural areas, while increasing SC reservation significantly reduces urban poverty but has no impact on rural poverty. Taken together, this literature suggests political reservation (and reservation policies in general) leads to positive development outcomes for minority groups and increases their influence in the political sphere.

The literature on atrocities against SCs and STs is sparser and shows a gloomier picture. Giving a human rights perspective, Ajay (2010) notes that atrocities against dalits are rooted in the historical division of society, where caste disabilities were strictly enforced and severe punishments were imposed on those who deviated from their prescribed social conduct. Historically, Shudras, the lowest caste, were not allowed to own property or hold a position under the State. Thus, under the Hindu social order, Shudras and untouchables (SCs) were considered unworthy of any rights, and this backwardness has made them vulnerable to atrocities. This attitude has continued into modern times (Vakil 1985), despite the passing of the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Acts (1989).

Joshi (1982) states that the data repeatedly suggest that the term "Untouchable" continues to be perceived as a hereditary category, causing dominant societal attitudes about their legitimacy as persons to be highly resistant to change. Chakraborty et al (2006) notes that although there is no religious sanction for untouchability, there is a widespread notion in society that dalits are born inferior, and any attempt by them to move away from their place will lead to social disharmony. But then social disharmony is expected, since officially Untouchability and the Caste system are outlawed, a policy aimed at empowering SCs and STs and mitigating their oppression. Political reservation policies are rooted in the same purpose, and the results have been positive (according to the abovementioned literature). But Chakraborty et al (2006) note that it is these virtuous policies that drive the atrocities against minorities since it leads to "dalit assertion", which provokes group response from non-dalits. Their empirical evidence suggests that violence is directed at relatively better off dalits, and to that extent, atrocities are a response of society to dalit mobility. Ajay (2010) reinforces this point, noting that through education SCs and STs have become more aware of their rights, but any attempt to assert these rights is meted out with the might of the upper castes because assertion of their rights runs counter to the dominance of the upper class.

Given these two strands of literature, there appears to be a disconnect between the motives underlying both political reservation and atrocities against SCs and STs. Though positive development outcomes and decreases in poverty have resulted from political reservation, the anecdotal evidence suggests that these results are what drive the atrocities. Chakraborty (2006) notes that Indian politicians support political reservation because they assume a reduction in violence against SCs and STs will be another positive outcome to add to those already shown to result from these policies. Because atrocities against SCs and STs and political reservation have yet to be studied in conjunction in the literature, this disconnect provides a unique opportunity to determine whether politicians' assumptions, or the anecdotal evidence, is correct. My results agree with the latter, showing a positive relationship between political reservation for SCs and STs and atrocities committed against them.

II. EMPIRICAL MODEL

In order to identify the impact of political reservation for minorities on the number of atrocities committed against them, I use within-state variation in minority political reservation over time, and the manner in which the policy rule is implemented. The key to the identification strategy is to estimate the causal impact of political reservation for disadvantaged minorities on atrocities by disentangling the effect of omitted variables that drive both the political reservation and outcome variable. To estimate the causal effect suppose the relationship between shares of seats for SCs and STs and atrocities committed against them could be approximated by the following equation:

$$(1) \qquad NUMATROC_{s,t} = \beta_1 RESERVATIONs_{,t} + \alpha_s + \gamma_t + \varepsilon_{s,t}$$

where:

$NUMATROC_{s,t}$ is the number of atrocities committed against SCs or STs (or both) in state *s* observed at time *t*.

$RESERVATION_{s,t}$ is a vector whose elements are SC reservation and ST reservation.

α_s is the state-fixed effects, and control for the influence of any time invariant state characteristics on atrocities against minorities.

γ_t is the time-fixed effects, and control for any macroeconomic shocks or national policies that affected all states uniformly.

$e_{s,t}$ the state level error term.

The coefficient of primary interest is β_1, which will be the estimated effect of minority political reservation on the number of atrocities committed against SCs and STs per million population. At this point, $RESERVATION_{s,t}$ is likely endogenous due to the omitted variable bias. The omitted variables are likely to be correlated with both $RESERVATION_{s,t}$ and $NUMATROC_{s,t}$ and thus would not be reliably estimated by an OLS regression.

As mentioned in the introduction, India's constitution stipulates that SC and ST reservation reflect their census population share. As a result, this policy allows lagged population share of SCs and STs to be a crucial source of omitted variables in the OLS model. To guard against this, I add census population share of SCs and STs as a control. I am able to do this because even though the population shares of SCs and STs is changing continuously, the extent of reservation can only change during the first state election after the new census count arrives and the Delimitation Commission has met (Prakash 2007). Between two state elections, the extent of reservation remains constant. Moreover, SC and ST reservation can only be an integer, making it a non-linear function of its most recent census count. After adding the census population shares for SCs and STs, I estimate the following equation:

$$(2) \qquad NUMATROC_{s,t} = \beta_1 RESERVATION s_{,t} + \beta_2 CENPOP_{s,t} + \alpha_s + \gamma_t + \varepsilon_{s,t}$$

where $CENPOP_{s,t}$ is a vector whose elements are census population shares of SCs and STs. However, equation (2) is also prone to the omitted variable bias, since government policy towards SCs and STs could be driven by their current population share. To guard against this, I add current population shares of SCs and STs as controls. I am able to do this because the current year population and election year in a state is different, and political reservation in the Lok Sabha is based on the most recent census count, not on most recent population count.

Given the complexity of the reservation process and my identification strategy, I provide a simplified diagrammatic explanation using Uttar Pradesh as an example. In figure 1 (below) the most recent census count is in 2001. However, the reserved seats for SCs and STs are not adjusted until the first state election following this census. Thus, reserved seats are based on the 1991 census until the election in 2004, even though the 2001 census has been conducted. The seats are readjusted in 2004 and remain constant till another such election year.

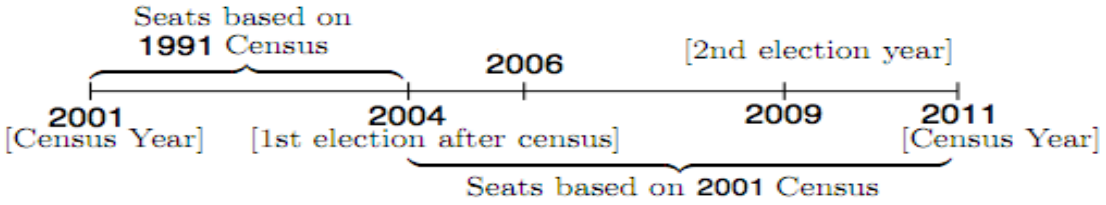

Figure 1: Time Line

After adding current population shares of SCs and STs as controls, I estimate the following equation:

$$(3) \qquad NUMATROC_{s,t} = \beta_1 RESERVATION_{s,t} + \beta_2 CENPOP_{s,t} + \beta_3 CURRPOP_{s,t} + \alpha_s + \gamma_t + \varepsilon_{st}$$

where $CURRPOP_{s,t}$ is a vector whose elements are current population shares of SCs and STs.

Immediately after SCs and STs are given more seats in the Lok Sabha, it can be assumed that no changes will take place, as policies need time to be drafted and discussed amongst legislative members. As SCs and STs gain more political representation, the socio-economic effects will take some time to materialize, and similarly, atrocities against them may respond with a lag. To see whether the response of atrocities against SCs and STs to changes in their political reservation is characterized by a lag, I repeat the above steps for the OLS regression using 3-year lagged dependent variables.

III. DATA

This paper builds upon a multiplicity of data sources. The unit of analysis is the Indian state. I use a data set of all 28 states (not including union territories) that spans the years 1989-2009. Chattisgarh, Jharkand and Uttarkhand, which split from Madhya Pradesh, Bihar, and Uttar Pradesh respectively in 2000, enter the data set in 2001. Together, these states account for over 98% of the Indian population. Table 1 provides key descriptive statistics.

A. POLITICAL DATA

I use IndiaStat to gather electoral data. This comprehensive statistical information portal gathers and publishes electoral data from the Election Commission reports. Although containing detailed constituency level data for each election, I only use number of seats reserved for SCs, STs and total number of seats allotted for each state in the Lok Sabha. The variable that enters the estimation (equations (1)-(3)) is called "SC (or ST) reservation". This is defined as the number of seats reserved for SCs or STs in the state assembly divided by the total number of assembly seats allotted for that state in a specific election year. In my sample, the average SC reservation is 10.4 percent, while ST reservation is 14 percent (see table 1). The reason ST reservation is higher is because it is skewed by a few states. For example, in the small eastern state of Mizoram 100 percent of seats are reserved for STs because the state is allotted just one seat in the Lok Sabha, and this seat is reserved for STs. Similarly, 50

percent of seats are reserved for STs in Manipur and Tripura. For this reason, it is better to use the median to interpret ST reservation. Using this measure, it can be seen that STs have no political representation across all states, while 10.4 percent of seats remain reserved for SCs (see Table 1).

B. POPULATION DATA

I also use IndiaStat for the collection of population data from 1989-2009. This database uses the Census of India, Registrar General data from 1951-2001. Fresh census estimates come out every ten years. The data series has been interpolated for intercensal years using the linear interpolation technique. For three states in which the SC or ST population decreased between the 1991 and 2001 census, linear interpolation produced negative population numbers over time. In this case, SC or ST population was recorded as zero from the time it became negative. "SC (ST) census population share" is the first variable that enters the estimation. It is the population share of SCs or STs reported by the Census of India at the time when reservation of seats for the election is determined, and defined as population count of SC (or ST) in a state divided by total population count in that state at the time of census. This variable is updated to reflect new census estimates for a state in the year of the first state election after the arrival of the new census and after the Delimitation Commission has met to reorganize the reservation of seats according to the new census. The variable is held constant until two such state elections are held. The second variable is "SC (ST) current population share". This is the interpolated SC or ST population share from the census as measured in the current year, and defined as the population count of SC or ST in a state divided by the total population count in that state in the current year. In this sample, the average SC census population share is 12.2 percent while average SC current population share is 12.1 percent. The average ST census population share is 22.2 percent while the average ST current population share is 21.8 percent (see Table 1).

C. CRIMINAL DATA

Because no single record contains data on atrocities against SC/ST during the 1989-2009 time span used in the panel data set, I combine three data sources. I use IndiatStat for the years 1997-2009. Their database is generated using data from the Ministry of Home Affairs reports (Government of India), which reports cases of atrocities against SCs and STs registered under the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act (1989). For the years 1989-1995 I compile data from the annual reports published by the National Commission for Scheduled Castes and Scheduled Tribes. For the year 1996 I use the journal *Crime in India*. It is important to note that a major assumption of the three criminal data source is that atrocities are specifically targeted towards SCs/STs and not chance occurrences. The basis for this assumption, which is explained further in the discussion section, is rooted in a long history of caste-based discrimination and exploitation which continues today.

Ideally, atrocities against SC/ST should be broken up into component crimes, allowing for identification of which type of atrocity is most common and sensitive to changes in political reservation. However, the different data sources have differing classification of atrocities, making it difficult to separate total atrocities into components. For example, the

Ministry of Home Affairs classifies atrocities as: murder, hurt, rape, dacoity, robbery, arson, kidnapping & abduction, and "other offences". The National Commission for Scheduled Castes and Scheduled tribes however classifies dacoity, robbery, and kidnapping & abduction as "other offences". Because it is not possible to break apart "other offences", I use the total atrocities committed against SCs or STs as my measure.

The dependent variables in the estimations are "SC (ST) atrocities per million" and "SC/ST atrocities per million". The former variable is the total number of atrocities committed against SC (ST) in a state standardized by one million persons in that state, and defined by multiplying total number of cases by 1 million, and then dividing by total state population. This is done because standardizing by total state population produces a miniscule value that pushes the regression coefficients near zero, making them difficult to interpret. The latter variable is the combined total cases of atrocities against SCs and STs per million population, and defined by adding the number of cases reported against SCs and STs, multiplying by 1 million, and dividing by state population. In the sample, the average number of atrocities against SCs is 17.4 per million, while the average against STs is 4.7 per million. The average number of combined atrocities against both SCs and STs is 22.1 per million (see Table 1). While these values may appear small, it masks the reality of cases going unreported, or being registered under a different act, such as the Prevention of Civil Rights Act.

Table 1: Descriptive Statistics

Variable	Mean	Median	Standard Deviation
SC reservation (percent of total seats)	10.4	10.4	8.8
ST reservation (percent of total seats)	14.01	0.0	24.3
SC census population share	12.2	14.5	8.2
SC current population share	12.1	14.7	8.3
ST census population share	22.2	10.9	28.3
ST current population share	21.8	9.4	28.7
SC atrocities per million	17.4	8.5	24.6
ST atrocities per million	4.7	6.9	47.5
SC/ST atrocities per million	22.1	11.2	56.3

D. POLITICAL RESERVATION AND CRIME AGAINST SC/ST

Before running the empirical model, I plot the two variables of interest during 1989-2009 to give a preliminary understanding of the relationship between the proportion of seats reserved for SCs and STs (separately and combined) and atrocities per million against them over time. I do this for each state, giving three scatter plots per state. These multiple-axis scatter plots give a visual depiction of the direction in which atrocities changes over time as a result of a change in political reservation, thus informing the regression results. Ample variation is found across states and between SCs and STs, with more graphs showing a positive relationship between the atrocities and time variables after a change in seat reservation. Several graphs show no change in reserved seats. I use Andhra Pradesh and Himachal Pradesh as an example. In figure 2, the number of seats reserved for SCs increases in 2001, after which a notable rise in atrocities against SCs is seen, as compared to the years

prior to 2001. This same trend is seen in figure 3 for combined seats reserved for SCs and STs and atrocities against both groups.

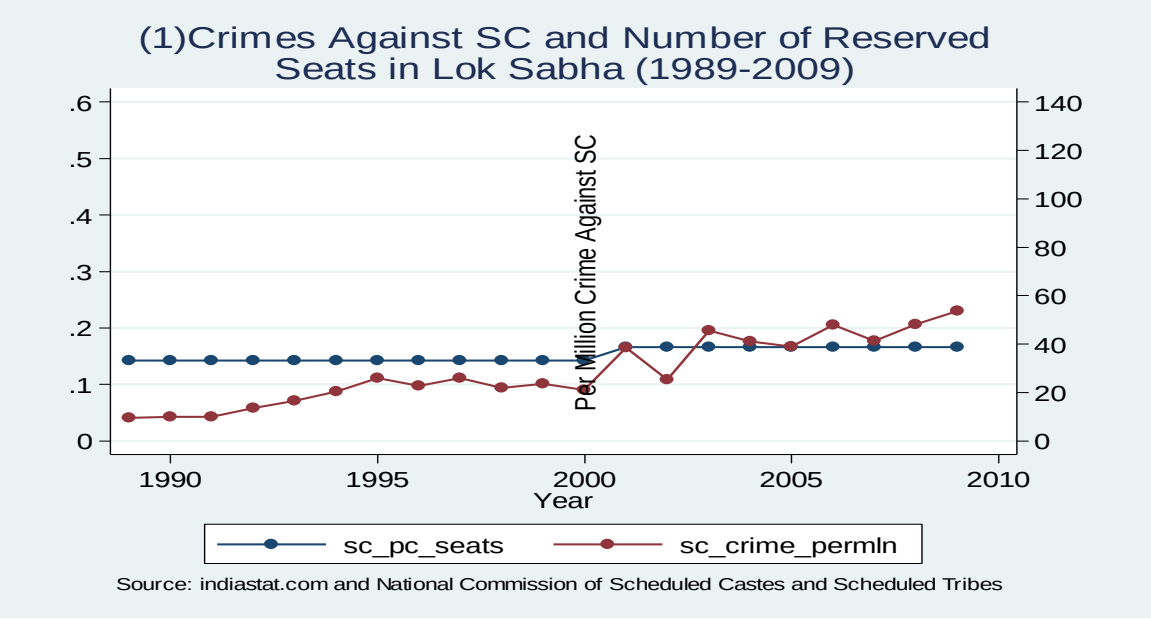

Figure 2: Crimes Against SC (1989-2009), Andhra Pradesh

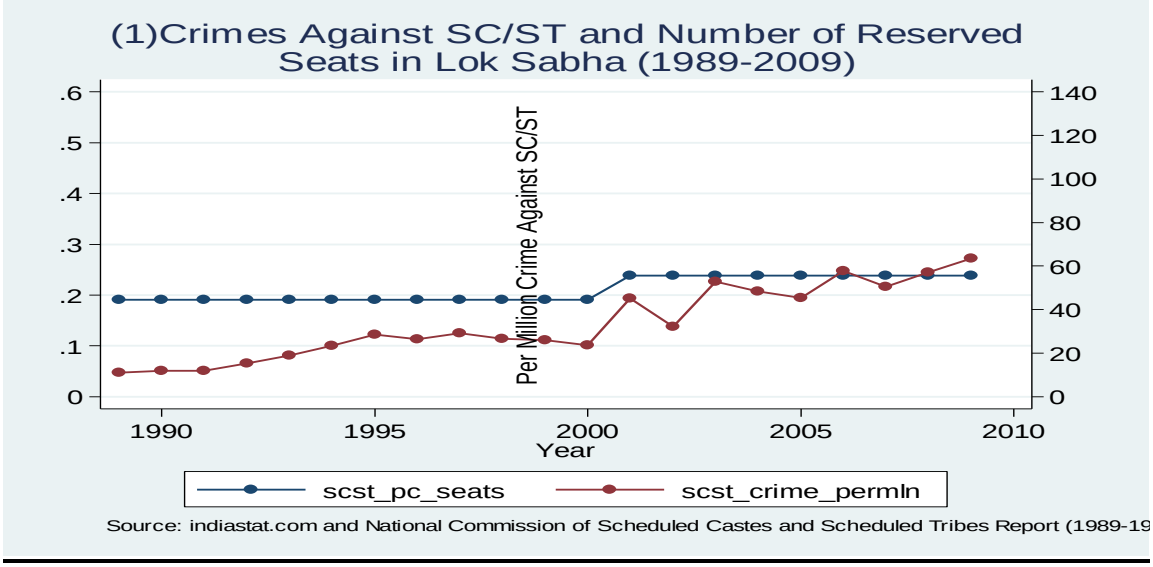

Figure 3: Crimes Against SC and ST (1989-2009), Andhra Pradesh

In figure 4, the number of seats reserved for SCs remains constant throughout the time period. Although atrocities against SCs vary slightly, the average change is approximately zero. The same trend is seen in figure 5 for combined SCs and STs. The relationships in figures 2-5 are important since the regression ultimately compares states that had a change in reserved seats for SCs and STs, and atrocities against them, with states that did not. The

trends suggest a positive relationship between the political reservation and atrocities variables. Regression results presented in the next section confirm this conjecture.

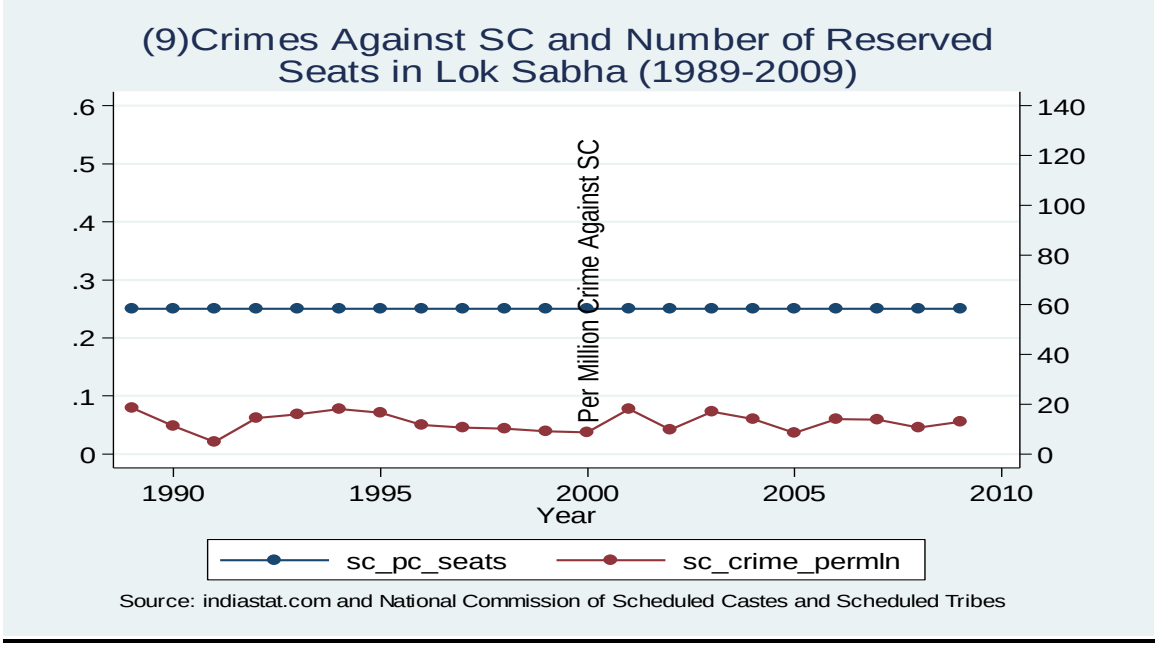

Figure 4: Crimes Against SC (1989-2009), Himachal Pradesh

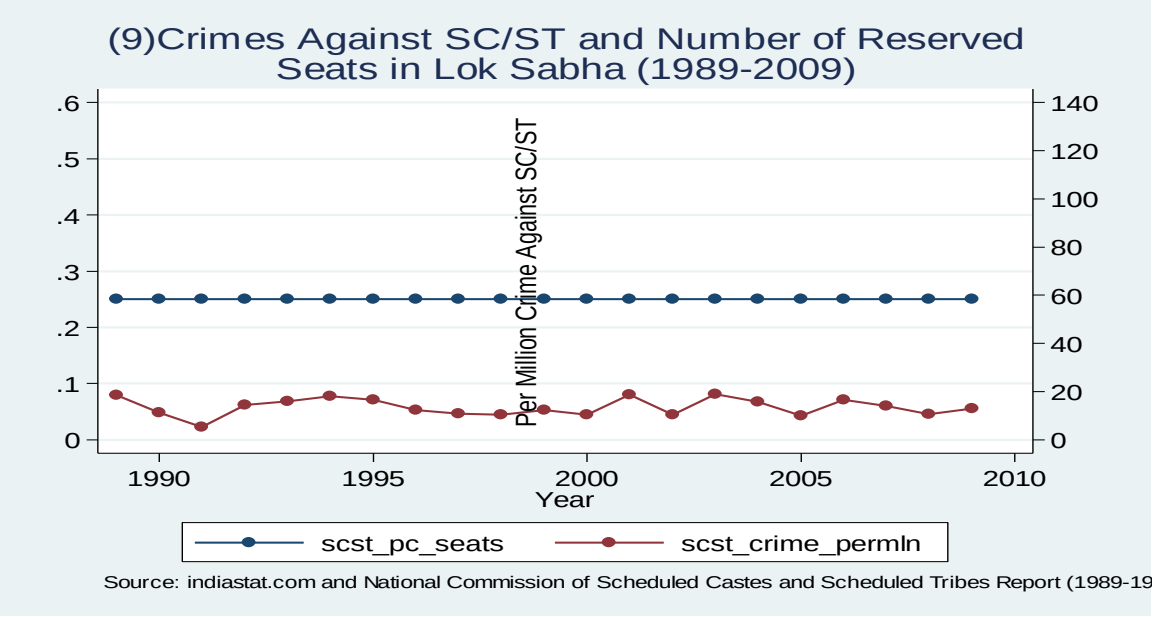

Figure 5: Crimes Against SC and ST (1989-2009), Himachal Pradesh

IV. RESULTS

The findings for the effect of political reservation for SCs and STs on the number of atrocities per million committed against them is reported in tables 2 and 3. For each group—SCs, STs, and combined—I sequentially expand the set of covariates to estimate equations (1)-(3) in section II. Columns (1)-(3) in table 2 show the effect of SC and ST reservation on atrocities against SCs. Column (1) shows that increases in SC and ST reservation increase atrocities committed against SCs per million. However, only SC reservation is significant at the 10 percent level. Columns (2) and (3) show that this estimated effect is robust to the inclusion of population controls (SC and ST census and current population shares respectively). In both columns, SC reservation (but not ST reservation) is significant at the 10 percent level. Columns (4)-(6) show the effect of SC and ST reservation on atrocities against STs. Similar to columns (1)-(3), column (4) shows a positive effect of SC and ST reservation on atrocities against STs. However, neither SC nor ST reservation are significant at any conventional level. In columns (5) and (6), which add the population controls, SC reservation continues to have a positive effect on atrocities, while the effect of ST reservation turns negative. SC reservation remains insignificant and the negative effect of ST reservation is miniscule and also insignificant.

Table 3 shows the impact of SC and ST reservation on atrocities against both SCs and STs (combined). Column (1) shows that increases in both SC and ST reservation increase atrocities against SC/ST. SC reservation is significant at the 5 percent level while ST reservation is insignificant. Column (2), which includes the census population control, also shows a positive effect, although SC reservation becomes significant at the 10 percent level while ST reservation remains insignificant. Column (4), which is the estimate of my preferred specification and includes all population controls, suggests that a 1-percent increase in the proportion of seats reserved for SCs increases the number of atrocities against SCs and STs (combined) by 200 per million. ST reservation remains positive but insignificant. Ultimately, increases in SC reservation increase atrocities against both groups (separate and combined), but is only significant in its effect on atrocities against SCs and SC/STs (combined). ST reservation has no significant impact on atrocities against either group.

Table 2: Regression 1 – Effect of Political Reservation on Atrocities Against SCs and STs

	Atrocities Against SCs (per million)			Atrocities Against STs (per million)		
	(1)	(2)	(3)	(4)	(5)	(6)
SC reservation (percent of total seats)	183.017	162.594	162.645	31.416	31.602	37.969
	(93.301)*	(87.662)*	(86.971)*	(38.784)	(31.075)	(31.330)
ST reservation (percent of total seats)	1.587	3.647	4.380	1.815	-0.667	-0.404
	(3.457)	(3.011)	(3.204)	(2.432)	(1.538)	(1.126)
SC census population share		363.936	2.554		226.909	89.674
		(210.924)*	(341.486)		(297.174)	(557.485)
ST census population share		-76.436	-243.995		143.655	205.544
		(50.601)	(120.384)*		(97.399)	(230.768)
SC current population share			463.156			176.448
			(293.270)			(433.954)
ST current population share			181.668			-68.592
			(127.017)			(161.610)
State Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	506	495	495	506	495	495
R-squared	0.84	0.85	0.85	0.38	0.39	0.39

** significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent*

Robust standard errors are in parentheses. Data clustered at the state level. Regressions include state and year dummies. Data are for the period 1989-2009. For Chattisgarh, Jharkhand, and Uttarkhand which split from Madhya Pradesh, Bihar, and Uttar Pradesh respectively in 2000 data starts in 2001. This gives 506 observations. Deviations from this are due to missing data in states where the census was not conducted (such as Jammu and Kashmir during the 1991 census)

Table 3: Regression 2 – Effect of Political Reservation on Atrocities Against SCs/STs (combined)

	Combined Atrocities against SCs and STs (per million)		
	(1)	(2)	(3)
SC reservation (percent of total seats)	214.433	194.196	200.614
	(102.853)**	(99.442)*	(99.142)*
ST reservation (percent of total seats)	3.403	2.980	3.976
	(3.928)	(3.822)	(3.818)
SC census population share		590.845	92.227
		(428.404)	(758.733)
ST census population share		67.219	-38.451
		(127.200)	(293.663)
		(5.016)	(4.756)
SC current population share			639.604
			(606.683)
ST current population share			113.076
			(244.195)
Year Fixed Effects	YES	YES	YES
State Fixed Effects	YES	YES	YES
Observations	506	495	495
R-squared	0.71	0.71	0.71

** significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent*
Robust standard errors are in parentheses. Data clustered at the state level. Regressions include state and year dummies. Data are for the period 1989-2009. For Chattisgarh, Jharkhandand, and Uttarkhand which split from Madhya Pradesh Bihar and Uttar Pradesh respectively in 2000 data starts in 2001. This gives 506 observations. Deviations from this are due to missing data in states where the census was not conducted (such as Jammu and Kashmir during the 1991 census)

Tables 4 and 5 in the appendix contain the results of the lagged OLS model, where SC and ST reservation are lagged by three years. Similar to the results in table 2, column (1) shows that increases in both SC and ST reservation increase the number of atrocities against SCs. This estimated effect is robust to the inclusion of population controls (census population share and current population share in columns (2) and (3)). Column (4) again shows a positive relationship between the reservation variables and atrocities against STs, however after adding the population controls in columns (5) and (6), the effect of ST reservation turn negative. The main difference between the lagged and non-lagged models is that SC and ST reservation in the former model is not significant for any specification. Table 5 contains the preferred specification. Column (1) shows a positive effect of SC reservation on atrocities against SCs and STs (combined). This effect is significant at the 10 percent level and robust to the inclusion of census population shares (column (2)). However, the effect in column (3), which contains both population controls, loses significance, although remaining positive. Although some specifications lose significance in the lagged model, the preferred specifications (in table 5) are roughly similar to that of table 3, suggesting that the results are not sensitive to a time lag.

V. DISCUSSION AND CONCLUSION

This study contributes to the literature on affirmative action by taking advantage of a natural experiment in India that allows for the identification of the causal effect of political reservation on atrocities against SCs and STs. Using an identification strategy based on jumps and administrative lags in the response of minority political reservation to population changes in India, I find that increases in the number of seats reserved for SCs and STs in the Lok Sabha increase the number of atrocities committed against them (per million). More specifically, increases in SC reservation significantly increase atrocities against SCs and STs (combined), and SCs (separately), but not against STs. Increases in ST reservation showed more varied effects on atrocities, but none were significant.

The difference in effect between the two social groups can be explained by the following two reasons. First, SCs are more heterogeneous compared to STs. For example, in Karnataka there are 133 SC communities and only 49 ST communities. Their diversity and larger number in most states have caused SCs to become more dependent on one another rather than on the higher castes, while STs remain completely dependent on higher castes for their livelihoods. This has provoked a group response in the form of atrocities against SCs (and not STs) as they try to climb the socio-economic ladder (Prakash 2007; Chakraborty 2006). This explanation is consistent with the social mobility hypothesis. Second, as compared to STs, the SC legislators act in a bloc, preferring to concentrate their efforts on those items of the protective discrimination system that are of most concern to their more prosperous caste constituents i.e., more ministers for themselves, more scholarships, reservation in educational institutions, and more public sector jobs (Pande 2003). Recognizing this attempt at social mobility, higher castes react by committing atrocities in order to contain SCs in their historical social prescription.

An interpretation of the results as a whole is a difficult task, given the politics and corruption behind filing an atrocity case (Joshi 1982). Although the main results suggest a positive relationship, the factors underlying the increase in atrocities remain mostly ambiguous. The true extent of the increase in atrocities is difficult to estimate, and the number of cases reported (the variable used in this study) can give a partial, or sometimes even a misleading picture. For example, it is widely held that the number of unregistered cases of atrocities might range between one and one and a half times that of registered cases (Pai 2000). Moreover, few or no atrocities in an area may represent two diametrically opposite situations: either the dalits there enjoy harmonious relations with non-dalits, or they are too weak and dependent upon non-dalits, who exercise enough oppression to not have to trigger an atrocity. (Chakraborty et al. 2006). Thus, zero reported cases in Assam, Haryana, Manipur, and Nagaland should not be mistaken for the success of political reservation and peaceful relations between dalits and others. It has also de facto become the discretion of the police to register an atrocity case under the SC/ST or PCR (Prevention of Civil Rights) act. Most police have a preference to register under the latter because it is seen to be less stringent than the former. In many cases, police do not even bother registering the case because of their own caste biases. A study in Gujarat which covered 11 atrocities-prone districts for four years showed that 36% of atrocities cases were not registered under any protection act, and in the cases where provisions of the SC/ST or PCR act were invoked,

84.4% were registered under the wrong provisions to conceal the actual and violent nature of the incidents (Ajay 2010).

It is plausible to conjecture that increased political reservation for minorities can lead to the diminishing of the abovementioned practice of underreporting cases. SCs and STs in parliament would likely advocate for registration of cases under the SC/ST Act since it is more stringent and brings greater justice than the PCR Act. SCs and STs may then feel a greater incentive to report crimes against them, feeling that justice would have a greater probability of being served. In this regard, a main limitation of this paper is that both the social mobility hypothesis, coupled with a possible increase in case reporting, explains the results, and it is not possible to separate these explanatory factors. This is mainly because no data is currently collected on underreporting of cases. From the current analysis we can only conclude that both explanations underpin the results. To disentangle these explanations for the results is an area for further research.

Beyond the competing explanatory factors underlying increased atrocities is an additional limitation inherent in the atrocities variable itself. In particular, it can be argued that if the number of atrocities committed against SCs and STs comprise both targeted and non-targeted cases, then the effect of political reservation on these values as shown in this paper could be overstated. Indeed, according to the Ministry of Home Affairs the very definition of an "atrocity" used in the SC/ST Act specifies that caste consideration as a motive is not necessary to classify an offence as an atrocity (Irudayam and Mangubhai 2010). Nevertheless, I argue that non-targeted cases make up a minor portion of total registered cases under the SC/ST Act. A review of history shows that the dominant mindset of higher castes who have been socially conditioned into exploiting dalits, coupled with the latter being easy victims due to them being dependent on high-caste landowners for their livelihood, make it safe to assume that atrocities against SCs/STs are a primarily targeted phenomenon. In fact, the SC/ST act itself was initially enacted because atrocities against SCs/STs were specifically caste-motivated (NCSCST Report 1993) and the Protection of Civil Rights Act was not equipped to deal with such cases. Moreover, if ample evidence is given by the perpetrator that an atrocity is non-targeted, the prosecutor would most likely register the case under the PCR act instead. These points heighten confidence in the empirical results, highlighting that increased atrocities against SCs/STs resulting from their greater political representation are primarily targeted in nature and not random occurrences.

A final, and arguably most important, limitation in this study is the lack of variation in the political data. This is mainly due to the fact that only two census years were covered in the panel data (1991 and 2001), allowing for a maximum of two integer changes in the reservations of seats. SCs and STs had unchanging shares of reserved seats in 17 and 22 seats respectively. This minimal variation in the data makes it quite possible to confound the regression coefficients in the OLS output.

In conclusion, this paper makes and important contribution by establishing a link between political reservation and atrocities against SCs and STs, a question that has never been investigated before. In a country that contains over one third of the world's poor, the majority of whom are SCs and STs, it is important for economists to evaluate mechanisms aimed at improving the welfare of these groups, such as reservation policies Although it is premature to conclude anything about the success or failure of the political reservation policy, I have shown that it has increased atrocities against minority groups during the period 1989-2009. It appears that the very individuals who are meant to benefit from the policy are

the ones suffering from its implementation. One shortcoming of India's approach towards the welfare of dalits is that atrocities are mostly taken as a law and order problem (Chakraborty et al. 2006), divorcing them from the larger strategy for social justice. This has led politicians to believe that political reservation, which has had numerous positive outcomes for SCs and STs, will reduce violence against them—the opposite of what this paper finds. Clearly, a check on the law enforcement machinery is needed and requires legal scrutiny. Since the state is failing to protect the human rights of dalits, the role of civil society should be emphasized. The special courts constituted under the SC/ST Acts must be given the power to take cognizance of cases as a court of original jurisdiction for speedy trials of atrocities cases (Ajay 2010). Lastly, the international community must recognize that caste-based discrimination is a human-rights issue that should be tackled at the international level. In sum, it is time policy-makers understand that atrocities against SCs and STs are, in part, a societal response to social mobility, and this must be factored into welfare policies.

VI. APPENDIX

Table 4: Lagged Regression Output – Effect of Political Reservation on Atrocities Against SCs and STs

	Atrocities Against SCs (per million)			Atrocities Against STs (per million)		
	(1)	(2)	(3)	(4)	(5)	(6)
SC reservation (lagged) (percent of total seats)	226.194	206.854	201.160	73.803	82.206	86.264
	(134.110)	(123.229)	(121.526)	(47.282)	(69.438)	(76.101)
ST reservation (lagged) (percent of total seats)	0.031	1.488	1.789	2.654	-1.970	-0.937
	(4.251)	(3.232)	(3.099)	(1.816)	(2.883)	(2.307)
SC census population share		718.160	193.081		818.692	81.173
		(303.727)**	(446.710)		(650.400)	(1,020.089)
ST census population share		-36.123	-146.827		398.585	377.407
		(101.808)	(109.768)		(241.693)	(330.072)
SC current population share			705.513			981.739
			(449.633)			(861.861)
ST current population share			183.748			61.712
			(107.433)			(188.082)
State Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	441	431	431	441	431	431
R-squared	0.86	0.86	0.87	0.37	0.39	0.40

** significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent*

Robust standard errors are in parentheses. Data clustered at the state level. Regressions include state and year dummies. Data are for the period 1989-2009. For Chattisgarh, Jharkhandand, and Uttarkhand which split from Madhya Pradesh Bihar and Uttar Pradesh respectively in 2000 data starts in 2001. This gives 506 observations. Deviations from this are due to missing data in states where the census was not conducted (such as Jammu and Kashmir during the 1991 census)

Table 5: Lagged Regression Output – Effect of Political Reservation on Atrocities against SCs and STs (combined)

Political Reservation and Crime Against Scheduled Castes and Tribes (Three-year Lagged Model)			
	Combined Atrocities Against SCs and STs (per million)		
	(1)	(2)	(3)
SC reservation (lagged) (percent of total seats)	299.997	289.060	287.425
	(159.057)*	(166.512)*	(169.972)
ST reservation (lagged) (percent of total seats)	2.685	-0.482	0.852
	(4.534)	(4.722)	(4.140)
SC census population share		1,536.853	274.253
		(809.166)*	(1,254.132)
ST census population share		362.462	230.580
		(285.770)	(378.107)
SC current population share			1,687.251
			(1,056.408)
ST current population share			245.461
			(207.770)
State Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Observations	441	431	431
R-squared	0.70	0.71	0.72

** significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent*
Robust standard errors are in parentheses. Data clustered at the state level. Regressions include state and year dummies. Data are for the period 1989-2009. For Chattisgarh, Jharkhandand, and Uttarkhand which split from Madhya Pradesh Bihar and Uttar Pradesh respectively in 2000 data starts in 2001. This gives 507 observations. Deviations from this are due to missing data in states where the census was not conducted (such as Jammu and Kashmir during the 1991 census)

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