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April 10, 2023

Is Higher Enough? The Impacts of Indonesia's Gender Quota on Female Candidates  
Ranking on Ballots

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## Abstract

### Is Higher Enough? The Impacts of Indonesia's Gender Quota on Female Candidates Ranking on Ballots By Matthew Angelo Fernandez Joesoep

Indonesia has attempted to correct the under-representation of female politicians in regional and national legislatures using a gender quota, which has been found to have mixed results when implemented against open-list election systems. Furthermore, previous studies on Indonesian elections has shown that being first on party lists is critical to winning seats, regardless of gender. In this study, I construct a novel panel dataset which follows all Indonesian candidates for election between 2004 and 2019. The dataset captures data that is yet to be digitized or tabulated and captures the placement of candidates on Indonesian ballots. Using the dataset, I use a PooledOLS model which isolates the effects of Indonesia's gender quota being strengthened in 2009. This paper finds that the gender quota did help female candidates reach higher ranking on party lists, but not high enough to significantly increase the number of women getting elected. Furthermore, this paper also finds that Islamic parties do not significantly hinder or help female candidates attain higher rankings on party lists, in agreement with previous studies.

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# Is Higher Enough? The Impacts of Indonesia's Gender Quota on Female Candidates Ranking on Ballots

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## 1 Introduction

Despite the progress being made in many facets of gender equality, there remains a global trend of women being underrepresented in politics. As of 2022, there were only 5 countries whose parliaments or main national legislative bodies had 50 percent or greater representation by women, with a further 27 countries having 40 percent or greater representation (UNWomen, 2022). Considering that the success of female politicians can lead to more women running for higher legislatures (Brown et al., 2022) and further success for women in neighboring electoral districts (Baskaran and Hessami (2018); Shair-Rosenfield (2012)), it is

evident that it is extremely important to work towards correcting the under-representation of women in legislatures around the world. One popular solution to this has been the use of a gender quota to ensure a minimum number of female candidates in elections. This has been used in countries like India, Italy, Iraq, and Indonesia. Considering that the implementation of a gender quota is a significant change to any country's electoral mechanism, they represent an exciting opportunity to evaluate the intersection of election design and affirmative action. Furthermore, in the context of economics, they represent an opportunity to investigate whether or not present-day electoral mechanisms realistically provide female candidates a fair shot at winning seats.

In this paper, I study the impacts a quota may have on the electoral conditions faced by female candidates in open-list election systems by investigating the effects of a quota for female candidates in Indonesian elections. To do this, I construct a novel panel dataset that collates data from Indonesia's electoral agency, the *Komisi Pemilihan Umum* or KPU regarding all the candidates that ran for elections between 2004 and 2019. By constructing this dataset and performing regression analysis on it, I contribute to our understanding of the effectiveness of quota policies in improving female representation in legislative bodies. Furthermore, by studying Indonesia, a developing country that is also one of the world's largest democracies, I am able to offer a better understanding of how quotas may intersect with other dimensions such as religion or the developing country context.

I build a novel panel dataset consisting of all the candidates that ran for Indonesia's national parliament, the *Dewan Perwakilan Rakyat* or DPR, so that I can examine the

effects of Indonesia's affirmative action policies for female candidates. The data I collected specifically covers all candidates that ran in Indonesia's 2004, 2009, 2014, and 2019 elections. By combining data available from the KPU's online database with manually tabulated data from older election years that had previously not been digitized, I am able to identify every candidate's name, ballot ranking, gender, and votes accrued, in addition to the political party they represented and the district that they ran in. Furthermore, this dataset will provide a starting point for further research to be conducted on Indonesian politicians, solving the difficulties in the availability of data in studies like Prihatini (2020).

I also use the candidate data to analyze the impact of the addition of a zipper system to the quota beginning with the 2009 elections on the ballot ranking of female candidates. I combine the candidate data with province-level data from the *Badan Pusat Statistik* or BPS, Indonesia's main statistics collection agency, and data regarding political parties to isolate the effects of the policy changes on the ballot ranking of female candidates. Using a PooledOLS model, I analyze the effects of the policy change on the average percentile ballot ranking of female candidates, the number of female candidates, as well as the highest ranking achieved by female candidates.

I find that the addition of a zipper system to the quota led to a 14.79% increase in the average percentile ballot ranking of female candidates. Additionally, I find that the zipper system also led to women achieving a marginally higher ranking on party ballots. Finally, I also find that the addition of the zipper system led to the expected outcome of one more female candidate being added on to party ballots than before the zipper system. These results

show that the addition and likely crucially, enforcement, of the zipper system alongside the quota led to women being placed in more favorable positions on the ballot. Outside of the change in policy, I also find that certain other variables also did have significant impacts on women's ballot performance: whether or not they were a candidate of a party with Islamic ideology, the level of higher education and population of the province they ran in.

More detailed explanations of my findings and how I arrived at them will be found in the rest of the paper. In Section 2, I provide an explanation of Indonesia's election system and the affirmative action policies that are the focus of this paper. After that, in Section 3, I review the literature regarding quotas in different election systems as well as the literature regarding the election of women in Indonesian elections. In Section 4, I explain how I constructed the panel dataset used for this paper. Then, in Section 5, I present descriptive statistics as well as interesting trends about female candidates in the elections covered by the dataset. Section 6 presents the PooledOLS model I used. Following that, Section 7 describes the results of my PooledOLS model and I conclude the paper in Section 8. Tables and figures are kept at the end of the paper. In the appendix, I explain how to access the dataset constructed as part of this study.

## **2 Explaining the Indonesian Election System**

Indonesia is one of the world's largest democracies but has only had free elections beginning in 1999, after the fall of former authoritarian president Suharto. Consequently, the concern

for nudging female parliamentary representation in Indonesia to become more representative has only happened recently. Reflecting that concern, several changes have been made to Indonesia's legislative election system since 1999.

In terms of electoral systems, Indonesia gradually shifted from a closed-list proportional representation election system in 1999 to what ultimately became an open-list proportional representation system beginning 2009. Indeed, in 1999, for the first set of elections after Suharto resigned from power, Indonesia used a closed-list system where voters could only vote for their choice of parties in the ballot. That year, parties were free to allocate their seats to any of their members after they were allocated some number of seats based on their proportion of the vote. This is what led to the DPR only having 8% female representatives after the 1999 elections.

Recognizing the very low representation of women after the 1999 elections, the DPR responded by altering both the electoral system and by implementing a 30% gender quota for the 2004 legislative elections. The electoral system was changed from a closed-list proportional representation system to a semi-open list proportional representation system, wherein voters now would be able to choose specific candidates from parties, who were arranged in a ranking chosen by the party. In this election, seats that parties won were allocated to candidates primarily based on their ranking on the ballot, with candidates only overruling the ballot ranking if they individually were able to accrue a very high number of votes. This is why the electoral system here is called semi-open list instead of being a fully open list. Additionally, in this election cycle, a gender quota was first imposed. For the 2004

legislative elections, the ranked lists of candidates that parties submitted for the ballot had to have 30% of those lists be female candidates. This resulted in a small improvement in the number of female representatives after the 2004 elections, with the DPR having 11.82% female representatives.

Considering that the improvement in female representation was minor, along with other issues, the DPR responded to the experience of the 2004 legislative elections with further modifications to Indonesia's electoral system and the gender quota policy for the 2009 legislative elections. For the 2009 legislative elections, the DPR changed the system from a semi-open list proportional representation system to an open-list proportional representation system. The implication of that for the 2009 legislative elections was that seats that parties won were now allocated to that party's candidates by the plurality of votes that they received, instead of by ballot ranking as it ordinarily happened in the 2004 legislative elections. On top of this change in election system, the DPR also added a zipper system in addition to the 30% quota for female candidates on party lists. The zipper system functioned by mandating that for every three consecutive candidates on a party list, at least one of those candidates had to be female. In practice, this meant that at least one female candidate had to be in the top 3. The combination of the electoral system change as well as the addition of the zipper system led to a relatively large increase in female representation, with the DPR having 17.86% female representatives after the 2009 elections.

After the 2009 elections, there were no more significant changes to either the electoral system or to the affirmative action policies in place. This may be one reason for why

female representation did not change significantly after the 2014 or 2019 elections, with those elections resulting in female representations of 17.32% and 20.87% respectively. For clarity, I attach a summary of the various changes in electoral system and affirmative action policies in Table 1.

### **3 Literature Review**

In this section, I review the literature that has been done to this point from both economists and political scientists regarding the use of quotas in elections, as well as about Indonesian politics.

#### **3.1 Literature Regarding Quotas in Elections**

There is a substantial amount of research that has been done regarding the effects of affirmative action quotas in elections, from both economists and political scientists alike. In general, quotas are understood to have positive effects for female candidates, with some caveats dependent upon the context in which the quota was imposed.

In Poland, a quota imposed on its legislative elections was found to have benefited women candidates, but only after more election cycles passed, with women closing the gap in electoral capital in the meantime (Gendźwiłł and Żóltak, 2020). In the short term, more female candidates ran for office, receiving higher ballot positions from political parties, but this

did not translate to women receiving more votes than before (Jankowski and Marcinkiewicz, 2019). This was raised as a paradox: in the case of Poland, with an open-list proportional representation system like Indonesia, quotas increased the number of female candidates but was also accompanied by a sharp decline in the electoral performance of female candidates (Górecki and Kukołowicz, 2014). In effect, the literature studying the effect of the gender quota in Poland asks: are the effects of quotas mitigated by the nature of an open-list proportional representation system?

Many Latin American democracies also employ gender quotas, to varying levels of success. Contrary to prevailing understandings that quotas have a diminished effect in open-list systems, evidence from Latin American elections with gender quotas found that quotas did help female candidates succeed due to voters adapting to being able to directly support female candidates (Corrêa and Chaves, 2020). In Chile, quotas were found to be effective but had a diminished effect due to unequal access to campaign finance resources (Gamboa and Morales, 2021). This was shown by how incumbent women candidates in Chile were found to be as competitive as men (Gamboa and Morales, 2021). Furthermore, Becerra-Chávez and Navia (2022) found that it was women who ran for leftwing parties that benefited the most from gender affinity voting. Overall, the Latin American example suggests that there should be an effect from the imposition of a gender quota, despite the prevailing belief that quotas may be ineffective in open-list proportional representation systems.

Other studies of quotas in other countries also detected interesting effects arising from quota policies. In Italian municipal elections, quotas tend to be effective in elections for less

senior government positions but were ineffective at the mayoral level (Spaziani, 2022). In India, a quota which guaranteed female representation in local councils found that wards which gained female representation due to the quota began becoming less resistant to electing women (Turnbull, 2021).

This paper contributes to the literature regarding the effectiveness of gender quotas in open-list proportional representation election systems by quantifying the benefit experienced by female candidates in Indonesia before and after the implementation of a zipper system. Indeed, this paper shows how the zipper system implemented in 2009 did help place female candidates in a slightly more realistic positions to win elections in open-list systems.

### **3.2 Literature Regarding Indonesian Elections**

Indonesian scholars have attempted to study the effect of the Indonesian electoral quota on the success of female politicians. Evidence from Indonesian elections from 2004 to 2019 has suggested that neither Islamist nor pluralist political parties are good at placing women first on party lists in legislative elections (Prihatini, 2020). This occurs despite previous election cycles showing that being on the first ballot position is oftentimes necessary to win a seat (Prihatini, 2019; Perdana and Hillman, 2020). Aside from that, it has been shown that certain types of women tend to succeed in actually winning seats, including women who were members of political dynasties (Wardani and Subekti, 2021), women who were younger and had past experience in political office (Prihatini, 2019), as well as women who were in-

cumbents (Dettman et al., 2017; Shair-Rosenfield, 2012). Scholars have suggested that some reasons for why some types of women tend to fail to win seats include widespread patriarchal attitudes (Aspinall et al., 2021) and unequal access to campaign funding (Hillman, 2018). Finally, it has also been found that in legislative elections, parties benefit from a coattail effect resulting from being a member of the incumbent coalition (Effendi, 2022).

This paper contributes significantly to the study of Indonesian elections through the contribution of a novel panel dataset. This dataset will enable further studies on the kinds of candidates who run for the DPR in Indonesia in the 2004, 2009, 2014, and 2019 elections. Aside from the dataset, this paper also supports the conclusions found in Prihatini (2020) that neither Islamic nor non-Islamic political parties significantly differ in the ways that they position female candidates on the ballot. Overall, this paper lays the foundation for long-term, research into candidates for the DPR and their success.

## 4 Data

In this paper, I create a new panel dataset that combines KPU data regarding election candidates for the 2004, 2009, 2014, and 2019 legislative elections in Indonesia. This dataset is also then analyzed in conjunction with with BPS data regarding socioeconomic factors such as GDP per capita, and the level of higher education in a province.

Indonesia only transitioned to digitizing the complete list of candidates who ran for leg-

islative elections beginning with the 2009 election cycle. This resulted in difficulties in conducting quantitative research on the success of certain groups of candidates, such as female candidates, as faced in studies such as Prihatini (2020), where analysis was limited to the more recent 2014 and 2019 elections. Consequently, a significant contribution of this paper is constructing a dataset that allows researchers to evaluate candidate performance farther back in time.

To construct this dataset, I combined data that was available online from the KPU's database with data that was only available offline. The data from the KPU's database encompassed all the candidates who ran for parties that ultimately obtained seats in parliament for the 2009, 2014, and 2019 election. Specifically for the 2014 election, the data had not been digitized and so I manually tabulated them into the dataset myself. To obtain data regarding candidates in the 2004 election, I visited the KPU's archives in their main Jakarta office and took pictures of their records of all the candidates that ran in the 2004 election. Then, I also tabulated and combined them into the rest of the dataset myself. For the 2004 data, the KPU saved the information of candidates who ran for parties that did not end up winning any seats. Thus for consistency with the rest of the dataset, I chose only to include the candidates who ran in 2004 for parties that did ultimately win seats in parliament. To see examples of the documents that got tabulated into the dataset for this paper, please see Figures 1 and 2.

The result of this work is a panel dataset that covers 4 elections (2004, 2009, 2014, and 2019) and contains information regarding a candidate's name, the election district and

province they ran in, the party they ran for, their gender, as well as the votes that they accrued. This dataset ultimately contained 21040 entries, and will hopefully be a useful resource for future studies on Indonesian elections. In Section 5 which follows this section, I will outline my observations regarding the performance of female candidates as it relates to their ballot ranking.

For the analysis of the effects of the addition of the zipper system in addition to the gender quota, I create three outcome variables which aggregate this data by party and by provincial district. The first outcome variable is the average percentile ballot ranking of female candidates. This variable helps to capture if there is any change in the average ranking of women in party lists before and after the implementation of the zipper system. Next, the second outcome variable is the highest ranking obtained by a woman on a party list for a political district. Given results from Prihatini (2020) and Wardani and Subekti (2021) which highlight the importance of candidates being as highly ranked as possible for the purpose of winning seats, this variable helps to estimate whether or not parties actually place women in promising ranks on party lists. Finally, the third outcome variable I create is the number of women being put on party lists. This will help to see if the addition of the zipper system is actually being enforced on the lists presented by political parties. The descriptive statistics for these variables are contained in Table 3.

As a final note in this section, instructions for how to access the data are available at the end of this paper, in the Appendix.

## 5 Analysis of Female Candidate Positioning on Ballots

Tables 2, 3, and 4 presents some of descriptive statistics of the ranking of female candidates from the election cycles in 2004, 2009, 2014, and 2019. From Table 2, it is evident that the enforcement of the gender quota was poor in the 2004 election, with only 25% of all candidates being female. Furthermore, in 2004, female candidates were on average, almost one whole place lower than male candidates. This disparity is made evident from the 2004 column in Table 4, which shows the distribution of female candidates in each list position by election year. Evidently, for the 2004 election year, women were extremely underrepresented in the highest list positions (1 or 2). This may explain why despite the fact that 25% of the candidates in the 2004 election were female, the 2004-2009 DPR only had 11.82% of female DPR members.

After the gender quota was strengthened by adding a zipper system in the 2009 election cycle though, it appears that enforcement of the gender quota improved. Table 2 shows how beginning with the 2009 elections, the number of female candidates consistently sat at or around 33%, which means that the quota did successfully raise the number of female candidates running for election. However, this does not necessarily lead to more women actually winning more seats. A possible reason for this becomes very clear in the 2009, 2014, and 2019 columns of table 4: they show that the zipper system did lead to women moving up to higher rankings on party lists, but mostly to the 3rd spot on the rankings. Indeed, in the 2004, 2009, and 2019 elections, women occupied the 3rd spot on the rankings around 60%

of the time. Furthermore, the number of women in list positions 1 or 2 did not significantly change compared to 2004. This may help explain why there is no significant bump in the amount of female candidates winning after 2009. This trend is best illustrated in Figure 7, which shows the extent to which parties followed the zipper system, but only at the bare minimum. That is evidenced by how female candidates began occupying ranks 3, 6, and 9 much more frequently after the addition of the zipper system, and not any other position. Hence, it is clear that the zipper system did work but only to an extent.

Table 3 makes evident how contrary to expectations, Islamic parties do not disadvantage female candidates, at least on the aggregate. Indeed, the average list position for female candidates only differs by 0.5 of a spot in the 2004 election cycle. Beginning with the 2009 election cycle, the average ranking for female candidates do not differ greatly. This suggests that the under-representation of women on promising, higher list positions is not due to the specific behavior of Islamic parties.

Diving into the effects of the zipper system in specific provinces illustrates how the zipper system was effective in similar manners in different kinds of provinces. For instance, figures 3 and 4 show the rank of the highest female candidate in individual party lists and the number of parties that put a female candidate at that rank in the electoral district DKI Jakarta I for the 2004 and 2019 elections, respectively. For context, Jakarta is Indonesia's capital and is known to be ethnically diverse and relatively more open-minded. Despite that, in 2004, without the zipper system, many political parties had their highest ranking female candidate below the top 3. Then, after the zipper system being in effect for two

election cycles, most political parties in DKI Jakarta I had their highest ranking female candidate at position 3, a significant improvement over the past. A similar trend occurs in the election district Aceh I, demonstrated by figures 5 and 6. For context, Aceh is a very conservative province in Indonesia, especially in comparison to Jakarta. That may have been very important in 2004, where many political parties had their highest ranking female candidate at ranking 10, which is the last position for that district at that year. Yet despite that, after the implementation of a zipper system, all political parties running in Aceh I in 2019 had their highest ranking female candidate either at position 2 or position 3. In some ways, the distribution of the highest rank of female candidates in Aceh was more ideal than Jakarta in 2019! This demonstrates how, to some extent, it did not matter whether or not a female candidate was running in a conservative province.

To conclude, analyzing the dataset reveals that women did move up on party lists, but the move up the party list is limited by political parties mostly minimally adhering to the zipper rule. In that sense, parties generally moved a woman up to at least position 3, which is better than the 2004 election cycle which had no zipper system, but perhaps not high up enough. Therefore, this still leaves us with important questions: does a statistical analysis confirm that there is no significant difference between candidates from Islamic and non-Islamic parties? And what was the exact significance of the strengthening of the quota in the 2009 election cycle with the zipper system?

## 6 Methodology

Beyond uncovering important trends that the dataset makes evident regarding the positioning of female candidates on party lists, I seek to identify the magnitude of the help provided by the introduction of the zipper system in 2009 for female candidates to reach higher rankings on party lists. In order to do this, I take advantage of the panel dataset I compiled and run a Pooled OLS regression to estimate the effects of the changes made to the gender quota on various aspects relating to the positioning of women on party lists. I include a political party fixed effect which captures whether or not the party is Islamic or secular, and also fixed effects on the provincial level. Standard errors are clustered at the electoral district level. This is all modeled in equations (1), (2), and (3).

$$avg\_percentile_{tpd} = \beta_1\alpha_t + \beta_2\gamma_{tpd} + \beta_3\delta_d + \epsilon_{tpd} \quad (1)$$

$$highest\_ranking_{tpd} = \beta_1\alpha_t + \beta_2\gamma_{tpd} + \beta_3\delta_d + \epsilon_{tpd} \quad (2)$$

$$num\_fem\_candidates_{tpd} = \beta_1\alpha_t + \beta_2\gamma_{tpd} + \beta_3\delta_d + \epsilon_{tpd} \quad (3)$$

where the dependent variables are as follows:

1.  $avg\_percentile_{tpd}$  denotes the average percentile of female candidates in an election year  $pt$ , in the party list for a party  $p$ , in an electoral district  $d$ .
2.  $highest\_ranking_{tpd}$  denotes the rank of the highest ranked female candidate in an election year  $t$ , for a party  $p$ , in an electoral district  $d$ .
3.  $num\_fem\_candidates_{tpd}$  denotes the number of female candidates in an election year  $t$ , for a party  $p$ , in an electoral district  $d$ .

Furthermore, there is an instrument variable and two sets of fixed effects. The instrument variable is  $\alpha_t$  which is a binary that captures whether or not the election where the data was gathered from is the 2009 election cycle or after. This variable will help determine the specific effects of the policy change. The fixed effects include party-level fixed effects which are represented by  $\gamma_p$  and provincial level fixed effects which are represented by  $\delta_d$ . Party-level fixed effects consist of a binary regarding whether or not the party the specific data point is coming from is rooted in an Islamic ideology, as well as the number of female incumbents the party had in that political district for that particular election year. Whether a party happens to be Islamic or secular is the primary difference between political parties in Indonesia. The provincial-level fixed effects includes information regarding the variation between provinces, including factors such as the percentage of population with a bachelors degree, the female-male population ratio, the GDP per capita, the percentage of the population that is Muslim, as well as the population of the province.

## 7 Results

Here, I present the results of the estimations using the models I presented in Section 6. The various results discussed in the following subsections are presented in Table 4.

### 7.1 Average percentile of female candidates on party list results

The "avg\_percentile" column in Table 6 presents the results of model (1) in Section 6, regarding the effects of the strengthening of the gender quota beginning in 2009 election cycle with the addition of a zipper system. I should also note here, that the way to interpret the result of "avg\_percentile" is that a candidate sitting in the first ranking in a party list is interpreted as being in the 100th percentile, whilst a candidate in the lowest ranking in a list. Therefore, a number is closer to 1 corresponds to being on average, higher on party lists. I find that the strengthening of the quota did significantly impact the average percentile ranking of female candidates on party lists. The positive coefficient of the avg\_percentile variable suggests that the changes made beginning with the 2009 election cycles did result in a 14.8% increase in the average percentile ranking of female candidates in individual party lists. This intuitively makes sense, because the zipper system effectively led to at least one female candidate being in the top 3 of any party list. The size of the increase in average percentile, however, is disappointing because of how it is vitally important for women to be in position 1 or 2 for the best chance to win. This may partially explain for why there was

a significant initial increase in the number of female candidates elected from 2004 to 2009, but with relatively smaller changes in the number of female candidates after.

The results of this model also support the conclusions of Prihatini (2020) which found that neither Islamist nor pluralist parties were better at putting female candidates on desirable parts in the party list. Indeed, the negative coefficient for *is\_Islamic\_party* suggests that women from Islamic parties have lower ranks on party lists on average, but the size of the coefficient, 5%, is so small such that it means that there is a practically tiny difference in the average percentile ranking on Islamic or non-Islamic parties in Indonesia.

Finally, the results of the model also suggest that there are positive effects for the level of education in the province an electoral district is in, the percentage of the Muslim population, as well as the amount of population. Indeed, the positive coefficients for all these variables suggest that the average percentile ranking of female candidates increases when a province has a higher population of bachelors degree holders. This would make sense, as it is possible that bachelors degree holders would be more open to electing female candidates. Aside from that, the small positive coefficient for the percentage of the population in a province being Muslim suggests that running in a more Muslim province does marginally benefit the average percentile ranking of female candidates. Finally, it is intuitive that in a larger population province, which thus has more seats and candidates on offer, the average percentile candidates increases because the women who are high positions on party lists are considered to be in higher percentile positions.

Overall, this model shows how female candidates did benefit significantly from the strengthening of the quota with a zipper system beginning in the 2009 legislative election. However, the relatively small coefficients may point to how the increase in the average percentile ranking of female candidates did not increase sufficiently for women to win drastically more seats.

## 7.2 Highest ranking of female candidates on party list results

The "highest\_rank" column in Table 6 presents the result of model (2) in Section 6, regarding the effects of the strengthening of the gender quota beginning in the 2009 election cycle with the addition of a zipper system on the highest rank of female candidates on individual party lists. As a further note for interpreting this variable, a negative coefficient would mean that candidate gained a "higher" ranking since the best ranking a candidate can get in the Indonesian election system is 1. Consequently, the negative coefficient for `after_quota_strengthened`, representing the implementation of the zipper system policy to strengthen the gender quota, does suggest that the highest ranked female candidates for each party gained a slightly higher rank. However, with a coefficient of  $-0.240$ , I find that the gain in rank is relatively marginal, and practically will not help most female candidates in winning. Prihatini (2019) found that being in position 1 is the best position in terms of ensuring a victory, but what this model shows that the policy change did not help in significantly increasing the rank of the highest-ranked female candidates.

This model also shows that in electoral districts located in provinces that have higher populations, the highest ranked women receives a relatively lower rank. However, the coefficient for this, 0.113, is so small as to barely have an effect. Nevertheless, it is a result that makes sense because in larger provinces, women may have to break through more barriers to earn the number 1 ranking from their party.

### **7.3 Number of female candidates on party list results**

The "num\_fem\_candidates" column in Table 6 presents the results of model (3) in Section 6, regarding the effects of the strengthening of the gender quota beginning in the 2009 election cycle with the addition of a zipper system on the number of female candidates placed on party lists. I find that the addition of the zipper system is effective in increasing the number of female candidates on party lists by 1.177. This makes sense because of how the specific change that was made to the gender quota was the addition of a zipper system, which forced parties to have at least one female candidate in every set of three candidates they were adding to their party lists on the ballot. I also find that the number of female candidates is also positively impacted by the ratio of bachelors degree holders in a province and the population in a province. That both of those variables have positive coefficients makes sense because of how perhaps, higher educated populations are more open-minded, and also because in higher population provinces, there are more seats being offered and so more women running for election naturally. On the other hand, the coefficients for those two variables are quite small (or unrealistically large, in the case of the ratio of bachelors holders), and so I find

that they are of minor importance compared to the policy change.

I find that unexpectedly, GDP per capita, the female to male ratio, and the number of female incumbents has a negative impact on the number of female candidates running on party lists. Again, the coefficients on these variables are small (or unrealistic, as in the case of the female to male ratio variable). Nonetheless, these are results that I did not expect, because I would believe that relatively wealthier provinces would be more open to electing female candidates, and that electoral districts in provinces with relatively more women would also favor electing more women. Furthermore, I would think that the success of female candidates would encourage more women to run, whether to challenge the incumbent or to claim more seats. The nature of this variable may be due to how it is calculated in my model. In this model, the number of female candidates is measured by party in every electoral district- perhaps whenever there is already an existing female incumbent in a district, other female candidates are unlikely to attempt to unseat the incumbent. Nevertheless, the coefficient of this variable is small. Thus, it has a relatively marginal impact, despite the counter intuitiveness of its sign.

All in all, this model shows that the number of female candidates did increase due to the policy change in 2009. Whether that contributed to women winning is, however, another question, but this is at least somewhat of a step in the right direction.

## 8 Conclusion

Women are still underrepresented in legislatures throughout the world- therefore, for women to be more fairly represented, it is important to understand what sorts of policies can truly help more women get elected. I use the case of Indonesia as an example of a country which implemented a gender quota to improve female representation in its parliament, the DPR. As Indonesia changed election systems whilst implementing a gender quota, I am able to contribute to our understanding of how gender quotas help female candidates advance in open-list proportional representation election systems. Furthermore, considering the lack of easily available data regarding candidates for Indonesia's parliament for pre-2014 election cycles, I contribute to future research regarding Indonesian elections by constructing a panel dataset that contains information regarding every candidate that ran in elections for Indonesia's DPR from 2004-2019.

Taking advantage of the panel dataset I constructed, I use a PooledOLS model to estimate the effects of a strengthening in the gender quota in 2009. I find that the strengthened gender quota led to the average percentile ranking of women on party lists increasing by 14.8%. Furthermore, I find that women candidates did reach relatively higher positions on party lists than before, with the highest rank achieved by female candidates on party lists increasing by 0.2. Unfortunately, practically, that is an insignificant increase and that may help explain why Indonesia has not experienced huge leaps in the number of female representatives in the DPR since the addition of the zipper system. Finally, I find that the

number of female candidates did increase by 1.1 after the strengthening of the gender quota, which provides evidence that the intention of the zipper system, to force political parties to place more women on party lists, was fulfilled. These results collectively show that the gender quota did have a significant effect, particularly after the addition of the zipper system. However, the effects of the gender quota may not be significant enough, as women climbing higher on party lists in Indonesia's open-list system are possibly not climbing to high enough ranks on party lists. Overall, this provides more quantitative context to the difficulties faced by women in not only getting elected, but also towards getting in positions that increase the likelihood of being elected.

The lack of precise information regarding electoral candidates prior to the 2014 election cycle is something that could be addressed in future research regarding the effectiveness of Indonesia's gender quota. Indeed, though this paper focuses heavily on the placement of female candidates on party lists in electoral ballots, there are other significant factors in play that contribute to the success of electoral candidates in general. For instance, variables that were difficult to measure in the timeframe available for this paper include any variables measuring the funding levels available for politicians as well as their relative experience and background. Establishing a more-detailed, publicly-available database of all known information regarding Indonesian election candidates would help be a key public resource for the Indonesian voting public, as well as for future researchers interested in studying elections in Indonesia.

There are also opportunities to compare and contrast the unique circumstances of Indone-

sia's experience with gender quotas against other countries- particularly other countries in the region. This paper and other literature has shown that religion has proven to be not as large of a factor as it may seem, considering Indonesia's status as a very religious country by ideology. Further research into the role Islam has in elections could yield promising results into the intersections of Islam and democracy. Furthermore, comparisons of Indonesia's implementation of gender quotas with other countries could help dissect how gender quotas can be most effectively implemented to truly boost female in parliaments. Hopefully, studies like these can contribute towards a more representative parliament in Indonesia and around the world in the future.

## 9 Tables

Table 1: Changes in DPR Female Representation, Electoral System, and Affirmative Action Policies from 1999-2019

Election Year	% Female DPR Members	Election System	Affirmative Action Policy
1999	8.80	Closed-List	None
2004	11.82	Semi-Open List	30% Gender Quota
2009	17.86	Open List	30% Gender Quota + Zipper
2014	17.32	Open List	30% Gender Quota + Zipper
2019	20.87	Open List	30% Gender Quota + Zipper

Source: Badan Pusat Statistik: "Persentase Kursi Yang Diduduki Perempuan Di DPR Dan DPRD (Persen), 1999-2004", UU No. 3 Tahun 1999, UU No. 12 Tahun 2003, UU No. 10 Tahun 2008, UU No. 8 Tahun 2012, UU No. 7 Tahun 2012

Table 2: Descriptive Statistics of All Candidates Ranking on Party Lists, 2004-2019

Election Year	Gender	N	Mean	Standard Deviation	Min	Max
2004	All	4446	3.99	2.66		
	Female	1145	4.67	2.66	1	14
	Male	3301	3.76	2.62		
2009	All	4951	4.55	2.72		
	Female	1577	4.81	2.49	1	12
	Male	3371	4.43	2.81		
2014	All	6707	4.35	2.43		
	Female	2501	4.73	2.21	1	10
	Male	4203	4.13	2.53		
2019	All	4931	4.55	2.72		
	Female	1571	4.80	2.49	1	12
	Male	3357	4.43	2.81		

Source: KPU Election Records from 2004, 2009, 2014, and 2019 Elections

Note: For the values here, 1 is the highest rank and 10, 12, or 14 would be the lowest possible rank for those respective years.

Table 3: Descriptive Statistics Of Female Candidate Ranking Among Islamic and Non-Islamic Parties

Election Year	is Islamic?	N	Mean	Standard Deviation	Min	Max
2004	Islamic	283	5.11	2.63	1	14
	Non-Islamic	862	4.53	2.66	1	13
2009	Islamic	470	4.69	2.40	1	12
	Non-Islamic	1107	4.86	2.53	1	12
2014	Islamic	828	4.73	2.16	1	10
	Non-Islamic	1673	4.74	2.24	1	10
2019	Islamic	470	4.69	2.40	1	12
	Non-Islamic	1101	4.86	2.53	1	12

Source: KPU Election Records for 2004, 2009, 2014, and 2019 elections.

Note: For the values here, 1 is the highest rank and 10, 12, 13, or 14 would be the lowest possible rank for those respective years; Islamic Parties consist of candidates the following parties: PPP, PKS, PKB, PBB.

Table 4: Percentage of Female Candidates in Each List Position by Election Year

List Position	% Female Candidates			
	Election Year			
	2004	2009	2014	2019
1	13.20	12.40	15.49	12.44
2	18.98	23.33	24.38	23.25
3	26.43	63.62	68.34	63.66
4	30.95	17.68	19.23	17.74
5	33.78	30.21	34.13	30.31
6	30.08	50.30	62.96	50.10
7	34.11	25.30	38.31	25.42
8	34.22	37.29	39.27	37.20
9	32.50	42.78	53.33	42.71
10	44.68	14.37	6.06	14.55
11	35.18	32.89		32.89
12	23.52	28.57		28.57
13	31.57			
14	16.66			

Source: Panel Dataset Constructed from KPU Election Records, Own Calculations

Note: If list position is empty, that means that there were no party lists that were that long for that election year. The length of party lists is usually dependent on the size of the electoral district (eg. an electoral district offering 10 seats will allow a party to run 10 candidates on their party list), with some exceptions.

Table 5: Descriptive Statistics of Female Candidate Performance Variables By Party and By Electoral District

Variable	N	Mean	Standard Deviation	Min	Max
avg_percentile		0.47	0.20	0	1.0
highest_rank	3161	2.55	1.4	0	10
num_fem_candidates		2.18	1.19	0	9

Source: Panel Dataset Constructed from KPU Election Records, Own Calculations

Table 6: Effect of gender quota strengthening (with zipper system) on average percentile of women on party lists, highest rank on party list achieved by female candidates, and the number of female candidates on party lists

	PooledOLS		
	avg_percentile	highest_rank	num_fem_candidates
After 2009 Changes	0.148*** (0.010)	-0.240*** (0.083)	1.177*** (0.051)
Islamic Party	-0.053*** (0.008)	0.084 (0.058)	-0.107** (0.042)
% Bachelors in Pop.	1.090*** (0.316)	1.447 (2.611)	12.790*** (1.961)
log(GDP per Capita)	-0.009 (0.009)	0.090 (0.055)	-0.102** (0.044)
% Female to Male Ratio	-0.606 (0.760)	4.591 (5.395)	-9.415** (4.213)
% Muslim Population	0.044** (0.020)	0.035 (0.129)	-0.003 (0.098)
log(Population)	0.016*** (0.004)	0.113*** (0.027)	0.315*** (0.020)
Number of Female Incumbents	0.003 (0.004)	-0.002 (0.021)	-0.158*** (0.021)
const	0.434 (0.385)	-2.442 (2.650)	1.470 (2.069)
N	3161	3161	3161
F-stat	53.928	6.571	122.681
F-stat (robust)	38.217	6.175	136.345

Note: \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

# 10 Figures

Figure 1: Sample of 2004 election records obtained at KPU archives in Jakarta

Daftar Pemilih		Jawa Timur - 1											HASIL PEROLEHAN SUARA SAH ANGGOTA DEWAS PERWARISAN KARYA	
NOMOR DAN NAMA PARPOL PESERTA PEMILU		KAB. BONDARUJATI	KOTA SURABAYA	4	5	6	7	8	9	10	11	12	13	
1. PNI Marhaenisme		6.222	3.151										9.373	
1	Prof. USEP RANAWIJAYA, SH	1.110	602									1.712		
2	TRIE HANDONO, SH	471	338									809		
3	Prof. Dr. H. NOTO PALGONO, SE., MSc.,	200	440									640		
2. Partai Buruh Sosial Demokrat		6.617	4.200										10.817	
1	MOHAMMAD HASAN BASHORI	1.368	755									2.123		
2	EDWARD PARSULIAN MARPAUNG	930	449									1.379		
3	Drs. JOKO SUJONO	535	522									1.057		
4	JAROT INDRIYANTO	333	284									617		
3. Partai Bulan Bintang		11.573	10.363										21.936	
1	Dr. FUAD AMSYARI, MPH., Ph.D	2.112	2.651									4.763		
2	Drs. H. IMAM SOEJOSO	836	734									1.570		
3	H. WIDARTO, SH	1.186	630									1.816		
4	AGUS M. MAKSUM	562	246									808		
5	Drs. IMAM MOERDJANI MA	422	520									942		
6	Hj. MURSYIDA WIDYA ANGGRAINI	631	648									1.279		
4. Partai Merdeka		8.589	2.179										10.768	
1	Hj. SITI ROCHANI, S Sos., M.Si	6.706	633									7.339		
2	Dra. CHUSNUL SAVITRI	4.902	266									5.168		

To construct the dataset used for this study, I had to tabulate hundreds of pages of documents like this

Figure 2: Sample of 2014 election records obtained from a public records request made with the KPU



MODEL DD 1 DPR  
halaman 4

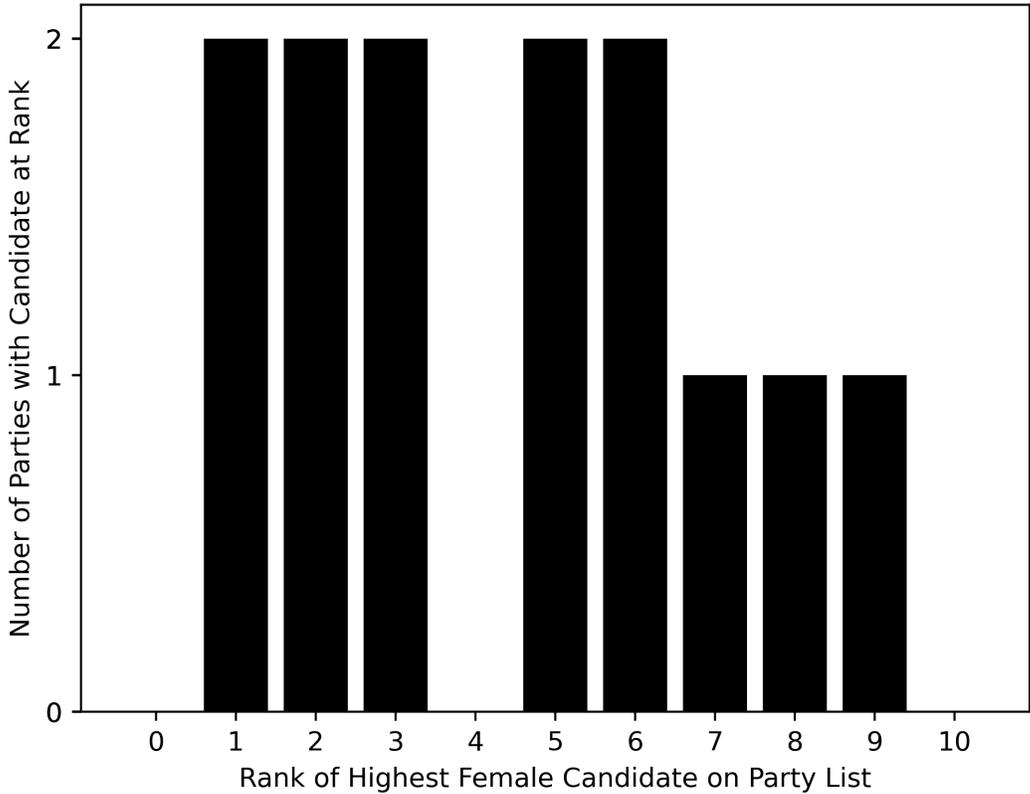
NO	PARTAI POLITIK	RINCIAN	JUMLAH AKHIR
IV	RINCIAN PEROLEHAN SUARA PARTAI POLITIK DAN SUARA CALON	KOTA ADMINISTRASI JAKARTA TIMUR	
3	PARTAI Keadilan Sejahtera		
1	H. AHMAD ZAINUDDIN, Lc		57,540
2	H. IIE SUMIRAT SUNDANA		50,474
3	MARIA AHDIATI		4,777
4	ABDUL AZIZ ABDUL RAUF		5,738
5	NURMANSJAH LUBIS, SE, Ak, MM.		8,679
6	Hj. LULU MASLUCHAH, Lc.		4,905
	<b>Jumlah Suara Sah dan Suara Calon</b>		<b>5,916</b>
			<b>138,029</b>
4	PDI Perjuangan		
1	Dra. SB. WIRYANTI SUKAMDANI		163,821
2	R. ADANG RUCHIATNA PURADIREDA		30,691
3	ABADI PARULIAN HUTAGALLING, SH		25,806
4	Ir. H. RASYIDI, HY, MA		30,250
5	NI GUSTI AYU EKA SUKMADEWI, SH		19,916
6	Ir. HM. NURCAHYO RISWANTO		14,130
	<b>Jumlah Suara Sah dan Suara Calon</b>		<b>16,396</b>
			<b>301,010</b>

NAMA/TANDA TANGAN KOMISI PEMILIHAN UMUM						
1	2	3	4	5	6	7
NAMA/TANDA TANGAN SAKSI-SAKSI PARTAI POLITIK						
1	2	3	4	5	6	7
8	9	10	14	15		

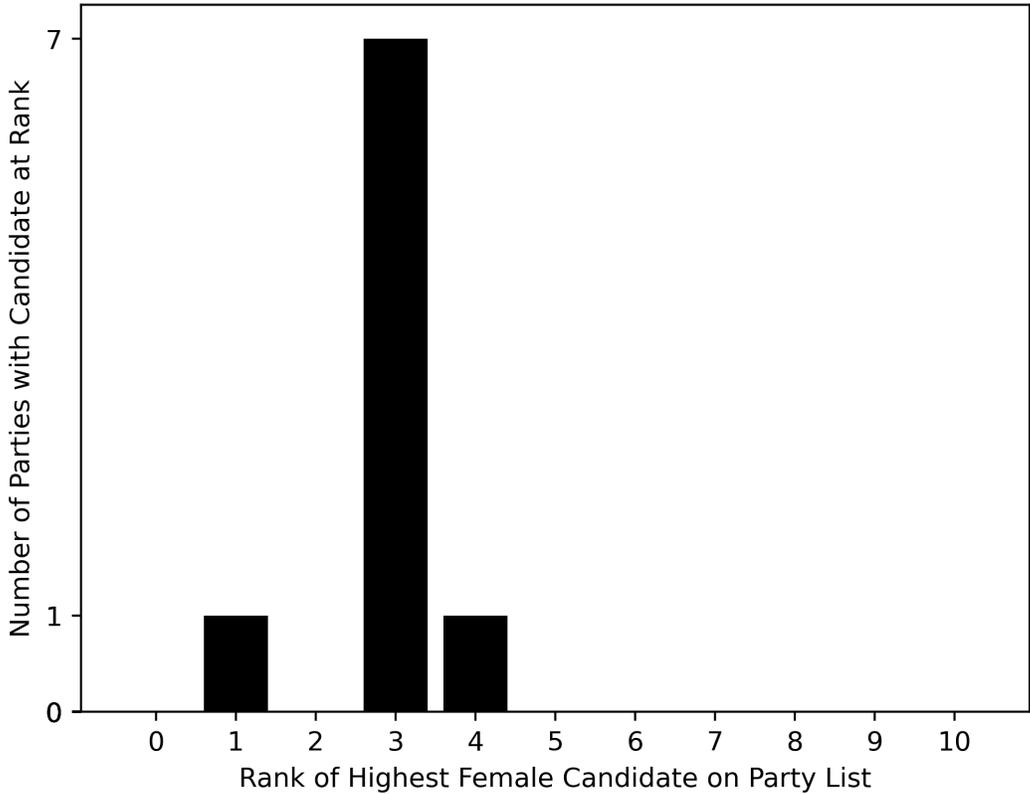


Figure 3: Rank of Highest Female Candidate on Individual Party lists in DKI Jakarta I in 2004



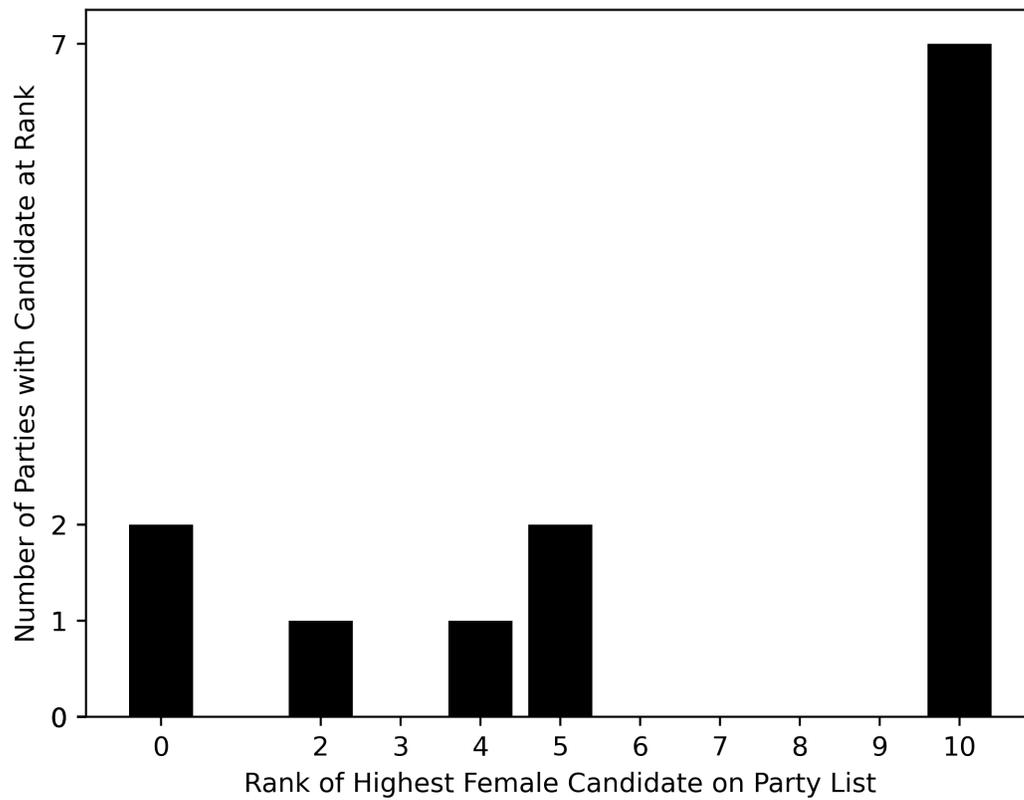
Note: A rank of 0 in this chart corresponds to a party that did not even run a female candidate.

Figure 4: Rank of Highest Female Candidate on Individual Party lists in DKI Jakarta I in 2019



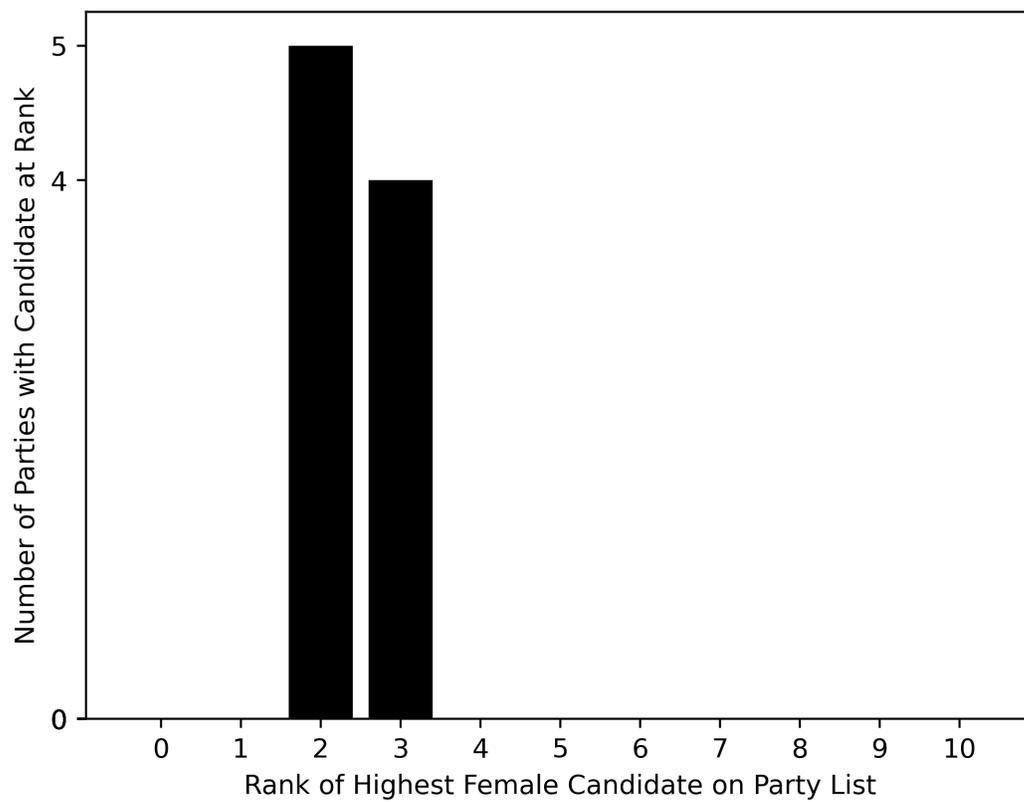
Note: A rank of 0 in this chart corresponds to a party that did not even run a female candidate.

Figure 5: Rank of Highest Female Candidate on Individual Party lists in Aceh I in 2004



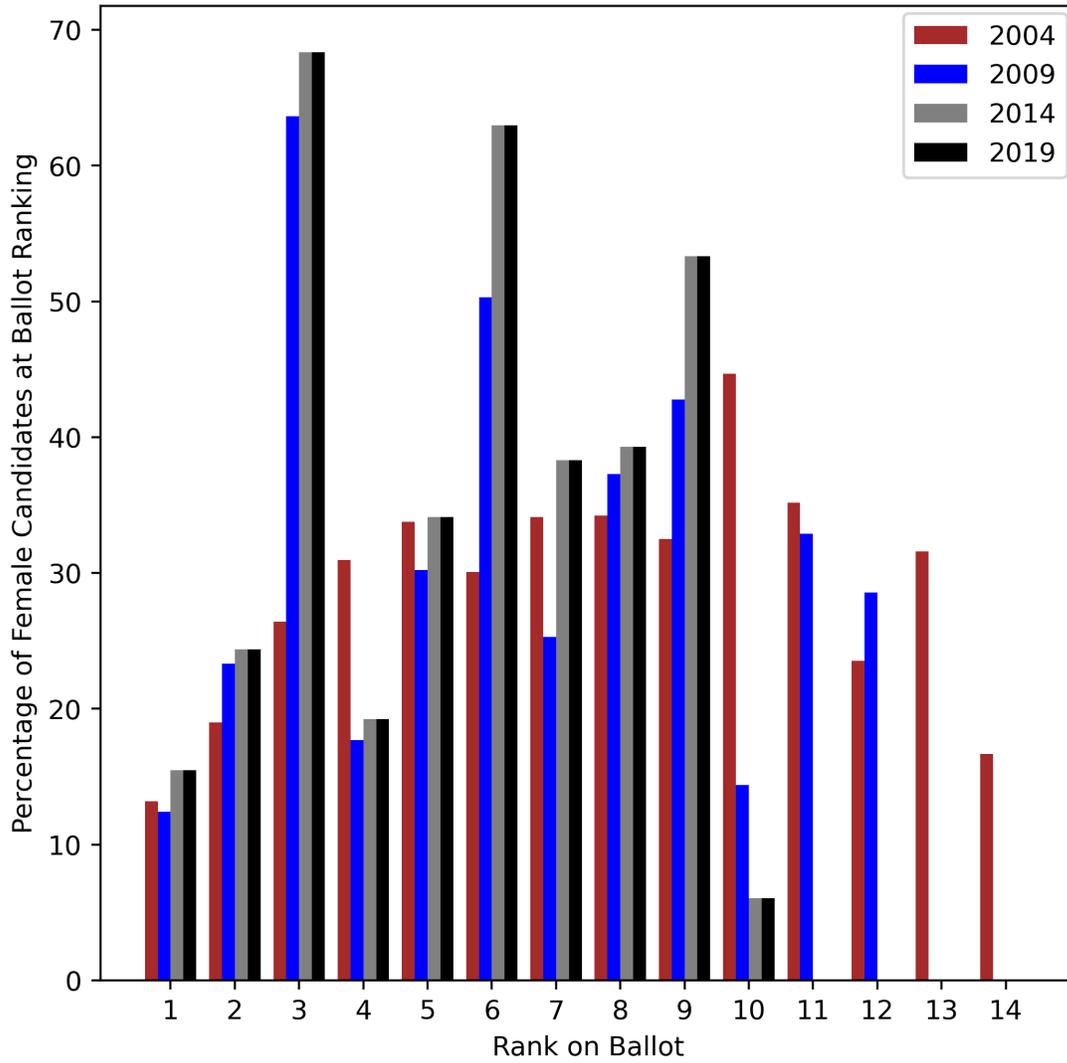
Note: A rank of 0 in this chart corresponds to a party that did not even run a female candidate.

Figure 6: Rank of Highest Female Candidate on Individual Party lists in Aceh I in 2019



Note: A rank of 0 in this chart corresponds to a party that did not even run a female candidate.

Figure 7: Percentage of Female Candidates at Each Ballot Position by Election Year



Note: Ballot ranks with seemingly missing columns are due to some election years having shorter party lists.

## 11 Appendix

The novel panel dataset constructed for this study and the code used to process it can be found at my GitHub, [here](#). It contains the latest updates about the dataset, as well as a detailed description of the entirety of the data collected for this study.

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