Gender, Networks, and Politician Performance:

Evidence from 50 Ugandan Subnational Governments with Women's Reserved Seats*

Ana Garcia-Hernandez[†]   Guy Grossman[‡]   Kristin Michelitch[§]

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The number of women holding legislative office has increased dramatically in the past decade at both the national and subnational level (Waengnerud 2009). This trend has been supported by the adoption of various affirmative action policies, such as quotas and reserved seats (Dahlerup 2006; Krook 2009). Politicians' job duty performance is central for translating descriptive representation into substantive, symbolic, and future descriptive representation (Pitkin 1967; Schwindt-Bayer & Mischler 2005). Thus, a growing scholarship has been examining whether gender gaps in job duty performance exist across a diverse set of societal and institutional contexts, with mixed results.

In this study, we investigate both whether and why gender gaps in politician job duty performance exist at the subnational level in Uganda, a low-income electoral authoritarian regime with a majoritarian electoral system in which in which 1/3 of seats are reserved for women.[1] We collect original data on 820 politicians across 50 (of 112) district governments. Since 99% of open-gender seats are held by men, we effectively compare performance and gender disparities between reserved-seat female politicians ("RS-women") and open-seat male politicians. This distinction is important: electoral institutions, alongside societal gender norms for behavior and gender disparities in background characteristics, jointly affect the types of women and men who seek and win elected office, and ultimately their job performance.

What is understated in previous scholarship, typically focused solely on legislative effectiveness, is that (RS-)women and men may face *different incentives and barriers* across *different job duty domains*, resulting in *gender gaps of different directions and magnitudes*. In this study, we explore a hitherto open question: whether gender gaps in performance vary based on how much collaboration is necessary with fellow politicians. On one hand, past qualitative work in low-income contexts has described how male politicians, usually the majority, consciously and unconsciously exclude women politicians in professional

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[1]Gender gaps have been understudied in such settings, the modal settings in the global south (Clayton & Zetterberg 2018).

networks, reducing their effectiveness in collative tasks such as producing legislation (e.g., Tamale (1999); Tripp (2000)). On the other hand, in high-income contexts studies have surmised that women may have more collaborative, and men competitive, working styles — leading women politicians to be more effective in such tasks (Volden *et al.* 2013).

To capture performance in a wide variety of job duties, we rely on four data sources: (1) plenary session meeting minutes from 2011 to 2015 (49 subnational governments), capturing *legislative activity*; (2) a civil society organization's annual politician performance scorecard from 2011 to 2015 (25 governments), capturing additional activities such as *participation in lower local governments*, *monitoring public service providers* and *contact with constituents*; (3) an original in-person survey capturing politicians' knowledge of legislative procedures (50 governments); and (4) data on the extent to which politicians facilitated school improvement grant applications funded by an external donor in collaboration with district education offices (20 governments).

The data show that the existence and magnitude of gender gaps in performance is duty-specific. No gender gap exists in more independent job duties — facilitating school grant applications and contact with the electorate. Moderate gender gaps exist in duties requiring moderate collaboration with fellow politicians — men outperform RS-women in monitoring public services (0.31 standard deviations) and lower local government participation (0.22 standard deviations). Finally, the biggest gender gap where women are behind exists in legislative duties — duties requiring extensive collaboration with fellow politicians (0.59 standard deviations).

To investigate more closely whether professional marginalization is a key driver of these gender gaps, alongside other prominent explanations, we collect original politician survey data from all 50 district local governments to elicit data on politicians' background qualifications and their *professional* and *personal* ties to fellow politicians. Armed with 50 independent 'whole' networks, we calculate multiple network centrality mea-

sures for each politician. Men are significantly more central in professional networks, but RS-women are more central in friendship networks. Further, male politicians are, on average, richer, more educated, and represent more competitive and smaller constituencies. No significant gender disparity exists in age, prior political experience, partisanship, or career aspirations. While education, wealth, and constituency competitiveness disparities explain small proportions of the gender gaps, centrality in professional (but not friendship) networks is a primary and consistent driver. Certainly, performance and network centrality may mutually reinforce over the term.

This study makes several contributions to research examining systematic gender gaps in job-duty performance. First, it improves upon existing quantitative studies by collecting comprehensive data on a large number of job duty domains. Most existing studies examine only a single job duty (typically aspects of legislative activity - as in Volden *et al.* (2013)), which may bely a more nuanced picture of performance gaps. Our study demonstrates that both the magnitude of a gender gap and its correlates likely depend on the job duty one studies; and different gender disparities may be relevant for different duties.

Second, this study is the first, to our knowledge, to demonstrate empirically how systematic marginalization in politicians' professional ties is correlated with a performance gender gap, here seen in job duties requiring collaboration among peers. While qualitative studies have long detailed "old boy's club" dynamics (Tripp 2000; Tamale 1999), our data's unique structure allows us to expand scholarly understanding of the role network positions play in legislative effectiveness. Namely, we show that women can be more peripheral in professional networks, even as they are simultaneously more central in friendship networks, within the same legislature. Further, centrality in *professional*, but not *friendship*, networks contributed to legislative performance in this context. A general lesson is that one should not conflate social inclusion with professional inclusion — the latter could still be lagging and stymying performance.

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Finally, our study expands comparative knowledge of gender gaps in job duties, which has shown mixed results (e.g., Clayton *et al.* (2014); Tamale (1999); Ahikire (2003); Bauer & Britton (2006); Tripp (2000); Volden *et al.* (2013); Anzia & Berry (2011); Jeydel & Taylor (2003); Bratton & Haynie (1999)). Findings generally show that women perform better than men politicians contexts without affirmative action and relatively high societal gender equality, such as the USA (e.g., Volden *et al.* (2013); Anzia & Berry (2011)). By contrast, in contexts with affirmative action and high societal gender inequality tend to show gender gaps in the opposite direction (Tamale 1999; Ahikire 2003). This study demonstrates a normatively troubling gender gap for women in some job duties, but also normatively positive results—that women are performing on par with men—in others. Future research in diverse institutional and societal contexts is necessary to disentangle these factors governing cross-national differences.

1 Existing Literature

Whether and why gender gaps in politician performance exist across diverse societal and institutional contexts is important from a theoretical and a policy perspective, since such gaps likely affect other forms of women's representation (Schwindt-Bayer & Mischler 2005; Pitkin 1967).[2] Women's substantive representation— the degree to which female politicians pursue women's interests while in office—can be hampered if female politicians are unable to be effective (Devlin & Elgie 2008). Female politicians' symbolic representation— the ability to inspire women's psychological and behavioral engagements in politics and leadership—assumes that women are role models (Campbell & Wolbrecht 2006), but women in high-profile positions can disempower women if perceived to be under-performers (Stout & Tate 2013). Finally, poorly performing women politicians can reduce future descriptive representation via electoral accountability mech-

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[2]A related literature examines women's performance in substantively representing female constituents, which we investigate in a companion paper (self-cite).

anisms or by reducing parties' incentives to recruit and nominate women, especially after affirmative action measures are withdrawn (Bhavnani 2009).

As Waengnerud (2009) reviews, while some studies find female politicians perform better than men (Volden *et al.* 2013; Anzia & Berry 2011), others find they perform worse (Tamale 1999; Ahikire 2003) or no different than men (Jeydel & Taylor 2003; Bratton & Haynie 1999). Likewise, much qualitative work has documented female politicians' successes and failures in pushing forward legislation (e.g., Tamale (1999); Ahikire (2003); Bauer & Britton (2006)). Past research points to several reasons why systematic gender gaps in job duty performance may exist.

First, when broad societal gender inequalities exist, they could be reflected in politicians' background qualifications (e.g., education, wealth, experience). Differential qualifications by gender, on average, could translate to gaps in politician performance (Iversen & Rosenbluth 2010; Bauer 2012). Gender gaps in qualifications, however, tend to be smaller among elites, at least in national level politics (O'Brien 2012). Yet, perceived cultural norms regarding 'appropriate' gender roles might deter highly-qualified women from seeking careers in politics and nudge them instead toward private, non-governmental, or civil service sectors.

Second, electoral institutions designating different pathways to political office for men and women might be consequential by attracting male and female politicians with different characteristics to run for office or by changing their incentives once elected (Anzia & Berry 2011). Affirmative action policies, in particular, may contribute to gender gaps in performance if they result in an elected class of women politicians that is, on average, less qualified than male politicians. Qualification disparities can emerge if the pool of female candidates with high qualifications is limited due to societal gender disparities.[3] Relatedly, in contexts in which female politicians are appointed to reserved seats

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[3]Without affirmative action, women may overperform because women must be initially overqualified to "compensate" for voter and party bias in order to be elected (Anzia & Berry 2011).

by parties, party elites may nominate compliant women to "rubber stamp" a the party's agenda rather than high capacity women eager to push an agenda (Tripp 2006; Tamale 1999). Similarly, voters may use different criteria to define desirable male and female politicians—even in the absence of different pathways to political office. Incumbents may then cater to such divergent accountability criteria for reelection, yielding performance disparities (Rosenwasser & Seale 1988).[4] Whether affirmative action policies result in less qualified women politicians, however, is far from a forgone conclusion given the diversity of affirmative action institutions and societal contexts (Baltrunaite *et al.* 2014).

Third, gender-based differences in partisanship and constituency competitiveness may affect relative performance. In many low-income countries, where parties tend to be non-programmatic, women politicians are disproportionally concentrated among the ranks of dominant ruling parties, which are advantaged in resources to groom women in a party women's wing (Hogg 2009). On one hand, affiliating with a well-resourced dominant party might enable effectiveness given the party's control of the legislative agenda. On the other hand, ruling party members may have weaker incentives to exert efforts, since they tend to represent safer seats (Goetz & Hassim 2003), and safe seats are associated with worse performance (Grossman & Michelitch 2018).

Fourth, once in office, women may be marginalized within politician networks due to explicit or implicit gender bias or perhaps due to stigmatization or "tokenism," especially if elected via affirmative action (Bauer 2012; Tamale 1999; Ahikire 2003). Because politicians must typically work collaboratively to design and pass legislation, position (i.e., centrality) in professional networks in the legislature matter immensely for one's ability to advance an agenda successfully. One possible way to alleviate tokenism and discrimination in an "old boys club" is electing a sufficient number of women (a "critical mass"), who can make the legislature's environment more inclusive of women (Bauer 2012; Tripp

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[4]For example, people may expect women to be collaborative, and men competitive, which could lead to men's or women's overperformance (e.g., Volden *et al.* (2013); Jeydel & Taylor (2003)).

2006). However, "outsider" status may nonetheless hold women politicians back, even if a critical mass exists (Tamale 1999).

2   Study Context

Below the central government, Uganda has three subnational government tiers: district (LC5), subcounty (LC3), and village (LC1). District governments are comprised of a technocratic arm staffed by civil servants and a legislature (the district council). District politicians (councilors) are elected via a majoritarian, first-past-the-post system. District politicians and civil servants are jointly responsible to develop annual budgets and work-plans for public service delivery. District councils are further vested with the power to make laws, regulate and monitor public service delivery, formulate comprehensive development plans based on local priorities, and supervise the district bureaucracy. Plenary sessions typically occur 6 times per year, including one budgetary session.

Uganda is a low-income, electoral authoritarian regime with affirmative action for women in political office — the modal setting in the global south (Clayton & Zetterberg 2018). The National Resistance Movement (NRM) maintains control of the national executive and legislature (72% of parliament members affiliate with NRM). After coming to power in 1986, the NRM began promoting policies to increase the share women in the legislatures at the national and subnational levels. Indeed, Uganda was one of the first African countries to introduce women's affirmative action in 1989 (Bauer 2012). While such policies emboldened women to work towards gender equality at the grassroots, powerful entrenched interests especially in subnational government tiers continue to limit the advancements of women's priorities (Tripp 2000; Tamale 1999; Ahikire 2003). Furthermore, during much of the 1990s, female legislators were criticized for serving as a rubber stamp for the NRM agenda, at the expense of advancing meaningful legislation, arguably because they owed their positions to the ruling party (Tripp 2006; Goetz &

Hassim 2003).

In 2006, Uganda implemented a wholesale electoral institution reform. In addition to introducing multi-party elections, Uganda reserved seats for women at the district level. Prior to the reform, each subcounty was represented by a single NRM politician. The 2006 reform mandated that at least one-third of district politicians are female. To achieve this goal, so-called "special woman constituencies," in which only female candidates can compete, were overlaid on top of "regular" subcounty constituencies. Special woman constituencies encompass between one and three subcounties, depending on population size. Thus, Ugandans are currently represented at the district council by two politicians: an (almost always male) "regular councilor" and a (female) "special woman councilor," who may represent up to two additional subcounties. In our sample, only a small number (19 of 535) of politicians elected to open-gender seats are women. This small number prevents us from disentangling the effect of the reserved seat institution from gender.

District politicians, regardless of mandate (elected in open-gender or women's seats), have four legally defined job duties domains, as stipulated in the Local Government Act (1997): *legislative* (e.g., passing motions in plenary, committee work), *lower local government participation* (e.g., attending LC3 meetings), *contact with the electorate* (e.g., meeting with constituents and community-based organizations), and *monitoring public service provision* (e.g., visiting schools to ensure service delivery standards are met).

Our study area consists of 50 (of 112) district local governments in Uganda. In 25 districts, a leading non-partisan civil society organization (CSO) —Advocates Coalition for Development and the Environment (ACODE)—produces an annual performance scorecard for each politician.The remaining 25 districts were selected by matching non-ACODE districts with districts in which ACODE operates (see Supplemental Information (SI) A.1 for detail). Figure 1 maps the study area districts.
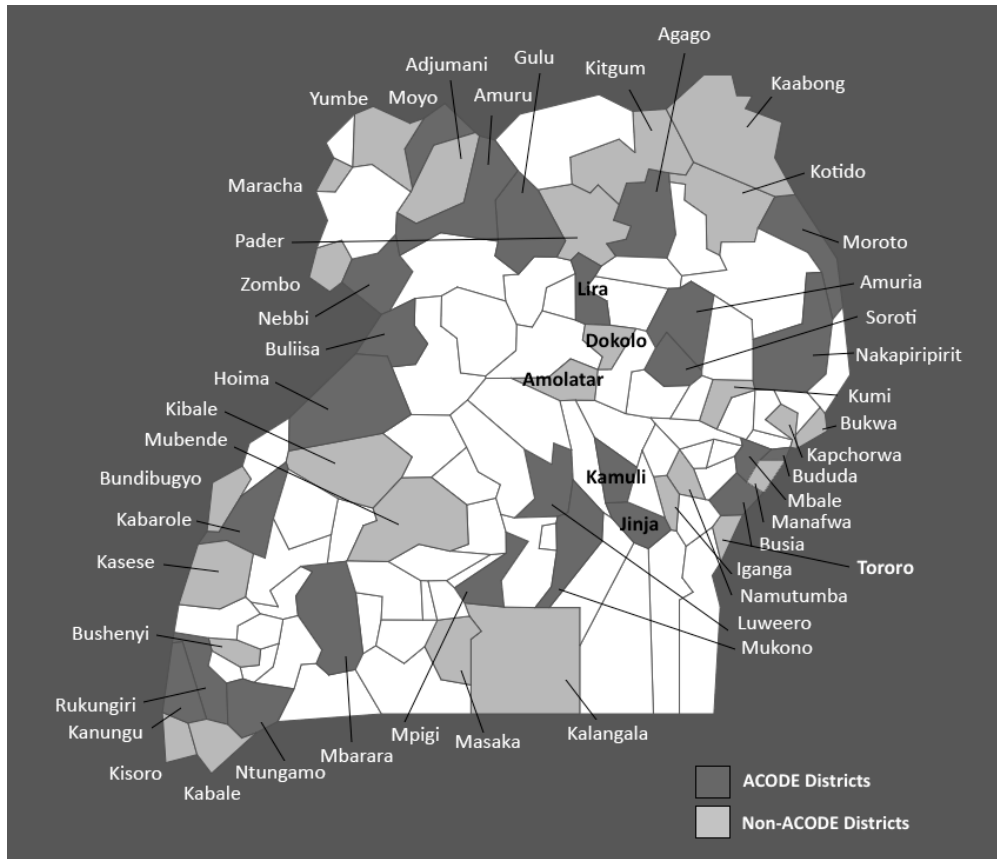
Figure 1: Study Area

3 Data and Estimation

Plenary Meeting Minutes

To measure performance in legislative activities, we use plenary session meeting minutes. Since subnational governments do not make meeting minutes available online, local research assistants traveled to all district headquarters to scan hardcopy transcripts over the 2011-2015 period. On average, we obtained 20 meeting minutes per district for the 2011-2015 cycle (with range of 2–41), for a the total of 1,009 plenary session meetings in 49 districts (see SI Figure 5).[5]

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[5]One district (Nebbi) refused to share the minutes with the research team, since its bylaws indicate explicitly that meeting minutes are not shareable with the general public. Further, not all districts were able to locate all meeting minutes in the study period.

Ugandan enumerators coded, for each politician (see descriptive statistics SI Table 6): (a) the average number of *motions* proposed by policy domain per meeting; (b) the average number of *bills* sponsored by policy domain per meeting; (c) the average number of *presentations* made per meeting; and (d) the average number of *remarks* made during a plenary session.[6] We further calculate (e) a summary measure of legislative performance *total actions* per meeting, which simply adds the legislative actions (a)-(d).

Performance Scorecard

We leverage a local civil society organization's (ACODE's) annual performance scorecard to examine politicians' performance in all four (legally-defined) job duties. By collecting systematic information on politicians' actions and sharing its findings with district politicians and civil servants, the initiative seeks to improve politicians' performance. One advantage of the scorecard is that it captures performance in three domains other than legislative duties: *lower local government participation*, *monitoring public public service providers*, and *contact with the electorate*.

ACODE's scorecard is solely based on administrative data and does not rely on citizen's attitudes or opinions. Scores range between 0 and 100, mirroring the conventional scoring used in Ugandan schools. To construct the scorecard, ACODE uses a team of local researchers who collect the underlying data in reference to the previous fiscal year (June-July). The first scorecard of the previous election term covered July 2011 to June 2012, and the last scorecard covered July 2014 to June 2015.[7] Wide variation exists in scores (see Figure 4 SI A.2).

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[6]Normalizing actions by meetings accounts for the variability in the number of meeting minutes per district in our data.

[7]One exception is Agago district where ACODE began operating only in 2012. No 2015-2016 scorecard exists since ACODE does not produce a scorecard in election years. SI A.2 details the scorecard components, methodology, and quality control.

Job Duty Knowledge

We further examine politicians' knowledge required for effective performance. Here, we draw on an original in-person survey in which we asked politicians 15 vignette-style questions (see question wording Table 8 SI A.4). These vignettes are classified into three 'blocks': *Public Service Delivery* (e.g., maximum number of pupils in a class), *Procedures and Rules in the District Council* (e.g., how often committees should meet) and *Passing Bills and Motions* (e.g., where bills are sent for approval after being passed). In addition, politicians were given a sheet with budget information and asked to interpret four key aspects. Each vignette question is coded as correct or incorrect, such that the knowledge variables simply measure the number of correct responses.

Facilitating School Improvement Grants

To measure politicians' performance in improving service delivery in one's constituency, we designed a unique behavioral task in collaboration with our donor partner and the District Education Offices. The task sought to mimic a common practice in which politicians help to secure development funds to their constituency from a non-governmental organization or a Western donor, in collaboration with the district bureaucracy. Our partner donor and the District Education Office were willing to collaborate with us to build research around such an opportunity.

Specifically, politicians were given an opportunity to help primary schools in their constituency to apply for a grant to support school improvements. The grant's value, which was advertised after the politician survey in 20 study area districts, was about 100 USD. The application process involved mobilizing the school principal and parents and teachers association (PTA) representatives who had to sign the application and accompanied budget to deem an application valid. Politicians could only submit one application

per school in their constituency.[8] Only valid applications entered a public lottery carried out at the district headquarters. The number of grants per district was proportional to the population and ranged between two and five, to ensure equal probability of winning across politicians. We received a total of 1,662 out of 4,585 possible applications and 61 grants were allocated. Our outcome of interest here is the share of school grant applications out of the total number of schools in a politician's constituency.

Estimation

We estimate $Y_{ij} = \beta_0 + \beta_1 RSFemale_i + \kappa\theta_j + \epsilon_i$, where Y_{ij} is the outcome of interest, $RSFemale_i$ is an indicator equal to 1 when the politician is an RS-woman, and θ_j indicates district fixed effects. Standard errors are clustered at the politician level. Outcome variables have been standardized to allow comparability of coefficient magnitude. In this initial analysis, we are interested in the relationship between gender and politicians' performance brought about through any mechanism and therefore do not control for any other characteristics which result from, rather than proceed, gender.

4   Performance Gaps Across Job Duties

Figure 2 reports, for all outcomes and across all performance domains, the coefficient on the RS-woman indicator variable with 95% confidence intervals. We begin with legislative activities as captured in meeting minutes broken down by action 'type' (Panel A), followed by the scorecard's four subcomponents (Panel B), and the knowledge questions broken down by 'block'. Finally, in Panel D we report summary indices—total actions per meeting, total scorecard score, and total questions answered correctly—as well as results for the school grant application activity.

First, across four legislative measures—sponsoring bills and motions, making presen-

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[8]Schools could apply twice, given the overlap in the regular and special woman constituencies.
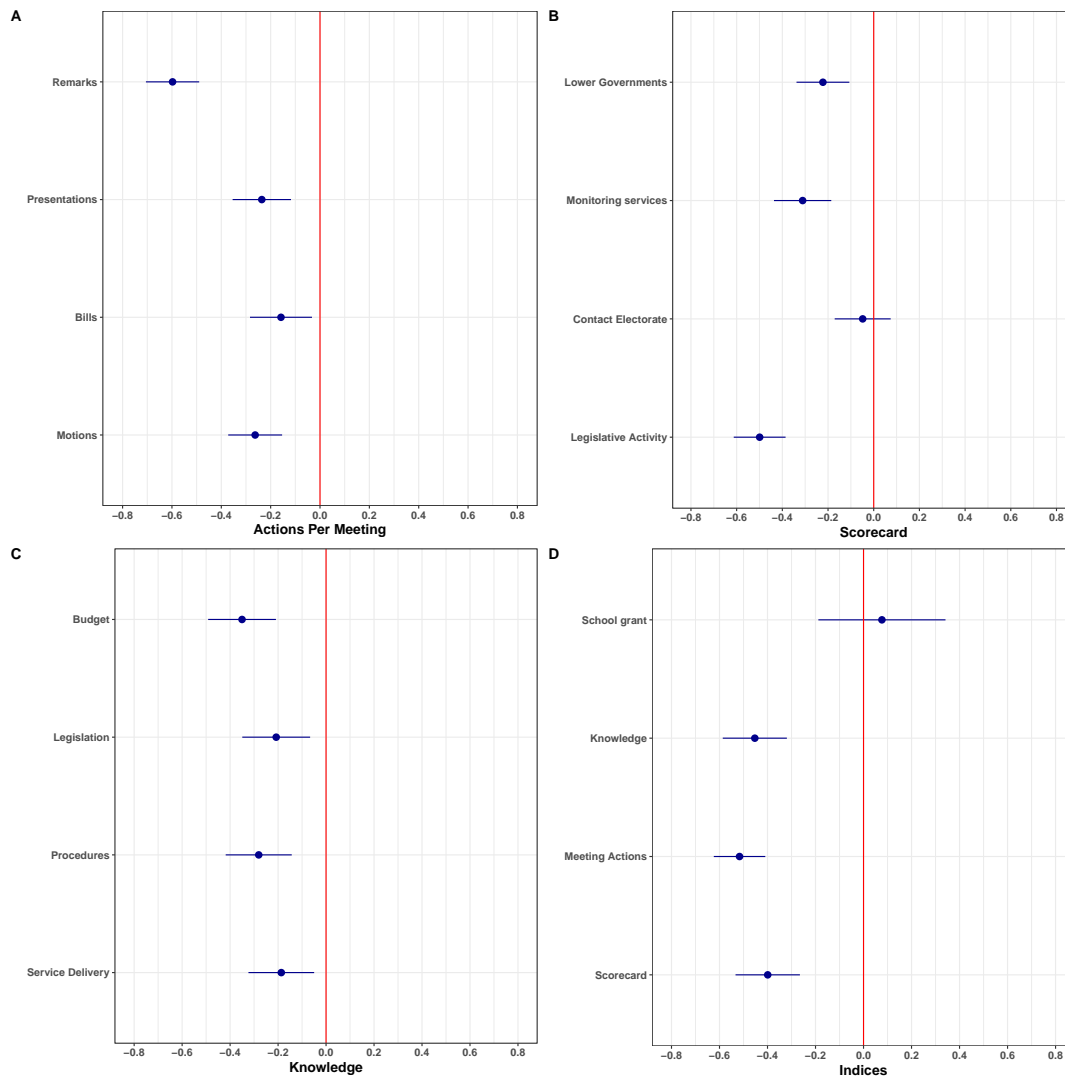
Figure 2: The effect of RS-woman on performance across job duties.

tations and remarking during plenary sessions—RS-women politicians are found to be significantly less active than their male counterparts (Panel A)[9]. That RS-women politicians are less influential in legislative activities is also supported by the scorecard data. Indeed, the difference between male and female politicians on the legislative scorecard component is very large: 0.5 standard deviations (bottom of Panel B). Consistent with the relative marginalization of RS-women politicians in legislative activities, Panel C reveals women are less knowledgable about rules governing district plenary and committee

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[9]Results are robust to not including comments unrelated to legislative activity (e.g., thanking someone), see Table 23 in SI.

meetings (0.28 sd gap); procedures for passing bills and motions (.20 sd gap); and budget procedures (.35 sd gap).

Turning to examine other job duties captured by the different scorecard components (Figure 2, Panel B), we find interesting variation. While RS-women politicians are less likely to engage in public service monitoring (.31 sd gap) and somewhat less likely to participate in lower local government (.22 standard deviations gap), they are not less likely to have contact with electorate. Similarly, no gender gap exists in the share of schools in the constituency that politicians in the study area assisted in applying for a grant (top of Panel D). In fact, RS-female politicians facilitate on average one application more than their male counterparts, though the finding's statistical significance depends on model specification.[10]

Overall, our findings present a mixed picture of gender gaps in performance across different job duty domains. The largest disparities are in legislative duties, with smaller gaps in lower local government participation and monitoring public services. Notably, these are domains requiring high and moderate level of collaboration with fellow politicians, respectively. However, there was no gender gap in contact with the electorate nor in facilitating school grant applications, two job duties able to be conducted independently. Taken together, these mixed results suggest that different incentives and barriers may exist across RS-women and men in different job duties. Had we considered only a single job duty, typically legislative activity, the study could have reached a misleading conclusion.

5 Which Gender Disparities Drive Performance Gaps?

Drawing on the literature and knowledge of the study context, we investigate the relative contribution to performance gaps in different job duties of various (possible) disparities between (RS)-women and men politicians. Our major proposal is that marginalization

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[10]Results are robust to an alternative continuous measure (the number of grant applications facilitated) and whether a politician facilitated at least one application (see SI Table 24).

in legislatures' networks likely plays a large role in driving the gender gap in job duties requiring collaboration with fellow politicians. Gaps in background qualifications (e.g., education, wealth, political experience) and political factors (e.g., constituency competitiveness, partisanship) could, by contrast, affect any performance outcome.

Gender Disparities in Background Qualifications, Political Factors, and Networks

To collect data on background qualifications and position in the legislature's social network, we carried out an original survey in 2016 with 820 politicians in all 50 district local governments. Education and wealth provide cognitive and material resources that facilitate better performance. We measure *education* as a three-category variable capturing below secondary, secondary and post-secondary education. We measure *wealth* with two context-appropriate binary indicators: household car and motorcycle ownership. *Age* may also affect legislators' performance, given seniority rules and that often deference is accorded to elders in this context. The *number of terms* the politician has previously served at the district-level captures prior political experience increasing familiarity with job duties. *Desire leave politics* is a binary variable indicating a politician no longer aspires to run for reelection, since individuals without aspirations to continue office holding may have little incentive to perform well.

Moving to political factors, we draw on data made publicly available by Uganda's Electoral Commission, to examine possible disparities in partisanship, constituency competitiveness, and constituency size. For partisanship, we construct the binary variable *NRM*, indicating whether the politician caucuses with Uganda's dominant ruling party. For constituency competitiveness, we construct a standard measure *margin of victory*, which is the difference in vote share between the winner and the runner up in the previous (2011) elections. Given women's constituencies are larger than men's, on average, we construct the variable *constituency size*, measured as the number of registered voters in a politician's constituency.

Given the sheer importance of ties to other politicians for legislative effectiveness, we measure politicians' network position (i.e., centrality) in the legislature. We construct 50 independent 'whole' networks by using a name generator technique (Knoke & Yang 2008). Each surveyed politician was asked to name up to five co-politicians in three meaningful categories of relationships: two professional ties ("advice" and "co-working") and one personal tie ("friends"). Semi-structured interviews we conducted with politicians suggest these are most consequential ties for legislative effectiveness, but we do not have ex-ante expectations about which of these ties may be the most consequential.

Advice measures who politicians are most likely to approach for professional advice; *co-Working* captures with whom politicians are most likely to work on advancing legislative agenda. These types of ties capture the extent of collaboration with fellow politicians serving in the legislature, as well as knowledge transmission from revered politicians. We also measure friendship ties (*friend*) to test whether personal ties can compensate for marginalization in professional circles. We further construct the unidirectional union of those networks by defining a tie between i and j if at least one tie exists between them in any of the above three networks. Figure 3 illustrates the union network's structure (see SI A.6 Figures 9 and 10 for Advice and Friend networks).

For each politician we then calculate core centrality measures for each of the four networks (advice, co-worker, friend and union), including: degree,[11] in-degree centrality (or prestige),[12] betweenness,[13] eigenvector,[14] and closeness.[15] In Figure 4 below, we report density plots for the union network and by gender (see SI A.6 Figures 11, 12, and 13 for Advice, Cowork, and Friend networks).

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[11]The *degree* d_i of i is the number of neighbors i has. That is, $d_i = \sum_{j \neq i} m_{ij}$.

[12]*indegree* centrality measures the number of links a politician "receives" from other politicians.

[13]*Betweenness* captures how much do people have to go through node i to reach other nodes. Betweenness centrality is, for any $j, k \neq i$, the amount of shortest paths going through i.

[14]Eigenvector centrality is a measure of the influence of a node in a network. Specifically, connections to high-scoring nodes contribute more to the score of a node than equal connections to low-scoring nodes.

[15]*Closeness centrality* measures how close is node i from the rest of the graph. The closeness centrality of i is the mean distance between i and all other nodes of the graphs: $L_i = \sum_{j \neq i} l_{ij}/(N-1)$.

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To test whether significant differences in these factors exist across RS-female and male politicians, we regress the above variables on a female indicator and district fixed effects. Table 1 reports our findings (see SI Tables 9 for descriptive statistics).

We observe disparities between RS-women and men politicians in some but not all factors. RS-women are more peripheral (i.e., less central) in advice and co-working networks. They are, however, slightly more central in friendship networks across a wide range of centrality measures. No significant differences exist in politicians' age, political experience and partisanship. RS-women are, however, less educated (60% less likely to attain post-secondary education), and less wealthy (44% less likely to own a household motor vehicle). As expected, RS-female politicians represent less competitive and geographically larger constituencies. In the next section, we explore the extent to which these disparities between male and RS-women politicians contribute to gender gaps across different job duties.
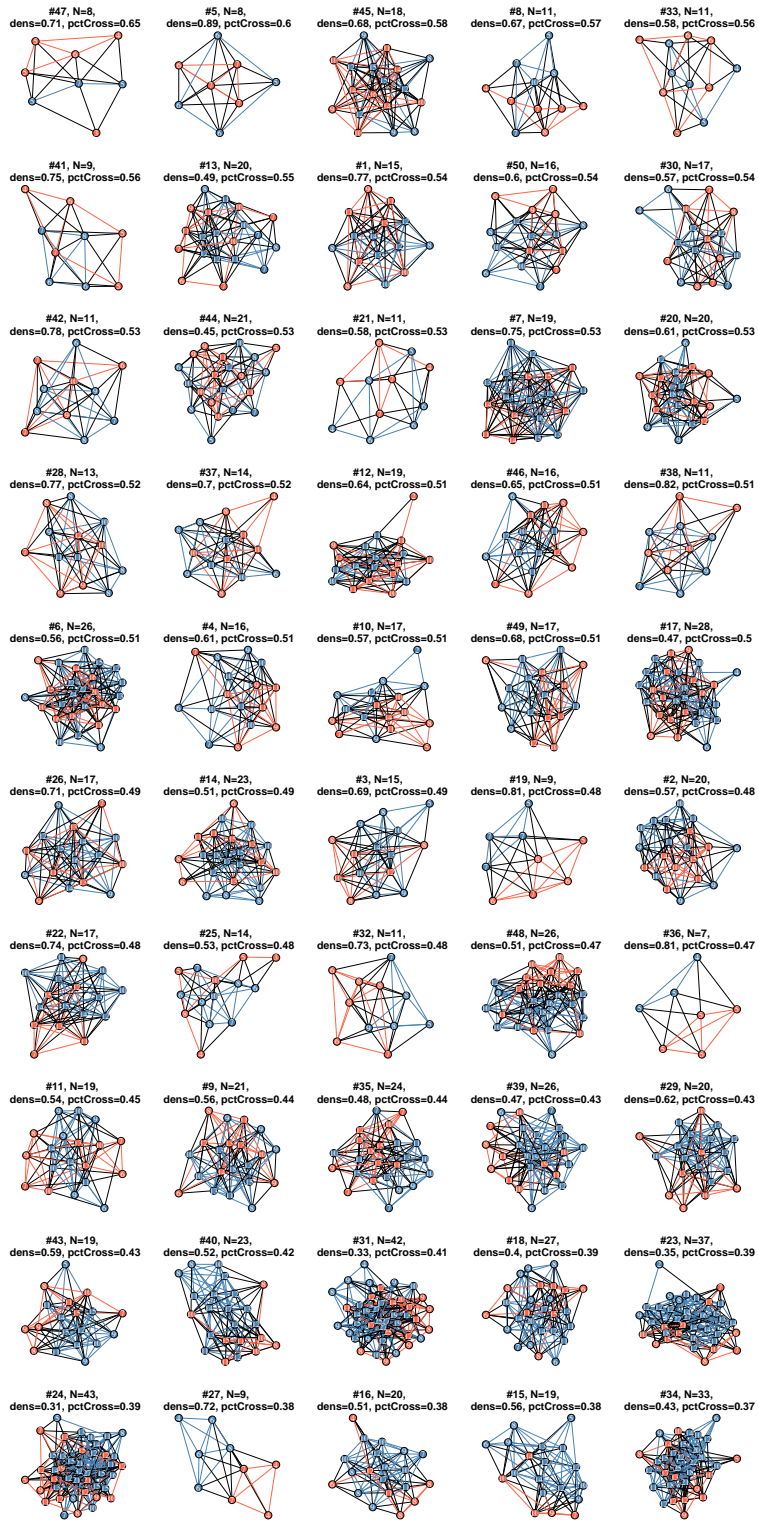
Figure 3: The Union network of the 50 legislatures, including information on the number of nodes (*n*), density (*dens*) and the share of all existing cross-gender ties (*pctCross*).

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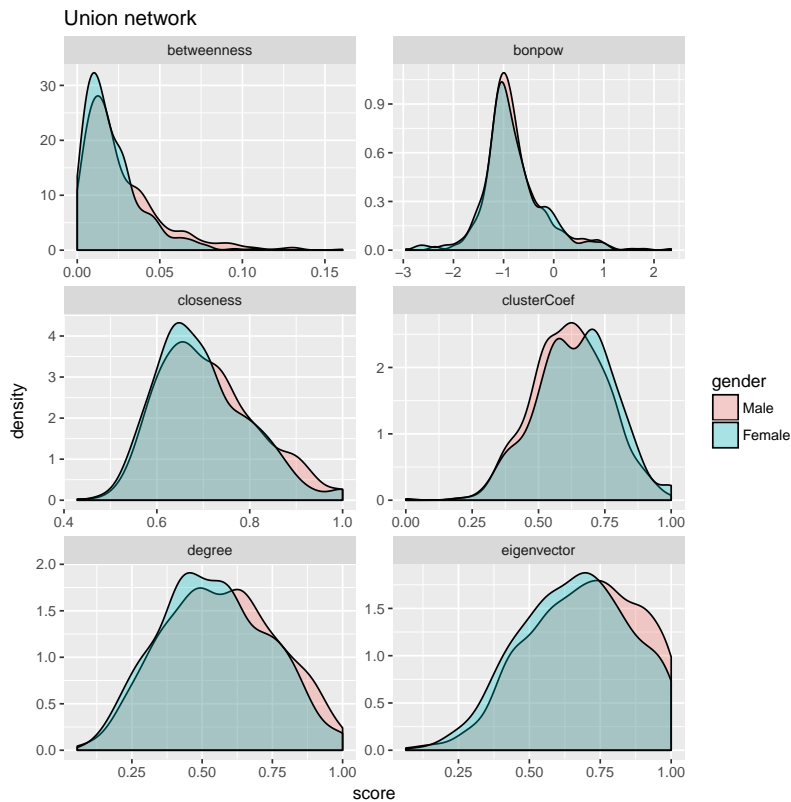
Figure 4: Density plot for the different network centrality measures for the Union network for the 50 legislatures.

Which Disparities are Associated with Which Performance Gaps?

To gauge how gender-base disparities in resources affect job duty performance, we first regress the performance variables for which we found significant gender gaps—summary index of actions in plenary sessions, and three of the four scorecard components—on a RS-female indicator and add each covariate in turn for which a gender disparity exists. We then examine both whether an included covariate is significantly correlated with the performance outcome, and whether by accounting for the covariate, the coefficient on the RS-female indicator reduces significantly.[16] Such a result would suggest the included covariate is a likely mechanism through which the gender gap in performance, at least

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[16]To keep the maximum possible observations, we follow Lin *et al.* (2016), and set missing covariate values to the mean values of the covariate within males and females respectively, and include an indicator variable if an observation has an imputed value. The results are similar when letting the missing covariate render the entire data point missing from the analysis. All regressions include district fixed effects.

	Constant	SE	RS-Women Coefficient	SE	Observations
Network Characteristics					
Degree					
Advice	1.419***	(0.281)	-0.400***	(0.059)	820
Co-work	1.664***	(0.297)	-0.363***	(0.056)	820
Friend	1.242***	(0.356)	0.162***	(0.060)	820
Uni	1.301***	(0.229)	-0.216***	(0.056)	820
In-degree					
Advice	1.129***	(0.318)	-0.555***	(0.071)	820
Co-work	1.174***	(0.388)	-0.555***	(0.069)	820
Friend	0.943*	(0.534)	0.230***	(0.072)	820
Union	1.233***	(0.290)	-0.424***	(0.067)	820
Betweenness					
Advice	0.189	(0.225)	-0.430***	(0.079)	820
Co-work	0.179	(0.223)	-0.420***	(0.076)	820
Friend	-0.029	(0.319)	0.036	(0.080)	820
Union	-0.141	(0.160)	-0.295***	(0.075)	820
Closeness					
Advice	1.424***	(0.284)	-0.378***	(0.058)	820
Co-work	1.503***	(0.243)	-0.273***	(0.047)	820
Friend	1.272***	(0.209)	0.101**	(0.042)	820
Union	1.402***	(0.289)	-0.230***	(0.058)	820
Eigenvector					
Advice	0.911***	(0.241)	-0.432***	(0.067)	820
Co-work	0.959***	(0.256)	-0.414***	(0.066)	820
Friend	0.083	(0.249)	0.243***	(0.074)	820
Union	0.788***	(0.212)	-0.234***	(0.064)	820
Politician **Background Characteristics**					
Education level	0.387	(0.325)	-0.731***	(0.069)	819
Below Sec	-0.424*	(0.252)	0.619***	(0.072)	820
Secondary	0.198	(0.339)	0.143*	(0.078)	820
Post Secondary	0.552**	(0.263)	-0.613***	(0.066)	820
Age	-0.513*	(0.268)	0.029	(0.075)	820
Wealth	-0.236	(0.193)	-0.385***	(0.070)	820
N. of terms as LC5	0.121	(0.232)	0.105	(0.077)	820
Desire leave politics	0.464	(0.516)	-0.062	(0.124)	279
Political Factors					
NRM	0.119	(0.233)	0.067	(0.073)	820
Margin of Victory 2011	-0.428***	(0.144)	0.152**	(0.067)	820
Constituency size (numb Votes)	-0.776***	(0.090)	0.619***	(0.070)	571
Run Unopposed	-0.451***	(0.042)	0.229***	(0.072)	820

OLS regression analysis.

All the variables are standardized.

Cluster Standard Errors at politician level. District Fixed Effects.

Standard errors are in parentheses. $^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table 1: Gender Gaps in Politician Characteristics

in part, is operating. We stress that readers may wish to view the analysis in this section as correlative and suggestive, rather than causal, since such covariates are unlikely to be exogenously determined.[17]

We report results for legislative effectiveness in Table 2 using both meeting minutes actions (top panel) and ACODE's scorecard component (bottom panel), and for participation in lower local governments and monitoring public services in Table 3. These are all domains where collaboration with fellow politicians is necessary to execute job duties. Consistent with an "old boys club" logic, network centrality in the two professional network (advice and co-work) has the largest explanatory power of the gender gap across the three collaborative domains, rather than background characteristics or political factors.

For example, when controlling for in-degree centrality of the *advice* network, the gender gap in legislative performance measured by total meetings minutes actions and by the scorecard, drops by 33 and 27 percent, respectively. Friendship network centrality, by contrast, seems to have a substantively small impact on the performance gender gap. Save education, background characteristics and political factors such as wealth, age, experience, constituency competitiveness do not play a large and/or consistent role in driving the gender gap in performance across domains. We conclude that the evidence at hand suggests the primary barrier for (RS)-women politicians in these job domains is network peripherality. Given networks were measured near the end of the term, performance and professional networks have likely mutually-reinforced each other over time, with more peripheral status leading to poorer performance, and poorer performance leading to more peripheral status.

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[17]While this study is rich in data, we recognize we cannot fully account for exhaustive mechanisms in this study, and therefore the covariate may be capturing some other bundled or correlated covariates. Distinct covariates, however, are not correlated in our data.

	Constant	SE	RS-Women coefficient	SE	Control coefficient	SE	Observations	% Change	Absolute Change
Legislative activities index (meeting minutes)									
None	-0.266***	(0.084)	-0.517***	(0.055)			820		
Education	-0.303***	(0.087)	-0.446***	(0.058)	0.095***	(0.030)	819	-13.7%	-0.07
Wealth	-0.253***	(0.090)	-0.495***	(0.054)	0.055**	(0.027)	820	-4.3%	-0.02
In Degree Advice	-0.613***	(0.132)	-0.346***	(0.048)	0.307***	(0.031)	820	-33.1%	-0.17
In Degree Coworker	-0.612***	(0.148)	-0.353***	(0.048)	0.295***	(0.037)	820	-31.7%	-0.16
In Degree Friend	-0.361***	(0.111)	-0.540***	(0.055)	0.101***	(0.030)	820	+4.4%	+0.02
Eigenvector Advice	-0.489***	(0.111)	-0.410***	(0.053)	0.245***	(0.029)	820	-20.7%	-0.11
Eigenvector Coworker	-0.520***	(0.104)	-0.406***	(0.051)	0.265***	(0.030)	820	-21.5%	-0.11
Eigenvector Friend	-0.269***	(0.085)	-0.527***	(0.056)	0.043	(0.030)	820	+1.9%	+0.01
Margin of Victory	-0.266***	(0.085)	-0.516***	(0.055)	0.000	(0.031)	820	-0.2%	0.00
Total Votes	-0.307***	(0.103)	-0.470***	(0.078)	0.014	(0.041)	571	-9.1%	-0.05
All	-0.781***	(0.144)	-0.185**	(0.069)			571	-64.2%	-0.33
Legislative activities (scorecard component)									
None	0.401***	(0.062)	-0.499***	(0.058)			1496		
Education	0.320***	(0.069)	-0.421***	(0.064)	0.115***	(0.031)	1496	-15.6%	-0.08
Wealth	0.414***	(0.064)	-0.480***	(0.059)	0.065**	(0.031)	1496	-3.8%	-0.02
In Degree Advice	0.382***	(0.065)	-0.365***	(0.055)	0.240***	(0.029)	1496	-26.9%	-0.13
In Degree Coworker	0.366***	(0.059)	-0.389***	(0.058)	0.205***	(0.029)	1496	-22.0%	-0.11
In Degree Friends	0.398***	(0.063)	-0.523***	(0.058)	0.085***	(0.030)	1496	+4.8%	+0.02
Eigenvector Advice	0.315***	(0.073)	-0.423***	(0.055)	0.201***	(0.030)	1496	-15.2%	-0.08
Eigenvector Coworker	0.229***	(0.073)	-0.434***	(0.056)	0.186***	(0.028)	1496	-13.0%	-0.07
Eigenvector Friends	0.386***	(0.063)	-0.522***	(0.058)	0.040	(0.028)	1496	+4.6%	+0.02
Margin of Victory	0.402***	(0.064)	-0.509***	(0.058)	-0.008	(0.032)	1496	+2.0%	+0.01
Total Votes	0.501***	(0.093)	-0.547***	(0.072)	0.011	(0.059)	1044	+9.6%	+0.05
All	0.460***	(0.103)	-0.316***	(0.073)			1044	-36.7%	-0.18

OLS regression analyses with District Fixed Effects and cluster standard errors at councilor level

Standardized variables

Standard errors are in parentheses. $^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table 2: Covariate Effects on Role of RS-woman Coefficient: Legislative Activities Index from Meeting Minutes (top panel) and Scorecard (bottom panel).

	Constant	SE	RS-Women coefficient	SE	Control coefficient	SE	Observations	% Change	Absolute Change
Lower Local Government participation (scorecard component)									
None	-0.104	(0.099)	-0.222***	(0.059)			1496		
Education	-0.102	(0.102)	-0.222***	(0.062)	-0.003	(0.034)	1496	0%	+0.00
Wealth	-0.092	(0.094)	-0.195***	(0.059)	0.071**	(0.034)	1496	-12.2%	-0.03
In Degree Advice	-0.114	(0.100)	-0.157***	(0.060)	0.0111***	(0.036)	1496	-29.3%	-0.07
In Degree Coworker	-0.118	(0.099)	-0.179***	(0.061)	0.075**	(0.035)	1496	-19.4%	-0.04
In Degree Friend	-0.108	(0.100)	-0.236***	(0.059)	0.065**	(0.032)	1496	+6.3%	+0.01
Eigenvector Advice	-0.169*	(0.095)	-0.161***	(0.058)	0.149***	(0.034)	1496	-27.5%	-0.06
Eigenvector Coworker	-0.190*	(0.102)	-0.186***	(0.059)	0.092***	(0.031)	1496	-16.2%	-0.04
Eigenvector Friend	-0.148	(0.098)	-0.274***	(0.060)	0.108***	(0.029)	1496	+23.4%	+0.05
Margin of Victory	-0.094	(0.101)	-0.222***	(0.059)	0.029	(0.034)	1496	0%	+0.00
Total Votes	-0.112	(0.122)	-0.225***	(0.075)	0.081*	(0.045)	1044	+1.4%	+0.0
All	-0.144	(0.127)	-0.162***	(0.080)			1044	-27.0%	-0.1
Monitoring public services (scorecard component)									
None	-0.462***	(0.071)	-0.311***	(0.064)			1496		
Education	-0.516***	(0.081)	-0.256***	(0.072)	0.072**	(0.036)	1496	-17.7%	-0.06
Wealth	-0.445***	(0.070)	-0.270***	(0.064)	0.105***	(0.035)	1496	-13.2%	-0.04
In Degree Advice	-0.481***	(0.072)	-0.189***	(0.063)	0.206***	(0.033)	1496	-39.2%	-0.12
In Degree Coworker	-0.494***	(0.066)	-0.214***	(0.065)	0.169***	(0.038)	1496	-31.2%	-0.10
In Degree Friend	-0.469***	(0.073)	-0.332***	(0.063)	0.102***	(0.036)	1496	+6.8%	+0.02
Eigenvector Advice	-0.556***	(0.075)	-0.223***	(0.062)	0.212***	(0.035)	1496	-28.3%	-0.09
Eigenvector Coworker	-0.618***	(0.070)	-0.246***	(0.062)	0.165***	(0.035)	1496	-20.9%	-0.07
Eigenvector Friend	-0.516***	(0.070)	-0.372***	(0.064)	0.130***	(0.031)	1496	+19.6%	+0.06
Margin of Victory	-0.464***	(0.072)	-0.308***	(0.064)	-0.003	(0.034)	1496	-1.0%	-0.00
Total Votes	-0.659***	(0.100)	-0.234***	(0.089)	-0.051	(0.084)	1044	-24.8%	-0.08
All	-0.760***	(0.106)	-0.101	(0.093)			1044	-67.5%	-0.21

OLS regression analyses. Controlling for imputed values. District Fixed Effects. Year Fixed Effects. Standard error clustered at politician level

Standard errors are in parentheses. $^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table 3: Covariate Effects on Role of RS-woman Coefficient: Lower Local Government Participation (top panel) and Monitoring Public Services (bottom panel)

6 Discussion

In this study, we examine whether gender gaps in job duty performance exist in a sample of 50 subnational governments in Uganda during the previous electoral term (2011-2016). We reasoned that different job duties present different barriers and incentives for male and female politicians, resulting in potential variation in performance gender gaps across duties. While most studies focus on only one job duty, we collect rich data on performance in multiple legally-defined job duty domains to gain a full picture of where gender equity and gender gaps may exist.

Indeed, we discover heterogeneity in gender gaps. No gender gaps exist in more independent job duties—facilitating school grant applications and contact with the electorate. Moderate gender gaps exist in duties requiring moderate collaboration with fellow politicians— monitoring public services and lower local government participation. Finally, the biggest gender gap appears in legislative duties, which require a very high degree of collaboration with fellow politicians.

Using original network data from 50 legislatures in our study, we show (RS)-women are more peripheral in professional networks, and provide evidence that network peripherality is the main contributing factor driving performance gender gaps. This finding, shown systematically in our data, is consistent with rich detailed cases in qualitative studies (e.g., Bauer & Britton (2006)), including by notable Ugandan scholars — Tamale (1999) and Ahikire (2003). Because of the patriarchal notion that men belong in the public sphere and women in the private sphere, Tamale (1999, p118) relates that "the biggest obstacle [for women's legislative performance] lies in the men's club character of parliament, which often treats women as intruders." Ahikire (2003, p228) emphasizes that men's contributions, not based on their substance, but on their origin from a male, are perceived as inherently legitimate, while women's contributions are perceived as inherently fallible. These scholars relate how broader gender norms for social interaction are repro-

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duced during legislative activities, reducing women's effectiveness in legislative activity: men disproportionately interrupt or act inattentive when women speak, men become argumentative when women have "behavior unbecoming of a woman" by speaking up, speakers are less likely to call on women, and male politicians sexually harass female colleagues and beckon them to serve them food. Under such conditions, the (typically assertive) women who defy norms to enter formal politics experience discrimination and circumscribe in their contributions, even strategizing to push forward legislation through male allies.

While we cannot provide such rich and definitive detail from quantitative large-n data, we have survey data that speaks to the matter to a limited extent (see SI C for survey question wording and analysis). First, women are statistically significantly more likely to perceive favoritism towards men by legislature leadership (e.g., calling on men more to speak): while most men (90%) and women (74%) stated there was gender equity, only 8% of men but 22% of women said men were favored. RS-women perceive more discrimination than men realize. Second, when asked what top two barriers existed for women to perform, RS-women were significantly more likely to mention constituency size (52% RS-women versus 38% men) and active discrimination/harassment by male colleagues (21% RS-women, 6% men). Men are significantly more likely to say traditional societal/family gender roles (37% RS-women, 47% men) and low self esteem (26% RS-women, 45% men). RS-women and men were equally likely to cite lower qualifications (42% RS-women, 43% men mention). Thus, a skew exists in perceptions by gender regarding RS-women's barriers to performance: men may be less aware of the constituency size penalty, and perhaps, what women may tend to view as active discrimination, men may tend to view as traditional societal/family gender roles or character flaws.

This study is not without limitations. First, while we attempt to gather comprehensive data on all legally-defined job duties, some aspects are not captured in our data. For example, no systematic records regarding committee performance exist. RS-women may be

very productive in committees, but perhaps committees tend to entrust men to represent the committee in plenary. Similarly, we do not have data to assess disparities in personality traits or working "styles" (Volden *et al.* 2013). Second, while it was no small feat to collect complete network data in 50 legislatures, we did not collect politicians' network data with individuals in other branches or levels of government, which may affect certain job duties. Third, we were not able to disentangle gender from the electoral institution in the study context. Ideally, we would test for differences in performance between women representing open versus reserved seats, but very few women represent open seats in the study area.

Finally, given the key role network position plays in politicians' performance, at least in the study contexts, future research should especially tackle the issue of what forces might change professional networks to be inclusive. Many social "team building" or networking events (e.g., shared meals) focusing on *social* inclusion may not be effective, since it appears women can be more central in friendship, as in this study, but nonetheless peripheral professionally. Interventions strengthening gender-sensitive collaborative professional task-working skills may be more effective.

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