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## Who Has Voice in a Deliberative Democracy? Evidence from Transcripts of Village Parliaments in South India

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#### Abstract

The role of deliberation among citizens to determine and forge agreement on policy is often seen as a crucial feature of democratic government. This paper provides the first large-N empirical evidence on the credibility of voice in a deliberative democracy in an non-laboratory setting, using a unique dataset collected from transcripts of deliberation that occurred between January and September 2003 in 127 functioning village parliaments (gram sabhas) in Southern India. We exploit a natural experiment in the arrangement of India's state borders across ethnolinguistic lines that led exogenously to increased caste fragmentation and a reduced degree of consensus on public goods priorities. We then examine the patterns of deliberation. We reject the presence of pure cheap talk in both heterogeneous and homogeneous villages. Instead, we show that in caste- fragmented South Indian villages, where there is less village-wide agreement on the relative importance of different public goods, the probability of an individual's highest priority being discussed increases as the household become more credible: its preferences approach the pivotal agent in a pure representative democracy, the median household. These effects are lower in ethnically homogeneous villages where there is greater consensus on the prioritization of public goods. Taken together, our results suggest that India's village parliaments, rather than being mere talking shops or being entirely captured by elites, seem instead to be both democratically representative and to be assigning roles to credible agents in their deliberative processes.

#### JEL codes:

<sup>\*</sup>Corresponding author: *vrao@worldbank.org.* This is a thoroughly revised version of a paper that previously circulated as: "Is Deliberation Equitable?" We would like to particularly thank Keith Krehbiel, Duncan Thomas, and three anonymous referees as well as Timothy Besley, Robin Burgess, Francisco Ferreira, Clare Leaver, Christian List, Riccardo Puglisi, Paromita Sanyal and seminar participants at Boston University, LSE-EOPP, DECRG and Stanford. Thanks also to Rachel Brulé, Babu Dasari Srinivas and Jillian Waid for valuable research assistance and SRI-IMRB for administering the survey. The points of view expressed in this paper are entirely those of the authors and should not be attributed to the World Bank, its executive directors or its member countries.

## 1 Introduction

The role of deliberation among citizens to determine and forge agreement on policy is often seen as a crucial feature of democratic government. To political theorists, deliberation plays a number of beneficial roles. Deliberation is often credited with raising the 'legitimacy' of the political process, facilitating group coordination on the beliefs that others also support a decision and will act accordingly. More concretely, deliberation is also seen as valuable for providing *information*: both about others' preferences and about the issue at hand (Cohen, 1998, Habermas, 1996, Elster, 1986, Landa and Meirowitz, 2009).<sup>1</sup> Indeed, laboratory experiments of groups polled before and after deliberation appear to suggest that deliberation can move preferences closer to single-peakedness and facilitate efficient social choice (Fishkin and Luskin, 2005, List, Luskin, Fishkin and McLean, 2006, Goeree and Yariv, 2010).<sup>2</sup>

In developing countries, in particular, deliberative processes have acquired additional importance in recent years because of the increasing emphasis placed on communitybased decision making by aid organizations and policymakers (Olken, 2010, Mansuri and Rao, 2004, forthcoming). A common belief is that allowing people to participate in decisions that affect their own lives will make development more "demand-driven" and enhance the transparency and accountability of policymaking. This has led countries around the world to give increasing powers to local governments and to increase the role of deliberative fora in decision making.

However, despite broad global trends towards participatory policymaking, virtually all the empirical evidence that exists on the nature of deliberation in democratic settings has thus far been confined to ingenious but stylized laboratory experiments and case

<sup>&</sup>lt;sup>1</sup>A rich historical literature in political science has provided descriptions of the mechanisms by which citizens share and contest knowledge (de Tocqueville1835; Putnam 1993; Ober 2010). These studies emphasize the importance of egalitarian social relationships in facilitating credible and meaningful de-liberation within larger political systems.

<sup>&</sup>lt;sup>2</sup>There are also rich ethnographic studies, such as Jane Mansbridge (1983)'s study of town hall meetings in Vermont, that suggest that common values are important for facilitating deliberation. For other examples, see also Fung and Wright (2003)

ethnographies (Mansbridge, 1983, Fishkin and Luskin, 2005, Dickson, Hafer and Landa, 2010, Goeree and Yariv, 2010, Karpowitz and Mendelberg, forthcoming).<sup>3</sup> Much less is known about whether deliberation in functioning local representative institutions in developing countries actually facilitates the sharing of credible information that inform democratically representative decision-making. In fact, elected local councils in many developing contexts are often derided as "talking shops" (eg Fernandez, 2003): venues for cheap talk that provide merely the illusion of representation. Where local representative institutions are effective at influencing policy, the process of deliberation may instead reflect the priorities of elites rather than providing useful information on the preferences of the majority (Bardhan, 2003).

This paper provides, to our knowledge, the first systematic empirical evidence on the credibility of voice in functioning parliaments in the developing world. We take as our departure point a family of canonical models of group decisionmaking under incomplete information (Crawford and Sobel, 1982, Austen-Smith and Feddersen, 2006, Meirowitz, 2007). In an environment where agents have private information and can exchange messages prior to jointly making a social choice, three robust conclusions emerge. Where agents have different preferences over policy priorities or "private values", equilibria can exist with cheap talk: people send messages that do not influence behavior. Believing this, no agent should be any more likely than any other to voice or be given the opportunity to voice their positions. Thus, ironically, while such random patterns of deliberation may at first appear more equitable, such speech is actually consistent with local representative forums acting as irrelevant talking shops.

 $<sup>^{3}</sup>$ A small but growing body of empirical work examines the determinants of voice in contemporary deliberative democracy. This research explicitly occurs outside the laboratory. Such work extends from Walsh's (2004) *Talking about Politics* to Rosenberg's (2007) *Deliberation, Participation and Democracy:* Can the People Govern? Overall, this research suggests that deliberative democracy. However, the generalizability of this research is also limited by two assumptions: first, that contemporary American political society provides an appropriate baseline for making inferences about deliberative democracy writ large, and second, that informal institutions are valid case studies for inferences about how deliberation works in formal political institutions. For valuable overviews, see Mendelberg (n.d.), Mutz (2008) and Thompson (2008)

A second robust conclusion of models of group decisionmaking under incomplete information is that the incentive to misrepresent one's information means those agents will be considered most credible whose ex ante preferences are closest to the pivotal decisionmaker (Austen-Smith and Feddersen, 2006, Meirowitz, 2007). In a pure democracy, the most credible agent will be the one whose preferences are closest to the median voter's (Meirowitz, 2007), as an agent that shares the preferences of the median voter naturally will also have the least incentive to lie to the median voter. Thus the most efficient allocation of voice will be to those agents most informed about the median voter's preferred priority. The extent to which deliberation deviates from the preferred topics of the median voter are reflected in deliberation thus serves as a useful second benchmark to assess how *undemocratic* the decision-making process is, and what forms of elite capture may be present: e.g. by the wealthy or by particular social groups.

We can further contrast the benchmarks of cheap talk and efficient democratic deliberation with a third benchmark: when individuals have common values– common preferences over policy priorities, and common knowledge of these preferences. Indeed, common values underlies the ideal role of democratic deliberation favored by political philosophy, one where "if participants could argue indefinitely, they would converge on the same judgements" (Habermas, 1996, Landa and Meirowitz, 2009). In this environment, all agents are credible, and efficient deliberation would allow voice to the most informed agents.

We test for these empirical predictions using a unique dataset collected from transcripts of deliberation that occurred between January and September 2003 in 127 functioning village parliaments in Southern India. The Indian context provides a very useful environment to explore the determinants of voice in a deliberative democracy. The unlikely resilience of India's democracy, despite its remarkable ethnic and religious diversity and inequities in wealth, and in contrast to the failed democratic experiments of other nations, has been linked to a long tradition of argumentation and debate (Sen, 2005). Yet, India's formal institutions of deliberative democracy are relatively new. Due to the Seventy-Third Amendment to the Indian Constitution in 1992, all Indian villages are expected to hold a gram sabha- or village parliament- at least twice a year to determine how village councils prioritize local public goods. Unlike many national legislatures that differ from each other in both their constitutional rights and their evolved norms and institutions over time, the introduction of these village parliaments provides a large number of constitutionally identical, mutually autonomous observations of parliamentary discourse that still span polities that differ significantly in their ethnic composition, wealth inequalities, levels of literacy and other characteristics.

We proceed in two steps. First, we exploit a natural experiment in the arrangement of India's state borders across linguistic lines in 1956 that led exogenously to increased caste fragmentation in villages that fell on the 'wrong' side of the border relative to geographically and linguistically similar villages whose majority language matched that of their new state. In these matched villages, we implemented a novel representative survey of households in a sample of 5445 heads of household to ascertain the preferences of the population with respect to public goods provision. We then analysed the transcripts of 101 village parliaments between January and November 2003 to determine whose preferences are given voice.

We first show that even in our closely matched sample, increased caste fragmentation due to the border mistake reduces the degree of consensus on public goods priorities.<sup>4</sup> We next assess whether the patterns of deliberation and the voice given to particular policy issues in the parliaments of homogeneous and heterogeneous villages are random, consistent with pure cheap talk, or driven mostly by the wealthy or officeholders, consistent with elite capture. We reject the presence of pure cheap talk. Instead, we show that in caste- fragmented South Indian villages, where there is less village-wide agreement on the relative importance of different public goods, the probability of an individual's

<sup>&</sup>lt;sup>4</sup>This finding is consistent with a broader literature that argues that ethnic diversity also leads to increased differences in policy preferences (eg Alesina and La Ferrara, 2005).

highest priority being discussed increases as the household become more credible: its preferences approach the pivotal agent in a pure representative democracy, the median household. These effects are lower in ethnically homogeneous villages, where there is greater consensus on the prioritization of public goods. While we do find evidence that landowners' priorities are more likely to be voiced, consistent with elite capture, these effects are relatively small. Taken together, our results suggest that India's village parliaments, rather than being mere talking shops or being entirely captured by elites, seem instead to be both democratically representative and to be assigning roles to credible agents in their deliberative processes.

This paper builds on a range of studies in development economics, economic theory and political science. Political scientists, in particular, emphasise two alternative theories of decisionmaking in legislatures: *distributive politics*– where political institutions and decisionmaking develop to address the central issue of allocating resources– and *informational politics*– where political institutions and decisionmaking develop around the need to elicit credible information and expertise to inform policymaking (Krehbiel, 2004).<sup>5</sup> In particular, an important body of work has demonstrated the empirical importance of providing incentives to gain expertise in policy issues and to truthfully reveal private information in shaping committee memberships and in the efficient choice of legislative rules, focusing mainly on the US Congress (eg Krehbiel, 1990).

In contrast, the most closely related work in development economics has instead focused on the *distributive* nature of decisionmaking in local governments. For example, an important series of works establish that public goods priorities change to reflect the priorities of the gender or the ethnicity of current officeholders (eg Chattopadhyay and Duflo, 2004, Besley, Pande, Rahman and Rao, 2004, Bardhan, Mookherjee and Torrado,

<sup>&</sup>lt;sup>5</sup> An important body of theoretical work that has examined the role of strategic information transmission in shaping decisionmaking in environments, like courts and legislatures, where decisionmakers have unknown preferences over acquittal or over policies (Crawford and Sobel, 1982, Feddersen and Pesendorfer, 1997, 1998, Coughlan, 2000, Austen-Smith and Feddersen, 2006, Gerardi and Yariv, 2007, Meirowitz, 2007, eg).

2010, Beaman, Duflo, Pande and Topalova, 2010). In contrast, the role of informational politics in local legislatures in developing countries has largely been neglected. Perhaps the closest work looks at the differential effectiveness of informal group discussions and other systems in better identifying beneficiaries of poverty alleviation programs (Olken, 2010).<sup>6</sup> However, to the best of our knowledge, our's is the first paper to empirically test the credibility of voice in a real parliamentary setting in the developing world.

This paper proceeds as follows. Section 2 describes the natural experiment and the data. Section 3 presents and interprets the main empirical results in light of the theories of informational politics discussed above. Section 4 provides two qualitative illustrations. Section 5 concludes.

## 2 Data

#### 2.1 The Natural Experiment and Sampling

Indian independence in 1947 brought with it a number of social movements which promoted a unified linguistic identity. At the same time a number of leading Indian politicians and intellectuals were advocating that Indian states be reorganized along linguistic lines in the belief that they could then be more rationally governed. A commission was instituted to go through the painstaking process of using historical logic and census data to put together new, states made up districts with the same majority language. The commission's report was published in 1955 and its recommendations implemented in 1956.

In the South, out of the old British provinces of Bombay, Madras, Coorg and Cochin, and the erstwhile Princely States of Mysore and Hyderabad, the States Reorganization of 1956 led to the creation of four states, with Telugu-speakers mostly contained with the borders of Andhra Pradesh, Tamil-speakers in Tamil Nadu, Kannada speakers in

<sup>&</sup>lt;sup>6</sup>See Mansuri and Rao (forthcoming) for a comprehensive overview.

Karnataka and Malayalam-speakers in Kerala.<sup>7</sup> However, the fault-lines of this process are particularly apparent along the borders of the new states which were invariably multilingual and often with a mixed linguistic culture or identity. It is in these inevitable "mistakes" on the border of the modern South Indian states where we focus our paper. We define 'mistake' blocks to be those where speakers of the state's majority language did not constitute a majority.

Figure 1 shows the sample districts as they lie astride historical and contemporary state borders. Along the borders, there are districts that belonged to the same political entity prior to 1956, but were assigned by the Commission to different states. The Madras Presidency and Hyderabad state are the two old administrative units that are particularly relevant for our analysis. Within these old states we pick seven pairs of districts that were later split into different states after the reorganization. These are Bidar and Medak in Hyderabad, Dharmapuri/ Chitoor, Kasaragod/Dakshina Kannada, and Coimbatore/Pallakad in different parts of Madras Presidency. Bidar and Dakshina Kannada are now in the state of Karnataka, Medak and Chitoor in Andhra Pradesh, Dharmapuri and Coimbatore in Tamil Nadu, and Pallakad and Kasaragod in Kerala. We select blocks (sub-districts) on either side of the border matched by the mothertongue of the majority of people in each block (please see Appendix Table 11 for a list of the matches). Within these matched blocks we compare differences among villages, also matched by mother-tongue, across the border with comparable villages on the same side of the border. This language-matching allows us to control for similar language and, therefore for discursive traditions associated with language. But beyond this, the villages along the modern border not only share a common language, common geography and climate, they also share a common history - having belonged to the same political and

<sup>&</sup>lt;sup>7</sup>The States Reorganization Commission's report (Govt. of India, 1955) details the process by which decisions were made to assign particular districts to particular states. While the primary consideration was the language spoken by a majority of its residents, this was coupled with sensitivity to fair assignments of economically valuable cities and ports, and a sense of whether the merger made historical and cultural sense.



Figure 1: State Reorganization and Sample Villages.

administrative entity for over two hundred years.

We then exploit the accidental nature of the assignment of the new state borders in shaping the caste heterogeneity of those caught on different sides. Since caste structures in South Asia tend to be highly correlated with language, villages that are "mistakes"–i.e. those villages with a majority language that differs from the language associated with the official current state's official language– will tend to be more likely to experience internal growth or immigration from hitherto smaller groups that share the new state's dominant language and caste structures, relative to villages which share a majority language with their state. Indeed, we will show that villages that became part of 'mistake' blocks are now more likely to house more castes and to face reduced consensus in the policy priorities of their residents.

From every sampled block, we randomly selected a set of rural councils or gram panchayats (GPs) for household interviews. In Andhra Pradesh, we randomly selected three of our six sampled GPs and conducted household interviews in all the sampled villages falling within these GPs. In Kerala we randomly selected two GPs in one block and one GP in the other block. Within sampled GPs we conducted household interviews in all sampled wards<sup>8</sup>. Our household sample was ultimately drawn from 259 villages contained within 101 GPs, with twenty households sampled at random from every selected village.<sup>9</sup> Of these, four households always belonged to Scheduled Caste or Tribes (henceforth SC/ST).<sup>10</sup> In addition to these randomly sampled households, the president of the gram panchayat and the ward members were also subjected to a household interview. This yielded a total of 5445 households.<sup>11</sup>

<sup>&</sup>lt;sup>8</sup>In Kerala, wards are of approximately the same size as villages in the other three states

<sup>&</sup>lt;sup>9</sup>The survey team leader in every village walked the entire village to map it and identify total number of households. This was used to determine what fraction of households in the village were to be surveyed. The start point of the survey was randomly chosen, and after that every Xth household was surveyed such that the entire village was covered (going around the village in a clockwise fashion with X=Number of Households/20).

<sup>&</sup>lt;sup>10</sup>Scheduled Castes and Tribes are those that appear on a 'schedule' of the Indian constitution as historically disadvantaged groups that receive special preferences, reservations and affirmative action.

<sup>&</sup>lt;sup>11</sup>Due to budgetary limitations we omitted recording gram sabhas in Andhra Pradesh in Round 1. In the other three states we randomly selected four blocks from Karnataka, five blocks from Kerala, and six

#### 2.2 Measuring preferences and parliamentary voice

In November 2001, we conducted a household survey at the village and household level to study various aspects of *gram panchayats* in the matched border sample. One randomly chosen adult from every household in the sample was asked questions about the household's socioeconomic status, household structure, views and use of public services in the village, and access to targeted benefits from the government. The respondents were also asked to provide open-ended responses rank-ordering their preference for problems in the village that needed attention. The problems were elicited from the respondent and postcoded into broader categories. From this ordering we constructed an individual preference measure: defined as his or her first-ranked problem in the village.

Then from January to September 2003, we tape-recorded the proceedings of 38 village parliaments in a sub-sample of the villages surveyed in the 2001 survey. This was supplemented by another round of 93 recordings from October 2004 to February 2006.<sup>12</sup> Table 1 presents the meeting breakdown by round and state. Each transcript was divided into paragraphs, according to the natural pauses in speech. In the transcripts, all speakers were identified by position (official or villager) and gender<sup>13</sup>.

[Table 1 about here]

A change in speaker automatically translates into a new paragraph, but a speaker can have more than one consecutive paragraph. For each paragraph the topics mentioned were recorded via two methods: First, topics were manually coded, by reading every transcript and noting the topics mentioned in each paragraph. Second, to ensure the replicability

blocks from Tamil Nadu, resulting in a total gram sabha sample of 38 villages. In Round 2, we expanded the sample to include the state of Andhra Pradesh where we visited 18 villages in six blocks. In the other three states, in addition to the villages where we recorded gram sabhas in 2003 we sampled ten more blocks. This resulted in an total sample of 131 gram sabhas taking in place in 97 villages. Out of these 131 gram sabhas, the village leaders did not allow the proceedings of four to be taped.

<sup>&</sup>lt;sup>12</sup>The 38 villages from 2003 were revisited along with an additional 55 villages, also selected from the original 2001 sample.

<sup>&</sup>lt;sup>13</sup>The speaker's caste is also identified in some transcripts.

of our findings, we coded the topics by keyword searches<sup>14</sup>. The two methods yield very similar results, and in the paper we will base our results on the keyword-searched topics. We also partition the transcripts based on the hierarchical position of the speaker (official or villager) of the speaker. Officials' talk takes up 66 percent of the discussions, while villagers' talk takes up the remaining 34 percent.

Table 2 shows the extent to which different topics were mentioned during parliaments as a whole, and broken down into speech by officials and by villagers. We define two measures for each topic: the occurrence of the topic, as a dummy variable, and the intensity of the topic. The intensity of the topic is defined as the ratio between the number of lines in the paragraphs in which the topic was mentioned and the total number of lines in the transcript. Furthermore, we apply the definitions of these measures to every partition. Hence, we have an occurrence and intensity measure for officials' talk, and villagers' talk.<sup>15</sup>

#### [Table 2 about here]

To explore the relationship between individual preferences and the topics discussed during the Gram Sabha we link the household data to the meeting-transcript from the same village, matching the household's preferences with the topics ultimately discussed in that household's village parliament. In the villages where both rounds of meetings were recorded, each household is counted twice. Hence, our analysis is based on the subset of 2488 households located in villages where gram sabhas were recorded.

#### [Table 3 about here]

Table 3 provides summary statistics from the household survey in both mistake and non-mistake blocks. There is substantial variance in the amount of land owned by each

<sup>&</sup>lt;sup>14</sup>The list of keywords is available upon request

<sup>&</sup>lt;sup>15</sup>For example, the occurrence measure for water in officials' talk equals 1 if water is a topic in a paragraph spoken by an official and 0 otherwise. The intensity measure for water in officials' talk equals the ratio between the number of lines in paragraphs spoken by an official on the topic of water divided by the total number of lines in the transcript. It is important to note that the denominator for the intensity measures is always the total number of lines in the transcript

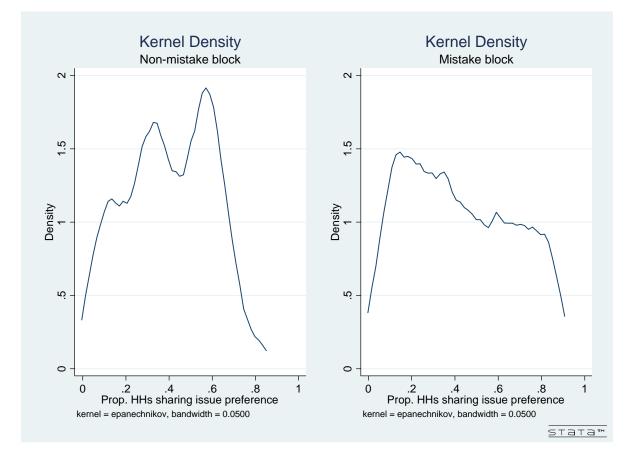


Figure 2: Distribution of Household Heads in Villages that Share an Issue Preference in Mistake and Non-Mistake Blocks.

household in our villages, and the literacy rate of the household heads of the sample– at 74%– compares favorably with the 2001 averages of Andhra Pradesh (60.47%), Karnataka (66.64%), and approximates Tamil Nadu (73.45%) but falls short of Kerala (90.86%). Mistake blocks, as discussed above, appear to have developed a somewhat younger, more literate population than non-mistake blocks, consistent with greater migration and mixing in blocks that are now part of states with different dominant castes and majority languages. Access and the quality of water and roads each constitute the issues of greatest concern to 38% of those surveyed, with electricity, housing and healthcare being the key priorities of smaller minorities. In the raw data, villagers in non-mistake blocks seem to have greater consensus that water and roads are the key issues (79%) relative to mistake blocks (74%), which assign more importance to issues like electricity and housing. As Figure 2 reveals, there is also substantial variation in the proportion of other household heads in a village that share the same top issue priority of any given villager. The distribution in mistake blocks is skewed towards lowered village support on average.

## **3** Results

Table 4 examines whether blocks that were accidentally assigned to the wrong side of a linguistic state border in 1956 do in fact have greater caste diversity today. As the table reveals, in the prefered comparison with matched blocks on the other side of the border, villages in mistake blocks have three more castes represented on average, with a rise in in the caste fragmentation index (similar to ELF restricted to castes) by 0.112.

[Table 4 about here]

Furthermore, as Table 5 reveals, caste heterogeneity is a major driver of the extent to which there is also lack of village level consensus on issue priorities.<sup>16</sup> Consistent with the

<sup>&</sup>lt;sup>16</sup>This is consistent with a broad literature on the role ethnic heterogeneity in undermining public goods provision due to differences in preferences (Alesina and La Ferrara, 2005, Banerjee, Iyer and Somanathan, 2005).

raw data in Table 3, villages with more castes within the same block and mistake blocks within each block pair exhibit less consensus on which issues are the most important within their villages. Villages that have higher levels of ethnolinguistic fractionalization (ELF) also reveal increases that are similar in magnitude, though not precisely estimated, in the fragmentation of issue preferences.

#### [Table 5 about here]

Table 6 looks at the household determinants of the extent to which villagers share common priorities. Notice that those with more land are actually more likely to share common priorities with other non-landed villagers. However, literate villagers and those from scheduled castes and tribes appear to have divergent preferences from others in the village. One interpretation of this is that possessing geographically fixed assets that increase in value with local development may be leading landowners to internalize some of the external benefits of local public goods, such as water and roads, much in the way that landowning 'boosters' drove public goods provision in new settlements in the United States and other countries. In contrast, having relatively mobile human capital or caste traits may lead to reduced alignment with broad but geographically-specific development priorities.

#### [Table 6 about here]

Is deliberation different in villages that have greater caste diversity? Figure 3 provides a basic visual depiction of our central results, comparing the probability that a villager's top priority issue is discussed in the village parliament with the extent to which that villager's priority is shared with others in the village. Notice that in relatively homogeneous non-mistake blocks, the probability that a villager's top priority issue is discussed in the village parliament is increasing in the size of the minority in the village who also share such priorities. However in mistake blocks– villages that are ethnically more heterogeneous due to the States Reorganization– this probability increases at low levels of

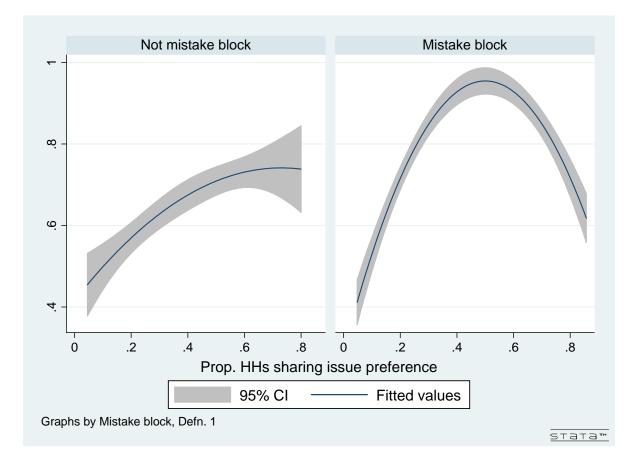


Figure 3: Probability of a villager's priority being voiced in Parliament vs Prop. Households sharing that priority, in Mistake and non-Mistake Blocks.

support but peaks when the villager has the same priority as the median household in the village and actually falls as consensus grows on that priority beyond the support of a simple majority.

Consider the first theoretical benchmark– that of cheap talk, where agents send messages that do not influence behavior. Believing this, no agent should be any more likely than any other to voice or be given the opportunity to voice their positions, regardless of the degree of broader village support or opposition for their priority. While such random patterns of deliberation and assignment of recognition rights may at first appear 'more equitable', such speech is actually instead more consistent with local representative forums acting as an irrelevant talking shop.

However, Figure 3 suggests instead the extent to which a priority is voiced does in fact rise with the extent to which that priority is considered the most important issue by an increasing number in the village, both in heterogeneous and homogeneous villages. Furthermore, in heterogeneous villages in particular the extent to which a villager's priority attains the support of 50% of others in the village does have a substantive impact on the probability of their priority being discussed in parliament. These findings, which we will demonstrate are empirically robust, are consistent with a second robust set of conclusions from models of informational politics, that proximity to the preference of the pivotal agent renders individuals more credible and thus more efficient as recipients of deliberative voice (Meirowitz, 2007). Since the median household is pivotal in a pure majoritarian democracy, this effect will be accentuated in environments where the median voter disagrees with the greatest proportion of others in the village– i.e. just under 50%. Since consensus is, as we shall show, less prevalent in ethnically diverse villages, ironically, it may be the case that caste heterogeneity may lead to a greater role for voice for the pivotal voter in pure democratic politics: the median household.

[Table 7 about here]

Table 7 shows that the patterns visible in the raw bivariate correlations above are ro-

bust. Controlling for a variety of factors that may influence a villager's policy preferences or their voice, including land ownership, literacy, religion, gender, age, political office and status as a backward or scheduled caste or tribe, there is a strong and robust inverted-U relationship between the proportion of villagers that share a villager's preference on the most important issue and the probability that such an issue will be voiced in the village parliament. In fact, the proportion of villagers' support that maximises the chances of voice is almost precisely 50%: ranging between 0.47%, looking within individuals from the same village, and 0.52%, comparing individuals in different villages (Cols 1-2). As Cols 3-4 reveal, this is not just the result of greater discussion on an issue emerging when there is close to an even an split in the support – in the preferred specification looking within villages, there is actually a discontinuous jump in the probability that an individual's priority will be voiced when they have the support of 50% of villagers versus just less than that threshold. However contention does appear to lead to a greater probability of discussion: above the 50% level of support, as politics becomes more consensual and priorities become more common, the probability of the issue being discussed in the parliament actually falls.

Table 7 also provides some evidence for elite capture: villagers with a standard deviation more land (i.e. 5.13 acres) are 0.015 percentage points more likely to have their issues voiced in the village parliament. But it would take close to two standard deviations additional land to increase voice in parliament by an amount similar to that achieved from having 10% more villagers in support of what was otherwise a small minority position. This suggests that while landed elites may have their priorities voiced more often, their influence pales relative to the influence of the pivotal voter.

[Table 8 about here]

#### [Table 9 about here]

Table 8 and Table 9 examine whether the effects of shared village support change

when or a villager owns more land or in environments with greater issue and caste heterogeneity. Table 8 splits the sample into high and low 'consensus' villages and blocks using our exogenous driver of caste heterogeneity, the mistake block. Notice that in both these samples, the level of village support that maximizes the chance of voice remains very close to 50%. Furthermore, in mistake blocks (with exogenously increased caste heterogeneity), the increase in the linear and quadratic term imply an increased penalty in the effect of a deviation from 50% support on voice. These results are consistent with Table 9, which pools the sample and adds interaction terms between the extent of village support and landownership (Col 1), village priority fractionalization (Cols 2) and our exogenous driver of such fractionalization: mistake blocks (Cols 3-4). Notice that landownership seems to be complementary with village support in yielding voice (Col 1). This finding can be related to the above-mentioned mixed evidence regarding the elite capture hypothesis. One interpretation is that credibility, as captured by closeness to the median voter, is shown to be significantly more important for large than for small landholders or landless individuals. In the remainder of this table it can be observed that increased fractionalization increases the curvature of the inverted-U, raising the likelihood of voice of those with moderate support (Cols 2-4).

#### [Table 10 about here]

Table 10 examines the robustness of our basic results, respecifying the outcome variable to be 'intensity'- the extent of deliberation on the issue rather than simply whether the issue was discussed, as well as comparing the extent to which villagers' shared preferences for an issue is reflected in villagers' speech and officials' speech. Notice, consistent with our previous results, that across both villager and official speech, the level of village support for an issue that maximizes both the chances that the issue will be voiced and the relative extent of discussion of the issue is greatest almost precisely at 50% support. Thus, both villagers and officials appear to respond to more to the issue preferences of the median household in contested environments.

## 4 Discussion

Having voice does not naturally lead immediately to agreement and to policy results. Particularly in heterogeneous societies, the latter can be difficult to achieve. Indeed, the Qualitative Appendix provides two transcripts, from a highly heterogeneous gram panchayat in a mistake block and homogeneous panchayat in a non-mistake block, where consensus was achieved and action taken in the homogeneous but not in the ethnically mixed case. However, our results suggest that even in heterogeneous environments where consensus may be lacking, India's village parliaments do not seem to simply be talking shops providing non-credible information or institutional venues entirely captured by local elites. Instead, the topics raised and the extent of time devoted to particular topics in India's village parliaments in heterogeneous environments appear to be informative not only of the level of support in the village for an issue priority but with additional emphasis on the issue priorities of the pivotal agent in a pure majoritarian democracy: the median household. The emphasis of much of the best work in development economics on local democracies in developing countries on proximate distributive outcomes, while very important, may be missing the potentially valuable informational role that is being played about villagers' preferences even in environments which seem to fail to reach short-term agreement. While such information may not lead to short-term policy decisionmaking, the value of this type of information provision, argumentation and deliberation, particularly in environments that more ethnically heterogeneous, may lie in long-term benefits to peaceful co-existence and to the resilience of democratic systems even in unlikely environments like India and other poor, ethnically mixed developing states, where democracy may often be under threat.

## 5 Appendix: Qualitative Illustrations

Consider this excerpt from a transcript of a gram sabha from a highly caste heterogenous gram panchayat in Dharmapuri district in Tamil Nadu. The meeting begins with announcement about the resolutions taken at a prior meeting and goes on to discuss various issues without reaching a resolution. Our transcript is from the end of the meeting when citizen's demands cover a broad range. The village president is unable to reach a consensus and abruptly closes the meeting.

- Mr. Gomanappa (Villager) : The cement roads have to put and the tar roads also to be put.
- Mr. Balakrishna and Mr. Radhakrishnan : The old village roads have to be repaired. The plants are to be protected for Adhari.
- **Mrs. Padma** : The drinking water in Dhinur is getting very difficult .So we are asking to build a Overhead Tank in our village. In the Thippapatti village the road facility is less. The cement roads are to be constructed.
- Mrs. Saraswathi : In Thippapatti a school has to be constructed.
- Mr. A. Muniappa, Panchayat Ward Member : In our village, the water problems are more. The old pipes were broken. We are requesting to look after this. The streets also not having the lights.
- Mr. Munusamy : We need homes for our urgent purposes. Cement roads we need.
- Mr.Venkatasamy : We need cement roads.
- Another person : Old roads are spoiled. New tarred roads are need.
- Mr. Balakrishna : We have more drainage problems here. It is damaged and getting more bad position. In the nights we are very troubled because of this. We need all facilities here.
- **Mr.Kothappa** : We don't have water here. Please make arrangement for this. We need TV Room also.
- **Another lady** : In the Thippapalli village, the places are in very bad condition– muddy and impure water. The drainage is broken and in bad condition. The ditches have to be made and these drainages should be allowed to go through that. The cement canals have to be constructed here. As so we are requesting.
- Mr. A. Venkatasappa, Ward Member, (Kathirapalli) : The water tank in our village is leaking now. We need new over head tank.
- Mr. M.Venkatesappa, Vice President : No steps were taken for our village cement roads .So they have to be done as such I am requesting.

- Mr. Munusamy : The roads are in bad condition here with breakages. So we need cement roads here.
- Mr. M. Srinivasan, Ward Member : We need a Bala Mandir (Child's School). One TV Room we need.
- Mrs. Padma : The balance damaged cements roads are to be put fully. We need drainage systems properly. The Tar roads need to be put. We have three Women Self Help Groups. But don't have office.
- **President / Mr. K. Seenappa** : We Thank all the Participants for gathering here. (Meeting closed)

Consider now the following except from Dakshin Kanara district in Karnataka, a nonmistake block where caste heterogeneity is low. The people identify a common problem - a health center where the doctor is constantly absent. In short order the villagers come to a resolution to take action against the doctor.

- MALE-2 : Is there anything to ask relating to Health Department? (Some discussion cut)
- **MALE-6** : In Abbattu, a mad dog had bit all the animals. At that time we were suppose to give the injections and it had become a big problem. Even so many people had to go and get injection.
- **FEMALE-8** : When there is a hospital, Doctor has to come there daily.
- $\mbox{MALE-6}$  : People are going to come to the doctor. Then, if you want any help you can ask.
- **FEMALE-8** : If we come to hospital there is no doctor nor are there medicines.
- MALE-2 : People are complaining. Who did you tell about this?
- MALE-2 : See people are complaining directly. You also tell directly.
- MALE-22 : He will not be there all the time. Whenever we go there he will not be there.
- MALE-2 : What is that? What do Gram Panchayat members have to say about this?
- MALE Gram Panchayat Member : I did not know about this. I came to know about this only now.
- MALE-6 : What ever it is ,the doctor will not be there always. Every time this complaint will be there in Gram Panchayat. item[President]: We will give them one more month time. The people are telling that the Gram Panchayat should tell them for one month. Within one month if they did not change, then serious action will be taken against them. We will promise. We will give them one opportunity. Gram Panchayat members should observe these doctors whether they will come in time

or not, whether they give treatment or not for one month. Even after one month nothing is happened means, let the Gram Panchayat bring it to my notice I will take some serious action against them. As far as I know only medicines is coming from the department. Other than this for any other problems or for electricity bill money is not given by the department."

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Ro	und	Total
1	2	
0	18	18
6	31	37
15	15	30
16	26	42
37	90	127
	1 0 6 15 16	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$

Table 1: Sample of Village Parliaments by Round and State

Table 2: Topics discussed in Village Parliaments (Gram Sabhas)

	Meeting	g overall		In spe	ech by:	
			Offi	cial	Villa	ager
Topic	Indicator	Intensity	Indicator	Intensity	Indicator	Intensity
Water	1	0.28	0.94	0.19	0.86	0.09
		(0.16)		(0.16)		(0.10)
Roads	0.94	0.21	0.87	0.13	0.80	0.08
		(0.15)		(0.14)		(0.09)
Education	0.83	0.13	0.70	0.09	0.63	0.03
		(0.14)		(0.13)		(0.05)
Health	0.72	0.09	0.62	0.07	0.46	0.02
		(0.11)		(0.11)		(0.03)
Electricity	0.74	0.08	0.61	0.06	0.49	0.02
		(0.11)		(0.11)		(0.03)
Housing	0.69	0.08	0.60	0.06	0.50	0.02
		(0.12)		(0.11)		(0.03)
Employment	0.19	0.01	0.13	0.01	0.07	0.00
		(0.03)		(0.03)		(0.01)
Agricultural	0.14	0.01	0.13	0.01	0.01	0.01
		(0.03)		(0.03)		(0.09)
Liquor	0.03	0.00	0.01	0.00	0.03	0.00
-		(0.01)		(0.00)		(0.01)

1) The topic indicator equals 1 if the topic is mentioned

in the respective type of speech

2) The topic intensity represents the fraction of the respective type of speech dedicated to the topic; measured as nr of lines of speech dedicated to the topic divided by total nr of lines of speech3) Standard deviations, of intensity measures in parentheses

		Mean (SD)	
	Overall	Mistake	Non-
		blocks	mistake
			blocks
Variable			
Land (acres)	2.26	2.96	1.54
, , ,	(5.12)	(5.88)	(4.05)
Age	37.17	34.55	39.92
-	(12.59)	(12.04)	(12.57)
Literate	0.74	0.77	0.71
Woman	0.49	0.49	0.50
SC/ST	0.19	0.17	0.21
BC/OBC	0.45	0.47	0.43
Muslim	0.07	0.06	0.08
Politician	0.11	0.10	0.12
Priority			
Water	0.38	0.37	0.40
Roads	0.38	0.37	0.39
Electricity	0.07	0.08	0.06
Housing	0.07	0.09	0.05
Health	0.05	0.06	0.05
Employment	0.02	0.02	0.02
Education	0.01	0.02	0.01
Agricultural	0.01	0.01	0.02
Liquor	0.00	0.00	0.00
N	2488	1274	1214

Table 3: Household level summary

Note: Standard deviations, of continuous measures, in parentheses

Table 4: Regression: Number of Castes and ELF in Village	е
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	Number o	f castes	Caste fract	ionalization
	(1)	(2)	(3)	(4)
Mistake block	$3.012^{**}$	0.862	0.112	0.017
	(1.378)	(1.456)	(0.071)	(0.070)
Observations	93	97	93	97
R-sq	0.241	0.139	0.225	0.101
Fixed effects	block pair	state	block pair	state

1) The dependent variable is the Herfindahl index based

on the fraction households holding each priority

2) By definition in a mistake block the state language is a minority;

3) The estimation is done by OLS

4) Standard errors in parentheses, clustered at block level

5) \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01

	(1)	(2)	(3)	(4)	(5)	(9)	(2)	(8)	(6)
village population	0.001 (0.001)	0.001 (0.001)	-0.001 (0.001)	$0.001^{**}$ (0.001)	$0.001^{**}$ (0.001)				
Literacy rate	-0.038 $(0.258)$	-0.063 $(0.270)$	-0.163 (0.216)	-0.060 (0.126)	$0.194 \\ (0.157)$				
fraction Scheduled Caste/Tribe HHs	0.062 (0.077)	0.065 (0.084)	0.083 (0.072)	0.057 (0.064)	$0.144^{*}$ (0.070)				
ELF		0.025 (0.104)				0.029 (0.093)			
nr. castes			$0.009^{*}$ (0.005)				$0.006^{*}$ (0.003)		
Mistake block				$0.042^{*}$ (0.023)	-0.085 (0.101)			$0.060^{***}$ (0.021)	-0.101 (0.113)
Observations	89	89	89	89	89	67	97	93	97
$\mathrm{R} ext{-sq}$	0.624	0.625	0.660	0.519	0.188	0.611	0.643	0.493	0.067
Fixed effects	block	block	block	block pair	state	block	block	block pair	state
1) The dependent variable is 1-HHI, where HHI is the Herfindahl index of village households holding each priority 2) By definition in a mistable block the state language is a minority.	e HHI is t	he Herfind ·	ahl index	of village hou	seholds hold	ding each	priority		

29

z) by definition in a miscake block3) The estimation is done by OLS

4) Standard errors in parentheses, clustered at block level 5) \* p<0.1, \*\* p<0.05, \*\*\* p<0.01

	(1)	(2)
Land	0.002**	0.003*
	(0.001)	(0.002)
Τ., ,	0.001	0.025**
Literate	0.001	-0.035**
	(0.012)	(0.017)
Muslim	-0.003	0.001
	(0.023)	(0.028)
	0.001	0.001
Age	-0.001	-0.001
	(0.002)	(0.002)
Age sq.	0.000	0.000
1.00 2.1	(0.000)	(0.000)
	· · ·	
Woman	0.013	0.011
	(0.008)	(0.008)
Scheduled Caste/Tribe	-0.019	-0.042*
	(0.018)	(0.022)
	(010-0)	(***==)
Backward Caste	0.004	-0.014
	(0.013)	(0.018)
Politician	-0.017	-0.017
Fontician		
	(0.017)	(0.019)
Observations	2488	2488
R-sq	0.331	0.014
Village fixed effects	YES	NO

Table 6: Regression: Proportion of Other Households Sharing a Villager'sIssue Preference

1) The dependent variable equals the support for an individual's priority

2) The estimation is done by OLS

3) Standard errors in parentheses, clustered at village level

4) \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01

	(1)	(2)	(3)	(4)
Prop. HHs sharing issue preference	$2.847^{***}$	$1.786^{***}$	1.148***	0.852***
	(0.313)	(0.486)	(0.159)	(0.177)
Prop. HHs sharing issue preference sq.	-3.018***	-1.693***		
	(0.399)	(0.640)		
Prop. HHs $> 0.5$			0.918***	0.434
			(0.295)	(0.359)
Prop. HHs $*$ (Prop. HHs $> 0.5$ )			-1.958***	-1.030*
			(0.481)	(0.600)
Land	0.003***	0.006***	0.003***	0.005***
	(0.001)	(0.002)	(0.001)	(0.002)
Literate	-0.010	-0.041	-0.009	-0.034
	(0.013)	(0.026)	(0.013)	(0.027)
Muslim	-0.016	-0.056	-0.019	-0.051
	(0.021)	(0.059)	(0.023)	(0.056)
Age	-0.001	-0.003	-0.001	-0.002
5	(0.002)	(0.003)	(0.002)	(0.003)
Age sq.	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Woman	0.003	0.004	0.006	0.007
	(0.012)	(0.013)	(0.013)	(0.013)
Scheduled Caste/Tribe	-0.005	0.011	-0.003	0.018
	(0.020)	(0.034)	(0.019)	(0.033)
Backward Caste	-0.010	0.019	-0.007	0.025
	(0.014)	(0.034)	(0.015)	(0.034)
Politician	0.018	-0.014	0.013	-0.017
	(0.015)	(0.022)	(0.015)	(0.022)
Observations	2488	2488	2488	2488
R-sq	0.532	0.145	0.514	0.132
p-value	0.000	0.000		
Implied match-maximizer support	0.472	0.527		
Village fixed effects	YES	NO	YES	NO

Table 7: Regression: Villager's Top Priority Mentioned in Village Parliament

1) The dependent variable equals 1 if the individual's priority is mentioned overall

2) The estimation is done by OLS, which implies a linear probability model

3) The implied maximizer is the proportion HHs sharing the preference

that maximizes priority match

4) The p-value is from a a joint F test of the linear and quadratic term = 0

5) Standard errors in parentheses, clustered at village level 6) \* n < 0.1 \*\* n < 0.05 \*\*\* n < 0.01 31

6) \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01

	Priority fract.	y fract.	Mistak	Mistake block	Nr. castes	astes	EI	ELF
	above median	median			above median	median	above 1	above median
	no	yes	no	yes	no	yes	no	yes
	(1)	(2)	(3)	(4)	(5)	(9)	(2)	(8)
Prop. HHs sharing issue preference	$3.684^{***}$	$3.724^{***}$	$2.395^{***}$	$3.352^{***}$	$3.063^{***}$	$2.611^{***}$	$3.510^{***}$	$2.551^{***}$
	(0.634)	(0.608)	(0.490)	(0.395)	(0.429)	(0.469)	(0.478)	(0.393)
Prop. HHs sharing issue preference sq.	-3.889***	-4.867***	$-2.536^{***}$	-3.573***	-3.290***	-2.727***	-3.661***	$-2.750^{***}$
	(0.737)	(1.021)	(0.645)	(0.497)		(0.594)	(0.592)	(0.512)
Observations	1175	1313	1214	1274	1244	1244	824	1664
R-sq	0.635	0.456	0.536	0.565	0.551	0.521	0.548	0.530
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Implied match-maximizer support	0.474	0.383	0.472	0.469	0.466	0.479	0.479	0.464

Table 8: Regression: Splitting Samples by Caste Heterogeneity

2) Village fixed effects and full set of household level covariates included 3) The implied maximizer is the level prop. HHs sharing the preference that maximizes priority match

4) The p-value is from a a joint F test of the linear and quadratic term = 0

5) By definition in a mistake block the state language is a minority

6) The estimation is done by OLS, which implies a linear probability model 7) Standard errors in parentheses, clustered at village level 8) \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01

	(1)	(2)	(3)	(4)
Prop. HHs sharing issue preference	1.535***	1.467	1.325**	0.945
	(0.525)	(0.954)	(0.544)	(0.571)
Prop. HHs sharing issue preference sq.	-1.301*	-1.149	-1.134	-0.472
	(0.686)	(1.151)	(0.736)	(0.765)
Land	-0.005	0.004***	0.004***	0.006***
	(0.007)	(0.001)	(0.001)	(0.002)
Land * Prop. HHs	0.079**			
	(0.039)			
Land * Prop. HHs sq.	-0.103**			
	(0.046)			
Fract. index of issue priorities above median		-0.114		
		(0.157)		
Fract. index of issue priorities above median * Prop. HHs		1.690		
		(1.145)		
Fract. index of issue priorities above median * Prop. HHs sq.		-2.909*		
		(1.655)		
Mistake block			-0.053	-0.020
			(0.145)	(0.133)
Mistake block * Prop. HHs			0.765	1.889**
-			(0.851)	(0.795)
Mistake block * Prop. HHs sq.			-0.766	-2.519**
A A			(1.133)	(1.047)
Observations	2336	2336	2336	2488
R-sq	0.179	0.187	0.182	0.212
p-value	0.000	0.000	0.000	0.000
Implied match-maximizer support	0.590	0.639	0.584	1.000
Fixed effects	block pair	block pair	block pair	state

#### Table 9: Regression: Interactions

1) The dependent variable equals 1 if the individual's priority is mentioned overall

3) The implied maximizer is the level prop. HHs sharing the preference that maximizes priority match

5) The p-value is from a a joint F test of the linear and quadratic term = 0

6) All household level covariates from table 4 included but not reported

7) By definition in a mistake block the state language is a minority

8) The estimation is done by OLS, which implies a linear probability model

9) Standard errors in parenthesesclustered at village level,

10) \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01

	Ove	erall	Villagers	partition	Officials	partition
	Indicator	Intensity	Indicator	Intensity	Indicator	Intensity
	(1)	(2)	(3)	(4)	(5)	(6)
Prop. HHs sharing issue preference	2.680***	0.962***	2.847***	0.385***	2.621***	0.578***
	(0.302)	(0.117)	(0.313)	(0.072)	(0.299)	(0.089)
Prop. HHs sharing issue preference sq.	-2.851***	-0.957***	-3.018***	-0.394***	-2.775***	-0.563***
	(0.362)	(0.154)	(0.399)	(0.089)	(0.372)	(0.118)
Land	0.002**	0.001*	0.003***	0.001**	0.001	0.000
	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
Literate	-0.006	-0.001	-0.010	0.001	0.003	-0.002
	(0.012)	(0.006)	(0.013)	(0.004)	(0.013)	(0.005)
Muslim	0.013	-0.006	-0.016	-0.009**	0.027	0.003
	(0.026)	(0.010)	(0.021)	(0.004)	(0.027)	(0.008)
Age	-0.002	-0.001	-0.001	-0.000	-0.002	-0.001*
	(0.002)	(0.001)	(0.002)	(0.000)	(0.002)	(0.001)
Age sq.	0.000	0.000	0.000	0.000	0.000	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Woman	0.004	-0.004	0.003	-0.000	-0.004	-0.003
	(0.011)	(0.004)	(0.012)	(0.002)	(0.012)	(0.003)
Scheduled Caste/Tribe	0.030	-0.004	-0.005	-0.006	0.028	0.002
	(0.019)	(0.009)	(0.020)	(0.004)	(0.020)	(0.008)
Backward Caste	0.019	0.003	-0.010	0.000	0.023	0.002
	(0.015)	(0.005)	(0.014)	(0.002)	(0.016)	(0.004)
Politician	$0.028^{*}$	0.012**	0.018	$0.006^{*}$	0.020	0.007
	(0.015)	(0.006)	(0.015)	(0.003)	(0.017)	(0.005)
Observations	2488	2488	2488	2488	2488	2488
R-sq	0.489	0.496	0.532	0.543	0.544	0.570
p-value	0.000	0.000	0.000	0.000	0.000	0.000
Implied match-maximizer support	0.470	0.502	0.472	0.488	0.472	0.513

Table 10: Ro	bustness:	intensity	and	$\operatorname{speech}$	type
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1) Village and round fixed effects included.

2) The dependent variable in (1), (3), and (5) equals 1 if the individual's priority is mentioned overall,

in the villagers', and respectively, in the officials' speech, and 0 otherwise.

3) The dependent variable in (2), (4), and (6) equals the fraction of lines overall, in the villagers',

and respectively, in the officials' speech dedicated to the priority.

4) The implied maximizer is the level prop. HHs sharing the preference that maximizes priority match

5) The p-value is from a a joint F test of the linear and quadratic term = 0

6) The estimation is done by OLS, which in (1), (3), and (5) implies a linear probability model.

7) Standard errors, clustered at village level, in parentheses.

8) \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01.

				1st language		2nd language	lage	
Pair nr.	$\mathbf{State}$	District	Block	Name Fra	Fraction	Name F	Fraction	Mistake
1	ANDHRA PRADESH	CHITTOOR	NAGARI	Tamil	0.58	Telugu	0.40	
1	TAMIL NADU	DHARMAPURI	BARGUR	Tamil	0.73	Telugu	0.15	0
2	ANDHRA PRADESH	CHITTOOR	NARAYANAVANAM	Tamil	0.54	Telugu	0.46	1
2	TAMIL NADU	DHARMAPURI	PENNAGARAM	Tamil	0.83	Telugu	0.11	0
c,	ANDHRA PRADESH	CHITTOOR	NINDRA	Telugu	0.52	Tamil	0.47	1
c,	TAMIL NADU	DHARMAPURI	KARIMANGALAM	Tamil	0.84	Kannada	0.07	0
7	ANDHRA PRADESH	MEDAK	KANGTI	Telugu	0.37	Kannada	0.32	1
7	KARNATAKA	BIDAR	AURAD	Kannada	0.43	Marathi	0.36	1
×	ANDHRA PRADESH	MEDAK	MAOOR	Telugu	0.47	Kannada	0.29	1
×	KARNATAKA	BIDAR	BASAVAKALYAN	Kannada	0.48	Marathi	0.28	1
6	ANDHRA PRADESH	MEDAK	NYALKAL	Telugu	0.56	Urdu	0.20	1
6	KARNATAKA	BIDAR	BHALKI	$\operatorname{Kannada}$	0.51	Marathi	0.36	1
10	KARNATAKA	DAKASINNA KANNADA	BANTVAL	Malayalam	0.59	Konkani	0.21	1
10	KERALA	KASARAGOD	KANHANGAD	Malayalam	0.96	Kannada	0.02	0
11	KARNATAKA	DAKASINNA KANNADA	BELTANGADI	Malayalam	0.50	$\operatorname{Kannada}$	0.21	1
11	KERALA	KASARAGOD	KASARAGOD	Malayalam	0.81	$\operatorname{Kannada}$	0.09	0
12	KARNATAKA	DAKASINNA KANNADA	PUTTURU	Malayalam	0.62	Kannada	0.16	1
13	KARNATAKA	KOLAR	BANGARAPET	Telugu	0.52	Kannada	0.30	1
13	TAMIL NADU	DHARMAPURI	SHOOLAGIRI	Telugu	0.42	Tamil	0.30	1
14	KARNATAKA	KOLAR	GAURIBIDANUR	Telugu	0.45	Kannada	0.44	1
14	TAMIL NADU	DHARMAPURI	UTTANGARAI	Tamil	0.79	Telugu	0.15	0
15	KARNATAKA	KOLAR	MALURU	$\operatorname{Kannada}$	0.50	Telugu	0.31	0
15	TAMIL NADU	DHARMAPURI	KELAMANGALAM	Kannada	0.35	Telugu	0.30	1
16	KERALA	PALAKKAD	ATTAPADY	Malayalam	0.89	Tamil	0.09	0
16	TAMIL NADU	COIMBATORE	KINATHUKADAYU	Tamil	0.69	Telugu	0.23	0
17	KERALA	PALAKKAD	CHITTUR	Malayalam	0.75	Tamil	0.22	0
17	TAMIL NADU	COIMBATORE	KARAMADAI	Tamil	0.38	Kannada	0.38	0
18	KERALA	PALAKKAD	PALAKKAD	Malayalam	0.91	Tamil	0.07	0
18	TAMIL NADU	COIMBATORE	UDUMALAIPETTAI	Tamil	0.67	Telugu	0.29	0
The lang Source: 2	The languages and fractions refer Source: 2001 Indian Census	The languages and fractions refer to those spoken in rural areas of the block Source: 2001 Indian Census	s of the block					

Table 11: Detail of languages spoken in the sampled blocks