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Representation and development across groups: Evidence from a large-scale government program in India

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Abstract

Affirmative action skeptics often point to the self-undermining effects of quotas in the administration of public poverty alleviation programs. We examine how Scheduled Areas in India – which reserve half of locally elected councils and their leadership positions for the historically disadvantaged Scheduled Tribes – affect the implementation of the world's largest employment program, the National Rural Employment Guarantee Scheme (NREGS). A new dataset of nearly a quarter million villages allows us to characterize the overall quality of NREGS implementation *and* assess its distributional impacts across minorities and non-minorities, a substantial advance on existing work. Using a regression discontinuity design, we find that quotas yield significant benefits to targeted minorities. However, contrary to the expectations of affirmative action skeptics, the primary losers are the relatively privileged rather than other minorities. Overall, quotas work better than intended by yielding net positive program implementation.

Keywords: Affirmative Action · Electoral Quota · Reservation · Scheduled Tribes · Scheduled Areas · NREGS

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1 Introduction

More than 100 countries have adopted electoral quotas to make government more representative of the electorate. What are the economic consequences of increased descriptive representation? Answering this question is of particular import where governments roll out large-scale pro-poor programs such as the Benazir Income Support Program in Pakistan that provides 5.4 million poor women income supplements as a safety net, the Supplemental Nutrition Assistance Program (SNAP) in the United States that helps 46 million low-income individuals purchase groceries every month, and the National Rural Employment Guarantee Scheme (NREGS) in India, the world's largest employment program that comprises the focus of this study. In these contexts, changes in representation could have important implications for individuals' access to key sources of economic support. If implementation of pro-poor government programs suffers under quota politicians, then quotas may even prove self-defeating in that they might damage the economic prospects of the populations they were designed to politically empower. We ask two related, yet under-explored questions: do electoral quotas improve or hinder development, particularly through the implementation of government welfare programs; and how are the benefits (and costs) of electoral quotas distributed across groups in society?

Prior evidence is mixed and does not offer clear theoretical expectations. Focusing on minorities explicitly targeted under the quota, some studies show strong positive effects of quotas (Bardhan, Mookherjee and Torrado, 2010; Beaman et al., 2010; Besley, Pande and Rao, 2005, 2007; Chauchard, 2014; Chin and Prakash, 2011; Duflo and Chattopadhyay, 2004; Dunning, 2010; Pande, 2003; Parthasarathy, Rao and Palaniswamy, 2017), while others report no improvements (Dunning and Nilekani, 2013; Jensenius, 2015). This paper presents an explicit accounting of how electoral quotas affect the extensive margin of program implementation (that is, the overall size of the pie) *and* the intensive margin (the distribution of the pie) for targeted disadvantaged groups, non-targeted disadvantaged groups, and for relatively privileged groups under the status quo. This exercise is essential to fully understanding

the trade-offs involved in the implementation of electoral quotas.

We organize and extend hypotheses from previous work in a novel theoretical framework that enables clear predictions on the effects of electoral quotas on government program implementation. A *solidarity* hypothesis predicts that shared interests and experiences between minority groups should lead to positive program spillovers from quota-targeted to non-targeted minorities. A *crowding-out* hypothesis predicts that gains for a quota targeted minority will come at the cost of other groups, particularly non-targeted minorities. And, a *performance* hypothesis predicts better outcomes for targeted minorities and unchanged outcomes for others.

These hypotheses are brought to bear on the study of a large electoral quota in India that spans nine states, which collectively cover roughly half of the country's population of 1.3 billion. Shortly after Independence from the British in 1947, the Indian parliament declared certain regions in the country as Scheduled Areas (SA), a designation linked to the protection of a historically-disadvantaged category of minority groups, the Scheduled Tribes (ST). From 2000, under the Panchayat Extension to Scheduled Areas (PESA) Act, India's national parliament implemented a dramatic electoral quota in Scheduled Areas requiring that all chairperson positions in three tiers of local government councils, as well as at least half the seats on each of those councils, be reserved for individuals from the Scheduled Tribes.

Understanding the impacts of this quota is important for at least three reasons. First, despite the fact that more than 100 million people live in Scheduled Areas, there has been no systematic quantitative analysis of this quota. Second, the quota has the potential to increase the welfare of ST individuals, a critical concern, given that ST are considered to be among the poorest and most vulnerable groups in India. Third, unlike the Scheduled Areas, previous work on reservations in India examines local quotas that rotate over time, a feature that scholars have identified as a factor that impedes their success (Dunning and Nilekani, 2013).

We examine the impacts of Scheduled Areas using data from NREGS, a 'flagship' federal

program in India with an annual cost of approximately US$6 billion. Each year, the social protection scheme guarantees 100 days of minimum-wage employment for each rural household in India. We study the extent to which this program delivers work to rural populations in India in 2013, up to twelve years after the implementation of PESA started. We do this by creating a new dataset with 232,856 villages that combines official NREGS implementation data with an original spatial dataset of Scheduled Area status. As compared with previous work (see Table 1), our study makes substantial progress in terms of the scale of new data brought to bear on the study of electoral quotas and economic development.

Two particulars of this empirical case allow us to make key improvements on previous work. First, evaluating the disbursal of work under NREGS offers a clean way to examine the quality of government program implementation. The official NREGS data portal decomposes data across meaningful identity groups, including for the Scheduled Tribes (ST, the targeted quota minority), the Scheduled Castes (SC, a non-targeted minority), another historically disadvantaged group, and a residual non-SC/ST category that can be taken to represent relatively privileged individuals who are dominant under the status-quo. This decomposition allows us to characterize effects of Scheduled Areas on the extensive *and* intensive margins.[1]

Second, though increases in welfare spending in general might come at the expense of other spending priorities, the funding for NREGS comes primarily from federal and state budgets. Accordingly, local politicians who do not take full advantage of the NREGS program are effectively "leaving money on the table." This feature allows us to more confidently attribute differences in NREGS outcomes to differences in government performance.

Isolating the causal effect of Scheduled Areas is not straightforward. Indeed, comparing SA to non-SA using data from the 2001 Indian village census shows that they differ on a

[1]While, Jensenius (2015) and Pande (2003) conduct accounting exercises in the same spirit as the one we present here, our detailed data help us make progress on two fronts: it disaggregates the non-targeted group into more meaningful categories of the SC and non-minorities; and allows us to examine effects on the caste-gender cross-cutting group.

number of dimensions – lower population density as well as reduced access to irrigation, water, and banking infrastructure. To alleviate this imbalance, we use precise spatial information of villages in the nine states where the quotas is in effect. By employing a geographic regression discontinuity (RDD) design, similar to Dell (2010), we absorb variation that correlates with geographic space, allowing for a comparison of villages lying just on the border of non-Scheduled and Scheduled Areas. In other words, control (non-Scheduled) villages appear similar to treated (Scheduled) villages except that in treated areas candidates for local offices are restricted to ST individuals, whereas in control areas these restrictions are not in place.

We find the quota causes a large improvement in the delivery of NREGS for the targeted minorities (ST), who receive 55.4 percent more workdays in Scheduled Areas. Approximately one-quarter of this improvement comes at the cost of work for non-minorities, who receive 14.1 percent fewer workdays. We find no robust evidence that the quota causes a change in employment for the non-targeted, historically disadvantaged minorities (SC). With respect to the extensive margin, we find that in Scheduled Areas the quota increases the number of households employed as well as the number of workdays, by 14 and 17.5 percent, respectively.

The overall improvement in NREGS implementation on the extensive margin is most consistent with the *performance* hypothesis. We do not find any evidence for the *solidarity* hypothesis, that is, gains for ST have not contributed to any meaningful improvements for SC. Finally, we do find evidence in support of *crowding out* hypothesis – one quarter of the gains for ST come at the cost of the dominant, non-SC/ST groups.

Our data also allow us to study cross-cutting identities as well as broader impacts of Scheduled Areas. First, decomposing findings by gender we observe that men do not disproportionately benefit more from the program. If anything, the treatment effect on workdays for women is larger than men's, though they are not statistically significantly different from each other.

Second, we show that our results are not specific to the NREGS program. We analyze the

effects of Scheduled Areas on employment outcomes using data from the 2011 Indian Village Census and show that Scheduled Areas improve employment outcomes for women workers, particularly for those that work less than six months of the year, labeled 'marginal workers' in the census. We also show that Scheduled Areas affect the provision of public goods more generally: these areas have a greater provision of local infrastructure whose construction is primarily controlled by local councils.

To what extent are the results we observe the function of an electoral politics mechanism? We provide four pieces of evidence. First, qualitative evidence from Indian historical studies, as well as quantitative evidence from the Indian Census, shows that villages on opposite sides of the Scheduled and Non-Scheduled border were very similar on a host of dimensions prior to the implementation of PESA between 2000 and 2010. Second, effects of the Scheduled Areas quota are amplified where it has been in effect for longer. Third, the quota is most effective where we would expect it to have the greatest marginal impact: Scheduled Areas where ST constituted a relatively small proportion of the local population and thus where ST had less pre-quota bargaining power. Fourth, the quota offers diminishing returns where it overlaps with state-level quotas for ST politicians.

2 Theory and Hypotheses

In this section, we review conflicting findings and extract hypotheses from existing work on the effects of quotas on program implementation. Table 1 provides a summary of the extant literature on electoral quotas in India.

2.1 Extensive Margin (Size of the Pie)

How do electoral quotes affect the overall efficacy of government programs, or their distribution across groups? Implementation of government programs would suffer if quota politicians are less competent than non-quota politicians (Jensenius, 2017). Jensenius (2015) presents

qualitative evidence that SC quota politicians are viewed as inexperienced and referred to as "weak", "inefficient", and "useless" (p.202). Deshpande and Weisskopf (2014) document how some oppose affirmative action policies due to a belief that they result in less qualified people filling positions, and accordingly worse performance. Consistently, Bertrand, Hanna and Mullainathan (2010) find that students admitted under quotas see an increase in income, but these gains are more than offset by losses in earnings for individuals displaced by the quota.

Conversely, implementation could improve if quota politicians work harder for their constituents. Chin and Prakash (2011) report that ST quotas, but not SC quotas, result in lower levels of overall poverty. Deshpande and Weisskopf (2014) find that a greater proportion of high-level SC/ST employees in the Indian Railways is correlated with both increased productivity and growth. Evidence also suggests that women exert more effort and outperform men when positions of political influence are available to them (Beaman et al., 2010; Volden, Wiseman and Wittmer, 2013). Finally, government performance could remain unchanged if quota politicians perform no better or worse than non-quota politicians, as Bhavnani and Lee (2018) find in the case of affirmative action for bureaucrats.

2.2 Intensive Margin (Distribution of the Pie)

2.2.1 Effects on Targeted Minority

Existing research has only touched upon how quotas affect the quality of government program implementation across groups. We focus particularly on targeted minorities, non-targeted minorities, and non-minorities. While some theoretical examinations predict positive results for targeted minorities, existing research from India on electoral reservations has found mixed effects. Studies such as Besley, Pande and Rao (2007), Duflo and Chattopadhyay (2004), and Beaman et al. (2010) show that reservations for SC/ST and women improve the welfare of direct beneficiaries. Other work, such as Dunning and Nilekani (2013) and Jensenius (2015), find no overall effect of electoral quotas on the targeted group(s). One reason identified for

the null effects is the rotating nature of quotas in these contexts, which limits politicians' incentives to target benefits along ethnic lines.

Table 1: Summary of Past Work

Paper	Quota Targets	Quota Level	Effects on Targeted Minorities	Spillover Effects	Central Outcomes	# Observations
Dunning and Nilekani (2013)	SC/ST	Village	No	N/A	Reported participation in welfare programs	512 gram pachayats (GPs)
Jensenius (2015)	SC	State	No	None	Literacy, employment, village amenities	896 state constituences
Pande (2003)	SC/ST	State	Yes	Negative	Overall spending, spending on education, welfare	519 state-year
Chin and Prakash (2011)	SC/ST	State	Only ST	Positive	Poverty measures	627 state-year
Parthasarathy, Rao and Palaniswamy (2017)	Women	Village	Yes	Negative	Participation in conversation, state responsiveness	50 villages
Besley, Pande and Rao (2007)	SC/ST	Village	Yes	N/A	Government transfers to households	201 GPs (527 villages)
Duflo and Chattopadhyay (2004)	Women, SC/ST	Village	Yes	N/A	Constituent policy preferences, gov spending	265 GPs
Bardhan, Mookherjee and Torrado (2010)	SC/ST	Village	Yes	Positive	Household benefits: water, employment, etc	57 GPs (89 villages)
Palaniswamy and Krishnan (2012)	SC	Village	Yes	Positive	Spending	80 GPs (225 villages)
Bhavnani (2009)	Women	State	Yes	N/A	Electoral outcomes	118 election wards
Beaman et al. (2010)	Women	Village	Yes	None	Investment in drinking water	197 villages
Besley, Pande and Rao (2005)	SC	Village	Yes	N/A	Household beneficiary status	522 villages
Chauchard (2014)	SC	Village	Yes	N/A	Social attitudes, norms, stereotypes	64 GPs
Dunning (2010)	SC/ST	Village	Yes	N/A	Political attitudes and preferences	200 GPs

2.2.2 Effects on Non-targeted Minority

Next, we extract from the literature three hypotheses on the effects of quotas on non-targeted minorities (minority identity categories not covered under a given quota policy): (1) Solidarity, (2) Crowding Out, and (3) Performance.

Under the **Solidarity** hypothesis, non-targeted minorities may experience positive spillovers from quotas targeting other minority groups. Studies have found that minority politicians may carry intrinsic motivations – absent electoral motivations – to help individuals with whom they identify (Broockman, 2013; Kang and Tripp, 2018; Adida, Davenport and McClendon, 2016; Parthasarathy, Rao and Palaniswamy, 2017; Singh, 2015). They may also share policy preferences with other minorities: Kaufmann (2003) writes that African Americans and Latinos in the U.S. "share objective circumstances [and] interests" (2003, p.199) and may have a 'minority group consciousness'. Consistently, Adida, Davenport and McClendon (2016) show that African Americans respond positively not only to co-ethnic but also to co-minority (Latino) political cues. Under this hypothesis, therefore, minority groups not targeted by the quota should also benefit from improved program implementation. Some

evidence from India is consistent with this prediction: SC reserved councillors increase village expenditures in a manner that benefits both SC and ST in their village (Palaniswamy and Krishnan, 2012).

The **Crowding Out** hypothesis posits that gains in descriptive representation by one minority group will come at the expense of benefits for non-targeted minority groups, especially where targeted and non-targeted groups are in competition. Meier et al. (2004) examine changes in representation among African-Americans and Latinos and find that improvements in administrative and teaching positions for one group are associated with losses for the other. Deleterious effects on inter-group attitudes and relations may follow, as crowded-out minority groups could resent and hold negative opinions of the minority group with whom they are in competition (Gay, 2006; Johnson Jr and Oliver, 1989). Under this hypothesis, NREGS gains for one minority group should crowd out gains for other minority groups under the quota. Expectations of inter-caste competition and negative spillover effects are captured by Khosla (2011), who argues that as "different castes vie to capture NREGS benefits, they limit the access of other caste groups" (p.65). Though not explicitly acknowledged in previous work, we also test for an extended version of this hypothesis where crowding out may extend to all non-quota groups in society, not just minority groups.

The **Performance** hypothesis states that improvements in representation for a targeted minority may come without any cost to other groups in society, for instance if quota politicians exert more effort than non-quota politicians. Beaman et al. (2010) consider the effects of a quota for women on a non-targeted minority group, Muslims, and find that improved outcomes for women do not appear to crowd out benefits for Muslims. Iyer and Mani (2012) find that quotas for women increase reporting of crimes against women but do not appear to decrease reporting for crimes against men.

2.2.3 Effects on Non-Minorities

The **Performance** hypothesis predicts that non-minorities will be unaffected by electoral quotas, while the **Solidarity** hypothesis does not offer a clear prediction. The **Crowding Out** hypothesis suggests that quotas could leave outcomes for non-minorities unchanged, or alternatively could result in losses. An argument could be made that as the most influential group in society, non-minorities are unlikely to be affected by reservations and that it should be non-targeted minority groups that will suffer if quota politicians exert a similar or lesser amount of effort as non-quota politicians. If, however, quota politicians exert greater effort, we may observe positive spillovers for non-minorities because of their traditional influence. In a final scenario, gains for the targeted minority may come at the cost of non-minorities.

Table 2: Summary of Predictions at the Intensive Margin

Hypothesis	Empirical Implications: Benefits for...		
	Targeted Minority (ST)	Non-Targeted Minority (SC)	Non-SC/ST
Solidarity	$\uparrow$	$\uparrow$	?
Crowding Out	$\uparrow$	$\downarrow$	$-/\downarrow$
Performance	$\uparrow$	$-$	$-$

2.3 Intersecting Identities

We also investigate whether ST reservations have differential effects on NREGS implementation for women and men. We examine these effects for a several reasons. First, NREGS is designed not only to be pro-poor but also pro-women. NREGS mandates that one-third of workers be women, and that women and men be paid equal wages. Reports find that 48% of NREGS workers are women, which is approximately twice the share of women in other casual wage work (Dutta et al., 2014). If reservations result in better program implementation at the extensive margin, then positive effects might be particularly pronounced for women.

Second, ethnic minority politicians elected under quotas may be more or less responsive to concerns raised by women. Cassan and Vandewalle (2017) report that high caste women

are less politically active than low caste women, and therefore reservations for women result in more lower caste women in political office. Flipping this argument in our case may suggest that reservations for ST will encourage greater political participation among women.

Alternatively, men may do better where there are ST reservations. If ST are particularly in need of NREGS work, and bureaucrats are more likely to ration work for women than men, then gains from NREGS in Scheduled Areas may primarily go to men. Dutta et al. (2014) report that this type of rationing is particularly pervasive with NREGS work in poorer states. We evaluate these competing hypotheses both with NREGS data broken down by gender as well as employment data from the 2011 Census.

3 Context: Identity, Quotas, & Development in India

The Indian government has instituted numerous forms of political quotas since Independence. These quotas reserve particular positions among elected officials, within political parties, in civil service, and for higher education for specific identity groups. We define a political quota as a rule that requires that a government body represent individuals from a particular identity category. In the Indian context these individuals are typically from the categories of Scheduled Tribes (ST), Scheduled Castes (SC), Other Backward Classes (or Other Backward Castes, OBC), and/or women. Following Indian Independence, the newly written constitution provided dramatic guaranteed representation for individuals from these identity categories for candidates for political office - including in the national parliament (*Lok Sabha*), state legislatures (*Vidhan Sabha*), and from 1993 in the country's three-tier system of local government councils, called *Panchayat Raj*, at the village-cluster, block and district levels.

We focus in this paper on India's *Scheduled Areas*, a system of political quota for tribal populations that has not yet been subject to systematic quantitative analysis. Scheduled Areas exist in nine Indian states – Andhra Pradesh, Chhattisgarh, Gujarat, Himachal Pradesh,

Maharashtra, Madhya Pradesh, Jharkhand, Odisha, and Rajasthan. Collectively these states represent roughly half of India's territory and population. Scheduled Areas represent 41% of the territory and 45% of the local population within these states, such that more than a hundred million people live in Scheduled Areas.

3.1 Tribes and Scheduled Areas in India

India's 'tribal' identity category was first codified, with corresponding separate administrative areas specified, during the British Colonial period. Scholars have identified these 'tribal' groups (or *adivasi*) by (a) their descent from particular lineages (Sundar, 2009), (b) pre-colonial systems of administration, and/or (c) well-defined land arrangements and rights (Gupta, 2011*a*,*b*). Despite regular mention of these factors, scholars agree that there has been little clear definition or criteria as to what constitutes a 'tribe' (Béteille, 1974, 1986; Dhebar, 1962; Corbridge, Jewitt and Kumar, 2004; Corbridge, 2002; Galanter, 1984).

Encountering these communities, British administrators defined and enumerated what they viewed as 'tribal' populations. British authorities first provided a list of 'Aboriginal Tribes' and 'Semi-Hinduised Aboriginal Tribes' in the Census of 1872 (Corbridge, 2002, 64) and implemented special institutions targeting tribes based on this census with the Scheduled Districts Act of 1874. Following Independence in 1947, the new Indian state identified in the Fifth Schedule of the Constitution its own 'Scheduled Areas,' with few differences from the British Scheduled Districts Act. The Indian government justified Scheduled Areas specifically as a means to improve representation and welfare for Scheduled Tribes (ST).

The geographic boundaries of the Scheduled Areas have changed little over time. Per the Constitution, the President of India has the right to Schedule or De-schedule Areas and does so in consultation with State Governors. In 1962, the Dhebar Commission proposed that an area should be eligible to become a Scheduled Area according to the following four, relatively vague, criteria.

1. Preponderance of tribals in the population

2. Compact and reasonable size

3. Under-developed nature of the area

4. Marked disparity in economic standards of the people

In practice there has been no exact formula for updating or adjusting the previous notification or de-notification of Scheduled Areas in India, and these Areas have remained remarkably stable since they were demarcated by the Dhebar Commission.

Scheduled Areas matter today in particular because more recent legislation has implemented political quotas using Scheduled Areas as the key reference. The Panchayats Extension to Scheduled Areas Act of 1996 (PESA) mandated that *all* chairperson positions at the three levels of local government, and at least 50% of all seats on these councils, be reserved for ST individuals. Hence, when local elections were next held – as early as 2000 for Rajasthan and as late as 2010 for Jharkhand (due to a Supreme Court case) – these reforms gave a tremendous positive shock to the local political representation of Scheduled Tribes in India.

3.2 Comparisons Across Identity Categories

The Indian state has regularly grouped SC and ST together for the purposes of special legislation. Outside of Scheduled Areas that privilege ST, since 1992 all local government councils across the country restrict local council leadership positions for SC and ST, using identical quotas in proportion to their local population that rotate every election cycle (see Duflo and Chattopadhyay (2004); Dunning and Nilekani (2013)). The Indian government even studies the development of individuals from both groups in tandem via the government appointed, high-level Planning Commission.[2] Finally, in both popular and academic writing,

[2]See for instance the *Report of the Task Group on Development of Scheduled Castes and Scheduled Tribes*, which may be accessed from `http://planningcommission.gov.in/`

SC and ST are often described in tandem as examples of minority groups that are the poorest and most vulnerable throughout the country. For these reasons, throughout the remainder of the paper we consider outcomes for SC a useful comparison to ST outcomes – as both groups are similarly vulnerable, yet enjoy very different political opportunities in Scheduled Areas. Appendix D provides more details about political quotas in India and SC and ST identity categories.

3.3 The National Rural Employment Guarantee Scheme (NREGS)

Our empirical goal is to measure how political quotas affect the implementation of government services. As our key outcome, we chose the National Rural Employment Guarantee Scheme, *NREGS*, India's largest development program and the largest employment program in the world. The scheme officially guarantees 100 days of minimum-wage employment to every rural household in the country, with no eligibility requirements.

Local-level council chairpersons – whose seats are reserved for STs under the Scheduled Areas quota – have both the capacity and discretion to significantly alter the quality of NREGS implementation and the distribution of NREGS benefits (Besley, Pande and Rao, 2007; Dasgupta and Kapur, 2017; Dunning and Nilekani, 2013; Dutta et al., 2014; Sukhtankar, 2017). Local-level authorities are additionally responsible for keeping records of NREGS work, transmitting records to higher authorities to process payments, and responding to citizens appeals for work (Sukhtankar, 2017; Dunning and Nilekani, 2013). In fact, as Besley, Pande and Rao (2007) note, "beneficiary selection for central and state welfare schemes" lies in the direct ambit of the panchayat influence (p.662). Munshi and Rosenzweig (2015) note that a major responsibility of the panchayat is to "identify targeted welfare recipients" (p.8). Finally, Sukhtankar (2017) writes, "Given that the act explicitly states that Gram Panchayats (GPs) – the lowest administrative tier of the Indian bureaucracy – must

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`aboutus/taskforce/inter/inter_sts.pdf`.

implement at least 50% of the works in terms of cost, MNREGA [NREGS] has advanced the legitimization of GPs [local councils] as state actors" (p.6).

Despite meaningful impacts, NREGS implementation is extremely uneven (see Figure 1). Prior research has shown that the binding constraints on program implementation are not demand-side but are driven almost entirely by supply-side factors, one of which can be the effort of politicians (Dutta et al., 2014; Khosla, 2011). Dutta et al. (2014) write that "unmet demand for work is the single most important policy-relevant factor in accounting for this gap between actual performance and the scheme's potential" (p. xxv).

4 Data Construction

To systematically assess how the Scheduled Areas political quota affects development outcomes, we construct a village level dataset across India.

4.1 Merging Census Data with Spatial Information

We obtain spatial data on blocks and villages from the 2001 and 2011 Indian Censuses.[3] The 2001 data contain the geographic borders of all blocks ($N = 6,348$) in India, as well as the spatial boundary or the centroid of all villages ($N \approx 628,000$). In the nine states that form the focus of this paper, we have information on 2,796 blocks and 232,856 villages. The 2001 census provides detailed information related to population, socio-economic measures, government services, and infrastructure.

We use the 2011 data as outcomes for several analyses. For these, we need to match blocks across the two census waves. We spatially match 2011 villages to their 2001 block boundaries to construct a block panel across the two censuses with 2,432 blocks and 246,239 villages.[4] This allows us to test balance and control for imbalanced variables from the 2001

[3]Our Census data was procured from InfoMap India (`https://www.mlinfomap.com/`).

[4]Figure A5 shows that a map generated from our spatial data at the block level is similar

Census in the 2011 Census analysis.[5] The 2011 census has a relatively limited range of variables but allows us to construct information on employment and public goods statistics at the village level. Some variables in this census are only available for market villages.

4.2 NREGS Work

We use data on three key outcomes from NREGS in 2013: *Jobcards* are the average number of new identification documents issued to prospective workers before they can request to be hired under the program in 2012-13; $Worked$ is the average number of households that took part in the program in the year 2012-13; and $Workdays$ measures the average sum of days worked by individuals who took part in the program for the year 2012-2013. These measures were collected at the lowest level for which they are recorded, the village cluster (*gram pachayat*) level from the official NREGS portal. Critically, NREGS data provides all three outcomes for ST, for SC, and those who are neither SC nor ST, separately. Figure 1 shows that there is considerable variation in program implementation across India.

4.3 Building an All-India Dataset

A key challenge for quantitative social science researchers of the Indian context is that important data sources are measured at different units and do not contain reference units for others, making merging of datasets hard. While the Indian Census is measured at the village-level, development schemes including NREGS are measured at the village-cluster level.

We address this challenge by identifying a new dataset that serves as a matching directory for village and village-cluster data, and then applying fuzzy matching methods to combine the census and NREGS directly to this new cross-walk. The resulting dataset, com-

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to a more aggregated, district-level, map produced by the government.

[5]See Appendix Table A3.

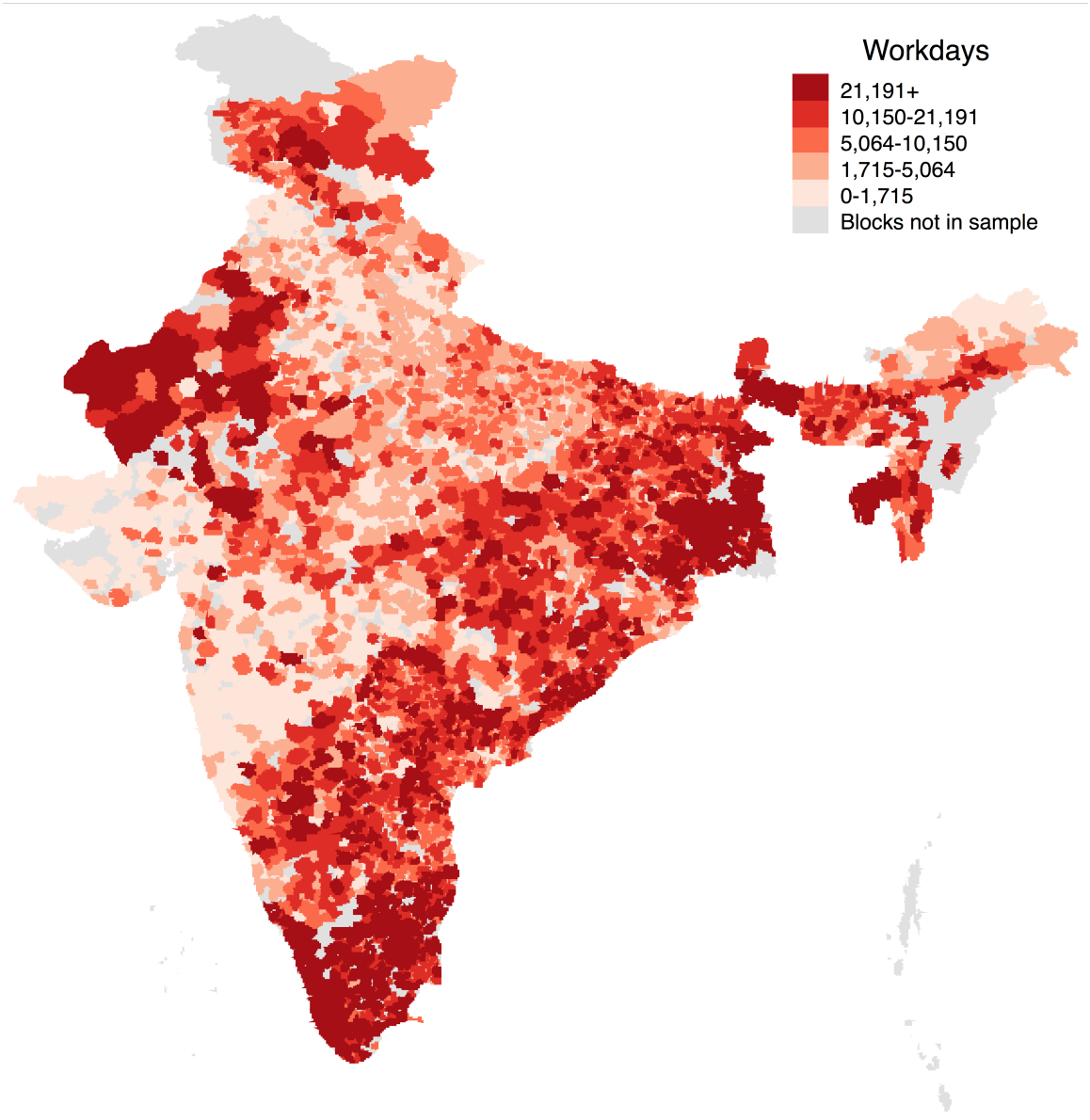

Figure 1: **Variation in 2013 NREGS Workdays Across India**

bining 2013 NREGS, and the 2001 census data sources, successfully matches approximately 465,000 of India's 628,000 villages (74%). This rate is comparable to a recent study that also uses fuzzy matching in the Indian context (Asher and Novosad, 2017). Additionally, we successfully match 93% of all blocks (5,458 of 5,845). Because NREGS is a program implemented exclusively in India's rural areas, we expect that the matched blocks should be systematically different from unmatched ones. We find that these areas are less populous, more vulnerable, and have a higher proportion of agricultural workers (we present additional details in Appendix E).

4.4 Identifying Scheduled Areas

The key independent variable is whether a *village* is or is not part of the *Scheduled Areas*. Measuring this is difficult because legal notifications of whether a village belongs to Scheduled Areas are issued at different geographic aggregations in different states. Of the nine states containing Scheduled Areas, Andhra Pradesh and Rajasthan officially notify areas either at village, block or district levels. Four notify areas at block and district levels, and Maharasthra exclusively notifies areas at the block level. Given this variation in the notifications of assignment, several coding schemes and empirical strategies are possible.

We take an intermediate approach, one that balances the difficulty of manually matching information on Scheduled Areas and the remaining data, and provides sufficient power for analysis. We create an indicator variable for whether a *block* falls in Scheduled Areas or not, coding the entire block as Scheduled if any village-cluster is designated as Scheduled within the block.[6] Two-thirds of all village-clusters that are Scheduled were so designated by a block-level notification. Empirically, coding at the block level makes any treatment effects we find conservative since we are coding some untreated villages as treated. Our coding is

[6]Information on Scheduled Areas status was obtained from the Government of India's Ministry of Tribal Affairs. See Appendix E.2 for data sources.

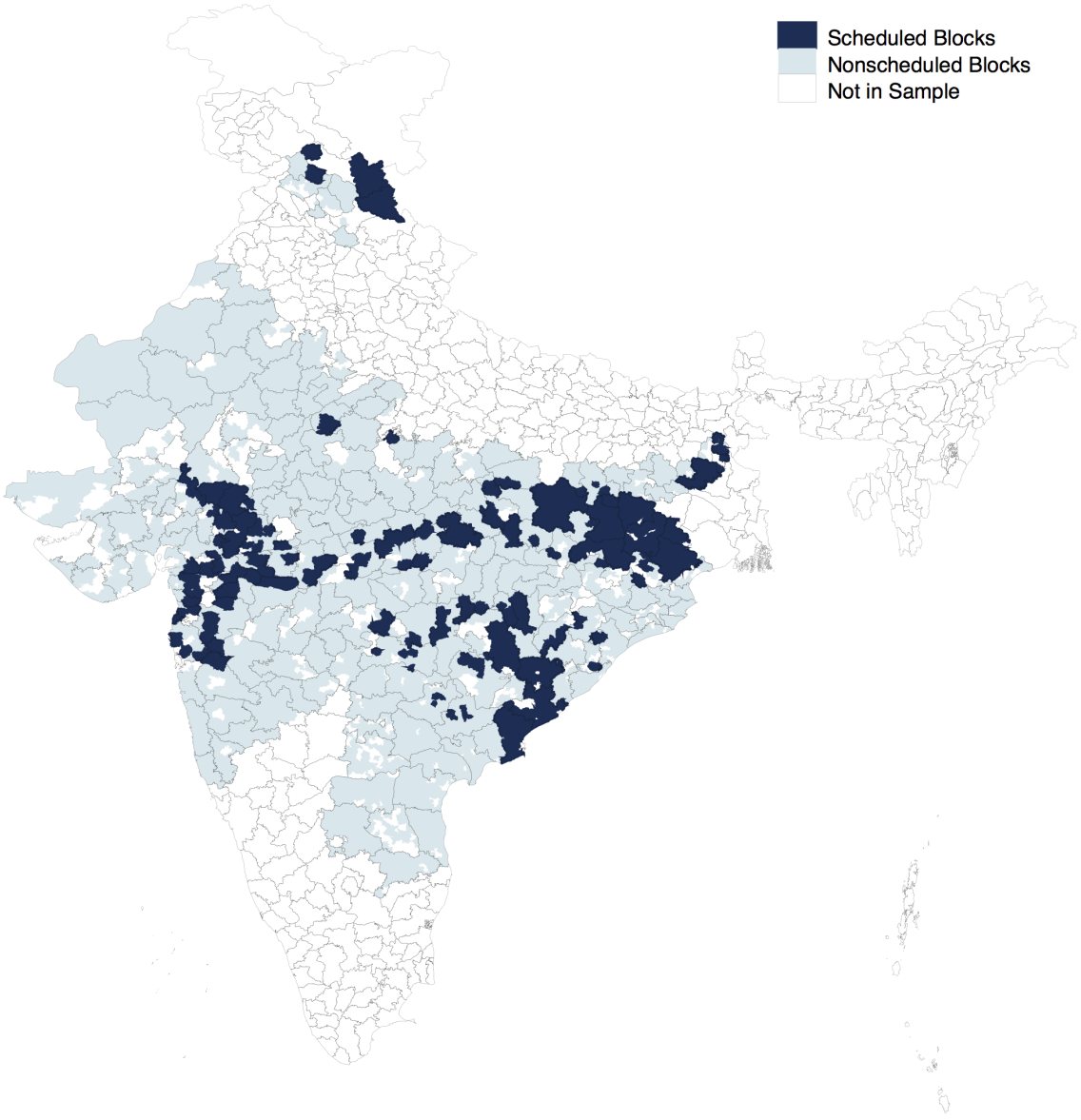

Figure 2: **Scheduled Areas in India** - Unit is the block. Outlined regions refer to district boundaries.

illustrated spatially in Figure 2.[7]

4.5 Summary Statistics

We combine the 2001 census data with NREGS and Scheduled Areas coding. In the nine states where reservations exist for ST, we retain about 232,856 villages in 2,796 blocks across these states. 18 percent of the villages in our data are coded as belonging to a Scheduled Area. On average, ST comprise about 22 percent of the population in these states, while SC are only 9 percent of the population. Non-minorities form the remaining 65 percent. Appendix Table A5 presents summary statistics for NREGS and 2001 Census, and Table A6 for the 2011 Census.

5 Empirical Strategy

5.1 Ordinary Least Squares

A naive ordinary least squares model compares Scheduled and Nonscheduled blocks with state fixed effects and village level controls from the 2001 Indian Census with the following specification:

$$y_{g,b,d,s} = a_s + \gamma Scheduled\ Area_{v,g,b,d,s} + Z'_{v,g,b,d,s}\phi + \epsilon_{v,g,b,d,s} \quad (1)$$

where $y_{g,b,d,s}$ refers to NREGS outcomes at the gram panchayat (village-cluster) level g, which is located in block b, district d, and state s. As the NREGS outcomes are left-skewed, we add one and log them, such that treatment effects can be interpreted in percentage terms. $Scheduled\ Area_{v,g,b,d,s}$ is the treatment variable that equals 1 if a village v is coded as being

[7]See Figure A5 for validation that our SA identification is done accurately and is more granular than government maps.

Scheduled Area, and 0 otherwise. We include state fixed effects a_s, which account for any state level shocks, including the different timing of PESA implementation. We include a vector of all unbalanced village-level control variables, $Z'_{v,g,b,d}$. We consider the assignment of the treatment to be at the village cluster (the *gram panchayat*) level because, as discussed, key decisions on NREGS are taken at the very local level and NREGS outcomes are reported at that level. We thus take the conservative approach of clustering standard errors at this level to account for correlation of outcomes within a gram panchayat.

5.2 Geographic Regression Discontinuity

Controlling for common shocks at the state level may still yield biased results if Scheduled Areas are systematically different from other areas even within a state. Consider two proximate villages lying on opposite sides of the Scheduled block border. If they are sufficiently similar on observable characteristics, we can say that the only difference between the two villages is that one village lies in a Scheduled block, while the other is in a Nonscheduled block. We approximate this thought experiment with a geographic regression discontinuity design that restricts attention to villages geographically proximate to a boundary dividing Scheduled Areas and other areas within a state. We use the following specification:

$$y_g = a_s + \gamma Scheduled\ Area_{v,g,b,d,s} + f(X_v, Y_v) + Z'_v\phi + \epsilon_{v,g,b,d,s} \quad (2)$$

$$\forall\ v \quad s.t. \quad X_v, Y_v \in (-h, h)$$

where $f(X_v, Y_v)$ is a flexible function in two dimensions, latitudes (X) and longitudes (Y), for every village v in gram panchayat g, block b, district d and state s. We follow Dell (2010) in including a smooth function in longitudes X and latitudes Y.[8] Adding these geographic controls in a flexible way helps the regression absorb spatial trends that might

[8]Of the form: $x + y + x^2 + y^2 + xy + x^3 + y^3 + x^2y + xy^2$

be superfluously driving results. As before, we add state fixed effects to absorb common shocks at the state level. In all regressions, we include imbalanced village-level level census covariates as controls.

We assign the closest block boundary to each village in our data so that we compare villages that provide the closest approximation to random assignment, such that h refers to the distance to the nearest block boundary in kilometers. Using the distance to the boundary as the running variable yields conservative bandwidths of about 10 kilometers (see Appendix Table A10), and we accordingly take 10 kilometers as our standard bandwidth (h) in the analysis that follows. 10km is about one-fifth the size of the median distance (53.4km), and about one-ninth the mean distance (92.7km), from the border in the data (see Figure A1). We always show robustness of our results over varying bandwidths and functional forms of the control function.

5.3 Analysis of Balance with Census Data

With pre-treatment census data at the village level from 2001, we analyze balance by checking if *Scheduled Area* predicts census variables. To manage the vast number of 2001 census variables and to make the comparison substantively clear, we collapse 140 census variables into 14 substantively meaningful categories by taking the simple mean of their standardized values. We describe this process in Appendix J.

First, in the naive OLS comparison in Appendix Table A1, we find that except for the minority index, which includes measures of the village level population for ST and SC and therefore measures the substantive difference between Scheduled and Nonscheduled Areas, differences are very small, often as low as a tenth of a percentage in standard deviation units. That being said, a simple comparison of Scheduled Areas with Nonscheduled Areas could result in effects being driven by differences not in quotas, but rather by the imbalance on the minority index (0.345 standard deviations, p=0.000) or other indices. To account for this, we include all imbalanced indices ($p < 0.10$) in OLS regressions.

Next, we evaluate balance using the Geographic RD model that limits attention to villages close to the border of Scheduled and Non-Scheduled Area (see Appendix Table A2). As with the OLS model, we take a systematic approach to testing for balance using the full list of census indices as above. We find that the point estimates decrease even further; we observe differences in the communications, bank, road, and irrigation indices. We also observe a significant difference in the minority index, but importantly, the imbalance goes down from 0.345 standard deviation units in the OLS model to only 0.064 units. While this large decrease in imbalance to about 1/10 of a standard deviation increases our confidence in the causal interpretation of the geographic RD model, we nonetheless include imbalanced indices in all geographic RD specifications reported below.

Finally, one specific concern with the geographic RD approach is that of 'sorting'. Since PESA was announced in 1996, with implementation starting only in 2001, it could be the case that ST populations moved to Scheduled Areas to take advantage of the new upcoming reservations. We test if this is the case by calculating the difference in ST population for each block in our sample between the 1991 census and the 2001 census. We do not find evidence that this changes systematically between Scheduled Area and non-Scheduled blocks: the difference is not statistically different and remains very close to zero over a large range of bandwidths (see Figure A4).

6 Main Results

In Tables 3 and 4, we present results from the OLS and geographic RD models, respectively. The first column presents treatments effects at the extensive margin, while the remaining three columns decompose this effect across ST, SC and Non-SC/ST. That is, changes in column 1 perfectly reflect the sum of changes in columns 2 to 4.

The OLS results show that program implementation in Scheduled Areas is significantly better than in non-Scheduled Areas for all three outcomes of interest. Examining the inten-

sive margin, it is clear that while ST are significantly better off under the Scheduled Areas, there seems to be some substitution of program implementation away from both SC and non-SC/ST.

Table 3: **The Effect of Scheduled Areas on NREGS (OLS)**

	(1) Total	(2) STs	(3) SCs	(4) Non-SCs/STs
Panel A: Jobcards				
Scheduled Areas	0.143***	1.523***	-0.653***	-0.683***
	(0.008)	(0.041)	(0.022)	(0.024)
Control Mean (Unlogged)	738.978	143.262	136.972	458.744
# GPs	58558	58558	58558	58558
# Villages	191628	191628	191628	191628
Panel B: Households Worked				
Scheduled Areas	0.476***	1.647***	-0.378***	-0.364***
	(0.014)	(0.037)	(0.022)	(0.025)
Control Mean (Unlogged)	237.369	53.339	46.361	137.668
# GPs	58558	58558	58558	58558
# Villages	191628	191628	191628	191628
Panel C: Workdays				
Scheduled Areas	0.610***	2.262***	-0.512***	-0.381***
	(0.021)	(0.055)	(0.036)	(0.034)
Control Mean (Unlogged)	10750.981	2399.476	2104.660	6246.844
# GPs	58558	58558	58558	58558
# Villages	191628	191628	191628	191628

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. Controls include imbalanced indices and state fixed effects.

Using the geographic RD model allows us to restrict attention to bandwidths of 10 kilometers and compare villages that look similar. We find four main results. First, as shown in column 2, 34.1% ($p < 0.01$) more STs are holders of job cards in Scheduled Areas. This result carries forward to the number of households that receive work during the year through NREGS – the coefficient is a 43.7% ($p < 0.01$) increase. Overall, the number of workdays STs receive increases by 55.4% ($p < 0.01$). This implies that even existing ST job card holders are better off, as the increase in total average workdays is greater than the increases in both the number of households receiving work and the number of holders of job cards.

Second, there is strong evidence that the improvement in program implementation for STs may have come at the cost of non-minorities in the population, as shown in column 4. Not only do non-minorities receive 22.0% ($p < 0.01$) fewer job cards in Scheduled Areas, they also suffer a reduction in the number of households employed (12.1%, $p < 0.01$) as well as the total number of workdays (14.1%, $p < 0.01$). However, the reduction in workdays is less than the reduction in job cards, suggesting that existing non-minority job card holders continue to receive work at about the same rate as in non-Scheduled Areas and that the reduction in total workdays is primarily coming from lower numbers of non-minorities receiving job cards.

Third, there is some weak evidence to suggest that SCs are worse off on some dimensions under Scheduled Areas: they receive 13.9% ($p < 0.01$) fewer job cards, as shown in column 3. However, this change does not translate into fewer SC households worked or fewer total SC workdays; in fact, both increase, by 0.6% and 4.7%, respectively, though we are unable to detect these differences statistically. The positive point estimates on the latter outcomes suggests that SCs already enrolled in the program may be receiving more work under the quota.

Finally, putting these results together in column 1, we examine the extensive margin. For job cards, the differences across identity categories approximately even out such that the point estimate in column 1 stands at 1.6% and is not statistically distinguishable from zero. However, we observe statistically significant increases in the number of households worked (14.0%, $p < 0.01$) and the total number of workdays (17.5%, $p < 0.01$). A simple accounting exercise multiplying treatment effects by control means and taking the sums across columns 2, 3, and 4 suggests an overall increase of about 2,800 workdays in treatment villages.

Figure 3 shows the robustness of these results to various functional forms and bandwidths. First, it is evident that the form of the geographic control function has little bearing on the identified treatment effects. Second, plotting these results by bandwidth suggests that all significant effects in Table 4 are robust across a wide range of bandwidths, typically

Table 4: **The Effect of Scheduled Areas on NREGS (10 km RD)**

	(1) Total	(2) STs	(3) SCs	(4) Non-SCs/STs
Panel A: Jobcards				
Scheduled Areas	0.016	0.341***	-0.139***	-0.220***
	(0.013)	(0.031)	(0.035)	(0.028)
Control Mean (Unlogged)	805.118	335.689	117.467	351.962
# GPs	9697	9697	9697	9697
# Villages	29241	29241	29241	29241
Panel B: Households Worked				
Scheduled Areas	0.140***	0.437***	0.006	-0.121***
	(0.023)	(0.038)	(0.037)	(0.034)
Control Mean (Unlogged)	286.646	135.525	38.437	112.684
# GPs	9697	9697	9697	9697
# Villages	29241	29241	29241	29241
Panel C: Workdays				
Scheduled Areas	0.175***	0.554***	0.047	-0.141***
	(0.034)	(0.055)	(0.059)	(0.047)
Control Mean (Unlogged)	12859.588	6124.012	1631.304	5104.273
# GPs	9697	9697	9697	9697
# Villages	29241	29241	29241	29241

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. Controls include imbalanced indices, state fixed effects, and a geographic control function.

even at very small bandwidths where there is a significant loss of power. Third, we also probe robustness of these results by analyzing treatment effects on non-logged outcomes in the Appendix Tables A7 and A8. The coefficient directions are all similar and p-values are lower, indicating more confidence on the inferences, including on the extensive margin, above. Fourth, we notice that treatment effects for all outcomes grow stronger the further out from the cutoff we get. Fifth, we observe larger point estimates in the OLS model relative to the RD model. Given these latter two observations, we can conclude that the local average treatment effect of the RD model is perhaps a lower bound on the effect of Scheduled Areas in the entire sample, albeit many other factors are different in that wider comparison.

In Appendix Section I, we find no evidence for two alternative explanations: first, that discrepancies in reporting, and second that differences in reliance on centralized government, between Scheduled and non-Scheduled Areas account for identified effects.

In light of these results, we return to the competing hypotheses suggested by the literature and laid out in Section 2. Our first finding is that quota politicians do not underperform non-quota politicians at the extensive margin, allaying potential concerns about a decrease in politician competence due to electoral quotas. If anything, the point estimate suggests that politicians in Scheduled Areas increase program implementation for total households worked and for total workdays. This is consistent with evidence that politicians from underrepresented groups outperform other politicians (Beaman et al., 2010; Volden, Wiseman and Wittmer, 2013), and runs contrary to findings and arguments that electoral quotas bring in the less competent and thus decrease the overall delivery of programs (Bertrand, Hanna and Mullainathan, 2010; Bertrand and Xu, 2018; Deshpande and Weisskopf, 2014; Jensenius, 2015).

We now revisit the hypotheses summarized in Table 2. We do not find any evidence for the **Solidarity Hypothesis**: increased descriptive representation for one minority group, STs, does not appear to improve outcomes for a non-targeted minority group, SCs. We find mixed support for the **Crowding Out Hypothesis**. We find weak evidence of negative

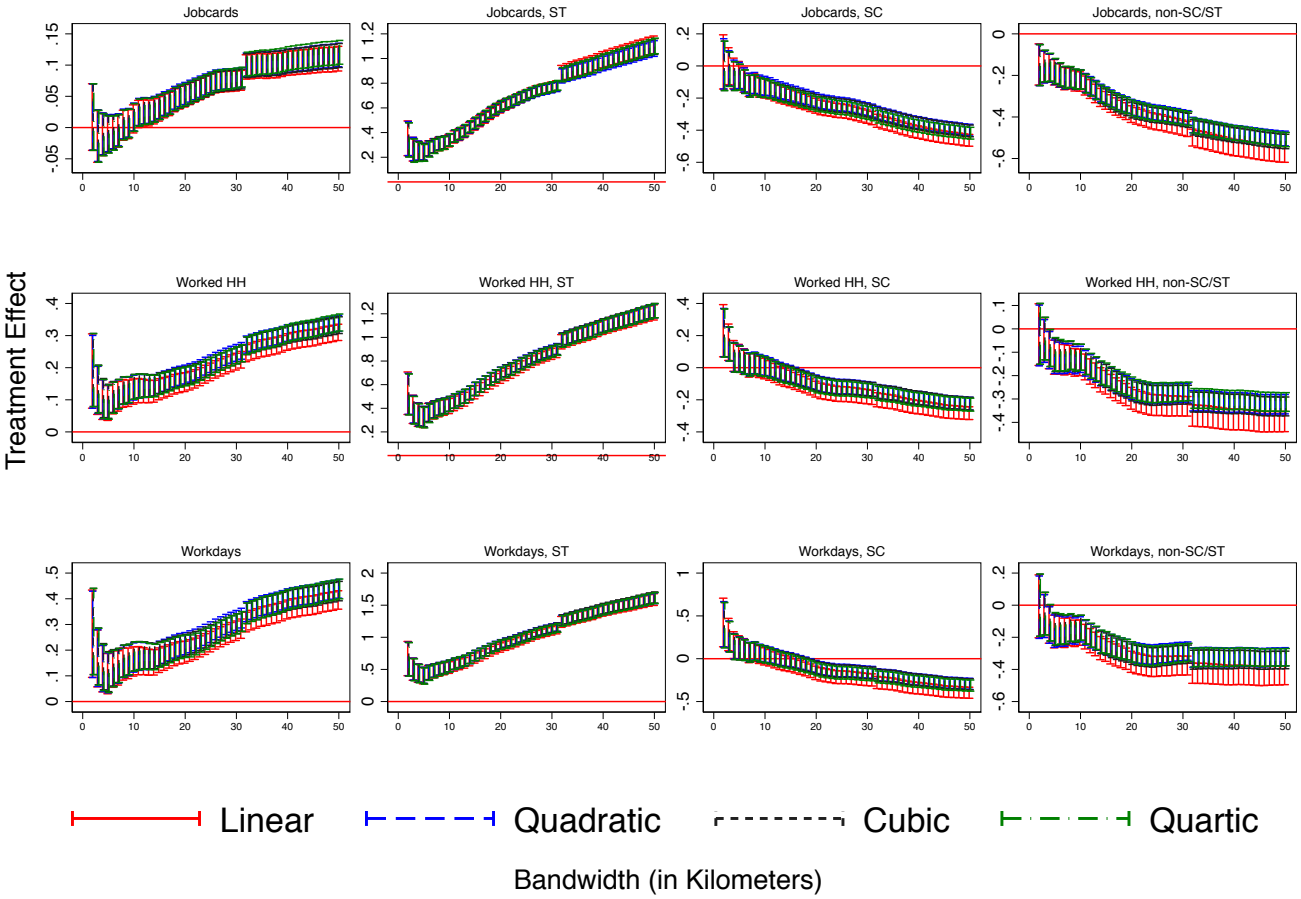

Figure 3: **RD Robustness by Bandwidth and Functional Form**

Notes: Plots results in Table 4 by control function and bandwidth with 90% confidence intervals.

substitution from SCs, the non-targeted minority. However, there *is* negative substitution away from non-minorities, which is consistent with the core logic of the hypothesis concerning competition between groups. Finally, there is also limited support for the **Performance Hypothesis** to the extent that gains for the targeted minority group (STs) are not completely offset by losses for other groups.

7 Outcomes for Women and Additional Outcomes

7.1 Broader Effects of Scheduled Areas

Are there implications of instituting electoral quotas beyond the effects we observe on NREGS? Besley, Pande and Rao (2007) note that "construction and maintenance of village public goods" falls under panchayat institutions' authority (p. 662). From the literature, we identify the following list of development sectors that are particularly relevant to gauge the performance of panchayat institutions vis-a-vis general public goods provision: roads, sanitation, electricity, water, telephones, school and health facilities, irrigation, and communication (Cassan and Vandewalle, 2017; Munshi and Rosenzweig, 2015). We match these variables with 2011 Census data and construct mean indices for the following public goods at the village level: roads, water, irrigation, electricity, and communication. Matching villages in 2011 to their 2001 blocks allows us to control for imbalanced indices from the 2001 Census as before. Figure 4 shows that Scheduled Areas are more likely to have roads and water facilities in 2011 but not more irrigation, electricity, or communication facilities. In particular, we see positive treatment effects on the most local kinds of roads, gravel roads, as well as uncovered wells, projects that are targeted specifically by the NREGS program. Figure A8 shows robustness robustness to different functional forms and bandwidths and Appendix H.2 presents associated tables.

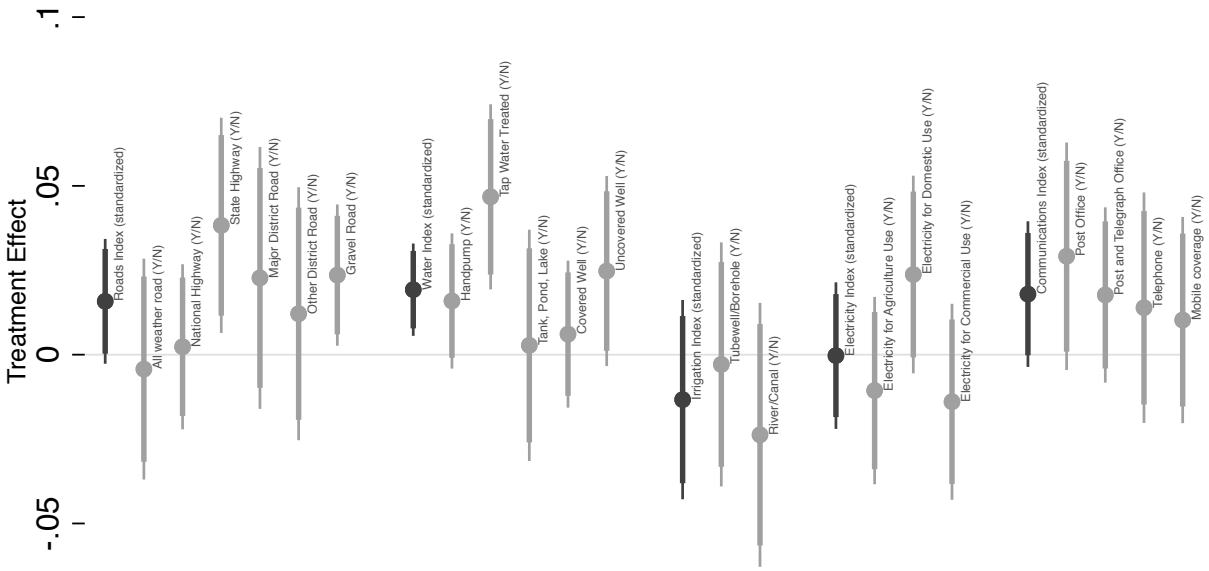

Figure 4: **The Effect of Scheduled Areas on Public Goods (Census 2011).**

7.2 Intersecting Identities: Gender

Table 5 presents results by gender for workdays, the only outcome for which gender decomposed data are available. We observe a positive and statistically significant effect for both men and women in the OLS model, though point estimates are larger for women than for men. We also present these results in non-logged form as well as robustness to different functional forms and bandwidths in the Appendix Table A9 and Figure A6. Combining these results, we conclude that while women benefit more under the program in Scheduled Areas, men too see their prospects improve as would be consistent with an overall improvement in the program that is roughly similar across genders.

NREGS data does not decompose outcomes by both identity *and* gender, complicating inferences as to whether Scheduled Areas are particularly helpful for ST women.

To make some progress on this, we obtain and analyze the effects of Scheduled Areas on employment prospects by gender and types of workers using the 2011 Indian Census. These data provide employment statistics across two categories: main workers, who were employed

Table 5: **The Effect of Scheduled Areas on NREGS by Gender**

	(1) Total	(2) Women	(3) Men
Panel A: OLS			
Scheduled Areas	0.610***	0.739***	0.591***
	(0.021)	(0.023)	(0.021)
Control Mean (Unlogged)	10750.981	5409.097	5341.884
# GPs	58558	58558	58558
# Villages	191628	191628	191628
H_0: $\gamma(2)$ - $\gamma(3) = 0$			$p < 0.01$
Panel B: 10 km RD			
Scheduled Areas	0.175***	0.203***	0.172***
	(0.034)	(0.038)	(0.034)
Control Mean (Unlogged)	12859.588	5220.508	7639.081
# GPs	9697	9697	9697
# Villages	29241	29241	29241
H_0: $\gamma(2)$ - $\gamma(3) = 0$			$p = 0.11$

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. Controls include imbalanced indices, state fixed effects, and in RD regressions a geographic control function.

more than 183 days in the 12 months preceding the Census, and marginal workers, who were employed less than 183 days. Because NREGS can provide at most 100 days of work to a household, those receiving work through the program are likely to be classified as marginal workers.

We observe three results. First, consistent with the NREGS data, we find that 5.4% ($p < 0.05$) more women are working in Scheduled Areas, as seen in Table 6, Panel A, column 2. The majority of this increase seems to be coming from women who are labeled marginal workers (Panel C, column 2: 2.9%), though the increase is not statistically distinguishable from zero. Second, though there is no change for employment of men overall, main male workers are 2.5% less likely to be employed (again, this result falls short of significance). Third, the point estimates on women main workers and male marginal workers are not statistically distinguishable from zero and are very small at 1.6% and 0.3%, respectively. Appendix Figure A7 shows that these effects are robust to different bandwidths and

functional forms.

Overall, we take away two implications from these results. First, our NREGS analysis reveals that STs are the most likely beneficiaries of Scheduled Areas. The Census 2011 results show that there are potentially more marginal women who are employed in these areas. It may therefore be the case that improvements in program implementation in Scheduled Areas that accrue to STs may be particularly strong for women. Second, the results for men suggest that the negative spillover effects we observe on the non-minority group in the NREGS data may be coming from male main workers, and not at the cost of male marginal workers.

Table 6: **Effects on Employment (10 km RD, Census 2011)**

	(1) Total	(2) Women	(3) Men
Panel A: Logged # Overall Workers			
Scheduled Areas	0.028	0.054**	0.008
	(0.026)	(0.024)	(0.024)
Control Mean (Unlogged)	562.6	216.0	345.2
# GPs	10351	10351	10351
# Villages	33225	33225	33225
H_0: $\gamma(2)$ - $\gamma(3) = 0$			$p < 0.01$
Panel B: Log. # Main Workers (> 183 days)			
Scheduled Areas	-0.009	0.016	-0.025
	(0.029)	(0.026)	(0.028)
Control Mean (Unlogged)	395.0	122.5	272.5
# GPs	10351	10351	10351
# Villages	33225	33225	33225
H_0: $\gamma(2)$ - $\gamma(3) = 0$			$p < 0.01$
Panel C: Log # Marginal Workers (< 183 days)			
Scheduled Areas	0.017	0.029	0.003
	(0.029)	(0.028)	(0.027)
Control Mean (Unlogged)	161.2	93.5	67.7
# GPs	10351	10351	10351
# Villages	33225	33225	33225
H_0: $\gamma(2)$ - $\gamma(3) = 0$			$p = 0.056$

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. Controls include imbalanced indices, state fixed effects, and a geographic control function.

8 Investigating the Electoral Mechanism

To what extent does an electoral mechanism explain how the Scheduled Areas have improved development outcomes for ST? We present four pieces of evidence in support of an electoral mechanism.

8.1 Scheduled Areas Prior to PESA

Prior to the implementation of electoral quotas, Scheduled Areas and non-Scheduled Areas looked very similar as our geographic RD analysis of the 2001 Census shows in Section 5.3. This analysis mirrors a critical report by the Indian Parliament-appointed Bhuria Commission, which found little to no devolution of governance and authority to tribal bodies in Scheduled Areas, and argued that tribal populations should enjoy greater self-governance and less governmental administrative interference.

> ... since planned development has been an article of faith with us, it has to be ensured that implementation of the policies and programmes drawn up in tribal interest are implemented in tribal interest. Since, by and large, the politico-bureaucratic apparatus has failed in its endeavour, powers should be devolved on the people so that they can formulate programmes which suit them and implement them for their own benefits.

Policies following from these findings were made into law via the Panchayat Extension to the Scheduled Areas (PESA), passed in 1996 and going into effect with state panchayat elections from 2000 and 2001. In this way, PESA gave the Scheduled Areas teeth that they had theretofore lacked.

8.2 Local Elections in Scheduled Areas

PESA was implemented in different states at different points in time. This staggered implementation of the law allows us to study if the program is more likely to function better

in places where quota politicians were elected earlier. In Table 7 we interact the Scheduled Areas indicator with the number of elections that have taken places in the state under the new quota system since the implementation of PESA such that the new variable can be interpreted as the effect of an additional quota election on NREGS outcomes. Consistent with the story of the quota's consolidation over time, we find evidence for additional elections improving ST outcomes, to some extent due to displacement from non-SC/ST outcomes.

Finally, we find similar results when, instead of interacting the Scheduled Areas indicator with the number of PESA elections, we use the number of years since the first PESA election as the interaction variable. These results are presented in Appendix Table A11.

Table 7: **The Effect of Scheduled Areas on NREGS by Number of PESA Elections (10 km RD)**

	(1) Total	(2) STs	(3) SCs	(4) Non-SCs/STs
Panel A: Jobcards				
Scheduled Areas × # of PESA elections	0.008	0.101***	-0.033***	-0.070***
	(0.005)	(0.011)	(0.012)	(0.010)
Control Mean (Unlogged)	805.118	335.689	117.467	351.962
# GPs	9697	9697	9697	9697
# Villages	29241	29241	29241	29241
Panel B: Households Worked				
Scheduled Areas × # of PESA elections	0.051***	0.130***	0.022*	-0.033***
	(0.009)	(0.013)	(0.013)	(0.012)
Control Mean (Unlogged)	286.646	135.525	38.437	112.684
# GPs	9697	9697	9697	9697
# Villages	29241	29241	29241	29241
Panel C: Workdays				
Scheduled Areas × # of PESA elections	0.063***	0.171***	0.043**	-0.042**
	(0.014)	(0.019)	(0.020)	(0.018)
Control Mean (Unlogged)	12859.588	6124.012	1631.304	5104.273
# GPs	9697	9697	9697	9697
# Villages	29241	29241	29241	29241

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. Controls include imbalanced indices, state fixed effects, and a geographic control function.

8.3 Targeted Minority Electoral Influence

Prior work suggests that quota effects are largest where the targeted minority group constitutes a large share of the population (Chin and Prakash, 2011; Jensenius, 2015; Pande, 2003). For instance, Jensenius (2015) reports that some SC politicians want to divert funds to SC constituents but do not do so "because they are scared of being branded as 'too SC"' (p.203) by the majority of voters who are non-SC and on whose votes they depend. Alternatively, while it is true that STs retain the most power when they have both a high share of population and electoral reservations, theoretically, the *introduction* of quotas should have the greatest *marginal* impact in places where STs did not possess as much electoral strength initially. To capture the essence that ST population size may affect electoral bargaining power, we create an indicator variable as follows:

$$ST\ Plurality_b = \mathbb{1} \cdot (ST\ pop_b > max(SC\ pop_b, non\ SC/ST\ pop_b))$$

which simply measures whether a block has a plurality of ST residents. Table 8 presents the results with our standard RD specification. There are two findings. First, for each of the three main outcomes of interest, we find that Scheduled Areas have a larger positive effect for ST (and at the extensive margin) in places where ST comprised an electoral minority prior to the implementation of PESA. This difference is significant for ST at the 1% level for all outcomes. The result suggests that the electoral quota may be most effective at improving the lives of groups that see the greatest increase in their electoral strength due to the quota. Second, we also find that the treatment effect is negative in areas that were previously an ST plurality. One explanation consistent with this finding is that in areas where a quota may not be needed, instituting an electoral quota may diminish the competence of elected officials by reducing electoral competition.

Table 8: **Treatment Effects by ST Plurality (10 km RD)**

	Job Cards			Households Worked			Workdays		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	ST Minority	ST Plurality	Diff-in-Diff	ST Minority	ST Plurality	Diff-in-Diff	ST Minority	ST Plurality	Diff-in-Diff
Panel A: Total									
Scheduled Areas	0.009	-0.045**	-0.047*	0.114***	-0.087**	-0.157***	0.149***	-0.139***	-0.213***
	(0.019)	(0.022)	(0.029)	(0.035)	(0.034)	(0.048)	(0.050)	(0.050)	(0.068)
Control Mean (Unlogged)	800.883	832.756	813.140	264.395	331.722	290.285	12056.475	14571.680	13023.705
# GPs	4906	4898	9457	4906	4898	9457	4906	4898	9457
# Villages	14299	14495	28794	14299	14495	28794	14299	14495	28794
Panel B: STs									
Scheduled Areas	0.396***	-0.120***	-0.538***	0.480***	-0.159***	-0.605***	0.622***	-0.232***	-0.810***
	(0.056)	(0.031)	(0.064)	(0.068)	(0.041)	(0.079)	(0.098)	(0.060)	(0.114)
Control Mean (Unlogged)	256.122	471.026	338.764	99.689	197.483	137.296	4570.990	8820.329	6205.087
# GPs	4906	4898	9457	4906	4898	9457	4906	4898	9457
# Villages	14299	14495	28794	14299	14495	28794	14299	14495	28794
Panel C: SCs									
Scheduled Areas	-0.223***	0.048	0.301***	-0.110*	0.113**	0.260***	-0.156	0.236***	0.460***
	(0.058)	(0.051)	(0.077)	(0.059)	(0.054)	(0.080)	(0.098)	(0.083)	(0.128)
Control Mean (Unlogged)	115.023	125.020	118.868	35.489	44.437	38.930	1557.309	1803.753	1652.080
# GPs	4906	4898	9457	4906	4898	9457	4906	4898	9457
# Villages	14299	14495	28794	14299	14495	28794	14299	14495	28794
Panel D: Non-SCs/STs)									
Scheduled Areas	-0.161***	-0.096**	0.083	-0.098*	-0.091*	0.044	-0.103	-0.176**	0.007
	(0.046)	(0.040)	(0.060)	(0.054)	(0.051)	(0.073)	(0.071)	(0.074)	(0.100)
Control Mean (Unlogged)	429.738	236.711	355.509	129.216	89.802	114.059	5928.176	3947.599	5166.539
# GPs	4906	4898	9457	4906	4898	9457	4906	4898	9457
# Villages	14299	14495	28794	14299	14495	28794	14299	14495	28794

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. Controls include imbalanced indices, state fixed effects, and a geographic control function.

8.4 Quota Overlap

A certain proportion of State Assembly seats across India are reserved on a rotating basis every election for minorities including ST and SC. This system creates as-if random assignment of cases where multiple quota politicians are elected from the same area but at different levels of government. On the one hand, multiple quota politicians should reinforce the effect of political quotas by improving potential coordination between politicians who share an identity. On the other hand, there could exist some diminishing returns to quota politician effort because of credit claiming difficulties (Gulzar and Pasquale, 2017) and free riding problems.

In Table 9 we use the geographic RD model and interact instances of Assembly Constituency ST reservations in the latest election before 2013 with the Scheduled Areas treatment indicator to study if overlapping Assembly Constituency reservations moderate effects on program implementation. The results show that Scheduled Areas reservations and Assembly Constituency reservations for ST improve NREGS program implementation tremendously for ST, and that this comes at the cost of implementation for non-SC/ST and weakly for SC. However, when the two quotas overlap, the overall implementation of the program is less favorable for ST, showing that in this case the sum is less than the parts. The results are consistent with quota politicians responding strategically to the presence of another quota politician representing the same area.

9 Conclusion

Scheduled Areas, as well as similar reservations for SC and ST, are a hotly debated and politically divisive topic in India today. For instance, deadly protests broke out against a recent Supreme Court decision that opponents say is designed to weaken the SC and ST Prevention of Atrocities Act of 1989 (AlJazeera, 2018). Perceived efforts to scale back protections coexist concurrently with efforts to expand them, including recent movements to

Table 9: **Additional Quota in Assembly Constituency (10 km RD)**

	(1) Workdays, Total	(2) Workdays, ST	(3) Workdays, SC	(4) Workdays, Non-SC/ST
Panel A: Job Cards				
Scheduled Areas	0.010	0.543***	-0.243***	-0.215***
	(0.019)	(0.055)	(0.057)	(0.041)
AC Reserved, ST	0.177***	1.087***	-0.280***	-0.383***
	(0.019)	(0.046)	(0.048)	(0.037)
Scheduled X AC Reserved, ST	-0.023	-0.520***	0.217***	0.063
	(0.027)	(0.064)	(0.073)	(0.056)
Control Mean (Unlogged)	805.118	335.689	117.467	351.962
# GPs	9697	9697	9697	9697
# Villages	29241	29241	29241	29241
Panel B: Households Worked				
Scheduled Areas	0.242***	0.735***	-0.037	-0.030
	(0.035)	(0.069)	(0.060)	(0.050)
AC Reserved, ST	0.528***	1.318***	-0.037	-0.128***
	(0.031)	(0.052)	(0.050)	(0.046)
Scheduled X AC Reserved, ST	-0.259***	-0.716***	0.074	-0.121*
	(0.046)	(0.080)	(0.077)	(0.067)
Control Mean (Unlogged)	286.646	135.525	38.437	112.684
# GPs	9697	9697	9697	9697
# Villages	29241	29241	29241	29241
Panel C: Workdays				
Scheduled Areas	0.299***	0.928***	-0.055	-0.002
	(0.050)	(0.100)	(0.097)	(0.065)
AC Reserved, ST	0.663***	1.690***	-0.116	-0.067
	(0.046)	(0.073)	(0.078)	(0.063)
Scheduled X AC Reserved, ST	-0.318***	-0.904***	0.184	-0.207**
	(0.066)	(0.116)	(0.122)	(0.092)
Control Mean (Unlogged)	12859.588	6124.012	1631.304	5104.273
# Blocks	543	543	543	543
# Villages	29241	29241	29241	29241

Notes: $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. Controls include imbalanced indices, state fixed effects, and a geographic control function.

extend Scheduled Areas into new jurisdictions (Singh, 2018; ETBureau, 2018). Despite its manifest importance, scale, and high present salience, the Scheduled Areas quota remains understudied in political science and related disciplines. To our knowledge, this paper provides the first systematic evaluation of this electoral quota.

We study the effect of a quota that is present in territories covering half of India's states

on the implementation of the country's flagship rural development program, which is present in villages in which 1 of every 8 of the world's citizens resides. We find that the Scheduled Areas quota improves overall program implementation. Looking closely at the distribution of impacts, we find that the targeted quota minority receives large gains from an improvement in descriptive representation. We find robust evidence of negative spillovers, but contrary to existing work these come from non-minority groups who benefit the most under status quo institutions. We find weaker evidence of negative effects on other minorities that are not protected under the quota. We also find the quota improves work outcomes for women.

Effects appear to be operating through an electoral mechanism. They are strongest where the quota has been in place for a longer period of time, where the quota is theoretically most likely to have the largest marginal impact (that is, in places where the targeted minority group was previously least powerful), and where there is no overlap with other quotas targeting the same minority. Finally, there is also evidence to suggest that electoral quotas matter for general public goods provision, in particular local roads and water facilities.

Is the quota a success? Results indicate that far from being detrimental to overall welfare, quotas work particularly well for the groups toward which they are targeted at less than proportionate costs to other groups in society. The quota also successfully meets its central aims: the targeted minority has exercised increased control over public resources and has benefited from improved government program implementation. The result that there are both winners and losers from quotas are particularly poignant given the intense debate around affirmative action in India today. Various groups, including traditionally dominant castes, frequently – and sometimes violently – demand their own reservations in government jobs and programs (Iyengar, 2015).

Even outside India, these results speak to how benefits of electoral quotas can extend beyond giving representation to minorities that would not have made it 'on merit.' To the contrary, our results here suggest that electoral quotas are bringing in qualified individuals who perform at higher levels than individuals empowered under the status quo. This merits

a reconceptualization of the way we approach affirmative action: prevalent power structures may be preventing, as opposed to enabling, the most qualified individuals in society from rising up in the ranks. Consistently, evidence from Sweden shows that the introduction of gender quotas in political parties facilitated the exit of 'mediocre men' from party ranks (Besley et al., 2017).

The results also suggest that anti-poverty programs and electoral institutions should be considered complementary levers to improve development outcomes for historically disadvantaged groups. In the case of Scheduled Areas, the objectives of electoral quotas are closely aligned with the objectives of NREGS: NREGS by design relies on local panchayat governments for effective implementation and is therefore well set up to exploit improved local descriptive representation. This allows NREGS greater flexibility in giving priority to who is registered for work, as well as the kinds of work that is carried out under NREGS.

References

Adida, Claire L., Lauren D. Davenport and Gwyneth McClendon. 2016. "Ethnic Cueing across MinoritiesA Survey Experiment on Candidate Evaluation in the United States." *Public Opinion Quarterly* 80(4):815–836.

AlJazeera. 2018. "Dalits in India hold protests against 'dilution' of SC/ST Act." *AlJazeera* .
URL: *https://www.aljazeera.com/news/2018/04/dalits-india-hold-protests-dilution-scst-act-180402082213061.html*

Asher, Sam and Paul Novosad. 2017. "Politics and local economic growth: Evidence from India." *American Economic Journal: Applied Economics* 9(1):229–73.

Bardhan, Pranab K, Dilip Mookherjee and Monica Parra Torrado. 2010. "Impact of political reservations in West Bengal local governments on anti-poverty targeting." *Journal of Globalization and development* 1(1).

Beaman, Lori, Esther Duflo, Rohini Pande, Petia Topalova et al. 2010. Political reservation and substantive representation: Evidence from Indian village councils. In *India Policy Forum 2010/11 Volume*. Vol. 7 pp. 159–191.

Bertrand, Marianne, Burgess Robin and Guo Xu. 2018. "Social Proximity and Bureaucrat Performance." *Working Paper* .
URL: *https://pacdev.ucdavis.edu/files/conference-schedule/session/papers/3B/Xu%20Bertrand%20and%20Burgess.pdf*

Bertrand, Marianne, Rema Hanna and Sendhil Mullainathan. 2010. "Affirmative action in education: Evidence from engineering college admissions in India." *Journal of Public Economics* 94(1-2):16–29.

Besley, Timothy, Olle Folke, Torsten Persson and Johanna Rickne. 2017. "Gender quotas and the crisis of the mediocre man: Theory and evidence from Sweden." *American economic review* 107(8):2204–42.

Besley, Timothy, Rohini Pande and Vijayendra Rao. 2005. "Participatory democracy in action: Survey evidence from South India." *Journal of the European Economic Association* 3(2-3):648–657.

Besley, Timothy, Rohini Pande and Vijayendra Rao. 2007. "Political Economy of Panchayats in South India." *Economic and Political Weekly* 42(8):661–666.

Béteille, André. 1974. *Six Essays in Comparative Sociology*. New York: Oxford University Press.

Béteille, André. 1986. "The concept of tribe with special reference to India." *European Journal of Sociology* 27(2):296–318.

Bhavnani, Rikhil R. 2009. "Do electoral quotas work after they are withdrawn? Evidence from a natural experiment in India." *American Political Science Review* 103(1):23–35.

Bhavnani, Rikhil R. and Alexander Lee. 2018. "Does Affirmative Action Worsen Bureaucratic Performance? Evidence from the Indian Administrative Service.".

Broockman, David E. 2013. "Black politicians are more intrinsically motivated to advance blacks interests: A field experiment manipulating political incentives." *American Journal of Political Science* 57(3):521–536.

Cassan, Guilhem and Lore Vandewalle. 2017. "Identities and Public Policies: Unintended Effects of Political Reservations for Women in India." (18-2017).
URL: *https://ideas.repec.org/p/gii/giihei/heidwp18-2017.html*

Chauchard, Simon. 2014. "Can descriptive representation change beliefs about a stigmatized group? Evidence from rural India." *American political Science review* 108(2):403–422.

Chin, Aimee and Nishith Prakash. 2011. "The redistributive effects of political reservation for minorities: Evidence from India." *Journal of Development Economics* 96(2):265–277.

Corbridge, Stuart. 2002. "The Continuing Struggle for India's Jharkhand: Democracy, Decentralisation and the Politics of Names and Numbers." *Commonwealth & Comparative Politics* 40(3):55–71.

Corbridge, Stuart, Sarah Jewitt and Sanjay Kumar. 2004. *Jharkhand: Environment, Development, Ethnicity*. Oxford University Press.

Dasgupta, Aditya and Devesh Kapur. 2017. "The Political Economy of Bureaucratic Effectiveness: Evidence from Local Rural Development Officials in India.".
URL: *https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3057602*

Dell, M. 2010. "The Persistent Effects of Peru's Mining Mita." *Econometrica* 78(6):1863–1903.

Deshpande, Ashwini and Thomas E Weisskopf. 2014. "Does affirmative action reduce productivity? A case study of the Indian railways." *World Development* 64:169–180.

Dhebar, U N. 1962. "Report of the Scheduled Castes and Scheduled Tribes Commission." *Government of India Press* .

Duflo, Esther and Raghabendra Chattopadhyay. 2004. "Women as policy makers: Evidence from a randomized policy experiment in India." *Econometrica* 72(5):1409–1443.

Dunning, Thad. 2010. "Do quotas promote ethnic solidarity? Field and natural experimental evidence from India." *Unpublished manuscript, Yale University* .
URL: *https://pdfs.semanticscholar.org/be8e/9951c39a6d85b7ac9fec77f96af497d035ec.pdf*

Dunning, Thad and Janhavi Nilekani. 2013. "Ethnic Quotas and Political Mobilization: Caste, Parties, and Distribution in Indian Village Councils." *American Political Science Review* 107(1):3556.

Dutta, Puja, Rinku Murgai, Martin Ravallion and Dominque van de Walle. 2014. *Right to Work: Assessing India's Emloyment Guarantee Scheme in Bihar*.

ETBureau. 2018. "Cabinet nod to expansion of Scheduled Areas in Rajasthan." *The Economic Times* .
URL: *https://economictimes.indiatimes.com/news/politics-and-nation/cabinet-nod-to-expansion-of-scheduled-areas-in-rajasthan/articleshow/63918816.cms*

Galanter, Marc. 1984. *Competing Equalities : Law and the Backward Classes in India*. Oxford University Press.

Gay, Claudine. 2006. "Seeing difference: The effect of economic disparity on black attitudes toward Latinos." *American Journal of Political Science* 50(4):982–997.

Gulzar, Saad and Benjamin J Pasquale. 2017. "Politicians, bureaucrats, and development: Evidence from India." *American Political Science Review* 111(1):162–183.

Gupta, Sanjukta Das. 2011*a*. *Adivasis and the Raj: Socio-economic Transition of the Hos, 1820-1932*. Orient BlackSwan.

Gupta, Sanjukta Das. 2011*b*. Rethinking Adivasi Identity: The Chota Nagpur Tenancy Act (1908) and its aftermath among the Hos of Singbhum. In *Adivasis In Colonial India: Survival, Resistance and Negotiation*, ed. Biswamoy Pati. Orient BlackSwan.

Iyengar, Rishi. 2015. "Riots Break Out in India Over a Dominant Caste's Attempt to Gain 'Backward' Status." *Time* .
URL: *http://time.com/4011001/hardik-patel-protest-arrest-gujarat-obc/*

Iyer, Lakshmi and Anandi Mani. 2012. "Travelling Agents: Change and Bureaucratic Turnover in India." *Review of Economics and Statistics* 94(August):723–739.

Jensenius, Francesca R. 2015. "Development from representation? A study of quotas for the scheduled castes in India." *American Economic Journal: Applied Economics* 7(3):196–220.

Jensenius, Francesca R. 2017. *Social justice through inclusion: The consequences of electoral quotas in India*. Oxford University Press.

Johnson Jr, James H and Melvin L Oliver. 1989. "Interethnic minority conflict in urban America: The effects of economic and social dislocations." *Urban Geography* 10(5):449–463.

Kang, Alice J and Aili Mari Tripp. 2018. "Coalitions Matter: Citizenship, Women, and Quota Adoption in Africa." *Perspectives on Politics* 16(1):73–91.

Kaufmann, Karen M. 2003. "Cracks in the rainbow: Group commonality as a basis for Latino and African-American political coalitions." *Political Research Quarterly* 56(2):199–210.

Khosla, Rishabh. 2011. "Caste, Politics and Public Good Distribution in India: Evidence from NREGS in Andhra Pradesh." *Economic and Political Weekly* Vol. 46(Issue No. 12).

Meier, Kenneth J, Paula D McClain, Jerry L Polinard and Robert D Wrinkle. 2004. "Divided or together? Conflict and cooperation between African Americans and Latinos." *Political Research Quarterly* 57(3):399–409.

Munshi, Kaivan and Mark Rosenzweig. 2015. Insiders and Outsiders: Local Ethnic Politics and Public Goods Provision. Working Paper 21720 National Bureau of Economic Research.
URL: *http://www.nber.org/papers/w21720*

Palaniswamy, Nethra and Nandini Krishnan. 2012. "Local Politics, Political Institutions, and Public Resource Allocation." *Economic Development and Cultural Change* 60(3):449–473.

Pande, Rohini. 2003. "Can Mandated Political Representation Increase Policy Influence for Disadvantaged Minorities? Theory and Evidence from India." *American Economic Review* 93(4):1132–1151.

Parthasarathy, Ramya, Vijayendra Rao and Nethra Palaniswamy. 2017. "Deliberative inequality: a text-as-data study of Tamil Nadu's village assemblies." *Working Paper* .
URL: *http://documents.worldbank.org/curated/en/582551498568606865/Deliberative-inequality-a-text-as-data-study-of-Tamil-Nadus-village-assemblies*

Singh, Prerna. 2015. *How Solidarity Works for Welfare: Subnationalism and Social Development in India*. Cambridge University Press.

Singh, S. Harpal. 2018. "Adivasis declare self rule in villages." *The Hindu* .
URL: *https://www.thehindu.com/news/cities/Hyderabad/adivasis-declare-self-rule-in-villages/article24061380.ece*

Sukhtankar, Sandip. 2017. "India's National Rural Employment Guarantee Scheme: What Do We Really Know about the World's Largest Workfare Program?" *Brookings-NCAER India Policy Forum* 13:231–286.

Sundar, Nandini. 2009. Laws Policies and Practices in Jharkhand. In *Legal Grounds: Natural Resources, Identity, and the Law in Jharkhand*, ed. Nandini Sundar. Oxford University Press.

Volden, Craig, Alan E Wiseman and Dana E Wittmer. 2013. "When are women more effective lawmakers than men?" *American Journal of Political Science* 57(2):326–341.

Online Appendix (Not for Publication)

A Density of Distance to Threshold

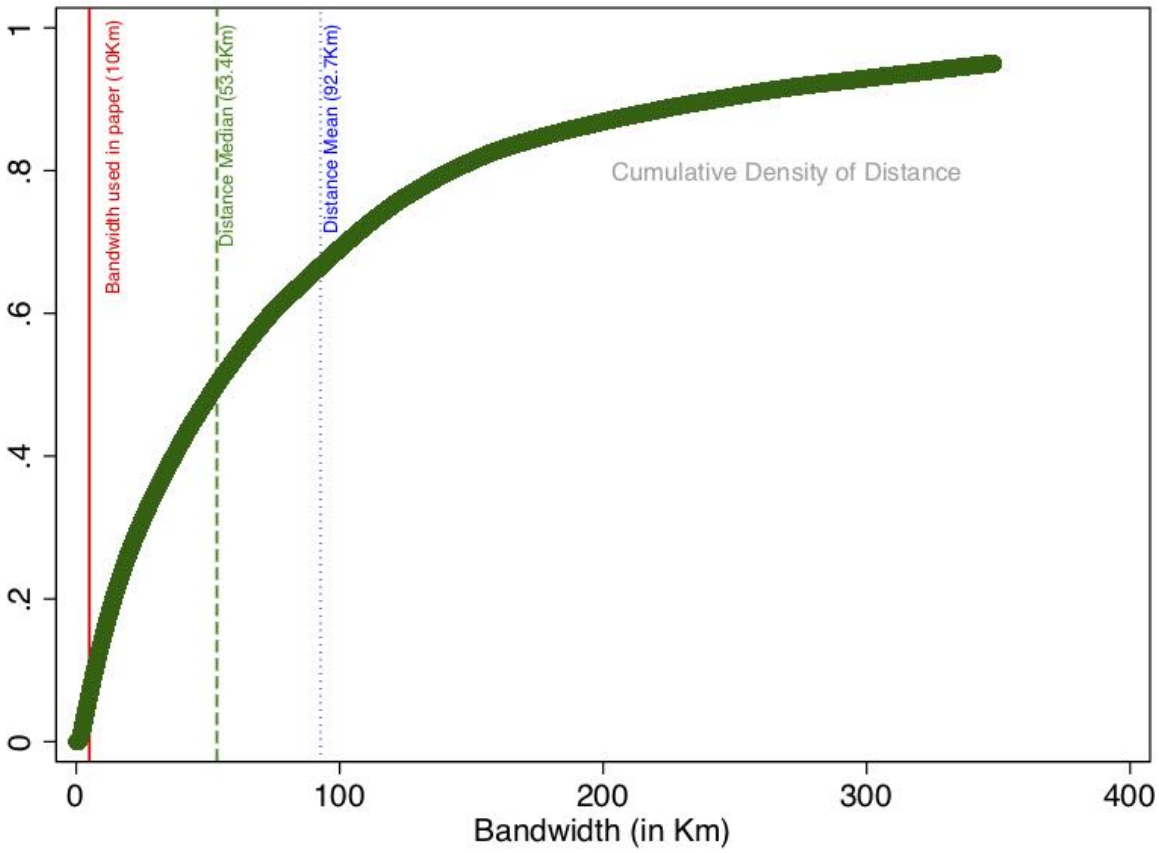

Figure A1: **Cumulative Density of Distance to the Threshold**

Notes: This figure plots the density of observations at different kilometer distances to the geographic regression discontinuity threshold. We include indicators for the bandwidth used in the paper (10 kilometers) and the mean and median distances to the threshold for reference.

B Balance

Table A1: **Balance Table - OLS with State FE**

	Difference	p-value	GPs	Villages
Population Index	-0.015	0.000	77130	232851
Minority Index	0.345	0.000	77130	232851
Vulnerable Pop Index	0.004	0.536	76974	230246
Education Index	-0.009	0.126	77134	232850
Medical Facilities Index	0.015	0.008	77134	232850
Water Index	0.006	0.371	77042	232328
Communications Index	-0.147	0.000	77134	232850
Banking Index	-0.114	0.000	77134	232850
Road Index	-0.029	0.003	58682	194012
Urbanization Index	-0.101	0.000	58682	194012
Irrigation Index	-0.049	0.000	77134	232850
Agricultural Worker Index	0.037	0.000	77130	232851
Marginal Worker Index	0.097	0.000	76974	230199
Non-Agricultural Worker Index	-0.007	0.043	77130	232851

Notes: This table presents balance between treated and untreated units using our OLS specification. Standard errors are clustered at the gram pachayat (GP) level. Controls include state fixed effects. The 'Difference' column presents the treatment effect of Scheduled Areas on each Index in rows.

Table A2: **Balance Table - 10 km RD with State FE**

	Difference	p-value	GPs	Villages
Population Index	-0.005	0.122	12260	33527
Minority Index	0.064	0.000	12260	33527
Vulnerable Pop Index	-0.007	0.535	12196	33065
Education Index	0.003	0.817	12261	33528
Medical Facilities Index	0.004	0.729	12261	33528
Water Index	-0.000	0.987	12245	33476
Communications Index	-0.022	0.043	12261	33528
Banking Index	-0.072	0.000	12261	33528
Road Index	-0.039	0.032	9698	29242
Urbanization Index	-0.023	0.323	9698	29242
Irrigation Index	-0.008	0.001	12261	33528
Agricultural Worker Index	-0.008	0.479	12260	33527
Marginal Worker Index	0.025	0.123	12195	33053
Non-Agricultural Worker Index	0.004	0.237	12260	33527

Notes: This table presents balance between treated and untreated units using our 10 km geographic regression discontinuity specification. Standard errors are clustered at the gram pachayat (GP) level. Controls include state fixed effects and a geographic control function. The 'Difference' column presents the treatment effect of Scheduled Areas on each Index in rows. Appendix Figure A2 probes balance across 2-60 kilometer bandwidths around the border by plotting p-values of the differences for the 14 indices. Figure A3 plots the treatment effect of *Scheduled Areas* on all 14 indices and shows that most differences are very small in magnitude.

Table A3: **Balance Table - Geographic RD Census 2011 Analysis**

	Difference	p-value	GPs	Villages
Population Index	-0.002	0.502	10820	28679
Minority Index	0.080	0.000	10820	28679
Vulnerable Pop Index	-0.013	0.285	10763	28261
Education Index	0.020	0.092	10820	28679
Medical Facilities Index	0.018	0.165	10820	28679
Water Index	0.022	0.195	10805	28633
Communications Index	-0.006	0.598	10820	28679
Banking Index	-0.068	0.000	10820	28679
Road Index	-0.018	0.346	8434	24752
Urbanization Index	-0.017	0.490	8434	24752
Irrigation Index	-0.009	0.001	10820	28679
Agricultural Worker Index	0.007	0.574	10820	28679
Marginal Worker Index	0.044	0.010	10762	28250
Non-Agricultural Worker Index	0.008	0.049	10820	28679

Notes: This table presents balance on 2001 Census variables for 2011 Census villages between treated and untreated units using our 10 km geographic regression discontinuity specification. Standard errors are clustered at the gram pachayat (GP) level. Controls include state fixed effects and a geographic control function. The 'Difference' column presents the treatment effect of Scheduled Areas on each Index in rows.

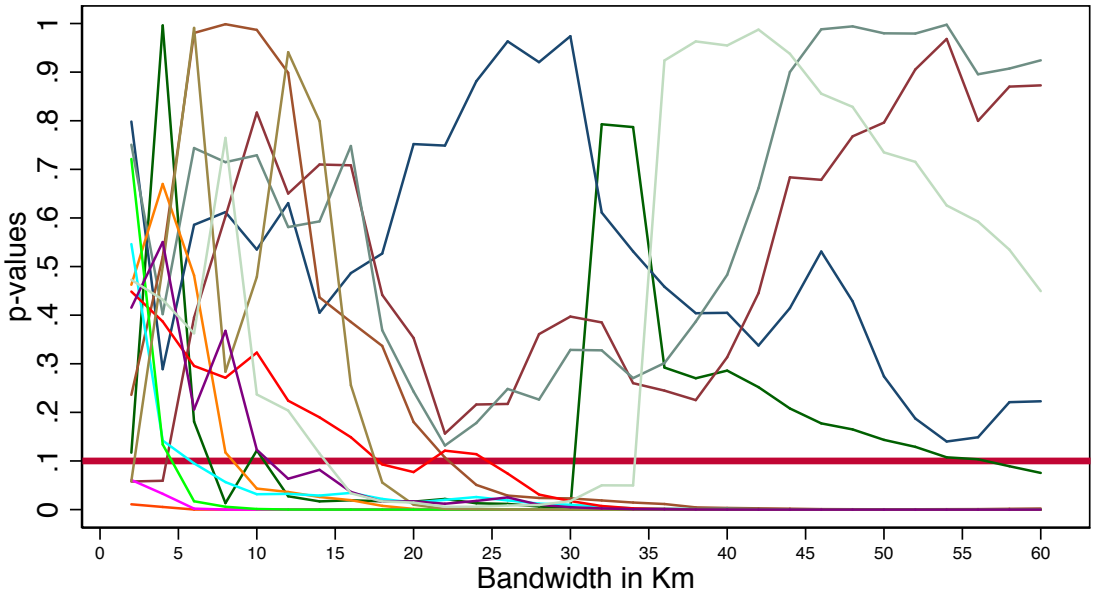

Figure A2: **Geographic RD Balance**

Notes: This figure shows p-values on balance tests across 14 indices and at various bandwidths.

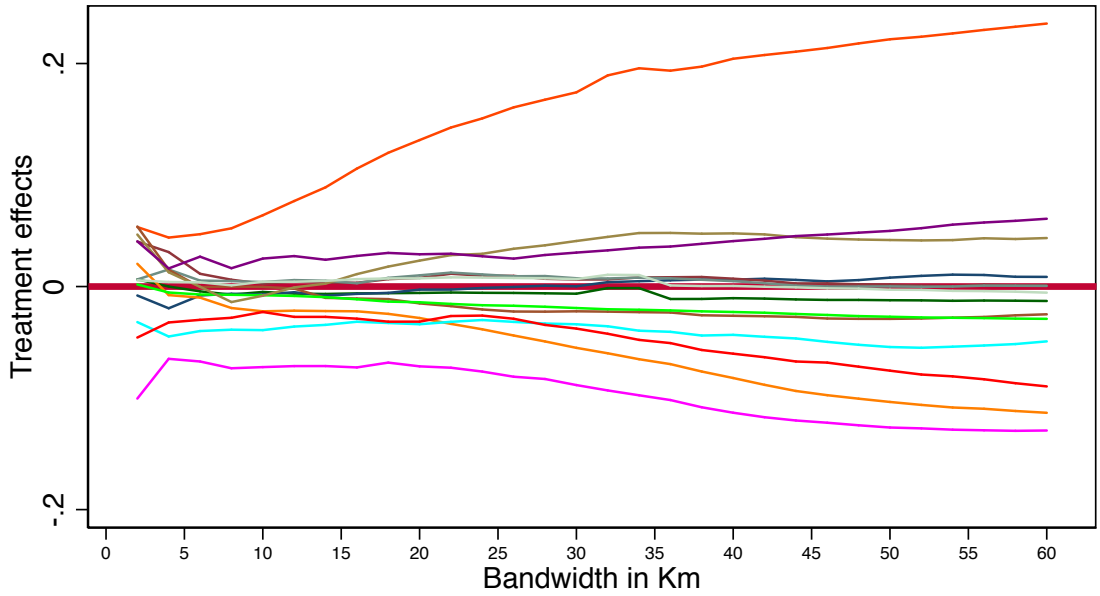

Figure A3: **Geographic RD Balance**

Notes: This figure shows the treatment effect of *Scheduled Areas* on all 14 indices at various bandwidths.

C Sorting Test

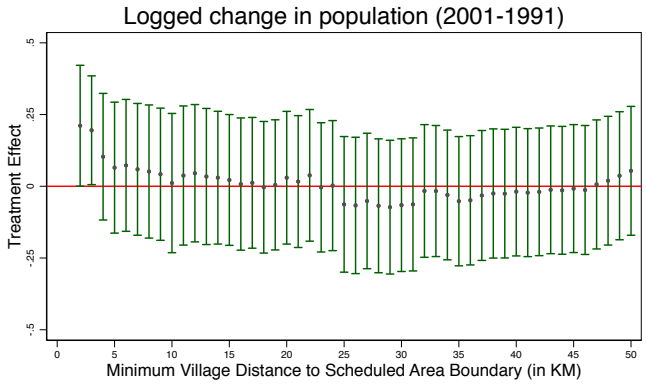

Figure A4: **Scheduled Areas do not predict changes in ST population**

D Background

D.1 NREGS Implementation

For instance, while the states of Andhra Pradesh and Punjab have similar overall levels of development, the 2013 domestic product per capita being US$756 and US$813 respectively, in 2013, the program provided an average 43 days of employment in Andhra Pradesh, and only 22 days in Punjab. Within-state variation is even more pronounced. According to an original dataset from across India described below, the top decile of households work 98 days per year while the bottom decile work 17 days per year (Ministry of Rural Development, 2013; Planning Commission of India, 2014).

D.2 Political Quotas in India

Political quotas restrict the representation or leadership of government bodies. The government body may be a local or national administrative body, an elected local council, a state parliament or a national-level parliament.[9] While quotas most commonly target citizens (e.g. for positions as bureaucrats) or leadership positions (in councils or parliaments), quotas may also target particular geographic areas (e.g. with provisions for local autonomy).

Even prior to Indian Independence, the British government implemented quotas for individuals from particular ethnic identity categories. The Morley-Minto reforms in 1909 established separate electorates for Muslims. In 1919, the Mont-Ford reforms tied this 'quota' inversely to the proportion of Muslims in a given province (Rudolph and Rudolph, 2010, 560-561). Beyond political quotas for the national parliament, state parliaments, local government, Fifth Schedule Areas, several other types of political quotas exist in India. Broadly similar to the Fifth Schedule, the Indian Constitution's Sixth Schedule allows for the creation of Autonomous Councils. These councils for Scheduled Tribe communities, typically at the district or village levels, provide some legislative, administrative and judicial powers in areas now and formerly contained within the state of Assam (Chaudhury, 2005).

Another example of a territorial quota is the delimitation of electoral boundaries. In both the national

[9]While not strictly meeting the definition of a type of government policy, political parties may also implement quotas. See for instance Mala Htun who analyzes why quotas for women are more likely to be utilized in parties but ethnic quotas more likely to be designed for legislatures (Htun, 2004).

(*Lok Sabha*) and state (*Vidhan Sabha*) parliaments, the shape and number of electoral constituencies in a given area are determined by the size of the local population. Electoral redistricting was completed following every decennial census in 1952, 1963, 1973, and after a nearly three-decade delay, again in 2002 (Iyer and Reddy, 2013).[10] Even the linguistic reorganization of states, based on the States Reorganisation Act of 1956, can be considered a quota that generated state boundaries based on the relative linguistic homogeneity of a particular area (Tillin, 2013, Chapter 2).

For ordinary individuals, quotas influence individual's access to state education, government employment, and even rights to land. Reservations set aside places for individuals from the Scheduled Castes, Scheduled Tribes, women, in some states for individuals from Other Backward Classes, and even some religious groups (Corbridge, 2000; Galanter, 1984). Even land rights can be considered a type of quota. In Jharkhand for instance, customary laws such as the Chotanagpur Tenancy Act and the Santhal Parganas Tenancy Act both restrict land sales to individuals who are not associated with Scheduled Tribes (Sundar, 2005; Upadhya, 2009).

D.3 Background on Tribes in India

Early accounts of 'tribal' populations listed these groups as savages: animistic, violent, brutal, barbaric, wild. The *Fifth Report of the House of Commons* in 1812 described the inhabitants of Chotanagpur as a 'savage race, differing extremely in appearance, religion. British officials constructed Chotanagpur's 'tribes' through the lenses of 18th and 19th C. Victorian anthropology of racial types socio-cultural evolution (Damodaran, 2011, 58-59).[11] These administrator's conceptualizations, built not only on travelers' reports and racial

[10]In 1977 delimitation was halted following complaints that delimitation according to population size incentivized certain population control policies. New legislation froze electoral boundaries in 1977 until delimitation was once again completed in 2002 Iyer and Reddy (2013, 5-6).

[11]British officials such as Colonel Tickell and Ricketts in the 1840s-1850s, administrators W.W. Hunter and E. Dalton in late 19th C. and anthropologists S.C. Roy and Elwin Verrier around 1910, had all written of distinct Munda, Ho and Oraon communities. See (Damodaran, 2011; Gupta, 2011*a*,*b*; Galanter, 1984; Guha, 1996; Radhakrishna, 2011) for more on how British officials documented 'tribal' populations.

theory but also their readings of sacred Hindu texts informed these constructions (Radhakrishna, 2011, 45-46).

British observers also made reference to the relative seclusion of Chotanagpur communities with references to the jungle, forest, inhospitable forest, wilderness and so-called 'primitive places.' S.C Roy wrote that Mundas settled in "primeval forests ... unmolested in their isolated mountain fastness ... walled off from the outside walls by chains of wooded hills" (1970: 60-61). As an example, anthropologist Verrier Elwin just after the end of the 19th C. proposed a system of national parks in order to preserve cultures of the Munda, Ho, Oraon and so on (Radhakrishna, 2011, 53).[12] Perceptions of Chotanagpur's 'tribes' roughly shifted from at first a wild savage to a 'noble' savage, and eventually to indigenous groups that needed to be protected from Aryan (then Hindu) invaders. In this way the British colonial government saw itself as "protectors of wild yet innocent tribals against rapacious outsiders" (Gupta, 2011*a*, 97). This shift followed the growth of 19th C. humanitarianism in Europe and the growth of missionaries in Chotanagpur.

D.4 Scheduled Tribes

Both prior to and following Indian Independence, leaders of the country have failed to systematically define what constitutes a 'tribe' (or 'Scheduled Tribe'). Definitions that have been given are vague, imprecise, and unclear – suggesting that lists of 'tribes' or ST were often reflected the political convenience of whomever administered the region. Despite numerous studies by Colonial administrator-anthropologist and close attention paid to the so-called 'tribes' of Chotanagpur, relatively little effort was given to writing rules for distinguishing a tribe or tribal from the rest of the population.[13] British authorities first provided a list of 'Aboriginal Tribes' and 'Semi-Hinduised Aboriginal Tribes' in the Census of 1872 (Corbridge, 2002, 64). Census Commissioner H.H. Risley described a tribe as follows:

> A tribe as I find in India is a collection of families or groups of families bearing a common name

[12]Despite these accounts 19th C. reports of British officials and anthropologists make clear that communities in Singhbhum were not isolated but regularly interacted with groups in northern Jharkhand (Corbridge, Jewitt and Kumar, 2004).

[13]Chotanagpur is a region of Eastern India covering parts of the states of Jharkhand, Chhattisgarh, Odisha and West Bengal – a region with some of the largest tribal populations in India and a region geographically proximate to the Colonial capital of Calcutta (today Kolkata).

> which as a rule does not denote any specific occupation; generally claiming common descent from a mythical or historical ancestor and occasionally from an animal, but in some parts of the country held together by the obligations of blood-feud than by the tradition of kinship; usually speaking the same language and occupying, professing, or claiming to occupy a definite tract of country. A tribe is not necessarily endogamous. (H.H. (1903, 514), as quoted in Pati (2011, 4).

In 1911, The Imperial Gazetteer of India provided a striking similar definition: "A collection of families bearing a common name, speaking a common dialect, occupying or professing to occupy a common territory and is not usually endogamous though originally it might have been so" (Nazer, 2004, 1). These definitions provide tremendous leeway for colonial officers to assign groups however they like. When J.H. Hutton, Indian Census Commissioner in 1931, sought to provide a list of 'tribes' he aimed to utilize the basis of "soul-substance" (Corbridge, Jewitt and Kumar, 2004, 30).

Despite the lack of clear criteria identifying so-called Tribals, special institutions were put in place for their protection with the Scheduled Districts Act of 1874. This territorial designation led to legislation with the aim of protecting tribals rights to their land, for instance through the Chotanagpur Tenancy Act of 1908. Upon Indian Independence from the British, the new constitution continued these policies of special administration in what were to become renamed "Scheduled Areas."[14]

In 1951 the First Report of the Commissioner for Scheduled Castes and Scheduled Tribes admitted that no precise method for identifying Scheduled Tribes had been created to date (Report 1951: 11). The report went on to note four characteristics identify a tribal: "tribal origin, primitive way of life, remote habitation, and general backwardness in all respects" (Report 1951: 109-111). Subsequent Commissions focused on Scheduled Castes and Scheduled Tribes reinforced the idea that little new information, methods of categorization or codification guided what constituted or defined either Scheduled Tribes or Scheduled Areas. Sociologist Andre Beteille has written, "lists of Indian tribes were in fact drawn up, with or without benefit of clear and consistent definitions" (Béteille, 1986, 299), and, "it cannot be too strongly emphasized that the list reflects the demands more of administrative and political circumstance than of academic or logical rigour" (Béteille, 1974, 62).

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[14]Under the Fifth Schedule of the Indian Constitution (1947), Scheduled Areas were created to allow customary practices and autonomy of Scheduled Tribes in these regions. By order of the President, a list of Scheduled Tribes and a list of Scheduled Areas was produced in 1950.

Indian Government officials even admitted the lack of definitions. According to the Dhebar Commission in 1961, "the term tribe is nowhere defined in the Constitution and in fact there is no satisfactory definition anywhere" (1962: 1). The Lokur Committee wrote when revising the list of Scheduled Tribes in 1965: "I have looked for indications of primitive traits, distinctive culture, geographic isolation, shyness of contact with the community at large and backwardness" (Galanter, 1984, 152).[15]

According to the Indian Constitution, Scheduled Areas are to define in those areas with a large fraction of the population belonging to a Scheduled Tribe. But this mapping of Scheduled Tribes to Scheduled Areas is equally unclear. Officially, according to the Fifth Schedule of the Constitution the President has the right to Schedule or De-schedule Areas and does so in consultation with Governors of Indian states. The Dhebar Commission of 1962 proposed a Scheduled Area be identified according to the following four, relatively vague, criteria.[16]

1. Preponderance of tribals in the population
2. Compact and reasonable size
3. Under-developed nature of the area
4. Marked disparity in economic standards of the people

D.5 Case Study: The State of Jharkhand

D.5.1 Who is an ST?

After Independence the Government of Bihar made a clear break from historical laws giving uniform but distinct rights to the whole of Jharkhand. By means of the Scheduled Areas Order 1950 and the Scheduled

[15]Galanter notes this rough definition was reused in 1976: "this language is utilized almost verbatim by the Home Minister more than 10 years later in the debate about revision of the list" (1984: 152, fn. 143).

[16]In the mid-1970s the Twenty-Fourth Report of the Commissioner for Scheduled Castes and Scheduled Tribes proposed a clearer rule that areas with more than fifty-percent Scheduled Tribe population should be Scheduled Areas (Commissioner for Scheduled Castes and Scheduled Tribes, N.d., 117). But as we will show below, no such 50% threshold exists in terms of defining Scheduled Areas.

Tribes Order 1951, the Government of Bihar effectively halved the amount of territory defined as Scheduled Areas and substantially shrunk the number of groups classified as ST. While the British Census of Chotanagpur in 1872 listed 31 aboriginal and 31 semi-aboriginal groups, the Scheduled Tribes Order of 1951 listed 30 such ST communities. According to Corbridge, according to the Census of 1951, "just 31.15% of the population of Chota Nagpur, and 44.67% of that of Santal Parganas was made up of Scheduled Tribals. Had the Census takers adopted the definitions used by the British in 1872, the percentage figures would have been 45.79% and 55.21% respectively" (Corbridge, Jewitt and Kumar, 2004, 64).[17]

D.5.2 Which Areas are Scheduled?

In practice, in Jharkhand today, most Scheduled Areas are assigned at the unit of district but some blocks are assigned as Scheduled Areas within Nonscheduled districts and some village-clusters are Scheduled within Nonscheduled blocks. With reference to earlier suggested criteria for which regions should be Scheduled: Jharkhand does not follow the fifty-percent rule as a criterion for Scheduling Areas. With no modifications in scheduling at the district-level, the Scheduled Areas assigned for Jharkhand (then Bihar) in 1950 have remained almost completely unchanged to present.[18] The Scheduled Areas of Jharkhand were re-affirmed after being assigned in 1950 in the Bihar Scheduled Areas Regulation of 1969 and again in 1977 and 2007.

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[17]It is not exactly clear why certain groups were re-classified or if there was a clear methodology taken. Corbridge argues that some because some " 'aboriginals' had gained employment in the mining or industrial sectors was taken as evidence of their 'detribalisation'" (Corbridge, Jewitt and Kumar, 2004, 64). Possibly the Government of Bihar thought descheduling some communities and areas would diminish the possibility that the mineral-rich region of Jharkhand would gain independent statehood.

[18]The only exceptions are the Scheduling of Bhandaria block of Garhwa district in 1977 and the Scheduling of two village-clusters, both within Satbarwa block in 2007.

E Data Construction

E.1 Creating an all-India dataset with NREGS, census, and election data sources

Because we hope this dataset and our procedures will be of use to other researchers we describe this process in detail:

1. Download and combine village-cluster unit state datasets on NREGS from the MGNREGA Public Data Portal.[19]
2. Extract and combine Census shape files using ArcGIS, to form a spatially referenced (longitudes and latitudes) dataset of all villages in the 2001 Indian Census ($N \approx 680,000$).[20]
3. Build a village/village-cluster directory by downloading and combining individual block-level directory files from from the Ministry of Drinking Water and Sanitation.[21]
4. Homogenize district and state names from the Census and NREGS datasets to the Water Ministry directory using a listing of all changes in district names and alternate spellings.[22] This allows matching of Census and NREGS datasets more efficiently by guaranteeing a match at the district and state levels.
5. Fuzzy match census village names to the directory, and then NREGS village-cluster names to the directory. The directory provides a common reference for the two datasets.[23]

[19]The MGNREGA Public Data Portal may be access at: `mnregaweb4.nic.in/netnrega/dynamic2/dynamicreport_new4.aspx`.

[20]We obtained Census data from New York University and Stanford University libraries, which licensed the data from InfoMap India (`https://www.mlinfomap.com/`).

[21]We access the data from `http://indiawater.gov.in/imisreports/nrdwpmain.aspx` at the National Rural Drinking Water Programme, Ministry of Drinking Water and Sanitation (Ministry of Drinking Water and Sanitation, 2014).

[22]For this, we rely on a compilation of all name changes between 2001 and 2011 available from (Statoids, N.d.), at `http://www.statoids.com/yin.html`.

[23]We used Stata's `reclink` command to carry out the fuzzy match. Other commands

6. Add assembly constituency-candidate level electoral records to the village dataset by locating each village within an assembly constituency using the village's latitude and longitude.[24]

The resulting dataset, combining NREGS, census, and election data sources, successfully matches approximately 465,000 of India's 628,000 villages (74 %). Additionally at the block level we successfully match 93% (5,458 of 5,845 blocks).

Table A4: Balance Table: Fuzzy Matched Blocks Across India

Variable	Difference	p-value	# Unmatched	# Matched
Population Index	-0.316	0.025	386	5457
Minority Index	-0.252	0.006	387	5458
Vulnerable Pop Index	0.520	0.000	372	5456
Agricultural Worker Index	0.513	0.000	387	5458
Marginal Worker Index	0.279	0.000	381	5436
Non-Agricultural Worker Index	-0.396	0.004	387	5458

Notes: This table presents balance between blocks we are able to match in our dataset with those that remain unmatched. Balance variables are indices made from census covariates at the block level. The 'Difference' column represents the treatment effect of Matched on each Index in rows. This table uses census data available at the block level, which contains fewer variables compared to the village level data. As a result, fewer indices are generated.

E.2 Identifying Scheduled Areas

Data on Scheduled Areas status was obtained from the government of India's Ministry of Tribal Affairs. The websites from which we obtained data in 2014 for eight of the nine states in our sample have since been retired, though they can be accessed today using Internet archive website The Wayback Machine. Below, we provide original links, as well as links that can still be used today to access the sites, for each of the eight states.

commonly used to fuzzy match string variables such as `soundex` are not useful in the Indian context because they rely on phonetic merging.

[24]Election data was downloaded from Election Commission of India (2014), at `http://eci.nic.in/eci_main1/ElectionStatistics.aspx`. We used the Spatial Join command in ArcGIS to carry out this procedure.

Andhra Pradesh

- Original link: http://tribal.nic.in/Content/ScheduledAreasinAndhraPradeshSSAreas.aspx
- Archive link: https://web.archive.org/web/20140818090711/http://tribal.nic.in:80/Content/ScheduledAreasinAndhraPradeshSSAreas.aspx

Gujarat

- Original link: http://tribal.nic.in/Content/ScheduledAreasinGujarat.aspx
- Archive link: https://web.archive.org/web/20140818090722/http://tribal.nic.in:80/Content/ScheduledAreasinGujarat.aspx

Jharkhand

- Original link: http://tribal.nic.in/Content/ScheduledAreasinBiharSSAreas.aspx
- Archive link: https://web.archive.org/web/20140818090717/http://tribal.nic.in:80/Content/ScheduledAreasinBiharSSAreas.aspx

Himachal Pradesh

- Original link: http://tribal.nic.in/Content/ScheduledAreasinHimachalPradeshSSAreas.aspx
- Archive link: https://web.archive.org/web/20140818090727/http://tribal.nic.in:80/Content/ScheduledAreasinHimachalPradeshSSAreas.aspx

Maharashtra

- Original link: http://tribal.nic.in/Content/ScheduledAreasinMaharashtraSSAreas.aspx
- Archive link: https://web.archive.org/web/20140818090843/http://tribal.nic.in:80/Content/ScheduledAreasinMaharashtraSSAreas.aspx

Madhya Pradesh

- Original link: http://tribal.nic.in/Content/ScheduledAreasinMadhyaPradeshSSAreas.aspx
- Archive link: https://web.archive.org/web/20140818090732/http://tribal.nic.in:80/Content/ScheduledAreasinMadhyaPradeshSSAreas.aspx

Odisha

- Original link: http://tribal.nic.in/Content/ScheduledAreasinOrissaSSAreas.aspx
- Archive link: https://web.archive.org/web/20140818090738/http://tribal.nic.in:80/Content/ScheduledAreasinOrissaSSAreas.aspx

Rajasthan

- Original link: http://tribal.nic.in/Content/ScheduledAreasinRajasthanSSAreas.aspx
- Archive link: https://web.archive.org/web/20140904021414/http://tribal.nic.in/Content/ScheduledAreasinRajasthanSSAreas.aspx

Information on Scheduled Areas in all states, including the ninth in our sample, Chhattisgarh, may also be found in Annexure-II of "Statistical Profile of Scheduled Tribes in India (2013)," released by the Ministry of Tribal Affairs Statistical Division and accessible here: https://tribal.nic.in/ST/StatisticalProfileofSTs2013.pdf.

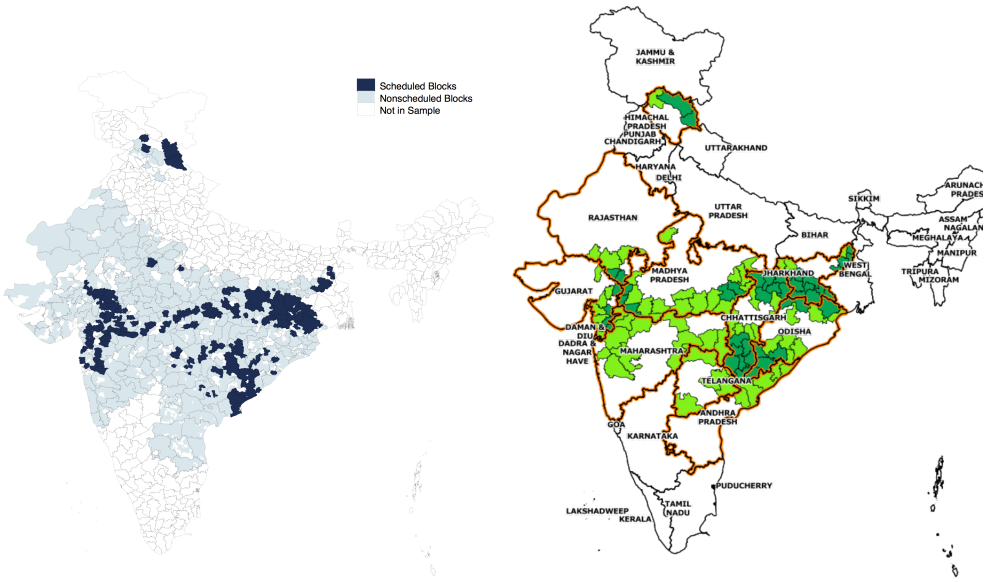
E.2.1 Verifying our Identification of Scheduled Areas and our spatial (longitudes and latitudes) data

.

To verify that we correctly identified Scheduled Areas, and more generally that our spatial (longitudes and latitudes) data are accurate, we can compare our map of Scheduled Areas that we generated using our data (Figure 2) to an official government map.[25] In Figure A5, we reproduce our map and compare it to the government map. We can see that our map closely matches the government map, but that ours provides more fine-grained information, bolstering our confidence in our data collection methods.

[25]This map can be accessed at http://pesadarpan.gov.in/en_US/fifth-schedule-areas/-/asset_publisher

Figure A5: Validating Spatial Data and Scheduled Area Identification



(a) Our Map
(Coding at Block Level)

(b) Government Map
(Coding at District Level)

F Summary Statistics

Table A5: Summary statistics for NREGS, 2001 Census

Variable	Mean	Std. Dev.	Min.	Max.	N
Scheduled Areas	0.18	0.39	0	1	232856
AC Reserved, ST	0.25	0.43	0	1	232856
ST Plurality	0.21	0.4	0	1	229060
Population Index	0	1	-0.18	427.94	232851
Minority Index	0	1	-0.4	277.18	232851
Vulnerable Pop Index	0	1	-98.32	2.8	230246
Water Index	0	1	-28.3	16.9	232328
Handpump (Y/N)	0.93	0.25	0	1	207116
Tap Water Treated (Y/N)	0.64	0.48	0	1	99764
Tank, Pond, Lake (Y/N)	0.02	0.15	0	1	64289
Communications Index	0	1	-1.37	7.92	232850
Banking Index	0	1	-0.28	48.83	232850
Road Index	0	1	-2.99	20.6	194012
All weather road (Y/N)	0.65	0.48	0	1	194012
Urbanization Index	0	1	-1.91	37.22	194012
Irrigation Index	0	1	-0.21	466.23	232850
Tubewell/Borehole (Y/N)	0.2	0.4	0	1	193877
River/Canal (Y/N)	1	0	1	1	193865
Electricity for Agriculture Use (Y/N)	0.16	0.37	0	1	194012
Electricity for Domestic Use (Y/N)	0.33	0.47	0	1	194012
Communications Index	0	1	-1.37	7.92	232850
Post Office (Y/N)	0.24	0.43	0	1	194012
Post and Telegraph Office (Y/N)	0.01	0.11	0	1	194012
Telephone (Y/N)	0.34	0.47	0	1	232850
Education Index	0	1	-0.92	31.22	232850
Medical Facilities Index	0	1	-0.35	70.46	232850
Population Perc ST in Block	0.22	0.25	0	0.97	229060
Population Perc SC in Block	0.13	0.09	0	0.63	229060
Population Perc Other in Block	0.65	0.23	0.02	1	229060
Logged (Workdays + 1)	7.9	2.68	0	12.46	232856
Logged (Workdays ST + 1)	4.98	3.65	0	12.1	232856
Logged (Workdays SC + 1)	5.16	3.13	0	11.16	232856
Logged (Workdays Others + 1)	6.96	2.74	0	11.93	232856
Workdays	10298.66	13677.17	0	257228.91	232856
Workdays - ST	3488.39	8021.14	0	180538.94	232856
Workdays - SC	1684.06	3147.12	0	70181.98	232856
Workdays - Others	5126.21	8401.73	0	151993.94	232856
Village Longitude	79.33	4.57	68.52	87.91	232856
Village Latitude	22.25	3.34	12.64	33.17	232856
Bandwidth (in Kilometers)	92.75	108.37	0.22	592.25	232856
Total Workers	5.64	1.28	0	13.67	232851
Total Workers - Men	5.11	1.24	0	13.43	232851
Total Workers - Women	4.64	1.46	0	12.14	232851
Main Workers	5.21	1.42	0	13.61	232851
Main Workers - Men	4.87	1.34	0	13.38	232851
Main Workers - Women	3.63	1.8	0	12.02	232851
Marginal Workers	3.92	1.74	0	10.89	232851
Marginal Workers - Men	2.78	1.58	0	10.4	232851
Marginal Workers - Women	3.47	1.77	0	9.95	232851
Other Workers	3.09	1.69	0	13.56	232851
Other Workers - Men	2.91	1.67	0	13.35	232851
Other Workers - Women	1.53	1.36	0	11.92	232851

Notes: Summary statistics for 2011 Census data and 2013 NREGS data.

Table A6: Summary statistics for 2011 Census

Variable	Mean	Std. Dev.	Min.	Max.	N
Scheduled Areas	0.18	0.39	0	1	246239
Population Index	0	1	-0.13	248.69	246239
Minority Index	0	1	-0.26	222.61	246239
Vulnerable Pop Index	0	1	-74.68	3.44	232011
Water Index	0	1	-2.92	2.33	23434
Handpump (Y/N)	0.93	0.25	0	1	23434
Tap Water Treated (Y/N)	0.37	0.48	0	1	23434
Tank, Pond, Lake (Y/N)	0.54	0.5	0	1	23434
Covered Well (Y/N)	0.18	0.38	0	1	23434
Uncovered Well (Y/N)	0.76	0.43	0	1	23434
Communications Index	0	1	-1.67	1.47	23409
Banking Index	0	1	-0.69	3.98	23423
Road Index	0	1	-2.35	2.13	23409
All weather road (Y/N)	0.85	0.36	0	1	23408
National Highway (Y/N)	0.09	0.29	0	1	23408
State Highway (Y/N)	0.22	0.41	0	1	23408
Major District Road (Y/N)	0.4	0.49	0	1	23408
Other District Road (Y/N)	0.66	0.47	0	1	23408
Gravel Road (Y/N)	0.93	0.26	0	1	23409
Urbanization Index	0	1	-2.29	0.68	20955
Irrigation Index	0	1	-1.21	1.6	23434
Tubewell/Borehole (Y/N)	0.5	0.5	0	1	23434
River/Canal (Y/N)	0.36	0.48	0	1	23434
Electricity Index	0	1	-2.12	0.71	20955
Electricity for Agriculture Use (Y/N)	0.72	0.45	0	1	20955
Electricity for Domestic Use (Y/N)	0.89	0.31	0	1	20955
Electricity for Commercial Use (Y/N)	0.63	0.48	0	1	20955
Communications Index	0	1	-1.67	1.47	23409
Post Office (Y/N)	0.4	0.49	0	1	23409
Post and Telegraph Office (Y/N)	0.24	0.43	0	1	23091
Telephone (Y/N)	0.64	0.48	0	1	23408
Mobile coverage (Y/N)	0.84	0.37	0	1	23408
Village Longitude	79.55	4.62	68.52	87.91	246239
Village Latitude	22.31	3.38	12.64	33.16	246239
Bandwidth (in Kilometers)	99.3	119.91	0.12	687.56	246239
Total Workers	5.5	1.79	0	13.8	246239
Total Workers - Men	5.01	1.7	0	13.62	246239
Total Workers - Women	4.53	1.76	0	11.99	246239
Main Workers	4.93	1.95	0	13.73	246239
Main Workers - Men	4.60	1.85	0	13.57	246239
Main Workers - Women	3.57	1.96	0	11.82	246239
Marginal Workers	3.87	1.97	0	11.1	246239
Marginal Workers - Men	3.01	1.78	0	10.6	246239
Marginal Workers - Women	3.32	1.92	0	10.17	246239
Other Workers	3.06	1.83	0	13.65	246239
Other Workers - Men	2.82	1.82	0	13.5	246239
Other Workers - Women	1.82	1.41	0	11.69	246239

Notes: Only includes 2011 Census data for blocks that we successfully matched to 2001 Census data. Water, communications, road, irrigation, and electricity indices constructed using different variables for 2011 and 2001 censuses. See Section J for more information.

G Robustness of Main Effects

G.1 Non-Logged Outcomes

Table A7: **The Effect of Scheduled Areas on NREGS (OLS)**

	(1) Total	(2) STs	(3) SCs	(4) Non-SCs/STs
Panel A: Jobcards				
Scheduled Areas	122.197***	292.859***	-43.769***	-126.894***
	(6.270)	(7.332)	(2.245)	(5.910)
Control Mean (Unlogged)	738.978	143.262	136.972	458.744
# GPs	58558	58558	58558	58558
# Villages	191628	191628	191628	191628
Panel B: Households Worked				
Scheduled Areas	108.022***	140.362***	-8.407***	-23.932***
	(3.701)	(3.577)	(0.935)	(2.197)
Control Mean (Unlogged)	237.369	53.339	46.361	137.668
# GPs	58558	58558	58558	58558
# Villages	191628	191628	191628	191628
Panel C: Workdays				
Scheduled Areas	6279.531***	7333.492***	-276.495***	-777.466***
	(257.109)	(220.092)	(48.743)	(118.800)
Control Mean (Unlogged)	10750.981	2399.476	2104.660	6246.844
# GPs	58558	58558	58558	58558
# Villages	191628	191628	191628	191628

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. We control for all imbalanced indices and include state fixed effects.

Table A8: **The Effect of Scheduled Areas on NREGS (10 km RD)**

	(1) Total	(2) STs	(3) SCs	(4) Non-SCs/STs
Panel A: Jobcards				
Scheduled Areas	6.043	72.736***	-10.529***	-56.165***
	(10.949)	(8.921)	(3.686)	(8.336)
Control Mean (Unlogged)	805.118	335.689	117.467	351.962
# GPs	9697	9697	9697	9697
# Villages	29241	29241	29241	29241
Panel B: Households Worked				
Scheduled Areas	31.373***	42.520***	0.120	-11.267***
	(6.467)	(4.887)	(1.595)	(3.325)
Control Mean (Unlogged)	286.646	135.525	38.437	112.684
# GPs	9697	9697	9697	9697
# Villages	29241	29241	29241	29241
Panel C: Workdays				
Scheduled Areas	2043.428***	2508.455***	42.667	-507.694***
	(407.113)	(296.267)	(78.461)	(173.260)
Control Mean (Unlogged)	12859.588	6124.012	1631.304	5104.273
# GPs	9697	9697	9697	9697
# Villages	29241	29241	29241	29241

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. We control for all imbalanced indices and we include state fixed effects, as well as boundary fixed effects and a flexible function in village centroid longitudes (x) and latitudes (y) of the form: $x + y + x^2 + y^2 + xy + x^3 + y^3 + x^2y + xy^2$.

Table A9: **The Effect of Scheduled Areas on NREGS by Gender**

	(1) Total	(2) Women	(3) Men
Panel A: OLS			
Scheduled Areas	6279.531***	3155.581***	3123.950***
	(257.109)	(132.308)	(144.392)
Control Mean (Unlogged)	10750.981	5409.097	5341.884
# GPs	58558	58558	58558
# Villages	191628	191628	191628
Panel B: RD			
Scheduled Areas	2043.428***	1316.912***	726.516***
	(407.113)	(194.601)	(245.992)
Control Mean (Unlogged)	12859.588	5220.508	7639.081
# GPs	9697	9697	9697
# Villages	29241	29241	29241

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. We control for all imbalanced indices and include state fixed effects. For RD specification (Panel B), we include boundary fixed effects and a flexible function in village centroid longitudes (x) and latitudes (y) of the form: $x + y + x^2 + y^2 + xy + x^3 + y^3 + x^2y + xy^2$.

G.2 Optimal Bandwidths by Outcome

Table A10: **Optimal Bandwidths by Outcome**

	Bandwidth	GPs
Jobcards	21.3	77134
Jobcards, ST	18.3	77134
Jobcards, SC	22.8	77134
Jobcards, non-SC/ST	25.1	77134
Worked HH	9.9	77134
Worked HH, ST	13.2	77134
Worked HH, SC	13.5	77134
Worked HH, non-SC/ST	13.8	77134
Workdays	10.7	77134
Workdays, ST	13.6	77134
Workdays, SC	13.7	77134
Workdays, non-SC/ST	14.4	77134
Workdays, Women	10.9	77134
Workdays, Men	10.9	77134
Jobcards (non-logged)	20.2	77134
Jobcards, ST (non-logged)	18.9	77134
Jobcards, SC (non-logged)	19.3	77134
Jobcards, non-SC/ST (non-logged)	19.2	77134
Worked HH (non-logged)	12.2	77134
Worked HH, ST (non-logged)	18.6	77134
Worked HH, SC (non-logged)	14.2	77134
Worked HH, non-SC/ST (non-logged)	14.6	77134
Workdays (non-logged)	17.8	77134
Workdays, ST (non-logged)	19.2	77134
Workdays, SC (non-logged)	16.0	77134
Workdays, non-SC/ST (non-logged)	19.5	77134
Workdays, Women (non-logged)	18.8	77134
Workdays, Men (non-logged)	15.5	77134

Notes: This table presents optimal bandwidths by outcome variable. We include a geographic control function. Optimal bandwidths are calculated using the Stata package rdrobust (Calonico and Titiunik, 2017). The reported bandwidth is the "MSE-optimal point estimation using a common bandwidth on both sides of the cutoff" (Calonico and Titiunik (2017), p. 400). The estimation uses regularization methods, following Imbens and Kalyanaraman (2012).

G.3 Gender Results: RD Bandwidths

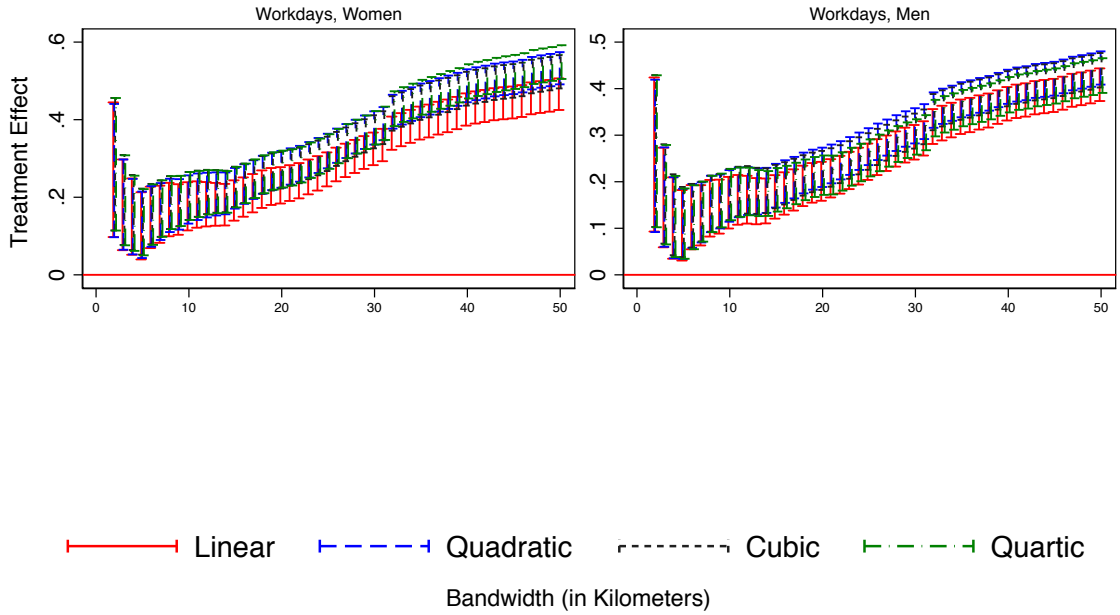


Figure A6: **RD Results by Bandwidth**

Notes: We plot the effect of Scheduled Areas on workdays for women and men at different kilometer bandwidths and with 90% confidence intervals.

H Robustness for Electoral Mechanism

Table A11: **The Effect of Scheduled Areas on NREGS by Number of Years Since First PESA Election (10 km RD)**

	(1) Total	(2) STs	(3) SCs	(4) Non-SCs/STs
Panel A: Jobcards				
Scheduled Areas × # Years Since First PESA Election	0.002	0.033***	-0.012***	-0.024***
	(0.002)	(0.004)	(0.004)	(0.004)
Control Mean (Unlogged)	805.118	335.689	117.467	351.962
# GPs	9697	9697	9697	9697
# Villages	29241	29241	29241	29241
Panel B: Households Worked				
Scheduled Areas × # Years Since First PESA Election	0.020***	0.046***	0.009**	-0.009*
	(0.003)	(0.005)	(0.005)	(0.005)
Control Mean (Unlogged)	286.646	135.525	38.437	112.684
# GPs	9697	9697	9697	9697
# Villages	29241	29241	29241	29241
Panel C: Workdays				
Scheduled Areas × # Years Since First PESA Election	0.026***	0.061***	0.019**	-0.009
	(0.005)	(0.007)	(0.007)	(0.007)
Control Mean (Unlogged)	12859.588	6124.012	1631.304	5104.273
# GPs	9697	9697	9697	9697
# Villages	29241	29241	29241	29241

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. Controls include imbalanced indices, state fixed effects, and a geographic control function.

H.1 Robustness of Effects: Census 2011

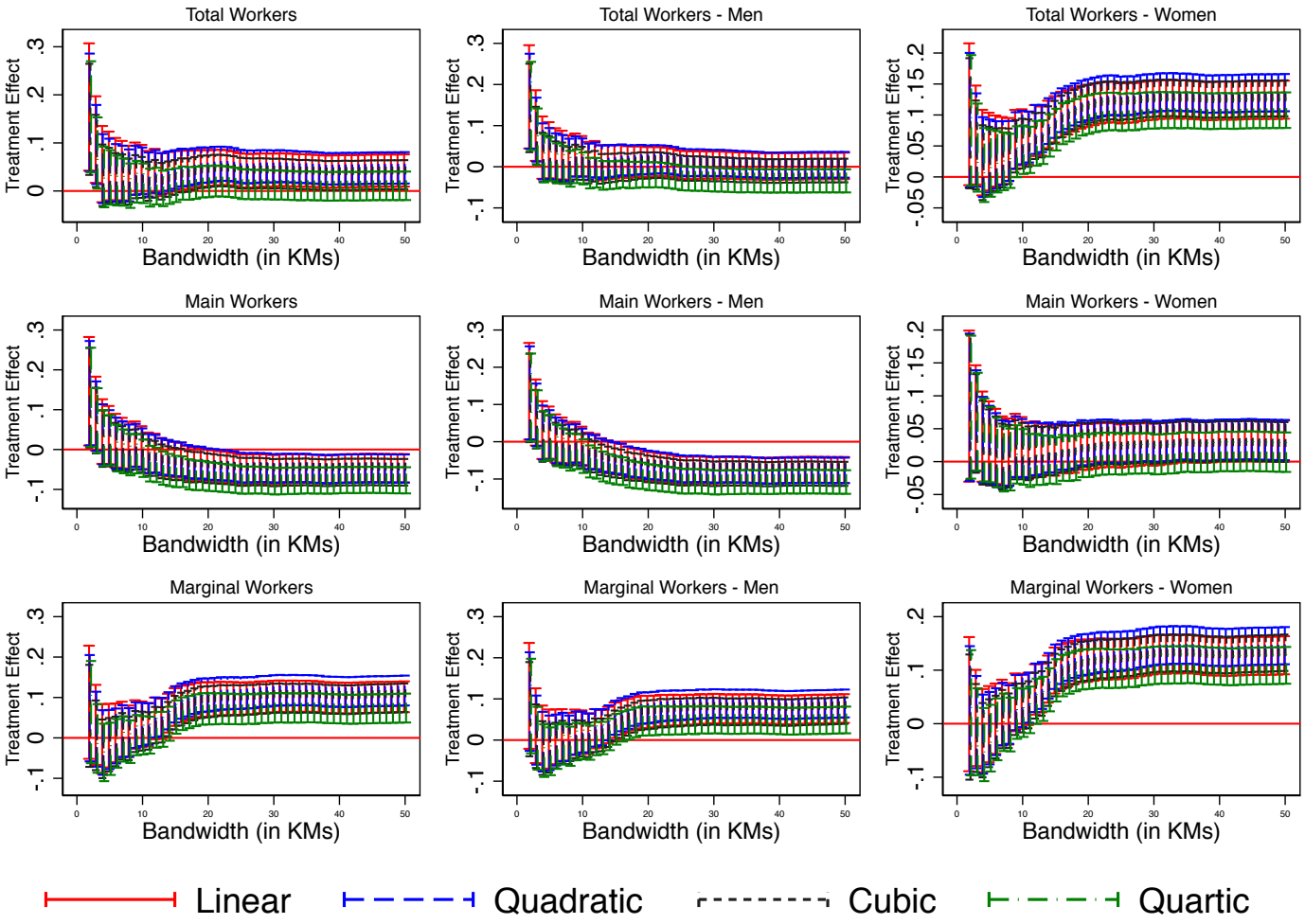


Figure A7: **The Effect of Scheduled Areas on Employment (Census 2011).** This figure plots results from a Geographic RD model with various control functions in latitudes and longitudes, as well as bandwidth. Standard errors are clustered at the gram pachayat (GP) level. We control for all imbalanced indices and include state fixed effects. Main workers are those employed more than 183 years in the previous year, while Marginal Workers are those employed less than 183 days.

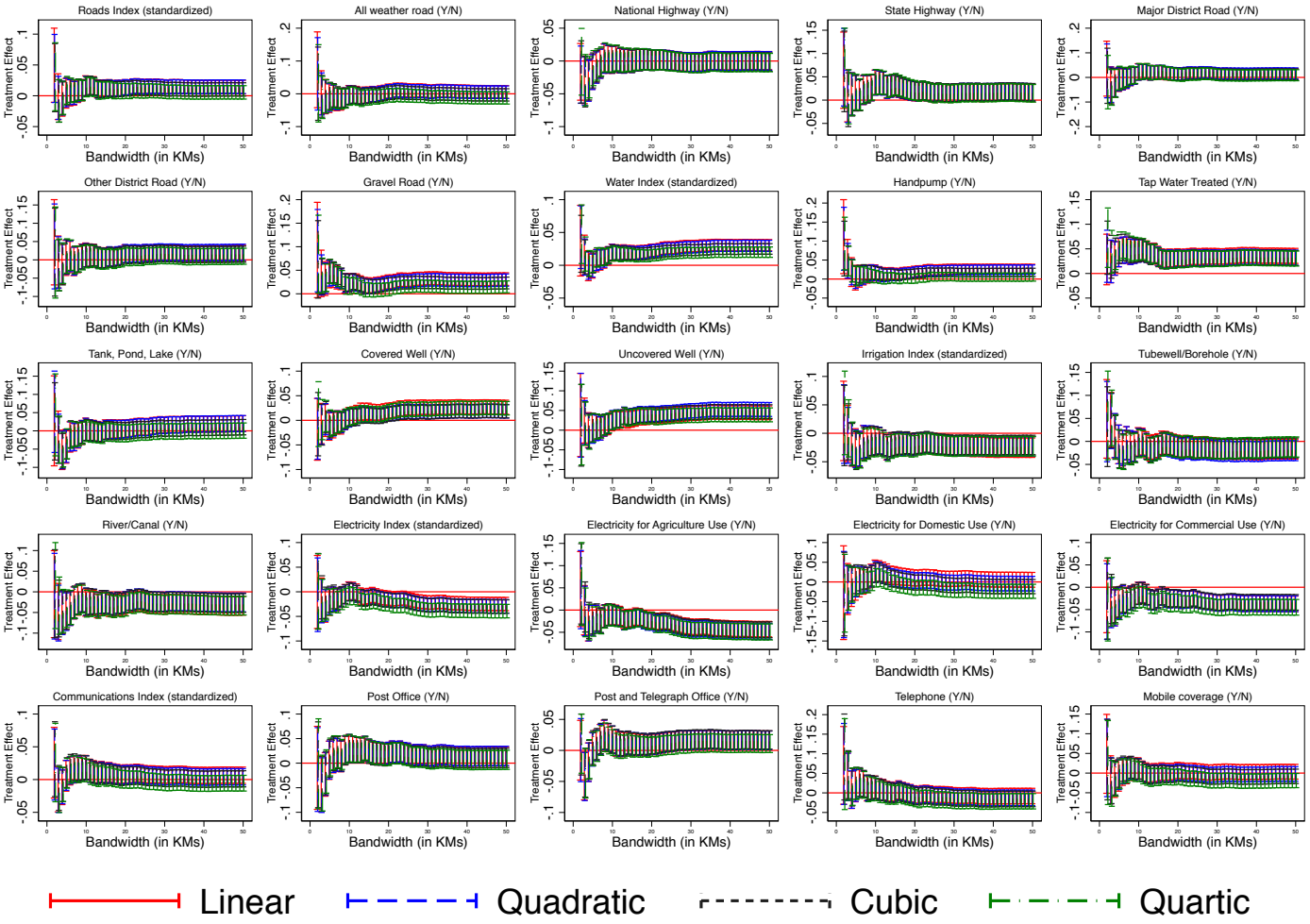


Figure A8: **The Effect of Scheduled Areas on Public Goods (Census 2011).** This figure plots results from a Geographic RD model with a cubic control function in latitudes and longitudes, and a 10 km bandwidth as discussed in the text. Standard errors are clustered at the gram pachayat (GP) level. We control for all imbalanced indices and include state fixed effects.

H.2 Effects on Public Goods: 2011 Census

Table A12: **Effects on Roads (Census 2011)**

	(1) Roads Index	(2) All Weather	(3) National Highway	(4) State Highway	(5) Major District	(6) Other District	(7) Gravel
Scheduled Areas	0.016*	-0.004	0.002	0.038**	0.023	0.012	0.024**
	(0.009)	(0.017)	(0.012)	(0.016)	(0.020)	(0.019)	(0.011)
Control Mean	0.494	0.799	0.096	0.174	0.380	0.605	0.909
# GPs	2369	2369	2369	2369	2369	2369	2369
# Villages	3110	3110	3110	3110	3110	3110	3110

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. We control for all imbalanced indices and include state fixed effects. This table uses a geographic RD model with a cubic control function in latitudes and longitudes, and a 10 km bandwidth as discussed in the text. The index in the first column is a standardized mean of the other variables.

Table A13: **Effects on Water (Census 2011)**

	(1) Water Index	(2) Hand Pump	(3) Tap Water Treated	(4) Tank/Pond /Lake	(5) Covered Well	(6) Ucovered Well
Scheduled Areas	0.019***	0.016	0.047***	0.003	0.006	0.025*
	(0.007)	(0.010)	(0.014)	(0.017)	(0.011)	(0.014)
Control Mean	0.541	0.916	0.258	0.589	0.143	0.798
# GPs	2370	2370	2370	2370	2370	2370
# Villages	3112	3112	3112	3112	3112	3112

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. We control for all imbalanced indices and include state fixed effects. This table uses a geographic RD model with a cubic control function in latitudes and longitudes, and a 10 km bandwidth as discussed in the text. The index in the first column is a standardized mean of the other variables.

Table A14: **Effects on Irrigation (Census 2011)**

	(1) Irrigation Index	(2) Tube-well/ Borehole	(3) River/ Canal
Scheduled Areas	-0.013	-0.003	-0.024
	(0.015)	(0.018)	(0.020)
Control Mean	0.414	0.428	0.399
# GPs	2370	2370	2370
# Villages	3112	3112	3112

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. We control for all imbalanced indices and include state fixed effects. This table uses a geographic RD model with a cubic control function in latitudes and longitudes, and a 10 km bandwidth as discussed in the text. The index in the first column is a standardized mean of the other variables.

Table A15: **Effects on Electricity (Census 2011)**

	(1) Electricity Index	(2) Agri Use	(3) Domestic Use	(4) Commercial Use
Scheduled Areas	-0.000	-0.011	0.024	-0.014
	(0.011)	(0.014)	(0.015)	(0.015)
Control Mean	0.662	0.609	0.847	0.529
# GPs	2076	2076	2076	2076
# Villages	2741	2741	2741	2741

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. We control for all imbalanced indices and include state fixed effects. This table uses a geographic RD model with a cubic control function in latitudes and longitudes, and a 10 km bandwidth as discussed in the text. The index in the first column is a standardized mean of the other variables.

Table A16: **Effects on Communications (Census 2011)**

	(1) Communications Index	(2) Post-Office	(3) Post/Telegraph Office	(4) Telephone	(5) Mobile Coverage
Scheduled Areas	0.018	0.029*	0.018	0.014	0.010
	(0.011)	(0.017)	(0.013)	(0.017)	(0.016)
Control Mean	0.473	0.365	0.198	0.539	0.779
# GPs	2369	2369	2309	2369	2369
# Villages	3110	3110	3046	3110	3110

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. We control for all imbalanced indices and include state fixed effects. This table uses a geographic RD model with a cubic control function in latitudes and longitudes, and a 10 km bandwidth as discussed in the text. The index in the first column is a standardized mean of the other variables.

I Alternative Explanations

I.1 Data Manipulation and Collusion

One concern with the results is that that politicians can steal funds earmarked for NREGS by convincing bureaucrats to report workdays for "ghost workers" who only exist on paper Bhatia and Dreze (2006), and that this tendency may exist differentially in Scheduled Areas. Following Gulzar and Pasquale (2017), we test for this using two analyses. First, we report in Appendix Table A17 that the ratio of funds received by beneficiaries in their bank account – data that are generated through a separate process than NREGS work – to the number of days they were employed is *not* affected by Scheduled Areas using the geographic RD model. Second, we find no evidence that data quality is affected by treatment in a regression of an indicator for missing NREGS data on our treatment using the geographic RD specification. Results are presented in Appendix Table A18.

Table A17: **Deposits and Ratio of Workdays to Deposits**

	(1) Logged Workdays	(2) Logged Workdays	(3) Logged Deposits	(4) Logged Deposits	(5) Ratio	(6) Ratio
Scheduled Areas	0.446***	0.126***	0.449***	0.141***	-0.000	-0.003
	(0.016)	(0.037)	(0.017)	(0.039)	(0.004)	(0.005)
Control Mean (Unlogged)	9359.166	12741.994	13.327	13.735	0.829	0.831
# GPs	43696	4534	43696	4534	43696	8542
# Villages	146944	12328	146944	12328	146944	26840
Model	OLS	Geo RD	OLS	Geo RD	OLS	Geo RD

Notes: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$. Columns 1, 3, and 5 present results using our OLS specification with state fixed effects; columns 2, 4, 6 present results using our Geographic RD model with a 10 km bandwidth. In both models, standard errors are clustered at the gram pachayat (GP) level; in our RD specification, we also include a cubic control function in latitudes and longitudes.

Table A18: **Missingness in Deposits**

	(1)	(2)
	Missing	Missing
Scheduled Areas	-0.034***	-0.007**
	(0.002)	(0.003)
Control Missing Data	41505.000	1567.000
# Villages	191628	29241

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Column 1 present results using our OLS specification with state fixed effects; columns 2 presents results using our Geographic RD model with a 10 km bandwidth. In both models, standard errors are clustered at the gram pachayat (GP) level; in our RD specification, we also include a cubic control function in latitudes and longitudes.

I.2 Distance from the Center

Scheduled Areas are more rural and may be less reliant on centralized government than non-Scheduled Areas. Because NREGS implementation is primarily determined at the local level, differences in reliance on centralized government – rather than quotas – may be driving our observed effects. To evaluate this possibility, we control for each village's distance to the most populous area in our data and find in Appendix Tables A19 and A20 that our results are unchanged.

Table A19: **The Effect of Scheduled Areas on NREGS (OLS), Controlling for Distance from Block Center**

	(1) Total	(2) STs	(3) SCs	(4) Non-SCs/STs
Panel A: Jobcards				
Scheduled Areas	0.143***	1.522***	-0.653***	-0.683***
	(0.008)	(0.041)	(0.022)	(0.024)
Control Mean (Unlogged)	738.978	143.262	136.972	458.744
# GPs	58558	58558	58558	58558
# Villages	191628	191628	191628	191628
Panel B: Households Worked				
Scheduled Areas	0.476***	1.647***	-0.378***	-0.364***
	(0.014)	(0.037)	(0.022)	(0.025)
Control Mean (Unlogged)	237.369	53.339	46.361	137.668
# GPs	58558	58558	58558	58558
# Villages	191628	191628	191628	191628
Panel C: Workdays				
Scheduled Areas	0.610***	2.262***	-0.512***	-0.381***
	(0.021)	(0.055)	(0.036)	(0.034)
Control Mean (Unlogged)	10750.981	2399.476	2104.660	6246.844
# GPs	58558	58558	58558	58558
# Villages	191628	191628	191628	191628

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. We control for all imbalanced indices and include state fixed effects. Finally, these regressions also control for each village's distance from its block's most populous village.

Table A20: **The Effect of Scheduled Areas on NREGS (10 km RD), Controlling for Distance from Block Center**

	(1) Total	(2) STs	(3) SCs	(4) Non-SCs/STs
Panel A: Jobcards				
Scheduled Areas	0.017	0.343***	-0.142***	-0.220***
	(0.014)	(0.031)	(0.035)	(0.028)
Control Mean (Unlogged)	805.118	335.689	117.467	351.962
# GPs	9697	9697	9697	9697
# Villages	29241	29241	29241	29241
Panel B: Households Worked				
Scheduled Areas	0.143***	0.441***	0.005	-0.119***
	(0.024)	(0.038)	(0.037)	(0.034)
Control Mean (Unlogged)	286.646	135.525	38.437	112.684
# GPs	9697	9697	9697	9697
# Villages	29241	29241	29241	29241
Panel C: Workdays				
Scheduled Areas	0.179***	0.559***	0.045	-0.137***
	(0.035)	(0.055)	(0.059)	(0.048)
Control Mean (Unlogged)	12859.588	6124.012	1631.304	5104.273
# GPs	9697	9697	9697	9697
# Villages	29241	29241	29241	29241

Notes: $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$. Standard errors are clustered at the gram pachayat (GP) level. We control for all imbalanced indices and we include state fixed effects, as well as boundary fixed effects and a flexible function in village centroid longitudes (x) and latitudes (y) of the form: $x + y + x^2 + y^2 + xy + x^3 + y^3 + x^2y + xy^2$. Finally, these regressions also control for each village's distance from its block's most populous village.

J Census Variables in Balance Table Indices

Due to the large number of variables found in the 2001 Indian census (203 total variables across the Socio-Demographic module and the Infrastructure module), we decided to combine the individual census variables into indices. We generated these indices using the Indian Census' variable groupings - for instance, the Education Index combines 10 variables listed in the census in a group which all refer to different measures of school and college facilities.

The only exception we made to following the groupings in the Indian Census was by constructing the Vulnerability Index which combines measures of the proportion of the village population under the age of 6, proportion illiterate, the village proportion of 'non-workers.' Each index is constructed by averaging each constituent variable, after that variable was centered and standardized.

We list each census' variable included in each index below. Note while the vast majority of census variables are binary or counts, additional variables provide additional qualitative information when village data was unavailable (known as 'range codes') – we omit these non-numerical variables for simplicity.

We also present analyses using 2011 Census data in Table 6, in Figures 4, A7, and A8, and in Appendix section H.2. The data at our disposal for the 2011 Census did not always match exactly the data for the 2001 Census. Accordingly, below, we note which variables we had for which Censuses, as well as the cases when it was necessary to recode variables (typically, to be binary) so that we could match data across the two Censuses.

Socio-Demographic and Economic Module of 2001 Census, and 2011 Indian Census

Key:

* = In data for 2001 Census only, ** = In data for 2011 Census only.

- Population Index

  TOT_NM_HH - Total number of households

  TOT_POP - Total population

  M_POP - Male population

  F_POP - Female population

- Vulnerability Index

  TOT_L6 - Total pop below 6 years

  F_L6 - Female pop below 6 years

  TOT_ILLT - Total Illiterates

F_ILLT - Female Illiterates

TOT_NNW - Total Non-workers

F_NNW - Female Non-workers

- Minority Index

  TOT_SC - Total scheduled caste

  M_SC - Male scheduled caste

  F_SC - Female scheduled caste

  TOT_ST - Total scheduled tribe

  M_ST - Male scheduled tribe

  F_ST - Female scheduled tribe

- Agricultural Worker Index

  TOT_CULT - Total Cultivators

  M_CULT - Male Cultivators

  F_CULT - Female Cultivators

  TOT_AGLB - Total Agricultural Labourers

  M_AGLB - Male Agricultural Labourers

  F_AGLB - Female Agricultural Labourers

  T_MRG_CULT - Total Marginal workers as cultivators

  M_MRG_CULT - Male Marginal workers as cultivators

  F_MRG_CULT - Female Marginal workers as cultivators

  T_MRG_AGLB - Total Marginal workers as agricultural labourers

  M_MRG_AGLB - Male Marginal workers as agricultural labourers

  F_MRG_AGLB - Female Marginal workers as agricultural labourers

- Non-Agricultural Worker Index

  TOT_MFHH - Total Household industry workers

  M_MFHH - Male Household industry workers

  F_MFHH - Female Household industry workers

  TOT_OTH_W - Total other workers

M_OTH_W - Male other workers

F_OTH_W - Female other workers

T_MRG_HH - Total Marginal workers household industry workers

M_MRG_HH - Male Marginal workers household industry workers

F_MRG_HH - Female Marginal workers household industry workers

T_MRG_OTH - Total Marginal workers as other workers

M_MRG_OTH - Male Marginal workers as other workers

F_MRG_OTH - Female Marginal workers as other workers

- Marginal Worker Index

  TOT_MRW - Total Marginal workers other workers

  M_MRW - Male Marginal workers other workers

  F_MRW - Female Marginal workers other workers

Infrastructure and Amenities Module of 2001 Indian Census, and Market Villages Data for 2011 Census

- Education Index*

  EDU_FAC - Educational facilities (binary)*

  P_SCH - Number of Primary School*

  M_SCH - Number of Senior Secondary School*

  S_SCH - Number of Secondary School*

  S_S_SCH - Number of Senior Secondary School*

  COLLEGE - Number of Collage*

  IND_SCH - Number of Industrial School*

  TR_SCH - Number of Training School*

  ADLT_LT_CT - Number of Adult literacy Class/Centre*

  OTH_SCH - Number of Other educational facilities*

- Medical Facilities Index*

  MEDI_FAC - Medical facilities (binary)*

ALL_HOSP - Allopathic hospital, Maternity and Child Welfare Centre and Primary Health Centre*

AYU_HOSP - Number of Allopathic Hospital*

UN_HOSP - Number of Unani Hospital*

HOM_HOSP - Number of Homeopathic Hospital*

ALL_DISP - Number of Allopathic Dispensary*

AYU_DISP - Number of Ayurvedic Dispensary*

UN_DISP - Number of Unani Dispensary*

HOM_DISP - Number of Homeopathic Dispensary*

MCW_CNTR - Number of Maternity and Child Welfare Centre*

M_HOME - Number of Maternity Home*

CWC - Number of Child Welfare Centre Number of Health Centre*

H_CNTR - Number of Health Centre*

PH_CNTR - Number of Primary Health Centre*

PHS_CNT - Number of Primary Health Sub Centre*

FWC_CNTR - Number of Family Welfare Centre Number of T.B. Clinic*

TB_CLN - Number of T.B. Clinic*

N_HOME - Number of Nursing Home*

RMP - Number of Registered Private Medical Practitioners*

SMP - Number of Subsidized Medical Practitioners*

CHW - Number of Community Health workers*

OTH_CNTR - Number of Other medical facilities*

- Water Index

HDP_ST - Hand Pump (HP)

SPR_ST - Spring (S)

TPL_ST - Tank/Pond/Lake

TWT_ST - Tap Water (Treated)

TUBEWELL - Tubewell Water (TW)

WELL - Well Water (W) (2011 covered/uncovered well variables combined)

DRNK_WAT_F - Drinking Water facility (binary)*

RIVER - River Water(R)*

OTHER - Other drinking water sources (O)*

TANK - Tank Water (TK)*

TWU_ST - Tap Water (Untreated) **

WAT_BOM - Water Bounded Macadam**

- Communications Index

  BS_FAC - Bus services (2011 Census private/public bus services variables combined)

  NAV_WRC - Navigable water way including River, Canal etc. (2001 recoded to Y/N)

  PO_ST - Number of Post Office (2001 recoded to Y/N)

  PT_OF_ST - Number of Post and Telegraph Office (2001 recoded to Y/N)

  RS_FAC - Railways services

  TEL_ST - Number of Telephone connections (2001 recoded to Y/N)

  COMM_FAC - Communication*

  P_T_FAC - Post, Telegraph and Telephone facilities (binary)*

  TELE_OFF - Number of Telegraph Office*

  AUT_MODA - Auto/Modified Autos**

  INC_CSC - Internet Cafes / Common Service Centre (CSC)**

  MOB_PH_CV - Mobile Phone Coverage**

  RAIL_STAT - Railway Station**

  SRF_SERV - Sea/River/Ferry Service**

  SPO_ST - Sub Post Office**

  VANS_ST - Vans**

- Banking Index

  AGRI_CRSO - Number of Agricultural Credit Societies (2001 recoded to Y/N)

  COOP_BANK - Number of Agricultural Credit Societies (2001 recoded to Y/N)

  ST_AU_FAC - Number of Stadium/Auditorium

  BANK_FAC - Banking facility (binary)*

  COMM_BANK - Number of Cooperative Commercial Banks*

CRSOC_FAC - Credit Societies (Y/N)*

C_V_HALL - Number of Cinema/Video-hall*

NAC_SOC - Number of Non Agricultural Credit Societies*

OTHER_SOC - Number of Other Credit Societies*

RC_FAC - Recreational and Cultural facilities (binary)*

SP_CL_FAC - Number of Sports Club*

ATM_ST - ATM**

- Road Index

  ALL_WE_RD - Approach - Paved (all weather) Road (2001 recoded to Y/N)

  APP_FP - Approach - Foot Path*

  APP_MR - Approach - Mud Road*

  APP_NAVCAN - Approach - Navigable Canal*

  APP_NAVRIV - Approach - Navigable River*

  APP_NW - Approach - Navigable water-way other than river or Canal*

  GRA_KU_RD - Gravel (kuchha) Roads**

  NH_ST - National Highway**

  MDR_ST - Major District Road**

  OTH_DR - Other District Road**

  SH_ST - State Highway**

- Urbanization Index

  POW_SAU - Electricity of Agricultural use (2001 recoded to Y/N)

  POW_SDU - Electricity for Domestic use (2001 recoded to Y/N)

  PAP_MAG - Newspaper/Magazine (binary)*

  POWER_ALL - Electricity for all purposes*

  POWER_OTH - Electricity of other purposes*

  POWER_SUPL - Power supply (binary)*

  A_INCEXP - Separate figures available (Y/N). If Yes:*

  TOT_EXP - Total Expenditure*

  TOT_INC - Total Income*

POW_SCU - Power Supply For Commercial Use**

- Irrigation Index

  RIC_ST - River/Canal (2001 canal, river variables combined, recoded to Y/N)

  TWB_ST - Tube well/borehole (2001 tubewell variables combined, recoded to Y/N)

  CULT_WASTE - Culturable waste (including gauchar and groves)*

  LAND_FORES - Forest Irrigated (by source)*

  LAKE_IRR - Lake*

  TANK_IRR - Tank*

  OTH_IRR - Others [Water source]*

  W_FALL - Waterfall*

  WELL_WO_EL - Well (without electricity)*

  WELL_W_EL - Well (with electricity)*

  TOT_IRR - Total Irrigated Area*

  UN_IRR - Unirrigated Area*

  AREA_NA_CU - Area not available for cultivation*

Appendix References

Béteille, André. 1974. *Six Essays in Comparative Sociology.* New York: Oxford University Press.

Béteille, André. 1986. "The concept of tribe with special reference to India." *European Journal of Sociology* 27(2):296–318.

Bhatia, Bela and Jean Dreze. 2006. "Employment Guarantee in Jharkhand: Ground Realities." *Economic and Political Weekly* 41(29):3198–3202.

Calonico, Sebastian, Cattaneo Mathias D. Farrell Max H. and Rocio Titiunik. 2017. "rdrobust: Software for Regression Discontinuity Designs." *Stata Journal* 17:372–404.

Chaudhury, Dipanjan Roy. 2005. "Autonomous District Councils and Panchayati Raj Institutions in North-East India." *Dialogue* 7(1).

Commissioner for Scheduled Castes and Scheduled Tribes. N.d. *Twenty-Fourth Report of the Commissioner for SC and ST.* New Delhi: Government of India.

Corbridge, Stuart. 2000. "Competing Inequalities: The Scheduled Tribes and the Reservations System in India's Jharkhand." *The Journal of Asian Studies* 59(1):62–85.

Corbridge, Stuart. 2002. "The Continuing Struggle for India's Jharkhand: Democracy, Decentralisation and the Politics of Names and Numbers." *Commonwealth & Comparative Politics* 40(3):55–71.

Corbridge, Stuart, Sarah Jewitt and Sanjay Kumar. 2004. *Jharkhand: Environment, Development, Ethnicity.* Oxford University Press.

Damodaran, Vinita. 2011. Colonial Constructions of the 'tribe' in India: The Case of Chotanagpur. In *Adivasis In Colonial India: Survival, Resistance and Negotiation*, ed. Biswamoy Pati. Orient BlackSwan.

Election Commission of India. 2014. "Election Results - Full Statistical Reports.".
URL: *http://eci.nic.in*

Galanter, Marc. 1984. *Competing Equalities : Law and the Backward Classes in India.* Oxford University Press.

Guha, Ramachandra. 1996. "Savaging the Civilised Verrier Elwin and the Tribal Question in Late Colonial India." *Economic & Political Weekly* 31(35/37).

Gulzar, Saad and Benjamin J Pasquale. 2017. "Politicians, bureaucrats, and development: Evidence from India." *American Political Science Review* 111(1):162–183.

Gupta, Sanjukta Das. 2011*a*. *Adivasis and the Raj: Socio-economic Transition of the Hos, 1820-1932.* Orient BlackSwan.

Gupta, Sanjukta Das. 2011*b*. Rethinking Adivasi Identity: The Chota Nagpur Tenancy Act (1908) and its aftermath among the Hos of Singbhum. In *Adivasis In Colonial India: Survival, Resistance and Negotiation*, ed. Biswamoy Pati. Orient BlackSwan.

H.H., Risley. 1903. *General Report by H. H. Risley and. E. A. Gait.* Calcutta: Census of India.

Htun, Mala. 2004. "Is Gender like Ethnicity? The Political Representation of Identity Groups." *Perspectives on Politics* 2(3):439–458.

Imbens, Guido and Karthik Kalyanaraman. 2012. "Optimal bandwidth choice for the regression discontinuity estimator." *Review of Economic Studies* 79:933–959.

Iyer, Lakshmi and Maya Reddy. 2013. "Redrawing the Lines: Did Political Incumbents Influence Electoral Redistricting in the World's Largest Democracy?" *Harvard Business School Working Paper* (14-051).
URL: *https://www.hbs.edu/faculty/Pages/item.aspx?num=46005*

Ministry of Drinking Water and Sanitation. 2014. "National Rural Drinking Water Programme.".
URL: *http://indiawater.gov.in/imisreports/Reports/BasicInformation/rpt{_}RWS{_}AbstractData{_}S.aspx?Rep=0{&}RP=Y{&}APP=IMIS*

Ministry of Rural Development. 2013. NREGS Annual Report. Technical report.
URL: *https://data.gov.in/catalog/implementation-report-under-mahatma-gandhi-national-rural-employment-guarantee-act-mnrega*

Nazer, M. 2004. *A Study of Land Alienation and Indebtedness among Tribals in Tamil Nadu, Kerala and Karnataka*. Planning Commission of India.

Pati, Biswamoy. 2011. *Adivasis In Colonial India: Survival, Resistance and Negotiation*. Orient BlackSwan.

Planning Commission of India. 2014. Planning Commission Report, Table 160. Technical report.
URL: *http://planningcommission.nic.in/data/datatable*

Radhakrishna, Meena. 2011. Of Apes and Ancestors: Evolutionary Science and Colonial Ethnography. In *Adivasis In Colonial India: Survival, Resistance and Negotiation*, ed. Biswamoy Pati. Orient BlackSwan.

Rudolph, Lloyd I. and Susanne Hoeber Rudolph. 2010. "Federalism as State Formation in India: A Theory of Shared and Negotiated Sovereignty." *International Political Science Review* 31(5):553–572.

Statoids. N.d. "Districts of India.".
URL: *http://www.statoids.com/yin.html , year = 2014*

Sundar, Nandini. 2005. "Custom and Democracy in Jharkhand." *Economic and Political Weekly* 40(41):4430–4434.

Tillin, Louise. 2013. *Remapping India: New States and Their Political Origins*. New York: Oxford University Press.

Upadhya, Carol. 2009. Law, Custom, and Adivasi Identity: Politics of Land Rights in Chotanagpur. In *Legal Grounds: Natural Resources, Identity, and the Law in Jharkhand*, ed. Nandini Sundar. Oxford University Press.