

Gender Quotas and Crimes against Women: Is There an Intensive Margin Effect?*

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Abstract

We investigate whether increasing the fraction of women in local councils affects crimes against women, using variation generated by institutional characteristics of gender quotas in India and Indonesia. In contrast to prior literature examining the impact of instituting a gender quota, we examine the “intensive margin,” namely increases in women’s representation conditional on the existence of a quota. Our results indicate no statistically significant impact of increased representation on crimes against women. This cannot be attributed to an increase in crime reporting being nullified by a deterrence effect on crime, since we find no evidence to support the existence of a deterrence effect.

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1. Introduction

Violence against women and girls is one of the most prevalent human rights violations in the world. The United Nations estimates that approximately one in three women worldwide will experience physical or sexual abuse in her lifetime (United Nations Population Fund 2021). Victims of gender-based violence can suffer severe serious physical and mental consequences, as well as reduced opportunities for economic progress. Even the threat of such violence has been shown to deter women's investments in human capital and thereby reduce their economic and social participation (Borker 2021).

In this paper, we examine whether increasing women's political representation can affect crimes against women. More than 100 countries around the world have implemented some form of political gender quotas in an effort to provide "descriptive representation" to women in political institutions. These quotas vary considerably in type (candidate quotas vs reserved seats), in the level of government at which they are implemented (national, regional, local), whether the quotas are voluntary or mandated and, most relevant to our question, the level of descriptive representation they provide. Countries across the world have set quotas as low as 10% and as high as 50%. Yet, there is little analysis of whether the numerical level of representation matters for policy and development outcomes relevant to women.

We use data from India and Indonesia, the world's first and third largest democracies, to examine whether increasing the share of women among local government representatives changes crimes against women. Based on the features of the context, we use different identification strategies. For India, we conduct a difference-in-differences analysis using variation across states in the timing of an increase in the local government gender quota from one-third to one-half of all local government elected representatives. For Indonesia, a uniform one-third candidate

quota results in significant local variation in the fraction of women among elected representatives, ranging from zero to 20%. In both countries, our results mostly find statistically insignificant relationships between increases in the share of women representatives and crime rates. We verify that these are unlikely to be a result of differential pre-trends across areas with more or fewer women representatives. For India specifically, we also provide direct evidence that there is little or no deterrence effect on crime, so that the overall null result therefore means that there is little impact on crime reporting as well. The one exception is our finding of a significant positive relationship between the share of women representatives and the extent of property crimes in Indonesia. However, this is experienced by both men and women, suggesting that the likely mechanisms behind this finding are not gender-specific.

We contribute to the literature on women's political representation by examining whether women's numerical or descriptive representation has this "intensive margin" effect on a substantive policy issue, namely crimes against women. Many previous papers have found that gender quotas result in a greater representation of women's interests in policy. Chattopadhyay and Duflo (2004) find that women-headed councils spend more on public goods prioritized by women, and Afridi, Iversen, and Sharan (2017) find women leaders' administrative performance catches up rapidly to those of more experienced male leaders.¹ Iyer et al. (2012) compared crimes against women across states in periods with and without gender quotas, and documented a 26% increase in reported crimes against women. examined the impact on crimes against women.² All of these papers perform

¹ Many papers have also examined the consequences of these gender quotas for political representation of women in later years or at higher levels of government (Beaman et al. 2009; Bhavnani 2009; Deininger et al. 2015; O'Connell 2020).

² Iyer et al. (2012)'s identification strategy exploited the variation across states in the timing of the one-third gender quota. Such variation in timing arose due to several different quasi-exogenous reasons, most notably due to the prior schedule of local council elections. Other reasons included the anticipation of the constitutional amendment by others (e.g. Kerala and West Bengal introduced

comparisons on the “extensive” margin, namely comparing either areas with or without women leaders or comparing states in periods with or without the gender quota. We go beyond these existing papers by examining the impact of a later reform that implemented a larger gender quota, thereby allowing us to estimate the effects of increased representation rather than the confounded effects of representation and the quota.³ Analyses of women’s representation in non-quota settings typically rely on a regression discontinuity strategy focusing on close elections.⁴ Note that such analyses compare the effect of electing a woman leader instead of a man, and cannot tell us whether increasing the fraction of elected women matters for development outcomes.

We also contribute to the literature on the role of women in affecting the criminal justice system. Some prior studies have estimated the intensive margin effects using data from advanced economies such as the U.S., the U.K. and Spain. Miller and Segal (2019) find the higher reporting of crimes when there are more women in the police, Anwar, Bayer, and Hjalmarrsson (2019) document more convictions for sexual offences when there are more women on the jury, and Hoekstra and Street (2021) find that an increase in own-gender jurors reduces drug-

the one-third reservation for women before the formal passage of the constitutional amendment), a unilateral adoption of gender quotas by some states (e.g. Karnataka introduced these quotas at district level in 1987), lawsuits regarding certain aspects of the new law (e.g. Bihar), budgetary constraints in conducting elections on time (Assam) and poorly conducted elections which resulted in improper implementation of the mandate (e.g. only 25% of local government seats were filled by women after Uttar Pradesh’s 1995 local election).

³ The implementation of quotas may lead to other effects that may increase or decrease the effects of increased representation. For instance, quotas may widen the quality gap between male and female candidates if women in reserved seats are less qualified than men, thereby reinforcing negative stereotypes (Coate and Loury 1993; Bardhan, Mookherjee, and Torrado 2010; Besley et al. 2017). Quotas in some areas may result in fewer women being fielded in non-quota constituencies (see Sekhon and Titiunik (2012)’s reanalysis of Bhavnani (2009)’s quota results). Alternatively, quotas may have a strong effect on social norms regarding women, by signaling a strong expressive effect of the law on social attitudes. Some of these effects may also apply to the quota expansion from one-third to one-half of positions, as discussed later.

⁴ See, among others, Baskaran et al. (2018); Bhalotra and Clots-Figueras (2014); Bhalotra, Clots-Figueras, and Iyer (2018); Brollo and Troiano (2016); Clots-Figueras (2012).

related convictions. In contrast, Bagues and Esteve-Volart (2010) find that female-majority recruitment committees are less likely to hire women for judicial positions. We contribute to this literature by focusing on the presence of women in political office rather than judicial or police positions.

The rest of the paper is structured as follows: Section 2 provides contextual information on the gender quotas in India and Indonesia and Section 3 describes our data. Sections 4 and 5 detail our analyses of data from India and Indonesia respectively, and Section 6 concludes.

2. Women's Political Representation in India and Indonesia

2.1. India's "Panchayati Raj" gender quotas

India has a federal system of government, with elected officials at the national, state, district, intermediate (block/taluka) and village levels (see Figure A.1). Representatives are elected to a five-year term, and elections are held every five years, on a first-past-the-post system in single-member constituencies. With more than 800 million voters and more than 100 political parties, India is the world's largest democracy. There are currently no quotas for women in state or national level elections.⁵

In contrast to the national and state legislatures, there are mandated gender quotas at the local level. In 1993, the 73rd and 74th Amendments to the Indian constitution required each state to set up a three-tier system of local government, with direct elections for village, intermediate and district level councils, collectively known as the *Panchayati Raj*. Though such local governing bodies existed prior to this constitutional amendment, they were not very effective in many states prior to the 1990s. Elections were often not held, and the councils did not

⁵ In March 2010, a bill proposing to enact a one-third quota for women in national and state legislatures was passed by the upper house of parliament, but it has not yet been brought to vote in the lower house.

assume any active role in policy decisions or governance (Ghatak and Ghatak 2002).

The *Panchayati Raj* Amendment mandated that at least one-third of all local council seats, and one-third of all chairperson positions, were to be filled by women.⁶ As a result, India now has the largest number of elected women representatives in the world. The Amendment also allowed states to increase the mandated gender quotas if they so wished. In 2006, Bihar became the first state to change their *Panchayati Raj* law and allow for a 50% gender quota at all levels of local governance. This legislation was part of a large set of women-oriented policies enacted by the state's chief minister Nitish Kumar, which included investments in women's education and livelihood programs (Muralidharan and Prakash 2017; Sanyal, Rao, and Majumdar 2015). Several other states followed suit over time and by 2018, 20 out of India's 29 states had amended their local council laws to increase the gender quota in local council member and chair positions to one-half rather than one-third (Government of India 2018).

2.2. Political representation of women in Indonesia

Indonesia has a federal system of government, with elected officials at the national, provincial and district level councils, as well as elected executive heads (but no councils) at the subdistrict and village levels of government (see Figure A.2). Indonesia transitioned to a multi-party democracy in 1999, and is currently the third largest democracy in the world. Representatives are elected to a five-year term in an open-list proportional representation (PR) system. Elections for the top

⁶ Seats were also to be reserved for Scheduled Caste (SC) and Scheduled Tribe (ST) communities in proportion with their population at the local level. The SC are communities that have historically been at the bottom of the Hindu caste hierarchy. The ST include communities traditionally outside the Hindu caste system. These communities were also provided political quotas at the state and national levels. Many papers have examined the policy impact of these SC/ST quotas (Pande 2003; Dunning and Nilekani 2009).

three levels are all held in the same year. We will primarily use the results of 2009 elections for the district-level councils (DPRD-District) in our analysis. Note that this is similar to the level of representation we examine in India, being below the federal and state levels. About 34% of federal funding in Indonesia goes directly to district councils, which are in charge of several important policy areas including education, health and roads.

In 2002, Indonesia mandated a gender quota for political candidates at the top three levels of governance, namely the national, provincial and district levels. The law specified that “at least 1 in every 3 candidates” must be female for every party in each electoral district. A law passed in 2008, UU No. 10, 2008 (Government of Indonesia 2008), required parties to follow a “zipper” rule, namely that all the women candidates could not be listed towards the bottom of the party list. Parties now had to make sure that every two male candidate names would be followed by a female candidate in their published party lists. Political parties could be barred from competing in any electoral district in which their candidate list does not meet this quota. These quotas were first implemented in the 2009 elections.⁷ Elections in Indonesia are conducted by the General Elections Commission (Komisi Pemilihan Umum, KPU), a well-regarded body that is in charge of enforcing the gender quota as well.

Even if all parties comply with this candidate gender quota, the fraction of women among elected representatives is likely to be less than one-third. This can happen for two reasons. The first relates to the discontinuities in the one-in-three rule: if a party only nominates two candidates in an election area, they need not nominate any women; similarly, if a party nominates five candidates, only one needs to be female. So, the overall fraction of women candidates may be less than

⁷ In the 2014 elections, six political parties did not meet the gender quota and were asked to resubmit their list of candidates before the election while in 2020, all political parties met the requirement.

one-third even if all parties are in compliance with the quota. Second, in a PR system, if a party wins only enough votes to have two representatives on the council, and the top two candidates on the party list are male, then there will be no elected woman from this party in the council. Clearly, this is more likely to happen if the women are generally placed lower on the party list. In our district council election data from 2009, we find that both reasons are likely relevant: women comprised less than one-third of the candidates (27%), and only 13% of elected representatives.

2.3. The “Intensive Margin” Effect of Women’s Representation

Why should increasing women’s representation matter for crimes against women? We conceptualize the impact of women’s political representation on three types of agents involved in the crime reporting process (see the schematic in Figure A.3). First, a potential criminal decides whether to commit a crime or not (stage 1). Next, when a crime occurs, the victim makes a decision on whether or not to report the crime to the police (stage 2). Finally, the police (or media) must decide whether to record the crime, which determines whether we observe this in our data. Following such recording, the police can conduct investigations (stage 3).

Having more women in local councils could lead to better actions by the police in recording crimes against women (the *recording* effect) and in the investigation and punishment of such crimes. Such changes in police behavior could then lead more victims to come forward in stage 2 of our schematic. The presence of women in local councils could independently motivate women victims due to role-model effects or feelings of confidence of having someone in authority to support them, even without changes in police actions. We call this the *reporting* effect. Finally, in considering the impact on potential criminals, there could be a *deterrence* effect if police take more actions against crimes against women. There could also be a deterrence effect if social norms change due to the presence of more

women leaders and violence against women becomes less acceptable. Alternatively, there could be a *backlash* effect if there is a lot of resentment against mandated political representation of women, resulting in an increase in crimes. Notice that these effects go in different directions: the recording, reporting and backlash effects would all lead to an increase in reported crimes, while the deterrence effect would lead to a decrease.

In a previous study (Iyer et al. 2012), we found that going from a situation of no quotas to having one-third representation of women in local councils led to a significant increase in reported crimes. We attributed this to both the reporting effect (finding that women in household surveys stating a greater willingness to go to the police if there is a woman leader) and the recording effect (with police being less likely to ask for bribes and conducting more arrests for crimes against women); the net positive effect in this case suggests that the deterrence effect, if any, was not particularly large. We did not find any evidence to support the presence of significant backlash.

The effect of increasing the Indian gender quota from one-third to one-half is ambiguous ex-ante. It is possible that both the reporting effect and the recording effect are strengthened due to the increased presence of women in local councils. This is particularly so because the local councils do not have any formal jurisdiction over law and order in India, and hence these effects would work through informal influence or “soft power” where increased numbers on the ground could make a difference. It is also possible that the backlash effect (for which we earlier found no effect) is strengthened due to a gender parity quota if the one-half share of seats has a different effect (e.g. because women representatives now may have substantially more power to change local policy). On the other hand, it is also possible that the activation of role model effects or even informal influences on the behavior of police does not require any explicit actions by the women representatives themselves and hence the first one-third quota constitutes the bigger

change to expectations and the status quo, and the additional effect of gender parity is small.

A similar assessment applies to the Indonesia context, where we may expect that increasing the number of women in the local council leads to greater reporting and recording effects. We expect backlash effects, if any, to be minimal in this context because there were only minor changes in the implementation of the quota (such as instituting the “zipper” rule in 2009). In terms of deterrence, the Indonesian National Police (POLRI) is controlled by the central government, while the local government does have control over the municipal police forces (Satuan Polisi Pamong Praja, abbreviated as Satpol PP) who would enforce local laws and collaborate with POLRI on other law enforcement. Consistent with this dual responsibility, there are two systems of recruitment and training of police officers in these two systems. In this sense, local government representation in Indonesia might be expected to have a larger effect on deterrence than in India, where local governments have no authority over the police.

3. Data on Crime and Political Representation

3.1. Crimes against women in India

The Indian Penal Code provides for the prosecution of many different crimes against women (see Appendix C). Following massive nationwide protests after a brutal gang rape case in 2012, the law was strengthened to include the possibility of death sentences for heinous rapes and raised the age of consent to 18 (Amnesty International, 2013). The Code of Criminal Procedure specifies that all information given to the police must be included in a written report by the police officer, read and signed by the informant. After this “First Information Report” (FIR) has been filed, the police are required to investigate the crime, and maintain detailed police diaries of the progress of the investigation. During such investigation, the police may question or arrest any suspects.

We obtained data on the reported number of crimes at the district and state level from various issues of the “Crime in India” publications of the National Crime Records Bureau (NCRB) at the Ministry of Home Affairs, for the period 1985-2015. These data come from the first stage of the criminal justice system, namely the filing of FIRs with the police. We also have annual data on the number of arrests made for each crime category. Our main variable of interest is crimes against women. These include the following crime categories: rape, kidnapping of women and girls, dowry deaths, sexual harassment, molestation, cruelty by husbands or relatives, and importation of women and girls (see Appendix C).⁸ In addition to crimes against women, we also analyze crimes that are not gender-specific, such as property crimes or crimes against public order. We conduct the analysis for the 19 major states of India, which account for 97% of the total population and 98% of total crimes reported.⁹ Three new states—Chhattisgarh, Jharkhand and Uttarakhand—were carved out in 2000, from Madhya Pradesh, Bihar and Uttar Pradesh respectively. To adjust for these state splits, we collected crime data at the district level and aggregated the pre-2000 data to the level of the new states, so that we cover a consistent set of places over time.¹⁰

On average, there are 0.226 crimes against women reported to the police for every 1000 women in a state in a given year (Table A.1). The largest contributors to this average are reports of domestic violence and sexual assaults. The unsafe status of women in India is highlighted by the fact that the reported rate of kidnappings per capita for women is almost 2.5 times that of men. Many crimes are

⁸ The reporting system for these crimes changes over time, as the NCRB started reporting additional crime categories separately. The inclusion of year dummies in our regression controls for all such nationwide reporting changes.

⁹ The states included in the study are the large states of India: Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttarakhand and West Bengal.

¹⁰ Telangana state was carved out of Andhra Pradesh in 2014. Since the two states held local elections with a gender parity quota in the same year, we aggregate Telangana data with Andhra Pradesh.

not reported to the police due to physical, economic and social stigma costs to the victim. For instance, the National Family Health Survey of 2015-16 reports that 25% of married women reported experiencing some form of physical or sexual violence from their spouse over the past year and two-thirds of those experiencing such violence said that they had not spoken of it to anyone. India is also relatively under-policed over this period, with only 1.4 police officers per 1000 population; for comparison purposes, the United States had 3.4 police officers per 1000 population in 2011. Only 3 percent of the police force was comprised of women.

3.2. Crimes against women in Indonesia

Crimes against women are fairly widespread in Indonesia. A U.N.-assisted survey in 2016 found that 41 percent of women had experienced at least one of several types of violence (physical, sexual, emotional and economic) in her lifetime, the majority of whom reported experiencing physical and/or sexual violence (United Nations Population Fund 2017). Such violence persists despite the passage of several laws, such as a 2004 law on domestic violence that includes a responsibility for the police to provide temporary protection to domestic violence victims within 24 hours of receiving a report (Arief 2018).

We obtained data on crimes against women from two different sources. The first is the National Violence Monitoring System (NVMS), a project headed by the Ministry of Human Development and Culture to collect detailed data on incidents of crime and conflict that resulted in violence. These data are put together based on reports of incidents primarily from local newspapers. The coverage of the incident database increases over time, with only 10 provinces reporting data until 2004, 18 provinces from 2005-2011 and all 32 provinces over 2012-2015.¹¹ Our main measures of crimes against women include the number of women reported killed,

¹¹ Indonesia currently has 34 provinces. Kalimantan Utara was carved out of Kalimantan Timur in 2012. The capital province Jakarta does not have district level councils.

injured, kidnapped or sexually assaulted across all violent incidents in the NVMS database. Since these could include incidents where women suffered due to non-gender-specific incidents (such as election-related violence), we also track separately the number of women deaths and injuries in incidents related to domestic violence and gender issues. The database also allows us to track the incidence of violence against men, coded as the number of men reported killed, injured, kidnapped or sexually assaulted across all incidents.

Given that these data are based on published newspaper reports, there is likely to be a significant reporting margin i.e. not all crimes that are committed are likely to feature in this database. The presence of women in local political office may have an effect on this reporting margin, if women victims feel more emboldened to come forward. Similarly, there may also be a deterrence effect if the presence of local women officeholders leads to greater police action. And there may also be a backlash effect due to the presence of more women in local office.

The NVMS database identifies the subdistrict where the incident took place. We matched the subdistrict to the relevant election area of the district council using a crosswalk from the Ministry of Home Affairs (Government of Indonesia 2013). The number of subdistricts increased dramatically over time in Indonesia, from 4028 in 1998 to almost 6700 in 2010, making such matching a problematic exercise. Our crosswalk is complete for the year 2014, and approximately 90% of the incidents have been matched to the right election area for previous years.

Our second source of crime data is the Indonesian Socio-economic surveys (SUSENAS). These are nationally representative household surveys with more than 775,000 individual observations in each year. These surveys ask whether the respondent was a victim of a property crime, a violent crime, or “other” types of crime. In years 2009 and later, the survey also asks whether the crime was reported to the police. These survey data are less likely to suffer from under-reporting compared to the NVMS data; the nationwide geographic coverage of SUSENAS is

also superior to that of the NVMS. However, the NVMS has more detail on the types of crimes against women. We have access to the annual SUSENAS waves conducted between 2008 and 2012. The district and subdistrict codes are included in the SUSENAS, but we only have access to the SUSENAS subdistrict code and corresponding name for 2013. We matched the 2013 SUSENAS subdistrict name to the 2014 Ministry of Home Affairs code to match SUSENAS subdistricts to election areas. About 75% of subdistricts sampled in the SUSENAS between 2008 and 2012 were successfully matched to the election area. We further assume that the subdistrict code would remain from 2008 and 2012 if the district code remained. Due to the uncertainty surrounding the subdistrict matching across the years, we conduct the analysis at the election area and district level.¹²

The NVMS and SUSENAS data present somewhat different findings on crime rates. The NVMS data finds that men are more likely to be killed, injured or kidnapped in the incidents reported therein, while women are more likely to be sexually assaulted (Table A.2, panel A). The SUSENAS, however, finds that women are more likely to report being the victim of a property crime compared to men, while both men and women are equally likely to report being the victims of a violent crime (panel B). Around 20% of male and female victims reported the crime to the police. The differences between the data sets are likely due to their very different data collection methodologies; in particular, the differences suggest that violent incidents with male victims may be disproportionately more likely to be reported in the media.

3.3. Data on women's political representation: India

¹² Other Indonesian data sources are not suitable for our analysis. Statistics Indonesia's crime reports based on POLRI data are reported only at the province level, which is too aggregated for our analysis. The Village Potential Statistics (PODES) survey only asks whether crime has increased or decreased relative to the previous year.

Our data on the dates of the first local election with one-third representation of women is taken from Iyer et al. (2012). We complement these data with information on the date of the first local election with one-half representation for women in local councils, which we gather from a variety of government publications and newspaper reports (see Appendix B for data sources). Passage of such laws is usually reported prominently in national newspapers, and also discussed in the national parliament in response to member questions. Table A.3 shows that 14 out of 19 major states had held elections with a gender parity quota by 2015, and that the timing of such elections varies from 2006 to 2015. We also gathered data on several control variables, such as state GDP per capita, demographic variables (female-male ratio, literacy rates, urbanization), and political variables such as the presence of a female Chief Minister in the state.

3.4. Data on women's political representation: Indonesia

Our data on the 2009 local council (District-DPRD) elections comes from Indonesia's Election Commission website. These data were digitized by us, and provide information on candidate names, party identity, votes obtained and their position in the party candidacy list. We obtained data on 240,208 candidates and 15,473 winners across 1,814 election areas of 469 local councils from 32 provinces of Indonesia. Unfortunately, the Election Commission does not provide information on the gender of the candidates. We therefore manually coded the gender of each candidate, using a variety of methods. We successfully coded the gender of almost all (99.5%) elected representatives, and about 85% of the candidates.¹³

¹³ Some candidates indicate their gender when they indicate their educational degree. More than 80% of gender assignments could be automated for the most common names (e.g. Mohammad or Anwar are always male). The remaining were coded manually using Google searches for images of these politicians, and consultation with Indonesian experts. Our success rate for winners is higher, because images were easier to locate for election winners compared to non-winners.

Despite the existence of the candidate quota, relatively few women are elected to Indonesia's local councils. A local council has on average 35 elected members (Table A.2, panel C); on average, only 12.4% of these elected representatives are female; 10% of councils have exactly one woman representative. Indonesia's political system is extremely competitive at the local level: on average, 33 different parties nominate candidates for each district council election.

We also show summary statistics at the level of the election area (EA), since that is the level at which our regressions with NVMS will be conducted (Table A.2, panel D). Each district council has between 1 to 7 EAs (the median is 4). The variation in female representation across EAs is considerably greater than the variation across districts, with the share of women among elected representatives from a given EA varying from 0 (25th percentile) to 20% (75th percentile). 34% of EAs in our sample have no women representatives, and a further 37% of EAs have exactly one female representative. A standard variance decomposition finds that most of the variation (69%) is across EAs *within* each local council district.

4. Gender Parity Quota and Crimes Against Women in India

4.1. Empirical strategy: Difference-in-differences

To assess the impact of increasing the local council gender quotas to 50%, we run a difference-in-difference (DiD) specification as follows:

$$(1) \quad \ln(C_{st}/P_{st}) = \alpha_s + \beta_t + \phi * PostParity_{st} + X_{st}'\gamma + u_{st}$$

where C_{st} is the number of crimes in state s in year t , P_{st} is the population in state s and year t ; the dependent variable is the log of per capita crimes. α_s is a fixed effect for state s , which controls for all time-invariant state characteristics. β_t is a fixed effect for year t , which controls for all nationwide changes in that year.

$PostParity_{st}$ is a dummy variable that equals one in years including and following the first election with 50% mandated representation for women. The coefficient ϕ captures the impact of a state switching to a 50% gender quota. As per our earlier discussion, if the recording, reporting or backlash effects dominate the deterrence effect, we would expect to find $\phi > 0$, and vice versa. If we do not find a significant relationship between the gender parity quota and crimes against women, it could mean either that increasing the quota does not affect any of these channels, or that these effects cancel each other out. To shed direct light on the deterrence effect, we will also examine arrest rates as an alternative dependent variable.

X_{st} is a set of state-time varying controls, including per capita incomes, women's population share, urbanization, the fraction of population engaged in agriculture, a dummy for whether the Chief Minister was a woman, and state police strength per capita. Many of these are important determinants of crime rates (Soares, 2004; Edlund et al, 2007). To control for the possibility that the timing of policy changes may be endogenous to the trends in crime, we will focus on specifications that additionally control for state-specific linear time trends i.e. control for all time-varying state characteristics that increase linearly over time. Standard errors are clustered at the state level.

4.2. Does the gender parity quota increase women's representation?

We first verify that the implementation of the gender parity quota actually increases the political representation of women. In particular, if states enacted the gender parity quotas purely to rationalize existing levels of women's representation, then we would not expect any outcomes to change as a result of such enactment. Table 1 shows that the enactment of a gender parity quota results in a large and statistically significant increase in the share of women in local councils. Controlling for state-specific linear trends and time-varying controls as described above, we find an increase of 18 percentage points in women's

representation, almost exactly matching the 17 percentage point difference between one-half and one-third (Table 1, column 4).

We conduct two important exercises to isolate the impact of the gender parity quota rather than the implementation of the earlier one-third quota. First, we control directly for the impact of the one-third quota by including a dummy variable that equals one in years following the implementation of the earlier quota. Second, we conduct a robustness test by restricting the data to years 2002 and later, when all states (except Jharkhand) have already implemented the one-third quota. The impact of the gender parity quota does not change when we conduct these robustness tests (columns 4 and 5). Finally, we verify that our results are robust to the exclusion of Jharkhand state, which never enacted a one-third gender quota, but did enact a 50% quota in 2010 (column 6).

4.3. Does the gender parity quota change crimes against women?

We find that the implementation of a gender parity quota has no significant effect on total crimes against women (Table 2). Focusing on the specification that includes state-specific linear time trends, we see that reported per capita crimes against women increases by an insignificant 6.6% after the enactment of a gender parity quota (Table 2, column 2). Even though the confidence intervals are large, we can rule out effect sizes larger than 22% in this variable

Examining individual categories of crimes against women, we find a similar conclusion of no statistically significant effect on rapes, kidnapping of women, dowry deaths, sexual assaults or domestic violence; the effect on sexual harassment is positive and marginally statistically significant (at 10% level). There is no consistent pattern in the estimated coefficients among these individual crime categories when examining the specification without time trends (Table 2, column 2): while kidnapping of women is reduced by the implementation of the gender parity quota, reports of dowry deaths and sexual harassment show an increase.

4.4. Robustness tests for the gender parity quota results

We conduct a number of robustness tests for these main results. In a difference-in-difference analysis, the two main threats to identification are state- and time-varying omitted variables, and differential pre-trends between states that enacted the gender parity quota and states that did not. In our main analysis, we have already controlled for a variety of state- and time-varying characteristics. Most importantly, we control for the presence of other gender-related political variables such as the presence of a woman Chief Minister, as well as the timing of the earlier one-third gender quota enactment (Table 2, column 5).

To examine the possibility of differential pre-trends being a potential contamination of our difference-in-difference design, we estimated period-by-period coefficients of the gender parity quota; these are shown in the event study graph in Figure 1. We find that none of the pre-reform coefficients are statistically significant, so that differential pre-trends are not an important concern in our setting. Consistent with our empirical results, we also find no statistically significant post-reform coefficients. In ongoing work, we are examining the robustness of our results to the possibility of heterogeneous treatment effects across early and late adopters of gender parity (see de Chaisemartin and D’Haultfoeuille, 2020).

We examine the effect of the gender parity quota on crimes against men (specifically, kidnappings) or on gender-neutral crimes such as property crimes (robbery, armed robbery, burglary and theft), crimes against public order (riots, arson, unlawful assembly) and economic crimes (cheating, counterfeiting, breach of trust). We find no statistically significant effect of the gender parity quota on any of these crime categories (Table A.6). While we may be concerned that the lack of an effect on crimes against women may be reflecting equal and opposite effects of different mechanisms, it is unlikely that those mechanisms would be operating the

same way for gender-neutral crimes. We feel it is more likely that increasing the fraction of women in local councils did not have any additional effects on crime.

4.4. Does the gender parity quota have a deterrence effect?

We proceed to examine whether other pieces of evidence are supportive of the presence of a deterrence effect. First, we examine more detailed data on gender-specific murder rates, since murder is the category of crime least subject to under-reporting and therefore the impact of reporting bias, if any, would be the least. If we expect the presence of women in political office to specifically deter crimes against women, we would expect to find a greater reduction in murders of women compared to murders of men. Data on gender of murder victims is available for years 2001 and later, enabling such a comparison. We do not find a statistically significant effect of gender parity quotas on either of the gender-specific murder rates (Table 3, Panel A).

Second, we examine data on arrest rates for crimes against women and other crimes (number of arrests per 1000 population). Again, we find no statistically significant effects on either of these variables (Table 3, Panel B), and the point estimates are also not consistent with the deterrence effect, since we see a slight increase in arrests for non-gender-based crimes and a decrease in arrests for crimes against women.

Finally, we examine whether gender parity quotas result in a greater fraction of women in the state police force or the greater presence of all-women police stations in the state.¹⁴ We should emphasize again that the elected women representatives in local councils do not have any formal jurisdiction over police staffing or organization, but could potentially lobby to higher level government

¹⁴ We obtain data on the number of all-women police stations in each state for the period 2000-2015 from Amaral, Bhalotra and Prakash (2019), who find that such all-women police stations can improve reporting of crimes against women.

officials for such changes. However, we find no evidence that such policies, which could have resulted in a deterrence effect on crimes against women, were more likely to be enacted in the post-parity period.

5. Women's Representation and Crimes Against Women in Indonesia

5.1. Empirical strategy

We compare crime rates across election areas with greater or lower representation:

$$(2) \quad y_{mdp} = \alpha + \beta \text{ShareFemale}_{mdp} + \gamma X_{mdp} + \varepsilon_{mdp}$$

where y_{mdp} is the number of crimes against women (per 100,000 population) in election area m of district d and province p , and ShareFemale_{mdp} is the fraction of women elected to the local council of election area m in the 2009 local council elections. X_{mdp} is a set of control variables, discussed further below.

For the NVMS data, our dependent variable is the average crimes per year over the period 2010-2014 to measure the impact of the women elected in the 2009 elections (who took office towards the end of the year). We prefer this cross-sectional specification because the geographical coverage of the data base was increasing over time, and this is the most efficient way to include the largest number of observations. As a partial test for the presence of pre-existing differences, we run a similar regression for the period 2005-2009 to see whether any relationships we observe in the 2010-2014 period are also reflected in the earlier period. Since the number of observations is much higher in the later period, we prefer the two separate OLS regressions to a combined difference-in-difference specification.

The key concern in such a specification is the potential for omitted variables bias. We control for this in two ways. First, we include district fixed effects in our control variables. Such a specification effectively compares election areas *within*

the same geographic district, thereby controlling for several types of potential local omitted variables such as geography, culture, prior political history etc. We also control for is the number of parties that contested elections in each election area, since such electoral competition could change the fraction of women elected. Note that such a within-district comparison will not capture effects stemming from women representatives passing legislation or changing budgetary decisions at the district level. This specification will, however, capture the combination of the reporting effect, the backlash effect and the local deterrence effect (e.g. if police are more active in investigating such crimes when there are more local women office-holders). In this sense, even though the local leaders in Indonesia have more *de jure* powers over the police than the women leaders in India, we are estimating the effects of their *de facto* presence rather than those *de jure* powers. Our second strategy is to conduct an instrumental variables analysis; details are provided in Section 5.2.

For the SUSENAS data, we conduct a similar analysis at the EA level, with the caveat that we only have information on whether the respondent (women and men) were victims of a violent crime, a property crime or other crime. To make the specification similar to the specification using NVMS data, we do separate OLS regressions for the period prior to the 2009 election (2008 and 2009 data) and the period after the election (2010-2012), and control for the number of parties that contested in election area d . To control for potential omitted variables bias in the SUSENAS data, we include province fixed effects as part of our control variables (in ongoing work, we are adding district fixed effects).

5.2. Instrumental variables strategy at election area level

To overcome any remaining issues of endogeneity bias, we propose an instrumental variables strategy based on specific features of the Indonesian election system. In particular, if a party wins enough votes in an EA to get only one seat in

the council, it is very unlikely to have a woman winner if women are placed lower on the party's candidate list. At the extreme, if no parties put women as their top candidate and no party wins more than one seat, there will no elected women in the council even if all parties are in compliance with the gender quota.

We therefore propose the “share of parties that win only one seat” as a possible instrument for the share of women in the local council. We verify several conditions needed to make this a plausible instrument. First, this is a common occurrence. In Indonesia's highly competitive political system, 86% of parties win exactly one seat in an EA, and no parties win more than two seats in 77% of our EAs. Second, women are significantly less likely to be listed as the top candidate on party lists. Our data shows that only 11% of women are listed as the first candidate in the party list, compared to 27% of men; only 16% of women candidates are listed second on party lists, compared to 20% of men. The effect of the gender quota is visible in the large number of women in the third position: 27% of women are listed as the third candidate, compared to only 11% of men (Figure A.5, panel A). Third, while voters can vote for specific candidates rather than for the party as a whole, in practice it is extremely rare for a candidate's vote share ranking to differ from their placement on the party list; the correlation between the two is a statistically significant 0.74. Figure A.5 (panel B) shows a monotonically increasing relationship between a candidate's position on the party list (x-axis) and their position on the vote share list (y-axis).

Finally, a larger number of parties obtaining only one seat may reflect a higher degree of political competition or other party or voter dynamics that could independently affect crimes against women. However, the data shows that the vote share dispersion (measured by the Herfindahl index of party vote shares in the EA) exhibits considerable overlap across places where more vs less parties win only one seat (Figure A.4).

We find that the proposed instrument (share of parties that obtain only one seat, as a fraction of all parties that win any seat) is a statistically significant predictor of the share of women elected from that EA (Table A.8).

5.3. Results Using NVMS Crime Data

Using the NVMS data and the regression specification (2) above, we find no statistically significant relationship between the share of women among elected representatives and reported crimes against women (Table 4, column 1). We find a negative and statistically insignificant coefficient for the number of women killed or injured in all conflict incidents, while the relationship is positive (but still insignificant) for the number of women kidnapped or sexually assaulted. When restricting to women killed or injured in incidents related to domestic violence or gender issues, the coefficients are even smaller in magnitude and continue to be statistically insignificant.

We examine whether these results change with the inclusion of controls for the number of political parties contesting in that election area or re-running the regression with the logarithm of the crime variables, which results in considerable loss of observations due to many zero observations in the data. We find that these do not change our conclusion that the share of women representatives does not change crime outcomes (Table 4, columns 2 and 3). We also examined whether there are non-linear effects of women's representation, by examining whether going from zero to one female representative, and from one to two or more, affects crime rates. We find no evidence of any statistically significant relationship (Appendix Table A.7). We also do not find any strong relationships between women's political representation and crimes against women in the period prior to the 2009 election, thereby reassuring us that our results are not driven by any pre-trends (Table 4, column 4). Finally, our IV results also show few significant results of women's representation in local councils. While the coefficients are generally

larger than the corresponding OLS coefficients, we only observe marginally significant reductions only for sexual assault and domestic violence.

Finally, we examine whether women's representation affects the number of crimes where the victims are men. This would reflect factors such as women's presence affecting the overall law and order situation, or a generalized deterrence effect (if any). However, in this case, we do not find any significant relationship between women's presence in local councils and the number of men who are killed, injured, kidnapped or sexually assaulted in the violent incidents covered by the NVMS database (Table A.9).

5.4. Results from SUSENAS Data

Similar to the results using NVMS data, our results using SUSENAS data also indicate no significant relationship between the presence of women in local councils and the probability of women being victims of violent crime (Table 5, column 1). However, we do find that women are significantly more likely to report being victims of property crimes in election areas that have more women representatives. This difference between the NVMS and SUSENAS can arise due to two reasons: first, NVMS is restricted to incidents of violence and does not cover cases of property crime unless there is violence involved, and second, NVMS is based on media reports and much of the crime experienced by citizens may not be reflected in the media. Some corroborative evidence on the reporting issue is provided by the fact that even though women report being more likely to be victims of property crimes in areas with more women representatives, they are not more likely to report these incidents to the police.

We find the higher level of crime victimization from property crimes is not robust to controlling for the number of parties that contest elections in the election area (Table 5, column 2) and these statistically significant relationships are not reflected in the data from before the election (Table 5, column 3). The district level

analysis shows a similar relationship, and the coefficient estimates from the 2008-2009 period are considerably smaller in magnitude compared to the coefficients from the 2010-2012 period (results available upon request).

Interestingly, we see that men are also more likely to report being the victims of property crimes in election areas and districts that elect a higher share of women (Table A.10). The estimated coefficient is statistically significant and also robust to controlling for the number of parties contesting elections, and the same patterns are not reflected in the period before the election, suggesting that the results are not driven by some time-invariant district characteristics. One potential explanation for the patterns of property crime is that the law-and-order machinery does not work quite as well under women leaders, perhaps due to their relative inexperience. Other hypothesized mechanisms, such as better reporting or greater backlash, should result in different patterns across the reports of women compared to men.

6. Conclusions

This paper examines the effects of women's political representation on crime along the intensive margin. We use data from the first and third largest democracies in the world, India and Indonesia, both of which have implemented political gender quotas at the level of the district (the third tier of governance, below federal and state). We exploit variations in the share of women representatives at the local level generated by the implementation details of the different gender quota systems.

Our results are strikingly similar across these widely different political, social and cultural contexts. There is no evidence of an intensive margin effect on crime. Our coefficient estimates are almost always statistically insignificant. We verify that these results are not due to countervailing differential pre-trends, or to a conflation of reporting effects with deterrence effects. Our results suggest that, conditional on the existence of a gender quota, there are no additional changes in

crime outcomes when the descriptive representation of women in the political system changes.

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Table 1
Impact of Gender Parity Quota on Fraction of Elected Women (India)

	<i>Dep var: Fraction of women elected to village councils</i>					
	No controls	Controls	State-specific time trends	Controls + state- specific time trends	Contol for 33% women reservation date	Year>=2002
	(1)	(2)	(3)	(4)	(5)	(6)
Post-parity	0.196 *** [0.036]	0.187 *** [0.025]	0.178 *** [0.034]	0.180 *** [0.036]	0.165 *** [0.017]	0.165 *** [0.029]
Post 33% quota					0.286 ** [0.112]	
R-squared	0.82	0.88	0.91	0.91	0.96	0.93
Observations	382	382	382	382	382	266
State and year FE	Y	Y	Y	Y	Y	Y
Controls		Y		Y	Y	Y
State trends			Y	Y	Y	Y

Notes: Standard errors in brackets, corrected for clustering at state-level. *, ** and *** indicate significant at 10%, 5% and 1% respectively. Each cell represents the coefficient on the post-parity gender dummy for the outcome variables with appropriate controls. Post-parity dummy equals 1 for years after the first local government elections with 50% reservations for women. Controls include literacy, urbanization, fraction female, fraction population in farming, per capita state domestic product, a dummy for a woman Chief Minister and number of police officers per 1000 population. All regressions are at state level.

Table 2
Equal Gender Representation and Crimes Against Women (India)

	Coefficient on post-parity dummy			
	No controls	Controls	Controls + state-specific time trends	
			Control for 33% reservation date	
	(1)	(2)	(3)	(4)
<i>Total crimes against women per 1000 women</i>	-0.179 [0.137]	-0.224 ** [0.099]	0.066 [0.067]	0.051 [0.067]
R-squared	0.9	0.92	0.96	0.96
Observations	589	589	589	589
<i>Rapes per 1000 women</i>	-0.175 [0.139]	-0.171 [0.133]	-0.116 [0.104]	-0.133 [0.102]
R-squared	0.83	0.85	0.92	0.92
Observations	589	589	589	589
<i>Kidnapping of women & girls per 1000 women</i>	-0.224 [0.147]	-0.408 *** [0.115]	-0.039 [0.119]	-0.056 [0.120]
R-squared	0.79	0.82	0.9	0.9
Observations	530	530	530	530
<i>Sexual assaults per 1000 women</i>	-0.039 [0.146]	0.108 [0.147]	0.022 [0.143]	0.006 [0.139]
R-squared	0.87	0.89	0.92	0.92
Observations	361	361	361	361
<i>Sexual harassment per 1000 women</i>	0.908 [0.567]	0.968 * [0.526]	0.769 * [0.397]	0.862 ** [0.373]
R-squared	0.71	0.73	0.83	0.84
Observations	341	341	341	341
<i>Domestic violence per 1000 women</i>	-0.11 [0.083]	-0.071 [0.068]	-0.068 [0.075]	-0.073 [0.079]
R-squared	0.86	0.9	0.94	0.94
Observations	361	361	361	361
State and year FE	Y	Y	Y	Y

Notes: All crime variables are in logs. Standard errors in brackets, corrected for clustering at state-level.

*, ** and *** indicate significant at 10%, 5% and 1% respectively. Each cell represents the coefficient on the post-parity gender dummy for the outcome variables with appropriate controls. Post-parity dummy equals 1 for years after the first local government elections with 50% reservations for women. Controls include literacy, urbanization, fraction female, fraction population in farming, per capita state domestic product, a dummy for a woman Chief Minister and number of police officers per 1000 population. See Appendix C for crime category definitions.

Table 3: Gender Parity Quotas and the Deterrence Effect (India)

	Coefficient on post-parity dummy			
	No controls	Controls	Controls + state-specific time trends	Contol for 33% reservation date
	(1)	(2)	(3)	(4)
Panel A: Gender-specific murder rates				
<i>Murders of women per 1000 women (log)</i>	-0.033 [0.073]	-0.018 [0.065]	-0.030 [0.063]	-0.046 [0.062]
Observations	285	285	285	285
<i>Murders of men per 1000 men (log)</i>	-0.064 [0.062]	-0.046 [0.054]	-0.063 [0.040]	-0.063 [0.041]
Observations	285	285	285	285
Panel B: Arrest rates				
<i>Arrests for crimes against women per 1000 pop (log)</i>	-0.215 [0.218]	-0.293 [0.209]	-0.104 [0.092]	-0.123 [0.088]
Observations	589	589	589	589
<i>Arrests for crimes not against women per 1000 pop (log)</i>	0.184 [0.243]	0.201 [0.231]	0.095 [0.084]	0.08 [0.077]
Observations	589	589	589	589
Panel C: Women in police				
<i>Fraction of women in state police</i>	0.005 [0.010]	0.008 [0.008]	0.009 [0.006]	0.009 [0.006]
Observations	529	529	529	529
<i># women police stations per million population</i>	-0.041 [0.044]	-0.044 [0.042]	-0.002 [0.060]	0.01 [0.062]
Observations	266	266	266	266

Notes: Standard errors in brackets, corrected for clustering at state-level. *, ** and *** indicate significant at 10%, 5% and 1% respectively. Each cell represents the coefficient on the post-parity gender dummy for the outcome variables with appropriate controls. Post-parity dummy equals 1 for years after the first local government elections with 50% reservations for women. Controls include literacy, urbanization, fraction female, fraction population in farming, per capita state domestic product, a dummy for a woman Chief Minister and number of police officers per 1000 population. All regressions include state and year fixed effects.

Table 4: Women's Presence in Local Councils and Crimes Against Women: NVMS Data (Indonesia)

	Control for			IV results	
	No controls	# parties	Pre-period		
	2010-2014	2010-2014	2005-2009	2010-2014	2005-2009
	(1)	(2)	(3)	(4)	(5)
<i>Women killed per 100,000 pop</i>	-0.0284	-0.0255	-0.0165	-0.853	-2.043
	(0.120)	(0.120)	(0.156)	(1.056)	(1.991)
Observations	1,659	1,655	879	1,640	879
R-squared	0.410	0.411	0.428		
<i>Women injured per 100,000 pop</i>	-0.105	-0.104	0.0448	-2.567	-1.241
	(0.110)	(0.110)	(0.195)	(1.638)	(2.753)
Observations	1,659	1,655	879	1,640	879
R-squared	0.539	0.540	0.502		
<i>Women kidnapped per 100,000 pop</i>	0.00890	0.00897	-0.0226	-0.119	-0.114
	(0.00685)	(0.00690)	(0.0348)	(0.0805)	(0.164)
Observations	1,659	1,655	879	1,640	879
R-squared	0.348	0.348	0.300		
<i>Women sexually assaulted per 100,000 pop</i>	0.152	0.169	0.877*	-6.409*	-0.694
	(0.177)	(0.176)	(0.459)	(3.356)	(3.751)
Observations	1,659	1,655	879	1,640	879
R-squared	0.683	0.687	0.492		
<i>Women killed in incidents of domestic violence per 100,000 pop</i>	-0.0286	-0.0269	0.0882	-0.703*	-0.646
	(0.0325)	(0.0323)	(0.0685)	(0.381)	(0.912)
Observations	1,659	1,655	879	1,640	879
R-squared	0.365	0.367	0.480		
<i>Women injured in incidents of domestic violence per 100,000 pop</i>	0.0187	0.0180	0.0811	-0.387	0.152
	(0.0417)	(0.0421)	(0.136)	(0.643)	(1.548)
Observations	1,659	1,655	879	1,640	879
R-squared	0.553	0.553	0.389		
District FE	Y	Y	Y		
Control for # parties who contest elections		Y	Y		
Control for # seats and Herfindahl index of vote shares				Y	Y

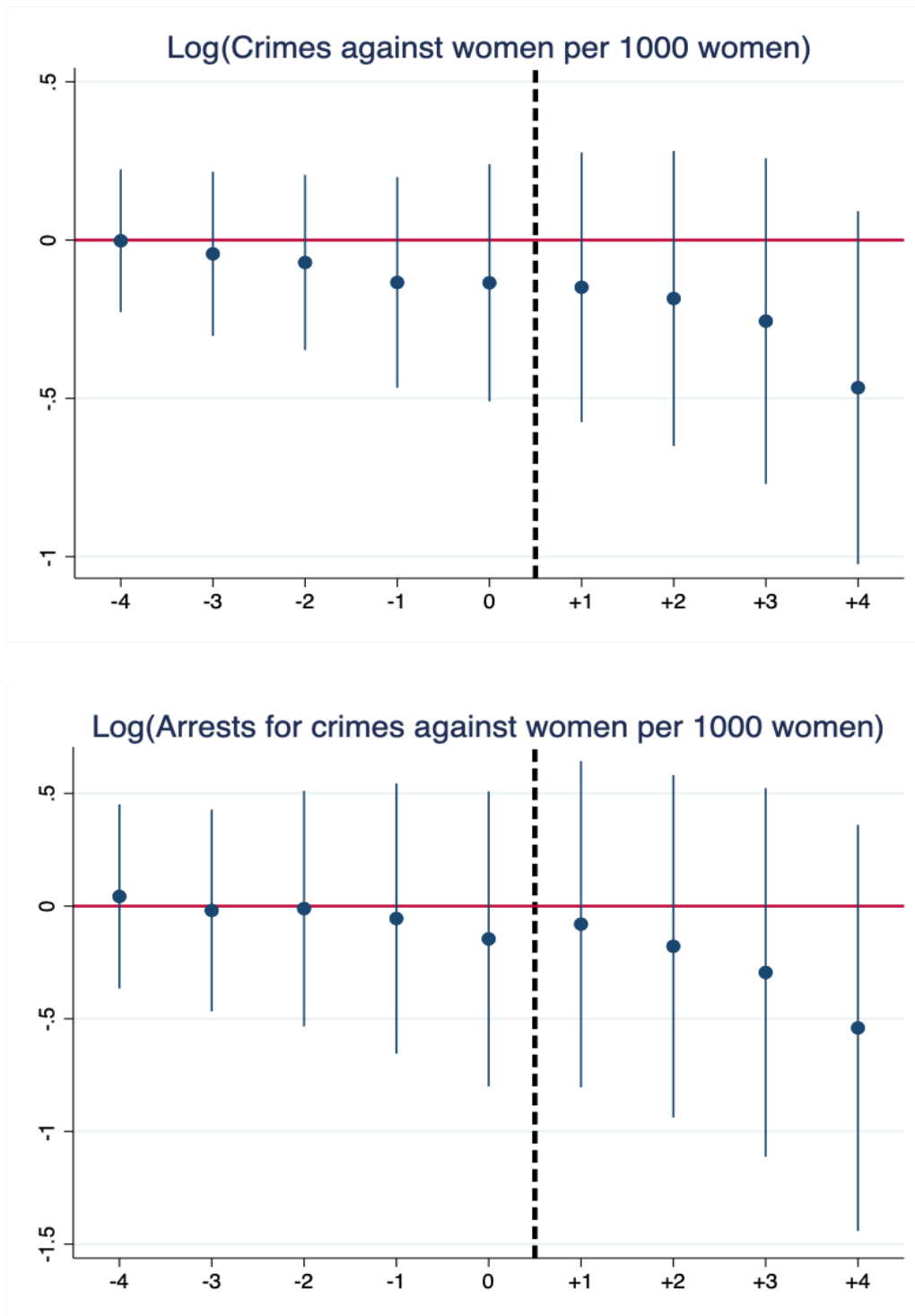
Notes: Standard errors in brackets, corrected for clustering at district level. *, ** and *** indicate significant at 10%, 5% and 1% respectively. Each cell represents the coefficient on the share of women representatives in the election area, for the outcome variables with controls as indicated. The instrument is the share of parties that win only one seat in the EA.

Table 5: Women in Local Councils and Crimes Against Women: Indonesia SUSENAS

	Control for		
	No controls	# parties	Pre-period
	2010-2012	2010-2012	2008-2009
	(1)	(2)	(3)
<i>Women victims of violent crime per 1000 women</i>	-0.0333 (0.113)	0.0768 (0.161)	0.0687 (0.0681)
R-squared	0.045	0.036	0.053
Observations	1,563	850	834
<i>Women victims of property crime per 1000 women</i>	8.057** (3.563)	6.230 (4.307)	0.571 (5.871)
R-squared	0.157	0.180	0.084
Observations	1,563	850	834
<i>Women victims of other crime per 1000 women</i>	1.252 (1.499)	0.164 (2.171)	-2.192 (3.902)
R-squared	0.048	0.069	0.050
Observations	1,563	850	834
<i>Fraction of women victims who report to police</i>	0.0287 (0.0504)	0.0620 (0.0662)	0.0323 (0.0332)
R-squared	0.036	0.056	0.042
Observations	1,409	785	810
Province fixed effects	Y	Y	Y
Control for # parties who contest elections		Y	Y

Notes: Robust standard errors in brackets. *, ** and *** indicate significant at 10%, 5% and 1% respectively.

Figure 1: Event Study Analysis of Gender Parity Implementation (India)



Each figure shows the coefficient estimate (difference between treatment and control) for dummies that equals one for 1, 2, 3, 4 (or more) years after the gender parity reform is passed, and also the coefficients on dummies that equal one for 1, 2, 3, 4 (or more) years prior to the gender parity implementation. Dashed vertical lines indicate the timing of the reform.

Gender Quotas and Crimes Against Women: Is There an Intensive Margin Effect?

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Appendix A: Additional Tables and Figures
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Table A.1
Summary Statistics: India

	#obs	Mean	S.D.	Min	Max
<u>Panel A: Crime data</u>					
Total crimes against women per 1000 women (1985-2015)	589	0.226	0.204	0.001	1.811
Rapes per 1000 women (1985-2015)	589	0.038	0.026	0.001	0.138
Kidnapping of women and girls per 1000 women (1988-2015)	530	0.039	0.033	0.002	0.268
Sexual assaults per 1000 women (1997-2015)	361	0.084	0.069	0.002	0.699
Sexual harassment per 1000 women (1995-2015)	361	0.016	0.023	0.000	0.180
Domestic violence per 1000 women (1997-2015)	361	0.135	0.105	0.014	0.692
Dowry deaths per 1000 women (1997-2015)	361	0.013	0.015	0.000	0.259
Kidnapping of men and boys per 1000 men (1988-2015)	520	0.016	0.021	0.001	0.178
Crimes against property per 1000 pop (1985-2015)	589	0.442	0.219	0.099	1.815
Crimes against public order per 1000 pop (1985-2015)	589	0.165	0.309	0.000	2.412
Economic crimes per 1000 pop (1985-2015)	589	0.066	0.043	0.017	0.331
Murders of women per 1000 women (1999-2015)	301	0.015	0.006	0.004	0.053
Murders of men per 1000 men (1999-2015)	301	0.045	0.019	0.015	0.106
<u>Panel B: Police activity (1985-2015)</u>					
Arrests for crimes against women per 1000 pop	589	0.193	0.131	0.004	0.841
Arrests for crimes other than those against women per 1000 pop	589	6.485	4.781	1.075	26.560
Fraction of women police (1988-2015)	529	0.030	0.029	0.000	0.186
<u>Panel C: Control variables (1985-2015)</u>					
Per capita state GDP ('000 rupees)	589	31.35	35.72	2.31	179.47
Fraction female population	589	0.486	0.011	0.463	0.523
Fraction urban	589	0.260	0.102	0.080	0.564
Fraction literate	589	0.542	0.130	0.269	0.859
Fraction with farming as main activity	589	0.561	0.133	0.142	0.832
Woman Chief Minister (dummy)	589	0.080	0.271	0.000	1.000
Police strength per 1000 population (1985-2015)	589	1.413	0.574	0.381	5.402

Table A.2
Summary Statistics: Indonesia

	#obs	Mean	S.D.	Min	Max
<u>Panel A: Crime outcomes per 100,000 population, NVMS (2010-2014 election area average)</u>					
Women killed	1,659	0.11	0.35	0.00	6.64
Women injured	1,659	0.24	0.51	0.00	6.77
Women kidnapped	1,659	0.00	0.03	0.00	0.43
Women sexually assaulted	1,659	0.38	0.95	0.00	20.70
Women killed in domestic violence & gender issues	1,659	0.03	0.14	0.00	2.68
Women injured in domestic violence & gender issues	1,659	0.07	0.21	0.00	3.87
Men killed	1,659	0.36	1.05	0.00	21.57
Men injured	1,659	1.44	5.28	0.00	145.20
Men kidnapped	1,659	0.01	0.11	0.00	3.98
Men sexually assaulted	1,659	0.05	0.54	0.00	15.04
<u>Panel B: Crime outcomes per 1000 women or men, SUSENAS (2010-2012 district average)</u>					
Women victims of violent crime	1,588	0.06	0.50	0.00	10.53
Women victims of property crime	1,588	16.42	15.85	0.00	154.93
Women victims of other crime	1,588	3.69	6.26	0.00	112.68
Fraction of women victims who report to police	1,588	0.20	0.24	0.00	1.00
Male victims of violent crime	1,588	0.07	0.59	0.00	12.05
Male victims of property crime	1,588	8.16	9.62	0.00	102.22
Male victims of other crime	1,588	2.02	4.08	0.00	63.49
Fraction of male victims who report to police	1,588	0.18	0.28	0.00	1.00
<u>Panel C: Local council elected representatives (district level, 2009)</u>					
# representatives	447	34.53	10.70	6	67
Fraction of female representatives	447	0.124	0.07	0	0.367
# parties that nominated candidates	447	32.95	4.57	18	46
<u>Panel D: Local council elected representatives (election area level, 2009)</u>					
# representatives	1,775	8.67	2.53	3	25
Fraction of female representatives	1,775	0.125	0.12	0	0.75
# parties that nominated candidates	1,766	29.14	6.01	12	40

Table A.3
Dates of Implementation of One-Third and One-Half Quotas Across States of India

Year of first election with 33% reservation for women		Year of first election with 50% reservation for women	
	#states		# states
1987	1	2006	1
1991	1	2008	1
1992	2	2010	6
1993	1	2012	2
1994	3	2013	3
1995	7	2015	1
1996	1		
2001	1		
2002	1		
2010	1		

Notes: See data sources in Appendix B.

Table A.6
Equal Gender Representation and Crimes Not Targeted Against Women (India)

	Coefficient on post-parity dummy			
	No controls	Controls	Controls + state-specific time trends	
			Control for 33% reservation date	
	(1)	(2)	(4)	(5)
<i>Kidnapping of men and boys per 1000 men</i>	0.001 [0.212]	0.009 [0.156]	-0.209 [0.159]	-0.195 [0.156]
R-squared	0.7	0.71	0.81	0.81
Observations	520	520	520	520
<i>Crimes against property per 1000 pop</i>	-0.183 [0.147]	-0.171 [0.117]	-0.054 [0.074]	-0.046 [0.070]
R-squared	0.73	0.76	0.9	0.9
Observations	589	589	589	589
<i>Crimes against public order per 1000 pop</i>	-0.125 [0.191]	-0.175 [0.198]	-0.123 * [0.069]	-0.126 * [0.069]
R-squared	0.87	0.88	0.92	0.92
Observations	589	589	589	589
<i>Economic crimes per 1000 pop</i>	0.084 [0.152]	0.098 [0.131]	0.156 * [0.079]	0.144 * [0.081]
R-squared	0.71	0.75	0.86	0.86
Observations	589	589	589	589
State and year FE	Y	Y	Y	Y

Notes: All crime variables are in logs. Standard errors in brackets, corrected for clustering at state-level. *, ** and *** indicate significant at 10%, 5% and 1% respectively. Each cell represents the coefficient on the post-parity gender dummy for the outcome variables with appropriate controls. Post-parity dummy equals 1 for years after the first local government elections with 50% reservations for women. Controls include literacy, urbanization, fraction female, fraction population in farming, per capita state domestic product, a dummy for a woman Chief Minister and number of police officers per 1000 population. See Appendix C for crime category definitions.

Table A.7**Women's Representation and Crimes Against Women: Is There a Threshold Effect? (Indonesia)**

	<i>Women killed</i>	<i>Women injured</i>	<i>Women kidnapped</i>	<i>Women sexually assaulted</i>	<i>Women killed in incidents related to domestic violence and gender issues</i>	<i>Women injured in incidents related to domestic violence and gender issues</i>
	(1)	(2)	(3)	(4)	(5)	(6)
One woman elected from election area	-0.0348 (0.0302)	-0.0360 (0.0329)	0.00226 (0.00207)	0.0336 (0.0594)	-0.0173* (0.00914)	-0.00334 (0.0133)
Two or more women from election area	-0.00556 (0.0370)	-0.0169 (0.0353)	0.000507 (0.00170)	0.0266 (0.0498)	-0.00842 (0.00936)	-0.00195 (0.0123)
R-squared	1,655	1,655	1,655	1,655	1,655	1,655
Observations	0.412	0.540	0.348	0.687	0.368	0.553

Notes: Standard errors in brackets, corrected for clustering at district level. *, ** and *** indicate significant at 10%, 5% and 1% respectively. Crimes variables are number of crimes per 100,000 people, calculated from NVMS data. All regressions control for district fixed effects and the number of parties contesting elections in that election area.

Table A.8: First Stage of IV Strategy for Indonesia

<i>Dep var: Fraction of women elected to local</i>				
Share of parties that win only 1 s	-0.0456** (0.0227)	-0.0676** (0.0270)	-0.0286 (0.0333)	-0.0274 (0.0371)
Total seats in EA		-0.00195 (0.00141)		-0.000856 (0.00198)
Herfindahl index of party vote sh		-0.0407 (0.0535)		0.0767 (0.136)
District FE			Y	Y
Observations	1,759	1,759	1,759	1,759
R-squared	0.003	0.004	0.311	0.312

Notes: Standard errors in parantheses, corrected for clustering at district level. *, ** and *** indicate significant at 10%, 5% and 1% respectively.

Table A.9**Women's Presence in Local Councils and Crimes Against Men: NVMS Data (Indonesia)**

	Control for		
	No controls	# parties	Pre-period
	2010-2014	2010-2014	2005-2009
	(1)	(2)	(4)
<i>Men killed per 100,000 pop</i>	-0.0174 (0.254)	0.423 (0.290)	-0.471 (0.562)
R-squared	1,655	1,157	1,659
Observations	0.577	0.735	0.510
<i>Men injured per 100,000 pop</i>	-0.471 (0.562)	-0.441 (0.560)	-0.181 (0.938)
R-squared	1,659	1,655	879
Observations	0.510	0.511	0.465
<i>Men kidnapped per 100,000 pop</i>	-0.0106 (0.0131)	-0.00784 (0.0119)	-0.212 (0.378)
R-squared	1,659	1,655	879
Observations	0.338	0.350	0.463
<i>Men sexually assaulted per 100,000 pop</i>	-0.0529 (0.0713)	-0.0553 (0.0713)	-0.230 (0.280)
R-squared	1,659	1,655	879
Observations	0.310	0.316	0.334
District FE	Y	Y	Y
Control for # parties who contest elections		Y	Y

Notes: Standard errors in brackets, corrected for clustering at district level. *, ** and *** indicate significant at 10%, 5% and 1% respectively. Each cell represents the coefficient on the share of women representatives in the election area, for the outcome variables with controls as indicated.

Table A.10**Women's Presence in Local Councils and Crimes Against Men: Indonesia SUSENAS**

	Control for		
	No controls	# parties	Pre-period
	2010-2012	2010-2012	2008-2009
	(1)	(2)	(4)
<i>Male victims of violent crime per 1000 men</i>	-0.0300 (0.0928)	-0.0504 (0.131)	-0.0752 (0.0471)
R-squared	0.029	0.023	0.045
Observations	1,563	850	834
<i>Male victims of property crime per 1000 men</i>	10.58*** (2.566)	11.85*** (3.740)	0.0770 (4.495)
R-squared	0.074	0.113	0.036
Observations	1,563	850	834
<i>Male victims of other crime per 1000 men</i>	0.649 (0.925)	0.875 (1.563)	-0.923 (2.743)
R-squared	0.033	0.049	0.048
Observations	1,563	850	834
<i>Fraction of male victims who report to police</i>	0.0444 (0.0652)	0.0644 (0.0887)	0.0651 (0.0494)
R-squared	0.039	0.054	0.056
Observations	1,236	705	794
Province fixed effects	Y	Y	Y
Control for # parties who contest elections		Y	Y

Notes: Robust standard errors in brackets. *, ** and *** indicate significant at 10%, 5% and 1% respectively. Each cell represents the coefficient on the share of women representatives in the election area, for the outcome variables with controls as indicated.

Figure A.1: India Governance Structure

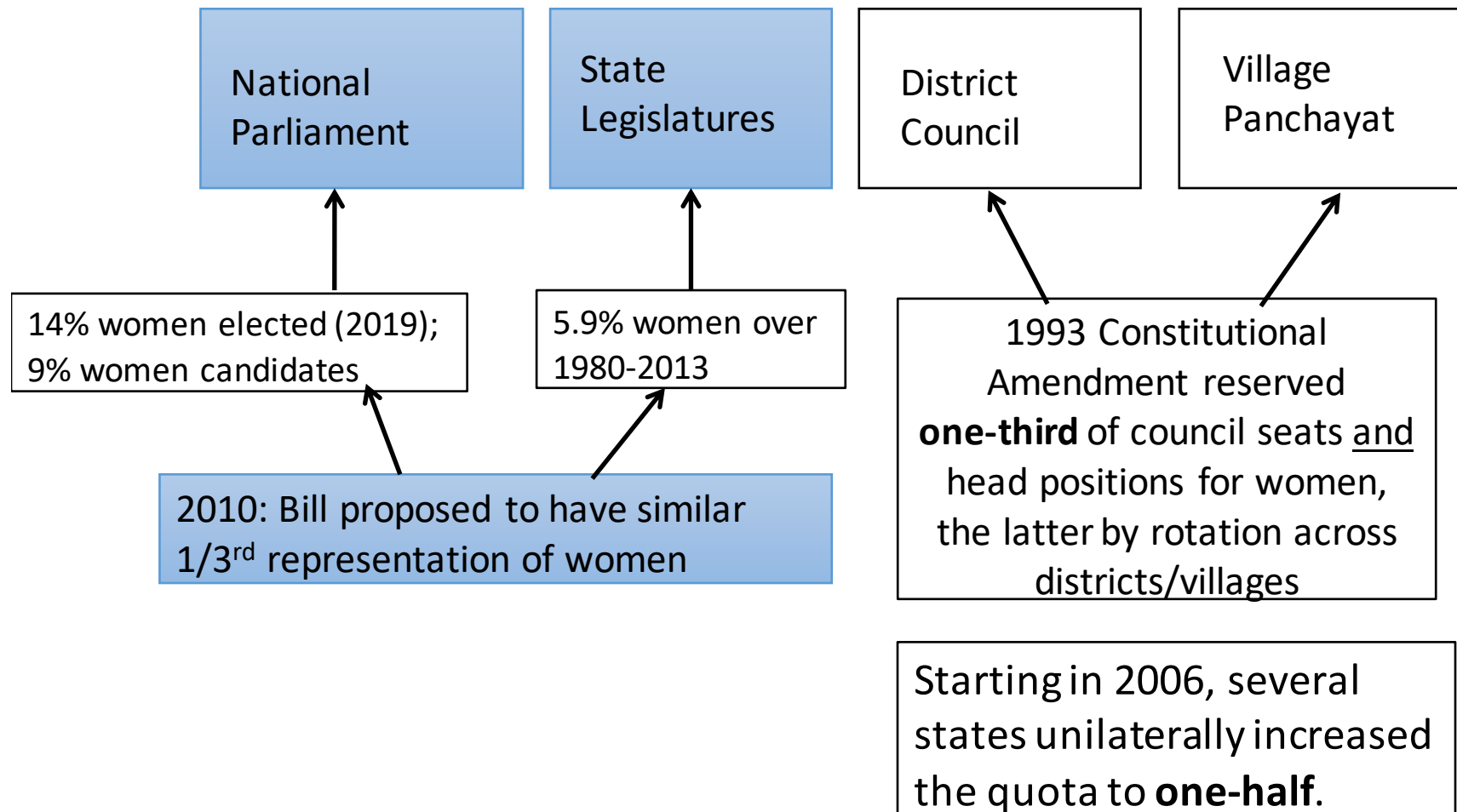


Figure A.2: Indonesia Governance Structure

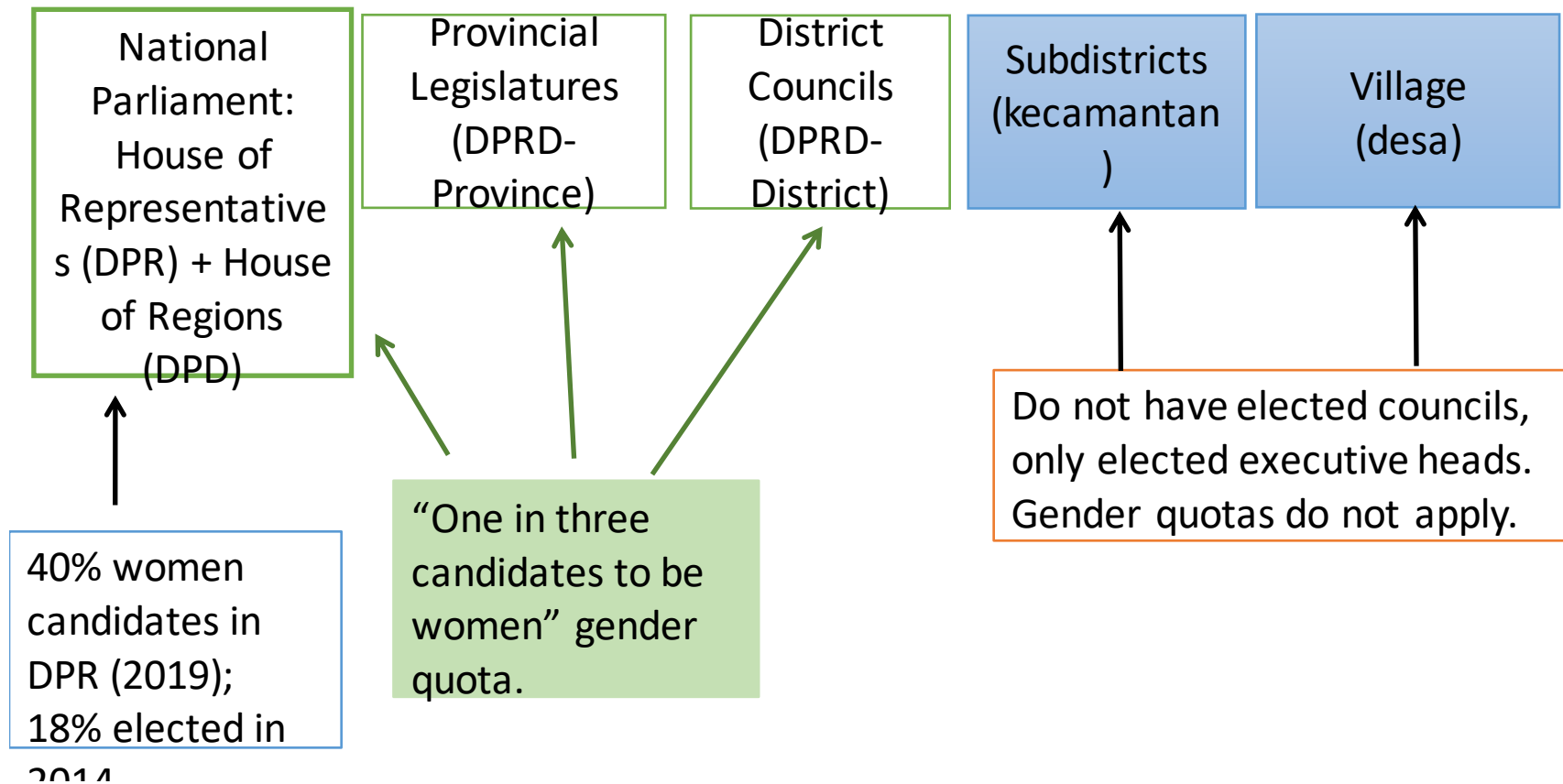


Figure A.3
Theoretical Framework

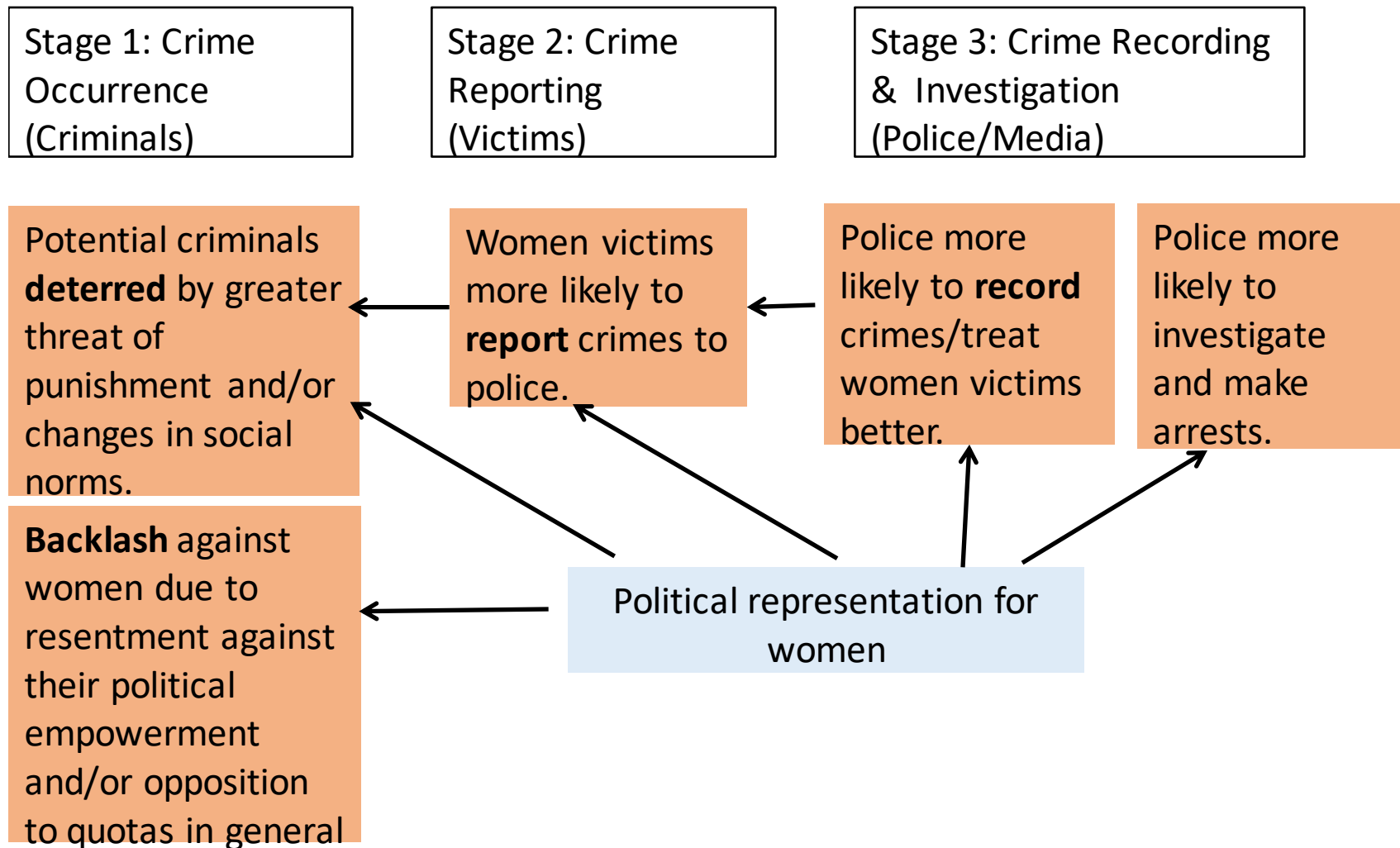


Figure A.4

Herfindahl Index of Vote Shares Across EAs where Different Number of Parties Win Exactly One Seat

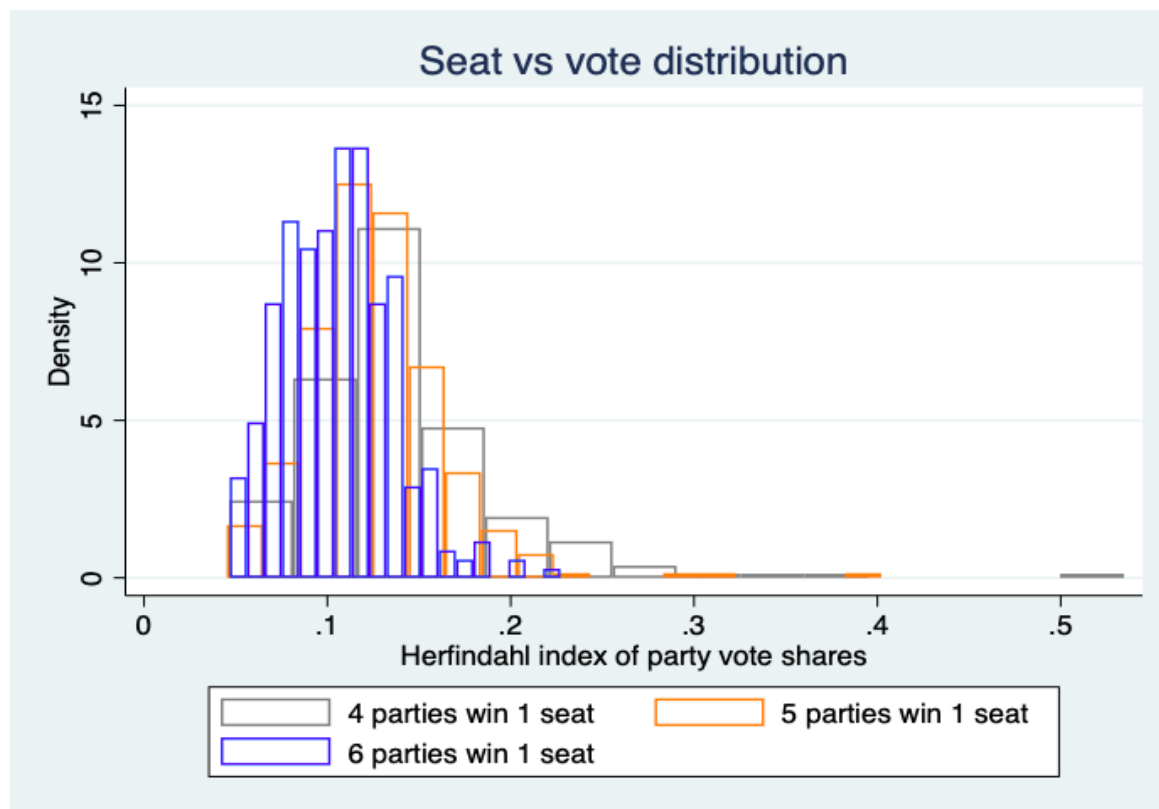
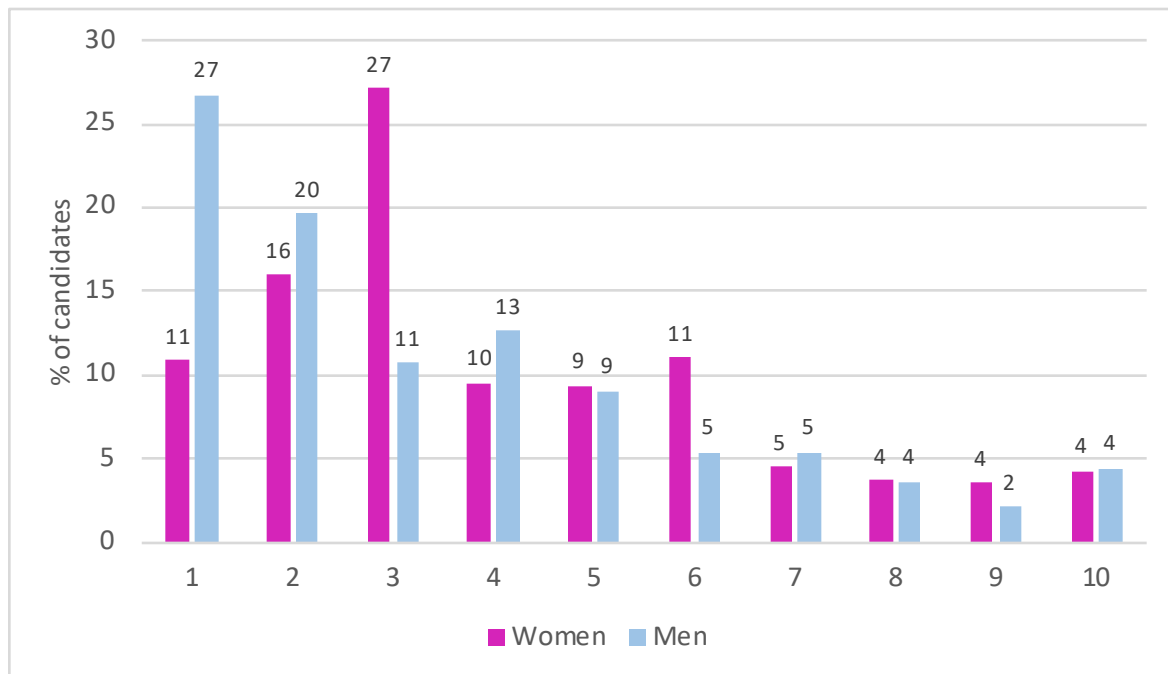


Figure A.5
Party List Positions of Women and Men Candidates

Panel A: Women are placed lower on party lists



Panel B: Party list position is highly predictive of vote share position

