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Do the poor gain from mandated political representation? Theory and Evidence from India

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Abstract

This paper posits a political-economy model a la Lindbeck and Weibull (1987) to study how mandated political representation of a disadvantaged minority affects targeting within the minority group - particularly, the effect on the poor in the group. The model demonstrates how such affirmative action can result in reduced transfers to the poor when voters are biased towards candidates from their own caste. Since the 1950s, India has implemented affirmative action programs for the Scheduled Castes (SCs) in different spheres; a prominent one is mandated political representation in the legislature. Previous findings have been that such mandated political representation biases policies in favor of the minority group as a whole. However, the question of who gains and who loses within the minority group has not been studied before. Data on household level consumer expenditure collected by the National Sample Survey Organization (NSSO) during 1987-88 combined with data on mandated representation in the Indian parliament are used to verify the theoretical predictions. There is evidence of lesser implementation of anti-poverty programmes in areas reserved for SC legislators, in line with the theory. There is also evidence suggesting that political reservation has had a positive impact on Scheduled Caste inequality. These findings suggest that mandated political representation at the Parliament has harmed the poor SCs and could be aggravating inequality among the SCs.

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DO THE POOR GAIN FROM MANDATED POLITICAL REPRESENTATION?

Theory and Evidence from India

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PRELIMINARY AND INCOMPLETE

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ABSTRACT

This paper posits a political-economy model *a la* Lindbeck and Weibull (1987) to study how mandated political representation of a disadvantaged minority group affects targeting within the group — particularly, the effect on the *poor* in that group. The model demonstrates how such affirmative action can result in reduced transfers to the poor when voters are biased towards candidates from their own caste. Since the 1950s, India has implemented affirmative action programs for the upliftment of Scheduled Castes (SCs) in different spheres; a prominent form of which is mandated political representation in the legislature. Previous findings in the literature have been that such mandated political representation biases policies in favor of the minority group *as a whole*. However, the question of *who gains and who loses within the minority group* has not been studied before. Data on household level consumer expenditure collected by the National Sample Survey Organization (NSSO) combined with data on mandated representation in the Indian legislature are used to verify the predictions of the model. There is evidence of lesser implementation of anti-poverty programmes in areas reserved for SC legislators, in accordance with the theory. There is also evidence suggesting that political reservation has had a positive impact on Scheduled Caste inequality. These findings suggest that mandated political representation has been detrimental to the poor SCs and could be aggravating inequality within the SCs.

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1 Introduction

Serious concerns exist, especially in developing nations, about whether ethnic minorities have any voice in the politics of the nation. Apart from their lack of numerical strength certain minorities may be further disadvantaged because of historical injustices. For example, the blacks in the US constitute a minority in terms of population size and also exhibit lower levels of educational attainments — as compared to whites — which is closely linked to their history of repression. This acts as an impediment to their wielding any influence on public policies, budgetary spending, etc. as they are unlikely to have members of their group in the public offices.

In India, certain minority groups called the Scheduled Castes (SCs) and the Scheduled Tribes (STs) have had a long and painful history of oppression. So severe has been their political, economic and social subjugation that they still lag behind the rest of India in terms of human capital, wealth, asset-holdings — in short, in terms of *any development indicator*. Since the 1950s, India has implemented wide-ranging affirmative action programs (widely referred to as "reservation") for the upliftment of SCs and STs. There is a considerable literature studying the implications of affirmative actions in general and the Indian case in particular (see for e.g., Austen-Smith and Wallerstein (2006), Bertrand, Hanna and Mullainathan (2008), Ray and Sethi (2009)).

In the Indian context, several authors have studied the relation between mandated political representation and the provision of publicly provided goods at local levels of government — village councils (see for e.g., Besley, Pande, Rahman and Rao (2004), Munshi and Rosenzweig (2008), Bardhan, Mookherjee and Parra Torrado (2010)). Chattopadhyay and Duflo (2004a) and Chattopadhyay and Duflo (2004b) use political reservations for women in India to study the impact of women's leadership on policy decisions.

The findings are often encouraging; they broadly suggest that mandated political representation at local government bodies for SCs, STs and women, respectively, result in directing public policies in favor of these minority groups. Pande (2003) uses data on reservations and policy outcomes across the 16 major Indian states for the time period 1960-92 and finds that political reservation for Scheduled Castes in the state legislature has resulted in observable rise in targeted redistribution towards these groups.[2]

Overall the evidence clearly suggests that such mandated political representation biases policies in favor of the minority group *as a whole*. However, the question of who *gains* and who *loses* within the minority group has not been studied before. Do the poor *really* gain from mandated political representation? This question is especially relevant when the mandated representation is for an economically disadvantaged minority group. An issue concerning affirmative action which has received much attention lately is the "creamy

[2]In a related context, Ghosh and Pal (2010) find that in India after accounting for the presence of the dominant elite, the minority elite has no impact on any category of public spending, *whether developmental or not*. Minority elite stands for elected representatives of the marginalised people (women and the low caste population) who have some legislative power by virtue of being elected as members of the Legislative Assembly.

layer" hypothesis. This refers to the situation when the benefits of affirmative action are cornered by a small, relatively wealthy section of the minority group (the "cream"); this widens the wealth and human capital differences within the minority group. Could mandated political representation be aggravating the "creamy layer" problem?[3]

This paper attempts to answer questions of this nature using a standard political-economy model and data from India. A simple theoretical model *a la* Lindbeck and Weibull (1987) is used to study the effect of mandated political empowerment of a minority group — at the level of the federal government — on the equilibrium policy outcomes. The model demonstrates how affirmative action can result in reduced transfers to the poor when voters are biased towards candidates from their own caste.[4] This is followed by an empirical exercise using data on household level consumer expenditure collected by the National Sample Survey Organization (NSSO) and data on affirmative action in India's parliamentary constituencies to check the predictions of the model.

The theory builds on the following intuition from Lindbeck and Weibull (1987) — when parties try to maximize expected plurality by making balanced budget redistributive offers among different groups, in equilibrium the group with the least partisan bias (the "swing" voter) gets promised the highest consumption post-redistribution from both parties. There is empirical evidence that justifies the use of this class of political-economy models. Arulampalam et al (2009) find evidence, in the case of India, of the central government making transfers to state governments on the basis of political considerations. They find that a state which is both aligned and swing in the last state election is estimated to receive 16% higher transfers than a state which is unaligned and non-swing. Bardhan and Mookherjee (2009) investigate political determinants of land reform implementation in the Indian state of West Bengal since the late 1970s. Their findings are consistent with a quasi-Downsian theory stressing the role of opportunism (re-election concerns) and electoral competition.

This paper studies the implications of reservations for SCs *alone*; implications of reservations for other groups like the Scheduled Tribes (STs) are not explored here. The primary reason for exclusively focusing on SCs is that the socio-economic problems of SCs are quite distinct from those of STs on at least two counts: (i) STs are not as well politically organized as SCs, so political reservation has had extremely limited impact on them, unlike the SCs who are a political force to reckon with today. (ii) STs tend to live in rural areas separate from other groups while SCs are spread more evenly geographically.

The model developed here shows that reservation of constituencies for an ethnic minority

[3]Deshpande (2000) looks at the NSSO data for 1993-94 and finds that even in a relatively egalitarian state like Kerala, intercaste disparity continues to underlie overall disparity. According to her the "creamy layer" is a worry, if at all, for the "Others" group rather than for SC/STs. However, she does not address the issue of any possible relationship between political reservation for SCs and the growth of a "creamy layer" among them. Some authors believe that reservations primarily serve as tools for the induction of the privileged sections of the lower castes into the ruling classes (see for e.g., Chaudhury (2004)).

[4] There exist abundant anecdotal evidence on voting behavior along caste lines. Banerjee and Pande (2007) offer a formal model to study some implications (like the effect on legislator quality) of this phenomenon.

potentially changes the identity of the swing voter when candidates can make budget-balanced offers to different income groups. [5] In particular, it is more likely for the "swing" group in an unreserved constituency to be poorer than the swing group in the reserved constituency — thus implying that reservation hurts poorer groups via redistribution. The following structure is imposed on the biases — the net bias any voter experiences for a candidate depends on the candidate's *caste-identity* vis-a-vis the voter and the voter's *party affiliation*. For any voter, there could be a potential conflict between his castewise identification and his party affiliation; in fact, this becomes crucial in determining the group-wise biases and hence the identity of the swing group.

The main result states that if caste biases exist alongside party affiliations then reservation will benefit the "middle-income" groups *at the expense of the poor*; alternatively, if caste biases are negligible/absent then reservation has no effect on redistribution. Thus, if the minority group in question happens to be poorer than others in society, reservation *in the presence of caste biases* would hurt them even more through the redistribution process.

This paper also presents empirical verification of these hypotheses using data from India. Across the nation almost every poverty alleviation programme involved one of the two initiatives — (i) Public Works projects and (ii) The Integrated Rural Development Programme (IRDP). The former employs poor households for building public infrastructure especially in the rural parts of the country. This serves two purposes — *reduction of poverty* via employment of poor household members and *creation of basic infrastructure* like roads, bridges, canals, schools, etc. The Integrated Rural Development Programme (IRDP) of the Indian Government was designed to alleviate rural poverty through the provision of production assets and inputs (livestock, machinery, etc.) to selected households.

Given that every Member of Parliament (MP) is supposed to commission developmental works" in his constituency and that India has implemented several *employment-based* poverty reduction programmes, constituency-wise differences between the implementation of these programmes provides useful information. These programmes are the initiative of the central government (seated in Parliament) and so the MPs have a prominent role in shaping and implementing them. The model predicts that reservation of seats for the SCs disfavors the poorer sections of society as transfers to them are reduced. One implication of this could be the lower implementation of nationwide poverty-reduction programmes — something the poor clearly care about — in reserved parliamentary constituencies as compared to the ones which are not reserved.

There are potentially different ways to test these hypotheses. The channel taken here (i.e. examining constituency-wise differences in implementation of poverty-alleviation programmes as a response to reservation) is the one allowing the cleanest identification among possible alternatives (this is discussed in greater detail in the section outlining the

[5] The term "reserved constituency" is used in the following sense. In India, part of the affirmative action for SCs involved earmarking a certain number of seats for them in the national Parliament. In other words, political parties could only field members from the Scheduled Castes in those particular constituencies while the entire electorate (not just people of certain castes) is allowed to vote. The constituencies designated for members of the Scheduled Castes are said to be "reserved".

empirical analysis). [6]

The analysis here provides strong evidence of under-utilization of the Public Works programmes (with their consequent deleterious effect on public infrastructure growth) in constituencies reserved for SC Members of Parliament. Given the wide-spread poverty among the Scheduled Castes, this finding implies that reservation hurts them more than the others. As regards the IRDP, no evidence of any relation between reservation and programme implementation is observed. These findings clearly suggest that *political reservation at the national level has been detrimental to the poorer sections of the Scheduled Castes.*

Additionally, there is evidence of a positive relationship between the within-SC inequality in a district and the extent/duration of SC reservation in the district. From the perspective of the "creamy layer" issue, this suggests that mandated political representation may well be widening the gulf between the "haves" and the "have-nots" within these disadvantaged minorities. Not only is this worrying from the angle of poverty-reduction but it also serves to alienate the bulk of the minority community by creating a sense of betrayal in them.[7]

The remainder of the paper is organized as follows. A brief description of the institution of political reservation in India comes in the next sub-section. Section 2 presents a simple model of electoral competition which describes the impact of political reservation on equilibrium policy platforms. Section 3 describes the data and empirical strategy. Section 4 presents the empirical findings and Section 5 concludes.

1.1 Institutional Background

Hindus form the largest religious group in India (about 85% of the Indian population) and every Hindu belongs to a caste. The economic backwardness of the Scheduled Castes is a direct fallout of the caste system which has been ingrained into the Indian social fabric since ages. Scheduled castes form roughly 16% of the Indian population. Caste membership is hereditary and is somewhat reflective of the person's traditional occupation choice. In particular, members of the scheduled castes were traditionally assigned low-paying, labor-intensive tasks. In fact, they were denied education and barred from high-paying occupations. Besides, there were restrictions on their asset ownership.

In light of this historical oppression, the Constitution of India (which came into force in

[6] There is no dataset which decomposes the constituency-wise spending by MPs into projects which can be said to be clearly favoring one income group over another. The other alternative is to map levels of different public goods (available from the census) to constituencies and then check if reservation affects the pattern of public goods provision. This too leads to ambiguity since one cannot easily determine (from the data on public goods) whether a particular public good is desired/utilized by the poor but not by the middle-income group and so on. More on this in the empirical section.

[7] Anecdotal evidence suggest that the roots of Maoist insurgencies in India lie in the struggle over property rights– the tension between the landed elite and the landless/marginally landed farmers. An erosion of faith in government policies apparently designed to alleviate misery cannot bode well for peaceful coexistence in society.

1950) mandates political reservation in favor of scheduled castes (SCs) and scheduled tribes (STs) in every state and national election. Moreover, there are clear directives for the state governments to use public policy to improve the economic conditions of these groups.

A brief word about the Indian political system is in order. The Indian Parliament is bicameral in nature. However, the Lok Sabha is the popularly elected House and is *de facto* more powerful than the other House (Rajya Sabha). The popularly elected Members of Parliament (MP) enjoy a five-year term after which fresh Lok Sabha elections are held. There were 518 (Lok Sabha) constituencies in 1971. This went up to 542 after a Delimitation order in 1976 and then to 543 in 1991.

Population is the basis of allocation of seats of the Lok Sabha. As far as possible, every State gets representation in the Lok Sabha in proportion to its population as per census figures. Hence, larger and more populous states have more seats in the Lok Sabha as compared to their smaller and sparsely-populated counterparts. For example, Uttar Pradesh (a north Indian state) with a population of over 166 million has 80 Lok Sabha seats while the state of Nagaland with a population of less than 2 million has only one Lok Sabha seat.

Allocation of seats for Scheduled Castes and Tribes in the Lok Sabha are made on the basis of proportion of Scheduled Castes and Tribes in the State concerned to that of the total population (provision contained in Article 330 of the Constitution of India). Thus, a state which has a relatively larger proportion of SCs will have a larger fraction of its total Lok Sabha seats reserved for SC candidates. For example, Uttar Pradesh which has relatively large proportion of SCs has 17 out 80 seats reserved for SCs. On the other hand, the state of Gujarat with relatively lower proportion of SCs has only 2 out of 26 seats reserved for SCs.

The choice of the constituencies (within a state) that will be reserved for SCs is guided by the following considerations. The Delimitation Commission stipulates that constituencies for SCs are to be distributed in different parts of the state and seats are to be reserved for SCs in those constituencies where the percentage of their population to the total population is comparatively large.[8]

Aside from political reservation, the Indian constitution mandates reservation of jobs (through job quotas) in all State and Central departments and government institutions. In 1950, the constitution laid down 15% and 7.5% of vacancies to government aided educational institutes and for jobs in the government/public sector, as reserved quota for the SC and ST candidates respectively for a period of five years, after which the situation was to be reviewed. This period was routinely extended by the following governments and the Indian Parliament, and no revisions were undertaken. Later, reservations were introduced for other sections as well. The Supreme Court ruling that reservations cannot exceed 50% (which it judged would violate equal access guaranteed by the Constitution)

[8] The Delimitation Commission is a national-level commission whose orders have the force of law, and cannot be questioned in court.

has put a cap on reservations.

The rise in political participation among the Scheduled Castes is, to a large extent, due to reservation of constituencies for them. In the 1980s, the Scheduled Castes were able to establish a successful caste-based party. This significantly enhanced their representation in national politics. In fact, with coalition governments becoming the norm rather than the exception, these caste-based parties are gaining a considerable amount of say in government policies.

The motive behind empowering SCs politically, by means of affirmative action, was to ensure that they get a fair amount of say in the national policies. This would then translate into tangible improvements in the social and economic domain. Every Member of Parliament (in particular, Lok Sabha MPs) obtains funds from the central government for expenditure on local-area development projects in their respective constituencies. Each MP has the choice to suggest to the District Collector (head of the district administration) for, works to the tune of 20 million Indian Rupees per year to be taken up in his constituency.[9]

It is the discretion of the MP as to where he wants to allocate the funds. Typically MPs take up projects like building roads, electrification of their constituencies and building schools and colleges. However, they also are allowed to target funds specifically to reviving certain small-scale industries or for the welfare programmes of certain disadvantaged groups. The hope was that in the reserved constituencies the SC MPs would be more sensitive to the needs of the members of his community and hence would be more effective at directing public funds for developmental purposes. There is considerable anecdotal evidence which suggests that the benefits are being cornered by a small, relatively well-off section of SCs (the "creamy layer") indicating that *a thorough analysis of such affirmative action programmes is the need of the hour.*

2 The Model

Society is populated by a unit mass of individuals and every individual is characterized by two features. One is the individual's income, denoted by w, and the other is the individual's ethnicity (for our purpose, "caste"), denoted by e. Let the distribution of incomes in society be represented by the cdf G with support on $[\underline{w}, \overline{w}]$ where $\underline{w} \geq 0$ and $\overline{w}$ is positive and "large".

Every individual i belongs to a caste : high (h) or low (l). Hence for every individual, e is either h or l. Take any income level w. Among the individuals earning w, the low-caste voters form a minority; and this is true for every w. Also, the low-caste voters are less represented among the relatively rich. Therefore, if $\pi(w)$ denotes the proportion of low-caste individuals earning w, then $\pi(w)$ is continuous and weakly decreasing in w with $\pi(\underline{w}) < 1/2$.

[9] 20 million Indian Rupees is approximately equal to 0.45 million US dollars.

A *balanced-budget redistribution* — or simply *redistribution* for short — is a real-valued, continuous function $\mathbf{z}$ defined on income, where $z(w)$ is the transfer to *each individual* earning w, and:

(i) $\mathbf{z}$ satisfies the budget constraint $\int_{\underline{w}}^{\overline{w}} z(w)\,\mathrm{d}G(w) = 0$.

(ii) Every individual's *net consumption*, denoted by $c(w) \equiv w + z(w)$ for any individual earning w, is non-negative.

There are two political parties, denoted by R and P, where R is viewed as pro-rich, and P as pro-poor, in a sense that we make precise below. Each party fields a candidate of either caste who proposes a particular redistribution. However, the constituency in question may be reserved for low-caste candidates. In this case, each party is constrained to field a low-caste candidate.

An individual's preferences over candidates (and their proposed policies) are described as follows. First, individual i exhibits a bias α_i, positive or negative, for party P. The corresponding payoff from R is normalized to be zero, so α_i is really a difference. It is assumed that this bias has two main components, one that stems from i's emotive affiliation with party P, and the other which arises from i's association with the caste identity of party P's *candidate*. In other words, the net bias is composed of a "class bias" (which is income-specific) and a "caste bias".

Specifically, we assume that individual i feels an affiliation $t(w_i)$ with party P, which is continuous and naturally decreasing in w, while $s > 0$ is the additional support given to a candidate of the same caste as the voter, presuming that the other candidate belongs to a different caste. Combining, we write

$$\alpha(w_i, e_i) = t(w_i) + s_i,$$

where w_i is the individual i's income, e_i is i's caste and s_i takes on the values s, $-s$, or 0, depending on the castes of the two candidates. For ease of notation, let the low-caste voter's caste bias be denoted by $\underline{s}$ and the high-caste voter's caste bias by $\overline{s}$.

We can now write individual i's bias as

$$\alpha_i = \alpha(w_i, e_i) + \epsilon_i,$$

where the extra term ϵ_i is just mean-zero noise. The individual sees the realization of ϵ_i before she votes; the politicians do not; more on this below. We assume that ϵ_i is independently and identically distributed across individuals, with a symmetric, unimodal density f (and corresponding cdf F) that has its support on the entire real line.

To this non-pecuniary bias α_i we add the economic benefit from a proposed redistribution to arrive at the overall payoff. Recall $x(w)$ is the transfer to each individual earning w. We write the economic benefit to an individual earning w from redistribution $\mathbf{x}$ as

$$m(\mathbf{x}, w) \equiv u(w + x(w)),$$

where u is a standard utility function with $u' > 0$, $u'' < 0$ and $u'(0) = \infty$.

Say party P's candidate proposes $\mathbf{x}$, and R's candidate proposes $\mathbf{y}$. An individual i earning w, with bias α_i will vote for party P's candidate if

$$m(\mathbf{x}, w) + \alpha_i > m(\mathbf{y}, w),$$

will vote for R's candidate if the opposite inequality hold, and will be indifferent in case of equality.

From the perspective of the party, an individual's vote is stochastic. The probability that she will vote for party P's candidate is given by

$$p_i \equiv 1 - F\left(m_i(\mathbf{y}, w) - m_i(\mathbf{x}, w) - \alpha(w_i, e_i)\right).$$

The expected plurality for party P is proportional to $\int_i p_i$,[10] and this is what party P seeks to maximize — and party R minimize — through the appropriate choice of candidate and policy.

Let γ denote the candidate caste configuration — or simply *configuration* for short — in the following manner:

$$\gamma = (\text{caste}_P, \text{caste}_R)$$

where the first argument refers to P-candidate's caste and the second refers to party R-candidate's caste. The redistribution profile proposed by the two parties in equilibrium will depend on γ. We will make this dependence explicit by indexing all relevant parameters by γ. Of course, both parties will *choose* γ in unreserved constituencies. However in equilibrium, *conditional on any choice of* γ , party P will choose $\mathbf{x}$ and party R will choose $\mathbf{y}$ so that they form mutual best responses. Therefore, for any given γ, an equilibrium of the expected-plurality game is defined by a redistribution pair $(\mathbf{x}, \mathbf{y})$ which constitute mutual best responses from the perspective of the two parties.

It will be useful to define the term

$$\sigma(\gamma, w) \equiv \pi(w) f(\alpha(w, l)) + (1 - \pi(w)) f(\alpha(w, h))$$

This term is important for subsequent analysis and hence requires some interpretation. First, fix a candidate configuration γ. Now consider a situation in which for some level of income, say w, the values $\alpha(w, l)$ and $\alpha(w, h)$ are "small" in magnitude. This basically means that the group characterized by income level w (group w henceforth, for brevity), does not exhibit much partisan bias *ex-ante*. Given that the density f is unimodal and symmetric around 0, such lack of strong bias indicates that $\sigma(\gamma, w)$ will exhibit a high value. Alternatively, if the values $\alpha(w, l)$ and $\alpha(w, h)$ are "large" in magnitude — suggesting that the members of group w feel strongly about one party vis-a-vis the other party — then $\sigma(\gamma, w)$ will exhibit a low value for this group w. In this sense, one can

[10] To be precise, the expected plurality is given by $\int_i [p_i - (1 - p_i)] = \int_i [2p_i - 1]$.

think of $\sigma(\gamma, w)$ as representing the "average swing propensity" of group w. It captures the extent to which the members of a group may be willing to switch loyalty towards parties.

From the perspective of the parties, the groups with high "swing" propensity assume importance as they are *ex-ante* more responsive to transfers. The following proposition makes this explicit.

PROPOSITION **1.** *For any given candidate configuration γ, there is at most one equilibrium of this expected-plurality game. In that equilibrium, there is a unique redistribution scheme $\mathbf{x}_\gamma$ offered by both parties, with the property that*

$$\sigma(\gamma, w)[u'(w + x(w))] = \lambda_\gamma$$

for every w in $[\underline{w}, \overline{w}]$ and some $\lambda_\gamma > 0$.

Moreover, $w + x(w)$ varies positively with $\sigma(\gamma, w)$.

Proof. The arguments presented here closely parallel those in Theorem 1 of Lindbeck and Weibull (1987).

Let $d(w)$ represent the utility differential $m(\mathbf{y}, w) - m(\mathbf{x}, w)$. Rewrite $\int_i p_i$ as

$$\int_{\underline{w}}^{\overline{w}} [\pi(w)[1 - F(d(w) - \alpha(w, l))] + (1 - \pi(w))[1 - F(d(w) - \alpha(w, h))]] \, \mathrm{d}G(w)$$

This can be re-written as

$$\int_{\underline{w}}^{\overline{w}} [V(x(w), y(w))] \, \mathrm{d}G(w) \tag{1}$$

where $V(x(w), y(w)) \equiv \pi(w)[1 - F(d(w) - \alpha(w, l))] + (1 - \pi(w))[1 - F(d(w) - \alpha(w, h))]$

Party P seeks to maximize the integral in (1) by a choice of redistribution $\mathbf{x}$ while party R seeks to minimize the same by the choice of redistribution $\mathbf{y}$. Suppose $(\mathbf{x}, \mathbf{y})$ is an equilibrium of this expected-plurality game.

Pick any w in $[\underline{w}, \overline{w}]$. For this group w,

$$V_{x(w)} \equiv \frac{\partial V}{\partial x(w)} = [\pi(w) f(d(w) - \alpha(w, l)) + (1 - \pi(w)) f(d(w) - \alpha(w, h))] u'(w + x(w)).$$

The above expression can be interpreted as the per-capita marginal gain in expected votes for party P from group w w.r.t. a marginal shift in $x(w)$.

Two observations are in order with respect to $V_{x(w)}$:

(a) This term is continuous in w. This, in turn, implies that the value of $V_{x(w)}$ *must* be the same for every w in $[\underline{w}, \overline{w}]$. Suppose not. Let w_1 and w_2 be two distinct income levels such that

$$V_{x(w_1)} > V_{x(w_2)} \tag{2}$$

Focus on a tiny neighborhood δ_1 around w_1 and a similarly small neighborhood δ_2 around w_2 so that $V_{x(w)}$ for *any* w in the δ_1- neighborhood exceeds $V_{x(w)}$ for *every* w in the δ_2-neighborhood. We know that such neighborhoods exist because of the continuity of $V_{x(w)}$ and from (2).

Now, consider a marginal decrease in $x(w)$ in the interval $(w_2 - \delta_2, w_2 + \delta_2)$ accompanied by a marginal increase in $x(w)$ in the interval $(w_1 - \delta_1, w_1 + \delta_1)$ while respecting the redistribution budget constraint. Clearly, the expected plurality for party P is improved by this adjustment given the relation in (2). This implies $(\mathbf{x}, \mathbf{y})$ is not an equilibrium and leads to a contradiction. So, it must be that

$$V_{x(w_1)} = V_{x(w_2)}$$

for any $w_1, w_2 \in [\underline{w}, \overline{w}]$.

(b) The expression $V_{x(w)}$ must be positive given that both f and u' are positive everywhere on the real line.

Hence, we can write the following:

$$[\pi(w)f(d(w) - \alpha(w,l)) + (1 - \pi(w))f(d(w) - \alpha(w,h))]u'(w + x(w)) = \lambda \tag{3}$$

for every $w \in [\underline{w}, \overline{w}]$ and some $\lambda > 0$.

Now consider $\frac{\partial V}{\partial y(w)}$. Analogous arguments apply in this case and hence we can claim

$$[\pi(w)f(d(w) - \alpha(w,l)) + (1 - \pi(w))f(d(w) - \alpha(w,h))]u'(w + y(w)) = \mu \tag{4}$$

for every $w \in [\underline{w}, \overline{w}]$ and some $\mu > 0$.

Comparing equations (3) and (4) for any group w yields:

$$\frac{u'(w + x(w))}{u'(w + y(w))} = \frac{\lambda}{\mu} = \text{constant} \tag{5}$$

This implies that in *any* equilibrium $\mathbf{x} = \mathbf{y}$ given the strict concavity of u and that both $\mathbf{x}$ and $\mathbf{y}$ are balanced-budget redistributions. Thus, $d(w) = 0$ for every group w. Imputing this in equation (3) and using the symmetry of f, we get:

$$\sigma(\gamma, w)[u'(w + x(w))] = \lambda_\gamma \tag{6}$$

for every group w.

Equation (6) guarantees that $w + x(w)$ varies positively with $\sigma(\gamma, w)$ given the strict concavity of u.

The same equation can be utilized to show that there is at most one equilibrium. Suppose that both $(\mathbf{x}, \lambda)$ and $(\mathbf{x}', \lambda')$ satisfy (6). If $\lambda = \lambda'$ then $\mathbf{x} = \mathbf{x}'$ by the strict concavity of u. Alternatively if $\lambda < \lambda'$ then $\mathbf{x} > \mathbf{x}'$ for the same reason. However, this implies that both $\mathbf{x}$ and $\mathbf{x}'$ cannot be balanced-budget redistributions. Hence it must be that $(\mathbf{x}, \lambda) = (\mathbf{x}', \lambda')$. ■

Note, the proposition above does not guarantee the existence of an equilibrium of the expected-plurality game, given a caste configuration γ. Conditional on existence, the equilibrium is *unique* and *symmetric* in terms of redistributions proposed by the two parties. However, existence can be guaranteed by simply assuming — like Lindbeck and Weibull (1987) do — that party P's objective function, namely $\int_i p_i$, is concave in $\mathbf{x}$ for any given $\mathbf{y}$ and convex in $\mathbf{y}$ for any given $\mathbf{x}$. In particular, assuming

$$\sup \left| f'(t) \right| / f(t) \leq \inf \left| u''(x) \right| / (u'(x))^2$$

guarantees that this condition on $\int_i p_i$ is met.

Recall the "class bias" $t(w)$ felt by an individual in group w. We impose a little more structure on $t(w)$ for deriving the subsequent results. We will assume the following:

(i) $t'(w) \leq 0$ for every $w \in [\underline{w}, \overline{w}]$.

(ii) $t(\underline{w}) \geq s$ and $t(\overline{w}) < 0$.

By the continuity of t, we know that there will be some w, call it w^*, such that $t(w^*) = 0$. One can think of this group w^* as the "middle-income" group which feels equally *class-wise* affiliated to either party.

We will assume that the density function f is convex in some neighborhood around s. Specifically, assume $\exists\, \rho > 0$ such that f is convex in the range $(s - \rho, s + \rho)$. Hence,

$$f''(a) \geq 0 \text{ for every } a \in (s - \rho, s + \rho).$$

In practice, most commonly used unimodal and symmetric density functions turn convex as one goes far out on either direction. Our assumption can be (roughly) interpreted as "caste bias" being sufficiently salient so that s lies in the region where f is convex. However, all we need is that f be convex on *some* interval around s; for our purposes, even an arbitrarily small ρ will suffice.

Proposition 1 provides a clue as to which group w will be most favored in terms of final per-capita consumption $c(w)$ by both parties, in equilibrium. It is the group with the highest value of $\sigma(\gamma, w)$ — the "swing" group. For candidate configuration γ, denote this group by w_γ.

With these preliminaries in hand, we now turn to the main findings.

PROPOSITION **2.** *Consider an unreserved constituency with $\gamma = (l, h)$. Here group w_γ must be poorer than the "middle-income" group w^*, i.e., $w_\gamma < w^*$.*

Proof. The proof proceeds in two steps. First, it is established that $w^* \neq w_\gamma$. The second step establishes that w_γ cannot lie to the right of w^*.

Note, $\gamma = (l, h)$ implies that $\underline{s} = s$ and $\overline{s} = -s$.

STEP 1 : We show $w^* \neq w_\gamma$.

For group w^*,

$$\sigma(\gamma, w^*) = \pi(w^*)f(t(w^*) + s) + (1 - \pi(w^*))f(t(w^*) - s) = f(s)$$

using $t(w^*) = 0$ and the symmetry of f.

Now consider group w such that $w < w^*$ and $0 < t(w) < \rho$. For this group,

$$\sigma(\gamma, w) = \pi(w)f(t(w) + s) + (1 - \pi(w))f(t(w) - s)$$

Using the unimodality and symmetry of f around 0, we get:

$$\sigma(\gamma, w) > \frac{1}{2}[f(s + t(w)) + f(s - t(w))] \geq f(s)$$

where the first inequality is due to $\pi(w) < 1/2$. The second inequality follows from the convexity of f on the interval $(s - \rho, s + \rho)$ since $0 < t(w) < \rho$ by construction. This establishes $\sigma(\gamma, w) > \sigma(\gamma, w^*)$. Hence $w^* \neq w_\gamma$.

Before proceeding any further, it is useful to note that STEP 1 implies $t(w_\gamma) \neq 0$ since $\sigma(\gamma, w) = f(s)$ whenever $t(w) = 0$.

STEP 2: We show w_γ cannot lie to the right of w^*.

Suppose $w_\gamma > w^*$. Hence, $t(w_\gamma) < 0$ and

$$\sigma(\gamma, w_\gamma) = \pi(w_\gamma)(t(w_\gamma) + s) + (1 - \pi(w_\gamma))f(t(w_\gamma) - s). \tag{7}$$

It must be that $s + t(w_\gamma) \geq 0$. Suppose not. Consider $\hat{w}$ such that $t(\hat{w}) + s = 0$. Clearly, $\hat{w} < w_\gamma$ since t is non-increasing in w.

So,

$$\sigma(\gamma, \hat{w}) = \pi(\hat{w})f(0) + (1 - \pi(\hat{w}))f(t(\hat{w}) - s).$$

Also

$$\sigma(\gamma, \hat{w}) \geq \pi(w_\gamma)f(0) + (1 - \pi(w_\gamma))f(t(\hat{w}) - s) > \sigma(\gamma, w_\gamma). \tag{8}$$

where the first inequality comes from $\pi(\hat{w}) \geq \pi(w_\gamma)$. The second inequality follows from the unimodality and symmetry of f around 0 and by observing that

$$|t(\hat{w}) - s| = 2s < |t(w_\gamma) - s|.$$

Hence, we conclude that $s + t(w_\gamma) \geq 0$.

Now, corresponding to w_γ, one can always find a group $\tilde{w} < w^*$ such that $t(\tilde{w}) = -t(w_\gamma) > 0$. This is possible since we assume $t(\underline{w}) \geq s$. For this group $\tilde{w}$,

$$\sigma(\gamma, \tilde{w}) = \pi(\tilde{w}) f\left(t(\tilde{w}) + s\right) + (1 - \pi(\tilde{w})) f\left(s - t(\tilde{w})\right) \tag{9}$$

Now compare equations (7) and (9). Since $t(\tilde{w}) = -t(w_\gamma)$ (by construction) and $1 - \pi(\tilde{w}) > 1/2 > \pi(w_\gamma)$, we have $\sigma(\gamma, \tilde{w}) > \sigma(\gamma, w_\gamma)$. This leads to a contradiction which establishes STEP 2.

Combining STEP 1 and STEP 2 completes the proof of the proposition. ■

The next proposition considers the case in which both parties field candidates from the same caste. Given this configuration, we have $\underline{s} = \bar{s} = 0$. Thus, the caste-affiliation component of *every* voter's bias loses relevance.

PROPOSITION **3.** *In a constituency in which both parties field candidates from the same caste, the "middle-income" group becomes the "swing" group in equilibrium. Therefore, $w_\gamma = w^*$ in such a constituency.*

Proof. In a constituency where both parties field candidates from the same caste, for any group w

$$\sigma(\gamma, w) = \pi(w) f(t(w)) + (1 - \pi(w)) f(t(w)) = f(t(w)).$$

Clearly, the above is maximized at $w = w^*$ given that f is unimodal and symmetric around 0 and that $t(w^*) = 0$. ■

An immediate corollary of Proposition 3 is that in a reserved constituency where both parties are constrained to field low-caste candidates, the swing group is always the "middle-income" group w^*.

2.1 Candidate choice by parties

So far the discussion has focussed on equilibrium redistribution policies and identity of "swing" groups *given a candidate configuration*. However, as mentioned before, parties are free to choose their candidates in unreserved constituencies. In fact, parties will choose candidates strategically to maximize their respective payoffs in any unreserved constituency. In principle, there could be equilibria in which one or both political parties play *mixed* strategies, i.e., randomize between fielding a low-caste candidate and a high-caste candidate. We restrict attention to only those equilibria in which each political party fields *a* candidate rather than randomizing since this seems more natural in our setting.

Suppose that parties can only field their members as candidates and any citizen can potentially join any political party. However, party R is defined by/attracts rich individuals. Hence, the relatively wealthier section of society will fill the ranks of R. This means that the proportion of low-caste members in party R is *strictly lower* than in P (since low-caste

citizens are on average poorer than their high-caste counterparts). This, in turn, implies that whenever P fields a high-caste candidate party R can always afford to do the same. [11]

The discussion above suggests that it is relatively *easier* for party P to field a low-caste candidate than for party R. To capture this notion, we introduce the following parameters. For $j = P, R$ let c_j be the cost of fielding a low-caste candidate by party j where the cost of fielding a high-caste candidate is normalized to 0 for both parties. We assume that

$$c_R > c_P \text{ and } c_R \geq 0.$$

Party R being predominantly a high-caste populated party owing to its pro-rich identity suitably justifies the above assumption on costs.

Hence, the payoff to party j is party j's expected plurality *net* of cost c_j. Therefore,

$$\text{Payoff to party } j = \pi_j(\gamma) - c_j.$$

where $\pi_j(\gamma)$ represents the expected plurality of party j under configuration γ.

This sets the ground for identifying the set of candidate configurations that can be observed in equilibrium in any unreserved constituency. The following proposition is a step in that direction.

PROPOSITION **4.** *In any unreserved constituency, the candidate configuration $\gamma = (h, l)$ will not be observed in equilibrium.*

Proof. Suppose $\gamma = (h, l)$ is the equilibrium choice in an unreserved constituency. Since party R is fielding a low-caste candidate, it must be

$$\pi_R(h, l) - c_R \geq \pi_R(h, h). \tag{10}$$

Now suppose that party P deviates to fielding a low-caste candidate. Given that $\gamma = (h, l)$ is the equilibrium choice, such a deviation should not be profitable for party P. Hence,

$$\pi_P(l, l) - c_P - \pi_P(h, l) \leq 0. \tag{11}$$

However,

$$\pi_P(l, l) - c_P - \pi_P(h, l) = \pi_P(l, l) - c_P + \pi_R(h, l) - 1 = \pi_P(h, h) - c_P + \pi_R(h, l) - 1 \tag{12}$$

where the last equality follows from Proposition 3. However,

$$\pi_P(h, h) - c_P + \pi_R(h, l) - 1 \geq \pi_P(h, h) + \pi_R(h, h) + c_R - c_P - 1 = c_R - c_P > 0$$

where the first inequality follows from the relation in (10). Therefore,

$$\pi_P(l, l) - c_P - \pi_P(h, l) > 0.$$

This contradicts the relation in (11) and thus establishes the proposition. ∎

[11] In fact, each party has many more members than the number of seats to be filled — so every party has several candidates vying for a ticket for any given constituency.

Proposition 4 rules out the possibility of the configuration (h, l) in an unreserved constituency. However one may ask — in the context of an unreserved constituency — if (h, h) is the only possible candidate configuration in equilibrium. After all, if the candidate configuration (l, h) is like-wise ruled out then political reservation would not affect the equilibrium redistribution policy at all. However, it is easy to show that the model *does not* rule out the configuration (l, h) in an unreserved constituency. To see why, note the following:

Consider the configuration (h, h). In this configuration, $\underline{s} = \bar{s} = 0$. Here the payoff to P is $\pi_P(h, h) = \int\limits_i p_i$ since the cost of fielding a high-caste candidate has been normalized to zero. Now,

$$\int\limits_i p_i = \int\limits_{\underline{w}}^{\overline{w}} [\pi(w)[1 - F(-\alpha(w, l))] + (1 - \pi(w))[1 - F(-\alpha(w, h))]] \, \mathrm{d}G(w)$$

which simplifies to $\int\limits_{\underline{w}}^{\overline{w}} [1 - F(-t(w))] \, \mathrm{d}G(w)$.

Under the configuration (l, h), the payoff to party P is

$$\pi_P(l, h) - c_P = \int\limits_{\underline{w}}^{\overline{w}} [\pi(w)[1 - F(-t(w) - \underline{s})] + (1 - \pi(w))[1 - F(-t(w) - \bar{s})]] \, \mathrm{d}G(w) - c_P$$

Note that under the configuration (l, h), $\underline{s} = s$ and $\bar{s} = -s$. Hence,

$$\pi_P(l, h) = \int\limits_{\underline{w}}^{\overline{w}} [\pi(w)[1 - F(-t(w) - s)] + (1 - \pi(w))[1 - F(-t(w) + s)]] \, \mathrm{d}G(w)$$

Without imposing further restrictions of the distribution of voter biases, there is no way of telling which payoff is larger, $\pi_P(h, h)$ or $\pi_P(l, h) - c_P$, since

$$1 - F(-t(w) - s) > 1 - F(-t(w)) > 1 - F(-t(w) + s)$$

for every $w \in [\underline{w}, \overline{w}]$.

Intuitively, in switching from (h, h) to (l, h), party P potentially gains the support of some middle-income/rich low-caste voters while it potentially loses some poor (and slightly lower than middle-income) high-caste supporters. Hence, the payoffs to party P from making a switch is ambiguous. It depends on the distribution of the biases among the voters. *Thus, one cannot assert that in any equilibrium of an unreserved constituency both parties must be fielding high-caste candidates.*

The above discussion makes it clear that in an unreserved constituency the only possible configurations in equilibrium are (h, h), (l, l) and (l, h). The first two configurations

yield identical redistributions in equilibrium (see Proposition 3 and subsequent discussion) while the last configuration produces a redistribution policy which favors poorer groups as compared to the "middle-income" group (by Proposition 2). In the aggregate, reservation appears to bias policy against the poor and in favor of middle-income groups. Additionally, given that the Scheduled Castes are concentrated at the lower end of the income scale, reservation is serving to exacerbate the inequities *within* them. Thus, reservation could be aggravating the "creamy layer" problem.

Thus, the theory sets up an empirical test of the nature of redistributive policies pursued by the elected representatives. If reservation does have a deleterious effect on the poorer sections of society and works against the poor low-caste voters, then we should see some evidence of this in the implementation of anti-poverty programs. Also, we can check the effect of reservation on within low-caste inequality and poverty.

3 Empirical Analysis

The theoretical model in the previous section provides the following empirically testable predictions.

[A] Reservation of seats for the Scheduled Castes disfavors the poorer sections of society as transfers to them are reduced.

[B] Given that the Scheduled Castes are poorer on average, mandated political reservation hurts most SC members (who are poor) and favors some relatively wealthier SCs. Thus, reservation would result in increased inequality among the SCs.

Ideally one would look at the decomposition of the entire budgetary spending by every Member of Parliament (in every constituency) in order to assess which income groups are being favored at the expense of others and how this pattern changes as one moves from a reserved constituency to one without reservation. However the data on MP spending which is publicly available, does not allow such a fine decomposition. The annual reports on MP spending inform us about the total number of "works" (i.e. local-area small-scale developmental projects) the MP has commissioned during the past year. Further, these reports decompose the aggregate MP spending by state on the basis of sectors.

The different sectors on which MPs typically allocate their funds (i.e. they commission "works" in these sectors) are "Roadways, Paths and Bridges", "Electricity facilities", "Irrigation", "Education", "Health and Public Welfare" and "Sanitation and Public Health". So there is information on how much is spent on each of these sectors *by state*. However this information is not particularly useful in answering questions about changes in expenditure on the poorer sections of society as response to reservation of constituencies.

Another route one could potentially take is by mapping the levels of different public

goods (available from the census) to constituencies and then checking if reservation affects the pattern of public goods provision. In fact, Banerjee and Somanathan (2007) perform an exercise of this nature although their main question is different from the one examined in this paper.[12] However, this method is not unproblemmatic either.

In the above method, it is not possible to unambiguously demarcate most public goods as specifically being preferred by one income group as opposed to another. For e.g., how can one say that the poor really care about health centres while the middle-class do not? Even if one finds evidence of more roads in constituencies reserved for SCs one cannot be sure which groups of people are profiting from this — for e.g., if all the roads construction happens in such areas so that large wealthy farmers can access the market more easily, then more roads do not necessarily augur well for the poor marginal farmer. On the other hand, it could be that more/better roads are developed in such a manner so that the transportation costs for all are reduced and perhaps the poor *do* gain more from this. Therefore looking at public goods does not cleanly identify *losers* and *gainers* between different income groups although it is undeniable that more public goods in a constituency means the entire constituency, as a whole, must be better-off.

So what is required is *hard information* on some aspect of MP spending which the poor clearly care about and then check if such kind of spending happens more/less in constituencies reserved for SCs.

Given that the MP is supposed to commission "works" in different sectors and that India has implemented several employment-based poverty reduction programmes, one could look at *the constituency-wise differences between the implementation of these programmes*. These programmes are the initiative of the central government (seated in Parliament) and so the MPs have a prominent role in shaping and implementing them. So prediction [A] is checked in the following manner: The implementation of nationwide poverty-reduction programmes in *reserved constituencies* is compared with that in *unreserved constituencies*. Any differences between the degree of implementation — after controlling for various factors — would be a useful pointer to the effect reservation has on transfers to the poor.

For prediction [B], measures of inequality of per-capita expenditure of SC households are constructed at the district-level and matched with the degree of reservation therein.

3.1 Data

Both the predictions [A] and [B] require matching reservation data on constituencies to data on the households in those constituencies. A comprehensive description of the different datasets used in the analysis follows.

For information on the reservation status of the Parliamentary constituencies in India, the

[12] They look at the location of public goods between 1971 and 1991 in about 500 parliamentary constituencies in rural India to assess the relative importance of social structures as regards the allocation of public resources over the period.

sources are the Statistical Reports on General Elections available from the Election Commission of India.[13] Given that there are 542 constituencies divided among 338 districts, many districts contain more than one constituency.

Although earmarking of seats for reservation was initiated right from the first Lok Sabha election (1952), reservation here is treated as if they start from 1962 (3rd Lok Sabha election year). The reason for doing so is simple — the constituencies in 1952 and 1957 are not comparable with the constituencies today in 1987-88. There has been considerable redistricting and formation of new states during the 1950s. From 1962 onwards there has been only minor changes in the names and identities of constituencies. Hence in order to maintain consistency, reservation is measured as starting from 1962. [14]

Another point about reservation which is of relevance to this paper is the following. As per the provisions of the Indian Constitution, readjustment and delimitation of constituencies was to take place after every decennial census. Accordingly, Delimitation Commissions were constituted in 1952, 1963 and 1972. However, the Parliament by passing the 42nd Constitutional Amendment Act (1976) imposed a moratorium on the number of seats allocated and the territorial boundaries of constituencies as determined by Delimitation of Parliamentary and Assembly Constituencies Order 1976 until the publication of the population figures of 2001 Census. Accordingly, the Fourth Delimitation Commission was set up under the Delimitation Act 2002 after a gap of as many as 30 years. *This means that there has been no change in the identity or the number of reserved SC seats after the 1977 Lok Sabha elections.* So whichever seats were reserved in 1977 remained so right through till 2001 and no other seats were reserved between 1977 and 2001.

In India, large scale household surveys are conducted quinquennially as part of the National Sample Surveys (NSS). The survey rounds cover the entire nation and capture monthly expenditure incurred by the sample household for the purpose of domestic consumption.[15] The recall period used is 30 days, i.e., the surveyed households are asked to provide information on consumption expenditure incurred over the past 30 days. For this analysis, the 43rd round of NSS is extensively used for information on household monthly per capita expenditure. Data for this round was collected during July 1987- June 1988. There is data on monthly per capita expenditure at the household level for over 300 districts in India – these districts span 18 major states in India and account for over 95% of the Indian population.

These large scale NSS rounds also have information regarding the surveyed households' participation in the nationwide poverty-reduction programmes. In fact, most of the poverty reduction programmes gathered momentum in the late 1970s/early 1980s (see for e.g. Banerjee and Somanathan (2007) for details on "Garibi Hatao" (translates into "Eradicate Poverty") programmes during this era). This makes the 43rd NSSO round particularly

[13] In this paper the election data from the years 1984 and 1985 are used.

[14] One can argue that here one potentially misses out on some variation which could have occurred in the first decade of reservation (i.e. 1950s). But there is no way of incorporating that without introducing a great amount of arbitrariness in deciding which constituencies in 1952 map into the ones in 1987-88.

[15] Unfortunately, in the case of India there are no available sources of income data on a nationwide scale. Hence, expenditure is the closest one can get.

suitable for the task at hand.

3.2 Empirical strategy

The paper first looks at the empirical verification of [A] which is about the reduced implementation of anti-poverty programmes in reserved constituencies. In India, almost all nationwide poverty alleviation programs involved one of the following: **(i) Public Works** initiative and (ii) The **Integrated Rural Development Programme (IRDP)**.

Public Works is about employing poor households for building public infrastructure especially in the rural parts of the country.[16] They were designed to address the issue of reduction of poverty via employment of poor household members. At the same time, these programs aid in the creation of basic infrastructure like roads, dams, bridges, canals, schools, etc. In fact, the wages for these employment programs are set at a suitable level which are expected to attract only the poor.

The Integrated Rural Development Programme (IRDP) of the Indian Government was designed to alleviate rural poverty through the provision of production assets and inputs (livestock, machinery, etc.) to selected households. The target group is the rural poor with annual incomes less than a specified threshold level, and bonded labour families.

Table 1 contains a brief summary of some state-wise characteristics of Scheduled Castes and the implementation of Public Works and IRDP programmes. This data pertains to over 107,000 households coming from 327 districts all over India. The third column in the table, namely $\frac{SC\ pce}{Avg.\ pce}$ (the ratio of average per-capita expenditure of SC households to the state average), is a stark indicator of the economic plight of SCs. In fact, in all states excepting Assam, this ratio is well below unity.[17]

Another notable point is that although the poverty estimate (% below the poverty line) for the entire nation was 38.86% in 1987-88, there is considerable variation in poverty across states; compare for e.g. Orissa and Punjab. These discrepancies are even wider when one looks at district-level poverty rather than at the state level. The implementation of the two programmes — Public Works and IRDP — also exhibit considerable variation across states as is evident from the table. There is some degree of positive correlation between SC % and the proportion of seats reserved for them (the second and fourth columns). However, this correlation is not very high because of the freeze on rotation on SC reservation in 1977 (recall that the data in the table comes from NSSO 43rd round conducted in 1987-88).

The 43rd round of NSS used here contains information regarding the participation of the

[16] The National Rural Employment Programme, Rural Landless Employment Guarantee Programme (RLEGP), Minimum Needs Programme (MNP), and other schemes aim to provide employment in construction of roads, dams, bunds, digging of ponds, etc. All of these come under this "public works" approach.

[17] In Assam there is a significant tribal population whose economic conditions are even worse. That is perhaps one reason for the ratio being close to unity for this state.

households in these poverty-reduction programmes. To be precise, the following questions were put to every (head of) household:

(1) *"Did any member of the household work for at least 60 days on public works during the last 365 days ?"*

(2) *"Did the household, during the last 5 years, receive any assistance from IRDP, and if so, in what form (physical asset) ?"*

It is possible to identify the district a household belongs to in the particular NSS round used here (i.e. the 43rd round). Given that the reservation characteristics of all districts are available from the Election Commission of India Reports, the following question is posed: "Does the reservation characteristic of a district to which a household belongs, have any impact on the household's participation in IRDP and public works?". In other words, *is a household more/less likely to participate in these programmes if it comes from a district with a longer history of SC reservation?*

The next attempt is to verify implication [B] which is about the increase in within-SC inequality after reservation. For [B] attention is restricted to only single-constituency districts.[18] Table 2 contains a brief summary of these single-constituency districts at the level of the state. *Note, this table is constructed using data from only single-constituency districts within each state.* Hence, the state-wise characteristics of 182 such districts (or constituencies in this case) are summarized here.[19]

The primary thing to note is the broad similarity in reservation and SC economic and demographic characteristics between tables 1 and 2. This suggests that as far as reservation or the characteristics of SC households are concerned, there are no significant differences between all districts taken together (i.e. single-constituency districts plus multiple-constituency districts) or just single-constituency districts alone at the state-level. In fact, in Table 2 the value for $\frac{SC\ pce}{Avg.\ pce}$ in every state happens to be strictly below unity.

The basic layout of the empirical investigation of prediction [B] is the following: It is examined whether reservation has had any impact on the distribution of monthly per-capita consumption expenditures among SC households in these districts. In particular, it is checked whether there is any evidence of *a link between SC reservation in a district and inequality in expenditures within SC households in the district.* This would help understand whether SC reservation does indeed create greater disparities within SCs.

However, given the rampant poverty among SC households, any evidence of a positive association between SC inequality and reservation could well be the reflection of a negative association between SC poverty and reservation. Thus, the relation between SC poverty in the district and reservation in the district is also checked.

[18] In the case of multiple-constituency districts, the link between reservation characteristics and SC inequality cannot be clearly established. For example, rising (falling) SC inequality in any one of the constituencies (presumably as a response to reservation in that constituency) does not necessarily reflect rising (falling) SC inequality in the district overall.

[19] This data comes from 43,434 households surveyed by NSSO.

The Theil index has been used to measure inequality.[20] For measuring poverty among SCs at the district-level, two of the most widely-used indices have been employed. One is the Headcount Ratio which simply represents the percentage of households in the district which are below the poverty line. The other is the Poverty Gap Ratio which is the mean distance separating the population from the poverty line (with the non-poor being given a distance of zero), expressed as a percentage of the poverty line.

The poverty lines used here are from the Planning Commission of India which is the public body entrusted with the task of providing the official estimates of poverty for the nation and for the individual states. The poverty lines are expressed in Rs. monthly per-capita for 1987-88. For every state in India, there are two such poverty lines — one for the urban households and other for the rural households. The variation in "years of reservation" across constituencies (as different constituencies were declared reserved at different points in time) will be exploited.

3.3 Empirical specification:

3.3.1 Household-level specification

First comes the issue of how the reservation characteristics of a household's constituency may affect the household's participation in poverty-reduction projects undertaken in the area of the household's residence. Here, both kinds of programmes are separately examined — Public Works and IRDP. To capture each of these relationships, a logit model of the usual form is employed.[21]

$$P(y = 1|\, X) = G(X\beta) = G(\beta_o + \beta_1 x_1 + \beta_2 x_2 + ... + \beta_K x_K)$$

where $G(z) \equiv \exp(z)/[1 + \exp(z)]$.

In the case of Public Works, $y = 1$ if a household has participated in public works for at least 60 days during the last 365 days and $y = 0$ otherwise. In the case of IRDP, $y = 1$ if a household has received any sort of assistance from IRDP during the last 5 years and $y = 0$ otherwise.

The baseline specification includes all surveyed households belonging to the 18 major states (see Table 1). Hence, households from districts which contain multiple constituen-

[20] If $y = (y_1, y_2, ..., y_n)$ is the income distribution vector for a population of n individuals, the Theil index is given by:

$$T(y; n) = \frac{1}{n} \sum_i \frac{y_i}{\mu} \log(\frac{y_i}{\mu})$$

where μ is the mean income of the population.

[21] The same analyses have been conducted using a probit model. The results are extremely similar. Only the logit regressions are reported here as the BIC criterion favors it strongly over the probit model.

cies are included in the baseline specification.[22] Suitable survey weights have been employed for all the reported regressions keeping the NSSO survey design in mind.

Although the unit of analysis is a household, the explanatory variables of interest, *i.e. reservation characteristics of the constituency the household belongs to*, varies at the level of the constituency and not at the level of the household. Therefore any variable pertaining to reservation takes the same value for all households within the same constituency.

Furthermore, NSSO permits identification of a household upto the district and not all the way down to the constituency. Several districts have two or more constituencies within them.[23] This poses a slight complication which is dealt with in the following manner. A household surveyed from a district with multiple constituencies could be coming from any one of the constituencies – one does not know which one exactly. That said, it is equally likely to have come from either one of them given that population size is the basis for creating constituencies (see discussion under subsection **Institutional Background**).

Keeping the above consideration in mind, the chief variable of interest called "average reservation duration" has been constructed thus. *Average reservation duration* is simply the sum of the total number of years of SC reservation for all constituencies within a district divided by the number of constituencies within a district. Therefore,

$$\text{Avg. Resv. duration} = \frac{1}{n} \sum_{c \in d} \text{number of years } c \text{ has been reserved}$$

where c denotes a constituency in district d and n is the total number of constituencies within d. This measure of reservation goes further than incorporating whether a particular district was subjected to any SC reservation or not; the attempt is to capture the extent of it in terms of duration.

For single-constituency districts $n = 1$ and hence this measure is simply the total years for which the constituency has been reserved for SCs. Also, for a district which has never experienced any SC reservation in any of the constituencies within it, this measure is zero.

Two alternative measures of reservation have been used as well. One is a dummy variable which captures whether the household comes from a district which has ever experienced any SC reservation or not. The other is a dummy variable which captures whether the household comes from a district which is currently (i.e. in 1987-88 at the time of the NSSO survey) experiencing any SC reservation or not.[24] These measures are cruder than *Average Reservation duration* insofar they do not capture the "depth" of reservation; but are appealing in their simplicity. In fact, any evidence of a link between these reservation variables and the household's participation in poverty-reduction programmes would be

[22] The analysis is repeated with only households from single-constituency districts as a robustness check. The results obtained (discussed later) are substantively similar to the baseline specification case.

[23] There are 542 constituencies spread over 338 districts. There are 182 cases where the district and the constituency mean the same thing, i.e. there are 182 single-constituency districts.

[24] The correlation between these dummy variables is fairly high (and positive) but not perfect as there were changes in reservation status of constituencies over time till 1977 when a freeze on such rotation was imposed.

strongly indicative of a deep-seated relation between SC reservation and a household's involvement in these projects.

Several controls are available from the NSSO dataset and they have been suitably employed. Household characteristics which influences the household's choice of involvement in Public Works/IRDP needs to be controlled for. Typically factors like the household per-capita monthly expenditure, household size, the level of education in the household, proxies for the wealth of the household, the primary occupation of the household and some of their mutual interactions have the potential to influence the household's choice of participation in Public Works/IRDP. These are roughly "demand side" considerations which come into play when examining the outcome of a household's participation.

Potentially, there are some "supply side" considerations too — it might happen that in some districts poverty-reduction programmes are far less implemented than in others. Hence, a typical household may be excluded from participation because there are very few public works in the district. Clearly that is some property of the district *per se* which is not directly related to the participation decision of the household. The key question is whether or not *reservation characteristics of a district have such a "supply side" impact* — and if so, then in which direction.

Some of the important controls are (the log of) household per-capita monthly expenditure, household size, a dummy indicating whether the household belongs to a Scheduled Caste or not, a dummy indicating whether the household is a Hindu household or not, a dummy for the head of the household's education level (whether the head has completed primary school or not) and a dummy indicating whether the household resides in an urban area or not.

Other controls which have been used can be broadly grouped into two types — (i) proxies for the wealth of the household and (ii) variables for the primary occupation of the household.[25]

In the first category, the main controls are a dummy for whether the household owns a home or not, whether the dwelling is built with bricks/stones and cement or with mud,clay and thatched roof ("pucca","semi-pucca" or "kutcha")[26], whether the dwelling is an apartment/ house or a shack/shanty ("chawl/bustee"). Interactions of the home-

[25] There is clearly a fairly high degree of correlation between a household's educational attainments, wealth and primary occupation. What is noteworthy is that the main findings persist even in those specifications which have potentially severe muticollinearity issues.

[26] A *pucca* house is one, which has walls and roof made of the following material. Wall material: Burnt bricks, stones (packed with lime or cement), cement concrete, timber, etc. Roof Material: Tiles, GCI (Galvanised Corrugated Iron) sheets, asbestos cement sheet, RBC,(Reinforced Brick Concrete), RCC (Reinforced Cement Concrete) and timber etc.

The walls and/or roof of which are made of material other than those mentioned above, such as un-burnt bricks, bamboos, mud, grass, reeds, thatch, loosely packed stones, etc. are treated as *kutcha* house.

A house that has fixed walls made up of *pucca* material but roof is made up of the material other than those used for *pucca* house is a *semi-pucca* house.

owner dummy with the dwelling types have also been included.

The variables in the second category include dummies for whether the household is self-employed rural (or urban), whether the household provides labor in rural areas, whether the household is an urban regular wage/salary-earning one or whether the household provided "casual labor" in urban areas. Also, interactions of these occupational dummies with household size and the Hindu dummy were included in some cases.

Finally, although IRDP and Public Works programmes have been more active in rural areas, there is evidence of such programmes being put to work in urban areas as well. Hence, all analysis presented here is using both kinds of households (rural and urban).

3.3.2 District-level specification

In order to address the relationship between the reservation characteristics of a district and the inequality among SCs therein, a standard linear model of the following form is employed:

$$y_d = \alpha + \beta \mathbf{X_d} + \rho \mathbf{Z_d} + \varepsilon_d$$

where y_d is one of the following:

(i) some measure of inequality in monthly per capita expenditure of SC households in district d. (ii) some measure of poverty of SC households in district d. (iii) the average monthly per capita expenditure of SC households in district d.

$\mathbf{X}_d$ contains the chief explanatory variables which pertain to the reservation characteristics of the district (see below) and $\mathbf{Z}_d$ contains district-level controls and ε_d is the district level error term.

The chief explanatory variables concerning reservation characteristics are *Years of reservation* which is simply the total number of years a district has been declared a seat reserved for SC candidates, a *reservation dummy* which takes the value 1 if the district has ever been reserved and takes the value 0 otherwise, a *continuity dummy* which takes the value 1 if reservation in the constituency has been continuous and takes the value 0 otherwise (this variable is interacted with the reservation dummy) and *Time gap*.

The last control,*Time gap*, has been constructed with the following idea in mind. Some seats were declared reserved early on and then were "de-reserved"i.e. they were opened to candidates from all castes. So "time gap" is defined as the number of years from 1988 since the seat was last reserved. Thus, for seats which have been reserved earlier and are still reserved at 1988, this variable takes the value 0. For seats which were last reserved only till 1984, "time gap" is 4 and so on. Since, "time gap" only applies to seats which have been reserved at some point in time, this variable is interacted with the reservation dummy.

At this point it is important to re-iterate the procedure by which a constituency's reservation status is determined, as this would influence the choice of controls for the regressions.

For every state, the allocation of seats for SCs are made on the basis of proportion of SCs in the state concerned to that of the total population. However, there remains the question of *which* seats to pick for SC reservation within the state. This is done by the Delimitation Commission and is solely based on two criteria: (a) the population percentage of Scheduled Castes in the constituency concerned and (b) that the constituencies for SCs are to be distributed in different parts of the state.

In other words, the *total number* of reserved SC seats within a state is determined by the proportion of SCs in that state. The question of *which constituency to declare reserved* within a state is decided on two counts — (i) the reserved constituencies have to be (geographically) spread out in the state and (ii) those constituencies which have a higher proportion of SCs are more likely to be chosen keeping (i) in mind.

Any factor which potentially affects the reservation status (*reserved* or *not reserved*) and has a direct effect on the outcome of interest (SC monthly per-capita expenditure or SC inequality in per-capita exp.) must be controlled for. Given the procedure of SC reservation, the choice of a constituency within a state for reservation is partly random and partly determined by the SC population proportion in the constituency. The randomness comes from the fact that one could pick *several different sets of seats* for SC reservation keeping in mind the consideration about geographical dispersion of these seats.

The different controls used for some of the regressions are the (log of) *population % of SCs* which is the (log of) percentage of SC households in the district in 1987-88[27], the (log of) district *population* which is the (log of) total households in the district over the total households in all districts in 1987-88 times 100, the log of *average per-capita monthly expenditure* of all households in the district to control for the general level of prosperity of the district in 1987-88 and state dummies in order to capture any state fixed effect.

Note, that the variation in reservation characteristics (whether reserved or not, duration of reservation, etc.) across constituencies is exogenous in the sense that whatever causes this variation is either random or is based upon the SC percentage population in the constituency (which is explicitly controlled for).

4 Regression Results

4.1 Household-level regressions

The key question is whether or not the reservation characteristics of a household's constituency affect the household's participation in Public Works/IRDP projects undertaken in the area of the household's residence. Given that these projects were designed to employ the poorer and unskilled segments of society, one might expect that the reservation

[27]This is an important control as given two constituencies located very close to each other, the one with the higher SC percentage is more likely to be reserved. Also, larger proportion of SCs might be affecting the outcome of interest *directly.*

characteristic of a household's constituency would practically have no direct effect on the household's participation in such programmes.[28]

Table 4 contains the basic results for participation in Public Works using over 107,000 households spanning 327 districts (including multiple-constituency districts) in the 18 major states. In all five columns, the coefficient on *Average Reservation duration* is highly significant and negative — this means that a household from a district subjected to longer years of reservation is *less* likely to have participated in public works projects, holding other factors constant.

Larger households are more likely to participate as is shown by the significant and positive coefficient on the household size variable (denoted by *hh size*). This is fairly intuitive as larger households have more members who can participate. Also most large households typically include children and people of advanced years — this puts more pressure on the earning members of the household ("more mouths to feed" argument).

The negative coefficients on per-capita expenditure (*log pce*) and the interaction of per-capita exp. with household size (*log pce*hh size)* indicate that poorer households are more likely to have worked in these programmes. This strongly indicates that the beneficiaries of these programmes were clearly the non-rich. The negative coefficient on *Homeown*Dwelstruct* (which is the interaction of the Homeowner dummy with the variable that measures the quality/durability of a household's dwelling structure) indicates that households who owned pucca houses were least likely to have participated followed by the owners of "semi-pucca" houses. Owners of "kutcha" houses and hence the poorest households were most likely to participate. All of the above indicates that poorer households tended to work more in public works.

The highly significant and positive coefficient on the Hindu dummy indicates that all else constant, a Hindu household is more likely to have worked in these programmes than a household belonging to the other religious minorities. In column 4, dummies indicating the employment status of the head of the household (i.e. whether the head is self-employed and rural /rural labourer/rural casual labourer/self-employed and urban/belongs to wage-salaried class or is an urban casual labourer) is included. Column 5 includes further interactions of these variables with household size and the religion dummy (*Hindu dummy*). The coefficient on *Average Reservation duration* remains negative and significant in all these specifications.

Table 5 reports similar regressions where the chief explanatory variable is a dummy indicating whether or not the household comes from a district which has ever witnessed SC reservation in any of its constituencies. Therefore *Reservation dummy* is 1 for every household in a district which has ever seen SC reservation and 0 otherwise. In all five columns, the coefficient on *Reservation dummy* is highly significant and negative — this means that a household from a district which has ever witnessed any reservation for SCs is *less* likely to have participated in public works projects, holding other factors constant. The rest of

[28] If anything, one might expect a positive relationship if one believes that SC MPs are more likely to spend more on the poor as SCs are poorer on average than non-SC households.

the coefficients, in each of the corresponding five regressions, are similar in sign and significance to the corresponding ones in the regressions with *Average Reservation duration*.

Regressions of the form presented in Table 5 were run with a dummy indicating the current (i.e. in 1987-88) reservation status of the district (by a dummy called *Currently Reserved*) in place of *Reservation dummy*. The results are very similar to those in Table 5 and hence have not been reported here.

Table 6 contains regressions for the participation in IRDP programmes analogous to those in Table 4. In contrast with the Public Works regressions, there is no evidence of any statistically significant relationship between reservation characteristics of the household's district and the household's benefiting from IRDP projects. Therefore, holding all else constant, a household from an unreserved constituency is as likely to get benefits from IRDP as is a household from a reserved constituency. Another notable feature is that SC households were more likely to have received benefits from IRDP projects as compared to other households, all else constant.[29]

Table 7 reports regressions of IRDP participation for *Reservation dummy* corresponding to those in Table 5. These regressions re-iterate what is observed in Table 6 — no statistically significant relationship between reservation characteristics of the household's district and the household's benefiting from IRDP projects. The same holds for the regressions with a dummy indicating the current (i.e. in 1987-88) reservation status of the district (by a dummy called *Currently Reserved*) in place of *Reservation dummy*.

In summary, one observes a strong negative association between SC reservation in a district and the participation of a household from the district in Public Works. No such evidence is found in the case of benefits from IRDP. This is true for different measures of reservation — namely *Average reservation duration*, *Reservation dummy* and *Currently reserved dummy*. Also, this effect persists when the analysis is conducted with households from only single-constituency districts.[30]

All these results strongly suggest that Public Works projects are less implemented in those districts which have witnessed more SC reservation.[31] The IRDP regressions reveal another important point — *it is not the case that SC MPs in reserved constituencies are providing the poor with greater IRDP targeting to compensate for the lower provision of Public Works projects.* Hence, one can safely claim there is strong indication of under-implementation of poverty-reduction schemes in areas reserved for SC MPs.

[29] Bardhan et al. (2005) find that the village councils with a leader from the scheduled castes (SC) or scheduled tribes (ST) tend to receive more credit from IRDP.

[30] The results for single-constituency districts are similar to the ones reported in the paper. However, there is some degree of attenuation in the significance of the reservation variables. This is perhaps natural as one is now restricted to 182 districts as opposed to 327 earlier (and corresondingly 43,434 households as opposed to107,819 earlier). These results are available from the author upon request.

[31] Unless one entertains the notion that households from the reserved areas were employed lesser as most of the public works in these reserved areas were capital-intensive relative to those implemented in unreserved areas. Not only is such a notion baseless, but this also goes against the whole idea of public works programmes.

4.2 District-level regressions

The motivation behind declaring a seat reserved for SCs was that a leader from the Scheduled Caste would be more aware of the needs of his community and hence will be able to address the concerns of his constituency-members better. Keeping this in mind, one would expect a significant and positive association between reservation and the average per capita expenditure among SC households. In fact, this is what is observed here.

From Table 8, it is clear that increases in "years of reservation" has no correlation with the average monthly pce of SC households. However, if the reservation has been continuous then that seems to have a positive effect on SC average monthly pce. The negative and significant coefficient on Resv.*Gap implies that constituencies which had been reserved earlier but are no longer reserved in 1987-88 have lower average monthly pce SC in 1987-88 as compared to similar constituencies which are still reserved in 1987-88.[32] In sum, these results suggest that reservation is positively associated with the average monthly per-capita expenditure of SC households. This is in consonance with the previous findings in the literature (see for e.g., Pande (2003), Chattopadhyay and Duflo (2004a and 2004b), etc.).

Next comes the distributional effects of SC reservation. Table 9 contains the results for the regressions where the dependent variable is some measure of inequality among SCs.

Table 9 reveals some evidence of negative correlation between "years of reservation" and inequality among the SC households in 1987-88. However, if a constituency has been reserved continuously then this has a significant and positive impact on the inequality among SC households in 1987-88. Also, the coefficient on Resv.* Gap implies that constituencies which had been reserved earlier but are no longer reserved in 1987-88 have lower SC inequality in 1987-88 as compared to similar constituencies which are still reserved in 1987-88.

There seems to be an apparent conflict between the association of inequality and "time gap" and that between inequality and "duration of reservation". Clearly, the negative coefficient on Resv.* Gap implies that reservation tends to increase inequality in SC expenditures; continuous reservation further exacerbates inequality. Consider two constituencies similar in all respects (same duration of reservation, in particular) but one reserved in 1962 for say 10 years and the other also reserved for 10 years but starting 1977. The coefficient on Resv.*Gap implies that the one reserved later (i.e. smaller Resv.*Gap) will exhibit higher inequality in 1987-88. This suggests that *more recent* the reservation, the higher is the inequality among SCs.

Now, consider two districts with similar characteristics (especially, the same Resv.*Gap) but suppose one of them has been reserved for longer. By the negative coefficient on Resv. Years, the district reserved for longer would have lesser SC inequality in 1987-88. But this also means that this district must have been reserved earlier (otherwise they cannot

[32]The bigger the "time gap" the farther away in time was this constituency last reserved and hence a negative coefficient implies what is stated above.

have the same Resv.* Gap and same Resv.* Cont.). So these results suggest that initially reservation resulted in some additional resources being to the poor SCs but then later this changed to resources being diverted away from the poor SCs. This explanation serves to reconcile the differences between the coefficients on Resv.* Gap and Resv. Years.

Also reported in the same table are regressions where the dependent variable is relative inequality defined as Rel_ineq=log (Theil for SC households/Theil for all households). Defining relative inequality in this way makes it clear how much inequality *among SCs* changed relative to inequality *among all households* as a result of reservation. In all, the results in Table 9 suggest that *reservation is positively associated with inequality in expenditures among SCs.*

This finding raises the following concern — perhaps the rise in SC inequality that seems to be in tandem with increased reservation is just a reflection of the fact that the some of the poor SCs are actually benefitting from reservation and it this rise in their expenditures that seems to exacerbate SC inequality. To settle this question, one needs to study the effect of reservation on poverty among the SC households and check if it mirrors the relation between reservation and SC inequality.

Table 10 contains the regressions where the dependent variable is poverty among SC households as measured by the Headcount Ratio and by the Poverty Gap Ratio. The results reveal that there is no significant association between SC poverty and the reservation variables in the district — reservation does not affect SC inequality and SC poverty in the same manner.

Even if one admits the possibility that reservation did benefit some of the poorest SC households, the contribution of the poverty dynamics to inequality in expenditures among SCs is ominous — slight betterment of the poorest SCs coupled with no effect on their Headcount numbers should bring the expenditures of the poor SC households closer to each other; hence, without any increase in expenditures of the non-poor SC households there should be a decrease in within-SC inequality. Thus, the evidence of increased SC inequality that was found from the SC inequality regressions could not have been a by-product of the SC poverty dynamics.

4.3 Concerns

4.3.1 Alternative explanations

A general concern could be that the lower implementation of the public works projects in reserved areas could be the result of some mechanism different from the one posited here, i.e. not necessarily through the channel of electoral competition. Two alternative theories are discussed here.

One plausible alternative theory could be one involving inexperience. One could argue that the low-caste leaders have had lesser training and so are unable to implement policies

efficiently. However, over time this problem would go away and hence one should see similar policy outcomes for leaders of any caste. But the empirical results obtained here reveal a negative relationship between *Average reservation duration* and implementation of public works projects — thus refuting the "inexperience" theory.

Another potential explanation for the household-level regression results could stem from the correlation between poverty and reservation duration in a district. One could say that those districts which have ever been reserved or have been reserved for longer durations of time may be housing a large proportion of Scheduled Caste families. Given that Scheduled Castes are poorer on average, it may well be the case that poverty in reserved districts (or districts which have been subjected to reservation for long periods of time) is high as compared to the national average.

It could be that SC MPs in these reserved districts *intend* to allocate funds like their unreserved counterparts but the preponderance of poor households in their constituencies result in a lower probability of any household receiving benefits from "Public Works" (as implied by the negative coefficient on *Average Reservation duration* or *Reservation dummy* in the Public Works regressions). In other words, a budget constraint could be responsible for this lower probability of receiving benefits in reserved areas. Thus, reservation could simply be proxying higher poverty. This concern is addressed in the following two ways.

First, if reservation is a mere proxy for poverty then replacing the reservation variables by district-level poverty measures in the Public Works regressions would deliver similar coefficients on poverty as have been observed on reservation variables. Table 11 reports such regression results. In fact, columns 1,3 and 5 in Table 11 correspond to regressions in Table 4 with *Average Reservation duration* replaced by *Poverty* which is simply the percentage of poor households in the district (the Headcount ratio).[33]

In each of the three columns (i.e. columns 1, 3 and 5), the coefficient on *Poverty* is not significant even at the 10% level. This is in stark contrast with the coefficient on *Average Reservation duration* reported in Table 4. Secondly, district-level poverty measures were included as an additional control (see columns 2,4 and 6 in Table 11). In this case, *Poverty* remains insignificant while the coefficient on *Average Reservation duration* is negative and significant as in Table 4.

These findings clearly suggest that the budget constraint story — via the channel of poverty proxying for reservation– cannot be generating the results.

4.3.2 Reverse Causality issues

There is the possibility of feedback in the case of the household regressions — participation in Public Works or IRDP could in turn affect income and hence consumption expenditure. However, in such a case one would expect that greater participation leads to

[33] An alternative measure of poverty was used as well — namely, the Poverty Gap ratio. However, the results obtained with Poverty Gap ratio are extremely similar to those using the Headcount Ratio. Hence, only one set is reported.

betterment of income and hence the correlation between expenditure and participation in public works should be *positive* from this feedback effect.

What is observed from the regressions in Tables 4 and 5 is that the coefficient on household wealth indicators (like per-capita expenditure, type of dwelling, etc.) is negative. So one is lead to infer the following — even if such a feedback effect exists it is not of sufficient magnitude to overturn the effect of poorer households tending to participate more in "Public Works". Had the coefficient been ambiguous or insignificant then one could perhaps argue that it because the feedback effect annuls the effect of the inverse relation between expenditure and participation. But the fact that a significant and negative coefficient is observed on indicators of household wealth implies that the beneficiaries of public works schemes were the poorer households.

As regards the IRDP regressions (Tables 6 - 7), one observes that the coefficient on per-capita expenditure is sometimes significant and positive. This could be one of two things (or perhaps a combination) : (i) the benefits were captured by wealthier ineligible households[34] and (ii) poor households did receive the benefits previously and as a result *were no longer in need at the time of survey.* However the persistence of a significant and negative coefficient on *Dwelling Structure* variable in Tables 6 - 7 suggests that the more impoverished households were perhaps the primary beneficiaries of IRDP projects.

5 Conclusion

Since the 1950s, India has enacted affirmative action policies for the historically disadvantaged minorities — in particular, the members of the Scheduled Castes (SCs) and Scheduled Tribes (STs). Wide-ranging policies in form of job quotas, targeted welfare spending and representation in the Indian Parliament were implemented for the betterment of these "depressed classes". One of the main purposes behind mandated political representation was that members of disadvantaged minorities would have a voice in the determination of national policies which they could use for their betterment.

Previous findings in the literature have been that such mandated political representation biases policies in favor of the minority group *as a whole*. However, the question of who gains and who loses within the minority group has not been studied before. This paper attempts to uncover precisely which segment of these minorities are benefitting from having mandated members of their own caste in Parliament. [35]

[34]There have been some studies (see for example, Subbarao (1985)) which have shown that the Government has not been able to stop leakages of IRDP benefits to ineligible households.

[35]Every Member of Parliament (MP) obtains funds from the central government for expenditure on local-area development projects in their respective constituencies. Typically MPs take up projects like building roads, electrification of their constituencies and building schools and colleges. However, they also are allowed to target funds specifically to reviving certain small-scale industries or for the welfare programmes of certain disadvantaged groups. Thus, it is the discretion of the MP as to where he wants to allocate the funds.

Keeping this motivation in mind, a simple theoretical model based on Lindbeck and Weibull (1987) has been developed in this paper. The idea that the group with the least partisan bias (the "swing" voter) gets the most favorable offer from both parties is exploited to derive the main results. It is argued that reservation of constituencies for an ethnic minority (Scheduled Castes in this case) changes the identity of the swing voter when the group identity for the purpose of redistribution is determined by income (i.e. a candidate must offer the same to each member of *any* particular income group but can make offers that differ *across* the income groups). In particular, it is shown that it is more likely for the "swing" group in an unreserved constituency to be poorer than the swing group in the reserved constituency — thus implying that reservation hurts poorer groups by reducing transfers to them.

The model, although simple, provides several empirically testable predictions. The main result states that if caste biases exist alongside party affiliations then reservation will benefit the "middle-income" groups at the expense of the poor[36]; alternatively, if caste biases are absent then reservation has no effect on redistribution. Thus, if the minority group in question happens to be poorer than others in society, reservation in the presence of caste biases would hurt them even more via the redistribution process.

The predictions of the model are examined with data on household level consumer expenditure collected by the National Sample Survey Organization (NSSO) during 1987-88 and the data from the Election Commission of India on reservation status of different constituencies. The effect of reservation on the implementation of nationwide (centrally funded) poverty-reduction schemes is examined with help of household level regressions. In India, all major poverty alleviation schemes involved one of the two programmes — (i) Public Works initiatives which employs poor households for building public infrastructure especially in the rural parts of the country[37] and (ii) The Integrated Rural Development Programme (IRDP) of the Indian Government which was designed to alleviate rural poverty through the provision of production assets and inputs (livestock, machinery, etc.) to selected households. The target group is the rural poor with annual incomes less than a specified threshold level, and bonded labour families.

The large scale household surveys conducted quinquennially by NSSO contain information regarding the participation of the households in these programmes. The important question is whether or not the reservation characteristics of a household's constituency affect the household's participation in these projects undertaken in the area of the household's residence. The regression results provide evidence of a strong and negative link between SC reservation in a district and the participation of a household from the district in public works. This is true for different measures of reservation and this effect persists when the analysis is conducted with households from only single-constituency districts. All of these results strongly suggest that "public works" projects are less implemented in those districts which have witnessed more SC reservation.

[36]There is no dearth of anecdotal evidence on voting behavior along caste lines. Banerjee and Pande (2007) present a formal model to study some implications of this phenomenon.

[37]The wages for these employment programs are always set at a level which are expected to attract only the poor.

In contrast with the Public Works regressions, there is no evidence of any statistically significant relationship between reservation characteristics of the household's district and the household's benefiting from IRDP projects. Therefore, a household from an unreserved constituency is as likely to get benefits from IRDP as is a household from a reserved constituency, *ceteris paribus*.

On the whole, these findings give credence to the claim of *lesser implementation of poverty-eradication schemes in areas reserved for Scheduled Caste MPs*.[38]

The analysis conducted at the district level suggests that reservation of districts for SCs is positively related to increases in within-SC disparities. This is consistent with our earlier findings on reduced transfers to the poor. This suggests that the undeserving segments among the SCs could be reaping the benefits from such political reservation.

On the whole, the predictions of the model are fairly borne out suggesting a grim possibility — political empowerment of a minority group via mandated representation may be accompanied by creation of greater inequities among them and may hurt the more economically vulnerable sections of society when voting behavior is influenced by ethnicity-based (caste, in the case of India) biases. The results obtained here shed new light on the "creamy layer" issue — the concern that the benefits of affirmative action go to the wealthier (and hence undeserving) members of the disadvantaged minorities.

The results here suggest that mandated political representation may well be compounding the "creamy layer" problem. Not only is this worrying from the angle of poverty-reduction but it also serves to alienate the bulk of the minority community by creating a sense of betrayal in them. Of course, there remains the issue of the level(s) of government at which one should promote affirmative action. In fact, several papers (for example, Chattopadhyay and Duflo (2004a), Besley, Pande, Rahman and Rao (2004), etc.) have shown that affirmative action for the minorities at the level of village bodies or even district bodies may well lead to better targeting of these groups. So perhaps a more decentralized approach to affirmative action may be beneficial rather than reservation of seats at the national level.

Additionally, this work does not in any way deny (or affirm) that in the initial years after independence, political reservation for Scheduled Castes was required for their social and economic upliftment. The results presented here suggest that now might be a good time to reconsider the option of continued reservation as it tends to increase disparities within Scheduled Castes and harm public infrastructure development — both of which are serious concerns, perhaps now in globalized era more than ever.

Finally, the rise in Scheduled Caste political participation has been tremendous and it has no doubt been fuelled by reservation of seats for Scheduled Castes in Parliament. It would be interesting to look at the effect of greater Scheduled Caste *political participation* on Scheduled Caste inequality, poverty and public goods provision. Of course, rise in Scheduled Caste political participation could be in turn affected by these same variables.

[38] For a detailed discussion as to why the implementation of poverty-reduction programmes was chosen as the proxy for "transfers to the poor", the reader is directed to the empirical section of this paper.

A better understanding of the forces at play between higher political participation and economic backwardness could definitely inform policy-making, especially in developing nations.

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State	SC%	$\frac{SC\ pce}{Avg.\ pce}$	Reserved(%)	Poor(%)	Public Works(%)	IRDP (%)
Andhra Pradesh	16.22	0.79	14.29	25.86	1.59	2.93
Assam	8.88	1.04	7.14	36.21	6.78	3.1
Bihar	17.53	0.83	14.81	52.13	4.85	6.55
Gujarat	13.62	0.84	7.69	31.54	13.33	4.13
Haryana	24.32	0.76	20	16.64	3.74	8.24
Himachal Pradesh	29.3	0.84	25	15.45	10.69	8.87
Jammu and Kashmir	13.7	0.88	0	23.82	4.77	3.57
Karnataka	15.52	0.74	14.29	37.53	2.27	6.74
Kerala	11.56	0.73	10	31.79	2.16	7.09
Madhya Pradesh	14.58	0.84	15	43.07	4.19	6.05
Maharashtra	9.89	0.77	6.25	40.41	8.12	5.42
Orissa	17.28	0.84	14.29	55.58	5.03	7.44
Punjab	31.5	0.75	23.08	13.2	1.92	5.52
Rajasthan	20.56	0.84	16	35.15	13.7	6.08
Tamil Nadu	20.12	0.69	17.95	43.39	2.04	5.78
Uttar Pradesh	23.49	0.81	21.18	41.46	3.82	5.12
West Bengal	25.46	0.79	19.05	44.72	3.39	6.95
Delhi	15.96	0.57	14.29	12.41	1.99	3.77

Table 1: DESCRIPTIVE STATISTICS I. SC% refers to the percentage of households that belong to some Scheduled Caste group, $\frac{SC\ pce}{Avg.\ pce}$ is the ratio of average per-capita expenditure of SC households to the state average, Poor % refers to the percentage of households that are below the poverty line, Public Works % and IRDP % refer to the percentage of households that have received benefits from the respective programmes as reported in the NSSO 43rd round survey.

State	SC %	$\frac{SC\ pce}{Avg.\ pce}$	Seats	Reserved	Reserved (%)
Andhra Pradesh	19.042	0.829	5	1	20
Assam	8.132	0.997	3	0	0
Bihar	18.341	0.867	19	3	15.79
Gujarat	14.704	0.888	11	0	0
Haryana	24.321	0.758	10	2	20
Himachal Pradesh	29.299	0.836	4	1	25
Jammu and Kashmir	13.697	0.884	5	0	0
Karnataka	16.402	0.764	8	1	12.5
Kerala	9.587	0.806	4	0	0
Madhya Pradesh	14.723	0.839	32	4	12.5
Maharashtra	11.361	0.759	11	1	9.091
Orissa	14.672	0.864	7	1	14.286
Punjab	31.285	0.732	9	2	22.222
Rajasthan	21.198	0.821	19	3	15.789
Tamil Nadu	12.135	0.712	4	0	0
Uttar Pradesh	25.012	0.832	26	3	11.538
West Bengal	29.873	0.959	5	1	20

Table 2: DESCRIPTIVE STATISTICS II (FOR SINGLE-CONSTITUENCY DISTRICTS). SC% refers to the percentage of households that belong to some Scheduled Caste group in the state when only single-constituency districts are considered, $\frac{SC\ pce}{Avg.\ pce}$ is the ratio of average per-capita expenditure of SC households to the state average when only single-constituency districts are considered, Seats is the total number of single-constituency districts in the state, Reserved refers to the subset of Seats which are reserved for SC candidates.

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Average Reservation duration (in years)	108309	3.85986	6.113746	0	26
Reservation dummy	108309	0.3953023	0.4889155	0	1
Per-capita exp. (in Rs.)	108309	196.4085	207.4914	0.19	32855.53
SC dummy	108309	0.1826707	0.3863963	0	1
Urban dummy	108309	0.2408508	0.4275999	0	1
Hindu dummy	108309	0.8411659	0.3655213	0	1
HH size	108309	5.025137	2.587971	1	39
Homeowner dummy	108309	0.8249515	0.3800085	0	1
Dwelling-type dummy	107915	1.810334	0.3920366	1	2
Dwelling-stucture dummy	107906	1.871615	0.8239303	1	3
Primary educ. dummy (for HH head)	108309	0.3554969	0.4786636	0	1
Self-Empl. Rural dummy	108309	0.3806403	0.4855443	0	1
Laborer Rural dummy	108309	0.306474	0.4610289	0	1
Self-Empl. Urban dummy	108309	0.0816524	0.2738344	0	1
Wage/Salary earner dummy	108309	0.108166	0.31059	0	1
Casual Labor dummy	108309	0.0309398	0.1731547	0	1
Headcount Ratio	108309	0.4390447	0.1899463	0	1

Table 3: DESCRIPTIVE STATISTICS III (HOUSEHOLD-LEVEL SUMMARY STATISTICS).

	[1]	[2]	[3]	[4]	[5]
Avg. Resv.	***-0.023	***-0.024	***-0.024	**-0.023	**-0.023
	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
log pce	***-0.296	**-0.185	-0.046	0.070	0.067
	(0.078)	(0.080)	(0.092)	(0.093)	(0.096)
SC dum	0.057	0.009	0.007	*-0.138	*-0.139
	(0.071)	(0.072)	(0.071)	(0.076)	(0.077)
Urban dum	***-0.971	***-0.865	***-0.879	**-0.577	**-0.582
	(0.104)	(0.101)	(0.164)	(0.238)	(0.235)
Hindu dum	***0.359	***0.372	***0.391	***0.411	***0.374
	(0.089)	(0.087)	(0.099)	(0.098)	(0.108)
hh size	*0.017	***0.026	**0.179	**0.177	**0.172
	(0.009)	(0.009)	(0.070)	(0.069)	(0.074)
log pce*hh size			**-0.031	*-0.026	*-0.025
			(0.014)	(0.014)	(0.015)
Homeowner dum		0.116	0.311	0.239	0.239
		(0.095)	(0.424)	(0.432)	(0.432)
Dwelling type		***-0.248	-0.344	-0.343	-0.343
		(0.095)	(0.219)	(0.219)	(0.219)
Homeown*Dweltype			0.107	0.153	0.152
			(0.225)	(0.225)	(0.225)
Dwelling structure		***-0.118	0.051	0.059	0.059
		(0.043)	(0.087)	(0.093)	(0.093)
Homeown*Dwelstruc			**-0.187	-0.141	-0.141
			(0.090)	(0.095)	(0.095)
Education		**-0.128	-0.059	0.010	-0.006
		(0.059)	(0.132)	(0.131)	(0.131)
Urban*hhsize			-0.002	-0.011	-0.010
			(0.021)	(0.021)	(0.021)
Hindu*educ			-0.080	-0.081	-0.063
			(0.133)	(0.134)	(0.136)
Employ dum	no	no	no	yes	yes
Employ dum interac.	no	no	no	no	yes
Pseudo R^2	0.03	0.03	0.03	0.04	0.04
Observations	108,309	107,819	107,819	107,819	107,819

Table 4: Logit regressions where the dependent variable is *Public Works*. Robust standard errors in parentheses. Standard errors are clustered by district.*significant at 10% **significant at 5% ***significant at 1%

	[1]	[2]	[3]	[4]	[5]
Resv. dum	***-0.351	***-0.350	***-0.350	***-0.349	***-0.349
	(0.126)	(0.126)	(0.125)	(0.125)	(0.125)
log pce	***-0.297	**-0.188	-0.051	0.065	0.063
	(0.078)	(0.081)	(0.092)	(0.093)	(0.096)
SC dum	0.058	0.010	0.007	*-0.137	*-0.138
	(0.073)	(0.074)	(0.074)	(0.079)	(0.079)
Urban dum	***-0.957	***-0.852	***-0.860	**-0.562	**-0.567
	(0.104)	(0.102)	(0.166)	(0.239)	(0.237)
Hindu dum	***0.370	***0.379	***0.399	***0.418	***0.381
	(0.091)	(0.089)	(0.101)	(0.101)	(0.109)
hh size	*0.015	***0.025	**0.175	**0.173	**0.168
	(0.009)	(0.009)	(0.069)	(0.069)	(0.074)
log pce*hh size			**-0.030	*-0.025	*-0.025
			(0.014)	(0.014)	(0.015)
Homeowner dum		0.110	0.309	0.238	0.237
		(0.094)	(0.423)	(0.432)	(0.431)
Dwelling type		**-0.239	-0.339	-0.338	-0.338
		(0.095)	(0.218)	(0.218)	(0.218)
Homeown*Dweltype			0.111	0.157	0.157
			(0.225)	(0.225)	(0.225)
Dwelling structure		***-0.119	0.053	0.062	0.062
		(0.042)	(0.085)	(0.091)	(0.091)
Homeown*Dwelstruc			**-0.192	-0.147	-0.146
			(0.088)	(0.093)	(0.093)
Education		**-0.127	-0.054	0.014	-0.002
		(0.059)	(0.131)	(0.131)	(0.131)
Urban*hhsize			-0.003	-0.013	-0.012
			(0.020)	(0.021)	(0.020)
Hindu*educ			-0.084	-0.083	-0.065
			(0.133)	(0.134)	(0.136)
Employ dum	no	no	no	yes	yes
Employ dum interac.	no	no	no	no	yes
Pseudo R^2	0.03	0.03	0.03	0.04	0.04
Observations	108,309	107,819	107,819	107,819	107,819

Table 5: Logit regressions where the dependent variable is *Public Works*. Robust standard errors in parentheses. Standard errors are clustered by district.*significant at 10% **significant at 5% ***significant at 1%

	[1]	[2]	[3]	[4]	[5]
Avg. Resv.	-0.002	-0.002	-0.002	-0.002	-0.002
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
log pce	**0.096	***0.138	0.129	**0.185	0.139
	(0.044)	(0.047)	(0.079)	(0.082)	(1.65)
SC dum	***0.567	***0.551	***0.555	***0.536	***0.536
	(0.052)	(0.053)	(0.053)	(0.055)	(0.055)
Urban dum	***-1.122	***-1.008	***-0.671	-0.039	-0.104
	(0.082)	(0.087)	(0.212)	(0.207)	(0.209)
Hindu dum	0.063	0.065	0.042	0.039	-0.006
	(0.075)	(0.075)	(0.091)	(0.091)	(0.109)
hh size	***0.070	***0.071	0.070	0.081	0.006
	(0.007)	(0.007)	(0.058)	(0.060)	(0.064)
log pce*hh size			0.001	-0.001	0.010
			(0.011)	(0.012)	(0.012)
Homeowner dum		***0.250	0.331	0.340	0.316
		(0.079)	(0.407)	(0.392)	(0.390)
Dwelling type		-0.063	0.159	0.155	0.151
		(0.067)	(0.209)	(0.206)	(0.205)
Homeown*Dweltype			-0.248	-0.237	-0.234
			(0.213)	(0.210)	(0.209)
Dwelling structure		***-0.105	***-0.278	***-0.214	***-0.218
		(0.038)	(0.073)	(0.073)	(0.073)
Homeown*Dwelstruc			**0.191	*0.145	*0.149
			(0.079)	(0.078)	(0.078)
Education		**0.101	0.048	0.098	0.076
		(0.045)	(0.101)	(0.101)	(0.107)
Urban*hhsize			*-0.060	-0.057	-0.042
			(0.036)	(0.036)	(0.037)
Hindu*educ			0.064	0.078	0.101
			(0.112)	(0.112)	(0.117)
Employ dum.	no	no	no	yes	yes
Employ dum. interac.	no	no	no	no	yes
Pseudo R^2	0.03	0.03	0.03	0.04	0.04
Observations	108,309	107,819	107,819	107,819	107,819

Table 6: Logit regressions where the dependent variable is *IRDP*. Robust standard errors in parentheses. Standard errors are clustered by district.*significant at 10% **significant at 5% ***significant at 1%

	[1]	[2]	[3]	[4]	[5]
Resv. dum	-0.005	-0.008	-0.007	-0.012	-0.011
	(0.080)	(0.079)	(0.079)	(0.079)	(0.079)
log pce	**0.095	***0.137	0.129	**0.184	0.138
	(0.044)	(0.047)	(0.079)	(0.083)	(0.085)
SC dum	***0.565	***0.549	***0.552	***0.533	***0.533
	(0.052)	(0.054)	(0.054)	(0.056)	(0.055)
Urban dum	***-1.121	***-1.008	***-0.670	-0.038	-0.103
	(0.081)	(0.087)	(0.211)	(0.207)	(0.209)
Hindu dum	0.064	0.066	0.043	0.040	-0.006
	(0.075)	(0.075)	(0.091)	(0.091)	(0.109)
hh size	***0.070	***0.071	0.070	0.081	0.006
	(0.007)	(0.007)	(0.058)	(0.060)	(0.064)
log pce*hh size			0.001	-0.002	0.010
			(0.011)	(0.012)	(0.012)
Homeowner dum		***0.250	0.330	0.339	0.315
		(0.079)	(0.408)	(0.393)	(0.391)
Dwelling type		-0.063	0.158	0.155	0.150
		(0.067)	(0.210)	(0.207)	(0.205)
Homeown*Dweltype			-0.248	-0.237	-0.233
			(0.213)	(0.211)	(0.209)
Dwelling structure		***-0.104	***-0.277	***-0.214	***-0.218
		(0.038)	(0.073)	(0.073)	(0.073)
Homeown*Dwelstruc			**0.191	*0.145	*0.149
			(0.079)	(0.078)	(0.078)
Education		**0.102	0.049	0.099	0.077
		(0.045)	(0.101)	(0.101)	(0.107)
Urban*hhsize			*-0.060	-0.057	-0.042
			(0.036)	(0.036)	(0.037)
Hindu*educ			0.064	0.077	0.101
			(0.112)	(0.112)	(0.117)
Employ dum.	no	no	no	yes	yes
Employ dum. interac.	no	no	no	no	yes
Pseudo R^2	0.03	0.03	0.03	0.04	0.04
Observations	108,309	107,819	107,819	107,819	107,819

Table 7: Logit regressions where the dependent variable is *IRDP*. Robust standard errors in parentheses. Standard errors are clustered by district.*significant at 10% **significant at 5% ***significant at 1%

	[1]	[2]	[3]	[4]	[5]
Resv. Dum	-0.002	**-0.138	**-0.150	-0.031	-0.018
	(0.014)	(0.063)	(0.063)	(0.077)	(0.090)
Resv. Years			0.001	-0.007	-0.006
			(0.017)	(0.004)	(0.004)
Resv.* Cont.		**0.144	**0.143	**0.198	***0.183
		(0.062)	(0.062)	(0.072)	(0.069)
log SC %	-0.015	-0.014	-0.014	-0.015	-0.017
	(0.020)	(0.019)	(0.020)	(0.020)	(0.026)
log Population	-0.036	-0.041	-0.041	-0.036	-0.031
	(0.029)	(0.029)	(0.029)	(0.029)	(0.031)
log Av. Pc exp	***0.835	***0.835	***0.835	***0.832	***0.879
	(0.048)	(0.047)	(0.048)	(0.047)	(0.066)
Resv.*Gap				**-0.007	*-0.007
				(0.003)	(0.004)
State dummies	No	No	No	No	Yes
Adjusted R^2	0.698	0.699	0.697	0.698	0.713
Observations	182	182	182	182	182

Table 8: **Linear regressions (SC per-capita expenditure).** Dependent variable is *log SC pc exp*. Robust standard errors in parentheses. Standard errors are clustered by state.*significant at 10% **significant at 5% ***significant at 1%

	[1] Theil SC	[2] Theil SC	[3] Theil SC	[4] Rel Ineq	[5] Rel Ineq	[6] Rel Ineq
Resv. Years	-0.004	***-0.068	-0.038	-0.011	***-0.071	**-0.053
	(0.010)	(0.023)	(0.023)	(0.010)	(0.021)	(0.021)
Resv. Dummy	***-0.760	0.261	-0.173	-0.189	*0.771	0.334
	(0.198)	(0.422)	(0.467)	(0.260)	(0.418)	(0.447)
Resv.* Cont.	***0.745	***1.216	***0.938	0.327	***0.770	***0.795
	(0.152)	(0.134)	(0.203)	(0.245)	(0.253)	(0.236)
log SC %	***0.682	***0.677	**0.806	***0.756	***0.751	***0.837
	(0.204)	(0.202)	(0.320)	(0.163)	(0.162)	(0.305)
log Population	0.125	0.173	0.085	-0.038	0.007	-0.097
	(0.122)	(0.117)	(0.177)	(0.113)	(0.108)	(0.160)
log Av. Pc exp	**0.829	**0.811	**1.201	0.128	0.112	0.426
	(0.308)	(0.304)	(0.482)	(0.362)	(0.361)	(0.515)
Resv.*Gap		***-0.063	*-0.037		***-0.059	**-0.045
		(0.017)	(0.019)		(0.016)	(0.018)
State dummies	No	No	Yes	No	No	Yes
Adjusted R^2	0.249	0.254	0.290	0.264	0.269	0.256
Observations	182	182	182	182	182	182

Table 9: **Linear regressions (SC Inequality).** Theil SC=log of Theil computed for only SC households. Rel Ineq= log (Theil for SC households/Theil for all households). Robust standard errors in parentheses. Standard errors are clustered by state.*significant at 10% **significant at 5% ***significant at 1%

	[1] HCR SC	[2] HCR SC	[3] HCR SC	[4] PGR SC	[5] PGR SC	[6] PGR SC
Resv. Years	-0.001	-0.002	0.001	0.001	0.002	*0.004
	(0.002)	(0.003)	(0.004)	(0.001)	(0.002)	(0.002)
Resv. Dummy	0.047	0.067	-0.013	-0.017	-0.042	**-0.077
	(0.030)	(0.062)	(0.079)	(0.016)	(0.035)	(0.034)
Resv.* Cont.	-0.036	-0.027	-0.030	0.006	-0.005	-0.002
	(0.030)	(0.024)	(0.047)	(0.009)	(0.008)	(0.013)
log SC %	-0.010	-0.010	0.028	0.002	0.002	**0.015
	(0.024)	(0.024)	(0.030)	(0.008)	(0.008)	(0.007)
log Population	0.033	0.034	0.044	-0.003	-0.004	-0.005
	(0.026)	(0.027)	(0.034)	(0.011)	(0.011)	(0.013)
log Av. Pc exp	***-0.603	***-0.603	***-0.660	***-0.178	***-0.178	***-0.182
	(0.051)	(0.052)	(0.078)	(0.018)	(0.018)	(0.029)
Resv.*Gap		-0.001	0.000		0.001	0.002
		(0.003)	(0.004)		(0.001)	(0.002)
State dummies	No	No	Yes	No	No	Yes
Adjusted R^2	0.489	0.487	0.553	0.383	0.380	0.474
Observations	182	182	182	182	182	182

Table 10: **Linear regressions (SC poverty).** HCR SC= Headcount Ratio for SC households, PGR SC= Poverty Gap Ratio for SC households. Robust standard errors in parentheses. Standard errors are clustered by state.*significant at 10% **significant at 5% ***significant at 1%

	[1]	[2]	[3]	[4]	[5]	[6]
Poverty	0.241	0.242	0.223	0.224	0.293	0.291
	(0.282)	(0.277)	(0.282)	(0.277)	(0.286)	(0.281)
Avg. Resv.		***-0.024		***-0.024		**-0.023
		(0.009)		(0.009)		(0.009)
log pce	**-0.170	*-0.160	-0.036	-0.029	0.084	0.092
	(0.084)	(0.083)	(0.093)	(0.093)	(0.097)	(0.097)
SC dum	-0.019	0.014	-0.022	0.011	**-0.168	*-0.135
	(0.073)	(0.072)	(0.073)	(0.072)	(0.079)	(0.077)
hh size	***0.025	***0.027	**0.175	**0.173	**0.164	**0.165
	(0.009)	(0.009)	(0.070)	(0.070)	(0.074)	(0.074)
log pce*hh size			**-0.030	**-0.030	-0.024	-0.024
			(0.014)	(0.014)	(0.015)	(0.015)
Hindu dum	***0.380	***0.373	***0.402	***0.393	***0.381	***0.374
	(0.085)	(0.086)	(0.096)	(0.097)	(0.108)	(0.108)
Homeowner dum	0.107	0.115	0.285	0.298	0.203	0.220
	(0.095)	(0.095)	(0.424)	(0.424)	(0.432)	(0.432)
Dwelling type	***-0.252	**-0.243	-0.349	-0.339	-0.346	-0.337
	(0.095)	(0.095)	(0.219)	(0.218)	(0.219)	(0.219)
Homeown*Dweltype			0.107	0.107	0.155	0.153
			(0.225)	(0.224)	(0.226)	(0.225)
Dwelling structure	**-0.105	***-0.114	0.054	0.049	0.061	0.057
	(0.043)	(0.043)	(0.086)	(0.087)	(0.093)	(0.093)
Homeown*Dwelstruc			**-0.178	**-0.180	-0.128	-0.133
			(0.090)	(0.090)	(0.095)	(0.095)
Education	**-0.133	**-0.133	-0.052	-0.060	-0.002	-0.009
	(0.059)	(0.059)	(0.131)	(0.132)	(0.132)	(0.132)
Urban dum	***-0.861	**-0.867	***-0.880	***-0.883	**-0.590	**-0.588
	(0.102)	(0.102)	(0.164)	(0.164)	(0.235)	(0.236)
Urban*hhsize			-0.001	-0.002	-0.009	-0.009
			(0.020)	(0.020)	(0.020)	(0.020)
Hindu*educ			-0.092	-0.083	-0.072	-0.065
			(0.133)	(0.133)	(0.136)	(0.137)
Employ dum.	no	no	no	no	yes	yes
Employ dum. interac.	no	no	no	no	yes	yes
Pseudo R^2	0.03	0.03	0.03	0.03	0.04	0.04

Table 11: **Logit regressions with Poverty controls.** Dependent variable is *Public Works*. Robust standard errors in parentheses.Standard errors are clustered by district.107,819 observations in every specification. *significant at 10% **significant at 5% ***significant at 1%