Lower-Stakes Legislative Collaborations, Ethnicity, and Gender

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How do legislators decide with whom to collaborate? I argue that legislative collaborations are shaped by ethnicity and gender, with legislators from dominant ethnic groups and men legislators having more opportunities to collaborate than non-dominant legislators. These dynamics are likely present even when the nature of the collaboration is not particularly electorally salient. I test this hypothesis using newly collected data on question-asking from local legislators in Delhi. Dominant caste men legislators tend to dominate question-asking collaborations as expected, with men legislators consistently having more collaboration opportunities. The results suggest that legislative power dynamics are present even in lower-stakes interactions and may mean that simply encouraging additional legislator collaborations does not address underlying discriminatory patterns in how dominant legislators select their collaborators.

Keywords: representation, complaint resolution, grievances, India

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Industrial business license regulations rarely make the news.[1] Yet, two legislators in Delhi asked the local government bureaucracy to change their license regulation policies so "that no industrial unit…should be sealed without an advance notice of 15 days" (Question 12405). Why did these legislators collaborate to ask this question? Electoral incentives help to guide many aspects of legislator behavior. Thus, when electoral incentives are high, legislators make decisions based on what they think is electorally popular. In contexts where ethnicity and gender are salient identities, the result is that legislators may be reluctant to collaborate with one another, especially across ethnic or gender lines. Other actions that legislators take --- like this example of asking questions to bureaucrats --- provide an opportunity for lower-stakes collaboration due primarily to their reduced electoral salience. When faced with these lower-stakes opportunities, do legislators overcome gender and ethnic differences and collaborate across groups?

Legislators make decisions that help them maintain power and win re-election, and collaboration can help to support this objective. I define a legislative collaboration as a legislative job duty that two or more legislators perform jointly. Legislative job duties are official actions that legislators can take. This includes sponsoring legislation, speaking in the legislature, holding committee seats, and --- in this context --- asking questions to bureaucrats. Importantly, legislators must engage in the duty jointly. As such, two legislators who happen to be in the same place at the same time are not collaborating because they do not engage in the job duty together. Further, a collaboration like co-planning a campaign event is not included because such an event is not a legislative job duty. These events are excluded because it is difficult to capture the universe of cases of non-legislative collaborations.

Co-sponsorship is a common legislative collaboration used to achieve legislative goals, and legislators tend to use weak ties with other legislators as a mechanism for encouraging them to co-sponsor legislation (Crisp, Kanthak, and Leijonhufvud 2004; Kirkland 2011; Skigin 2019). Characteristics like party membership (Alemán and Calvo 2013) and electoral system (Clark and Caro 2013) set boundaries around the group of legislators with whom co-sponsorship is acceptable. As a result of a history of exclusion, women and ethnic minority groups tend to be left out of the co-sponsorship process or relegated to co-sponsor with one another (Neal, Domagalski, and Yan 2022; Rocca and Sanchez 2008).

Scholars have also focused on legislative speeches and debates to demonstrate how legislators work with one another. While legislative speeches are not inherently collaborative, existing work consistently finds that women are frequently interrupted when speaking (Miller and Sutherland 2023) and are relegated to speaking about "women's issues" (Bäck and Debus 2019; Bäck, Debus, and Müller 2014; Catalano 2009).[2] These results show how men dominated legislatures are not environments conducive to intra-gender collaboration. Women chief executives (Wahman, Frantzeskakis, and Yildirim 2021) and gender or ethnic quotas (Crisp et al. 2018; Fernandes, Lopes da Fonseca, and Won 2023) are effective tools at increasing participation, perhaps best evidenced in the relatively balanced participation in Costa Rica's legislature (Funk, Morales, and Taylor-Robinson 2017).

Apart from speeches, debates, or legislative co-sponsorship, legislators have other opportunities to interact and to collaborate with one another, including instances where electoral incentives to collaborate are lower. These cases allow us to see whether electoral incentives are the main determinants of cross-ethnic and gender collaborations or whether legislators discriminate in collaborating regardless of the electoral consequences. I take local legislatures in

Delhi --- known as municipal corporations --- as my case. Delhi is one of the largest urban governments in the world and features reserved legislative seats for both caste and gender. I use newly available data on legislator question-asking behavior to determine the nature of legislative collaborations. Question-asking is an important legislative role, but it goes unpublicized, so the electoral incentives to act are lower than other forms of collaboration. I find that men legislators typically and upper caste legislators sometimes dominate legislative collaborations. Men upper caste legislators who are party leaders appear to exert significant control over the collaborative question-asking process even though question asking is not particularly electorally salient.

This is the first article to examine question-asking collaborations and local-level legislative collaborations. The results are important because legislators are not limited to high-stakes, publicized collaborations with one another. In fact, much of legislative behavior involves exchanging favors though lower-stakes interactions. These collaborations are less public and less electorally salient; despite this, they are exclusionary. Public policy practitioners may wish to consider ways to encourage cross-gender and ethnic collaborations as a start toward promoting more understanding and interaction between legislators.

Theory

The definition of a legislative collaboration described above means that two or more legislators must interact to achieve a common goal. Legislative collaborations vary in their scope, electoral salience, and level of legislator commitment. Co-sponsoring a piece of legislation requires a high level of commitment, a clear possibility to make electorally salient change, and, depending on the bill, a potentially large scope (Harward and Moffett 2010; Micozzi 2014). While much co-sponsored legislation never becomes law, co-sponsorship is a visible form of position-taking that

associates a legislator with the sponsor of the bill and with the particular details in the bill (Fischer et al. 2019; Schiller 1995). As such, co-sponsorship is often a tool used to enhance legislators' reputations, to send signals to one another (Kessler and Krehbiel 1996), and to send signals to constituents (Koger 2003; Micozzi 2014). This public-facing nature of co-sponsorship means that it is one of the most electorally salient forms of collaboration.

On the other end of this spectrum, some legislative collaborations are devoid of these characteristics. I call these collaborations performative actions. The U.S. Congress provides many examples of public facing collaborations that require little commitment, take up little time, and lack electoral salience (e.g., Seersucker Thursday) (Lawless, Theriault, and Guthrie 2018). While interesting, the lack of commitment required to engage in these activities means that legislators can participate with other legislators with whom they would not otherwise interact at almost zero cost. In other words, the threshold for participation is so low that these performative actions likely do not reflect legislators' true willingness to work with legislators from other genders or ethnic groups.

The exact levels of commitment, scope, and electoral salience clearly vary within different legislative activities. Nonetheless, I broadly categorize five legislative activities along these three dimensions: co-sponsoring legislation, performative action, joint press conferences, floor speeches, and question-asking. Commitment level refers to the amount of political capital invested in the action. Electoral salience is defined by the extent to which engaging in a collaboration is likely to be a deciding factor for constituents to vote for a politician. As Crisp, Kanthak, and Leijonhufvud (2004) describe, legislators have incentives to collaborate to establish a reputation that benefits themselves electorally. Collaboration scope indicates whether taking the action requires a major investment of time. Table 1 formalizes this comparison with a

subjective assessment of the commitment level, electoral salience, and scope across the five collaboration types.

Table 1: Commitment Level, Electoral Salience, and Scope for Selected Collaborations

	Commitment Level	Electoral Salience	Scope
Co-Sponsor Legislation	Highest	Highest	Highest
Floor Speech	Medium	Medium	Medium
Joint Press Conference	Medium-Low	Medium-High	Medium
Question-Asking	Medium-Low	Medium-Low	Low
Performative Action	Lowest	Lowest	Lowest

Note: Subjective assessments of commitment level, electoral salience, and scope for five forms of collaboration.

As mentioned previously, Table 1 is an illustration that subjectively assesses different collaborative activities based on the three criteria. It is assumed that collaboration activities will vary in their commitment level, electoral salience, and scope, but also that they will generally fall within the boundaries mentioned here.[3] Based on this assessment, I argue that legislators collaborating to ask questions during legislative meetings constitute an optimal middle ground between co-sponsoring legislation and performative action.[4] Asking questions in a legislative meeting is not as electorally salient as is co-sponsorship. However, it does require some investment of political capital and agreement on the basic issue --- what Meissner and Rosén (2021, 4) call "positive coordination." Such collaborations also provide a limited opportunity for a public facing response: constituents particularly invested in the issue may notice if a topic about which they had a grievance was addressed and use this information to update their voting preferences. Because of the public facing response, party leaders may also be involved in coordinating, regulating, or incentivizing question-asking collaborations. But since the scope of the collaboration is smaller, question-asking can enable low-level public goods provision that is less subject to control by party leaders.[5]

With the electoral payoff for collaborating reduced compared to legislative co-sponsorship, legislators belonging to dominant groups may care less about the nature of the collaboration because it is less electorally salient. Here, dominant groups are those that have traditionally held legislative power. By nature of their dominance, these legislators shape collaborative behavior (Franceschet and Piscopo 2014). Dominant legislators are party leaders and leaders in the legislature (Senk 2021). They control, both formally and informally, who participates in legislative activities and who is given political power in the legislature (Erikson and Josefsson 2022). Of course, if dominant legislators decide that collaborating with non-dominant legislators is acceptable, non-dominant legislators still have agency over their willingness to participate. But dominant legislators' approval is needed for non-dominant legislators to have the option to collaborate with dominant legislators.

Further, dominant legislators can exercise political power to make it more difficult for non-dominant legislators to collaborate with one another. For example, dominant legislators --- by virtue of holding the most political power --- will most often fulfill the presiding officer role of the legislature and can allocate time to legislators to ask questions. If the presiding officer calls on non-dominant legislators to ask questions less frequently, then non-dominant legislators' opportunity to ask questions is more limited. Wahman, Frantzeskakis, and Yildirim (2021) provide the clearest evidence for this, showing that women are less confined to speaking about "women's issues" when led by a woman president (see also Bäck, Debus, and Müller 2014).

Since dominant legislators play a gatekeeping role in enabling non-dominant legislators to collaborate to ask questions, these dominant legislators could choose to collaborate directly with non-dominant legislators to ask questions. Doing so would reflect the fact that question-asking collaborations are not very electorally salient, so there is no intrinsic reason that dominant

legislators need to maximize their number of questions asked or to restrict collaborations only to dominant legislators. Collaborating with and encouraging additional non-dominant legislator collaborations may also help to appease these legislators and to maintain secure control over bill passage and more electorally salient collaborations. If the opportunity to collaborate more arises, non-dominant legislators will do so because question-asking collaborations represent one of their few opportunities to exercise political power (Holman and Mahoney 2018; Muraoka 2020).

I argue that this is an unlikely outcome. In a society where ethnic and gender divisions are politically and socially salient, legislators from dominant groups will only give up political power by collaborating with legislators from non-dominant groups when there is a clear benefit to them doing so (e.g., Valdini 2019). In the minds of legislators from dominant groups, particularly party leaders, the fact that legislators from non-dominant groups are present in the legislature is evidence that they are going out of their way to appease non-dominant groups (Heath, Schwindt-Bayer, and Taylor-Robinson 2005). Further appeasement is unnecessary because non-dominant legislators know that their ability to participate in the legislature at all is determined by dominant groups.

As a result, collaborations in less electorally salient contexts continue to be based on group membership, with dominant group legislators constituting more collaborations with one another and excluding non-dominant legislators from collaborations. Dominant groups take on different forms in different societal contexts. Gender and ethnicity are common social cleavages where group-based dominance is often established. Religion, language, region, and descent-based appearance are additional characteristics often associated with dominance, among others. My interest is primarily in ethnic and gender dominance; therefore, I hypothesize that the logic

about dominant and non-dominant group collaboration applies to dominant and non-dominant ethnic groups in contexts where ethnicity is a relevant social cleavage.

Legislators from dominant ethnic groups see the possibility of non-dominant ethnic groups gaining political power as a threat (Tajfel and Turner 1986). The classic social identity threat literature applied to the public (e.g., Shayo 2009), people in workplace environments (e.g., Emerson and Murphy 2014), and elites (e.g., Ejdemyr, Kramon, and Robinson 2018) suggests that legislators from dominant ethnic groups will turn inward and strengthen their own ethnic group identity. In doing so, this prompts dominant legislators to negatively distinguish and to exclude non-dominant legislators from the workings of the legislature in whatever ways possible, including by restricting question-asking collaborations (van Bergen et al. 2015; Brewer 1999). It also heightens the perceived need for dominant legislators to engage in collaborative question-asking with one another to counteract the political power being exerted by non-dominant legislators. Because non-dominant legislators need tacit approval from dominant legislators to successfully complete a question-asking collaboration (often especially including dominant party leaders), non-dominant legislators will engage in fewer collaborations compared to dominant legislators.

Hypothesis 1: Legislators from dominant ethnic groups collaborate more frequently than legislators from non-dominant ethnic groups.

Gender and ethnicity are not interchangeable (Htun 2004; Htun and Ossa 2013). However, while political competition may look different for women compared to non-dominant ethnic groups, the constraints placed on women's ability to collaborate are similar to those

placed on non-dominant groups, again in contexts where gender is a relevant social cleavage. Likewise, social identity threat is not inherently based on ethnicity and can be applied to perceived gender threats. Men legislators will perceive the presence of women legislators as a threat to their power in the legislature (Berry, Bouka, and Kamuru 2021; Childs and Krook 2009; Kathlene 1994; Krook 2015; see also Hawkesworth 2003 for an intersectional perspective and Kim and Kweon 2022). As a result, while women legislators will seek to collaborate with one another (Barnes 2016), men legislators will seek to collaborate with other men and will seek to stifle question-asking by women legislators (Heath, Schwindt-Bayer, and Taylor-Robinson 2005). This enables men legislators to collaborate more frequently than women legislators.

Hypothesis 2: Men legislators collaborate more frequently than women legislators.

Two choices about the hypotheses are worth noting. First, while I expect that men and dominant ethnic group legislators will engage in more collaborations than women and non-dominant ethnic group legislators, I do not have expectations about the comparison between gender and ethnic collaborations. This is because the strength of the relationship between gender and collaborations or ethnicity and collaborations likely depends on the magnitude of the salience of gender and ethnicity in a particular country context. While it is relatively straightforward to determine whether gender or ethnicity are salient social cleavages, determining their relative importance with enough precision is difficult. Therefore, I expect gender and ethnicity to both influence collaborations, but I do not specify the strength of this relationship.

Second, the exact methods of collaboration are left to be defined in the research design section based on what is appropriate for the selected case. Collaboration, of course, encompasses many types of behaviors even within the context of question-asking collaborations. Legislators can be thought of as collaborating more when they work with more legislators, when they spend more time working with those legislators, when they work with the same group of legislators repeatedly, and so on. Like the strength of the relationship, the nature of the possible collaborations is somewhat determined by the country context, so I focus the hypotheses on collaboration and specify precise empirical tests below.

Case Description

I test these hypotheses using data from municipal legislative committees in India, the world's largest democracy. Ethnicity in India comprises caste, religion, region, and language, among other identities. I focus on ethnicity as the combination of caste and religious categories because these cleavages are the most prominent and visible, as both caste (Parikh 1997) and communal (religious) conflict are common across India (Brass 2011). In this context, the ethnically dominant group consists of forward caste members, whereas non-forward castes and members of other religions are ethnically non-dominant groups. Gender is also a relevant and salient social cleavage, as many political and bureaucratic positions have representation reserved for women.

My focus is on examining the role of caste and gender in shaping elite behavior. To do so, I chose an observational approach. Elite ethnic diversity and gender cannot be experimentally manipulated. Survey-based manipulations of elites' perceptions about ethnic and/or gender diversity are possible, but these approaches do not demonstrate how elites work together in an ethnically and gender diverse context. I focus on urban municipal governments because urban

areas tend to contain caste and religious diversity, and politicians elected in municipal governments represent a large number of constituents (Aijaz 2008; John 2007).

I take as my case elites in urban municipal government in Delhi, the capital of India and one of the world's largest urban areas. Municipal governance of the National Capital Territory of Delhi is complex. The National Capital Territory has its own government, which is equivalent to a state government. Municipal governance is split between three bodies: the New Delhi Municipal Council, which governs central Delhi; the Delhi Cantonment Board, which governs military areas; and the Municipal Corporation of Delhi (MCD). The MCD was split into three bodies --- the North, South, and East Delhi Municipal Corporations --- starting in 2012, but it was reunified into a single body in 2022. For the period under consideration in this project, the MCD was three separate municipal corporations, and the rest of the article will refer to the structures in place during this time. The new, unified MCD performs the same functions and has a very similar set-up, essentially creating a super-structure to encapsulate the three corporations. Corporations are responsible for making local-level decisions mostly on quality-of-life issues within the corporation.

Municipal corporations are comprised of corporators who represent individual constituencies and are elected in single member district plurality elections every five years. Constituencies are grouped into wards, with multiple corporators representing adjacent constituencies serving on a ward committee. Ward committees are responsible for managing public service requests within the ward (Shah and Bakore 2006). Corporators can also serve on corporation-level committees including a standing committee, the highest form of elected governance in the corporation. Corporators vote to select the members of these committees.

Party leaders play an important role in this process, as well as in the operation of committee meetings.

Corporators interact with one another both during and outside of committee meetings. It is common, for example, for corporators to invite one another to weddings and to other special events. While social in nature, these events provide an opportunity for corporators to discuss issues with other corporators in a less formal setting. Corporators may also attend party meetings to receive instructions from senior party leaders or to coordinate with one another. During committee meetings, corporators interact informally to coordinate and share information. Many corporation meetings --- especially those general body meetings where all corporators attend --- are highly choreographed. Debate topics are chosen in advance and are often moderated by party leaders. Exact procedures for corporation committee meetings are not consistently followed or transparent. For example, meeting schedules or agendas for corporation meetings are not available online and only a few transcripts of corporation meetings are available. Meetings are also poorly publicized and are sometimes scheduled on short notice, meaning that there is little media coverage and few opportunities for members of the public to attend corporation meetings.

Given these constraints, one way that corporators engage in committee meetings is by asking questions during the meeting. One primary purpose of committee meetings is to give corporators the opportunity to communicate with government bureaucrats who are responsible for implementing corporation initiatives. To do so, corporators ask bureaucrats questions, and these questions are written down to enable bureaucrats to respond. This is an important aspect of corporators jobs, as their function is primarily to redress grievances and to improve public service delivery. Unlike parliamentary questions, question-asking is a function for all corporators, not just those in minority parties (Mimica, Navia, and Cárcamo 2024).

Several question-asking procedures are used during general body meetings that include all corporators. One involves submitting questions in advance of the corporation meeting to receive a reply from the bureaucrat responsible at the meeting. Both "Questions of the Month" and "Proposals Under Section 74" operate in this manner, with at most one question of the month and one proposal under section 74 answered during a general body meeting.[6] Second, corporators may ask questions during an open discussion period called "short term questions" or "half hour debates" that occurs during general body meetings. These sessions feature topics selected in advance and are moderated by party leaders. The procedures for asking questions during meetings of other committees are less structured, as the purpose of these committees is to provide a place for corporators to discuss issues and to develop improvements that they want to make.

Corporators are unlikely to be able to use their question-asking behavior as an effective electoral tool because of the relatively obscurity of corporation meetings and the indirect connection between asking a question and bureaucrats resolving the issue raised. Questions are, however, good ways to develop relationships with other corporators. Because question-asking requires some effort, corporators who want to ask a question are incentivized to prepare in advance and to enlist other corporators to support their cause. Corporators can collaborate to ask the same question hoping that doing so will elevate the impact of the question and make it more of a priority for bureaucrats. Importantly, electoral incentives produced by question-asking are *lower*-stakes not *zero* stakes. Question-asking can resolve important local issues, and party leaders may reward corporators who perform particularly well with leadership positions or nominations for higher office. In these calculations, though, question-asking is less likely to be influential compared to legislative co-sponsorship or other, more public behaviors.

Question-asking collaborations provide an opportunity to observe how corporators work together. As one of the only written records of corporator actions, question-asking collaborations occur frequently and are observable through Right to Information Act requests.

Research Design

Data consists of questions asked in Delhi municipal corporation meetings during the one-year period between April 10, 2018 and March 29, 2019. This represents one full corporation session. This dataset includes the question text (as written by a corporation secretary), the date the question was asked, the committee the question was asked in, and the corporator who asked the question. About 3% of entries in the dataset had a question whose text was marked "No details," so those questions were excluded leaving a total of 18,953 questions asked by 272 corporators or approximately 70 questions asked per corporator. This dataset was obtained by a non-governmental organization using Right to Information Act requests. That organization manually categorized the nature of the complaint into one of several hundred complaint categories. I grouped these categories to obtain a total of fifteen question categories ranging from drainage to roads to the environment.[7]

To assess whether corporators collaborated to ask questions, I identified questions with the same wording throughout the dataset. This is a hard test of collaboration because it excludes collaborations wherein several corporators worked together to craft the question, but only one corporator asked it during a committee meeting. It also excludes corporators who collaborated and then asked slightly different questions. The former is unobservable, and the latter is not possible to distinguish from corporators who simply had similar interests and worded questions similarly.

I assume that corporators who ask questions in the same way indeed collaborated with one another. This is a safe assumption because questions are relatively complex; the mean question contains 34 words. A corporator seeking to ask the same question would need to copy down the question word-for-word and have the question transcribed by the corporation secretary in the same way for it to be counted as having the same question wording in the dataset. This is even less likely because questions often refer to specific locations, quantities, or events. Only corporators who collaborated with one another would be prepared to ask a question about the "Criteria of 100 sq. mtrs for concession in property tax [that] should be removed for the property used by owner or his hier [sic] in rural area for self-accommodation" (Question 3655). Further, some questions take the form of formal motions where corporators sign on in support of an issue. Corporators collaborate to create motions since motion text is lengthy, and, indeed, 97% of motions were made by more than one corporator.[8]

It is substantially more likely that at least some coordination occurred between corporators asking the same questions. Coordination could take the form of signing onto a motion. It could also look like alerting other corporators to prepare for debate about a specific issue because debate topics are specific enough that going off the cuff would be difficult. In any case, coordination between corporators requires at least a minimal level of cooperation.

There are four ways in which questions can be asked more than once. *True Duplicates* refer to the same corporator asking the same question in the same committee on the same day. I call these duplicates "true" because they are most likely the result of either clerical errors or a corporator raising the same question at multiple points during a committee meeting. Table 2 shows the distribution of duplicate questions and indicates that true duplicates represent about 7% of the total number of questions asked. True duplicates are not particularly interesting for our

purposes because they do not describe collaborative behavior. *Repeat Duplicates* refer to the same corporator asking the same question in a different setting. This can include asking the same question on the same day in a different committee, asking the same question on different days in the same committee, or asking the same question on different days in different committees. Repeat duplicates do not require coordination with other corporators, but they do illustrate a strategy that some corporators use to draw attention to a persistent issue.

Table 2: Duplicates

Duplicate Type	Number	% of Total Questions
True	1306	6.89
Co	3390	17.89
Repeat	142	0.07
Echo	166	0.09

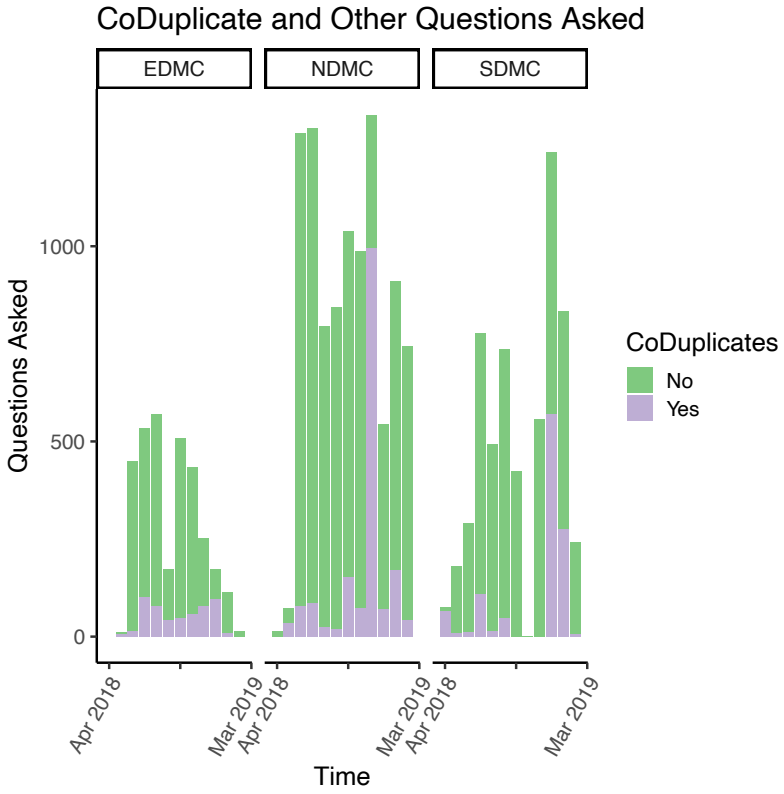
Note: Duplicates listed by type along with the number of duplicates and percentage of the total number of questions asked belonging to a particular duplicate type.

Co Duplicates and *Echo Duplicates* are the two types of duplicates that involve coordination across corporators. Co duplicates refer to a different corporator asking the same question in the same setting. Motions where multiple corporators sign on in support are an example of a co duplicate, along with anytime corporators all ask the same question during a single committee meeting. Echo duplicates refer to a different corporator asking the same question in a different setting, either in a different committee, at a different time, or both. Co duplicates are relatively common, with about 18% of total questions asked being repeated by a different corporator in the same committee meeting.[9]

Figure 1 displays the number of questions asked by type and municipal corporation, with each bar representing questions asked in a given month. Clearly, question asking behavior and collaboration is partially determined by the workings of each corporation, as substantially fewer

questions were asked in the East Delhi Municipal Corporation (EDMC) compared to North (NDMC) or South (SDMC).[10]

Figure 1: Co Duplicate and Other Questions Over Time



Note: Co Duplicate questions and other questions by month and corporation.

To better understand corporator question-asking collaborations, I collect corporator and constituency-level data. This includes data on whether a corporator holds a caste reserved seat, the percentage of scheduled caste residents in each constituency, age, gender, education, party membership, the number of committees they are on, and whether they are on the standing committee. At the constituency level, I collect data on the margin of victory in the previous election and the population.[11]

Finally, I code each corporator as belonging to a caste category. The term "caste" traditionally refers to jatis or sub-jatis of which there are thousands of such groups; here I use

varnas as the basis for grouping corporators into six salient caste and religious categories that are used on the largest social survey in India (Desai and Vanneman 2015). I do this using two expert Indian coders who independently categorized corporators' caste into one of six categories: Brahmin, Other Forward (OF), Scheduled Caste (SC), Scheduled Tribe (ST), Other Backward Caste (OBC), and other religion; see the Supplemental Information for details. Table 3 displays the caste demographics.

Table 3: Caste Categories

Caste	Number (%)
Brahmin	46 (16.91)
Other Forward	133 (48.90)
Scheduled Caste	47 (17.28)
Scheduled Tribe	0 (0.00)
Other Backward Caste	17 (6.25)
Other Religion	29 (10.66)

Note: Caste categories listed with number of corporators and percentage of corporators. Other religion category contains 6 Jains, 8 Sikhs, and 15 Muslims.

I test my hypothesis in stages. First, I examine which corporators ask more questions using negative binomial regression models with caste and gender as the main variables of interest plus controls for age, party, population, margin-of-victory, education, number of committees served on, and standing committee membership. Next, I determine which corporators collaborate more often using a zero inflated negative binomial model with the dependent variable being the number of collaborations and the same set of covariates. I then describe descriptive characteristics of the corporators who form the most collaboration groups and who are members of collaboration groups that collaborate most frequently. Finally, I use exponential random graph models (ERGM) to predict whether a connection (or tie) will occur between corporators wherein they will collaborate with one another.

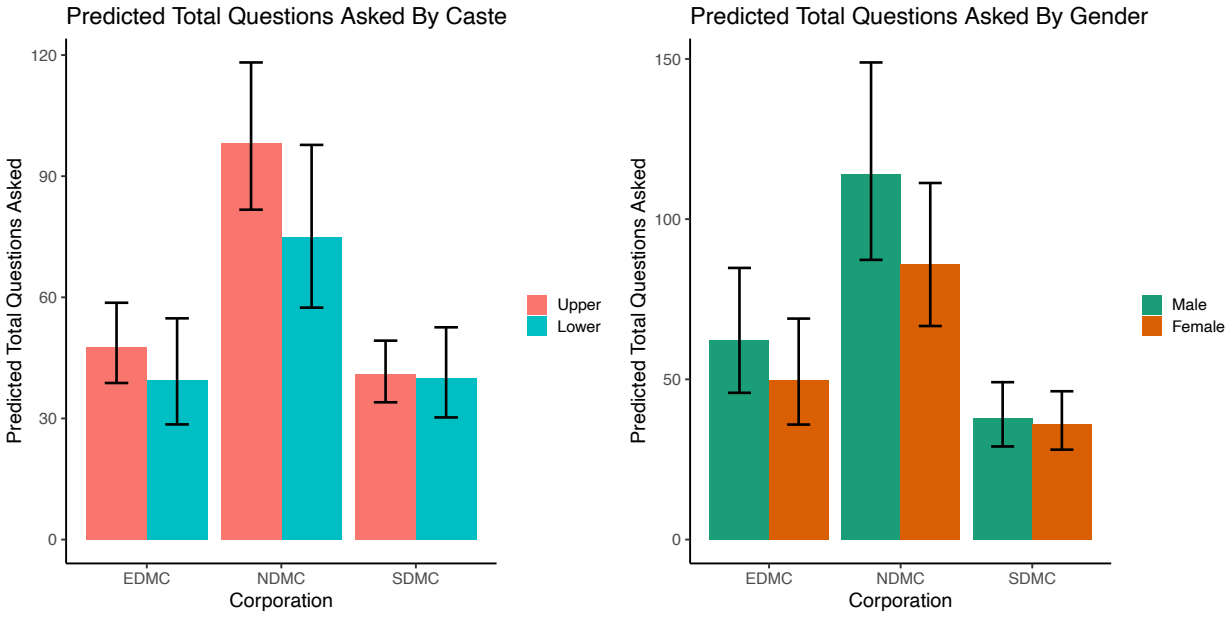
Predicting Question Asking and Collaborations

Question Asking

Collaborations can only occur if corporators ask questions. During this one-year period, five corporators chose not to ask even one question. This is most likely a conscious choice on the part of these corporators. Party leaders can and do exert control over the question-asking process, but the mean number of questions asked is 70, so being so restricted by party leaders so as not to be able to ask a single question seems unlikely.

Figure 2 shows the predicted total number of questions asked by caste (left panel) and gender (right panel). The results here are from negative binomial models with controls for demographic and electoral characteristics (see SI.4 for the full results). Hypotheses 1 and 2 argue that high caste corporators and men corporators will engage in more collaborations; assessing whether they ask more questions represents a first step in this process. Predicted total questions are generated by setting other covariates at their means.

Figure 2: Predicting Total Questions Asked



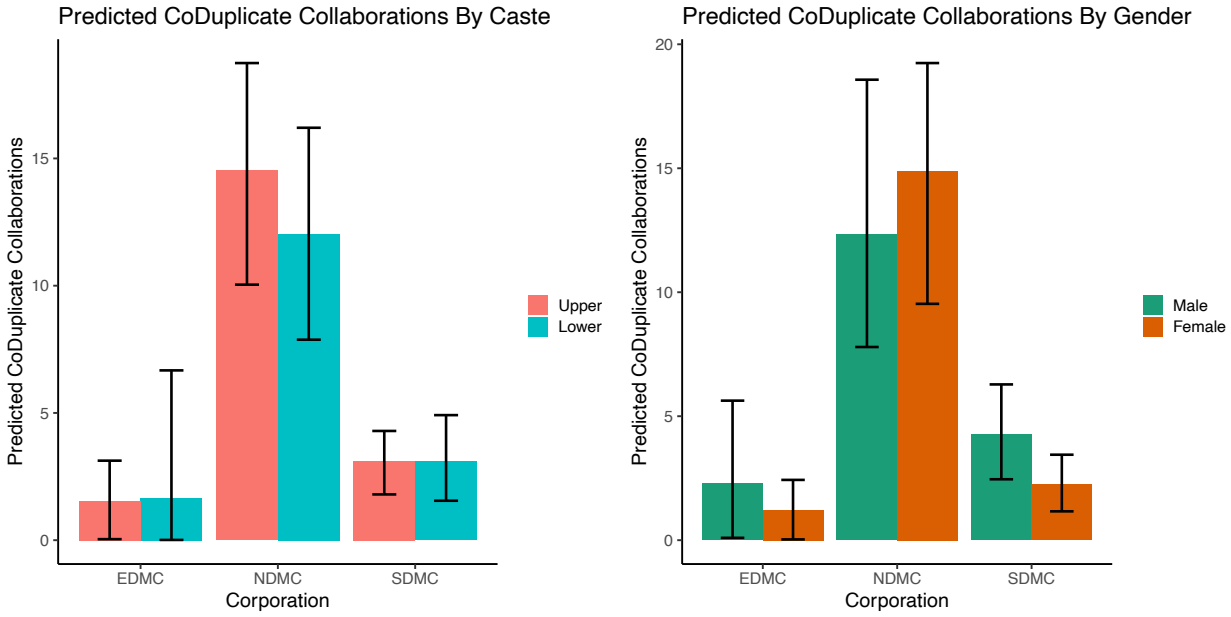
Note: Predicted total number of questions asked with 95% confidence intervals shown. From negative binomial regression models (see Table SI.4.1). Predictions based on mean values of other covariates.

Starting with caste, there are no statistically significant differences between upper and lower caste individuals across the three corporations. Figure SI.4.1 shows the predicted total questions broken out by the six caste categories with no statistically significant differences between the categories across the three corporations. Moving to gender, men corporators ask more questions on average than do women corporators, but these differences are not statistically significant. In the NDMC, the difference is statistically significant at the 0.10 level. Table SI.4.1 shows that corporators who serve on the standing committee (i.e., corporation leaders), who serve on more committees, who are older, and who are more educated tend to ask more questions. Other factors, like constituency population, party, percent scheduled caste in the constituency, and electoral margin of victory do not increase the number of questions that corporators ask.

Number of Collaborations

Figure 3 provides the first direct test of Hypotheses 1 and 2. I argue that higher caste corporators and men corporators should engage in more collaborations compared to other corporators. I run zero inflated negative binomial models. Much like the ability to ask questions, I argue that all corporators who want to engage in at least one collaboration can do so. Therefore, the zero model contains corporator demographic characteristics that might influence this decision. The figure displays the predicted number of collaborations by caste and gender setting other covariates at their means and using bootstrapped standard errors. Full models are in SI.5.

Figure 3: Predicting CoDuplicate Collaborations



Note: Predicted number of CoDuplicate collaborations with 95% confidence intervals shown. From zero inflated negative binomial regression models (see Table SI.5.1). Predictions based on mean values of other covariates with bootstrapped standard errors.

Starting with caste, there are no statistically significant differences in the number of collaborations between the two caste categories. In fact, the predicted number of collaborations

by upper and lower caste are almost the same in the EDMC and SDMC. Hypothesis 1, therefore, is not supported.

Moving to the right panel of Figure 3 and gender, men corporators collaborate more than women corporators in the EDMC and SDMC, and these differences are statistically significant. A woman corporator in the EDMC is predicted to collaborate about 1.2 times compared to 2.3 times for a man corporator. In SDMC, women corporators are predicted to collaborate about 2.2 times compared to 4.3 times for a man corporator. The pattern is reversed in the NDMC with the predicted number of collaborations for men corporators lower than for women corporators, but this difference is not statistically significant. Hypothesis 2 is partially supported. Though the predicted change in about 1 or 2 collaborations in the EDMC and SDMC effectively doubles the number of collaborations, it is unclear whether this effect is noticeable: collaborations are relatively rare, but a single additional collaboration may not be consequential.

Characterizing Frequent Collaborations

Apart from the number of collaborations, it is also important to characterize a typical collaboration. This can help us understand the caste and gender distribution of typical collaborations obscured by the focus only on predicting the total number of collaborations. It also helps us begin to test whether upper caste corporators and men corporators collaborate more *with one another*, as this type of collaboration could explain the total number of collaborations.

I first examine the demographic characteristics of what I call "collaboration groups." A collaboration group is a set of corporators who collaborate with one another at least once. I average demographic characteristics for collaboration groups who collaborate only once and collaboration groups who collaborate two or more times and compare them to the average

demographic composition of corporators as a whole (see Table SI.5.2). Focusing on caste first, collaboration groups are more likely to consist of a higher percentage of OF members compared to the average corporator. This is especially true in the SDMC, where 56% of the corporation is OF, but 73% of collaboration groups who collaborate two or more times and 74% of collaboration groups who collaborate once are comprised of OF members. The pattern is the same in the EDMC and NDMC, though the differences are smaller. Other caste categories either do not display a consistent pattern or collaboration group demographics are similar to the percentage of that caste category in the corporation. While OF corporators do not consistently collaborate more, unique collaboration groups are overrepresented with OF members.

Women corporators are less likely to be members of collaboration groups that collaborate once in all three corporations. In the SDMC and EDMC, they are also less likely to be members of collaboration groups that collaborate multiple times. In the NDMC, women corporators make up 54% of the 15 collaboration groups that collaborate more than once and 52% of the corporation, so there is no meaningful difference between women's participation. These results support Hypothesis 2 suggesting that women corporators both collaborate less frequently and are less likely to be members of collaboration groups.

Corporators usually are members of a collaboration group once. However, between 15 and 30% of collaboration groups are repeated, meaning that the same group of corporators collaborates multiple times. Some of these collaborations occur often. The top collaborators were Nirmal Jain and Satya Pal Singh, both EDMC standing committee members, who collaborated 173 times. Jain was leader of the EDMC general body and Singh was standing committee chairman. Tilak Raj Kataria and Veena Virmani collaborated the second most --- 137 times. Both were NDMC standing committee members and Kataria was the chairman in 2018 with Virmani

the chairman in 2019. Some corporators are also members of multiple collaboration groups. For example, Tilak Raj Kataria was a member of two other of the top ten most frequent collaboration groups.[12]

Examining the ten collaboration groups that collaborated most often, eight of them were comprised entirely of OF members (see Table SI.5.3). Seven included at least one woman corporator with two entirely women collaboration groups. The typical collaboration group contained only two members. These members were almost always on the standing committee and often belonged to more committees than average. Collaboration groups that collaborated most often were older than the average corporator and had a much larger margin of victory than average. They were also exclusively members of the BJP. In other words, collaboration groups that collaborated most often consisted of party leaders who were mostly upper caste men, supporting both Hypotheses 1 and 2.

Some examples of the specific issues that were the subject of collaborations is instructive because these examples can illustrate the nature of collaborations and a story about how these collaborations might have come about. Here I focus on two examples from Table SI.5.3. The first is a question asked by Nirmal Jain and Satya Pal Singh, the EDMC standing committee members who collaborated most often. One of their questions stated, “It was resolved that the following proposal wide resolution no.04 of the Community Service Committee dated 25/7/2018 regarding provision of miscellaneous expenses for community centers.” This is an example of a motion that these individuals put forward to the standing committee.

The second example comes from a group of seven SDMC corporators who asked, “Last year a beautiful park was built at ward no. 50 Mahilapur by spending Rs. 50 Crore, but due to no maintainance [sic] it is losing its beauty. Hence, this park should be maintained.” This is a hyper-

local issue that only impacts the ward 50 corporator, who indeed is in this collaboration group. Other corporators likely joined in based at least partly on party membership; all members of this collaboration group belong to the BJP. Even so, some reciprocity is expected, as unlike the first example, only one corporator directly benefitted from asking this question.

Predicting Collaboration Ties

Collaborations represent a tie between corporators that can be modeled as a network. Importantly, a tie is formed between two corporators so collaborations with multiple corporators involved imply ties between all of those corporators. An Exponential Random Graph model (ERGM) allows us to predict the presence of a tie between corporators given various corporator demographic traits. I create separate networks for each corporation and calculate the probability of forming a tie based on caste, gender, and other demographic characteristics. For each of these characteristics, I am interested both in the probability of an individual with a characteristic forming a tie and the probability of that individual forming a tie (factor) with another individual with the same characteristic (match). Since ERGMs are difficult to interpret by reading coefficients, I calculate the probability of forming a tie in Table 4. The probabilities are listed for an individual belonging to the caste or gender "group" and either forming a tie with any other corporator (Match = "No") or forming a tie with a corporator of the same group (Match = "Yes").

Table 4: Probability of a Tie

Group	Match	NDMC	SDMC	EDMC
OF (Baseline)	Yes	0.1202	0.2388	0.0550
OBC	Yes	0.1149	0.2694	0.0367
OR	Yes	0.0990	0.1872	0.0317
SC	Yes	0.1362	0.2552	0.0556
Brahmin	Yes	0.1375	0.2603	0.0343
OF	No	0.1407	0.2504	0.0609
OBC	No	0.1347	0.2820	0.0408
OR	No	0.1164	0.1969	0.0352
SC	No	0.1590	0.2673	0.0616
Brahmin	No	0.1604	0.2726	0.0381
Woman	Yes	0.1246	0.1842	0.0716
Woman	No	0.1353	0.1921	0.1063

Note: Probability of establishing a Co Duplicate tie with another corporator. Baseline probability is for a corporator who is OF, man, has a BA, is a BJP member, and is not on the standing committee establishing a tie with another corporator sharing these characteristics. Rows reflect changing the caste or gender and whether the corporator is establishing a tie with a person who matches their caste/gender. ERGM model (see Table SI.6.2).

In the network model, members from other religions are significantly less likely to form ties in the NDMC and SDMC. The probability of an OR corporator forming a tie with another corporator is 0.10 in the NDMC and 0.19 in the SDMC compared to 0.12 and 0.24 respectively for OF corporators. No other caste features are statistically significant. While we can consider corporators from other religions to belong to a lower caste category, Hypothesis 1 expects that Brahmin and OF corporators are significantly more likely to form ties. There is no evidence to support that conclusion.

Men are significantly more likely to form ties in the SDMC. The probability of a woman corporator forming a tie with another corporator is 0.18 compared to 0.24 for men corporators forming ties. In the SDMC, this provides support for Hypothesis 2, as women corporators are less likely to form ties.

Discussion

Over a series of empirical tests, I have traced the legislative collaboration process with a focus on caste and gender. Table 5 attempts to synthesize these results. Upper caste legislators do form more collaboration groups and form collaboration groups that collaborate more often, but they are not otherwise more likely to collaborate compared to lower caste groups. There is more evidence that men legislators collaborate more than women legislators, though the network models are only statistically significant in one of the three corporations.

Table 5: Upper Caste and Men Legislator Collaborations

	H1: Upper caste	H2: Men
Ask more questions	No	Not significantly
Collaborate more	No	Yes
Form more collaboration groups	Yes	Yes
Form collaboration groups that collaborate more often	Yes	Yes
Form a tie	No	In SDMC

On balance, Hypothesis 2 is mostly supported, whereas Hypothesis 1 is partially supported. Upper caste legislators and men legislators both dominate collaboration groups, especially those that collaborate most frequently. Dominance in this respect indicates the strength of upper caste legislators and men legislators' political power in the corporation. Other legislators may be able to form one off collaboration groups pertaining to certain issues, but only upper caste and men legislators consistently dominate the collaboration process. Collaboration groups may be partially enabled by being a political leader in the corporation; upper caste and men standing committee members dominate collaborations. But being a standing committee member is not a sufficient condition for collaborating, as women standing committee members and members from lower castes were generally excluded.

The network analysis necessarily focuses on ties as the unit of analysis. A tie is not equivalent to a collaboration group because collaboration groups with more than two members have ties going from one member to each other member. So do ties or collaboration groups tell us more about the nature of corporator collaborations? The answer depends on how collaboration groups are formed. If each corporator has an equal opportunity to join a collaboration group, then ties are more informative because they illustrate corporators' choices to associate with one another. However, since collaboration groups seem to be influenced by party leaders, individual corporators have less agency to add collaboration ties with one another if those ties are not approved by or occur in accordance with party leaders' interests. Despite their reduced electoral salience compared to legislative co-sponsorship, many of the complex dynamics that regulate co-sponsorship appear to be present in question-asking collaborations.

Conclusion

Collaborating to ask a question in a legislative committee meeting is unlikely to have substantial electoral influence or to substantially shift constituent welfare. This makes question-asking collaborations an ideal type of legislative engagement in which to examine ethnic and gender discrimination. Absent electoral salience, corporators who collaborate to ask questions are impacted by ethnic and gender relations within the legislature. Such a finding adds to existing work on higher-stakes legislative collaborations like co-sponsorship by emphasizing how policy outcomes are often sidelined in favor of political maneuvering and promotion of dominant ethnic and gender perspectives.

Even though question-asking is not particularly electorally salient, party leaders still exert control over the question-asking and collaboration process. Exerting such control over question-

asking instills a form of discipline and hierarchy in corporators who are party members. The precise level of control varies based on the power of party leaders, which is partly determined by electoral rules and candidate selection procedures in a given context. By orchestrating the question-asking process and allowing dominant legislators to control it, party leaders avoid unexpected leadership challenges and can further their own careers by involving themselves in a substantial number of collaborations. Thus, even though collaborating is less electorally salient in and of itself, political leaders may be able to generate electoral salience indirectly by earning favors from individuals with whom they collaborate.

While considering the party of other corporators and making decisions about collaboration groups, corporators may choose to collaborate because of ideological similarities. Currently available data limits the measurement of ideology to party identification. This is because ideological measures of municipal corporators do not exist. Recorded votes and corporation meeting minutes --- two items that would aid in the construction of corporator ideology scores --- are not consistently available. Indeed, one of the contributions of this project is to better describe the workings of municipal corporation meetings. I invite additional research seeking to do the same, especially work documenting the legislative procedures of municipal corporations that would enable researchers to develop ideology measures.

Future research would do well to survey legislators to better understand their motivations for collaborating with one another. We know that collaborations are often men dominated and sometimes ethnically dominated, but it remains unclear why there are discrepancies in how collaborations form by ethnicity compared to gender. One typical explanation involves the fact that gender is a cross-cutting whereas ethnicity is a coinciding cleavage (Htun 2004). That is certainly true in general, but many local governments worldwide are dominated by members

from the same party. Proxy (or puppet) candidates who are stand ins for dominant groups are common. Still, ethnic groups often segregate geographically, meaning that it may be harder to select a candidate from the ethnic group dominant in an area who is willing to fall in line with party leadership. Women candidates can more easily be selected from prominent political families with the expectation that they will follow political leaders' instructions.

To answer the motivating question, legislators tend not to overcome gender and ethnic differences to collaborate across groups when presented with low-stakes opportunities to do so. Instead, these opportunities become (perhaps unnecessarily) salient and important for party leaders to dictate. The fact that collaborations so often involve routine revenue authorizations and motions to rename streets suggests that virtually all corporators could collaborate on these issues. Yet, party leaders from dominant groups are the ones who collaborate to ask a question or to present a motion. Perhaps the perception of exercising power in this context is reason enough for these traditionally dominant groups to continue maintaining control over lower-salience legislative business.

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Biographical Paragraph

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Endnotes

[1] Supplemental information is available on the PRQ website. Replication data is available at https://doi.org/10.7910/DVN/L0KNBJ.

[2] But see Och (2020).

[3] For example, electoral rules and candidate selection mechanisms can influence the importance of electoral salience.

[4] Perhaps joint press conferences are the most appropriate point of comparison in terms of the level of collaboration required, though joint press conferences are designed to maximize electoral salience (Desmarais et al. 2015).

[5] And the perceived electoral salience of collaborating can act to overcome pressures from party leaders to avoid collaborations (Crisp, Kanthak, and Leijonhufvud 2004).

[6] The term "Proposal Under Section 74" refers to the legislation governing the municipal corporation that provides notice of business in advance of meetings.

[7] The 15 categories are: environment, pollution, pests, roads, water, infrastructure, health, education, drainage, waste management, welfare, unauthorized colonies, revenue, electricity, and services, plus a residual other category.

[8] See Table SI.2.1.

[9] Since corporation meetings are recorded only though the meeting notes used here, it is not possible to determine whether some co duplicates or echo duplicates are also the result of clerical errors. However, making such a clerical error is more difficult for these duplicates compared to true duplicates, as substantive information would need to be inadvertently changed, whereas true duplicates can result from copying question information.

Supplemental Information: Lower-Stakes Legislative Collaborations, Ethnicity, and Gender

SI.1: Caste Coding Procedure

This paper investigates the question-asking behavior of Delhi municipal corporators. One critically important piece of information to know about corporators is their caste. Co-caste corporators may be more willing to ask questions together, just as corporators from different castes may avoid one another. The term "caste" traditionally refers to jatis or sub-jatis of which there are thousands of such groups. Much of the political conversation surrounding caste occurs at the varna level, where each varna comprises a large number of jatis. Castes are typically classified into one of four varnas as dictated by the Rig Veda: Brahmin, Kshatriya, Vaishya, and Shudra. Some individuals are termed Backward Classes and are granted special provisions — or reservations — by the government. Castes and tribes may petition the government to be included as a member of a Scheduled Caste (SC), Scheduled Tribe (ST), or Other Backward Class (OBC). Those not included in reservations are considered forward castes and are typically separated into Brahmins and other forward castes (OF).

I am interested in classifying individuals into salient, caste-based political groups that are broadly relevant. As such, my focus is on caste categories, not on jatis or sub-jatis. These caste categories also include an other religion category to represent non-Hindus. I group individuals into six caste categories: Brahmin, OF, SC, ST, OBC, and Other Religion (Muslim, Christian, Sikh, et. cetera). This categorization is used on the largest social survey in India (Desai and Vanneman 2015).

Caste coding is an incredibly complex topic, and there is no method that guarantees accuracy. There are two existing approaches: name classification and archival research. Name classification involves making an educated guess about caste or religious membership based on the corporator's name. The basic intuition is that names have been historically linked to particular caste categories such that hearing a given name will trigger an association with a caste category (Banerjee et al. 2009; Jayaraman 2005). Experts (Mateos, Webber, and Longley 2007), online workers on crowdsourcing sites (Shah and Davis 2017), and many different algorithms can be used to classify names. Algorithmic classification is becoming an increasingly popular way to code caste, and the typical algorithmic method uses training data from matrimonial website profiles (Chen, Chittoor, and Vissa 2015; Vissa 2011).

An alternative to name classification is to conduct archival research. Archival research entails trying to find caste information about specific individuals, not just those who happen to share a person's name (Narain and Sharma 1972). As such, if we are trying to classify Indian Prime Minister Narendra Modi, we would need to find information stating Modi's caste category; we would not rely on any signal that the surname Modi provided or our knowledge of the caste category of other people named Narendra Modi.

To classify the caste of these corporators, I first use official government data to determine whether the corporator holds a caste reserved seat. The caste coding for these corporators is exact: we know for certain that a corporator is a SC if they were elected in a constituency reserved for SC candidates. This was called the *Reserved Seat* coding method.

For corporators in non-reserved (or general) seats, I use a procedure that focuses on expert name classification. I employed two specially trained native Indian coders to perform the coding procedure independently. I have worked with both coders on similar tasks since 2020, so they are very familiar with the coding procedures. Each coder was provided with a spreadsheet containing a list of corporators, some biographical information, and details about their constituency. Coders were asked to proceed in stages. First, coders went through all the corporators' surnames and coded unambiguous surnames into caste categories. This is an efficient way to clear "easy" cases out of the way quickly. Next, coders looked at the full spreadsheet including the corporators' full name and coded unambiguous names into caste categories. For all remaining names, coders used Internet research including conducting archival work to find the exact caste category of the corporator and, if this was not possible, general Internet research on their name. The coder listed their confidence that the coding was correct as either good (90%+ confident), medium (75%-90% confident), low (less than 75% confident), or unsure (basically a wild guess). Coders were encouraged to make notes explaining their coding, especially when conducting Internet research.

After each coder completed this task independently, I reconciled their codings and marked whether the codings agreed or not. When codings agreed, I used the agreed upon coding and called this the *Coder* coding method. In cases where codings did not agree, I conducted supplemental research in four steps. First, I checked whether the individual's jati was listed on the Delhi Central List of OBCs. This was possible since many people's surname is their jati. If the corporator was listed, they were coded as OBC with the coding method *Official*. Next, I conducted Internet research. This was relatively straightforward because the coders left notes with their reasoning for making a coding decision in many cases, so I researched these justifications to see if they were plausible. Corporators coded using this method were labeled as *Internet*. For those corporators where no informative information was available on the Internet, I relied on matrimonial data from (Bhagavatula et al. 2022). These data consist of millions of matrimonial profiles from the largest matrimonial websites in India aggregated by surname and self-reported caste identification on these sites (Bhagavatula et al. 2017; Chen, Chittoor, and Vissa 2015). If a corporator's surname was included in the available data and clearly indicated that matrimonial website users identified with a particular caste category, then it was listed as the *Matrimony* coding method. Finally, remaining corporators were investigated by an Indian political scientist with expertise in caste and ethnic relations. This coder used her own expertise and Internet research to code names classified as the *Additional Coder* coding method.

Table SI.1.1 shows the coding methods used. The second column shows the number of corporators coded using this method and the percentage. The third column shows the percentage of names coded subtracting out those coded based on seat reservations. It offers a measure of the

degree to which the coders agreed on the caste categories. We can see that the coders agreed 81% of the time and were able to code a total of 68% of the corporators. The official and Internet methods were the next most used coding methods. The matrimonial method --- likely the least accurate because of its reliance on self-identification in matrimonial profiles --- was rarely used. These five methods were able to code all but three corporators.

Table SI.1.1: Coding Method

Method	Number (%)	% Non-Reserved Seats
Reserved Seat	46 (16.91)	--
Coder	185 (66.01)	81.86
Official	13 (4.78)	5.75
Internet	18 (6.62)	7.97
Matrimony	7 (2.57)	3.10
Additional Coder	3 (1.10)	1.33

Note: Caste coding methods with number and percentage out of all corporators and percentage excluding corporators with reserved seats. Internet also includes the three mayors who are elected corporators, but who are generally less active in committees because they have significant responsibility for running the corporation.

Coders disagreed on the caste category 38 times or in 17.04% of the 223 names they coded. Based on coders explanations, I coded the most likely reason behind the coding errors; see Table SI.1.2. The Both Possible type means that a corporator could belong to either of the caste categories mentioned by the coders and they are roughly equally likely. The Both Errors type means that neither coder listed a likely caste category. If Coder 1 clearly made an error, that is listed as Coder 1 Error type and similarly for Coder 2. We can see that the coders had between a 5% and 7% error rate.

Table SI.1.2: Coding Discrepancies

Discrepancy Type	Number (%)
Both Possible	11 (28.95)
Coder 1 Error	15 (39.47)
Coder 2 Error	11 (28.95)
Both Errors	1 (2.63)

Note: Assessment of discrepancy reason with number and percentage out of all discrepancies in coding.

I calculate Cohen's Kappa to measure interrater agreement. For this test, I count any disagreement in categorization equally. One could make the argument that a disagreement over Brahmin versus OF is less significant than Brahmin versus ST, but I do not down-weight for more "minor" discrepancies. The Kappa value is 0.695, which is quite high, indicating very good to excellent interrater reliability. Discrepancies between coders were resolved by examining official records, conducting Internet research, using matrimonial data, and using an additional coder.

I validate this caste coding measure using data from Karekurve-Ramachandra and Lee (2020). These authors use a combination of surname coding and "interviews with various party members and elected officials" to categorize corporators into twelve caste categories

(Karekurve-Ramachandra and Lee 2020, 767). After developing a correspondence between the two coding methods, I find that Cohen's Kappa is 0.78, indicating excellent reliability. Both the transparent and procedural nature of the main caste coding method used and the effectiveness of this validation exercise should provide confidence in the caste coding procedure. Based on the coding notes provided and the Karekurve-Ramachandra and Lee (2020) dataset, we can break down the Other Forward caste category and note that it is comprised primarily of Jats (0.18), Banias (0.14), Rajputs (0.10), and Khatris (0.08).

It is important to note the relationship between caste, gender, and legislative reservations in Delhi municipal corporations. In Delhi, seats are reserved for members of Scheduled Castes, women, and members of Scheduled Castes who are women. While Scheduled Castes and women can run in non-reserved seats, the practical implication of these reservations is that women and Scheduled Caste members rarely contest or win seats not reserved for them. Indeed, of the 112 non-reserved seats in Delhi municipal corporations only 5 were won by women. Twenty of the 22 seats reserved for Scheduled Castes with no gender restriction were won by Scheduled Caste men. Zero Scheduled Caste members won a non-reserved seat, though one woman legislator in a seat reserved for women was a member of a Scheduled Caste. Because reservations align almost completely with gender and Scheduled Caste, it is not possible to fully disentangle men's or members of dominant group's reluctance to collaborate with women or Scheduled Caste members compared to their reluctance to collaborate with people who hold reserved seats. While this is a limitation of this study, prior work has shown that political elites do not treat women legislators differently when they hold reserved versus non-reserved seats (Allen, Cutts, and Campbell 2016; Radojevic 2022). The presence of reserved seats might actually enhance non-dominant legislators' power (Clayton, Josefsson, and Wang 2017). I will examine caste categorization, which encompasses castes other than Scheduled Castes, to provide a partial test for whether dominant legislators collaborate differently with Scheduled Caste legislators compared to OBCs or legislators from other religions.

SI.2: Question Descriptive Statistics

Almost all motions are collaborations involving more than one corporator. This pattern persists across all three corporations (see Table SI.2.1). "Issues Raised" and "Question" are the two other most used question types. Eighty-eight percent of questions are the "Issues Raised" type and of them, fewer than 12% are collaborations. Even more starkly, 99% of "Questions" are not collaborations. The opportunity to collaborate, therefore, is an expected part of writing a motion and an occasional part of raising an issue. This makes sense because motions are formal procedural parts of the legislative process wherein corporators can sign on much like is possible legislative co-sponsorship.

Table SI.2.1: Questions by Type

	NDMC		SDMC		EDMC	
	Co Duplicate	Not	Co Duplicate	Not	Co Duplicate	Not
N/A	5	2	3	10	2	1
Issues Raised	1034	7907	608	4340	171	2684
Motion	682	15	473	35	357	11
Question	2	198	4	284	0	0
Section 74	27	0	22	4	0	0
Short Notice	0	0	0	66	0	6

Note: Number of questions by type. Co Duplicate questions counted once for each time the question is asked.

Table SI.2.2 breaks down question types by the mean question length. While motions were statistically the same length whether they involved collaborations or not, issues raised collaborations in NDMC and EDMC were statistically longer than when issues were raised without a collaboration occurring. This finding reinforces the observation from Table SI.2.1 that collaborations about motions involve signing on without changing the content, whereas a collaboration on an issue raised --- at least in EDMC and NDMC --- could mean adding text to that issue as part of the collaboration.

Table SI.2.2: Average Question Length by Question Type

Question Type	Corporation	Co Duplicate	Not	P-Value
Issues Raised	EDMC	61.55	25.65	0.00
Issues Raised	NDMC	23.85	31.55	0.00
Issues Raised	SDMC	29.64	30.56	0.37
Motion	EDMC	76.19	84.82	0.66
Motion	NDMC	65.06	56.33	0.27
Motion	SDMC	81.71	89.09	0.24

Note: Average number of words by question type. P-values from two tailed t-tests comparing co duplicate question length with not co duplicate question length. Question and Section 74 question types excluded because of small sample size.

Table SI.2.3: Questions by Category

	NDMC		SDMC		EDMC	
	Co Duplicate	Not	Co Duplicate	Not	Co Duplicate	Not
Drainage	4	296	5	136	8	121
Education	46	207	53	209	22	118
Electricity	29	494	13	153	8	157
Environment	46	389	64	315	23	160
Health	14	227	37	167	20	120
Infrastructure	134	811	101	492	37	283
Other	274	900	262	504	162	197
Pests	43	364	11	80	8	67
Pollution	0	17	3	9	2	6
Revenue	631	201	156	147	12	97
Roads	33	271	20	145	12	49
Services	197	804	82	432	68	324
SWM	86	1557	70	1115	41	459
Unauthorized	109	1262	75	457	48	424
Water	2	71	5	28	2	21
Welfare	102	251	153	350	57	99

Note: Questions by category.

Table SI.2.4 shows questions broken down by category. The categories listed here are from a total of 334 unique categories. Question categories in Table SI.2.4 are ordered by the total number of collaborations belonging to that category. Revenue collaborations were by far the most common, but this is wholly because of collaborations in NDMC. It seems that the convention is to only ask revenue related questions in the NDMC if multiple corporators collaborate. Questions pertaining to municipal corporation operations and human resources were the next most prevalent, and these categories elicited a fair number of collaborations. Collaborations were also common when making motions to name places in someone's honor. Many of the collaborations that occurred appear to be pro forma collaborations that involved standard procedures passing revenue motions or renaming places. Some collaborations, like those pertaining to solid waste management and education, are more substantively meaningful, but a large proportion of collaborations occur over minor issues.

Table SI.2.4: Questions by Detailed Category

	NDMC		SDMC		EDMC		Co
	Co Duplicate	Not	Co Duplicate	Not	Co Duplicate	Not	Total
Revenue	494	25	19	20	0	20	513
Operations	138	724	122	290	40	156	300
HR	173	556	73	282	48	158	294
Place Names	86	9	78	5	112	1	276
Taxes	109	155	126	90	10	77	245
License	72	692	43	256	43	308	158
SWM	76	735	35	528	29	178	140
Parking	46	194	59	103	27	111	132
Civic Schemes	26	20	58	16	6	4	90
Education Schemes	46	37	5	55	31	50	82
Markets	31	87	26	27	4	40	61
Schools	34	92	23	35	4	39	61
Development	2	54	41	45	14	10	57
Buildings	25	158	17	63	2	23	44
Gardens	11	219	28	133	4	86	43
Schemes	24	21	17	37	2	6	43
Stray Animals	32	247	8	44	2	42	42
Roads	11	63	20	34	10	8	41
Seniors	2	27	38	58	0	1	40
Street Lights	16	441	8	126	8	147	32

Note: Questions by detailed category.

Apart from the way in which the question was asked, the place where the question was asked and the issue the question pertained to could influence collaboration patterns. Corporators can ask questions in the general body meeting (GBM), a corporation-level committee if they are part of one or more of them, and their ward committee. Most question asking collaborations occur in either the GBM or the standing committee across all three corporations. Ward committees in NDMC experience many question asking collaborations, but collaborations are rare in SDMC and EDMC ward committees and other corporation-level committees (see Table SI.2.5).

Table SI.2.5: Questions by Committee

	NDMC		SDMC		EDMC	
	Co Duplicate	Not	Co Duplicate	Not	Co Duplicate	Not
GBM	601	312	527	795	407	89
Standing	91	853	523	759	56	219
Accounts	2	19				
Appointments	2	85	3	17	4	10
Education	16	26	0	150	0	157
EMServices	0	252	0	66	4	179
Garden	0	35	4	106	5	36
Hindi	0	7			2	6
Law			0	23	0	39
Medical	0	86	6	56	6	218
Rural	0	265	0	56		
Sports			6	10		
Taxes	0	36	0	6	3	51
Works	4	288	2	183	0	140
Central			4	930		
CivilLine	232	1071				
KarolBagh	133	1001				
KeshavPuram	148	754				
Najafgarh			0	240		
Narela	0	520				
Paharganj	122	1016				
Rohini	399	1496				
ShahdaraNorth					20	687
ShahdaraSouth					23	871
South			6	572		
West			29	770		

Note: Questions by committee. Blanks indicate no such committee in a given corporation; zeros indicate no questions asked of that type in that committee.

SI.3: Corporators Descriptive Statistics

Some corporators ask a lot of questions. Shikha Roy, a standing committee member in SDMC, asked the most questions, 610 --- 124 were collaborations (see Table SI.3.2). Tilak Raj Kataria participated in the most collaborations (248). This could be because he was leader of the NDMC general body. All corporators who collaborated more than 100 times were corporation leaders and members of the standing committee (see Table SI.3.3). The ability to collaborate is concentrated in corporation leadership.

Table SI.3.1: Descriptive Statistics by Corporation

	Mean			Median			SD			Minimum			Maximum		
Variable	NDMC	SDMC	EDMC	NDMC	SDMC	EDMC	NDMC	SDMC	EDMC	NDMC	SDMC	EDMC	NDMC	SDMC	EDMC
Questions	94.92	56.24	50.50	82.00	36.00	44.50	67.40	86.84	38.37	0.00	0.00	0.00	0.00	0.00	0.00
True	0.83	11.63	0.16	0.00	4.00	0.00	3.19	16.33	0.54	0.00	0.00	0.00	0.00	0.00	0.00
Co	16.83	10.67	8.28	13.00	1.00	1.50	31.41	30.05	31.71	0.00	0.00	0.00	0.00	0.00	0.00
Repeat	1.25	0.08	0.06	0.00	0.00	0.00	4.44	0.39	0.35	0.00	0.00	0.00	0.00	0.00	0.00
Echo	0.17	1.38	0.13	0.00	0.00	0.00	0.47	9.33	0.38	0.00	0.00	0.00	0.00	0.00	0.00
Word Count	30.00	33.19	30.47	26.36	27.83	25.26	12.87	19.03	14.83	13.25	12.25	15.41	13.25	13.25	13.25
Woman	0.52	0.52	0.58	1.00	1.00	1.00	0.50	0.50	0.50	0.00	0.00	0.00	0.00	0.00	0.00
Brahmin	0.19	0.11	0.23	0.00	0.00	0.00	0.40	0.31	0.43	0.00	0.00	0.00	0.00	0.00	0.00
OF	0.46	0.56	0.42	0.00	1.00	0.00	0.50	0.50	0.50	0.00	0.00	0.00	0.00	0.00	0.00
OBC	0.05	0.11	0.02	0.00	0.00	0.00	0.21	0.31	0.12	0.00	0.00	0.00	0.00	0.00	0.00
SC	0.19	0.14	0.19	0.00	0.00	0.00	0.40	0.35	0.39	0.00	0.00	0.00	0.00	0.00	0.00
OR	0.11	0.09	0.14	0.00	0.00	0.00	0.31	0.28	0.35	0.00	0.00	0.00	0.00	0.00	0.00
Standing Comm.	0.12	0.11	0.14	0.00	0.00	0.00	0.33	0.31	0.35	0.00	0.00	0.00	0.00	0.00	0.00
Num. Comm.	2.29	2.27	2.45	2.00	2.00	3.00	0.94	1.26	1.08	0.00	0.00	0.00	0.00	0.00	0.00
Age	45.21	44.38	44.88	45.00	44.00	44.50	8.60	9.17	8.85	29.00	23.00	25.00	29.00	29.00	29.00
Population	60141	59750	61716	60531	59724	60231	7611	6847	7452	41674	43598	47790	41674	41674	41674
SC Pct.	0.19	0.14	0.16	0.18	0.12	0.12	0.12	0.09	0.12	0.01	0.02	0.00	0.01	0.01	0.01
Caste Reserved	0.19	0.14	0.17	0.00	0.00	0.00	0.40	0.35	0.38	0.00	0.00	0.00	0.00	0.00	0.00
Women Reserved	0.50	0.51	0.52	0.50	1.00	1.00	0.50	0.50	0.50	0.00	0.00	0.00	0.00	0.00	0.00
BJP	0.62	0.67	0.73	1.00	1.00	1.00	0.49	0.47	0.45	0.00	0.00	0.00	0.00	0.00	0.00
AAP	0.20	0.15	0.19	0.00	0.00	0.00	0.40	0.36	0.39	0.00	0.00	0.00	0.00	0.00	0.00
MOV	0.18	0.16	0.20	0.17	0.12	0.19	0.11	0.12	0.12	0.02	0.00	0.00	0.02	0.02	0.02
BA	0.35	0.41	0.44	0.00	0.00	0.00	0.48	0.49	0.50	0.00	0.00	0.00	0.00	0.00	0.00

Note: Descriptive statistics by corporation. Data is only available on the number of votes for the winning and runner up candidate. So the margin of victory calculation is the difference in votes between the two candidates divided by the votes received by the winning candidate plus the votes received by the runner up candidate.

Table SI.3.2: Top Question Askers

Corporation		Total	Co	Echo	True	Repeat
North	063-N	370	248	0	2	6
	101-N	349	191	0	0	0
	016-N	246	9	0	4	0
	036-N	244	92	0	0	0
	032-N	222	2	1	2	2
South	086-S	610	124	67	20	0
	038-S	569	182	67	0	0
	089-S	227	71	0	52	0
	005-S	205	138	0	4	0
	046-S	199	123	0	0	0
East	031-E	228	188	0	0	0
	061-E	194	176	0	0	0
	005-E	98	19	0	0	0
	020-E	95	3	0	0	0
	023-E	91	6	0	0	0

Note: Top five total question askers in each corporation listed by constituency.

Table SI.3.3: Top Question Askers by Duplicate Type

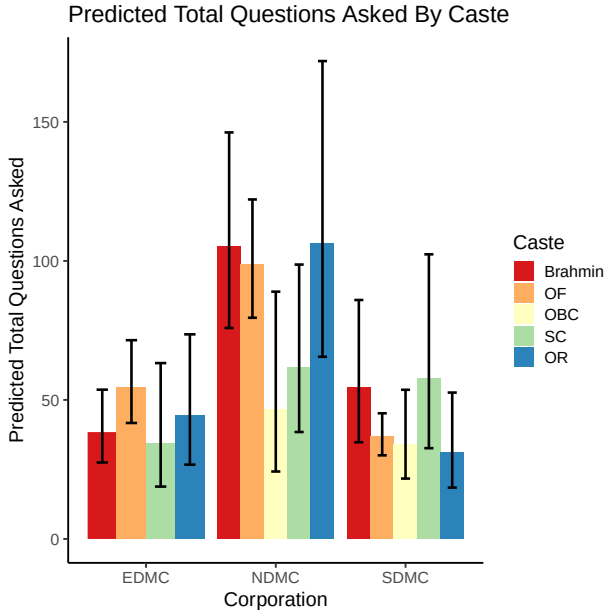
Corporation	Total		Co		Echo		True		Repeat	
North	063-N	370	063-N	248	013-N	2	056-N	22	042-N	41
	101-N	349	101-N	191	042-N	2	051-N	16	021-N	11
	016-N	246	036-N	92	045-N	2	060-N	16	028-N	8
	036-N	244	095-N	49	054-N	2	103-N	6	033-N	8
	032-N	222	054-N	32	007-N	1	016-N	4	085-N	8
South	086-S	610	038-S	182	038-S	67	058-S	58	006-S	2
	038-S	569	005-S	138	086-S	67	059-S	56	059-S	2
	089-S	227	086-S	124	035-S	1	104-S	54	066-S	2
	005-S	205	046-S	123	070-S	1	089-S	52	074-S	2
	046-S	199	023-S	72	071-S	1	099-S	50	001-S	0
East	031-E	228	031-E	188	038-E	2	003-E	2	006-E	2
	061-E	194	061-E	176	016-E	1	007-E	2	053-E	2
	005-E	98	037-E	21	017-E	1	054-E	2	001-E	0
	020-E	95	005-E	19	027-E	1	055-E	2	002-E	0
	023-E	91	021-E	10	036-E	1	060-E	2	003-E	0

Note: Top five question askers in each corporation for each type of question listed by constituency.

SI.4: Predicting Questions

Figure SI.4.1 shows that there is some variation in question asking in the EDMC with predicted questions ranging from 35 for SC members to 55 for OF members. However, the higher question asking for OF members is only statistically significant at the 0.10 level. Corporators in the NDMC ask the most questions of the three corporations on average. Here OBC corporators ask statistically significantly fewer questions. SC members ask far fewer questions on average as well; this difference in question asking is only statistically significant at the 0.10 level. Finally, while OR corporators in SDMC ask the fewest questions, there are no statistically significant differences in question-asking behavior. Additionally, there is no consistent question-asking trend across the three corporations. OF members ask the most questions in EDMC and the second least in SDMC. This non-finding is not the result of small sample sizes in different caste categories.

Figure SI.4.1: Predicted Total Questions Asked By Caste



Note: Predicted total number of questions asked with 95% confidence intervals shown. From negative binomial regression models (see Table SI.4.1). Predictions based on mean values of other covariates.

So what does influence the total number of questions asked? Standing Committee membership and belonging to more committees are associated with increased question asking. Other variables we might expect are influential like constituency size or political party are not associated with increased question asking (see Table SI.4.1).

Table SI.4.1: Predicting Total Questions Asked

	Caste by Type			Caste Upper/Lower		
	NDMC	SDMC	EDMC	NDMC	SDMC	EDMC
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
(Intercept)	3.61 **	1.27	2.55 *	3.40 **	1.03	2.94 **
	(0.89)	(0.95)	(1.10)	(0.88)	(1.00)	(1.08)
Standing Comm.	0.55 *	1.09 **	0.43	0.51 *	1.05 **	0.43
	(0.23)	(0.27)	(0.24)	(0.23)	(0.27)	(0.23)
Num. Comm.	-0.06	0.19 **	0.17 *	-0.09	0.16 **	0.13
	(0.09)	(0.06)	(0.08)	(0.09)	(0.06)	(0.08)
Age	0.01	0.02 **	0.02	0.02	0.02 *	0.02 *
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Population	0.00	0.00	-0.00	0.00	0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Woman	-0.28	-0.05	-0.23	-0.26	-0.14	-0.30
	(0.15)	(0.16)	(0.18)	(0.15)	(0.16)	(0.17)
BJP	-0.06	0.31	0.24	-0.13	0.27	0.06
	(0.24)	(0.21)	(0.36)	(0.24)	(0.22)	(0.33)
AAP	-0.03	0.05	0.51	-0.07	-0.06	0.39
	(0.24)	(0.27)	(0.38)	(0.25)	(0.27)	(0.36)
SC Pct.	1.19	0.08	1.49	0.32	1.70	1.23
	(0.97)	(1.37)	(1.14)	(0.73)	(0.94)	(0.74)
MOV	-0.18	1.17	-0.15	-0.11	1.62 *	-0.08
	(0.74)	(0.65)	(0.76)	(0.73)	(0.63)	(0.75)
BA	-0.07	0.60 **	0.28	-0.07	0.59 **	0.37 *
	(0.16)	(0.17)	(0.18)	(0.16)	(0.17)	(0.18)
OF	-0.07	-0.39	0.35			
	(0.19)	(0.25)	(0.21)			
OBC	-0.82 *	-0.47				
	(0.37)	(0.33)				
SC	-0.54	0.06	-0.11			
	(0.32)	(0.39)	(0.39)			
OR	0.01	-0.56	0.14			
	(0.29)	(0.36)	(0.31)			
Upper				0.27	0.03	0.19
				(0.18)	(0.18)	(0.22)
Num. obs.	103	104	62	103	104	63

Note: *p<0.05, **p<0.01. Negative binomial regression.

SI.5: CoDuplicate Collaborations

Table SI.5.1: Predicting CoDuplicate Collaborations

	Caste by Type			Caste Upper/Lower		
	NDMC	SDMC	EDMC	NDMC	SDMC	EDMC
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
(Intercept)	1.99 *	-2.28 **	0.51	1.91 *	-1.98 *	-1.16
	(0.81)	(0.82)	(1.41)	(0.83)	(0.81)	(1.18)
Standing Comm.	0.67	2.26 **	2.35 **	0.73 *	2.27 **	2.40 **
	(0.35)	(0.35)	(0.38)	(0.37)	(0.36)	(0.39)
Num. Comm.	-0.42 **	0.10	-0.03	-0.42 **	0.09	-0.01
	(0.14)	(0.09)	(0.15)	(0.15)	(0.09)	(0.14)
Age	0.03 *	0.05 **	-0.01	0.03 *	0.04 **	0.02
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.02)
Woman	-0.10	-0.69 **	-0.73 *	-0.09	-0.74 **	-0.78 **
	(0.21)	(0.26)	(0.30)	(0.21)	(0.26)	(0.30)
BJP	0.51	1.07 **	-0.01	0.49	1.12 **	0.66
	(0.32)	(0.35)	(1.03)	(0.34)	(0.35)	(0.84)
AAP	0.07	0.21	-0.48	0.04	0.26	0.10
	(0.35)	(0.48)	(1.07)	(0.36)	(0.47)	(0.90)
MOV	-0.31	1.78	3.21 *	-0.57	1.75	2.42
	(1.02)	(0.95)	(1.37)	(0.97)	(0.99)	(1.30)
BA	0.11	0.50 *	0.31	0.08	0.54 *	0.52
	(0.23)	(0.25)	(0.33)	(0.24)	(0.26)	(0.31)
OF	-0.06	-0.11	0.33			
	(0.28)	(0.37)	(0.38)			
OBC	-0.41	-0.48				
	(0.62)	(0.56)				
SC	-0.15	0.47	-0.49			
	(0.31)	(0.46)	(0.50)			
OR	-0.20	-0.90	0.62			
	(0.44)	(0.57)	(0.57)			
Upper				0.19	-0.01	0.19
				(0.23)	(0.29)	(0.33)
			Zero Model			
(Intercept)	-20.15	-1.37	0.16	-4.74	-1.24	-33.03
	(4073.21)	(4.02)	(7.04)	(3.53)	(3.38)	(369.75)
Age	-0.01	0.01	-0.16	0.00	-0.01	0.06

	Caste by Type			Caste Upper/Lower		
	NDMC	SDMC	EDMC	NDMC	SDMC	EDMC
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	(0.06)	(0.08)	(0.11)	(0.06)	(0.07)	(0.13)
Woman	0.63	0.92	3.41	0.57	0.47	10.88
	(0.91)	(1.04)	(2.40)	(1.19)	(1.02)	(148.29)
BA	1.47	-16.22	-1.68	2.23	-12.48	7.43
	(0.92)	(2496.83)	(1.64)	(1.88)	(363.00)	(136.06)
OF	17.87	-1.41	2.49			
	(4073.21)	(1.38)	(6.38)			
OBC	19.06	-0.58				
	(4073.21)	(1.80)				
SC	0.12	-0.47	-8.64			
	(5724.26)	(1.59)	(123.58)			
OR	17.94	-17.97	4.45			
	(4073.21)	(5564.93)	(6.37)			
Upper				0.58	-0.19	10.04
				(1.72)	(1.16)	(310.10)
Num. obs.	103	104	62	103	104	62

Note: *p<0.05, **p<0.01. Zero inflated negative binomial regression.

Table SI.5.2: CoDuplicate Collaboration Group Demographics

	NDMC			SDMC			EDMC		
Variable	**NDMC**	**2+**	**1**	**SDMC**	**2+**	**1**	**EDMC**	**2+**	**1**
AAP	0.20	0.11	0.26	0.15	0.06	0.04	0.19	0.00	0.09
Age	45.21	51.19	48.44	44.38	54.18	52.21	44.88	50.25	47.90
BA	0.35	0.30	0.39	0.41	0.68	0.58	0.44	0.75	0.61
BJP	0.62	0.70	0.50	0.67	0.91	0.91	0.73	1.00	0.89
Standing Comm.	0.12	0.35	0.26	0.11	0.44	0.32	0.14	0.79	0.27
Brahmin	0.19	0.11	0.20	0.11	0.10	0.07	0.23	0.25	0.26
OBC	0.05	0.01	0.01	0.11	0.01	0.07	0.02	0.04	0.05
OF	0.46	0.48	0.47	0.56	0.73	0.74	0.42	0.50	0.52
OR	0.11	0.18	0.15	0.09	0.01	0.02	0.14	0.21	0.08
SC	0.19	0.22	0.17	0.14	0.14	0.09	0.19	0.00	0.09
Woman	0.52	0.54	0.42	0.52	0.29	0.40	0.58	0.07	0.41
MOV	0.18	0.22	0.16	0.16	0.20	0.18	0.20	0.21	0.23
Num. Comm.	2.29	2.16	2.40	2.27	2.54	2.61	2.45	2.68	2.65
Population	60141	60003	59209	59750	57084	57674	61716	60854	61086
Caste Reserved	0.19	0.22	0.17	0.14	0.14	0.09	0.17	0.00	0.09
Women Reserved	0.50	0.53	0.41	0.51	0.29	0.40	0.52	0.07	0.39
SC Pct.	0.19	0.16	0.19	0.14	0.12	0.11	0.16	0.17	0.16
Number		15	79		27	61		14	49

Note: Mean demographic characteristics for all corporators in a corporation, for coduplicate groups collaborating 2 or more times, and for coduplicate groups collaborating only once.

Table SI.5.3: Frequent CoDuplicate Collaboration Groups

Group	Corp.	#	Question	Comm.	Type	Size	Woman	Brahmin	OF	OBC	OR	SC	Standing	Num. Comm.	BJP	AAP	BA	Age	MOV	Pop.	SC %
031-E, 061-E	EDMC	173	Community center expenses	GBM	Motion	2	0.0	0.0	0.5	0.0	0.5	0.0	1.0	2.5	1.0	0.0	1.0	59.5	0.3	64141	0.2
063-N, 101-N	NDMC	137	Road naming	GBM	Motion	2	0.5	0.0	1.0	0.0	0.0	0.0	1.0	2.0	1.0	0.0	0.5	60.5	0.3	65233	0.1
038-S, 086-S	SDMC	72	Park naming	GBM	Motion	2	1.0	0.0	1.0	0.0	0.0	0.0	1.0	3.5	1.0	0.0	1.0	50.0	0.5	61302	0.1
005-S, 023-S, 038-S, 046-S, 050-S, 069-S, 089-S	SDMC	68	Maintain park	Standing	Issues Raised	7	0.1	0.0	1.0	0.0	0.0	0.0	1.0	3.3	1.0	0.0	0.9	51.7	0.2	62833	0.1
036-N, 063-N	NDMC	68	Build school	GBM	Motion	2	0.0	0.0	1.0	0.0	0.0	0.0	0.5	2.0	1.0	0.0	0.5	59.5	0.3	58901	0.1
046-S, 086-S	SDMC	48	Hire IT staff	GBM	Motion	2	0.5	0.0	1.0	0.0	0.0	0.0	1.0	3.5	1.0	0.0	1.0	53.5	0.2	56314	0.1
003-N, 101-N	NDMC	29	Approve budget	Standing	Motion	2	1.0	0.0	1.0	0.0	0.0	0.0	1.0	2.5	1.0	0.0	0.0	50.5	0.3	65691	0.1
038-S, 044-S	SDMC	28	Name gate	GBM	Motion	2	0.5	0.0	1.0	0.0	0.0	0.0	0.5	2.0	1.0	0.0	1.0	52.5	0.4	59888	0.1
063-N, 095-N	NDMC	28	Approve schemes	GBM	Motion	2	0.0	0.0	0.5	0.0	0.0	0.5	1.0	2.5	1.0	0.0	0.5	61.5	0.2	57829	0.2
036-N, 101-N	NDMC	23	Grant MC Leave of Absence	GBM	Motion	2	0.5	0.0	1.0	0.0	0.0	0.0	0.5	2.0	1.0	0.0	0.0	52.0	0.4	65213	0.1

Note: Collaboration groups ordered by number of collaborations. Question, Comm., and Type columns are for an example question. # is number of collaborations and size is number of members of the collaboration group. Other columns are mean values for group members.

SI.6: Network Models

We know that corporators sometimes collaborate with one another on multiple occasions. The standard ERGM only predicts the probability of a tie, not the number of ties. I use an ERGM count model to predict the number of ties. The right part of Table SI.6.1 shows the expected number of ties that a corporator establishes with other corporators. These numbers are logically small because there are many possible corporator ties, and yet we know that ties between corporators are relatively rare.

Caste groups actually establish significantly fewer ties with members from their same caste group in the NDMC and SDMC. OF, OR, SC, and OBC caste members establish significantly more ties compared to Brahmins in the NDMC and SDMC. Of these groups, OF and SC corporators are most likely to establish ties. Hypothesis 1 expects the OF result, but not that SC corporators are similarly likely to establish ties.

The number of ties statistically significantly increases when ties occur among corporators of the same gender in the NDMC and SDMC. Men corporators establish statistically significantly more ties in the NDMC, supporting Hypothesis 2.

Table SI.6.1: Probability of a Tie and the Number of Ties

		Probability			Number		
Group	Match	NDMC	SDMC	EDMC	NDMC	SDMC	EDMC
OF (Baseline)	Yes	0.1202	0.2388	0.0550	0.0009	0.0001	0.0100
OBC	Yes	0.1149	0.2694	0.0367	0.0008	0.0001	0.0000
OR	Yes	0.0990	0.1872	0.0317	0.0008	0.0001	0.0026
SC	Yes	0.1362	0.2552	0.0556	0.0009	0.0001	0.0070
Brahmin	Yes	0.1375	0.2603	0.0343	0.0004	0.0000	0.0087
OF	No	0.1407	0.2504	0.0609	0.0010	0.0001	0.0113
OBC	No	0.1347	0.2820	0.0408	0.0008	0.0001	0.0000
OR	No	0.1164	0.1969	0.0352	0.0009	0.0001	0.0029
SC	No	0.1590	0.2673	0.0616	0.0010	0.0001	0.0080
Brahmin	No	0.1604	0.2726	0.0381	0.0005	0.0000	0.0099
Woman	Yes	0.1246	0.1842	0.0716	0.0009	0.0001	0.0155
Woman	No	0.1353	0.1921	0.1063	0.0007	0.0001	0.0191

Note: Left part of the table is the probability of establishing a CoDuplicate tie with another corporator. Baseline probability is for a corporator who is OF, a man, has a BA, is a BJP member, and is not on the standing committee establishing a tie with another corporator sharing these characteristics. Rows reflect changing the caste or gender and whether the corporator is establishing a tie with a person who matches their caste/gender. ERGM model (see Table SI.6.2). Right part of the table is an ERGM count model with caste and gender. Baseline is for a corporator who is OF and a man establishing a certain number of ties with another corporator who is OF and a man (see Table SI.6.3).

Table SI.6.2: Predicting CoDuplicate Network Pair

	NDMC	SDMC	EDMC
Edges	-1.60 **	-1.54 **	-2.85 **
	(0.27)	(0.35)	(0.71)
Gender (match)	-0.10	-0.05	-0.43
	(0.09)	(0.09)	(0.25)
Man (factor)	-0.04	0.33 **	-0.28
	(0.07)	(0.07)	(0.22)
Caste (match)	-0.18	-0.06	-0.11
	(0.11)	(0.14)	(0.30)
OBC (factor)	-0.21	0.05	0.07
	(0.16)	(0.19)	(0.67)
OF (factor)	-0.15	-0.12	0.49
	(0.09)	(0.12)	(0.26)
OR (factor)	-0.37 **	-0.42 **	-0.08
	(0.13)	(0.15)	(0.36)
SC (factor)	-0.01	-0.03	0.51
	(0.11)	(0.13)	(0.28)
BJP (match)	-0.03	-0.16	0.30
	(0.09)	(0.11)	(0.35)
BJP (factor)	0.06	0.10	0.16
	(0.07)	(0.09)	(0.30)
BA (match)	-0.02	0.01	0.11
	(0.10)	(0.10)	(0.23)
BA (factor)	0.02	-0.16 *	0.01
	(0.07)	(0.07)	(0.19)
Standing (match)	0.05	0.49	-0.24
	(0.20)	(0.25)	(0.43)
Standing (factor)	0.38 *	0.54 *	-0.01
	(0.18)	(0.23)	(0.39)

Note: *p<0.05, **p<0.01. Exponential random graph model.

Table SI.6.3: Predicting CoDuplicate Network Pair Frequency

	NDMC	SDMC	EDMC
NonZero	-7.94 **	-10.05 **	-3.95 **
	(0.19)	(0.38)	(0.58)
Gender (match)	0.18 **	0.08 *	-0.21
	(0.03)	(0.04)	(0.41)
Man (factor)	0.05 **	-0.01	-0.44
	(0.02)	(0.02)	(0.40)
Caste (match)	-0.10 *	-0.13 *	-0.13
	(0.04)	(0.05)	(0.43)
OBC (factor)	0.62 **	0.65 **	-11.02
	(0.06)	(0.18)	
OF (factor)	0.80 **	0.98 **	0.13
	(0.03)	(0.04)	(0.30)
OR (factor)	0.74 **	1.09 **	-1.23
	(0.04)	(0.04)	(0.94)
SC (factor)	0.76 **	0.66 **	-0.22
	(0.03)	(0.11)	(0.40)

Note: *p<0.05, **p<0.01. Exponential random graph count model. Reference model is Poisson. OBC estimate for EDMC is missing due to too few observations.

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[10] I use time invariant models in the analysis below because the data represent a complete legislative session where legislators likely have a strategy for the session, not by month.

[11] See SI.3.

[12] This is likely due to his role as a party leader and prominent corporation member. Future research would do well to interview corporators to learn more about how collaboration groups form.