

Can Political Empowerment Help Economic Empowerment?

Women Leaders and Female Labor Force Participation
in India

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The World Bank
Poverty Reduction and Economic Management Network
Economic Policy and Debt Department
October 2013



Abstract

This study examines whether political empowerment of women affects their economic participation. In the context of mandated political representation reform for women in India, the study finds that the length of exposure to women politicians affects overall female labor force participation. These effects seem to arise through direct and indirect channels: political representation of women directly affects hours of work assigned to women under the recent national public works program, the Mahatma Gandhi National Rural Employment

Guarantee Scheme. In addition, the level of access to public goods, as influenced by exposure to women leaders over time, increases the likelihood of women being engaged in the labor force. The findings suggest that women's participation in politics could be a useful policy tool to increase both the supply of and the demand for labor market opportunities for women, potentially helping to stem India's declining female labor force participation rate.

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Keywords: Women, gender, jobs, social protection, social inclusion, shared prosperity, decentralization, sub-national development, political reservations, development, India, South Asia.

JEL Classification: J16, L26, L60, L80, M13, O10, P16, J15

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Acknowledgments: This paper was prepared with the financial support from World Bank. Mehtabul Azam and Mahesh Dahal provided valuable insights regarding NSS data. We would also like to thank Mani Shankar Iyer, Prabir De, Bhisma Rout, and Nupur Tewari for helpful discussions on the Panchayat system. Any remaining errors are our own. The views expressed here are those of the authors and not of any institution with which they may be associated.

1. Introduction

India has a poor track record on gender equality, even among lower-middle income countries. According to the UNDP's 2013 Gender Inequality Index, India ranks 136th of 186 countries; as per World Economic Forum's 2012 Global Gender Gap Index, it ranks 105th of 135 countries. An important contributor to the low status of women in India is their low level of participation in the labor force: for instance, the “economic participation and opportunity” subcomponent of the Gender Gap Index ranks India 123rd of 135 countries (see Appendix Figure 1).

This is worrisome on two counts: economic empowerment is an important aspect of women's bargaining power both within the household and in society at large, and female labor force participation (LFP) rates in India have been showing a declining trend in recent years. According to the ILO's Global Employment Trends 2013 report, LFP for women in India has gone down from 37 percent in 2004–2005 to 29 percent in 2009–2010. These figures are much lower than the average rate of female LFP across countries, which is around 60% (Bhalla and Kaur 2011). The downward trend in India is especially striking given the huge expansion of economic opportunities in India since the liberalization of the economy in 1991.

There are at least two reasons to care about gender equality. One is for its own sake. The other is that gender equality can benefit economic development. While there is some support for the view that economic development may itself promote gender equality, evidence from various countries suggests that this effect is not strong enough (Duflo 2012). The figures cited above provide evidence for the case of India. Therefore, continuous, creative, and pro-active policy commitment to equality, and specifically to increasing economic opportunities for women, may be needed to promote gender equality. In this paper, we investigate the role of a somewhat unconventional policy tool – political empowerment for women – in enhancing economic opportunity. We evaluate the effect of political empowerment of women on female LFP using the context of a natural experiment: the phased implementation of a 1993 reform mandating political representation (PR) for women in local government.

In what way(s) may political empowerment of women affect their economic opportunities and LFP? We believe that there are two broad, distinct channels through which this can happen. The first is through direct authority that female political representatives (PRs) and leaders may have

in creating employment opportunities at the local level. For instance, under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) in India – the world’s largest public works program – the village level leader (*Sarpanch*) has official say in the choice of public projects. Apart from this direct channel of influence, women leaders could indirectly affect women’s labor market participation. This may be through the public goods they provide or facilitate. In the Indian context, there is a sizeable body of empirical evidence that shows how women leaders affect the provision of public goods that women care about (Chattopadhyay-Duflo 2004, Bhalotra and Clots-Figueras 2011, and Iyer et al 2012). Some of these could also increase women’s ability to work outside the home. Alternatively, women PRs could facilitate female LFP by gradually changing perceptions of gender roles and attitudes (of both men and women) towards women’s participation in the activities outside the home (Beaman et al 2009, 2012). (See Section 3 for details on these different channels.)

We have three key findings:

- First, longer exposure to female political representation (PR) increases women’s overall labor force participation – both from having women as members at all levels of local government as well as leaders of district councils.
- Second, greater exposure to women PRs raises the share of public employment opportunities allocated to women under the MGNREGS.
- Finally, we find evidence that increasing access to public goods that women care about (e.g., roads, health) encourages greater female LFP in the presence of women leaders. Our findings highlight important complementarities between political and economic policy tools to increase women’s labor force participation.

A typical challenge with examining how elected representatives from minority groups affect citizen outcomes is that their election may reflect underlying changes in the preferences of the electorate, or their own specific attributes – rather than the effect of their election on the minority group as a whole. In our context however, two features of the 1993 reform help rule out these concerns. First, in decentralizing power to local elected bodies, the 1993 reform (formally, the 73rd Constitutional Amendment) mandated a minimum proportion (one-third) of elected local governance seats to be reserved for women. In addition, higher-level leadership positions in a

third of the local government councils at all levels were reserved for women candidates. Second, the actual implementation of the 1993 law across Indian states happened in a staggered manner in the decade following its enactment for reasons largely exogenous to the outcomes of interest to the present study (Iyer et al 2012, Ghani et al 2013a). We therefore use this plausibly exogenous variation in the length of exposure to women PRs across different districts of India to assess the impact of women's political empowerment on their LFP and economic opportunities.

We carry out a cross-district analysis for the year 2009, examining the cumulative impact of exposure to women PRs on labor market outcomes.¹ We find that longer exposure to women PRs increases women's overall LFP. This impact comes from having women at all levels of government from the introduction of the reform at the state level, but longer exposure to women leaders in the district council also has an additional, if smaller impact. In contrast, we find no effect on men's overall LFP. In terms of magnitudes, state level introduction of the program seems to have the biggest impact on public employment, while district level leaders seem to encourage greater household-based self-employment.

In trying to understand these findings better, we examine evidence for the direct and indirect channels outlined above. We first examine the allocation of work under India's flagship employment guarantee scheme, MGNREGS. Across all three phases of its implementation since the year 2006-07, we find that having had longer exposure to women PRs at the first year of implementation of the program directly increases the share of work allotted to women under it.

In order to study the indirect effects of public good provision by women leaders, we examine how the level of access to key public goods, as predicted by the exposure to women leaders, affects women's LFP. The reasoning for this approach is based on village level evidence that having women leaders changes the level and composition of the public goods provided: women leaders are more responsive with respect to public goods preferred by women (Chattopadhyay and Duflo 2004). Given that personal safety and security may rightly be regarded as public

¹ There are some important arguments in favor of examining the cumulative impact of exposure to women leaders, rather than their year-by-year impact. For one, the inexperience of women leaders may be a barrier to their effectiveness in the short term: for instance, there is evidence of capture of program benefits by local elites (Bardhan and Mookherjee 2012) and corruption in the implementation of MGNREGS (Afridi et al 2013). Whether these short term impacts persist over the long run is an important – and ultimately, empirical – issue. Here, the time that has elapsed since the implementation of the reform is long enough in most states, to make it feasible question to examine this question.

goods that would directly influence a woman's LFP decision, women leaders' impact on crime outcomes can also affect female LFP (Iyer et al 2012).

We examine this indirect impact of women leaders on female LFP using a 2SLS approach: cumulative exposure to women leaders at the state level up to the year 2001 is used to predict the level of key public goods in that year. We confirm that the length of exposure to women leaders affects the level of access to key public goods such as primary health centers, banks, paved roads and safe drinking water. Of these, our second-stage analysis finds that the first three have a significant influence on women's LFP in the year 2004, overall and in specific categories of self-employment.² This suggests that women leaders facilitate greater female LFP through indirect channels as well. Taken together, our findings provide encouraging support for the idea that women PRs can be a catalyst to improve both the supply of economic opportunities for women (through public employment) as well as women's demand for labor force participation (through better public goods).³

This study contributes to two specific strands of academic literature. Our work directly connects to prior studies of the impact of women's political reservations in India. Secondly, it is also linked with a literature that examines women's LFP in developing countries – including the declining trend in the Indian context (see Ghani et al 2013b, 2013c, 2013d). Finally, it also links to studies assessing the impact of the effect of MGNREGS on rural labor markets in India (see for instance Khera and Nayak 2009). More generally, this work builds upon earlier studies of the micro-level effects of policy on household labor supply and occupational choice. Overall we contribute to a much larger literature on the role and effect of policy and women's advancement in less-developed countries, as well as wider interest on how to increase the effectiveness of social welfare programs in developing economies.

² We have used the closest year to the latest available census data on public goods (2001) for which household level data on labor force participation is available, i.e. 2004.

³ We have not explored the impact of women PRs effects as role models on female LFP. However, Beaman et al(2012) do find that they encourage higher levels of education and aspirations for girls' working outside the home.

2. Women's Participation in the Labor Force and Politics in India

2.1 Women's Socio-Economic Status and Political Representation

Historically and even today, women remain a disadvantaged section of Indian society. Women were significantly underrepresented 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 were women. Women were also significantly disadvantaged in terms of human development indicators: in 2007, India had only 940 women for every 1000 men in the 2011 Census. Only 65% of women in India were literate in 2011, compared with 82% of men.

2.2 Mandated Political Representation in Local Councils

At the national level, reservations for women in elected bodies in India originated with the 73rd and 74th Constitutional Amendment Acts. These Amendments gave national support to the formalization and implementation of an historical decentralized governance structure known as the panchayat (or, more formally, Panchayati Raj Institutions). Traditionally, panchayats operated at the village level and consisted of a small number of individuals chosen by a village to oversee a wide range of local affairs. However, panchayats were not standardized in their structures, organization, operations, or responsibilities, nor were they necessarily elected bodies. By the mid-20th century panchayats were recognized often to embody “concealed forms of social prejudice, oppression and exploitation that were firmly rooted in local power structures” (GOI 2008). In the latter half of the 20th century there was support for the revival of a reformed panchayat system, with some states indeed restructuring their local government systems to provide for the decentralized panchayat system. By 1989 there was strong support at the national level to give constitutional status to a broad panchayat system.

In 1993, two pieces of national legislation came into effect: the 73rd Constitutional Amendment Act instituted a three-tiered system of local government at the village, sub-district (block), and district levels in rural areas of the country, while the 74th Constitutional Amendment Act instituted a revised local governance structure in municipalities (hereafter “the Amendments”). The Amendments intended to provide large-scale devolution and decentralization of administrative powers to local bodies. Responsibilities of the Panchayat include administration

of state transfer programs, planning and implementation of schemes for economic development, establishment and administration of local public goods such as educational and medical facilities, oversight of local infrastructure (water, sewage, roads, etc.) and the monitoring of civil servants (Duflo 2005). Furthermore, the Amendments stipulated that members of the local governance bodies were to be elected at five-year intervals, and at least one-third of all seats across the state were required to be filled by women.

The 73rd Amendment made for an ideal natural experiment because of multiple levels of explicit and implicit exogenous variation regarding what areas were subject to reservation at a given time. First, Gram Panchayats (hereafter referred to as “GPs”; the most local tier of the panchayat system, with approximately one GP for each village) were to be randomly subject to the reservations on a rotating basis. Thus at the village level, there exists random variation at any time regarding which villages were subject to the reservations and which were not. Next, one-third of a state’s district chairperson seats were to be reserved for women and this reservation is also randomly assigned and the assignment rotates across districts.

Finally, there exists substantial exogenous variation in the state-level timing of the effective implementation of the provisions of the 73rd Amendment. The Amendments stipulated that states had the responsibility to adjust or amend local elections to comply with the provisions of the Amendments, and all states amended existing laws or passed new laws to be compliant within one year of the passing of the Amendments. Compliant elections were eventually held by most states/union territories (UTs), and there is considerable variation in the timing of “effective implementation” (i.e., the first election held which implemented the provisions of the Amendments) across states. This implementation timing varies exogenously primarily due to state authorities waiting for the term of existing elected local governing bodies to expire before conducting compliant elections. This has resulted in largely exogenous variation in the length of exposure to women PRs across states.⁴

⁴ In other cases, implementation timing varied perhaps less exogenously. Some states chose to incorporate provisions regarding political reservations for women prior to when the constitutional amendment was to come into effect. Andhra Pradesh provided for 22 to 25 percent reservations for women in the Andhra Pradesh Gram Panchayats Act, 1964 (GOI 2008). Karnataka introduced a similar level of reservation for women in 1985. Both Kerala and West Bengal restructured their institutions of local government before the passing of the 73rd Act (in 1991 and 1992, respectively) although elections implementing these reservations were not held until after national

3. Data and Empirical Strategy

3.1 Data on Political Representation for Women

We exploit two types of variation in exposure to women leaders to identify the effect of PRs on labor force participation. The first captures cross-state differences in the timing of when the 73rd Amendment provisions were implemented. This information was collected from several publications documenting the implementation and progress of the reservations (Mathew 1995, 2000; GOI 2008); Appendix Table 1 depicts the considerable variation in timing of effective implementation of the Panchayati Raj across states/UTs.

The second level of identifying variation measures district-level chairperson reservations.⁵ That is, one-third of district council chairperson (“Sarpanch”) positions in India were also reserved for women, and this reservation rotates across districts. While all districts within a state have an identical (one-third) fraction of their council membership reserved for women, they do differ at a given point in time whether the chairperson position is reserved for women, and differ over time as to how many election cycles the Sarpanch position has been reserved for a woman.

3.2 Data on Labor Market Outcomes and Public Employment

The primary data source for labor force outcomes used in our analysis is India’s National Sample Survey Organization’s “Socio-Economic Survey—Schedule 10: Employment and Unemployment” (hereafter referred to as “NSS”). The NSS data contain a representative sample of households across all states/UTs approximately every five years (“thick” rounds).⁶ We use data from the thick rounds conducted in fiscal years 1999-2000, 2004-05, 2007-08 and 2009-10 (hereafter referred to only by the initial year for simplicity). The village sampling frame comes from the most recent national population census, and the sample is stratified across households at the district-rural/urban level.

enforcement in 1993. Bihar was prevented from implementation due to legal issues regarding certain provisions of the Amendments (Iyer et al, 2012). Some states (Meghalaya, Mizoram and Nagaland) were explicitly excluded from the purview of the Amendments (GOI 2008). Jammu and Kashmir introduced reservations at a level consistent with the Amendments via state-level legislation in 1997, although the election of panchayats under its own Act has not yet taken place (GOI 2008). Jharkhand has similarly never held reserved elections.

⁵ These data are available from the publisher of Iyer et al (2012).

⁶ The NSS’ “thin” or small rounds are conducted on a more frequent basis, although their smaller sample makes them less comparable to the thick rounds and less viable in empirical analysis also containing thick rounds.

Respondent households provide individual-level details regarding employment, income and consumption particulars. Our analysis focuses on reported occupational categories of working-age (25 to 60 year-old) women and men in both rural and urban areas of the country. In particular, we exploit the variation in individual-level responses to a question on one's "usual principal activity," which can take the following categorical values:

- Household enterprise/self-employed: own account worker, own account employer, helper in household enterprise;
- Salaried or wage employees (no subfields);
- Casual wage labor: in public works, in other types of work;
- Unemployed: did not work but was seeking and/or available for work;
- Other categories of workers outside the labor force: attended to domestic duties only, attended to domestic duties and was also engaged in collection of goods for household use, attended an educational institution, and other miscellaneous categories outside the labor force.

For our empirical analysis, we do not consider individuals reporting a currently-enrolled status or in the other miscellaneous categories of activity. Due to changes in administrative boundaries over time we concord district and state definitions to be consistent over time. Our analysis covers data from 418 unique consistently-defined districts across 32 states/UTs (pre-2001 definitions). Using the sample weights provided with the data, we construct population-level estimates of workers in each of the subcategories by rural/urban district areas in each period. MGNREGS and Panchayati Raj information is then matched in using geographical location data available in NSS. This data set becomes the basis for our analyses to follow. We also use data on the fraction of district population with access to various public goods from the 2001 Population Census.

Table 1a characterizes national trends in men's and women's labor force participation across rural and urban areas for our main period of study (1999-2009). These highlight, in particular, how women's LFP has shown an interesting downward trend in recent years, as well as sharp differences (both in level and in trends) in urban and rural areas of the country. We note that much of this downward trend is in rural areas, with hardly any change in urban areas over this period.

For ease of comparison, we present the category-wise share of employment in each year in Table 1b. This highlights two patterns: there is a high concentration among men in own-account-enterprise (OAE) work,⁷ and there is a sharp distinction between the activities that men and women are engaged in. For example, more than 60 percent of women are primarily engaged in domestic duties, whereas this share is trivial among men. Women also have a higher likelihood of being casual workers in small-scale enterprises, whereas men are more likely found as (paid) workers and employers in own account enterprises. A low percentage of both groups is primarily engaged in public works, although the share of men in this activity is typically slightly higher than that of women. Over time, we notice very little change in the distribution of employment across categories for men, but for women there is an observed decrease in the share of OAE casual workers (-2.4 percentage points), and a sizeable increase (5.4 percent) in the share of women primarily engaged in domestic work. In terms of rural-urban differences, we highlight the reduction in the share of individuals engaged in wage/salary work and a higher percentage in OAE employment, pointing to the higher percentage of formal-sector jobs in urban areas. Women in rural areas are somewhat less likely to be engaged principally in domestic duties (relative to all women), and slightly more likely to be engaged in the OAE sector. Figures 1-3 depict these levels and trends in overall labor force participation for rural areas graphically by state for 1999-2009.

Table 2 presents population-level estimates of employment in each of the categories of employment we study. Here we confirm from the micro data some important priors: a large increase in the number of individuals engaged in public works following the introduction of MGNREGS, especially in rural areas, and sharp gender differences in the distribution of employment across activity types. Given that the biggest change in female LFP in recent years is in rural areas, we will focus our formal analysis on this part of the country alone.

⁷ Own-account enterprises are specifically defined in the context of GOI surveys as “self-employed who operate their enterprises on their own account or with one or a few partners and who during the reference period by and large, run their enterprise without hiring any labour. They may, however, have unpaid helpers to assist them in the activity of the enterprise.”

3.3 Empirical Strategy

We aggregate the data (using sampling weights) by district, location (rural/urban) and sex to estimate the following cross-sectional specification that examines how labor market outcomes at the district level are affected by the length of exposure to mandated political representation for women.

$$\ln L_{s,i} = \beta_0 + \beta_1 E_s + \beta_2 D_{s,i} + \beta_3 X_{s,i} + \varepsilon_{s,i} \quad (1)$$

$L_{s,i}$ captures the log-count of individuals in a given labor market activity in state s and district i of in 2009. E_s represents the number of years of exposure to mandated political representation for women under Panchayati Raj since its implementation at the state level, $D_{s,i}$ captures the cumulative number of years in which the district chairperson seat was reserved for a woman, and $X_{s,i}$ represents district specific controls including the initial (1999) value of the left hand-side variable.⁸ Equation (1) is estimated separately for men and women and standard errors are clustered at the state level. We estimate this equation using NSS data from 2009-10 to allow for the longest possible time since the introduction of Panchayati Raj to assess its impact; this year choice for the data also guarantees at least some exposure to PR across as many districts in our sample as possible.

The 1993 reform, as it pertained to rural and urban areas, is legislated under the 73rd and 74th amendments respectively. Given that there was considerable variation in the actual implementation of the 73rd Amendment we estimate the equation above using data from rural areas only. As explained in section 2.1, the date of implementation of this reform varied across different states of India, but for reasons unrelated to women's LFP and employment patterns in these states. Therefore, the number of years of exposure to women political representatives is arguably exogenous to female employment patterns. We exploit this variation in exposure to women political representatives both at the state and the district level, given that they imply different comparison margins. For the districts within a given state, variation in exposure to the program is only with respect to the presence of a woman *Sarpanch* (leader) of the district

⁸ We are constrained to use 1999 as our "initial" year for this analysis due to the fact that the data available for purchase from the NSSO for the previous household survey round (conducted in 1993-94) do not contain district-identifying information.

council. In contrast, variation at the state level implies differences in exposure to both women leaders as well as women members of the councils at all levels of local government.

4. Political Representation and Women's Labor Market Outcomes

4.1. Women's Labor Force Participation

We report our results from estimating equation 1 for men and women in Table 3, for both overall LFP and specific labor force activities. Part (A) of the table shows the impact on women's LFP, while part (B) depicts the effects on men's LFP. Column (1) shows the impact of women PRs on overall female LFP. We find that an additional year of exposure to women PRs across all levels of local government increases women's LFP by 17.5% (row 1); in addition, having a woman leader at the district level improves this outcome by 8.8% (row 2). Both findings are statistically significant at the 10% level. In contrast, women PRs have little impact on men's LFP.

In terms of individual types of work, district women leaders seem to significantly increase women's self-employment (worker in OAE) opportunities by 17% while the broader impact of having women PRs is seen in an 18.7% increase in wage and salaried work. At both levels of analysis, women PRs have positive effects of fairly large magnitude on female public employment, although these effects are not statistically significant. They also lower the percentage of women exclusively involved in domestic work.

In order to examine these effects in greater detail, it is worth understanding the factors that constrain women's LFP in the Indian context, and discuss potential channels through which women PRs can change these constraints directly or indirectly. To do so, we draw on existing research.

4.2 How Women Political Representatives Could Affect Female LFP: Possible Channels

What are the factors that affect a woman's decision to seek work outside the home, in the Indian context – and what are the big barriers she faces? Recent field surveys in India (Khera-Nayak 2009, Narayanan 2007, Krishnaraj et al 2004) highlight some key factors relevant to our analysis: Most household duties are entirely a woman's responsibility, hence proximity of the

work site is one important consideration. Concerns about personal safety and exploitation as well as the availability of child care are two more critical factors. If these requirements are not fully met, women are understandably unwilling to take up work outside the home, especially given that women are widely discriminated against, when it comes to wage rates. On top of these factors, women also face considerable social barriers that make it ‘inappropriate’ for them to undertake certain types of work.

In what ways may woman leaders change the outcomes of these key decision variables, so as to influence other women’s decision to seek work? Recent work shows that women are more likely to attend village meetings and voice their concerns (Beaman et al 2009) when there are women in local leadership positions. To the extent that women care about employment opportunities, they may be more likely to raise this issue when there are women holding leadership positions. If a woman leader has a role in the choice of projects that are undertaken in public employment schemes – as is true under India’s MGNREGS program, at the village level – and cares about employment opportunities for women, this may directly influence women’s employment *opportunities*. In the Indian context, this is most likely to be seen in public sector employment, given that the village *Sarpanch* has a say in the choice of projects under MGNREGS, India’s largest employment guarantee scheme.

There are many potential channels by which women leaders may have an indirect influence on women’s LFP. First, women leaders have been found to be more likely to invest in infrastructure for public goods that women express a preference for (Chattopadhyay and Duflo 2004). The easier availability of these public goods could affect women’s LFP through greater convenience and/or time savings. Women leaders may encourage greater labor force participation if they can affect physical safety (Iyer et al 2012). They may also serve as local role models (Beaman et al 2012), hence change perceptions about the suitability of certain jobs for women and thereby influence their education and labor market decision.

The effect of women PRs on female employment in public works reported in Table 3 (part (A), column (2)-row (1)) is consistent with the first (direct) channel described above. The increase in women’s LFP in self-employment due to the presence of women leaders at the district level is

more consistent with the second (indirect) channel described above (column(3), row (2)) – given that district leaders do not have a say in the choice of public employment projects.

4.3 Public Sector Employment under Women Leaders

We now examine evidence for the *direct* channel by which women leaders influence the share of work allocated to women in public works. For this, we use data from India’s main public employment program, the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) – which is the largest existing public employment program in the world. We use data from district-level Implementation Status Reports collected from the MGNREGS website.⁹ These data report person-days worked by sex, which we use to construct the percentage of total person-days worked by women in a given district and year.

The identifying variation in our analysis comes from state-level cross-sectional differences in the cumulative length of exposure to women leaders in the 73rd Amendment. Thus we use a cross-sectional specification similar to equation 1 with the outcome as the share of person-days of work allocated to women in the first year in which MGNREGS was implemented in each district. Given the phased implementation of MGNREGS, our data for individual districts comes from the years 2006, 2007 or 2008, with each district appearing once. Because the phasing in of MGNREGS was not random across districts, we also estimate this specification separately by MGNREGS implementation phase to avoid correlation between the measure of cumulative years and the phasing selection criteria. In this context, it is useful to note that all districts within a state were not phased into the program at the same time.

Table 4 presents the results of these estimations. It shows that longer exposure to women leaders results in a larger share of work under MGNREGS being allocated to women: an additional year of exposure to women leaders as of the time of MGNREGS implementation increased the share of work allotted to women by 1.2 percentage points on average (column 1). Given that exposure to women leaders as of the MGNREGS initial implementation year ranged from zero to 20 (with a mean of 11 years), the magnitude of this impact is quite large relative to the mean share of person-days allocated to women (35 percent). That is, we would estimate that the average

⁹ See: http://nrega.nic.in/netnrega/mpr_ht/nregampr.aspx

district with 11 years of exposure to women PRs at the time of the introduction of MGNREGS would have a 13 percentage-point higher share (35 percent) of MGNREGS work allocated to women in the first year under the program, than a state that had zero exposure (22 percent).

Khera-Nayak (2009) document several features of MGNREGS which make it an attractive employment option for women. For one, work is locally available (within a 5 km radius, as stipulated under the program) and its availability is predictable. For another, the work is regarded as ‘dignified’ for women to undertake, and there is less chance of it being exploitative. To top these factors, it is also better paid (Azam 2011). Survey respondents consistently report several related benefits from being able to undertake this work. To the extent that women leaders at the village level significantly facilitate greater female employment under MGNREGS, they provide a direct channel of economic empowerment for women.

4.4 Effect of Access to Public Goods under Women Leaders on Women’s LFP

Next, we examine evidence on one of the indirect channels described above: how women leaders affect women’s lifestyle through the public goods they prioritize. There is some concrete evidence of this in the Indian context: Chattopadhyay and Duflo (2004) find that female leaders in local government increased access to public goods desired by women; Iyer et al(2012) find that they encourage greater reporting of crimes by women too, which would affect women’s sense of safety in seeking work outside their homes.

We estimate the impact of exposure to women PRs through the provision of public goods by estimating the following equation:

$$\ln L_{s,i} = \beta_0 + \beta_1 P_{s,i} + \beta_2 X_{s,i} + \varepsilon_{s,i} \quad (2)$$

where $L_{s,i}$ captures labor force participation in district i in state s in the year 2004, as a function of the fraction of areas with access to public good $P_{s,i}$ in district i in state s in the year 2001 and $X_{s,i}$ represents district level controls including the initial value of the dependent variable (in the year 1999). To estimate this equation, we take a 2SLS approach. We use cumulative years of exposure to women leaders by district up to the year 2001 as an instrument to predict the fraction of the population with access to key public goods in that year.

We then examine how female LFP in the year 2004 is affected by the predicted value of various public goods, generated from the first stage regression. We are able to confirm that the length of exposure to women PRs does influence access to a range of public goods, including primary health centers, banks, paved roads and safe drinking water. (Please refer to the Appendix for the results of this first stage regression.) As seen in Table 5, our second stage analysis finds that access to the first three public goods – primary health centers, paved roads, and banks – has a significant influence on women’s LFP in the year 2004. This is true with respect to overall female LFP as well as in specific categories of self-employment.¹⁰ While more work is needed to unpack the mechanisms underlying the findings reported here, these findings are very encouraging in terms of one type of indirect channel through which women leaders have affected women’s LFP.¹¹

5. Conclusion

Women’s earning power is well recognized to be an important aspect of their bargaining power within and outside the household. However, labor market participation of women may be curtailed in societies where women have traditionally held second-class status – due to both supply and demand side constraints. Typical policy initiatives to encourage women’s LFP tend to be in the form of those that expand job opportunities for women. This paper explores whether political empowerment of women could be a novel policy tool to enhance labor force participation by mitigating demand-side constraints. Understanding a woman’s LFP decision at the micro level requires a keen appreciation for the various factors, social, economic, logistical and psychological, that influence it. Women in public office may be in a unique position to appreciate these multi-dimensional barriers – and ways to mitigate them, either through active efforts or by serving as catalysts for change.

We study this link between political and economic empowerment in the context of mandated political representation for women reform in India in 1993, taking advantage of cross-district and state level variation in the length of exposure to different elements of this reform (due to varying

¹⁰ We have used the closest year to the latest available census data on public goods (2001) for which household level data on labor force participation is available, i.e. 2004.

¹¹ While there is an effect of one particular public good (the primary health center) on men’s LFP as employers in self-owned enterprises, there is little impact of the other public goods, or in any other form of LFP.

implementation dates). Using representative household-level employment data, we find that longer exposure to women PRs significantly increases women's LFP. We explore possible channels through which this effect may arise. We find evidence of both a direct channel (whereby women PRs allocate more employment to women in public works) and indirect channels (whereby women leaders at the district level facilitate/encourage greater female LFP through the public goods they provide).

Our findings are directly relevant to the current debate on policies for empowerment of women in developing countries. They are also especially pertinent to address the problem of declining labor force participation of women in India in the last decade – despite the huge expansion in economic activity since the liberalization of the economy in the 1990s. They are encouraging, inasmuch as they suggest that public works programs may be a natural way for women PRs to leverage their political power for women's economic empowerment through a greater supply of job opportunities. They also provide some suggestive evidence that women leaders may be catalysts for greater female demand for LFP because of their emphasis on the provision of public goods preferred by women.

In future work, we will aim to gather additional relevant data to refine this analysis. For one, we will compare the effects of women leaders on female LFP at the within-district level, before versus after the reform. We will also modify our analysis of how public good provision by women leaders affects women's LFP, by obtaining initial levels of public good provision at the district level for an initial year prior to the enactment of the 73rd Constitutional Amendment. We will also examine how our current findings on public good provision and female LFP are modified by using district (rather than state)-level exposure to women leaders as our instrument.

Overall, our findings so far justify a broader discussion of the ways in which political participation of women can be leveraged to enhance their economic empowerment.

Understanding these channels is a key to increasing female LFP and unleashing India's potential in the global economy.

References

- Afridi, Farzana, Vegard Iversen and M.R. Sharan (2013) Women Political Leaders, Corruption and Learning: Evidence from a Large Public Program in India, International Growth Center Working Paper
- Azam, Mehtabul. 2011 Oct. The Impact of Indian Job Guarantee Scheme on Labor Market Outcomes: Evidence from a Natural Experiment, forthcoming Economic and Political Weekly
- Bardhan, Pranab, Dilip Mookherjee and Monica Torrado. 2010. “Impact of Political Reservations in West Bengal Local Governments on Anti-Poverty Targeting.” *Journal of Globalization and Development* 1(1): Article 5.
- Basu, A. K. (2011). Impact of Rural Employment Guarantee Schemes Impact of Rural Employment Guarantee Schemes on Seasonal Labor Markets: Optimum Compensation and Workers’ Welfare. IZA Discussion Paper Series No. 5701, (5701).
- Basu, A. K., Chau, N. H., and Kanbur, R. (2009). A theory of employment guarantees: Contestability, credibility and distributional concerns. *Journal of Public Economics*, 93(3-4), 482–497. doi:10.1016/j.jpubeco.2008.09.007
- Basu, Kaushik (2006). Gender and Say: A Model of Household Behavior with Endogenously-Determined Balance of Power, *Economic Journal*, April
- Beaman, Lori, Raghavendra Chattopadhyay, Esther Duflo, Rohini Pande and Petia Topalova. 2009. “Powerful Women: Does Exposure Reduce Bias?” *Quarterly Journal of Economics* 124(4): 1497-1540.
- Beaman, Lori, Esther Duflo, Rohini Pande and Petia Topalova. 2012. “Female Leadership Raises Aspirations and Educational Attainment for Girls: A Policy Experiment in India.” *Science*: January 12
- Besley, T., and Coate, S. (1992). Workfare versus Welfare: Incentive Arguments for Work Requirements in Poverty Alleviation Programs. *American Economic Review*, 82(1), 249–61.
- Bhalotra, Sonia and Irma Clots-Figueras 2011. “Health and the Political Agency of Women” , working paper
- Bhalla, Surjit S. and Ravinder Kaur, “Labour Force Participation of Women in India: Some facts, some queries,” LSE Asia Research Centre Working Paper Series #40, 2011.
- Chattopadhyay, Raghavendra and Esther Duflo. 2004. “Women as Policy Makers: Evidence from a Randomized Policy Experiment in India.” *Econometrica* 72(5): 1409-1443.

- Duflo, Esther(2011), “Women’ s Empowerment and Economic Development” , Working Paper
- Dutta, P., Murgai, R., and Ravallion, M. (2012). Rozgar Guarantee? Assessing India’s Biggest Anti-Poverty Program in India's Poorest State. Mimeo, World Bank., (April).
- Dutta, P., Murgai, R., Ravallion, M., and va de Walle, D. (2012). Does India’s Employment Guarantee Scheme Guarantee Employment ? World Bank Policy Research Working Paper Series #6003, (March).
- Ghani, Ejaz and Kerr, William R. and O'Connell, Stephen D. (2013a). "Political reservations and women's entrepreneurship in India, "Policy Research Working Paper Series 6307, The World Bank.
- Ghani, Ejaz and Kanbur, Ravi and O'Connell, Stephen D. (2013b). "Urbanization and agglomeration benefits: gender differentiated impacts on enterprise creation in India's informal sector,"Policy Research Working Paper Series 6553, The World Bank.
- Ghani, Ejaz and Kerr, William and O'Connell, Stephen (2013c). "Promoting Women’s Economic Participation in India, "World Bank - Economic Premise, The World Bank, issue 107, pages 1-6, February.
- Ghani, Ejaz and Kerr, William R. and O'Connell, Stephen D. (2013d). "Local industrial structures and female entrepreneurship," *Journal of Economic Geography*, (forthcoming).
- Government of India, Study on EWRs in Panchayati Raj Institutions. Ministry of Panchayati Raj (2008).
- Hausmann, Ricardo, Laura Tyson, and Saadia Zahidi, The Global Gender Gap Report 2011 (Geneva, Switzerland: World Economic Forum, 2011).
- Imbert, C., and Papp, J. (2012). Equilibrium Distributional Impacts of Government Employment Programs: Evidence from India’s Employment Guarantee. Mimeo, Paris School of Economics.
- Iyer, Lakshmi, Anandi Mani, Prachi Mishra and Petia Topalova. 2012 “The Power of Political Voice: Women’ s Political Representation and Crime Outcomes in India” forthcoming, American Economic Journal: Applied Economics
- Jha, R., Bhattacharyya, S., Gaiha, R., and Shankar, S. (2009). “Capture” of anti-poverty programs: An analysis of the National Rural Employment Guarantee Program in India. *Journal of Asian Economics*, 20(4), 456–464. doi:10.1016/j.asieco.2009.03.003
- Khera, R., and Nayak, N. (2009). Women workers and perceptions of the National Rural Employment Guarantee Act in India, *Economic and Political Weekly*, Vol. XLIV no. 43, October 24 issue

- Krishnaraj, M., D. Pandey and A. Kanchi (2004), “Does EGS require Restructuring for Poverty Alleviation and Gender Equality – Part II”, *Economic and Political Weekly*, April 24 issue
- Liu, Y., and Deininger, K. (2010). Poverty Impacts of India’s National Rural Employment Guarantee Scheme: Evidence from Andhra Pradesh. Working Paper, Paper pres(April), 1–24.
- Mathew, George, Status of Panchayati Raj in the States of India, 1994 (New Delhi, India: Institute of Social Sciences. Concept Pub. Co., 1995).
- Mathew, George, Status of Panchayati Raj in the States and Union Territories of India (New Delhi, India: Institute of Social Sciences. Concept Pub. Co., 2000).
- Ministry of Rural Development. (2010), “Annual Report (2009-2010),” Government of India.
- Narayanan, Sudha (2008), “ Employment Guarantee, Women’ s work and Child care” , *Economic and Political Weekly*, March 1 issue
- Pankaj, A., and Tankha, R. (2010). Empowerment Effects of the NREGS on Women Workers : A Study in Four States. *Economic and Political Weekly*, XLV(30), 45–55.
- Qian, Nancy, 2008. Missing Women and the Price of Tea in China: The Effect of Sex-Specific Income on Sex Imbalance,” *The Quarterly Journal of Economics*, 123(3), August
- Ravallion, M., Datt, G., and Chaudhuri, S. (1993). Does Maharashtra’s Employment Guarantee Scheme Guarantee Employment? Effects of the 1988 Wage Increase. *Economic Development and Cultural Change*, 41, 251–75.
- Ravi, S., and Engler, M. (2009). Workfare in Low Income Countries: An Effective Way to Fight Poverty ? The Case of NREGS in India. Mimeo.
- Shariff, A. (2009). Assessment of Outreach And Benefits of National Rural Employment Guarantee Scheme of India. *The Indian Journal of Labour Economics*, 52(2).

**Table 1: Share of persons engaged, by labor force activity
by sex and year, 1999-2009**

	Rural				Urban			
	1999-00	2004-05	2007-08	2009-10	1999-00	2004-05	2007-08	2009-10
Labor Force Participation, men	99.7%	99.7%	99.6%	99.7%	99.6%	99.6%	99.5%	99.6%
Labor Force Participation, women	42.6%	45.2%	39.6%	36.5%	22.6%	25.3%	21.1%	21.6%
OAE worker, men	43.0%	46.4%	44.1%	43.2%	35.0%	37.4%	35.7%	34.9%
OAE worker, women	5.6%	6.5%	5.1%	5.2%	4.7%	4.9%	4.4%	4.7%
OAE employer, men	1.2%	1.2%	1.3%	1.0%	1.1%	2.3%	2.1%	1.7%
OAE employer, women	0.2%	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%
OAE casual worker, men	8.6%	9.5%	8.8%	8.5%	4.5%	5.3%	5.0%	4.8%
OAE casual worker, women	15.0%	18.2%	14.6%	12.5%	3.7%	4.8%	3.2%	2.9%
Wage/salary worker, men	10.0%	9.7%	9.7%	9.0%	41.3%	39.7%	40.4%	40.7%
Wage/salary worker, women	1.8%	2.2%	2.1%	2.0%	8.0%	9.3%	8.1%	8.4%
Employer in public works, men	0.2%	0.1%	0.2%	0.6%	0.3%	0.1%	0.1%	0.4%
Employer in public works, women	0.1%	0.1%	0.1%	0.4%	0.0%	0.0%	0.0%	0.1%
"Other" employment, men	35.8%	32.0%	34.8%	36.8%	15.1%	12.8%	14.4%	15.9%
"Other" employment, women	19.6%	17.1%	17.2%	15.8%	5.3%	4.6%	4.7%	4.5%
Attended domestic duties only, men	0.3%	0.3%	0.4%	0.3%	0.4%	0.4%	0.5%	0.4%
Attended domestic duties only, women	57.4%	54.8%	60.4%	63.5%	77.4%	74.7%	78.9%	78.4%

Source: National Sample Survey Employment-Unemployment Survey (Rounds 55, 61, 64, 66)

Table considers working-age population only. All means use sampling weights provided by NSS.

Table 2a: Total persons engaged, by usual principal activity (000s)
Population estimates, Rural areas

<i>Men</i>					<i>Women</i>				
Activity	1999	2004	2007	2009	Activity	1999	2004	2007	2009
OAE worker	56,185	66,209	66,619	67,071	OAE worker	7,387	9,495	7,901	8,176
OAE employer	1,505	1,781	1,988	1,530	OAE employer	218	331	301	283
OAE casual worker	11,240	13,533	13,320	13,123	OAE casual worker	19,689	26,393	22,677	19,675
Wage/Salary employee	13,002	13,823	14,629	13,984	Wage/Salary employee	2,384	3,142	3,246	3,111
Employed in public works	287	206	260	995	Employed in public works	81	87	107	614
Employed (all other)	46,728	45,606	52,584	57,132	Employed (all other)	25,755	24,786	26,689	24,967
Domestic duties	343	412	619	458	Domestic duties	75,269	79,578	94,006	100,165

Table 2b: Total persons engaged, by usual principal activity
Population estimates, Urban areas

<i>Men</i>					<i>Women</i>				
Activity	1999	2004	2007	2009	Activity	1999	2004	2007	2009
OAE worker	14,749	17,516	18,484	19,537	OAE worker	1,851	2,189	2,229	2,573
OAE employer	475	1,061	1,087	939	OAE employer	33	62	54	55
OAE casual worker	1,889	2,467	2,573	2,666	OAE casual worker	1,471	2,142	1,608	1,589
Wage/Salary employee	17,427	18,609	20,899	22,806	Wage/Salary employee	3,163	4,208	4,102	4,572
Employed in public works	109	56	62	230	Employed in public works	17	14	3	35
Employed (all other)	6,369	6,016	7,451	8,905	Employed (all other)	2,099	2,073	2,403	2,438
Domestic duties	151	172	233	208	Domestic duties	30,645	33,661	40,050	42,505

Source: National Sample Survey Employment-Unemployment Survey (Rounds 55, 61, 64, 66)

Table considers working-age population only. All means use sampling weights provided by NSS.

Table 3A: Effects of Women Political Representatives on District-level Labor Market outcomes of Women

<i>Dependent Variable (persons engaged, in natural log):</i>	in labor force	public worker	worker in OAE	employer in OAE	casual worker OAE	wage-salaried	domestic work only
	(1)	(2)	(3)	(4)	(5)	(6)	(10)
Cumulative Years of Reserved Elections	0.175+ (0.079)	0.219 (0.127)	0.038 (0.097)	0.157 (0.198)	0.117 (0.077)	0.187+ (0.086)	-0.009 (0.012)
(mean) cum_wdistres	0.088+ (0.045)	0.139 (0.104)	0.171++ (0.073)	0.025 (0.090)	0.030 (0.121)	0.042 (0.072)	-0.023+ (0.010)
Observations	184	184	184	184	184	184	184
R-squared	0.279	0.241	0.102	0.240	0.138	0.052	0.673
Adjusted R-squared	0.267	0.229	0.087	0.227	0.124	0.036	0.668

Table 3B: Effects of Women Political Representatives on District-level Labor Market outcomes of Men

<i>Dependent Variable (persons engaged, in natural log):</i>	in labor force	public worker	worker in OAE	employer in OAE	casual worker OAE	wage-salaried	domestic work only
	(1)	(2)	(3)	(4)	(5)	(6)	(10)
Cumulative Years of Reserved Elections	0.003 (0.008)	-0.009 (0.015)	0.358+++ (0.061)	-0.036 (0.032)	0.072+ (0.036)	-0.054 (0.094)	-0.031 (0.093)
(mean) cum_wdistres	-0.008 (0.008)	-0.001 (0.011)	0.016 (0.102)	-0.046 (0.063)	0.011 (0.028)	-0.051 (0.122)	0.013 (0.140)
Observations	184	184	184	184	184	184	184
R-squared	0.830	0.575	0.159	0.294	0.212	0.014	0.015
Adjusted R-squared	0.827	0.568	0.145	0.282	0.199	-0.002	-0.001

Notes: State clustered standard errors reported below coefficients. Constant term and lag (1999) DV suppressed.

+ significant at 10% level; ++ significant at 5% level; +++ significant at 1% level.

**Table 4: How Exposure to Women PRs affects Share of NREGS Work
Allocated to Women, 2006-2008**

	All Districts	Phase I	Phase II	Phase III
	(1)	(2)	(3)	(4)
Cumulative Years of Reserved Elections	0.012++ (0.006)	0.013+++ (0.003)	0.006 (0.004)	0.014+++ (0.003)
Observations	593	198	126	269
Adjusted R-squared	0.069	0.086	0.012	0.066

Notes: Standard errors clustered by state. Constant term (all models) and phase fixed effects (column 1) suppressed.

Similar results hold when outcome variable is in natural logs.

+ significant at 10% level; ++ significant at 5% level; +++ significant at 1% level.

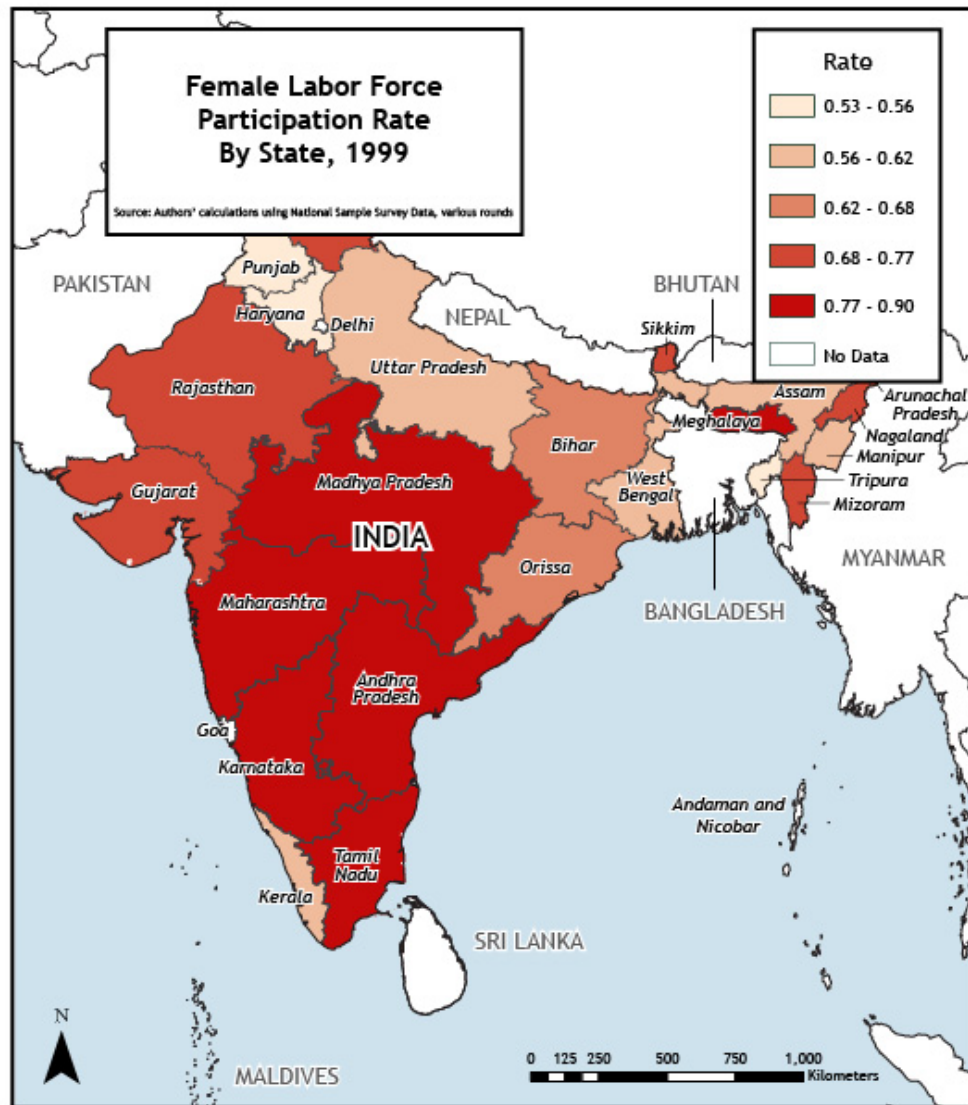
Table 5: How Access To Public Goods Under Women PRs Affects Female Labor Force Participation, 2004

	Dependent Variable:					
	Women			Men		
	Overall LFP	Worker in OAE	Employer in OAE	Overall LFP	Worker in OAE	Employer in OAE
	(1)	(2)	(3)	(4)	(5)	(6)
Primary Health Sub-centre	4.354+++ (1.513)	6.634+++ (2.192)	5.529+++ (1.858)	0.535 (0.431)	0.675 (1.027)	10.809+++ (4.179)
Banks	6.219++ (3.053)	10.911++ (5.379)	9.009++ (4.473)	0.889 (0.878)	1.161 (1.964)	16.171 (10.372)
Paved Roads	3.350++ (1.579)	5.605+ (2.898)	4.860++ (2.427)	0.590 (0.692)	0.677 (1.187)	9.893 (6.313)
Safe Drinking Water	17.859 (13.99)	17.276 (11.339)	14.298 (9.792)	9.961 (26.334)	5.022 (8.360)	27.513 (20.933)
Electricity	3.403 (2.332)	5.626 (4.204)	5.207 (3.492)	0.345 (0.366)	0.468 (0.863)	9.455 (7.034)
Number of Observations in Each Cell	416	416	416	416	416	416

Notes: Each cell is the main coefficient from a second-stage cross-district IV regression, where the independent variable is the predicted value from a first stage regression with the 'Fraction of the District Population that has access to the public good' specified in the corresponding row as the dependent variable and the 'Cumulative Years of Exposure to Women PRs at the State level in 2001' as the instrument. The control variable in all specifications is the lag value of the dependent LFP variable (as of 1999). Standard errors are clustered by state. Appendix Table 2 includes first stage results referred to above.

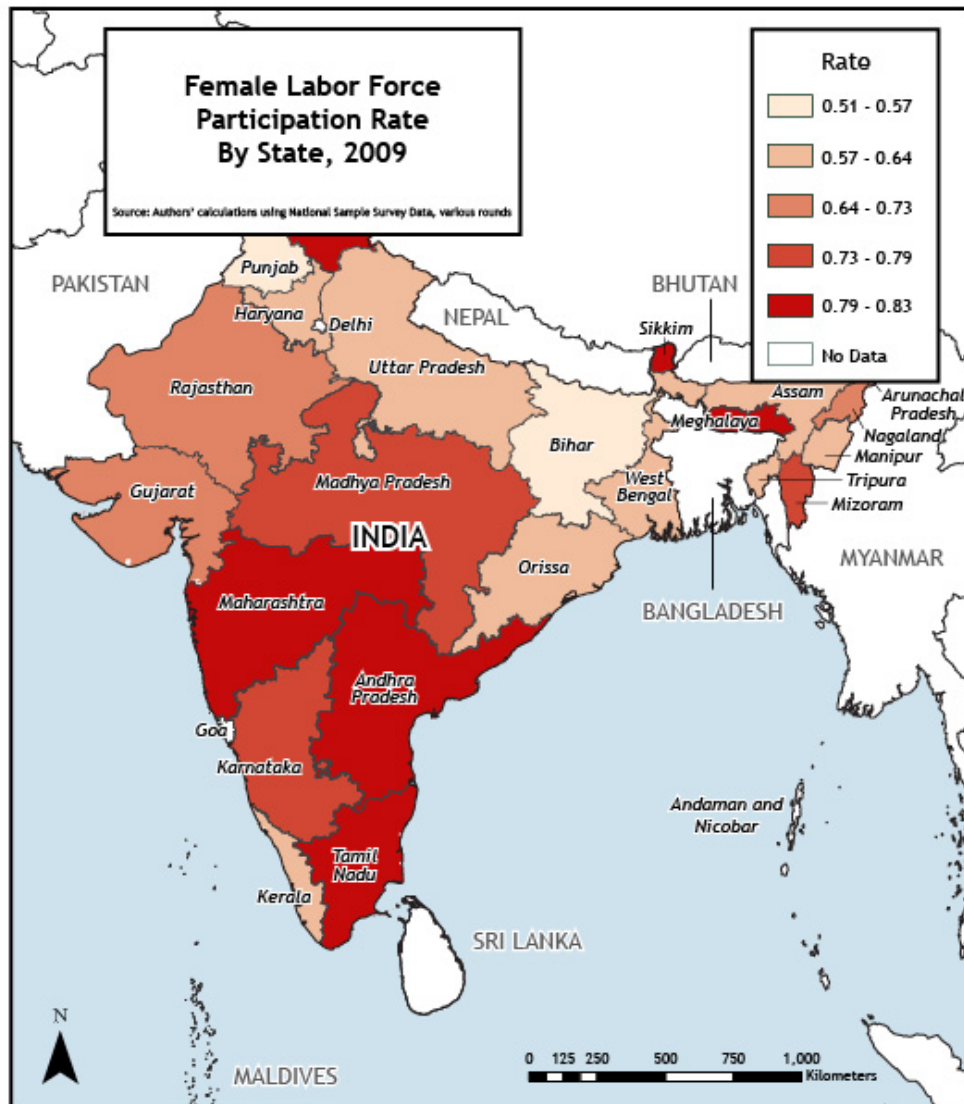
+ significant at 10% level; ++ significant at 5% level; +++ significant at 1% level.

Figure 1



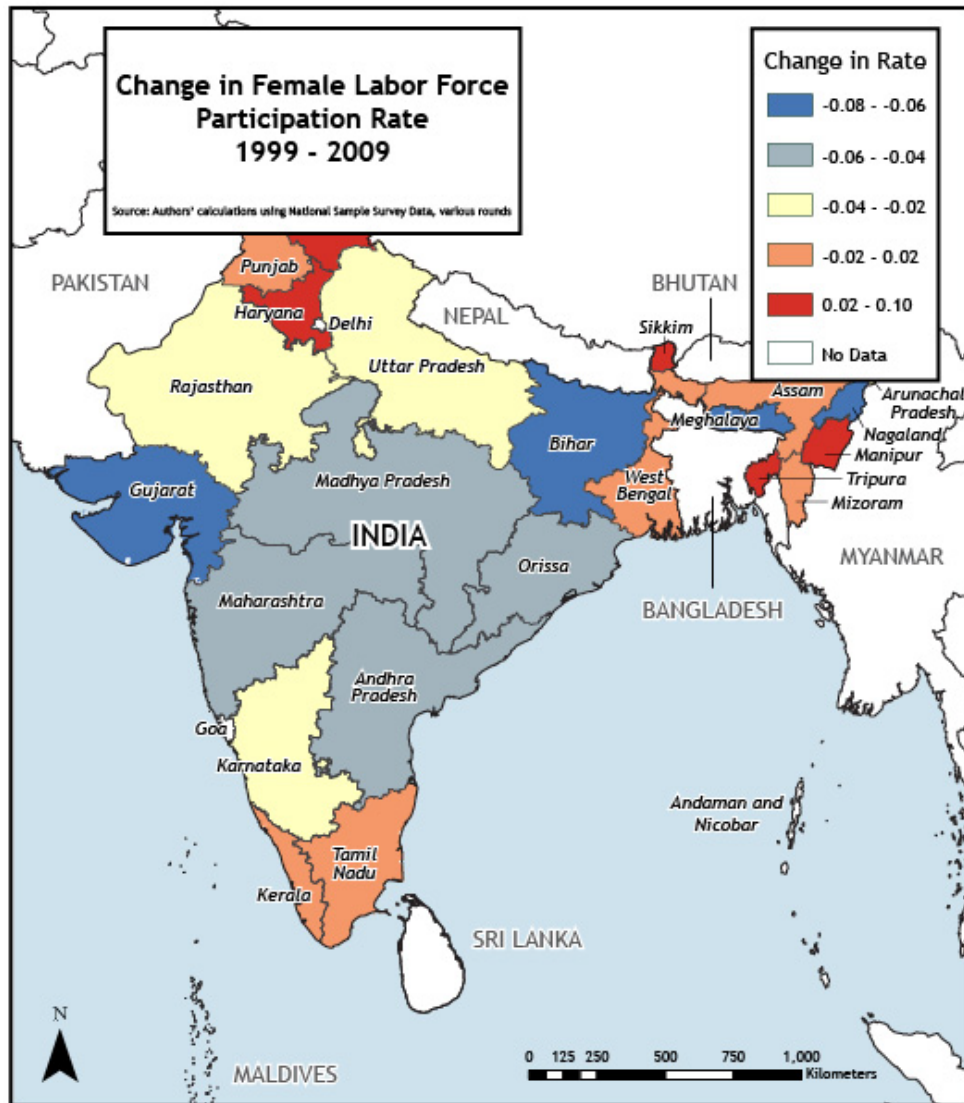
Source: Authors' calculations using NSS data. Maps based on data from rural areas of state.

Figure 2



Source: Authors' calculations using NSS data. Maps based on data from rural areas of state.

Figure 3



Source: Authors' calculations using NSS data. Maps based on data from rural areas of state.

**Appendix Table 1: Effective implementation by
state of political reservations**

State	Year of 73rd CAA enforcement	First election with mandated reservations
Andhra Pradesh*	1994	1996
Arunachal Pradesh	1997	2003
Assam	1994	2001
Bihar	1993	2001
Chhattisgarh	1997	2005
Goa	1995	2000
Gujarat	1997	1995
Haryana	1994	1995
Himachal Pradesh	1994	1995
Karnataka*	1993	1995
Kerala	1994	1995
Madhya Pradesh	1994	1994
Maharashtra	1994	1997
Manipur	1994	1997
Orissa	1996	1997
Punjab	1994	1998
Rajasthan	1994	1995
Sikkim	1993	1997
Tamil Nadu	1994	1996
Tripura	1994	1994
Uttar Pradesh	1994	1995
Uttarakhand	1994	1996
West Bengal	1993	1993

UTs and States not under purview of 73rd Act Amendment

A&N Islands	1995
Chandigarh	1998
Dadra & Nagar Haveli	1995
Daman & Diu	1995
Lakshadweep	1997
Meghalaya	n/a
Mizoram	n/a
Nagaland	n/a
Delhi	n/a
Pondicherry	not held
Jharkhand	not held
Jammu & Kashmir	not held

Source: Figure 1.1, Study on EWRs in Panchayati Raj Institutions, Ministry of Panchayati Raj, GOI (2008). Notes: Table displays implementation of nationally-mandated political reservations. *: Andhra Pradesh and Karnataka had state-level mandated political reservations prior to the Amendments. "n/a" denotes that the states of Meghalaya, Mizoram and Nagaland, and the national capital territory of Delhi are excluded from the purview of the 73rd Amendment. "not held" denotes states have not held elections subject to 73rd Amendment provisions up to this point.

Appendix Table 2: First-stage estimations from Table 5 specifications

	Primary Health Sub-centre				Banks		Paved Roads			Safe Drinking Water			Electricity		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Panel A: Female															
Cumulative Years of Reserved Elections	0.014+++ (0.004)	0.014+++ (0.004)	0.014+++ (0.004)	0.010++ (0.004)	0.008++ (0.004)	0.009++ (0.004)	0.018++ (0.008)	0.016++ (0.008)	0.016++ (0.007)	0.003 (0.003)	0.005+ (0.003)	0.005+ (0.003)	0.018 (0.012)	0.016 (0.011)	0.015 (0.011)
Lag DV	0.000 (0.009)	0.004 (0.004)	0.007+ (0.004)	-0.008 (0.008)	0.002 (0.004)	0.001 (0.004)	-0.012 (0.020)	0.002 (0.012)	0.014++ (0.006)	0.012 (0.007)	0.002 (0.002)	0.003++ (0.001)	-0.020 (0.016)	-0.009 (0.007)	0.003 (0.006)
R-squared	0.139	0.145	0.154	0.079	0.070	0.068	0.085	0.077	0.102	0.111	0.060	0.062	0.073	0.066	0.055
Adjusted R-squared	0.135	0.140	0.149	0.074	0.065	0.064	0.080	0.072	0.098	0.107	0.055	0.058	0.068	0.061	0.051
Panel B: Male															
Cumulative Years of Reserved Elections	0.015+++ (0.004)	0.016+++ (0.004)	0.013+++ (0.004)	0.009++ (0.004)	0.009++ (0.004)	0.009++ (0.004)	0.014 (0.009)	0.016+ (0.008)	0.014+ (0.008)	0.001 (0.002)	0.002 (0.002)	0.005+ (0.003)	0.023+ (0.012)	0.023+ (0.011)	0.015 (0.011)
Lag DV	-0.007 (0.011)	-0.016 (0.014)	0.008+ (0.004)	-0.004 (0.019)	-0.006 (0.014)	-0.000 (0.003)	0.025 (0.025)	0.006 (0.021)	0.013+ (0.007)	0.041++ (0.015)	0.032+++ (0.011)	0.002+ (0.001)	-0.073++ (0.033)	-0.076++ (0.035)	0.001 (0.007)
R-squared	0.141	0.151	0.175	0.068	0.070	0.068	0.087	0.077	0.124	0.246	0.193	0.067	0.132	0.153	0.055
Adjusted R-squared	0.137	0.147	0.171	0.064	0.065	0.063	0.083	0.073	0.120	0.243	0.189	0.062	0.128	0.149	0.050
Observations (all panels)	416	416	416	416	416	416	416	416	416	416	416	416	416	416	416

Notes: Standard errors are clustered by state.

+ significant at 10% level; ++ significant at 5% level; +++ significant at 1% level.

Appendix Figure 1: Women's Economic Participation/Opportunity and Overall Gender Gap Index, 2011

