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**The Power of Political Voice: Women's Political Representation and
Crime in India**

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**THE POWER OF POLITICAL VOICE:
WOMEN'S POLITICAL REPRESENTATION AND CRIME IN INDIA ***

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Abstract

Using state-level variation in the timing of political reforms, we find that an increase in female representation in local government induces a large and significant rise in documented crimes against women in India. Our evidence suggests that this increase is good news, as it is driven primarily by greater reporting rather than greater incidence of such crimes. In contrast, we find no increase in crimes against men or gender-neutral crimes. We also examine the effectiveness of alternative forms of political representation: large scale membership of women in local councils affects crime against them more than their presence in higher level leadership positions.

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1. Introduction

One of the most fundamental aspects of civil society is the assurance of personal safety and fair treatment under the law for *all* citizens. However, protecting the rights of disadvantaged groups, such as population minorities and politically under-represented citizens, has remained a challenge in many developing countries, and even in developed ones. Individuals from such groups are often the target of a whole gamut of injustices, ranging from everyday indignities such as verbal abuse and discrimination to serious crimes including murder and even genocide. Concerned governments have considered a broad range of policies to prevent or redress such injustices, including welfare support, affirmative action quotas in education and jobs, legal protection and allocation of more law enforcement resources. Our paper is the first to examine the consequences of a very different policy reform on crime outcomes: greater political representation of disadvantaged groups in elected office.

Our paper makes three major contributions. First, we find strong and surprising evidence that political representation is an important means of providing voice to disadvantaged groups within the criminal justice system. The introduction of mandated political representation for women leads to a large and statistically significant increase in the documented number of crimes against women. We argue that this is good news for women's empowerment: considerable evidence suggests that this rise is primarily due to higher reporting, rather than an increase in the actual incidence of crime. Second, we shed light on the political architecture that maximizes female voice. It is the presence of women in the broad base of political representatives, rather than in leadership positions at higher levels of governance per se, that generates a more powerful impact on reporting of crimes. Finally, our work highlights how biases in reporting may lead to misleading interpretation of the underlying reality with respect to crime. Reporting issues have long been regarded as a serious shortcoming of developing

country crime data (Soares, 2004). Our work illustrates this in a concrete and important context – albeit with favorable consequences.

How could political representatives from disadvantaged groups affect their crime outcomes? For one, members of a minority group are likely to have different preferences with regard to policy formulation and implementation, since their life experiences would give them a different perspective on justice.¹ In turn, this could influence the functioning of the police or law enforcement agencies, which may now be more responsive to the concerns of the disadvantaged groups. Second, the presence of minority group individuals in public office could alter the nature of interaction between the advantaged and disadvantaged groups, by changing perceptions or the degree of social bias against the latter.² Finally, observing members of their own group in positions of public office could change the attitudes and self-confidence of the disadvantaged group.³ In a broader sense, political representatives from disadvantaged groups could reduce injustice because they help to articulate the voice of their group members, as described by Hirschman (1970).

In practice, accurately measuring the impact of minority group public officials on crime outcomes is difficult, because the assignment of minority group members to particular positions is often endogenous to the outcomes of interest. For instance, police officers of either race may be assigned to a particular locality

¹ As the recent U.S. Supreme Court appointee Sonia Sotomayor observed, “...Our experiences as women or people of color affect our decisions...Hence, one must accept the proposition that a difference there will be by the presence of women or people of color on the bench. Personal experiences affect the facts that judges choose to see.” (Sotomayor, 2002).

² For instance, in the U.S. context, the U.S. Kerner Commission (1968) endorsed the use of a mixed race police force as a tool to tackle law and order issues and inter-racial tensions. In India, Beaman et al (2009) demonstrate that the perceptions of women as leaders become more positive after men are exposed to women in leadership roles.

³ Jensen and Oster (2009) show that this role model effect is quite strong in India: exposure to strong women characters on cable television reduces women’s reported tolerance for domestic violence and increases their decision-making authority in the household. La Ferrara et al (2008) also show strong role model effects of television characters on Brazilian women.

because of its specific racial composition or crime conditions, which may confound any causal inference.⁴ A minority individual's election may reflect the changing preferences of the electorate, or the changing social status of previously disadvantaged groups, which may directly influence crimes committed against such groups.

In our paper, we are able to address this endogeneity issue by taking advantage of a unique, countrywide policy experiment in India. In 1993, a constitutional amendment made it mandatory for Indian states to set aside one-third of all positions in local government councils for women.⁵ The amendment also mandated reservation for other marginalized groups in proportion to their population ratio (members of Scheduled Castes and Scheduled Tribes).⁶ It is one of the largest such experiments implemented in the political arena.⁷ Our analysis exploits the fact that the legislation, which significantly increased female and lower caste representation in local leadership positions across India, was implemented at varying dates across Indian states. We can thus construct difference-in-difference estimates of the impact of political representation for women and lower castes on crimes against them.

⁴ For instance, while the policy of a mixed race police force has been widely implemented in the United States, the evidence on how it has affected crime outcomes is mixed. See Donohue and Levitt (2001a) for details.

⁵ This represents a substantial increase in the representation of women in political office. For instance, in state legislatures where there are no such mandates, only 5% of state legislators were women over the period 1985-2007. A proposal to extend such one-third political representation to women in state and national legislatures is under consideration by the Indian parliament.

⁶ The Scheduled Castes are communities that have historically been at the bottom of the Hindu caste hierarchy; they suffered systematic economic and social discrimination including being considered "untouchable." Scheduled Tribes include communities that have traditionally been outside the Hindu caste system.

⁷ A number of countries, including Rwanda, Tanzania, Sierra Leone and the Philippines, now have mandated quotas for women's representation in national or subnational elected bodies (see <http://www.quotaproject.org> for details). Several European political parties and governments in some Latin American countries have minimum quotas in their candidate lists (Norris, 2001). See Pande and Ford (2011) for a comprehensive review of the effects of female leadership quotas on a range of outcomes.

We find that the introduction of mandated political representation for women leads to a large and statistically significant increase in the number of reported crimes against women. Across all categories, documented crimes against women rose by 44%, while rapes per capita rose by 23% and kidnapping of women showed a 13% increase. These results are robust to the inclusion of a host of controls for economic, demographic and political variables, the strength of the police force and state-specific time trends. We note that there is no significant effect on any categories of crime not specifically targeted against women – such as kidnapping of men, crimes against property or crimes against public order. This strongly suggests that there is no overall deterioration in law and order conditions or policy changes other than the political representation that are driving our results. These findings are somewhat surprising, and potentially distressing.

In considering possible explanations, one obvious hypothesis is that crimes against women rose sharply because of a backlash against women by those who resent greater female political power (the *retaliation* hypothesis). This explanation, while plausible, runs somewhat counter to the increased (if gradual) acceptance of women in the public arena in India, as documented by Beaman et al (2009). Besides, it seems equally plausible that a woman leader would *deter* potential criminals, since she is likely to be more sympathetic to women's concerns. Alternatively, it could be the case that greater participation in public life exposes women to situations where potential criminals have the opportunity to harm them (the *increased crime opportunities*).

On the other hand, the surge in reported crimes may simply reflect improvements in reporting rather than a rise in actual crimes (the *reporting* hypothesis). The presence of women leaders could influence reporting of crimes against women in several ways. First, it could make the police more responsive to crimes against women. Further, women victims who encounter more sympathetic women leaders and (hence) more responsive police would be more encouraged to

report crimes. In other words, thinking about the incentives of the police and victims suggests that the rise in documented crimes against women may actually be good news: the observed increase in crime could be driven by greater reporting of crimes by victims and greater recording of such reports by the police -- rather than the actual occurrence of more crimes. Further analysis of our data offers several pieces of evidence that support this “good news” *reporting* hypothesis over the “bad news” *retaliation* or *increased crime opportunities* hypothesis.

For one, we find evidence of greater police responsiveness to crimes against women after the reservation policy was implemented. The number of arrests increases significantly, particularly for cases dealing with kidnapping of women, with no decline in the quality of police effort.⁸ This has likely encouraged more reporting by women victims. Survey data on interactions with police show both a higher degree of satisfaction and lower bribes paid by women when their village council was headed by a woman.

Second, for crimes where reporting biases are expected to be minimal, such as murders or suicides of women, we find no significant increases after the introduction of women’s political reservation.⁹ Data from a government report show no differences in women’s freedom of mobility and interaction with strangers between villages with male and female leaders. If backlash against women were driving the story, we would expect to see increases in violent crime, or at least in restrictions to women’s mobility in women-headed villages.

Third, women’s exposure to potential crime situations would be a function of the time they spend outside their home. Using women’s labor force participation as a measure of such exposure, we find little support for the *increased crime opportunities* hypothesis. There has been hardly any movement

⁸ The quality of police effort is measured by the percentage of cases where the prima facie evidence for arrests was upheld by a magistrate.

⁹ Deaths are hard to hide, irrespective of the reasons.

in women's labor force participation in India since the early 1990s, both in rural and urban areas.

Fourth, we compare changes in crime rates against females across districts with varying levels of women's empowerment (proxied by sex ratios and female literacy rates) as we would expect the potential "backlash" effect to be lower in places where women are more empowered. We find that the rise in documented crimes after reservation was implemented was larger in places where women are more literate to begin with, a finding inconsistent with a "backlash" interpretation. Further, we find that the number of years since the reform has a non-linear effect on crimes against women: crime rates increase the most in the first few years, but they tend to decrease with greater length of exposure to the reform. This evidence is consistent with the interpretation that increased police (and possibly victim) responsiveness to women leaders resulted in a deterrence effect on potential criminals against women, in the long run.

Finally, we find very similar effects of mandated representation for low castes in local councils, namely a significant increase in documented crimes specifically targeted on the basis of caste identity.

Having established that mandated political representation for women results in a large increase in reporting of crimes against them, we now address an important related question: At what level of governance does political representation have a greater impact? We exploit a specific feature of the mandated representation system in India: in addition to village presidents, as well as village and district council member positions, one-third of district council chairperson positions were also reserved for women, by rotation across districts. Using district-level crime data, we can compare districts with and without women chairpersons to estimate the marginal effect of having a woman district chairperson, over the cumulative impact of all the lower level representatives mentioned earlier. We find that the bulk of the impact on crime comes from the

latter set of women representatives, rather than female district chairpersons. Our results imply that the presence of women representatives at the lowest level of governance, where they have greatest proximity to potential crime victims, is more important in giving voice to women than their presence in higher-level leadership positions.

Our paper brings together two streams of literature in political economy, crime and development. A few papers have examined crimes against specific sections of society (African Americans: Donohue and Levitt, 2001a) or against women (in Africa: Miguel, 2005; in India: Sekhri and Storeygard, 2010; in the US: Stevenson and Wolfers, 2006; Aizer and Dal Bo, 2009; Iyengar, 2009; Aizer, 2010),¹⁰ but none have examined the role of political power of minorities on crime outcomes against them. There is also an extensive literature on the socio-economic determinants of crime, ranging from local inequality and economic shocks to peer effects and family structure.¹¹ A specific policy measure, whose impact on crime has been widely examined, is increased police hiring (Di Tella and Schargrodsky, 2004; Levitt, 1997; Draca, Machin and Witt, 2011).

A second stream of literature has examined the effect of increased political representation for minority groups on policy making and attitudes.¹² Many of the

¹⁰ Miguel (2005) studies the effect of economic shocks on witch-killing; Sekhri and Storeygard (2010) looks at the effects of natural disasters on crimes against women; Donohue and Levitt (2001a) examine the link between the racial profile of police officers and the racial pattern of arrests. Stevenson and Wolfers (2006) study the impact of divorce laws on violence against women, Aizer and Dal Bo (2009) investigate the effect of prosecution no-drop policies on reporting of domestic violence, while Aizer (2010) examines the effect of women's relative wages. Iyengar (2009) examines the effect of mandatory arrest laws for domestic violence, and finds that it leads to greater under-reporting of less serious incidents, and consequently a rise in the number of homicides.

¹¹ See, among others, Kelly (2000); Donohue and Levitt (2001b); Bloch and Rao (2002); Demombynes and Ozler (2005); Fafchamps and Minten (2006).

¹² Most studies find significant positive effects of women or women-friendly leaders on female-oriented policies (Chattopadhyay and Duflo, 2004; Powley, 2007; Washington, 2008; Clots-Figueras, 2011), as well as improved attitudes towards women leaders (Beaman et al, 2009). Similarly increased representation of disadvantaged castes in political office has been found to bring greater benefits for these castes (Pande, 2003; Besley et al, 2007; Bardhan et al, 2010). A

studies analyzing the Indian case compare outcomes across villages reserved for a female (or minority) council president and those that are not; i.e. they do not estimate the impact of increased representation among council members of the village council but examine only the effect of the village council leader.¹³ Our study, in contrast, focuses precisely on the impact of the change in the composition of local councils by comparing crime rates before and after the implementation of reservation across Indian states. We also consider the effects of the identity of council leaders at the *district* level.¹⁴ We find that having a female district council head has a much smaller marginal effect, compared to the overall effect of increased mandated representation of women among the members of the councils.

The rest of the paper proceeds as follows. Section 2 provides institutional details of the criminal justice system and mandated political representation in India, focusing specifically on the reasons for the variation in policy implementation dates across Indian states. Section 3 describes our data and empirical strategy, and Section 4 presents our main results. Section 5 discusses possible interpretations of these results, and presents evidence to distinguish between the reporting and the retaliation hypotheses. Section 6 examines the effect of the reservation of district leadership positions for women, and Section 7 concludes.

few recent studies, however, have challenged these findings (Rajaraman and Gupta, 2010; Bardhan et al, 2010; Dunning and Nilekani, 2010).

¹³ The empirical strategy of these studies, which relies on the cross-sectional variation in the reservation status of the council leader position, does not permit the estimation of the impact of increased representation among council members as one-third of member positions are reserved for women in all village councils.

¹⁴ Since village level crime data are not available, we are unable to examine the impact of having a female leader at the village council level.

2. Mandated Political Representation of Women and Disadvantaged Castes in India

2.1 Women's Socio-Economic Status and Political Representation

Women, as well as Scheduled Castes (SCs) and Scheduled Tribes (STs), are particularly disadvantaged sections of Indian society. Women were significantly under-represented in political institutions in India, accounting for only 10% of the membership of national legislatures in 2009. Over the period 1985-2007, only 5.5% of state legislators on average were women. Women were also significantly disadvantaged in terms of human development. In 2007, India was ranked 114 out of 182 countries on the Gender Development Index of the UNDP and had only 940 women for every 1000 men in the 2011 census. The *Economist* magazine estimated the number of “missing women” in India to be greater than 100 million in 2009. Only 65% of women in India were literate in 2011, compared with 82% of men. Similarly, the literacy rates for SCs and STs were 55% and 47% respectively in 2001, compared to the nationwide average of 65%. Previous studies have also documented that members of the SCs and STs have significantly lower access to public goods such as health and education facilities (Banerjee and Somanathan, 2007).

2.2 Mandated Political Representation in Local Councils

In April 1993, the 73rd Amendment to the Indian constitution came into force. This Act required each state to set up a three-tier system of local government, comprising village, intermediate and district level governance bodies, collectively known as the *Panchayati Raj*.¹⁵ All members of these local bodies were to be directly elected by the people every five years, and the Act provided for the establishment of State Election Commissions to conduct such elections. Twenty-

¹⁵ Certain small states were required to set up only two-tier systems of local government.

nine areas of administration, including decisions over health and education services, roads, sanitation and other local services were to be devolved to these local government bodies. State Finance Commissions were set up to provide recommendations on revenue-sharing and making grants to these local government institutions. The Act thus provided for a considerable degree of political, administrative and fiscal decentralization to the local bodies.¹⁶

Two further provisions were made to strengthen the representation of political minorities in these local bodies. At least one-third of all council seats at the village, intermediate (sub-district) or district level were required to be filled by women, and seats were also to be reserved for SC and ST communities in proportion with their population in the village, sub-district or district level. The positions of chairpersons of these local bodies were also to be reserved for women and members of the SCs and STs. The chairperson reservations would function by rotation, i.e. in each election cycle, one-third of the districts would have their chairperson position reserved for women, and another set of districts would have this reservation in the next election cycle. Similar provisions were made for urban local bodies as well.

All states amended existing laws or passed new laws to be compliant with the 73rd Amendment within one year.¹⁷ Elections were eventually held by all states, though there is considerable variation in the timing of elections across states. Of the many components of the new law, the most salient effects on crime are likely to come from the change in the gender (and caste) composition of local

¹⁶ The village-level governing bodies (Gram Panchayats) have been known to exist in India since ancient times. However, their real power, effectiveness and representativeness have varied considerably over time. Ghatak and Ghatak (2002) argue that prior to the 1990s, the *Panchayati Raj* was not generally effective: elections were not held, and the Panchayats did not assume any active role.

¹⁷ The exceptions are Delhi, which has passed no *Panchayati Raj* legislation, Jammu & Kashmir which did not explicitly pass legislation but amended the state laws to be in compliance, and the small states of Nagaland, Mizoram and Meghalaya, which were not required to comply with this constitutional provision.

government councils. Law and order was not on the list of functions to be devolved to local governments. Fiscal decentralization also has not gone very far, with most of local governments' revenue still coming from grants from the state.

2.3. Variation in the Timing of Local Government Elections across States

Our main measure of political representation is an indicator for when marginalized sections of society are given political representation in a particular state. In the case of women, this indicator equals one in years following the first local government election which implemented the “not less than one-third” reservation scheme for women representatives. As Table II shows, the date of this first election varies considerably across the major states of India.

There are three main reasons for the variation in election timing across states. First, several states already had a system of local government even before the enactment of the 73rd Amendment. In many of these cases, the state government waited for the term of office of incumbent local officials to expire before conducting fresh elections in compliance with the 73rd Amendment. On the other hand, several states chose to incorporate the provisions regarding women's representation into their own state laws even before the constitutional amendment came into effect. This was because they were aware of the impending legislation due to the long process of amending the Constitution,¹⁸ and had elections for local bodies scheduled as per their existing system. For instance, West Bengal made major amendments to their state-level legislation to provide reservation for women and SCs and STs in the 1993 election, once the passage of the constitutional amendment was imminent. Kerala made a similar change to its law in 1991. Other states had unilaterally implemented reservation for women

¹⁸ The 73rd Amendment Act was introduced in the national parliament in 1991, after two earlier failed attempts. After some debate, the bill was passed in December 1992. Thereafter, it needed to be ratified by a majority of the states, and finally came into effect in April 1993.

(Karnataka) or SCs and STs (Maharashtra and Madhya Pradesh) long before the constitutional amendment. We can, of course, control explicitly for the presence of a pre-scheduled local government election, but since all our regressions include state fixed effects, we expect this characteristic to be captured by the state fixed effect.

A second reason for variation in election timing is due to lawsuits challenging certain aspects of PR implementation. For instance, elections in Bihar were delayed due to a lawsuit challenging the proposed reservations for Other Backward Castes (OBCs) which had not been explicitly mandated by the constitutional amendment. These can be regarded as reasonably exogenous factors in causing the delay.

A third reason is potentially more endogenously determined: some states delayed the elections due to budgetary constraints or other unspecified reasons. Assam is one example of this. The state had elections in 1992, and therefore should have had its first PR-compliant elections in 1997, but the elections were conducted only in December 2001. The second round of elections was also delayed, taking place in December 2007, rather than in December 2006. However, our main results are robust to the exclusion of any specific state.

3. Data and Empirical Strategy

3.1 Crime Procedures in India

The Code of Criminal Procedure provides the basis for the criminal justice system in India. This code 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.

Under the *habeas corpus* requirements of Indian law, all arrested persons must be produced before a magistrate and charged with a specific crime within 24 hours or be released. The police must deliver to the magistrate a report which details the results of the investigation, and whether the accused has been arrested and/or released on bail. Based on this report, the magistrate makes a decision of whether there are sufficient grounds for proceeding against the accused. If he so rules, a formal chargesheet is prepared, detailing the offence with which the accused is charged. If the magistrate feels that the police report does not provide sufficient grounds on which to frame a charge, the case is dismissed at that point. The fraction of cases in which the magistrate upholds the charges (the “chargesheeting” rate) therefore reflects in part the quality of the investigation carried out by the police; this will be a variable we will use in the empirical analysis.

3.2. Data on Crime and Police Activity

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 1985-2007. These data come from the first stage of the criminal justice system, namely the filing of FIRs with the police.¹⁹ We also have annual data on the number of arrests made for each crime category, as well as the chargesheeting rate.²⁰

Our main variable of interest is crimes against women. These include the following crime categories: rape, kidnapping of women and girls, dowry deaths,

¹⁹ The Criminal Procedure Code of India divides all crimes into two categories: (i) cognizable – which are dealt by the Police, and in which a police officer may arrest a person with or without a warrant and (ii) non-cognizable – which are generally left to be pursued by the affected parties themselves in Courts. Only cognizable crimes are reported in the NCRB publications.

²⁰ We do not analyze later processes in the criminal justice system, such as the number of convictions obtained, because long delays in the Indian judicial system mean that trials for crimes committed in one year may be held only several years later.

sexual harassment, molestation, cruelty by husbands or relatives, importation of women and girls, prostitution, pornography, giving and receiving dowry and *sati* (widow-burning). The reporting system for these crimes changes over time, as the NCRB started reporting additional crime categories separately. For instance, only rape and kidnapping of women were reported in the period before 1995, while other categories such as dowry death, molestation, sexual harassment and cruelty by husband or relatives started being recorded in 1995. Importation of women and girls was included in 2001. In all our regressions, we include year fixed effects to control for such nationwide changes in reporting. We analyze separately the specific crime categories of rape and kidnapping of women and girls, which are consistently reported over a longer time period.

We also examine crimes against SCs and STs, which are recorded separately by the NCRB starting in 1992, and crimes which are not gender-specific, such as property crimes or crimes against public order. It is interesting to see that crimes against women follow a very different national trend compared to other violent crimes (Figure I). The incidence of murders and riots shows a secular decline in the period after 1990, while the documented incidence of rapes has steadily increased.

The empirical analysis uses many control variables and additional outcomes at the state level, the sources for which are listed in Appendix 1. These include economic variables, such as state GDP levels, police strength, demographic variables (female-male ratio, literacy rates, urbanization), and political variables such as the presence of a female chief executive in the state. We also examine survey data on the quality of interactions with the police from two sources. First, we present some evidence from the Public Affairs Centre's Millennial Survey, an India-wide household survey which aims to assess the

functioning of a range of public services in 2000.²¹ We supplement this with data on citizen perceptions of the impact of local leaders on police behavior, based on household-level interviews from the State of the Nation Survey (Centre for the Study of Developing Societies, 2009). Our data on the dates of the first local election with one-third representation of women comes from several different sources, summarized in Appendix 1.²²

3.3 Empirical strategy

We conduct the analysis for the 17 major states of India over the period 1985-2007.²³ Table I provides the summary statistics for the crime data used in our analysis. To gauge the impact of political representation, we run state-level regressions of crimes rates (number of crimes per 1000 people) on our measure of political representation. Our base specification is the following:

$$(1) \quad \ln (C_{st}/P_{st}) = \alpha_s + \beta_t + fD_{st} + d'X_{st} + \varepsilon_{st}$$

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 , α_s is a fixed effect for state s , β_t is a fixed effect for year t , D_{st} is a

²¹ The Millennial Survey analysis was conducted while one of the authors was an intern with the Public Affairs Centre (a non-governmental organization) in spring 2003. For further description of the survey, see Beaman et al (2010).

²² In some cases, elections were held without implementing the provisions of the *Panchayati Raj* amendment fully. For instance, Uttar Pradesh had considerably less than 33% of women in local councils in the elections of 1995 and 2000. In a few cases where elections for village councils and district councils are held at different times, we have taken the reform date to be the date of district council elections. Our results are unchanged if we use the date for village council elections as the reform date.

²³ The states included in the study are the large states of India, which account for 97% of the total population and 98% of total crimes reported: Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. Three new states—Chhattisgarh, Jharkhand and Uttarakhand—were carved out in 2001, from Madhya Pradesh, Bihar and Uttar Pradesh respectively. All our analysis is conducted by merging these newly created states with their original states, for the sake of comparability of sample units over time. All of these split states carried over the PR legislation from their parent states, but this aggregation can sometimes cause measurement error in our explanatory variable: for instance, Bihar conducted local elections in 2001 and 2006, but Jharkhand has not conducted a single PR election yet.

dummy variable that equals one in years including and following the first election with political representation for a given minority group in state s , and X_{st} is a set of state-time varying controls. The coefficient of interest, f , captures the effect of reservation for women on crimes against women. All standard errors are clustered at the state level, to account for possible correlated shocks to state-level crimes over time.

Our specification controls for a range of factors that might affect crime against women in a given time and place. Literacy rates could affect awareness of victims' legal rights and influence reporting of crimes. Per capita income has also been found to be associated with higher probabilities of reporting crime (Soares, 2004). Crime is typically higher in urban areas relative to rural ones. Other studies have documented that high male-female ratios result in increased rates of crime (Edlund et al, 2007). Perhaps states which implemented reforms earlier were those where the Chief Minister was a woman, and so we might mistakenly attribute the effect of a higher-level woman representative to a lower-level one. We explicitly control for all of these variables in our regressions. Finally, we also include measures of the size of the state police force as a control for varying levels of commitment to crime deterrence across states, though this might in fact be the channel through which political representation affects crime.

A further concern is that the timing of policy changes may be endogenous to the trends in crime. In addition to including state and time fixed effects, we also control for state-specific linear time trends.

4. Political Representation and Crimes against Disadvantaged Groups

4.1 Crimes against Women

We find that political representation for women is associated with a large and significant increase in the reported crimes against women. Table III shows the

coefficients on the post-reform dummy D_{st} , when we run specification (1) for a range of crime categories and with a variety of controls. The coefficient on the post-reform dummy is 0.365 for overall crimes against women (per 1000 population), which corresponds to a 44% increase in reported crimes against women after the implementation of political reservation (column 1). A large positive effect is also confirmed in specific types of crimes against women: the coefficient on the post-reform dummy is 0.206 for rapes and 0.125 for kidnapping of women, which works out to a 23% increase in rapes and a 13% increase in the kidnapping of women (estimates from column 3).

The size and statistical significance of the estimated coefficients are little affected by the inclusion of a large number of demographic, economic and political controls (column 2), and controls for the strength of police in the state at that time (column 3). This suggests that the estimated effect is not due to a policy change in policing, but to the change in the identity of the politician.

The results are practically unchanged when we control for female literacy rather than overall literacy (column 4). The inclusion of state-specific linear trends in addition to demographic, political and economic controls (columns 5 and 6) affects little the estimated effect of mandated representation for women, though the coefficients are somewhat smaller in magnitude. We should note that this specification controls for all linearly varying state-level variables, including any linear effect of representation of women (and therefore might be “over-controlling” for the effects of the reform).

Our results are robust to the exclusion of any specific state, which means that the results are not driven by specific states which might have unusual characteristics. These include Jammu & Kashmir (which has a significant military presence due to a long-running conflict between India and Pakistan), Karnataka (which was the first state to implement women's reservations) and Uttar Pradesh (the last state to implement women's reservation). Figure II shows the coefficients

obtained from a specification like (1) where the post-reform dummy is replaced by a series of dummies for one to five or more years since the reform, along with a similar number of pre-reform dummies. The figure shows a considerable increase in the number of documented crimes against women, starting at the date when women's reservation is implemented.²⁴

4.2 Crimes Against Men and Gender-Neutral Crimes

Could the increase in reported crimes against women be simply a part of an overall surge in documented crimes after mandated political representation of women? This could occur if the entry of inexperienced female policymakers led to a general decline in law and order or if political reservation were associated with other concurrent reforms such as changes to reporting rules, policing strategy or overall economic growth or inequality trends.²⁵ We therefore examine the impact of political reservation on other categories of crime, where the victims are not necessarily women. One such category is the kidnapping of men and boys, which is reported separately from 1988 onwards. We also show results for other crime categories that do not have any overt gender component: crimes against property (robberies and burglaries), crimes against public order (riots and arson) and economic crimes (counterfeiting, cheating and breach of trust). None of these crime categories show any statistically significant relationship with the implementation of women's political reservations (Table IV).

This makes us more confident that the results of Table III are indeed capturing the effect of women's political representation, rather than any other concurrent reforms that might have been implemented, or an overall increase in crime as a result of having less experienced female leaders.

²⁴ We further discuss the long term, cumulative impact of women's representation on crime outcomes in section 5.4

²⁵ For the impact of overall economic growth or rising inequality on crime in India, see Prasad (2008) and Charmarbagwala and Sharma (2008).

4.3 Crimes Against Scheduled Castes and Scheduled Tribes

Since the *Panchayati Raj* policy provided for the mandated representation of SCs and STs in local councils, we examine whether documented crimes against these communities also increased after reservation was implemented. The case of SCs/STs is slightly different from the mandated representation of women. First, these communities already had mandated representation in the state legislature (in proportion to their population share). A priori, we do not know whether the already existing representation at the higher level would increase or decrease the impact of greater representation at the lower level of government. Second, data on crimes against SCs/STs are only available from 1992 onwards. In order to ensure that there are sufficient pre-reform observations, we restrict our analysis only to states which implemented the *Panchayati Raj* provisions for SCs/STs in 1995 or later. Further, some states do not have any STs in their population, which restricts our sample size for these regressions.

Similar to the results for women, we find a significant increase in the documented crimes against SCs after these groups obtain mandated representation in local councils (Table V). In particular, the largest increase is in crimes that are prosecuted under the Prevention of Atrocities Act, which specifically includes offences committed against SCs by non-SCs (including stripping, insulting, forced labor and sexual exploitation). As before, we show results controlling for a range of demographic, economic and political controls (columns 2-3). The results on overall crimes against SCs, in particular those classified as “atrocities,” are robust to all these specifications.²⁶ Interestingly, we do not see significant increases in crimes which are not caste-specific (e.g. murder or rape, where the victims might be targeted for reasons other than their caste). This lends greater

²⁶ These results are robust to using a tobit specification, as well as using non-logged crime variables.

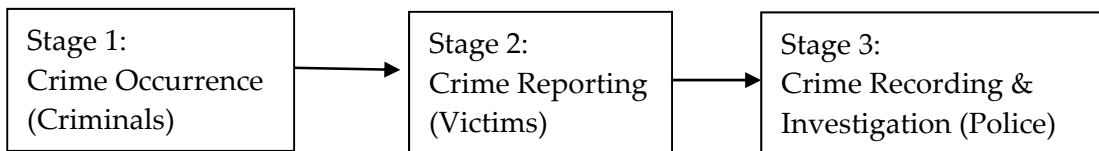
weight to our hypothesis that it is political representation of such communities which is driving higher reporting of such caste-related crimes.

We do not find any significant results of political representation for STs on crimes committed against them (Table V, columns 4-6). This could be because of poorer data availability, or perhaps the inability of STs to mobilize as effectively as SCs. Other studies on STs have also found that mandated political representation for STs has not resulted in greater access to primary schools or other types of infrastructure (Krishnan, 2007; Banerjee and Somanathan, 2007).

5. Interpreting the Results: More Crime or More Documentation of Crime?

5.1 Potential Effects of a Change in Leader Identity

We outline a framework similar to Donohue and Levitt (2001a) that considers the incentives of three parties relevant to a crime situation: criminals, victims and the policing authority. First, a potential criminal decides whether to commit a crime or not. Next, when a crime occurs, the crime must be reported. This stage requires both that the victim comes forward to report the crime and that the police documents the victim's report. Finally, for a crime that is so documented or reported, the police must decide how much time and effort to devote to investigating the crime and bringing the criminal to justice.



In what ways does increased female representation in local government affect the behavior of agents at each of these stages above? We examine this question working backwards, from stage 3 to stage 1, since changes in behavior of the police would influence behavior of victims and criminals in the earlier stages.

The presence of women leaders makes it more likely that police are responsive to crimes against women, i.e. that they record and investigate crimes against women more often in Stage 3. The presence of female leaders at the local level might also induce the police to be more sympathetic towards female victims, either because their attitudes towards women undergo a change after observing female political leaders,²⁷ or because these local leaders have the ability to highlight poor behaviour by the police to higher level officials or the local press. We examine the evidence on police responsiveness to crimes against women in detail in section 5.4

If the police take women's grievances more seriously, victims would be more encouraged to report crimes in stage 2. Further, the presence of female local leaders can directly affect crime reporting by women, independent of police responsiveness, through a "role-model" effect: Having more sympathetic women village councillors could give female victims greater self-confidence and a lower tolerance for being badly treated (the *reporting* effect).²⁸ We should note that most victims of physical or sexual violence do not come forward with their experiences: the National Family Health Survey of 2005-06 (NFHS-3) reports that 66% of women who experienced domestic violence did not tell anyone about such incidents.²⁹

These effects of greater female representation in local government on the behavior of the police and victims would likely deter potential criminals from committing crimes in stage 1. This would lead to a decline in the actual number of crimes against women (the *deterrence* effect). However, greater political power for women may result in an increase in crimes against them for other reasons. For

²⁷ See Beaman et al (2009) for evidence of improved attitudes towards women in places which experienced women local leaders.

²⁸ Jensen and Oster (2009) document significant changes in women's autonomy and tolerance for domestic violence after observing women characters on television.

²⁹ This question was not asked in previous rounds of the NFHS, hence we are unable to document whether the propensity to seek help for domestic violence changes over time.

instance, if men are resentful of being mandated to elect women into leadership positions, they may commit more crimes against women – either as a way of simply expressing resentment, or as a calculated strategy to intimidate women leaders and voters (the *retaliation* effect). Alternatively, if more women are encouraged to work outside the home or undertake more travel following women’s political representation, then they may be more exposed to potential criminals as a result (*opportunistic crimes* effect).

In sum, there are several potential channels through which mandated political representation for women (and minorities) can influence both actual crimes and reported crimes. First, the presence of female politicians should induce the police to be more active in investigating crimes against women. Even with no change in the actual number of crimes committed, documented crimes against women are likely to increase -- both because of women victims being more likely to *report* crimes, and police being more likely to *record* such reports. Actual incidence of crime can decrease in response to changes in police and victims’ behavior (the *deterrence* effect). However, the actual incidence of crimes may increase if women’s greater participation in public life exposes them to crime (increased *crime opportunities* effect) or if their political power triggers strong resentment among men (*retaliation* effect). In the following sections, we present evidence on each of these potential effects.

5.2 Are Police More Likely to Investigate Crimes and Make Arrests?

One of the potential channels outlined in our framework is the higher probability of punitive action against those who commit crimes against women as a result of increased female representation. We examine data on the number of arrests and chargesheeting rates to shed some light on this issue. Our data on police activity shows that the number of arrests per 1000 people for crimes against women increases by a nearly 30% after women’s reservation is implemented (Table VI,

column 1). Arrests for rape also show an increase of 12%, and arrests for kidnapping of women increase by a statistically significant 18% (columns 2-3). For all other crimes taken together, the impact is slightly smaller (at 25%) and the impact on arrests for kidnapping of males is in fact negative (Table VI, columns 4-5). We also examine the results for the ratio of arrests to total crimes. While there is only a small increase in this ratio for crimes against women when compared to this ratio for all other crimes, it must be pointed out that the relative increase in the reporting of crimes against women is much greater. Thus, it is fair to conclude that there is no adverse effect on the quantity of police follow-up on crimes against women, in the post-reform period.

Does this increased police arrest activity come at the cost of the quality of investigation? We examine the impact of political empowerment of women on chargesheeting rates i.e. the fraction of cases in which the police report about the crime is held up by a magistrate and results in a formal chargesheet against the accused. As shown in columns (8)-(9) of Table VI, political empowerment of women has no statistically significant effect on chargesheeting rates.³⁰ Hence, there is no evidence of a decline in the quality of police action with increased political representation of women either.

5.3 Do Local Leaders Affect Women’s Experience with Law Enforcement Officials?

We begin by noting that previous studies have found the lack of documentation of crimes against women by the police to be a serious problem. Case studies report

³⁰ Chargesheeting rate for crimes against women is computed as the average of the chargesheeting rate for the following crime categories: rape, kidnapping of women and girls, dowry deaths, molestation, sexual harassment, cruelty by husbands or relatives and importation of girls. These rates are not separately available for other crime categories, hence we cannot report the chargesheeting rate for “all crimes other than those against women”.

instances of the police characterizing an attempt to record a rape as a method to extort money, refusing to record domestic violence because “the husband has a right to beat the wife,” and assuming that a missing girl had eloped rather than been kidnapped (National Commission for Women, 2003). In a study using decoy crime victims, Banerjee et al (2009) find that only 50% of sexual harassment cases and 53% of domestic violence cases are registered by the police (when a male relative tries to report it on behalf of a female victim), in contrast to 92% of break-ins and more than 64% of motorcycle thefts.

These differences can also be observed when comparing data on recorded crimes with those reported in the India Human Development Survey 2005 (IHDS), which is the first crime victimization survey for India as a whole. For instance, 3.9% of households in the IHDS report a theft in the past 12 months, and 2.5% of households report being attacked or threatened (Desai et al, 2005). However, based on the National Crime Records Bureau (NCRB) data, only 0.12% of all households reported a theft in 2005, and only 0.2% of households report any violent crime.³¹ Similarly, 12% of households in the IHDS reported that unmarried girls were “sometimes” or “often” harassed in their neighborhoods, compared to only 0.06% of households based on the NCRB data.

As discussed earlier, the increased female representation in local governments may mitigate such lack of documentation of crimes against women for multiple reasons. When women victims perceive a woman leader as more sympathetic to their concerns, they may become more self-confident as a result of seeing other women in political office, hence reducing their tolerance of injustice and their reluctance to report crimes.³² If the police were expected to be more

³¹ Authors’ calculations from NCRB data, assuming an average household size of 5 members. Unfortunately the lack of any previous victimization survey prevents us from comparing trends in actual crime over time.

³² We note that the presence of women political representatives does not increase the overall strength of the police force or the presence of female police officers, which might be an important

responsive to their complaints as a direct consequence of the presence of a local female leader, female victims would feel more confident in voicing their complaints.

Data from the nationwide State of the Nation 2009 survey show that local leaders are widely perceived to change the degree of responsiveness of the police (Table VII, Panel A). First, the survey finds that nearly half the respondents identify their village council member or president as being the local influential person they would approach for help, if they had a problem to fix (columns 1 to 4). Second, the presence of a local influential person is believed to greatly increase the responsiveness of the police to citizen complaints: the perceived likelihood of the police listening sympathetically to a crime victim, and the likelihood of follow-up action increase by 10 percentage points (or 63 and 68 percent respectively) if the victim is accompanied by a local influential person (columns 5-8). A separate government survey of elected women representatives found that 62% of village-level women leaders had tried to reduce instances of domestic violence (Government of India, 2008a, Table 7.20).

Further, data from the Millennial Survey show that women display greater satisfaction in their interactions with the police when they live in villages with a female council head (Table VII, panel B).³³ Women are slightly more likely to approach the police in such villages (columns 1 and 2). While the sample of respondents who actually had dealings with the police is relatively small, we do find that women in villages with female council heads were significantly more likely to say that the police solved their case (column 3) and significantly less

variable in the victim's decision to approach the police (results not shown). This is not too surprising in light of the administrative setting where local councils (village or district) have no direct jurisdiction over the police in terms of staffing or salaries.

³³ Since the Millennial Survey is a single cross-section, we cannot estimate the impact of increase female presence among village council members, but only the effect of reservation for women of the village council head position.

likely to pay bribes to the police (column 7). They were also somewhat less likely to say that the police refused to register their complaint (column 5). We should note that the difference in women's responses across villages that did and did not have women council heads was larger than the difference for men in all these cases. These results are indicative of a positive change in police attitudes towards crimes against women, in the presence of women leaders. This evidence is also consistent with the results on greater police action after women's political representation, as shown in Table VI.

5.4 Do Actual Crimes Increase?

Given the challenge of separating out actual increases in crime from higher reporting/recording of crime, we begin by examining categories of crime where the incidence of underreporting is likely to be the least: murders and suicides of women (The reason for this is simply that it is relatively hard to hide a dead body). If the overall results in Table III were primarily driven by an increase in actual crimes committed, we may expect to find some effects in these crime categories as well.

We do not find any increase in overall murder rates after women's political reservation was implemented (Table VIII, column 1). Zooming on murders of women, there is also no evidence of an increase following the surge in female representation in local governments. Since data on number of murders by gender are available only after 1999, we focus only on the four states that enacted women's empowerment after 1999. Though the small sample size means that we are unlikely to get statistically significant results, it is nevertheless notable that the point estimate for the effects of female political representation is negative for murders of women (Table VIII, columns 2-3). We also examined data on murders where the motive was stated as love affairs or sexual causes as a proxy for murders of women (on the plausible assumption that most victims of such

murders are likely to be female); data on motives of murders are available for our entire time period. Again, we find no significant impact of women's reservation on the number of such murders or their share in overall murders (Table VIII, columns 4-5). We also find no evidence of any statistically significant increase in the incidence of female suicides following women's greater political role (Table VIII, columns 6-7).

Next, we examine the *increased crime opportunities* hypothesis, i.e. the idea that greater exposure situations or locations where crime occurs may be driving the observed increases in crimes against women. One important source of such exposure would be women's labor force participation, which would increase their interaction with those outside the home. It also seems plausible that women's labor force participation would increase over the post-reform period, with the opening up of the Indian economy in the early 1990s -- but we find that this is not the case. Data from the National Sample Survey (NSS) of India indicates that the female labor force participation has remained around 33% in rural areas between 1987-88 and 2004-05; in urban areas, the female labor force participation rate increased from 16.2% to 17.8% over the same period.³⁴ This increase is not correlated with the timing of women's political representation: we find that the increase in female labor force participation and the number of years since the *Panchayati Raj* reforms have a correlation coefficient of 0.06.

Finally, we assess whether there is any evidence for the *retaliation* hypothesis. We have already documented little change in murders of women (Table VIII), but this might be considered a very extreme form of retaliation against women -- just as suicides may be regarded as an extreme response. Nonetheless, if there was actually an increase in crimes committed against

³⁴ These are labor force participation rates for the entire population. Labor force participation rates for those aged 15 and above also show similarly small increases.

women, it would lead to greater curtailment of their freedoms in places with women leaders. We do not find any evidence for this. Based on household level surveys of over 19,000 respondents across all states of India (Government of India, 2008a), a study of women's role in local governance finds very little difference across village units represented by women and men in the fraction of women requiring permission to go outside the home, to attend social events, to interact with strangers and to send girls to school.³⁵ For instance, 61.5% of women who are represented by women councilors reported needing permission to go out of their homes; the corresponding figure for women in areas with male representatives was 60%. In our district level analysis in Section 6, we also consider the district characteristics that are likely to be associated with greater retaliation against women. Examining the interaction effects of characteristics such as female literacy and sex ratios with the introduction of political reservations for women provides further evidence against the retaliation hypothesis.

Finally, we examine whether there is any evidence for the *deterrence* hypothesis. Here, the fact that we observe an overall increase in documented crimes against women suggests that any deterrence effect is outweighed by other factors, at least in the short run. What about longer-run effects? We ran a specification where we included the number of years since the reform and its squared term as regressors, rather than a single post-reform dummy. We find a significant negative coefficient on the squared term, suggesting that the rise in the number of crimes slows down over time. In fact the total number of crimes against women starts declining 9.5 years after the reform is passed. Similarly, the number of rapes per capita is expected to decline 20 years after the reform (results available upon request). This evidence is consistent with the interpretation that in

³⁵ Government of India, 2008a, Table 7.14, page 139.

the long run increased police (and possibly victim) responsiveness to women leaders deters potential criminals against women, as outlined in section 5.1.

6. Women's Political Representation: At What Level Does It Matter?

Beginning with Hirschman (1970), social scientists have recognized the importance of voice for the survival and success of any organization, be it a country or a firm. However, we know very little about the specific forms of representation that maximize effective voice. For instance, in our context, are the benefits to the minority community maximized by being represented in more influential positions at higher levels of governance, or by large scale representation at the lower level? We are able to address this question by using the fact that, in addition to village presidents, as well as village and district council member positions, one-third of district council chairperson positions in India were also reserved for women, by rotation across districts. While all districts within a state have an identical (one-third) fraction of their council membership reserved for women, they do differ in whether the chairperson position is reserved for women. A priori, it is not obvious whether the impact of women district chairpersons will be larger or smaller than that of female district council members and sub-district level representatives. If district chairpersons have a greater degree of influence with local police, their impact on crime may be larger, while if the greater proximity of village level leaders to both the police and the victims is a major factor, then having a female district chairperson might not have much additional impact.³⁶

³⁶ The district is the lowest level at which the NCRB reports crime statistics.

We collected data on the reservation status of the district chairperson in 10 out of our 17 major states.³⁷ We run the following specification, similar to the state-level regression in (1):

$$(2) \quad \ln(C_{dt}/P_{dt}) = a_d + b_t + g\text{ChairPerson}_{dt} + d'X_{dt} + fD_{st} + e_{dt}$$

where the dependent variable is the number of crimes per capita in the district (in logs). The key independent variable is the dummy variable ChairPerson_{dt} which equals 1 if the district chairperson post in district d in year t is reserved for women, and zero otherwise. The specification includes district and time fixed effects, district level controls for female-male population ratios, literacy rates and urbanization, as well as a control for the timing of overall *Panchayati Raj* reform implementation at the state level (D_{st}). All standard errors are clustered at the district level.

We find that, in any given year, the state-level implementation of local council reservations has a much larger effect on documented crimes against women, than having the district chairperson post reserved for women (Table IX, Panel A, column 1).³⁸ Having a woman district chairperson increases documented crimes against women in the district by 4.6%; this estimate is statistically insignificant and considerably smaller in magnitude than the coefficient for implementing broad-based representation (0.168). This result is important, because it shows that when it comes to giving voice (in this case, to female crime victims), political representatives who have greater proximity to those whose

³⁷ These states are Andhra Pradesh, Bihar, Gujarat, Haryana, Kerala, Maharashtra, Orissa, Punjab, Rajasthan and West Bengal. The data were obtained by contacting the State Election Commissions or the Ministry of Rural Development or Ministry of *Panchayati Raj* of individual states.

³⁸ Nevertheless, the presence of a woman district chairperson does have some long-term effect. Each additional year a woman has been in the district chairperson position increases the number of reported crimes by 3.4%, which is statistically significant at the 5% level. The results are qualitatively similar if we use a dummy for whether the district *ever* had a woman chairperson as the key explanatory variable (results available upon request).

voice needs to be heard is more important than their presence in higher level leadership positions.³⁹ It is also consistent with the previously reported evidence that it is the village level representative who is most commonly sought for help on important matters by villagers, over any other locally influential person including higher level political officials (Table VII, Panel A).

We then explore whether the effect of a district chairperson varies across districts where women are more/less empowered. We use two (relatively crude) proxies for status of women – the population ratio of women to men and the literacy rate of women in a district. We interact $ChairPerson_{dt}$ with these two proxies; the results are shown in columns 2 and 3 of Table IX, Panel A. In districts where women are more empowered, having a woman district chairperson is associated with a larger number of documented crimes against women. The magnitude of the woman chairperson effect in more progressive districts is considerable: Using these coefficients, we compute that for a district in the 75th percentile of the female/male ratio or the female literacy rate in our data, the marginal impact of having a woman district chairperson raises the reported crimes against women by about 8%. Resistance to, and hence retaliation against, a greater public role for women is more likely to happen in places where women’s socioeconomic status is relatively *low*. These findings therefore lend further support to our hypothesis that the observed increase in crime is driven by greater *reporting*, rather than the alternative *retaliation* hypothesis. They also show that district chairpersons have a bigger impact on crime outcomes against women when women are more empowered -- although the magnitude of their impact is

³⁹ Our findings here also have policy relevance in the context of domestic violence cases in developed countries, where failure of female victims to bring charges against perpetrators is a considerable problem (see for instance, New York Times, 2011). Iyengar (2009) also finds that high-level policy changes, such as mandatory arrest laws, *reduce* reporting of domestic violence, with adverse consequences on the rate of incidence.

still much smaller than that of more proximate, lower level leaders and council members.

Finally, we extend our analysis to consider the effects of having women members in the state legislative assembly (MLAs). We should note that women are significantly under-represented at these levels of government, where no mandated representation rules are in place. In our data set, only 5.5% of the state legislators in any given year are female. We run a regression specification similar to (1), except that the independent variable of interest is the fraction of female MLAs in power at the state level (Table IX, Panel B, column 1). Since this fraction is potentially endogenous, we instrument for the fraction of women MLAs using the fraction of closely contested elections (with winning margin less than 5%) where the winner was female.⁴⁰ We should note that the OLS and IV coefficients show a positive relationship between women's representation and reported crime, though none of these coefficients are statistically significant at the 5% level (Table IX, Panel B, Column 2).

7. Conclusions

This paper demonstrates that political voice is an important determinant of access to justice for socially disadvantaged groups. We provide one of the first systematic analyses of the effects of mandated political representation for women and low caste groups on crime outcomes against them, using data from the *Panchayati Raj* experiment in India. Furthermore, we shed light on the relative effectiveness of alternative forms of political representation for minority empowerment.

⁴⁰ A similar instrument is used by Clots-Figueras (2011) in her analysis of the effects of women legislators on public goods outcomes.

We find that having female political representation at the local government level induces strong positive and significant effects on *reporting* of crimes by women. It also induces greater responsiveness of law enforcement officials to crimes against women, as measured by the number of arrests as well as the quality of women's interactions with police. We find a similar result for the case of SCs: despite already enjoying mandated representation at higher levels of government, we find that representation of SCs in local councils leads to increased reporting of crimes where the victims are specifically targeted because of their caste. Most of the effects are driven by the increase in broad-based representation of women in local government councils at the district and village level, rather than women in district leadership positions. Our results are particularly relevant in the context of the proposed bill to grant one-third representation for women in India's state and national legislatures.

Crime against women and under-reporting of such crime is a problem in both developing and developed countries. Encouraging victims to report such crimes is a crucial first step, both in understanding the magnitude of the problem, and in ensuring justice. Our work shows the key role that local women representatives can play in facilitating this process. Our insights on the identity of local leaders in ensuring access to justice are equally valuable for other racial, religious or ethnic minorities.

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Appendix 1: Data Sources

Crimes, arrests, chargesheeting rates, police strength: Annual issues of *Crime in India*, published by the National Crime Records Bureau, New Delhi.

Suicides: Annual issues of *Accidental Deaths and Suicides in India*, published by the National Crime Records Bureau, New Delhi.

Population, female-male ratio, literacy rates, urbanization: Census of India 1981, 1991, 2001. Values for intervening years by interpolation.

Real per capita GDP at state level: Central Statistical Organization, Ministry of Statistics and Programme Implementation, Government of India.

Dates of local elections: Institute of Social Sciences (1994, 2000); Government of India, 2008b.

Woman Chief Minister dummy: State government websites of respective states

Survey data from State of the Nation Wave VII, January 2009: State-level means obtained from Centre for Developing Societies, New Delhi.

Survey on interactions with the police: Millennial Survey conducted by the Public Affairs Centre, Bangalore, India.

Dummy for whether District Chairperson post is reserved for women: Obtained from State Election Commissions/Ministry of Panchayati Raj/Ministry of Rural Development for each state.

Presence of women in state legislatures: Election reports from Election Commission of India.

Table I
Summary Statistics

<u>Panel A: Crime data</u>	#obs	Mean	S.D	Min	Max
Total crimes against women per 1000 women (1985-2007)	391	0.173	0.137	0.001	0.570
Rapes per 1000 women (1985-2007)	391	0.031	0.020	0.001	0.102
Kidnapping of women and girls per 1000 women (1988-2007)	340	0.038	0.031	0.005	0.149
Kidnapping of men and boys per 1000 men (1988-2007)	340	0.010	0.008	0.000	0.045
Murders per 1000 pop (1985-2007)	391	0.035	0.018	0.011	0.150
Crimes against property per 1000 pop (1985-2007)	391	0.446	0.191	0.099	1.087
Crimes against public order per 1000 pop (1985-2007)	391	0.110	0.086	0.000	0.449
Economic crimes per 1000 pop (1985-2007)	391	0.059	0.033	0.019	0.200
Total crimes against SCs per 1000 SC pop (1992-2007)	175	0.171	0.175	0.000	0.766
Civil rights violations of SC per 1000 SC pop (1992-2007)	175	0.008	0.013	0.000	0.080
Atrocities against SCs per 1000 SC pop (1992-2007)	175	0.052	0.067	0.000	0.320
Total crimes against STs per 1000 ST pop (1992-2007)	145	0.084	0.126	0.000	1.031
Civil rights violations of ST per 1000 ST pop (1992-2007)	145	0.003	0.010	0.000	0.087
Atrocities against STs per 1000 ST pop (1992-2007)	145	0.021	0.044	0.000	0.279
 <u>Panel B: Police activity</u>					
Arrests for crimes against women per 1000 pop (1985-2007)	340	0.351	0.220	0.020	0.929
Arrests for rape per 1000 pop (1988-2007)	340	0.020	0.012	0.004	0.062
Arrests for kidnapping of women per 1000 pop (1988-2007)	340	0.020	0.016	0.000	0.101
Arrests for crimes excluding crimes against women (1988-2007)	340	0.006	0.005	0.001	0.027
Arrests for kidnapping of men per 1000 pop (1988-2007)	340	0.008	0.007	0.000	0.041
Arrests per crime (crimes against women; 1988-2007)	340	1.545	0.388	0.729	2.659
Arrests per crime (crimes excluding crimes against women; 1988-2007)	340	1.491	1.333	0.369	20.042
Chargesheeting rate for crimes against women (1991-2007; %)	289	89.60	7.75	60.50	98.30
Chargesheeting rate for all crimes (1991-2007; %)	289	76.66	10.90	41.50	94.50
Police strength per 1000 population	391	1.541	0.885	0.084	5.923
Fraction of female police officers (1988-2007)	337	0.022	0.020	0.000	0.124
 <u>Panel C: Demographic and economic control variables (1985-2007)</u>					
Female-male ratio	391	0.937	0.045	0.859	1.070
Proportion of rural population	391	0.748	0.093	0.510	0.919
Proportion literate	391	0.513	0.121	0.273	0.811
Proportion with farming as main activity	391	0.178	0.054	0.021	0.294
Woman Chief Minister (dummy)	391	0.079	0.271	0.000	1.000
Per capita state GDP ('000 rupees)	391	1.674	0.762	0.000	4.239

Table II
Dates of Panchayati Raj Implementation Across States of India

Year of first election with reservation for women	Number of states
1987	1
1991	1
1992	2
1993	1
1994	2
1995	5
1996	1
2001	2
2002	1
2006	1
Total	17

Table III
Women's Political Representation and Crimes against Women

	Women's reservation implemented					
	No controls (1)	Demographic, economic and political controls (2)	Control for police strength (3)	Control for female literacy (4)	Control for state- specific time trends (5)	Control for state- specific time trends + other controls (6)
<i>Total crimes against women per 1000 women</i>	0.365 *	0.365 **	0.376 **	0.375 **	0.225 **	0.229 **
	[0.190]	[0.149]	[0.150]	[0.147]	[0.099]	[0.084]
R-squared	0.85	0.9	0.9	0.9	0.95	0.95
Observations	391	391	391	391	391	391
<i>Rapes per 1000 women</i>	0.201 **	0.199 **	0.206 **	0.203 **	0.147 *	0.106
	[0.087]	[0.076]	[0.083]	[0.081]	[0.072]	[0.078]
R-squared	0.81	0.83	0.83	0.84	0.91	0.92
Observations	391	391	391	391	391	391
<i>Kidnapping of women & girls per 1000 women</i>	0.160 **	0.133 **	0.125 **	0.125 **	0.135 **	0.115 **
	[0.056]	[0.049]	[0.047]	[0.047]	[0.059]	[0.053]
R-squared	0.91	0.92	0.92	0.92	0.96	0.96
Observations	340	340	340	340	340	340
Demographic & economic controls		Y	Y	Y		Y
Control for woman CM		Y	Y	Y		Y
Control for police strength			Y	Y		Y

All crime variables are in logs. All regressions include state and year fixed effects.

Standard errors in brackets, corrected for clustering at state-level.

*, ** and *** indicate significant at 10%, 5% and 1% respectively.

Regression for 17 major states and years 1985-2007.

Each cell represents the coefficient on the post-reform dummy for the outcome variables with appropriate controls. Post-reform dummy equals 1 for years after the first local government elections with reservations for women.

Demographic & economic controls include literacy, urbanization, female-male ratio, % population in farming and real per capita state domestic product.

See Appendix 1 for crime category definitions.

Table IV**Women's Political Representation and Crimes not Targeted Towards Women**

	Women's reservation implemented		
	No controls	Demographic, economic and political controls	Control for police strength
	(1)	(2)	(3)
<i>Kidnapping of men & boys per 1000 men</i>	0.005 [0.135]	-0.003 [0.105]	-0.03 [0.113]
R-squared	0.66	0.68	0.69
Observations	330	330	330
<i>Crimes against property per 1000 pop</i>	0.073 [0.073]	0.025 [0.051]	0.026 [0.050]
R-squared	0.82	0.86	0.86
Observations	391	391	391
<i>Crimes against public order per 1000 pop</i>	0.193 ** [0.085]	0.124 [0.075]	0.116 [0.077]
R-squared	0.89	0.92	0.92
Observations	391	391	391
<i>Economic crimes per 1000 pop</i>	0.122 [0.075]	0.104 [0.062]	0.103 [0.062]
R-squared	0.7	0.71	0.71
Observations	391	391	391
Demographic & economic controls		Y	Y
Control for woman CM		Y	Y
Control for police strength			Y

All crime variables are in logs. All regressions include state and year fixed effects.

Standard errors in brackets, corrected for clustering at state-level.

*, ** and *** indicate significant at 10%, 5% and 1% respectively.

Regression for 17 major states and years 1985-2007.

Each cell represents the coefficient on the post-reform dummy for the outcome variables with appropriate controls. Post-reform dummy equals 1 for years after the first local government elections with reservations for women.

Demographic & economic controls include literacy, urbanization, female-male ratio, % population in farming and real per capita state domestic product.

See Appendix 1 for crime category definitions.

Table V
SC/ST Political Representation and Crimes Against SC/ST

	Crimes against SC			Crimes against ST		
	No controls	Demographic, economic and political controls		No controls	Demographic, economic and political controls	
		Control for police strength			Control for police strength	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Total crimes against SC/ST per 1000 SC/ST pop</i>	0.066 [0.440]	0.377 [0.253]	0.402 * [0.213]	0.153 [0.307]	0.141 [0.333]	0.144 [0.332]
R-squared	0.81	0.86	0.87	0.53	0.61	0.61
Observations	168	168	168	134	134	134
<i>Murders of SC/ST per 1000 SC/ST pop</i>	0.209 [0.186]	0.262 [0.222]	0.306 [0.241]	0.625 [0.596]	0.573 [0.426]	0.583 [0.434]
R-squared	0.78	0.81	0.82	0.54	0.61	0.62
Observations	146	146	146	103	103	103
<i>Rapes of SC/ST per 1000 SC/ST pop</i>	0.148 [0.115]	0.141 [0.160]	0.141 [0.160]	0.004 [0.494]	-0.252 [0.447]	-0.237 [0.446]
R-squared	0.79	0.83	0.83	0.68	0.74	0.74
Observations	157	157	157	112	112	112
<i>Atrocities against SC/ST per 1000 SC/ST pop</i>	0.841 ** [0.328]	0.991 *** [0.310]	0.991 *** [0.313]	0.086 [0.365]	0.027 [0.565]	-0.02 [0.598]
R-squared	0.72	0.8	0.8	0.44	0.6	0.62
Observations	127	127	127	104	104	104
<i>Civil Rights violations per 1000 SC/ST pop</i>	1.134 ** [0.366]	1.420 *** [0.392]	1.410 ** [0.449]	0.037 [0.941]	0.235 [0.695]	0.183 [0.772]
R-squared	0.71	0.79	0.8	0.75	0.9	0.9
Observations	132	132	132	64	64	64
Demographic & economic controls		Y	Y		Y	Y
Control for woman CM		Y	Y		Y	Y
Control for police strength			Y			Y

All crime variables are in logs. All regressions include state and year fixed effects.

Standard errors in brackets, corrected for clustering at state-level.

Regression for 11 major states and years 1992-2007.

Demographic & economic controls include literacy, urbanization, female-male ratio, % population in farming and real per capita state domestic product.

*, ** and *** indicate significant at 10%, 5% and 1% respectively.

Table VI
Women's Political Representation and Police Activity

	Log (Arrests per 1000 population)					Arrests per crime		Chargesheeting rate	
	Crimes against women (1)	Rape (2)	Kidnapping of women (3)	All crimes other than against women (4)	Kidnapping of men (5)	Crimes against women (6)	All crimes against women (7)	Crimes against women (8)	All crimes (9)
<i>Women's Reservation Implemented</i>	0.296*	0.116	0.175 ***	0.251 *	-0.062	0.029	0.206	0.345	-0.216
	[0.153]	[0.076]	[0.060]	[0.120]	[0.109]	[0.066]	[0.201]	[0.979]	[1.864]
R-squared	0.88	0.85	0.87	0.78	0.73	0.82	0.22	0.83	0.87
Observations	340	340	323	340	312	340	340	289	289
Demographic & economic controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
Control for woman CM	Y	Y	Y	Y	Y	Y	Y	Y	Y
Control for police strength	Y	Y	Y	Y	Y	Y	Y	Y	Y

Chargesheeting rates in percentages. Chargesheeting rate is the percentage of arrests which are upheld by a magistrate.

All regressions include state and year fixed effects.

Standard errors in brackets, corrected for clustering at state-level.

Regression for 17 major states and years 1988-2007; chargesheeting data is from 1991-2007.

Demographic & economic controls include literacy, urbanization, female-male ratio, % population in farming and real per capita state domestic product.

Each cell represents the coefficient on the post-reform dummy for the outcome variables with appropriate controls.

Post-reform dummy equals 1 for years after the first local government elections with reservations for women.

*, ** and *** indicate significant at 10%, 5% and 1% respectively.

Table VII
How Do Local Leaders Affect Interactions with Law Enforcement Officials?

Panel A: Perceptions of Local Leader Impact

	If you ever have difficulty in getting an important work done, whom will you first think of approaching for help?				In a case of theft, do you think the police will listen sympathetically		In a case of theft, do you think the police will take appropriate action	
	Village council member or president	Local politician	Government official	Others/Don't know	If victim goes alone	If victim goes with a local influential person	If victim goes alone	If victim goes with a local influential person
	(1)	(2)	(3)	(4)				
<i>Fraction responding "Yes"</i>	0.48	0.16	0.14	0.22	0.15	0.25	0.14	0.24

Individual level responses from the State of the Nation Survey, January 2009. Survey data covers 14404 respondents from 17 major states.

"Others" in column (4) include state legislators, caste leaders, religious leaders and elders outside your family. Don't know responses coded as "no" for columns (5)-(8).

The difference between column (5) and (6) is statistically significant at the 1% level; similarly for the difference between columns (7) and (8).

Panel B: Women's Political Representation and Women's Interactions with Police

	Approached the police in last 5 years		Police acted efficiently and the case was solved		Police did not register the complaint		Paid Bribe to Police	
	Female	Male	Female	Male	Female	Male	Female	Male
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Village council head position reserved for women in 2000</i>	0.024	0.017	0.120 *	-0.039	-0.023	0.07	-0.356 *	0.006
	[0.023]	[0.013]	[0.069]	[0.026]	[0.087]	[0.045]	[0.211]	[0.051]
Observations	1514	9282	132	900	132	900	49	433
R-squared	0.07	0.03	0.23	0.07	0.29	0.13	0.54	0.11

Individual level responses from the Millennial Survey

Standard errors in brackets, clustered at the Gram Panchayat (village council) level. All regressions control for state fixed effects, village class dummies, and individual characteristics (religion, caste, education and occupation).

Columns (3)-(8) only for those who report having some interaction with the police.

*, ** and *** indicate significant at 10%, 5% and 1% respectively.

Table VIII
Women's Political Representation and Crimes where Reporting Bias is Likely to be Least

	Log (murders per 1000 population)	Log (murders of women per 1000 women)	Log (murders of men per 1000 men)	Log (murders due to sexual affairs per 1000 women)	Share of murders attributed to sexual affairs/dowry reasons	Log (suicides of women per 1000 women)	Log (suicides of men per 1000 men)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Women's Reservation Implemented</i>	-0.148 [0.105]	-0.068 [0.175]	0.195 [0.125]	0.089 [0.089]	0.01 [0.008]	0.055 [0.070]	0.069 [0.054]
Observations	391	32	32	315	320	390	390
R-squared	0.76	0.78	0.81	0.89	0.81	0.96	0.97
State & year fixed effects	Y	Y	Y	Y	Y	Y	Y
Demographic & economic controls	Y			Y	Y	Y	Y
Control for woman CM	Y			Y	Y	Y	Y
Control for police strength	Y			Y	Y	Y	Y

Notes: Regressions in (2) and (3) contain data from 1999-2007, and are restricted to the four states which implemented women's political reservations after 1999. All other columns include 17 major states and the period 1985-2007.

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-reform dummy for the outcome variables with appropriate controls. Post-reform dummy equals 1 for years after the first local government elections with reservations for women.

Demographic & economic controls include literacy, urbanization, female-male ratio, % population in farming and real per capita state domestic product.

Table IX
The Effect of Women's Political Representation at Higher Levels of Office

Panel A: The Impact of Women District Chairpersons

	<i>Log (Crimes against women per 1000 women)</i>		
	(1)	(2)	(3)
District Chairperson reserved for women	0.046 [0.030]	0.019 [0.030]	-0.008 [0.032]
District Chairperson reserved for women *Female/Male ratio		2.206*** [0.541]	
District Chairperson reserved for women *Female literacy			0.702*** [0.179]
Women's reservation implemented at state level	0.168** [0.073]	0.188*** [0.067]	0.197*** [0.068]
Observations	3943	3943	3943
R-squared	0.86	0.87	0.87
District and year FE	Y	Y	Y
Demographic controls	Y	Y	Y

Regressions are for 188 districts in 10 major states and years 1987-2007. Demographic controls include female literacy, urbanization and female-male ratio. Standard errors in brackets, clustered at district-level. *, ** and *** indicate significant at 10%, 5% and 1% respectively. Female/Male ratio and Female literacy variables are demeaned in columns 2 and 3 respectively.

Panel B: The Impact of Women in State Legislatures

	<u>Proportion of women legislators</u>	
	OLS (1)	IV (2)
<i>Log (Crimes against women per 1000 women)</i>	2.809 [1.935]	5.049 * [2.859]
R-squared	0.89	0.89
Observations	391	391
<i>Log (Rapes per 1000 women)</i>	1.123 [1.215]	0.93 [1.700]
R-squared	0.83	0.83
Observations	391	391
<i>Log (Kidnapping of women & girls per 1000 women)</i>	1.199 [0.994]	1.23 [1.982]
R-squared	0.92	0.92
Observations	340	340
State & year FE	Y	Y
Demographic & economic controls	Y	Y
Control for woman CM & police strength	Y	Y

Regressions are for 17 major states and years 1985-2007. Standard errors in brackets, clustered at the state-level. *, ** and *** indicate significant at 10%, 5% and 1% respectively. Demographic controls include female literacy, urbanization and female-male ratio; economic controls include % population in farming and real per capita state domestic product.

Figure I
Nationwide Trends in Selected Crime Categories

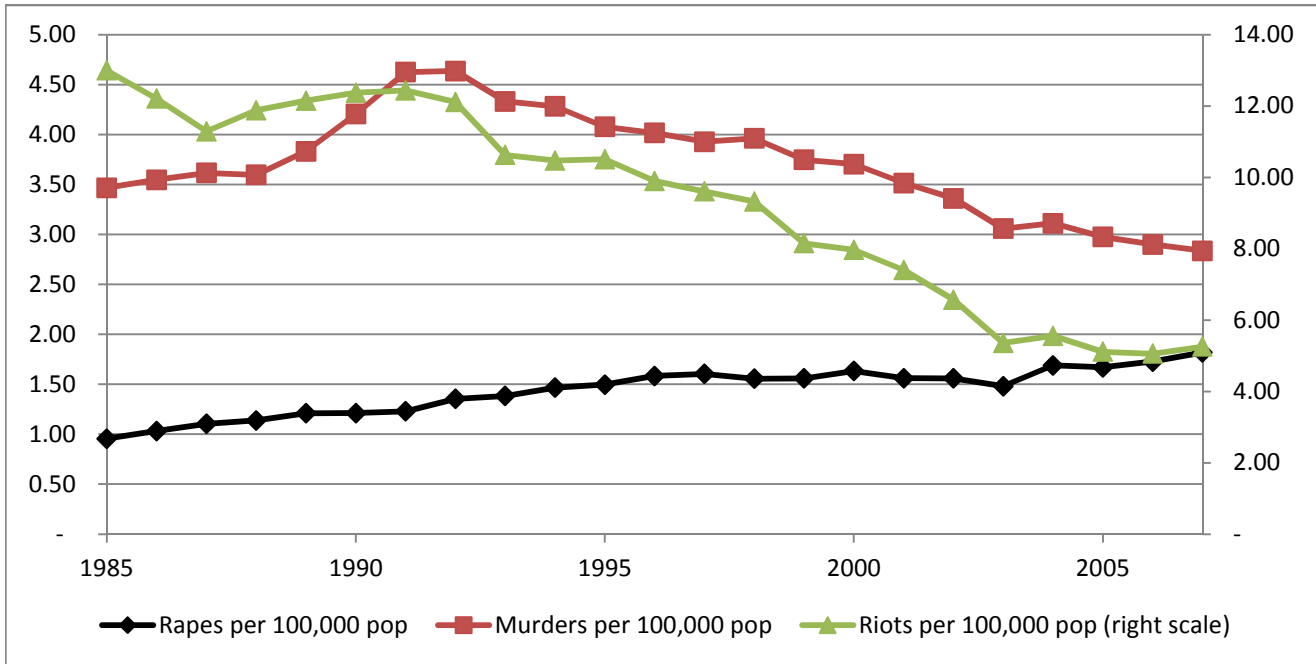
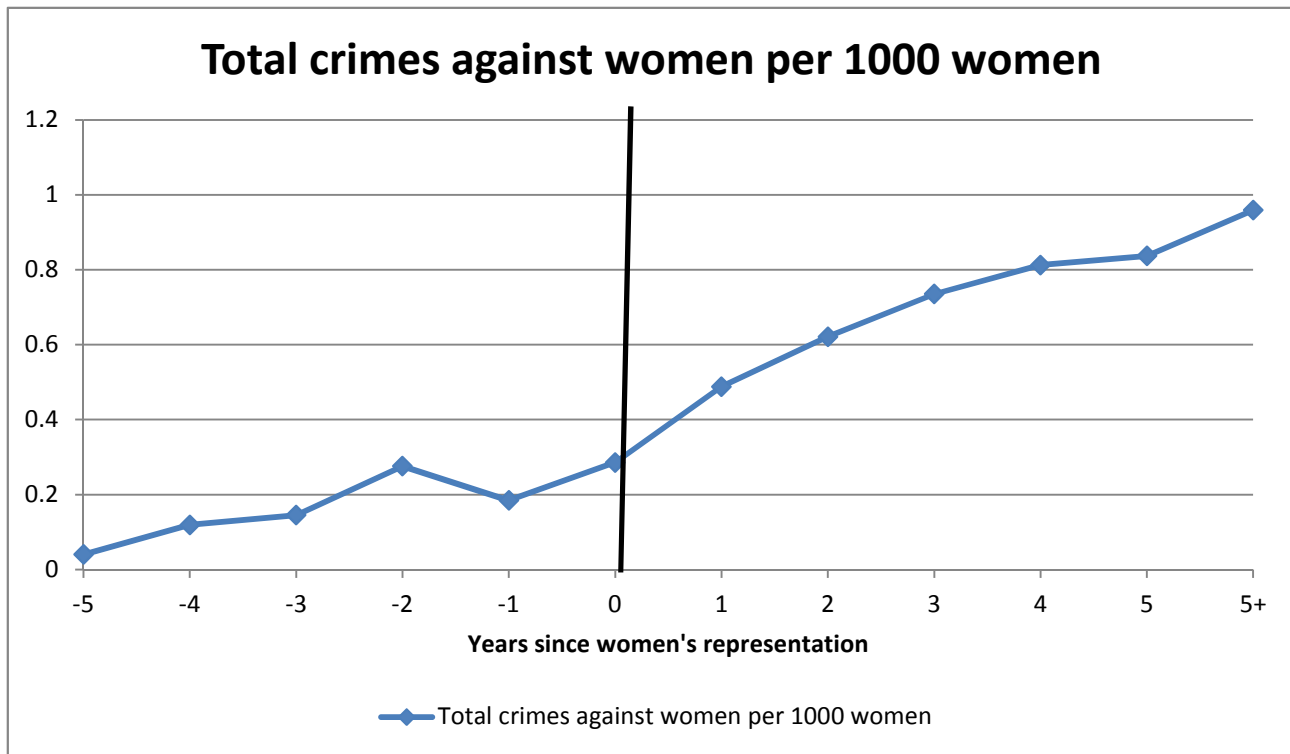


Figure II
Year-by-year Effects of Women's Empowerment



Notes: Each point on the graph represents the impact of women's representation on total crimes against women after a given number of years. The zero point on the X-axis represents the year of the reform; the dates of reform vary across states as documented in Table 2.