

# Women and party-building: Evidence from municipal governments in Brazil

Tanushree Goyal and Cameron Sells

## **Abstract**

This paper highlights a new way in which descriptive representation enhances democracy, via inclusive party-building. We theorize that parties promote incumbents on a gendered criteria, incentivizing women to recruit party members to secure promotions. Moreover, gendered constraints lower women's access to patronage required for recruitment. These push and pull forces lead women to recruit women members as it lowers recruitment cost, is role congruent, and eases credit claiming. Using rich administrative data on party membership from 2004–2020, and a regression-discontinuity design in Brazil, we find that, despite resource disparities, women mayors recruit new members at similar rates as men, but reduce the gender gap in party membership. As expected, women are more likely to be promoted in constituencies where they most lower the gender gap in party membership. We also find that women's recruitment improve party resilience. Our findings have implications for the study of representation and party development.

# Introduction

Decentralization combined with local democracy has heralded a new era of democratic politics in low- and middle-income countries. Coined as “*democracy’s quiet revolution*”, these twin reforms have been profound in their reach and in their capacity to shift power from central to local authorities. This quiet revolution has enabled progress on two democratic ideals — descriptive representation and party-building. Research in gender and politics shows that descriptive representation enhances democracy by increasing women’s political participation (Desposato and Norrander, 2009; Goyal, 2019), enhancing substantive representation (Chattopadhyay and Duflo, 2004; Franceschet and Piscopo, 2008), and improving democratic legitimacy (Clayton, O’Brien and Piscopo, 2019). At the same time, research on political party development shows that local politics offers national party leaders a tool to screen for talent that will promote party’s interest, while holding local office offers politicians’ resources to build parties’ territorial organization, paving the way for resilient parties — which are the bedrock of a stable democracy (Bohlken, 2016; Levitsky, Loxton and Dyck, 2016; Sells, 2020; Samuels and Zucco, 2016).

This paper contributes by highlighting a new dimension alongside which descriptive representation enhances democracy: grassroots party-building. To establish this link, we offer a gendered theory of incumbency and party-building. We theorize that parties promote incumbents on a gendered criteria, incentivizing women to recruit new party members to secure promotions. These incentives emerge twofold. First, parties select and promote women candidates (and members) who are party loyalists; party loyalists are more likely to invest in party-building. Second, women incumbents are also more likely than men to depend on local politics as a pathway to power. Yet, at the same time, gendered constraints disproportionately lower women’s access to patronage required for recruitment. These push and pull forces lead women to recruit women party members as doing so lowers recruitment cost, is role congruent, and eases credit claiming.

By highlighting the gendered incentives of party-building, our theory yields additional expectations for the quality of women’s recruitment and provides us with downstream implications for party resilience. Firstly, because women members are more likely to be party loyal than men members, women’s recruitment as party members increases party resilience. Second, because women incumbents have lower access to patronage and their recruitment strategies are less contingent on patronage, they are more likely to recruit members who are also less likely to join for particularistic reasons, and therefore, are less likely to switch or leave parties, which also increases party resilience.

We test these predictions in the context of the municipal government in Brazil. Several reasons make Brazil a near ideal empirical site for our investigation. Brazil’s municipal governments enjoy considerable discretionary power over budgets and jobs allocation. As Samuels and Zucco (2016) point out, municipal executive positions are politically appealing and a pathway to higher-level of politics. Brazil is also a substantively important case where there is substantial scope for party development and has recently experienced greater party consolidation (Levitsky, Loxton and Dyck, 2016). At the same time, Brazil has some of the highest gender gaps on women’s representation in Latin America, and research points to weakly institutionalized parties as a major cause of women’s under-representation (Wylie, 2018). Our theory points to a resolution out of this bad equilibrium.

Empirically, we use rich administrative data on party membership of all parties in Brazil in the last two decades, from 2004 to 2020. This uniquely rich dataset enables us to provide rich descriptives about the gender gap in party membership at scale, which are otherwise hard to study and have hindered research on gender gaps in the study of brokered politics and grassroots (Auerbach and Thachil, 2018; Stokes et al., 2013). While we discuss Brazil’s party activism in detail in our context section, it is worth highlighting here that we find a stark gender gap in party membership. Women are 40% of all party members, and this striking gender gap is similar in magnitude across all of Brazil’s major parties. Furthermore,

we find that women party members are half as less likely than men to switch or leave parties, suggesting that correcting for the gender-imbalance in grassroots party membership can increase party resilience at least as measured on this crucial dimension. To the best of our knowledge, this is the first paper to quantify the gender gap in party membership recruitment using administrative data at scale in any setting. Despite the importance of party activism in the politics of the Global South, there is little comparative research on women’s party activism (Goyal, 2019).

To identify the effect of women’s incumbency, we rely on a close-elections regression discontinuity design to overcome the selection bias of women mayors (s)electing into places that are more conducive to party-building. By using this design, this paper joins several other studies that have used this design to identify incumbency effects (Frey and Santarrosa, 2022; Boas and Hidalgo, 2011; Brollo and Tommaso, 2012; Sells, 2020; Klasjna and Titunik, 2017), and the effects of women’s incumbency in Brazil (Brollo and Troiano, 2016), enhancing knowledge accumulation.

Investigating close-races, we find that men and women incumbents are equally likely to increase party membership. In light of evidence demonstrating that women mayors have substantially fewer patronage and financial resources that are important to recruit party members in Brazil (Brollo and Troiano, 2016), we interpret this as women incumbents’ either exerting more effort or using the limited available resources to recruit new party members, supporting our theory. In line with the main argument of our paper, we find that only women mayors lower the gender-gap in party membership recruitment but not men. Exploiting party-switching as our measure of quality of new member recruitment, we find that women mayors recruit party members who are less likely to switch or leave parties. Finally, we show that women incumbents have higher likelihood of being promoted, and that these effects are stronger in municipalities that had lower baseline levels of women’s party membership and also where women most strongly lower the gender gap in party membership.

Investigating, the electoral cycle of party building, we find that women lower the gender gap close to the final term year, where amongst other motivations, the incentives for signalling party building are stronger relative to initial years in office.

This paper is the first to both theoretically and empirically establish the link between women's incumbency and its gendered effects on party-building. By establishing this link, we highlight a new dimension alongside which descriptive representation enhances democracy, extending the research linking descriptive representation to enhanced substantive representation and political participation (Franceschet and Piscopo, 2008; Desposato and Norrander, 2009), and presenting a new possibility alongside which the costs and benefits of descriptive representation can be evaluated (Mansbridge, 1999). By doing so, we also echo and contribute to a growing scholarship in comparative politics which draws on feminist institutionalist theory to illuminate how gender relations shape women's behavior inside legislatures and in political parties (Barnes, 2016; Bjarnegård, 2013; Clayton and Zetterberg, 2021; Dietrich, Hayes and O'Brien, 2019). We contribute to the research on the gender gap in political career progression (Folke and Rickne, 2016; Goyal, 2020; Kerevel, 2019; O'Brien, 2015), by highlighting that party-building can boost women's chances of securing promotions.

Our findings are of interest to scholars of political party institutionalization and development (Bohlken, 2016; Hicken and Kuhonta, 2014; Mainwaring, 2018; Riedl, 2014), especially in Latin America (Levitsky, Loxton and Dyck, 2016; Hagopian, Gervasoni and Moraes, 2009; Sells, 2020). Nearly four decades since the onset of the third wave, political parties remain weak in Latin America, and most new party-building efforts have failed, hindering the prospects of a stable democracy. Our findings show that descriptive representation can enable parties to build territorial organizations and establish more durable partisan attachments, sowing the seeds for long-term party stability. Party stability is in turn crucial to economic growth and democratic stability (Bernhard et al., 2020; Bizzarro et al., 2018).

# 1 Local incumbency and party-building

Political parties are the basic building blocks of representative democracy, and as Schattschneider and Aldrich famously noted, that democracy is “unthinkable” and “unworkable” without political parties. The experience in Africa, Latin America, and Asia shows that successful party-building is challenging in new democracies, but not altogether impossible (Hicken and Kuhonta, 2014; Mainwaring, 2018; Riedl, 2014). The scholars of party organization conclude that one of the key element of successful party-building is the construction of a territorial organization which ensures that party leaders can rely on local political support (Levitsky, Loxton and Dyck, 2016). Territorial organization enables parties to win votes and build partisan attachments.

Towards this end, decentralization and local democracy provide party leaders with a tool to build a robust territorial organization that increase their party’s odds of political survival. Studying local democracy worldwide, Bohlken (2016) finds that party-building goals are a key explanation for why party leaders devolve power and extend local democracy in the first place. Parties use grassroots members and party activists to communicate party brands, build ideological or patronage linkages, and organize rallies and ground campaigns to mobilize voters. Because party members are more likely to stick it out and remain loyal to their party regardless of its electoral success, parties with strong a grassroots activist support base survive past electoral success and failure.

Party leaders (principal) would like local incumbents (agents) to invest patronage and party resources in party-building. However, local incumbents are imperfect party agents who can divert these resources to serve their own end, particularly in weakly institutionalized parties where ideological attachments and disciplining mechanisms are weak (Sells, 2020; Jensenius and Suryanarayan, 2020). A rich literature investigating incumbency effects shows that local incumbents accumulate wealth (Fisman, Schulz and Vig, 2014), engage in

corruption (Ferraz and Finan, 2011; Klasjna and Titunik, 2017), and divert resources to build their own political machines (Bohlken, 2018; Chhibber and Jensenius, 2018; Fried, 2012), jeopardizing party's electoral (Klašnja, 2015), and organizational survival (Novaes, 2018).

To guard against this opportunism, party leaders have many tools that they can deploy to lower agency costs, including their control over higher-level nominations, ideology, norms, and other disciplining mechanisms. Party elites can use the information from local electoral contests and campaigns to gauge grassroots support for the party (Samuels and Zucco, 2016), and as a screening device for talent that invests in party-building. These tools are particularly effective in strong parties, as seen in many different settings. Evidence shows that in strong parties in India incumbents at different levels of the party hierarchy support each other at election time and parties benefit electorally from this hierarchical co-operation (Nellis, 2017). Sells (2020) shows that holding mayoral office bolsters party-building, but only in parties that are strongly institutionalized parties in Brazil where party leaders have the capacity to discipline local incumbents. He finds that municipal incumbency increased membership recruitment only among centralized and programmatic parties that already had a strong territorial presence in the municipality, and it was ineffective for weaker parties.

Using a feminist institutionalist approach to “gender” party-building (Kenny, 2014; Krook and Mackay, 2011), we argue that the incentivizes and sanctions that parties use to align local incumbents' incentives to engage in party-building and the resources that incumbents have for accomplishing these goals are not equally distributed between genders. To gender the process of party-building means that gender relations influence the underlying logic incentivizing men and women to engage in party-building and the ways in which men and women party members are incorporated into party institutions. Not only that supply and demand leads men and women existing out in the society to be recruited into party institutions (Kenny, 2014).

## 1.1 A gendered theory of party-building

Our argument has two parts. The first part highlights the disproportionate incentives that women incumbents have to engage in party-building. The second part highlights how women incumbent's lower access to resources influences how they approach party-building with implications for their career progression. We draw on a rich set of studies in comparative research investigating gender and political parties, party activist and broker politics, and incumbency effects in Latin America and other developing regions to illuminate the building blocks of our argument.

We theorize that parties promote incumbents on a gendered criteria, incentivizing women to recruit new party members for career progression. These incentives emerge twofold. First, parties select and promote women who are more disciplined, that is, they are party loyalists who are more likely to toe the party line which includes investing in party-building. Gendered expectations that women will not deviate from party interests increase these tendencies. Second, having fewer pathways into politics, women incumbents are also more likely than men to depend on rising up the party ranks using party-building as a signal to demonstrate their worth to political parties and local politics as a pathway to power.

Research in comparative politics in a variety of institutional settings — ranging from PR systems to majoritarian systems - finds that women are more likely to toe the party line, complying with the demands of the party's leadership, at times at the costs of their gender interests. Investigating gender and party identity in Brazil, Htun and Power (2006) conclude that women prioritize party interests over gender interests and are able to achieved feminist objectives only when these coincide with party interests. Party leaders are also less likely to value women's engagement in deviant behavior and women face stronger repercussions for deviating from the party line (Morgan and Hinojosa, 2018). Investigating the gender gap in re-contesting state elections in India, Bhalotra, Clots-Figueras and Iyer (2018) find

that women incumbents are significantly more party loyal than men: They are more likely to re-contest from the same party, and significantly less likely to switch parties. Conducting a survey with parliamentarians which includes several measures of party discipline, Clayton and Zetterberg (2021) show that women are more likely than men to express party discipline across 17 African legislatures. They argue that parties select more disciplined women and gendered expectations about proper behavior limit women legislators' ability to act independently from their parties, establishing women as stronger party loyalists than men even within the same parties. We expect that this gendered selection of more disciplined women and norms of appropriate gender behavior disproportionately incentivize women to invest in party-building. Similar to other observable expressions of party loyalty, party-building effort is observable in members' participation in party activities and events.

In addition to selection of more party loyal women, because women have lower financial capital, weaker informal connections, and sparser political networks than men to begin with (Barnes, 2016; Schwindt-Bayer, 2010; Bjarnegård, 2013; Piscopo, 2016; Wylie, 2018), women are more likely to rely on within-party networks to recruit and build political connections and to mobilize voters (Goyal, 2019). In turn, as a result of their stronger party identification and party-centered political networks, women are more likely to do the grunt work in reifying the party's territorial presence. In contrast, having more outside connections and capital to demonstrate their worth to party leaders and to mobilize voters, men can substitute away from party specific investments. The criteria for promoting men and women will reflect these gendered dynamics with the result that women are more likely to be selected and promoted for party-building, while men for the outside connections and resources that they bring to party organization.

Another key way in which these gendered inequalities manifest themselves is in the distinct type of pathways men and women take to enter into politics. Despite a gender gap in political career progression, women incumbents in higher-level politics are still more likely

than men to have a prior background in local politics (Goyal, 2020). Women aspirants rely more heavily on local politics to gain visibility and experience (Clayton and Zetterberg, 2021; Folke and Rickne, 2012). In contrast, men face fewer challenges and obstacles in contesting directly in higher-level politics, bypassing the grunt work that rising through the rank of party organization requires altogether. Women’s greater dependence on local politics means that women forge a career into politics by rising up the party rank, and therefore, investing more in party-building than men.

While women have stronger incentives to engage in party-building, gendered constraints disproportionately lower women incumbent’s access to patronage required to do so. Research from across the world shows that women are less able to use political office to access patronage resources than men. Women incumbents are less likely than men counterparts to accumulate wealth (Fisman, Schulz and Vig, 2014) and have lower access to media resources (Boas and Hidalgo, 2011). The strongest evidence comes from Brazil’s municipal government. For example, Brollo and Troiano (2016) find that female mayors hire fewer temporary public employees than male mayors during the electoral year and tend to attract less campaign contributions when running for reelection. Providing party members paid opportunities in public employment is a key way in which politicians reward and attract followers in Brazil (Frey and Santarrosa, 2022), and these gendered gaps highlight the potential disadvantages women mayors have relative to men in recruiting party members.

These push and pull forces have implications for the quality and quantity of women’s party-building. With regard to quantity, we expect that women are more likely than men to recruit women party members as doing so lowers recruitment cost, eases credit claiming, and is role congruent; this enables women to effectively engage in party-building.<sup>1</sup> Using

---

<sup>1</sup>Note that our hypothesis is about how women incumbents lower the gender gap in membership recruitment relative to men incumbents and not about absolute levels of recruitment of men or women members. It is plausible that on net, women incumbents or men incumbents both recruit more men than women party members. This is plausible as men are more active in politics and in networks from where party members are recruited, and therefore are still easier to recruit than women. However, our theory suggests that because women’s recruitment is relatively easier for women incumbents, they are more likely to recruit women

interviews to highlight the gender gap in clientelism in Argentina, Daby (2021) notes how women brokers make up for the lack of resources through their effort: *“If I see a woman [mina] and guy [tipo] with the same people [female and male brokers mobilizing voters], have no doubt that the woman is a beast.”* Using the natural experiment of gender quotas in India, Goyal (2019) finds that women candidates in local politics are more effective at recruiting women party activists because they can simultaneously lower household constraints and party organization barriers to facilitate women’s entry inside parties. They are able to recruit women from their political and problem-solving networks and recruiting women activists enables women to more easily claim credit for recruitment without having to compete with men. Seeing large number of women conduct political campaigns or women-only events is an easily attributable signal of women’s party-building effort. Moreover, being seen with other women is compliant with women’s social roles and lowers reputation costs and violence concerns (Barnes, 2016; Krook, 2017), and is mutually advantageous for both women politicians and party members.

This leads us to our first two inter-related hypotheses. We expect that female politicians’ greater incentives to invest in party-building and their comparative advantage in the recruitment of other women will help compensate for the greater resource constraints that they face.

**H1:** Women incumbents recruit new party members at a higher or same rate as men.

**H2:** Women incumbents are more likely to recruit women party members relative to men incumbents, therefore, shrinking the gender-gap in party membership.

Our theory also yields additional predictions for the quality of membership recruitment with downstream implications for party resilience. With regard to quality, simply by lowering members relative to men incumbents.

the gender gap in party recruitment, women increase party resilience. Women party members are more likely to be loyal to parties, and less likely to switch or leave parties, than men members, for the same reasons as we outlined earlier.

Crucially, we expect that because women incumbents' recruitment is less contingent on patronage but more likely to be focused on party ideology or policy or gender rhetoric, party members recruited by women incumbents – regardless of their gender — are also less likely to join for particularistic reasons, and therefore, are more likely to remain affiliated with the party for longer.<sup>2</sup> This also has implications for party resilience. For instance, while reliance on material incentives may help a party recruit a larger activist base in the short term, this may make the party's activist base more fragile over the long run. In particular, members who were recruited into the party mainly through particularistic promises may be more likely to leave once the party is no longer in office and can no longer keep those promises. Investigating party switching in Brazil's municipal government, Novaes (2018) find that disloyal mayors who join for rents and patronage are more likely to switch parties, sowing the seeds for party fragility. By contrast, members who join their party for ideological reasons or careerists who join parties to realize their political ambition may be more loyal to the party over the long term. Party loyalists may also be more likely to extend effort towards deepening members party identification, which can set in a virtuous cycle that binds members more closely to party network, sowing the seeds of party stability (Samuels and Zucco, 2016).

**H3:** Women incumbents are more likely to recruit party members who are less likely to leave or switch parties.

---

<sup>2</sup>With regards to party members in our setting, demand-side factors such as being contacted by party representatives or social networks are more important in driving party membership, than supply-side factors such as implicit motivations to join parties (Ribeiro, 2015). While it is possible that women incumbents may inspire women to join parties in other settings by changing their attitudes and beliefs about politics such as through role-model effects, it is another plausible pathway that lowers the costs of recruiting women.

Our theory rests on an ancillary hypothesis that we test empirically. We expect that because women are more reliant on rising up the ranks in local politics, and parties select and reward women for party-building with career progression, they are more likely to progress upwards in constituencies where they engage more in inclusive party building. As we discussed earlier, recruiting women enables women incumbents to claim credit more effectively relative to men incumbents, is role congruent, and relatively less resource intensive, leading to our ancillary hypothesis.

**H4:** Women incumbents are more likely to progress upwards in constituencies where they engage in more inclusive party building.

## 2 Context

In this section, we present a brief overview of Brazil’s party system and rich party life. In the light of the previous literature highlight the inchoate character and weakness of Brazil’s party system, Brazil comes across as a relatively less likely case for any theory of party building, raising the question why would candidates — men or women — engage in any party building at all? However recent developments in Brazil’s party system and rich party membership sketch a more tenuous picture with vast sub-national and intra-party variation in Brazil.

### 2.1 Brazil’s party system: A brief overview

During the reestablishment of democracy in the 1980s, Brazil developed a famously inchoate and fragmented party system characterized by many non-ideological, weakly-organized, and predominantly clientelistic parties and frequent elite-level party-switching between so-called

*partidos de aluguel*, or “parties for rent” (Sartori, 1993; Mainwaring, 1999; Ames, 2001). For this reason, we see Brazil as a hard case for our argument: in a political environment in which rival parties are weak and political elites can easily switch to another party, party-building is less valuable to party leaders and politicians, and parties are less likely to invest in expanding their membership base.

Nevertheless, there are several reasons why it can be in the interests of politicians to invest in party-building, even if the electoral return from those investments is smaller in Brazil compared to other countries. First, Brazil’s party system is no longer as weakly institutionalized as it was during the 1980s and early 1990s. Indeed, Brazil is one of only a small handful of countries in Latin America that has seen steady progress towards party system institutionalization over the last generation (Mainwaring, Power and Bizzarro, 2018). The dominance of the relatively strong and ideological Workers’ Party (PT) and Brazilian Social Democracy Party (PSDB) in presidential elections from 1994 to 2014 provided a consistent programmatic structure to Brazil’s national-level politics. Although levels of party identification in Brazil remain quite low and few parties other than the PT have developed a significant base of partisan support, Brazil has also seen an increase in mass-level polarization between the PT’s supporters and opponents (Samuels and Zucco, 2018). Elite party-switching also became considerably less common and more costly to politicians after a 2007 court ruling that elected officials who switched parties would lose their electoral mandates or seats (Novaes, 2018). Second, even Brazil’s weaker parties are useful to their members because partisan ties structure the interactions between party leaders, national politicians, local politicians, and grassroots party members (Desposato, 2006). Federal and state politicians such as senators, federal deputies, and governors routinely rely on co-partisan mayors to mobilize local electoral support on their behalf (Novaes, 2018; Ames, 1994), while mayors rely on higher-level politicians for pork, discretionary grants, and other resources (Brollo and Tommaso, 2012).

The decentralized nature of candidate-selection in Brazilian parties and the high degree of

internal competition within parties offer ambitious candidates additional incentives to invest in recruiting new members into their parties. In most parties, candidates for municipal elections are selected through municipal conventions that are open to all members of the party who reside in that municipality, and prospective candidates can increase their chances of winning the nomination by recruiting their allies into their party (Mainwaring, 1999). Party elites generally maintain tighter control over nominations for state and national office, along with the campaign resources that candidates use to contest elections at all levels, and previous research has found that this gate-keeping by party elites tends to hinder the career advancement of women to national office in Brazil (Wylie, 2018; Janusz, Barreiro and Cintron, 2021). Nevertheless, local party-building and membership recruitment can still have a meaningful impact on a politician's chances of nomination to state and federal office in many parties. By enlisting their friends, relatives, supporters, and clients into their party, a politician signals the depth of their grassroots support to party leaders and gains valuable allies within the party who will support them in the party's local conventions. As Mainwaring (1999) notes, these local conventions play a central role in internal competition and career advancement within Brazilian parties at all levels:

Politicians make every effort to ensure that they retain control of their bases and expand to new areas. The battle for control of local directorates and executive committees, and especially of the delegates chosen for the state convention, is crucial for ambitious politicians. Local conventions determine who the prevailing local political bosses will be, and they also affect the political strength of national political figures.

## 2.2 Party Membership in Brazil

Party membership growth in Brazil is driven primarily by demand-side factors, including politicians' struggles for control over municipal party conventions and local party organizations. Most voters who join a Brazilian party are *recruited* by another member, politician, or local leader from that party. A survey of municipal party convention participants in the state of São Paulo by Ribeiro (2015) finds that 74% of members were asked to join the party by another person,<sup>3</sup> while 11% joined due to their participation in a non-party organization such as a labor union or a neighborhood organization, and around 8% joined on their own initiative. While both incumbents and opposition politicians have incentives to grow their party's membership base, local incumbency offers politicians valuable institutional and organizational resources that they can use to pull additional members into their party. Frey and Santarrosa (2022) provide rich evidence that mayors in Brazil actively recruit local bureaucrats into their parties, and they also rely on these bureaucrats to mobilize other voters. At the same time, however, many members of Brazilian parties also report non-material motivations for getting involved in party politics. Ribeiro (2015) finds that a majority of respondents reported joining the party because it represented their political convictions (38%), followed by enjoyment of party life (28%). 8% listed pursuit of political career and 7% listed finding employment as other reasons.

The level of party membership in Brazil is quite high relative to European democracies. According to official membership statistics reported by Brazil's electoral court, *the Tribunal Superior Eleitoral*, just under 16 million Brazilian voters were affiliated with a political party at the beginning of 2020, which corresponds to 10.6% of Brazil's electorate. Although the official figures likely overstate the level of party membership in Brazil due to under-reporting of disaffiliations, this figure aligns closely with survey data from Brazil. In the 2006 wave of

---

<sup>3</sup>This includes 28% who were recruited by a party representative (activist or candidate), 15% who were recruited by a politician or candidate, 2% who were recruited by a civil servant, and 28% who were recruited by a family member.

the World Values Survey, 10.1% of the sample reported being affiliated with a political party. Similarly, data from Latinobarometer indicates that 11.8% of Brazilian citizens reported working on behalf of a political party or candidate frequently or very frequently.

A significant portion of Brazilian party members also participate in party activities, including municipal conventions, party meetings, and campaigns. In a study of party members from ten major parties from the state of São Paulo, Ribeiro (2015) finds that a majority majority members were invested for at least 5 hours per month in party activities, with 17% reporting spending more than 40 hours per month. Moreover, 46% of party members interviewed had worked in a paid position associated with their party, highlighting the importance of patronage for party member recruitment.<sup>4</sup> Although these figures must be interpreted with caution due to the unrepresentative nature of the sample, they align with survey data from other sources. For example, a majority of the self-identified party members in the 2006 wave of the World Value Survey described themselves as active members.

Women have consistently been underrepresented in party politics in Brazil. Figure 1 shows the gender distribution of the members who were recruited into Brazilian parties between 2005 and 2020. The plot shows that most parties recruited women at significantly lower rates than men, and this gender gap was largely consistent across Brazil's major parties. Even institutionalized, leftist parties that are ideologically supportive of women's involvement in politics—such as the Workers' Party (PT) and the Communist Party of Brazil (PCdoB)—recruited more men than women in over 75% of municipalities. Previous research suggests that this gender gap is due to a variety of factors, including the weak institutionalization of most Brazilian parties, the barriers that women face in advancing to party leadership positions and elected office, and the tendency of parties to hold meetings at night, when women are expected to be at home and with their families (Wylie, 2018).

---

<sup>4</sup>Demographically, party members were older, more educated, had higher income and status relative to citizens. Party member's report high political efficacy. For instance, 42% of PT members believe that their individual actions have a large impact on the internal life of the party.

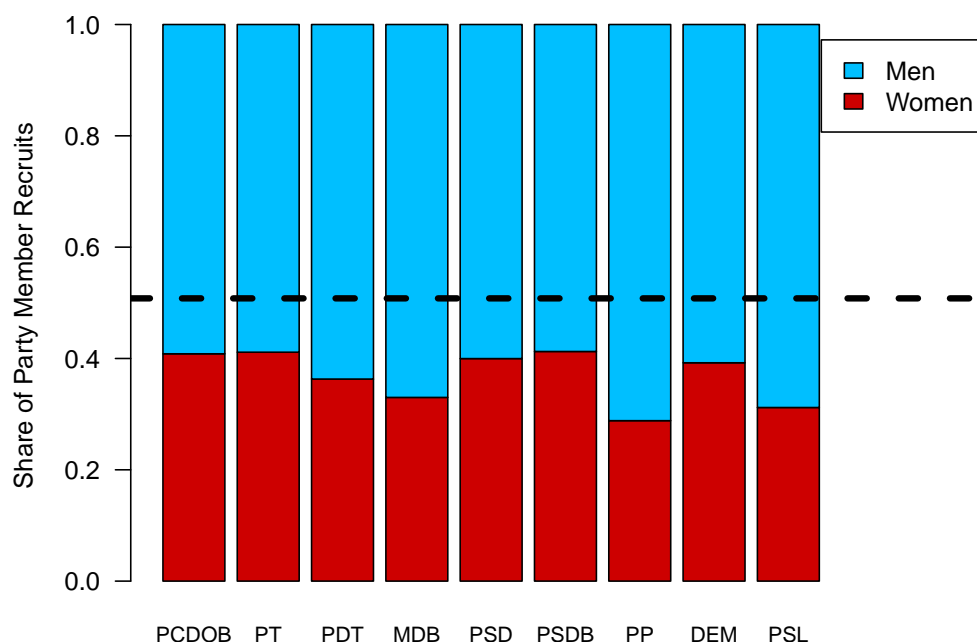


Figure 1: Party Membership Recruitment of Women in Brazil, by Party

An underlying assumption behind our argument is that the minority of women who join a party are likely to be more loyal to their party over time compared to male party members. Table 1 provides empirical support for this assumption. While 14.6% of male rank-and-file party members switched to a different party at a later date, the rate of party-switching among women was considerably lower at only 8.0%. Likewise, female candidates for elected office were less likely to switch to a different party compared to male candidates at all levels of government. All of these differences in the rate of party-switching between men and women are statistically significant at the 0.01 level. These gendered differences in party-switching among party members suggest that correcting for gender-imbalance in party membership may increase the ability of the party to retain its grassroots membership and increase party resilience, sowing the seeds for stronger parties.

Table 1: Rates of Party Switching Among Brazilian Party Members, By Gender

Member Type	Women	Men
Ordinary Members	0.080	0.146
City Council Candidates	0.561	0.652
Mayoral Candidates	0.548	0.580
State Deputies Candidates	0.523	0.631
Federal Deputies Candidates	0.490	0.605

### 3 Data and Empirical Strategy

Our main dependent variables are the rate of activist recruitment and the gender gap in recruitment. We measure both variables using data on party membership in Brazil provided by Brazil’s electoral court, the *Tribunal Superior Electoral* (TSE). The data used in our analyses spans the four mayoral terms between 2005 and 2020. This dataset contains a unique identifier, name, gender, and the year of joining of all party members. Most approaches to measure party membership are prone to noise.<sup>5</sup> This dataset despite having advantages of coverage, mandate, and scale, also has some limitations. First, because affiliations are reported by local party organizations, it is possible that some of the voters on the membership registry were registered with the party without their consent or knowledge. Second, although local party organizations have strong incentives to report affiliations, they have much weaker incentives to report disaffiliations. As a result, it is possible that many of the members on the registry were active within their party only for a brief period of time. Similarly, the nature of our data does not allow us to distinguish activists who regularly participate in their party’s conventions and campaigns from less-active members who never participate in party activities. Importantly, however, there is no clear reason to expect that this measurement error in the dependent variable would be correlated with treatment status or the gender of a mayoral candidate. Consequently, our research design can still offer meaningful insight into

<sup>5</sup>For a discussion of issues in measuring party membership using citizen survey or recall, see Auerbach (2020); Goyal (2019).

how local election outcomes affect membership recruitment even if some party members are misclassified or misreported.

We operationalize the total recruitment rate as the number of new party members that the party recruited per 1,000 voters in a given municipality over the course of the four year mayoral term. We operationalize the gender gap in recruitment as the difference between the recruitment rate of men and the recruitment rate of women in a given municipality:

$$GenderGap = 1000 * \left( \frac{MaleRecruits}{MaleVoters} - \frac{FemaleRecruits}{FemaleVoters} \right)$$

A positive gender gap indicates that the party is recruiting men at a higher rate than women and that the gender imbalance in the party’s membership base is increasing. A gender gap of zero indicates that the party’s new members are perfectly balanced by gender. Figure 2 shows the distribution of gender gap in party membership. The average gender gap is 0.81, which indicates that recruitment is biased towards men. Women members were recruited at a lower rate than men in 76.4% of municipalities.

We estimate the effect of having a female mayor in office using a regression discontinuity (RD) design in close municipal elections. We restrict our sample to mayoral elections in which one of the two main candidates was female while the other was male. We estimate the model

$$Y_i = \beta_0 + \beta_1 MV_i + \beta_2 MV_i FemaleMayor_i + \delta FemaleMayor_i + \epsilon_i$$

within a bandwidth of  $\pm h$ , where  $h$  is selected using the data-driven bandwidth selection method developed by Calonico, Cattaneo and Titiunik (2014). Our running variable,  $MV_m$ , is the margin of victory of the female mayoral candidate, and positive values indicate that the female candidate won the mayorship. The main quantity of interest is  $\delta$ , which represents the change in the outcome variable at the 0% margin of victory treatment threshold.

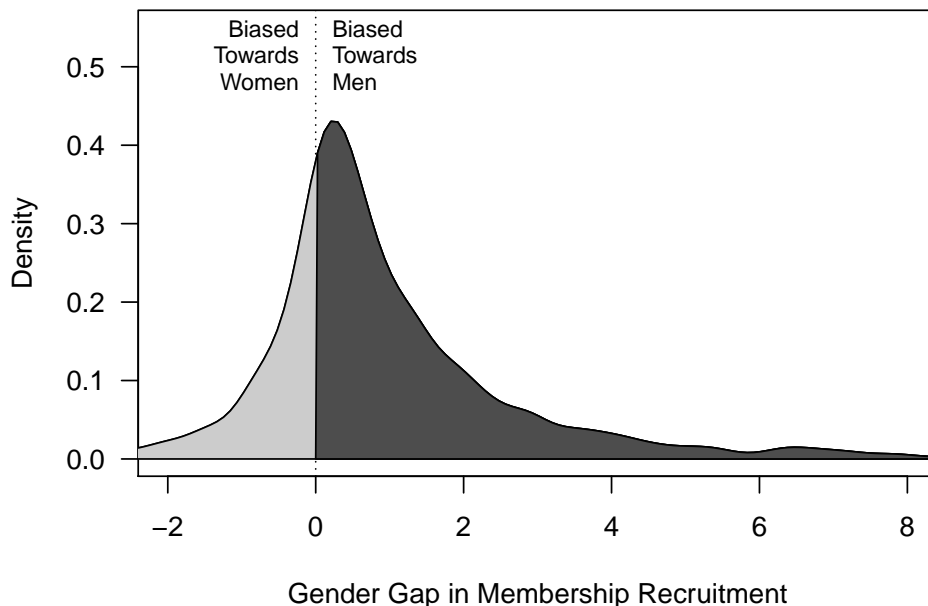


Figure 2: Gender Gap in Party Membership across Brazil’s municipal constituencies, 2005-2020<sup>6</sup>

Our research design departs from previous research that has used an RD design to study gender effects in that our treatment is incumbency (whether a given party wins or loses the mayoral election) rather than the gender of the winning candidate. Instead of treating gender as a treatment effect in its own right, we analyze the contribution of gender as a heterogeneous effect of the incumbency treatment. The main reason why we focus on incumbency effects rather than candidate characteristic effects is because our outcomes of interest are measured at the municipal-party level rather than the municipal level, and this makes the conventional candidate characteristic design inappropriate for our analysis. We cannot simply compare governing parties that narrowly elected a female mayor with governing parties that narrowly elected a male mayor because under Brazil’s electoral system, the female and male candidates would necessarily come from *separate* parties that might have a different baseline propensity to involve women in its internal politics.<sup>6</sup>

<sup>6</sup>This violates the key identification assumptions behind the RD design under both the “as-if random” justification and the continuity justification for RD. First, even if the gender of the mayor were as-if randomly assigned to municipalities, candidate gender is certainly not as-if randomly assigned to *parties* in the

By focusing instead on incumbency effects, our analysis implicitly holds the candidate’s party constant and compares outcomes based on whether that party won or lost the mayoral election. In order to assess whether our results are capturing the effect of a female mayor in particular rather than the effect of her party’s local incumbency status in general, we compare the incumbency effect of a female mayor on her party (relative to when it is in the opposition) with the incumbency effect of a male mayor on his party (also relative to when it is in the opposition), and we estimate the RD model separately for the female candidates and male candidates sub-samples. These comparisons must be made with caution because candidate gender may be correlated with other candidate and party characteristics that have an independent effect on membership recruitment. Nevertheless, these comparisons can still provide valuable insight into whether the effect of winning a mayoral election depends on the gender of the new mayor. In Appendix K, we also examine whether our results are robust to a difference-in-differences specification, and we find that this alternative model yields strikingly similar conclusions as the RD model about the differences between female and male mayors.

## 4 Results

### 4.1 Women’s party membership recruitment

The central prediction of our argument is that although women and men incumbents are likely to have similar effects on party membership recruitment in the aggregate, women incumbents are more likely than male incumbents to invest in the recruitment of women.

---

Brazilian context. Second, this violates the continuity assumption behind RD because the 0% margin of victory treatment threshold marks an abrupt change not only in the mayor’s gender, but also in identity of the governing party, and consequently, countless other party characteristics including the party’s history, leadership, ideology, and political goals. See Appendix C for additional details on the challenges that this poses, and on how our design differs from the conventional candidate characteristic research design.

Figure 3 illustrates the effects of a woman mayoral candidate’s electoral victory on membership recruitment into her party over the course of the next term. Panel A shows the effect on her party’s overall recruitment rate in that municipality, and there is no evidence that having a woman mayor in office either boosted or depressed membership recruitment in the aggregate. However, Panel B suggests that a woman mayor can significantly affect the gender composition of her party’s recruits. The sharp drop in the gender gap at the 0% margin of victory threshold indicates that the party’s recruits were more evenly balanced between men and women in the municipalities where the female candidate won the mayoral election. This is consistent with the hypothesis that having a female politician in executive office can lead her party to cultivate a more gender-balanced activist base.

Figure 4 compares the effects of women and men mayors on recruitment into their respective parties. Panel A shows that regardless of the gender of the party’s mayoral candidate, winning the mayoral election had no significant effect on the party’s total membership recruitment during the next term. This implies that although women mayors may have less access to patronage resources compared to male mayors (Brollo and Troiano 2016), this does not lead female mayors to recruit new members at a significantly lower rate compared to male mayors.

By contrast, Panel B of Figure 4 shows that there is a significant difference in how the two types of mayors affect the gender composition of their parties’ recruits. Having a female mayor in office significantly decreased the recruitment bias towards men by around one member per 1,000 voters relative to when her party was in the opposition, while male mayors had no effect on the gender gap of their parties’ recruits relative to their party being in the opposition. This suggests that the gender gap results shown in Figure 3 do not simply reflect an incumbency effect in general, but rather the effect of a *female* mayor in particular. It also provides further evidence for this paper’s main claim that female politicians are more

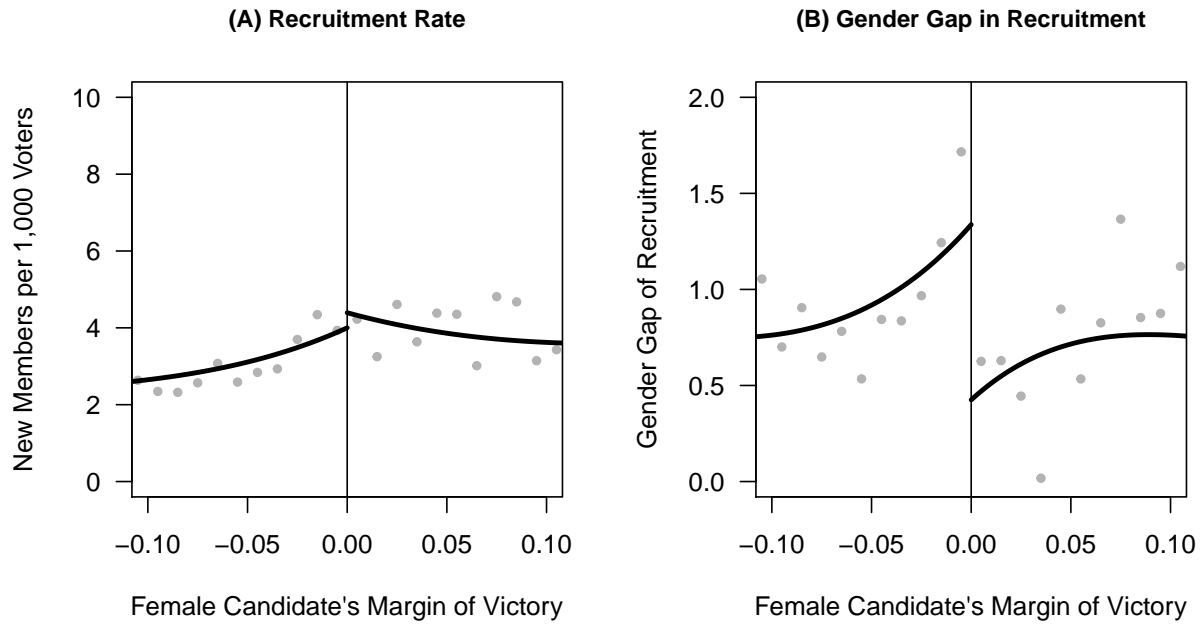


Figure 3: The Effect of Female Mayors on Membership Recruitment into the Female Candidate's Party

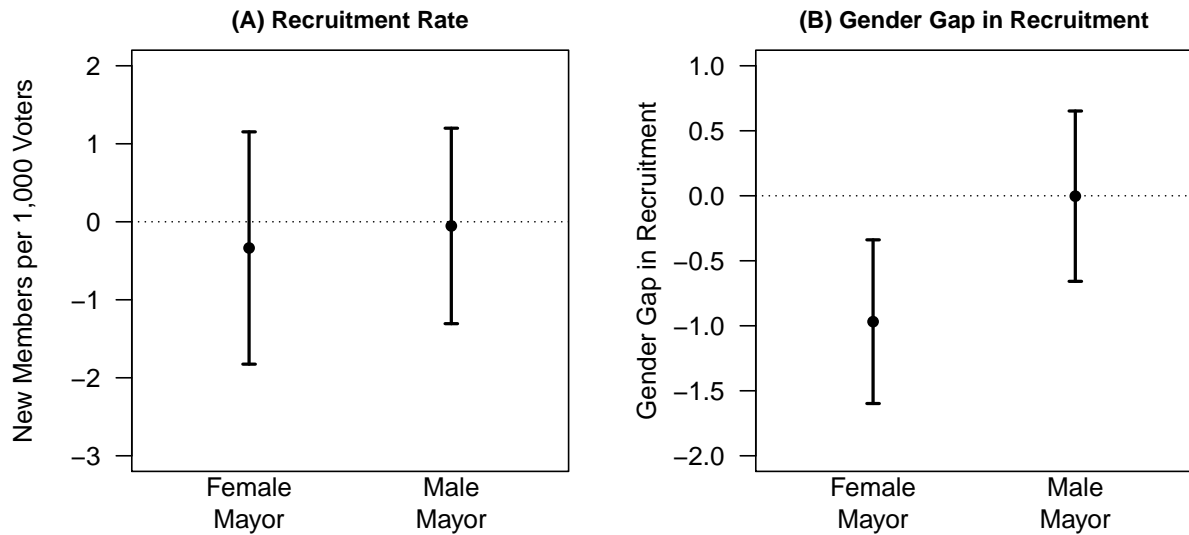


Figure 4: The Effect of Incumbency on Membership Recruitment, by Winner's Gender  
*Note:* Coefficients show RD estimates based on a local linear regression specification with triangular kernels. The comparison cases are municipalities where the relevant candidate lost the mayoral election.

likely than male politicians to build inclusive party organizations.<sup>7</sup> In Appendix K, we show that a difference-in-differences specification yields nearly identical conclusions about the difference in the effects of female and male mayors: the gender of the mayor had no effect on aggregate membership recruitment, while female mayors reduced the gender gap by around one member per 1,000 voters relative to male mayors.

## 4.2 Quality of women’s recruitment

We also expect that women and men recruit members in qualitatively different ways and their contrasting recruitment strategies can affect the quality of the members that they bring into their parties. One way to assess the quality of membership recruitment is by examining whether the new members remain affiliated with the party over the long term. If the member joined the party for particularistic reasons, then we might expect them to disaffiliate or switch to a different party during a future term, when their original party is no longer in office. By contrast, members who join for ideological or programmatic reasons may be more likely to remain in the party over the long term.

Figure 5 shows the effect of female and male mayors on the probability that the members who were recruited into their party during their mayoral term chose to leave or switch to a different party during any subsequent term. Members recruited by women mayors are less likely to switch or leave the party. While the point estimate for both men and women party members recruited by women mayors is negative, the effect for men members is statistically significant at the 10% level. Because women members are less likely to switch or leave parties regardless of who recruits them but are more likely to be recruited by women, and men members recruited by women are also less likely to switch or leave parties, on net this

---

<sup>7</sup>We also investigated how the effect of female mayors on the gender gap in recruitment varies with the background of the female candidate, including whether she was an incumbent mayor at the time of the election. The effect on the gender gap is stronger (more negative) among non-incumbents, though the difference between incumbents and non-incumbents is not statistically significant. This result, along with additional heterogeneous effects results, can be found in Appendix L.

means that women increase party membership resilience.

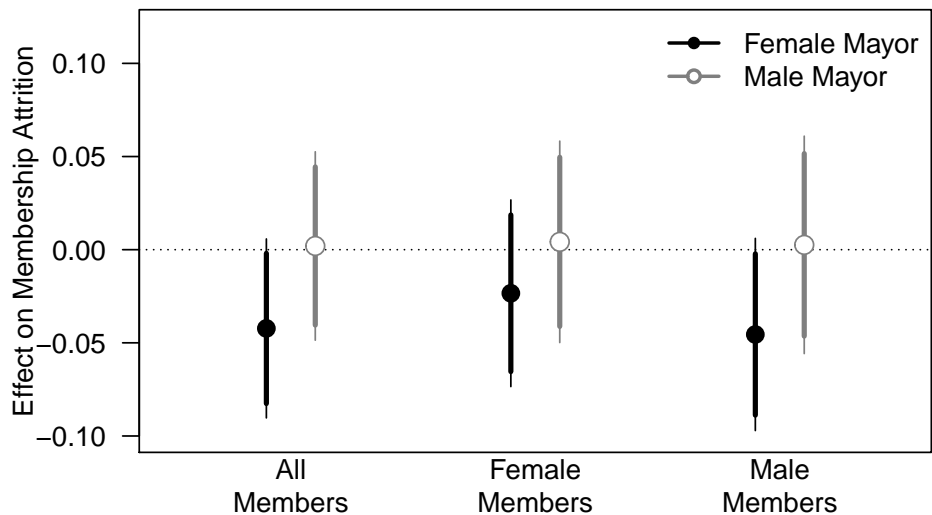


Figure 5: The Effect of Incumbency on Membership Attrition, by gender of mayor and members

While these results are in the expected direction, it is important to emphasize that we only observe party registration and not member (in)activity. Some party members who have become inactive may choose not to go through the bureaucratic process of de-registering from the party, or they may forget that they were affiliated in the first place. Consequently, an alternative interpretation of our finding that party members recruited by women are less likely to leave parties, is that women may simply be recruiting more inactive members who do not de-register themselves. However, we do not have any reason to believe that the costs — administrative or psychological — of member de-registration vary with the mayor’s gender. Existing research on party members activity suggests that party members are very active in party life (Ribeiro, 2015). While, we cannot entirely rule out this possibility with our dataset, the analysis in the next section shows that women’s recruitment does vary with

the election cycle and has positive implications for their career progression, suggesting that women are not simply recruiting inactive members. In addition to providing support for our theory, results from the next sections also allays some of these concerns.

## 5 Party-building and Political Career Progression

According to our theory, holding local office would be more consequential for the career advancement of women politicians compared to men politicians because the former are unlikely to advance far within a men-dominated party organization without the experience, visibility, and network-building capacity that local office provides. By contrast, men politicians may have other pathways to state and federal office, and their future career prospects are therefore less likely to hinge on their success at winning local office.

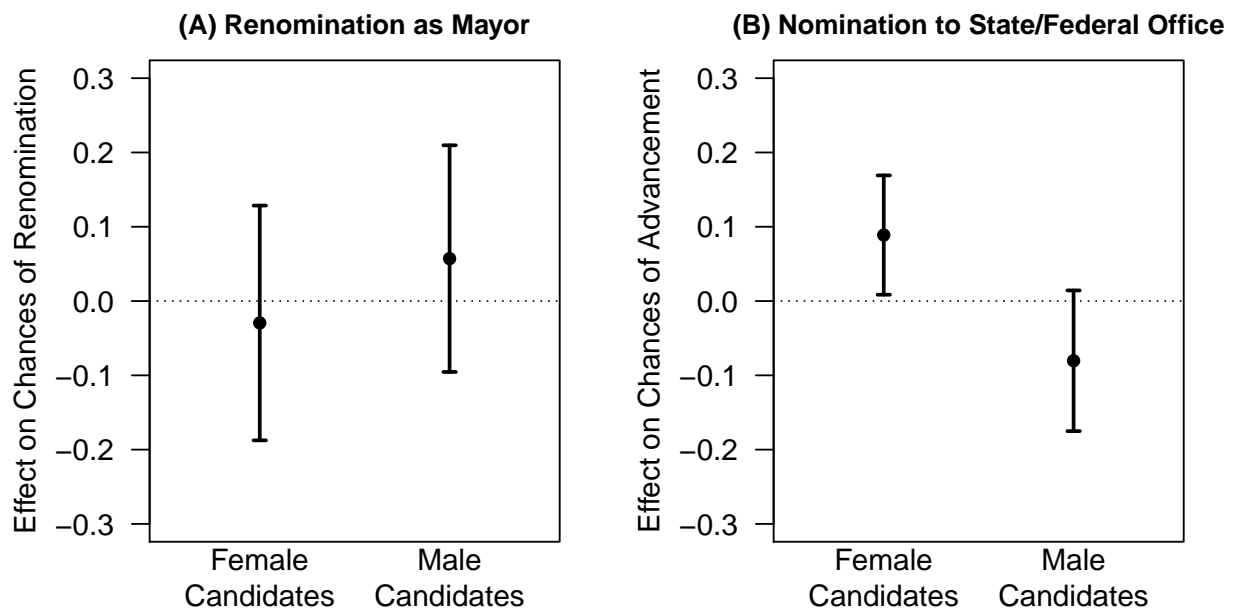


Figure 6: The Effect of the Election Outcome on the Candidate’s Career Trajectory

Figure 6 shows the effect of winning the mayoral election on the candidate’s chances of renomination in the next mayoral election (conditional upon being eligible for a second

term), and the candidate’s chances of being nominated for state or federal office in some future term. Mayoral election outcomes had no significant effect on renomination for either gender. However, female candidates who won their mayoral election were 8 percentage points more likely to be nominated for state or federal office in a future term, while winning the election had a slightly negative and insignificant on the career advancement of male candidates. This asymmetry between female and male candidates is consistent with the prediction that mayoral office serves as a vital launching pad for female politicians’ political careers, but is less important for male politicians, who may have other means of attaining higher office.

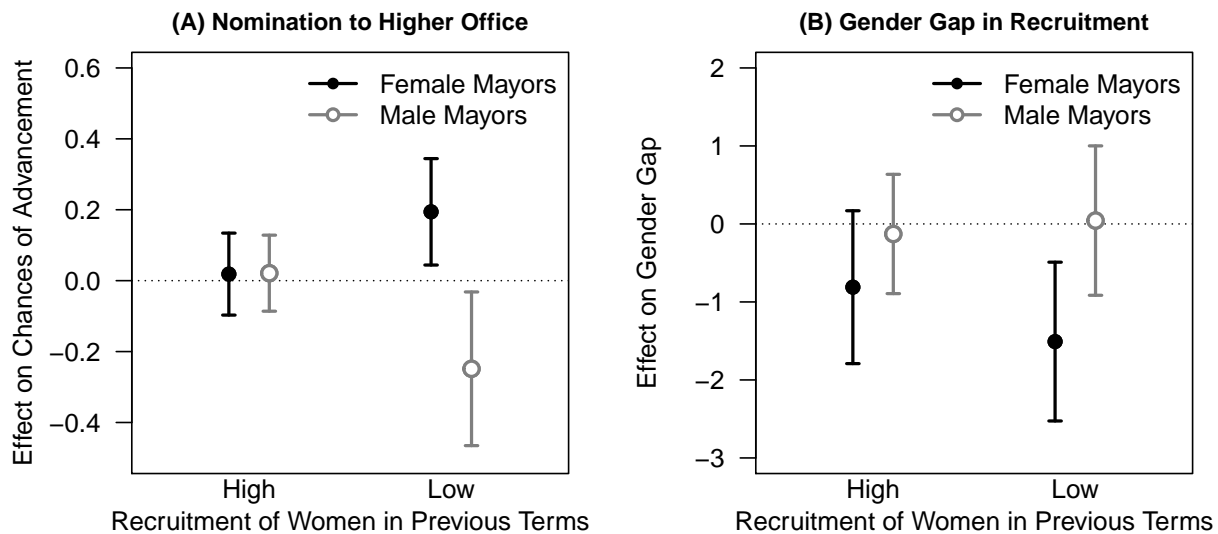


Figure 7: The Effect of the Election Outcome on Nomination for Higher Office, by Women’s Party Membership in Previous Terms

We also expected that women mayors would be more likely to leverage mayoral office for future career advancement if they governed a municipality where women’s party membership was historically low, and therefore, where there was thus greater room for improving the gender balance of party membership. Figure 7 shows the effect of winning the mayoral election on nomination for higher office, grouped by whether the share of women who were affiliated with any party was above or below the median prior to the start of the term. Winning mayoral office had a substantive and significant effect on women’s chances of advancing

to higher office only in municipalities where women’s party membership was previously low. As expected, in constituencies where women’s baseline membership recruitment was low, the gender gap in recruitment also lowered significantly. In other words, women progressed upwards in politics in constituencies where the scope to lower the gender gap in party member recruitment was higher. Women also lowered the gender gap in recruitment the most in these same constituencies.

## 6 Additional Result: Electoral cycle of party building

The rate at which new members join Brazilian parties varies widely over the course of the four-year election cycle. Traditionally, the vast majority of members joined their party during the third year of the mayoral term. This influx of members during the third year was the product of two features of Brazil’s electoral calendar. First, prior to 2016, prospective candidates who wanted to run for office in the next municipal election were historically required to be affiliated with their party for a full year prior to the election, and this meant that they had to join the party by October of the third year of the outgoing term.<sup>8</sup> Second, as was discussed above, one of the main drivers of membership recruitment is the local conventions that select candidates for the next municipal election, which are traditionally held in June during the fourth year of the outgoing term. Because several parties require members to be affiliated with the party for either six months or a year in order to vote at the convention, prospective participants at these conventions needed to join by the third year of the term. Thus, the set of members who joined during the third year tended to consist of two broad types of people: prospective candidates who wanted to run for municipal office under the party label, and the rank-and-file members that those candidates or other politicians recruited into the party in order to influence the local conventions or signal their party

---

<sup>8</sup>Beginning in 2016, candidates were required to be affiliated with their party for only six months prior to the election.

building efforts to party leaders (Speck, 2013; Mainwaring, 1999).

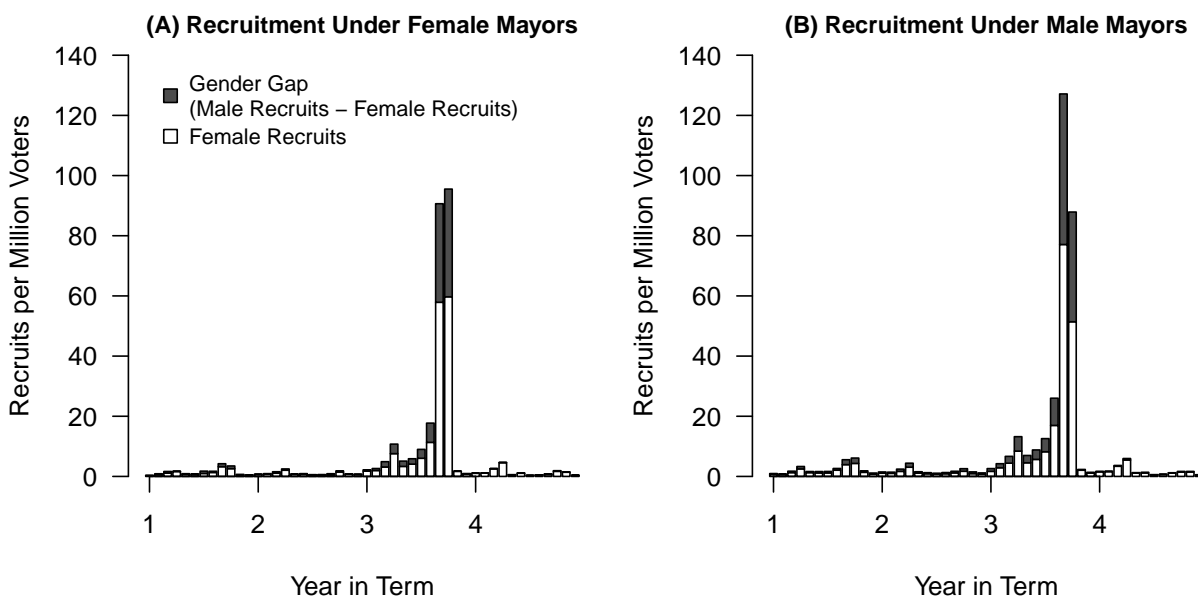


Figure 8: Women’s Recruitment and the Gender Gap in Recruitment by Month in the Mayoral Term

Figure 8 shows the number of new members per one million voters who were recruited into the local incumbent party under female mayors and male mayors, grouped by the month in the mayoral term. In both cases, new members joined the party at similar moments in the election cycle. However, this figure also shows that the gender gap in recruitment during the third year was smaller under female mayors compared to male mayors.

Figure 9 shows RD estimates of the effect of female and male mayors on the gender gap in recruitment, split by the year in the term. This figure suggests that the reduction in the gender gap under female mayors is concentrated during the third year in the term, when new members are joining the party at the fastest rate for the purpose of contesting office under the party label or voting in the next municipal party convention. While the effect of female mayors on the gender gap was close to zero and statistically insignificant during years 1,2, and 4, the effect was negative, substantively large, and statistically significant during the third year. Although this pattern does not preclude supply-side explanations for

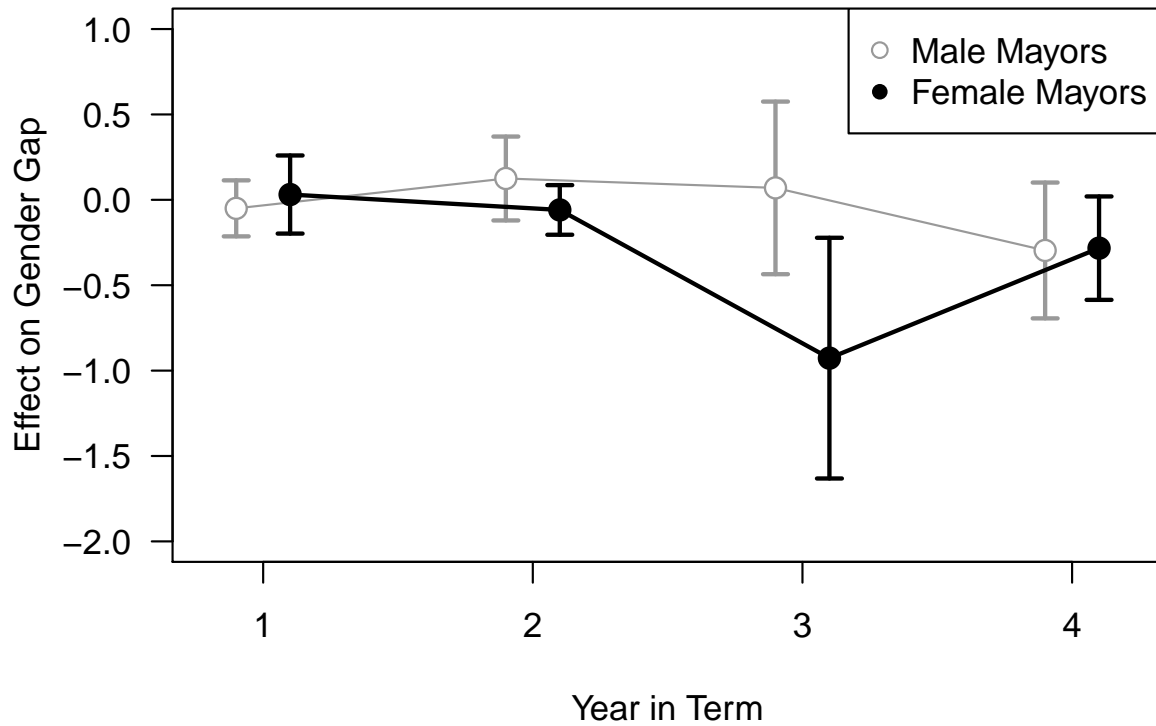


Figure 9: Effect of Incumbency on the Gender Gap, by Year in the Term

party membership recruitment such as the demonstration effect of seeing a woman in office (Wolbrecht, Beckwith and Baldez, 2008), the fact that the effect is concentrated during the third year of the term is consistent with our expectation that internal competition within Brazilian parties is a major driver of membership recruitment. By recruiting more women into the party during the run-up to the next nominating convention, a female incumbent may increase her chances of attaining renomination or influencing the nominations of her successor or down-ballot candidates.

## 7 Conclusion

Our paper shows a new way in which descriptive representation enhances democracy: via inclusive party-building. To establish this link, we offer a gendered theory of incumbency and party-building. We theorize that parties promote incumbents on a gendered criteria, incentivizing women to recruit new party members for career progression. Using rich administrative data in the substantive setting of Brazil’s municipal government, we show that despite having lower access to resources required for recruitment, women incumbents recruit party members at the same rate as men and lower the gender gap in party membership. Further in line with our expectations, we find that women party members are less likely to switch parties in general, and that women mayors recruit party members who are also less likely to switch or leave the party. In turn, we find that women politicians are more likely to benefit from career progression, where there women more strongly increase parity in party membership.

Brazil has been our theoretical focus. However, we expect our findings to generalize to other settings where patronage remains important for forging electoral and political success but remains less accessible to women. The gender inequalities that underpin our theoretical framework and link descriptive representation to party-building are present, naturally with variation, in most low- and middle-income democracies. Gender inequalities in access to resources and gendered expectations about appropriate behavior influence women politicians behavior inside party institutions in Argentina and Mexico (Piscopo, 2019; Barnes, 2016), in India (Goyal, 2020), and in African legislatures (Clayton and Zetterberg, 2021). Similarly in most low- and middle-income countries, party elites rely on local politicians to build parties, as evident in the burgeoning research on party activist recruitment in India (Bohlken, 2016; Auerbach and Thachil, 2018), Ghana (Brierley and Nathan, 2020) and Argentina (Stokes et al., 2013). While our results are internally valid to close-races, our theory is less contingent on the levels of electoral competition and we therefore expect our results to generalize to

non-close races.<sup>9</sup> Research from India is reassuring, where Goyal (2019) finds that women are more likely than men to recruit women as party activists in non-close but instead same-gender (reserved) races. We expect variation in electoral systems, degree of decentralization and party system institutionalization, and the prevalence of grassroots politics to shape our underlying mechanisms — the incentives of women to toe the party line and to use local politics to progress in politics — and therefore to be important moderating variables. Future comparative research can vastly improve our understanding of how these conditions moderate the link between descriptive representation and party-building.

Our work has more extensions. A key question is whether changing the composition of the party’s grassroots has implications for how women legislate in parliaments or whether they demand fairer treatment from party leaders and selection committees. Existing research has mainly focused on how critical mass in legislatures affects women’s behavior within legislatures, that is, the relationship has been analyzed at the same political level (Barnes, 2016; Beckwith and Cowell-Meyers, 2007). But we know less about how changes in descriptive representation at the party’s grassroots affect women’s ability to be effective politicians. In other words, conditional on having a grassroots support base, are women politicians more likely to rebel from their parties? Are they more likely to raise progressive gender issues that conflict with party interests? Another interesting area for research is the process of gendered recruitment and nature of partisan identification amongst women party members. Our quantitative approach limits our ability to answer questions about the qualitative process through which women are recruited to become party members and the role they play in party life. By exploring these questions in a comparative research agenda, we can gain a better understanding of the gendered nature of representation and political party development.

---

<sup>9</sup>Although relying on more stringent identifying assumption, the difference-in-difference estimates in the Appendix suggest that our results are also generalize to non-close races.

## References

- Ames, Barry. 1994. "The Reverse Coattails Effect: Local Party Organization in the 1989 Brazilian Presidential Election." *The American Political Science Review* 88(1):95–111.
- Ames, Barry. 2001. *The deadlock of democracy in Brazil*. University of Michigan Press.
- Auerbach, Adam. 2020. *Demanding Development: The politics of public goods provision in India's urban slums*. Cambridge University Press.
- Auerbach, Adam Michael and Tariq Thachil. 2018. "How Clients Select Brokers: Competition and Choice in India's Slums." *American Political Science Review* 112(4):775–791.
- Barnes, Tiffany D. 2016. *Gendering Legislative Behavior: Institutional Constraints and Collaboration*. Cambridge University Press.
- Beckwith, Karen and Kimberly Cowell-Meyers. 2007. "Sheer Numbers: Critical Representation Thresholds and Women's Political Representation." *Perspectives on Politics* 5(3):553–565.
- Bernhard, Michael, Allen Hicken, Christopher Reenock and Staffan I. Lindberg. 2020. "Parties, Civil Society, and the Deterrence of Democratic Defection." *Studies in Comparative International Development* 55(1):1–26.
- Bhalotra, Sonia, Irma Clots-Figueras and Lakshmi Iyer. 2018. "Pathbreakers? Women's Electoral Success and Future Political Participation." *The Economic Journal* 128(613):1844–1878.
- Bizzarro, Fernando, John Gerring, Carl Henrik Knutsen, Allen Hicken, Michael Bernhard, Svend-Erik Skaaning, Michael Coppedge and Staffan I. Lindberg. 2018. "Party Strength and Economic Growth." *World Politics* 70(2):275–320.
- Bjarnegård, Elin. 2013. *Gender, Informal Institutions and Political Recruitment*. Palgrave Macmillan.
- Boas, Taylor C. and F. Daniel Hidalgo. 2011. "Controlling the Airwaves: Incumbency Advantage and Community Radio in Brazil." *American Journal of Political Science* 55(4):869–885.

- Bohlken, Anjali Thomas. 2016. *Democratization from Above: The Logic of Local Democracy in the Developing World*. Cambridge University Press.
- Bohlken, Anjali Thomas. 2018. "Targeting Ordinary Voters or Political Elites? Why Pork Is Distributed Along Partisan Lines in India." *American Journal of Political Science* 62(4):796–812.
- Brierley, Sarah and Noah Nathan. 2020. "The Connections of Party Brokers." *Journal of Politics* .
- Brollo, Fernanda and Nannicini Tommaso. 2012. "Tying Your Enemy's Hands in Close Races: The Politics of Federal Transfers in Brazil." *American Political Science Review* 106(4):742–761.
- Brollo, Fernanda and Ugo Troiano. 2016. "What happens when a woman wins an election? Evidence from close races in Brazil." *Journal of Development Economics* 122:28 – 45.
- Calonico, Sebastian, Matias Cattaneo and Rocco Titiunik. 2014. "Robust Non-parametric Confidence Intervals for Regression-Discontinuity Designs." *Econometrica* 82(6):2295–2326.
- Chattopadhyay, Raghavendra and Esther Duflo. 2004. "Women as Policy Makers: Evidence from a Randomized Policy Experiment in India." *Econometrica* 72(5):1409–1443.
- Chhibber, Pradeep and Francesca R. Jensenius. 2018. "Privileging one's own - Voting patterns and politicized spending in India." unpublished manuscript, Available at: [https://www.dropbox.com/s/let868in6knqfjh/Jensenius\\_Chhibber\\_MPLADS\\_pp.pdf?dl=0](https://www.dropbox.com/s/let868in6knqfjh/Jensenius_Chhibber_MPLADS_pp.pdf?dl=0).
- Clayton, Amanda, Diana Z. O'Brien and Jennifer M. Piscopo. 2019. "All Male Panels? Representation and Democratic Legitimacy." *American Journal of Political Science* 63(1):113–129.
- Clayton, Amanda and Par Zetterberg. 2021. "Gender and Party Discipline: Evidence from Africa's Emerging Party Systems." *American Political Science Review* p. 1–16.
- Daby, Mariela. 2021. "The Gender Gap in Political Clientelism: Problem-Solving Networks and the Division of Political Work in Argentina." *Comparative Political Studies* 54(2):215–

- Desposato, Scott and Barbara Norrander. 2009. "The Gender Gap in Latin America: Contextual and Individual Influences on Gender and Political Participation." *British Journal of Political Science* 39(1):141–162.
- Desposato, Scott W. 2006. "Parties for Rent? Ambition, Ideology, and Party Switching in Brazil's Chamber of Deputies." *American Journal of Political Science* 50(1):62–80.
- Dietrich, Bryce J., Matthew Hayes and Diana Z. O'Brien. 2019. "Pitch Perfect: Vocal Pitch and the Emotional Intensity of Congressional Speech." *American Political Science Review* 113(4):941–962.
- Ferraz, Claudio and Frederico Finan. 2011. "Electoral Accountability and Corruption: Evidence from the Audits of Local Governments." *The American Economic Review* 101(4):1274–1311.
- Fisman, Raymond, Florian Schulz and Vikrant Vig. 2014. "The Private Returns to Public Office." *Journal of Political Economy* 122(4):806–862.
- Folke, Olle and Johanna Karin Rickne. 2012. Female Representation but Male Rule? Party Competition and the Political Glass Ceiling. Ifn working paper no. 923 <http://dx.doi.org/10.2139/ssrn.2179521>.
- Folke, Olle and Johanna Rickne. 2016. "The Glass Ceiling in Politics: Formalization and Empirical Tests." *Comparative Political Studies* 49(5):567–599.
- Franceschet, Susan and Jennifer M. Piscopo. 2008. "Gender Quotas and Women's Substantive Representation: Lessons from Argentina." *Politics & Gender* 4(3):393–425.
- Frey, Anderson and Rogerio Santarrosa. 2022. The Politicization of Bureaucrats: Evidence from Brazil. Working paper [https://www.andersonfrey.com/uploads/5/9/0/0/59009301/paper\\_april22.pdf](https://www.andersonfrey.com/uploads/5/9/0/0/59009301/paper_april22.pdf).
- Fried, Brian J. 2012. "Distributive Politics and Conditional Cash Transfers: The Case of Brazil's Bolsa Família." *World Development* 40(5):1042–1053.
- Goyal, Tanushree. 2019. Representation from below: How women's grassroots party

- activism promotes equal political participation. Working paper Available at SSRN: <http://dx.doi.org/10.2139/ssrn.3583693>.
- Goyal, Tanushree. 2020. Local female representation as a pathway to power: A natural experiment in India. Working paper Presented at APSA 2020. Available at <http://dx.doi.org/10.2139/ssrn.3590118>.
- Hagopian, Frances, Carlos Gervasoni and Juan Andres Moraes. 2009. "From Patronage to Program: The Emergence of Party-Oriented Legislators in Brazil." *Comparative Political Studies* 42(3):360–391.
- Hicken, A. and E. Kuhonta. 2014. *Party System Institutionalization in Asia: Democracies, Autocracies, and the Shadows of the Past*. Cambridge University Press.
- Htun, Mala and Timothy J. Power. 2006. "Gender, Parties, and Support for Equal Rights in the Brazilian Congress." *Latin American Politics and Society* 48(4):83–104.
- Janusz, Andrew, Sofi-Nicole Barreiro and Erika Cintron. 2021. "Political parties and campaign resource allocation: Gender gaps in Brazilian elections." *Party Politics* .
- Jensenius, Francesca R. and Pavithra Suryanarayan. 2020. "Party System Institutionalization and Economic Voting: Evidence from India." *Journal of Politics* .
- Kenny, Meryl. 2014. "A Feminist Institutionalist Approach." *Politics & Gender* 10(4):679–684.
- Kerevel, Yann. 2019. "Empowering Women? Gender Quotas and Women's Political Careers." *The Journal of Politics* 81(4):1167–1180.
- Klasjna, Marko and Rocio Titunik. 2017. "The Incumbency Curse: Weak Parties, Term Limits, and Unfulfilled Accountability." *American Political Science Review* 111(1):129–148.
- Klašnja, Marko. 2015. "Corruption and the Incumbency Disadvantage: Theory and Evidence." *The Journal of Politics* 77(4):928–942.
- Krook, Mona L. 2017. "Violence against women in politics." *Journal of Democracy* 28(1):74–88.
- Krook, Mona Lena and Fiona Mackay. 2011. *Gender, Politics, and Institutions: Towards a Feminist Institutionalism*. Palgrave Macmillan UK.
- Levitsky, Steven, James Loxton and Brandon Van Dyck. 2016. Introduction. In *Challenges of*

- Party-Building in Latin America*. Cambridge University Press pp. 187–216).
- Mainwaring, Scott. 1999. *Rethinking Party Systems in the Third Wave of Democratization: The Case of Brazil*. Stanford, CA.: Stanford University Press.
- Mainwaring, Scott. 2018. *Party Systems in Latin America: Institutionalization, Decay, and Collapse*. Cambridge University Press.
- Mainwaring, Scott, Timothy Power and Fernando Bizzarro. 2018. The Uneven Institutionalization of a Party System: Brazil. In *Party systems in Latin America: institutionalization, decay, and collapse*, ed. Scott Mainwaring. Cambridge University Press.
- Mansbridge, Jane. 1999. “Should Blacks Represent Blacks and Women Represent Women? A Contingent “Yes”.” *The Journal of Politics* 61(3):628–657.
- Marshall, John. 2022. Can close election regression discontinuity designs identify effects of winning politician characteristics? Working paper, Available at: [https://scholar.harvard.edu/files/jmarshall/files/election\\_rd\\_paper\\_v4.pdf](https://scholar.harvard.edu/files/jmarshall/files/election_rd_paper_v4.pdf).
- Morgan, J and M Hinojosa. 2018. Women in Political Parties: Seen But Not Heard. In *Gender and Representation in Latin America*, ed. Leslie A. Schwindt-Bayer. Oxford University Press.
- Nellis, Gareth. 2017. The fight within: Intra-party factionalism and incumbency spillovers in India. Apsa working paper <http://www.garethnellis.com>.
- Novaes, Lucas M. 2018. “Disloyal Brokers and Weak Parties.” *American Journal of Political Science* 62(1):84–98.
- O’Brien, Diana Z. 2015. “Rising to the Top: Gender, Political Performance, and Party Leadership in Parliamentary Democracies.” *American Journal of Political Science* 59(4):1022–1039.
- Piscopo, Jennifer M. 2016. “When Informality Advantages Women: Quota Networks, Electoral Rules and Candidate Selection in Mexico.” *Government and Opposition* 51(3):487–512.
- Piscopo, Jennifer M. 2019. “The limits of leaning in: ambition, recruitment, and candidate training in comparative perspective.” *Politics, Groups, and Identities* 7(4):817–828.
- Ribeiro, Pedro J. 2015. Joining a Political Party: Paths to Membership and Activism in Contemporary Brazil. Working paper Instituto de Iberoamérica, Universidad de Salamanca,

<http://dx.doi.org/10.2139/ssrn.2709340>.

- Riedl, Rachel Beatty. 2014. *Authoritarian Origins of Democratic Party Systems in Africa*. Cambridge University Press.
- Samuels, David and Cesar Zucco. 2018. *Partisans, antipartisans and nonpartisans: Voting behavior in Brazil*. Cambridge University Press.
- Samuels, David and Jr. Cesar Zucco. 2016. Party-Building in Brazil: The Rise of the PT in Perspective. In *Challenges of Party-Building in Latin America*, ed. Steven Levitsky, James Loxton, Brandon Van Dyck and Jorge I. Domínguez. Cambridge University Press pp. 331–355).
- Sartori, Giovanni. 1993. “Nem Presidencialismo, Nem Parlamentarismo.” *Novos Estudos* 35:3–14.
- Schwindt-Bayer, Leslie A. 2010. *Political Power and Women’s Representation in Latin America*. Oxford University Press.
- Sells, Cameron J. 2020. “Building Parties from City Hall: Party Membership and Municipal Government in Brazil.” *The Journal of Politics* 82(4):1576–1589.
- Speck, Bruno Wilhelm. 2013. “Nem ideológica, nem oportunista: A filiação partidária no contexto pré-eleitoral no Brasil.” *Cadernos Adenauer* 14(2):37–60.
- Stokes, S.C., T. Dunning, M. Nazareno and V. Brusco. 2013. *Brokers, Voters, and Clientelism: The Puzzle of Distributive Politics*. Cambridge Studies in Comparative Politics Cambridge University Press.
- Wolbrecht, Christina, Karen Beckwith and Lisa Baldez. 2008. *Political Women and American Democracy*. Cambridge University Press.
- Wylie, Kristin N. 2018. *Party Institutionalization and Women’s Representation in Democratic Brazil*. Cambridge University Press.

# Online Appendix

## A Summary Statistics

Table A.1: Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Max
Margin of Victory	3,091	-0.042	0.226	-1.000	1.000
Recruitment Rate	2,869	3.122	5.320	0.000	73.105
Gender Gap in Recruitment	2,869	0.811	2.466	-15.840	29.232
Attrition Rate (All Members)	2,516	0.156	0.218	0.000	1.000
Attrition Rate (Female Members)	2,274	0.121	0.212	0.000	1.000
Attrition Rate (Male Members)	2,438	0.173	0.238	0.000	1.000
Gender Gap Prior to Affiliation Deadline	2,869	0.179	0.440	-1.000	1.000
Gender Gap during Campaign	2,869	0.084	0.416	-1.000	1.000
Renominated as Mayor	2,222	0.432	0.496	0.000	1.000
Nominated for Higher Office	3,091	0.069	0.254	0	1
Women's Recruitment in Previous Terms	3,091	81.934	59.708	2.120	448.760

Notes on missing data:

- Data on party membership is not available for several minor parties. Most of these parties were short-lived and ceased to exist by the early 2010s.
- The variable “Renominated” is coded as missing for term-limited mayors who were ineligible for reelection

## B Overview of the Data

Party members are voters who have formally joined a political party. The party membership data used in this article comes from the database of party affiliations compiled by Brazil's Supreme Electoral Court (TSE). Brazilians normally join a political party by affiliating themselves with the local party office in the municipality where they reside. The municipal party offices are then required to report new affiliations periodically to their national-level party authorities and to the TSE. The TSE's records contain basic information on each member, including their name, their municipality, the date of their affiliation, the date on which they disaffiliated, and the date on which their affiliation was canceled for any other reason.

The TSE membership dataset does not list the gender of each party member. Instead, we code the gender of party members based on the members' first names. We perform most of the gender codings using the `genderBR` package in R created by Fernando Meireles, which uses data from Brazil's 2010 census to calculate the probability that a person with a given first name identifies as a man or a woman. When the `genderBR` package failed to classify a given member as male or female, we coded the member's gender by hand based on Portuguese naming conventions for given names. We were unable to code the gender of approximately 7% of the party members.

Although the membership dataset contains affiliations from as early as the late 1970s, the TSE did not standardize the reporting requirements of affiliations until much later, and the affiliations data for this earlier period is of poor quality. For this reason, our analysis focuses on affiliations that occurred between 2005 and 2020.

In order to ensure that we are comparing the performance of male and female mayors in the same set of municipalities, we restrict our sample to municipality-elections in which the top two candidates in the mayoral election were one man and one woman.

## C Details on the Regression Discontinuity Comparisons

The most common approach for using an RD design to estimate the effect of politicians' gender involves (1) focusing on a subset of close elections in which the two most competitive candidates were one man and one woman, and then (2) comparing outcomes just above and just below the 0% margin of victory threshold at which the winning candidate switches from male to female. This research design is sensible when the outcome of interest is measured at the municipal or district level at which the election takes place: because the municipality is essentially the same municipality regardless of whether the woman or the man wins the election, it is plausible that potential outcomes in that municipality would be continuous at the 0% margin of victory threshold (the key identification assumption behind RD designs).

However, the analyses in this paper focus on variables that are measured at the *party* level rather than the municipal level, and this poses additional challenges for our analysis. Because Brazil's electoral rules allow parties to run at most one mayoral candidate per municipality, the female and male candidates necessarily come from different parties. Thus, crossing the 0% treatment threshold changes not only the gender of the next mayor, but also the identity of the next governing party. In other words, if our sample consisted of the set of parties that the incoming mayor was affiliated with, the very units that we are observing would change at the treatment threshold. This abrupt change in the identity of the governing party at the threshold violates the spirit of the regression discontinuity design, which is based on the premise that the baseline characteristics of the units under study are continuous at the threshold.

Studies that focus on the effect of candidate characteristics on *municipal*-level variables address this problem either by (1) showing that there is no relationship between a candidate's gender and their party at the treatment threshold, or (2) arguing that the identity or nature of the governing party is unlikely to affect the outcome of interest directly. This second

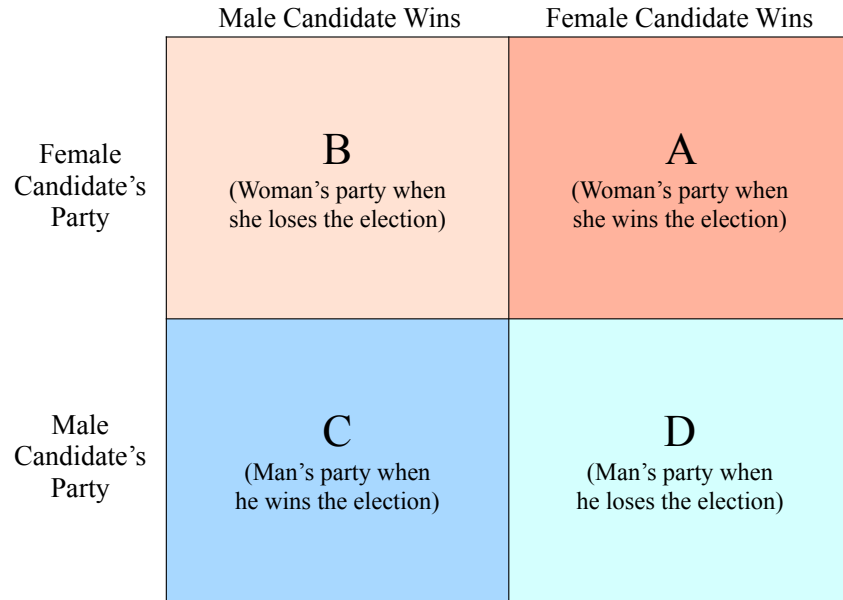


Figure C.1: Comparison Groups

solution is completely implausible in the case of our party-centered analysis because there is no reason to believe that different Brazilian parties would have similar baseline patterns of membership recruitment; on the contrary, previous work on the politics of gender in Brazil has convincingly demonstrated that there are systematic differences between different parties in terms of their willingness and interest in involving women in politics (Wylie, 2018). The first solution might be more justifiable, and we show in Appendix J that our samples of female and male candidates happen to be fairly balanced on party. However, there is neither any theoretical reason nor any methodological reason to expect this to be the case in general. On its own, the regression discontinuity design does not ensure that the identity of the governing party will be balanced at the treatment threshold.

For these reasons, the research design adopted in this paper focuses on incumbency effects rather than candidate characteristics effects, and we analyze gender-based differences as *heterogeneous effects* of incumbency. Figure C.1 illustrates the four types of cases that are observable. Our analysis involves comparing outcomes in cell A with cell B, and then

comparing outcomes in cell C with cell D. The difference  $(Y_A - Y_B)$  represents the incumbency effect (or the effect of winning the mayoral election) for the woman's party, while  $(Y_C - Y_D)$  represents the incumbency effect for the man's party. If we are correct that female and male incumbents have different recruitment priorities, then we would expect to observe evidence that  $(Y_A - Y_B)$  is different from  $(Y_C - Y_D)$ . By contrast, the conventional candidate characteristic RD design would involve comparing outcomes in cell A with outcomes in cell C, and ignoring cells B and D altogether.

Although our focus on incumbency effects leads us to depart from previous research on the effect of gender based on RD designs, we believe that this departure is warranted for several reasons. First, we are confident that the comparisons  $A \leftrightarrow B$  and  $C \leftrightarrow D$  are identified by the RD design, while the  $A \leftrightarrow C$  comparison would require additional assumptions that are harder to justify. Although it represents an incumbency effect rather than a candidate characteristic effect, the  $A \leftrightarrow B$  comparison is directly relevant to the question of how female politicians influence their party's local recruitment priorities. While most local party leadership positions in Brazil are held by men, the institutional resources that accompany mayoral office offer female incumbent mayors opportunities to take charge of the local party organization and reshape its membership base according to their preferences.

Second, aside from our focus on party-level outcomes, there are additional reasons to be skeptical of candidate characteristic regression discontinuity designs. Marshall (2022) shows that the candidate characteristic RD estimate is biased if the characteristic (in this case, gender) affects the running variable (the candidates' voteshares). Moreover, candidate characteristic designs suffer from the well-known bundled treatment problem: to the extent that gender is correlated with other candidate characteristics that exert their own effect on the outcome, we cannot be confident that the RD estimates represent the effect of gender and not one or more of the other candidate characteristics.

Third, while our analysis of gender-based heterogeneous incumbency effects does not

overcome all of the issues in the candidate characteristics RD design, we feel that treating gender as a heterogeneous effect (of the incumbency treatment) rather than as a treatment in its own right does a better job of signalling to the reader the appropriate level of skepticism with which to approach our results. Although a researcher *might* make the case that the gender of the mayor is as-if randomly assigned to municipalities, we do not believe that we can plausibly claim that the mayor's gender is as-if random with respect to parties. Instead, we consider it more useful and more accurate to think of the candidate's gender as a non-random variable along which the well-identified incumbency effect might vary. Put differently, our design *does* uncover plausibly exogenous variation in whether a party has a female mayor in office, but the relevant comparison group is parties in which the female mayoral candidate narrowly lost the election, rather than parties in which the male candidate narrowly won.

## D RD Results in Table Format

Table D.1: The Effect of Female Mayors on Membership Recruitment (Figures 3 and 4)

Model	Estimate	95% CI	p	h	n
Recruitment Rate, Female Mayors	-0.348	[-1.85, 1.15]	0.649	0.13	1540
Recruitment Rate, Male Mayors	-0.068	[-1.34, 1.2]	0.916	0.16	1774
Gender Gap, Female Mayors	-0.847	[-1.44, -0.26]	0.005	0.18	1960
Gender Gap, Male Mayors	0.010	[-0.65, 0.67]	0.977	0.13	1547

Table D.2: The Effect of Mayors on Membership Attrition (Figure 5)

Model	Estimate	95% CI	p	h	n
All Members, Female Mayors	-0.042	[-0.09, 0.01]	0.085	0.18	1736
All Members, Male Mayors	0.002	[-0.05, 0.05]	0.939	0.15	1476
Female Members, Female Mayors	-0.023	[-0.07, 0.03]	0.360	0.15	1429
Female Members, Male Mayors	0.004	[-0.05, 0.06]	0.879	0.15	1382
Male Members, Female Mayors	-0.046	[-0.1, 0.01]	0.084	0.19	1747
Male Members, Male Mayors	0.003	[-0.06, 0.06]	0.931	0.16	1505

Table D.3: The Effect of the Election Outcome on the Candidate's Career Trajectory (Figure 6)

Model	Estimate	95% CI	p	h	n
Renominated, Female Mayors	-0.027	[-0.19, 0.13]	0.739	0.11	889
Renominated, Male Mayors	0.048	[-0.1, 0.2]	0.537	0.13	927
Nominated to Higher Office, Female Mayors	0.089	[0.01, 0.17]	0.030	0.20	965
Nominated to Higher Office, Male Mayors	-0.080	[-0.18, 0.01]	0.096	0.13	690

Table D.4: The Effect of the Election Outcome on Nomination for Higher Office, by Women's Party Membership in Previous Terms (Figure 7, Panel A)

Model	Estimate	95% CI	p	h	n
Female Mayors, High Female Membership	0.047	[-0.06, 0.15]	0.393	0.15	231
Female Mayors, Low Female Membership	0.128	[0.01, 0.25]	0.039	0.15	581
Male Mayors, High Female Membership	0.007	[-0.09, 0.11]	0.889	0.16	226
Male Mayors, Low Female Membership	-0.152	[-0.31, 0.01]	0.064	0.11	431

Table D.5: The Effect of the Election Outcome on the Gender Gap in Membership Recruitment, by Women’s Party Membership in Previous Terms (Figure 7, Panel B)

Model	Estimate	95% CI	p	h	n
Female Mayors, High Female Membership	-0.811	[-1.79, 0.17]	0.105	0.14	843
Female Mayors, Low Female Membership	-1.508	[-2.53, -0.49]	0.004	0.12	710
Male Mayors, High Female Membership	-0.129	[-0.89, 0.64]	0.741	0.14	813
Male Mayors, Low Female Membership	0.043	[-0.91, 1]	0.930	0.16	845

Table D.6: The Effect of Incumbency on the Gender Gap, by Year in the Mayoral Term (Figure 9)

Model	Estimate	95% CI	p	h	n
Year 1, Female Mayors	0.031	[-0.2, 0.26]	0.790	0.19	1781
Year 2, Female Mayors	-0.059	[-0.2, 0.09]	0.425	0.16	1631
Year 3, Female Mayors	-0.927	[-1.63, -0.22]	0.010	0.13	1416
Year 4, Female Mayors	-0.283	[-0.59, 0.02]	0.067	0.14	1488
Year 1, Male Mayors	-0.050	[-0.21, 0.11]	0.550	0.14	1386
Year 2, Male Mayors	0.125	[-0.12, 0.37]	0.319	0.14	1408
Year 3, Male Mayors	0.070	[-0.44, 0.58]	0.786	0.17	1613
Year 4, Male Mayors	-0.296	[-0.69, 0.1]	0.144	0.18	1641

## E Balance on Pre-Treatment Variables

The primary identification assumption behind the regression discontinuity (RD) design is that potential outcomes are continuous at the treatment threshold. If this assumption holds, then the treatment and control samples should be balanced on variables whose values were assigned prior to treatment. We test for covariate balance by performing placebo RD analyses on a variety of pre-treatment variables, including lagged versions of the dependent variables used in this paper, variables related to the candidate's background, and variables related to the local characteristics of the candidate's municipality. These RD analyses employ a specification and bandwidth-selection method identical to the one used for this paper's other analyses. Figure E.1 reports the p-values for these placebo tests. All of the p-values were greater than 0.05, which suggests that there are no significant imbalances on these pre-treatment variables.

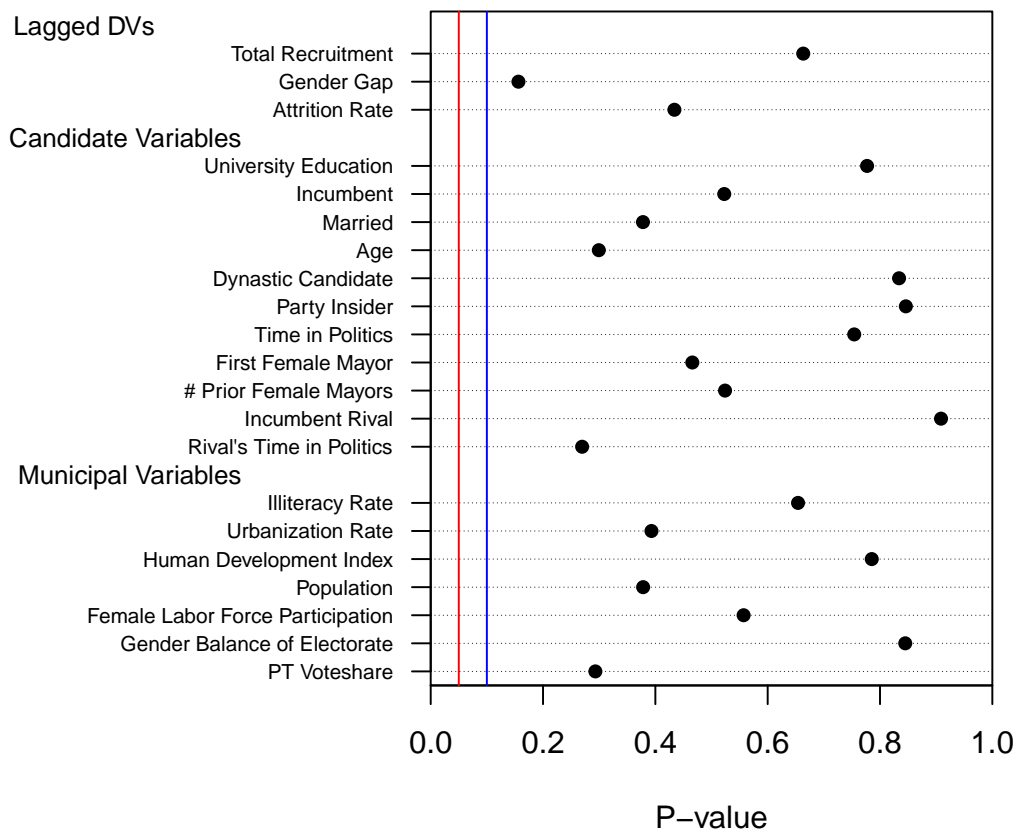


Figure E.1: Placebo RD Tests on Pre-Treatment Variables

## F Sorting Around the Treatment Threshold

The RD design’s continuity assumption would be violated if observations were able to perfectly sort into or out of treatment. In the context of regression discontinuity in close elections, sorting could occur through electoral fraud, though this is extremely uncommon in contemporary Brazil. We can assess whether sorting occurred by examining the distribution of the running variable for “lumping” on either side of the treatment threshold. The following density plot does not show any evidence of lumping. The p-value for the corresponding McCrary sorting tests was 0.64. The failure to reject the null hypothesis provides further evidence against sorting in this case.

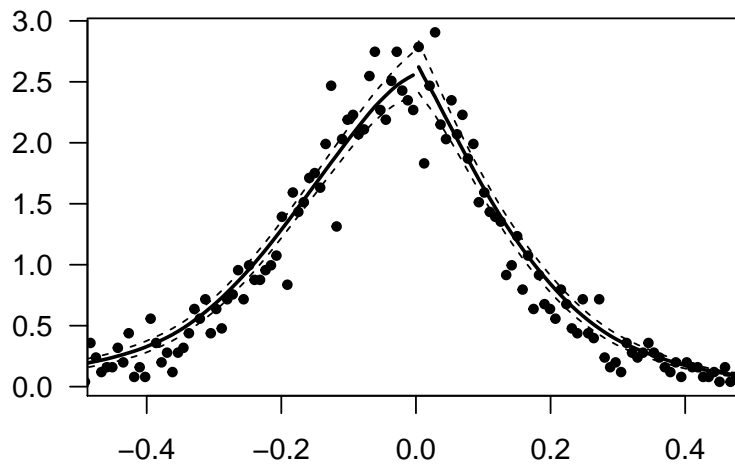


Figure F.1: Density Plot of the Running Variable (Margin of Victory)

## G Robustness to Alternative Bandwidths

In all of the regression discontinuity analyses in this paper, the estimation bandwidth was selected using the data-driven bandwidth-selection procedure developed by Calonico, Cattaneo and Titiunik (2014). This method weighs efficiency against bias to identify the optimal bandwidth for a particular dataset, and it also uses higher-ordered polynomials to correct for the bias that comes from using larger bandwidths. Figure G.1 assesses whether our main results are sensitive to this choice of bandwidth by replicating the analyses on a range of other bandwidths. The results appear to be quite robust to alternative bandwidths. Although the effect on the gender gap is no longer statistically significant for most of the bandwidths smaller than 0.7, the loss of significance is not surprising given that the sample size drops with the size of the bandwidth. Importantly, the point estimate of the effect on gender gap is generally stable across bandwidths. The effect on total recruitment is not statistically significant for any bandwidth.

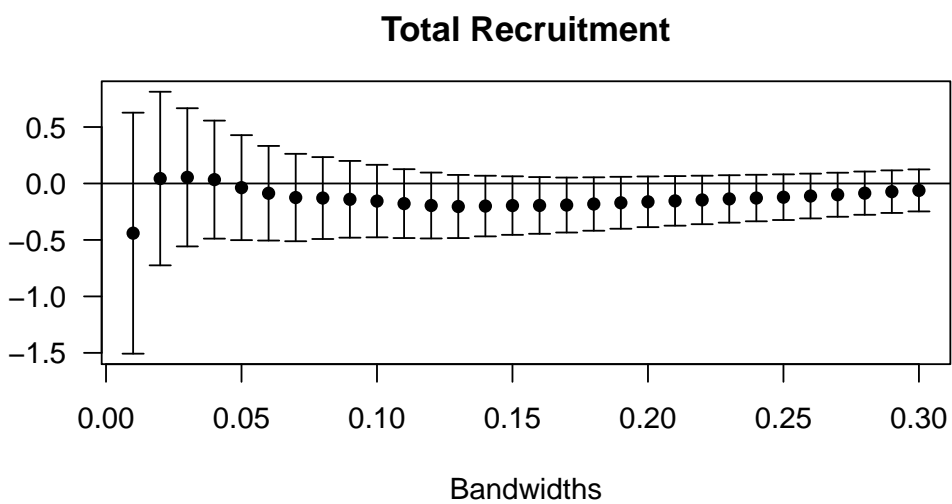
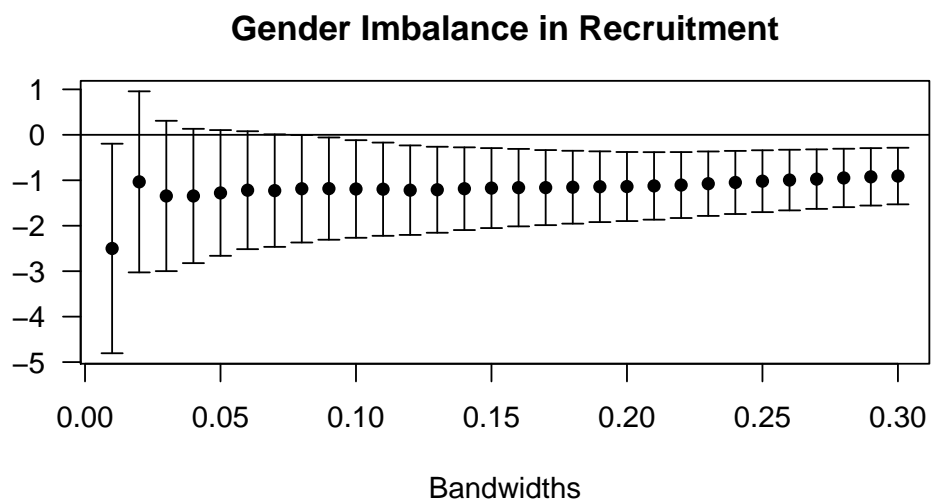
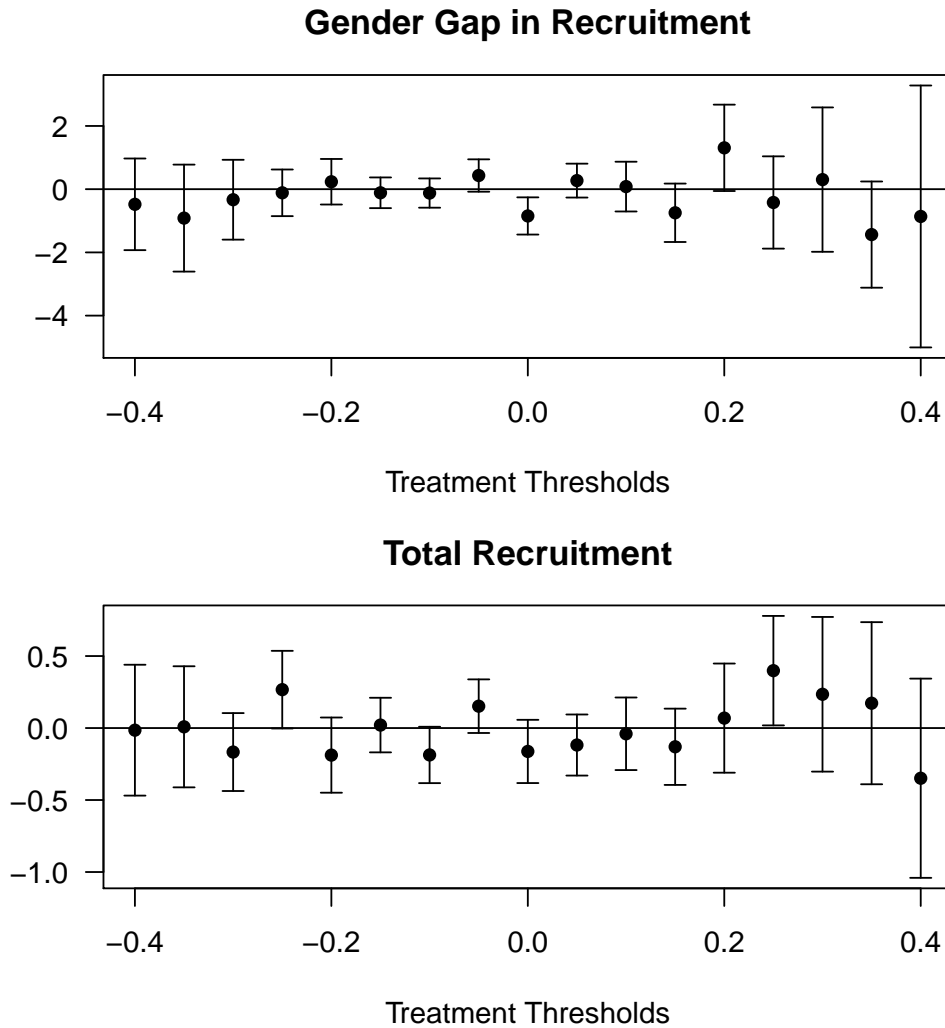


Figure G.1: RD Estimates For Alternative Bandwidths

## H Placebo Treatment Thresholds

In each of this paper's regression discontinuity analyses, treatment status changes at the 0% margin of victory threshold. If the regression discontinuity design is valid, we should not expect to observe significant jumps in outcomes at any other threshold. The following plots show RD estimates at several placebo treatment thresholds. For the analysis of the effect on the gender gap, none of the placebo effects were statistically significant.

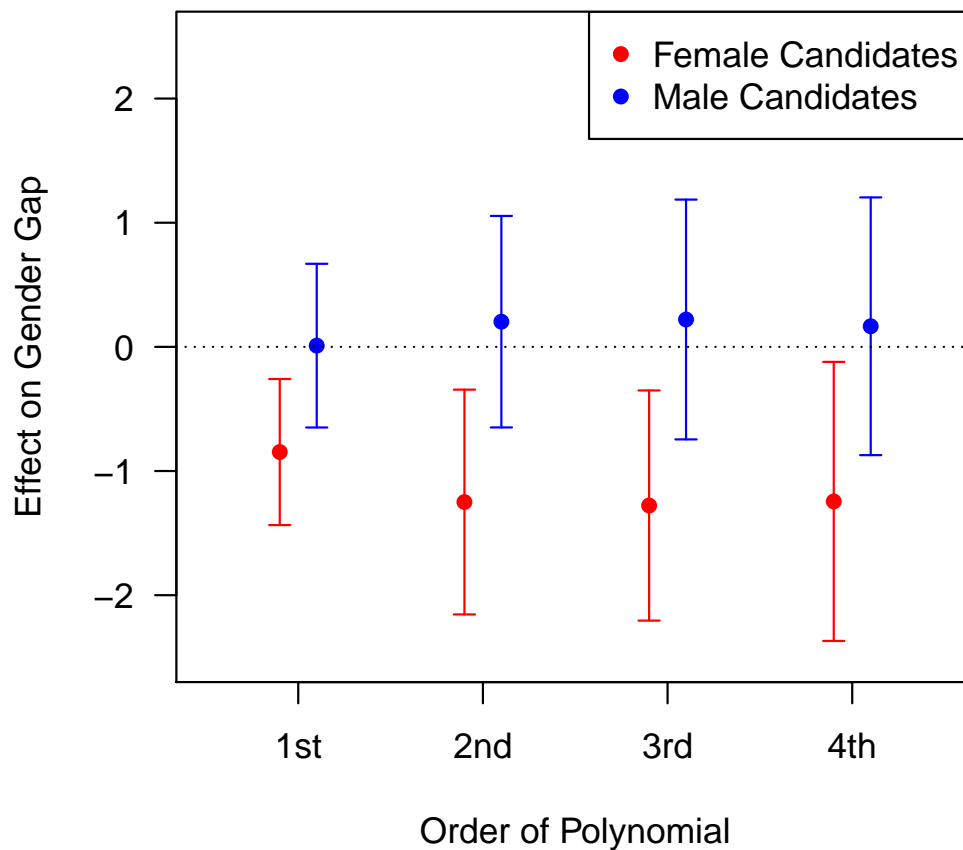
Figure H.1: RD Estimates At Different Placebo Thresholds



## I Robustness to Higher-Order Polynomial Specifications

This paper used a local linear regression specification of the RD model for all analyses. Figure I.1 examines whether the gender gap results would continue to hold for estimates based on local-polynomials greater than one (for example, quadratic or cubic polynomials). There is no indication from this figure that the gender gap results are sensitive to the order of the polynomial used. The effects for female candidates were statistically significant across all models, while the effects for male candidates were insignificant for all models.

Figure I.1: RD Estimates for Higher-Order Polynomial Specifications



## J Characteristics of Female and Male Mayors

The RD estimates in this paper represent incumbency effects rather than politician characteristic effects. We estimate the RD model separately for each sub-sample (female candidates and male candidates), and we make inferences about the contribution of the mayor's gender by analyzing the differences between female and male mayors as heterogeneous effects. However, like conventional candidate characteristic regression discontinuity designs, our research design is still vulnerable to the bundled treatment problem. The heterogeneous effects that we attribute to gender may actually be capturing some other characteristic that is correlated with gender, such as the candidates' educational attainment, party, or ideology.

In this subsection, we examine balance on the candidate characteristics of female and male winners in the full sample and in competitive elections. Table J.1 shows the average characteristics of mayors in our sample, including candidates in non-competitive races. Consistent with the findings of other research on the politics of gender in Brazil, female mayors tended to be better-educated than male mayors, and female mayors were also less likely to be married, more likely to belong to the same family as one of their municipality's previous mayors, and less likely to be incumbents.

Table J.2 shows the characteristics of mayors in competitive races that were decided by a margin of victory of 5 percentage points or less. We report p-values for the difference-in-means estimate, and for RD estimates. Even in these close races, female mayors are better educated and slightly more likely to belong to a local political dynasty. However, there are no systematic differences between female and male mayors in terms of party affiliation, the number of years that the mayor spent in the party or in electoral politics prior to their election, their age, their marital status, or their incumbency status.

Table J.1: Full Sample

	Male Mayors	Female Mayors	DM p-value
Incumbent	0.311	0.217	0.000
University Education	0.453	0.645	0.000
Married	0.771	0.665	0.000
Dynastic Candidate	0.256	0.344	0.000
Age	49.372	46.944	0.083
Years in Party	6.836	6.163	0.056
Years in Politics	10.325	9.297	0.000
PT	0.087	0.077	0.328
PSDB	0.137	0.131	0.632
MDB	0.183	0.195	0.468
DEM	0.084	0.078	0.562
PP	0.083	0.087	0.694
PL	0.062	0.088	0.015

Table J.2: Close Races

	Male Mayors	Female Mayors	DM p-value	RD p-value
Incumbent	0.244	0.187	0.091	0.222
University Education	0.460	0.652	0.000	0.000
Married	0.780	0.672	0.003	0.157
Dynastic Candidate	0.249	0.357	0.008	0.049
Age	48.876	47.597	0.114	0.215
Years in Party	6.685	6.048	0.389	0.522
Years in Politics	10.216	9.376	0.143	0.272
PT	0.103	0.079	0.302	0.139
PSDB	0.117	0.141	0.380	0.427
MDB	0.179	0.167	0.712	0.743
DEM	0.096	0.092	0.854	0.983
PP	0.079	0.108	0.222	0.138
PL	0.052	0.089	0.076	0.325

## K Difference-in-Differences Estimates

This section examines whether our main results hold for a two-way fixed effects regression specification. Although this alternative specification has weaker internal validity compared to the RD estimates reported in the main text of this paper, one advantage of the fixed-effects model is that it does not require us to discard non-competitive municipalities.

For each of our main dependent variables, we estimate the regression model

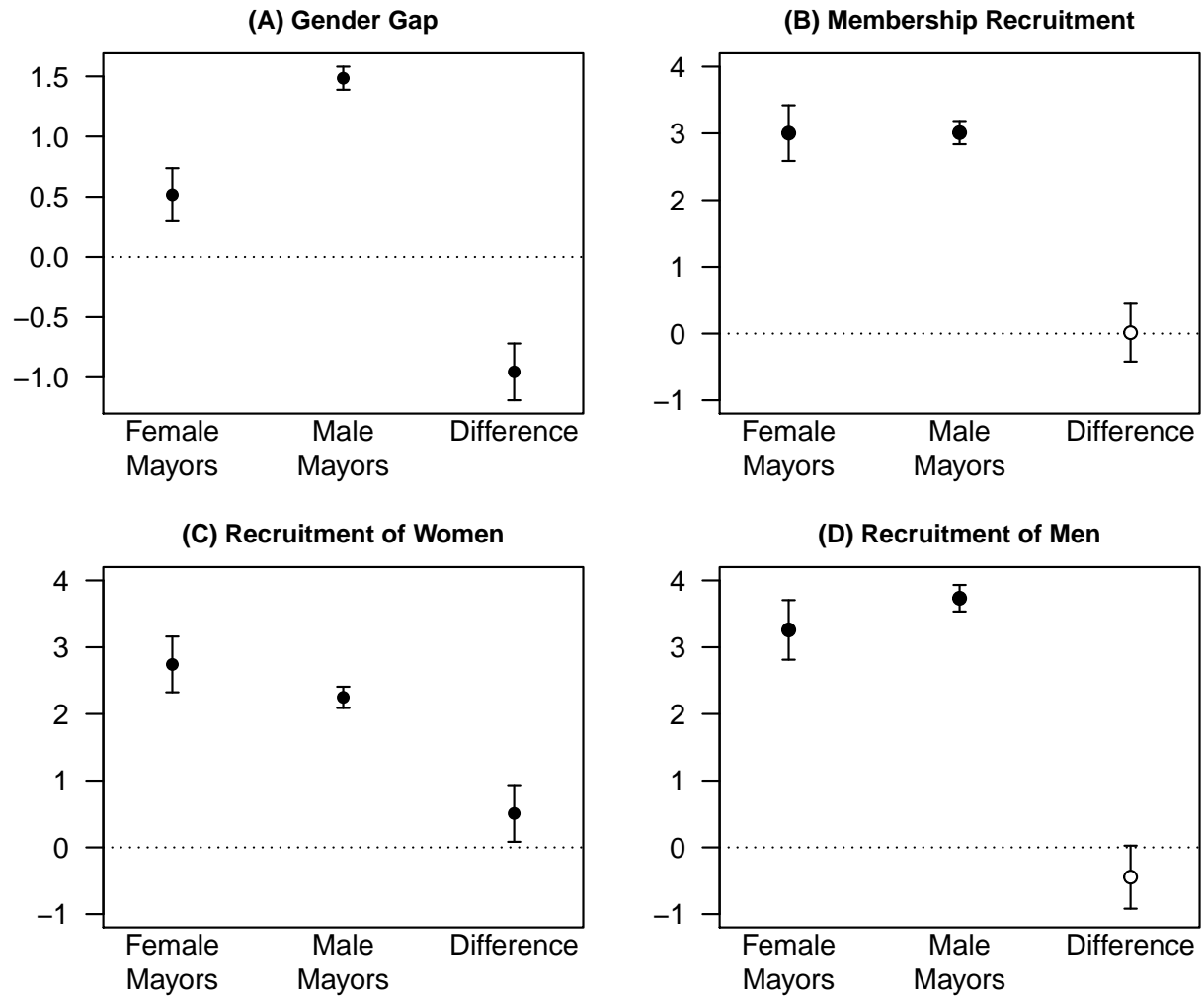
$$Y_{it} = FemaleMayor_{it} + MaleMayor_{it} + \eta_i + \phi_t + \epsilon_{it}$$

where *FemaleMayor* and *MaleMayor* are binary variables, the excluded category is the party being in the opposition during that municipality-term, and  $\eta_i$  and  $\phi_t$  are municipality and term fixed effects, respectively. Because Brazil has many *de facto* regional parties that do not run candidates or even maintain party organizations in most municipalities, we restrict our sample to the subset of parties that won the mayorship at least once between 2000 and 2020. Estimating these models on the full sample (including parties that were not competing or organizing in a particular municipality) yields similar conclusions and much larger point estimates compared to the results that we report here.

Figure K.1 reports the *FemaleMayor* and *MaleMayor* coefficients, along with the difference between those coefficients. Consistent with our RD results, having a female mayor in office reduced the gender gap in recruitment by around 1 member per 1,000 voters relative to having a male mayor in office, while the mayor's gender had no effect on aggregate membership recruitment. Panels (C) and (D) report the effects of mayors of either gender on the recruitment rate of women and the recruitment rate of men, respectively. Compared to parties that had a male mayor in office, parties that had a female mayor recruited 0.5 more members per 1,000 female voters on average. Considering that fewer than 1 in 1,000 women join a party during an average term, this boost in women's membership recruitment

is quite large relative to the baseline.

Figure K.1: Two-Way Fixed Effects Regression Estimates of the Effect of Female and Male Mayors



## L Heterogeneous Effects

Figure L.1 shows how the effect of female mayors on the gender gap varies with the background of the female candidate. The RD models were estimated separately for each sub-sample. A candidate is coded as dynastic if they had the same surname as any of the previous mayors of their municipality. A candidate is coded as an incumbent if they held mayoral office at the time of the election; because Brazilian mayors are limited to two terms, incumbents who won the analysis election are not eligible to run again at the end of the analysis term. A candidate is coded as having held prior office if they held any elected office at any level of government at any point prior to the election. A candidate is coded as a party insider if they were affiliated with their party for at least one full term prior to the election.

Figure L.2 shows how the effect of female mayors on the gender gap varies with the characteristics of the candidate's municipality. The RD models were estimated separately for each sub-sample, and the samples were partitioned at the median value for each variable.

Figure L.1: The Effect of Incumbency on the Gender Gap, by Candidate Type

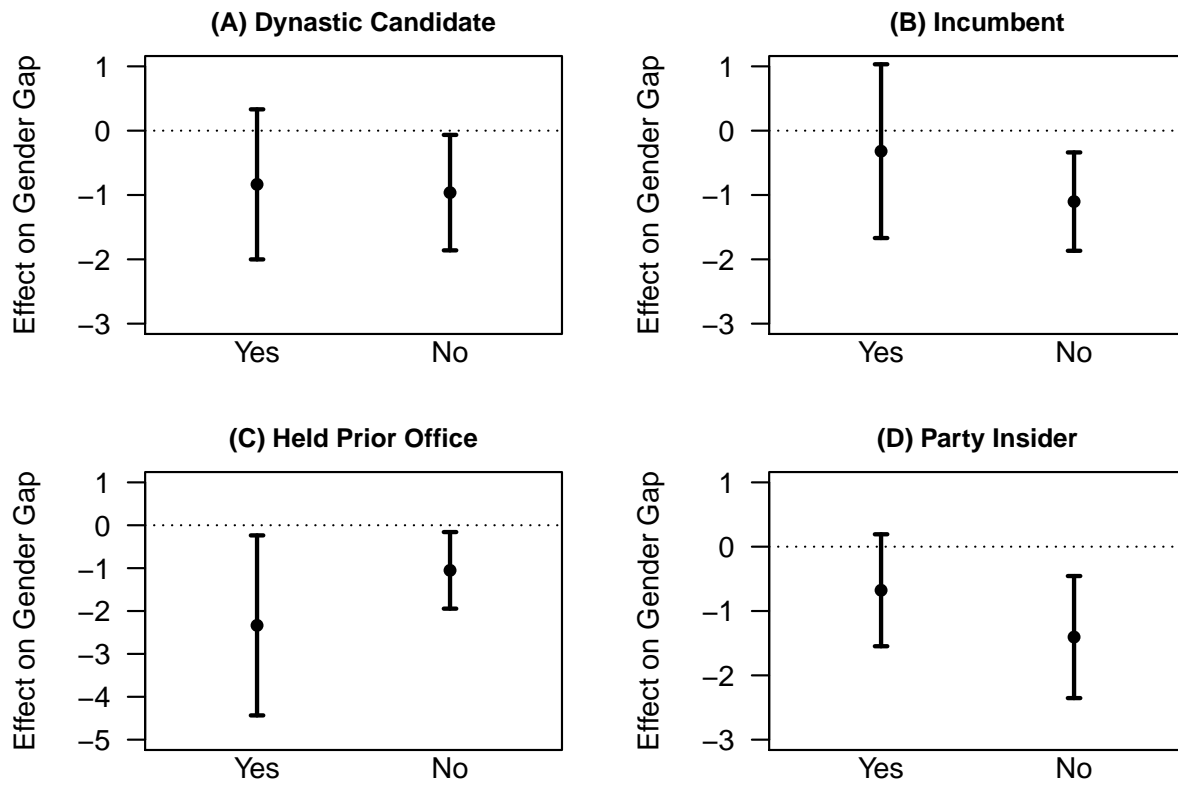


Figure L.2: The Effect of Incumbency on the Gender Gap, by Municipality Type

