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Voices of Women: The Impact of Women's Political Reservations on Female Child Mortality in India

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VOICES OF WOMEN:

THE IMPACT OF WOMEN'S POLITICAL RESERVATIONS ON FEMALE

CHILD MORTALITY IN INDIA

by

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Abstract

This paper uses state-level variation in the implementation of the 73rd amendment in India to observe the relationship between political reservations for women in local government and female child mortality. Nationally, reservations for women are not associated with a statistically significant difference in female child mortality. However, a state by state analysis shows variations in the level of impact of reservations on the topic of female child mortality. This paper examines the constraints on female representatives and their level of effectiveness in executing pro-female policies given the political and social environment. The two case studies on Kerala and Haryana explore women office holder's abilities to administer public goods that favor women and children and the subsequent impact on female child mortality.

Introduction

A number of governments around the world have attempted to increase social development through the decentralization of power to local bodies. (The World Bank Report, 2001) A facet of this phenomenon includes the provision of representation of minorities and disadvantaged groups through reservations or quotas. This includes giving vulnerable groups a voice in decision-making and ideally improving the targeting of developmental programs. The World Bank claims that a greater number of women in government results in increased benefits for women and children. (The World Bank Report, 2001) One of the outcomes commonly tied to female empowerment is female child mortality. (Ram, 2010) This paper analyzes whether the staggered implementation of the 73rd amendment in states between 1987-2007 and the subsequent increase in

women office-holders in India's panchayats results in the execution of pro-female initiatives to affect female child mortality. This depends on whether local women leaders in India embody descriptive representation or substantive representation. The former focuses on actors' characteristics, what they are, concentrating "on being something rather than doing something." (Pitkin, 1967, p. 61) The latter is when actors advocate their constituents' interests and make policy decisions that benefit one group or another among their clientele. (Mosher, 1968) For example, substantive representation would encompass women in government helping female children through cash transfers, increased access to education, or laws to improve the status of females in society. In India, excess female child mortality stems from a high son preference due to economic and social factors. This problem spans regions, religions, and socio-economic levels and is a developmental priority in the country. This paper focuses on the impact of women leaders on this development indicator and contributes to the literature on the impact of female representation in India. It is unique in its use of female child mortality as a proxy to fill the gap between descriptive and substantive representation of women in India. Additionally, the policy juxtaposition of two different states helps to further analyze the particular state-level differences in female representation and female child mortality. The remainder of the paper is organized as follows: Section 1 sets a historical background for the paper and introduces the 73rd amendment and India's problem with female child mortality. Section 2 describes the relevant literature on the topic of female representation in India. Section 3 presents the data and explains the empirical strategy. Section 4 describes the national level data and discusses the results and Section 5 describes state-level data and analyzes policies in specific case study states. Section 6 concludes.

1. Background: India's 73rd Amendment and Female Child Mortality

1.1 The 73rd Amendment and Women's Representation in India

The passage of the 73rd amendment (Panchayati Raj) in 1993 in India has been acclaimed as an important step in the devolution of power to local governments. It established local governance at the rural level and local bodies at the village (panchayat), intermediate, and district levels with mandatory direct elections every five years. (Kalsi, 2017) The amendment was intended to further the administration of development programs at the local level and improve the efficiency of resource distribution through the process of decentralization. Additionally, the amendment mandated panchayats to have at least 33% reservation for women in the council and leadership as well as reservations for scheduled castes and tribes[1]. (Mohanty, 1995) Candidates for reserved seats would have to be nominated by their political parties and would also go through the process of campaigns and elections. (Duflo, 2004) The amendment required reservations to be randomly assigned to panchayats based on their serial registration number and female chairperson reservations to be rotated between panchayats every election cycle. (Mohanty, 1995)

The idea for this decentralization and women's representation at the grassroots level came to fruition because of the failure of the panchayats to be effective administrators of public service in decreasing poverty and inequality before the 1990s. (Chaudhuri, 2003) The Indian Constitution included panchayats at its founding, but elections at this level were rare and the local level had no power of policy implementation. In most states, other than West Bengal, local elections had not been held regularly. Many elections were delayed either by non-governmental groups or by the

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[1] Scheduled castes and tribes- groups of historically disadvantaged people in India (often seen as "untouchable") and part of the lowest social sectors of Indian society (Duflo, 2012).

state government due to reasons such as civil unrest or natural disasters. (Duflo, 2004)

There was a home-grown consensus of politicians and elites from either side of the

political spectrum around the failure of the centralized strategy of the Indian

developmental state. (Jain, 1996) Currently, even with the national decentralization to

local governments, the level of power given to each local government varies and is

dependent on the political characteristics of each state. (Chaudhuri, 2003) For example,

in Haryana, the state bureaucracy continues to withhold funds from local governments

and obstructs the implementation of local programs. (Chaudhuri, 2003) Though the

amendment allows local governments to administer their own programs, this looks

different in various states and has an effect on panchayats' level of impact on the initial

goal of furthering social development.

The top-down approach of the 73rd amendment highlighted the Indian

government's need for development at the local level and its acknowledgment of the

failure of current programs to improve rural lives. Prime Minister Rajiv Gandhi

spearheaded the passage of the amendment and gave a speech in 1989 to promote a

resurgence of focus on the Panchayati Raj. In this speech, he urged decentralization in

order to strengthen democracy at all levels of government and for power to be given to

the people instead of the elite power brokers. He defined these power brokers as the rich

and those who derive power from the caste structure[2]. He argued that "We are on the

threshold of a mighty revolution...It is a revolution that will bring democracy to the

doorsteps of crores of Indians." (Gandhi, 1989, p.2) Additionally, he wanted to pay

special attention to women and scheduled castes, which he described as "the weaker

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[2] Caste structure- A system that divides Hindus into hierarchical groups and has strict social implications. (What is India's Caste System)

sections of society." (Gandhi, 1989, p.2) Gandhi and other elites in power made the case that centralization was leading to the delayed implementation of programs on the ground, impeding economic development, and decreasing the effectiveness of poverty reduction. (Gandhi, 1989) The fact that the amendment was spearheaded by elites in parliament was beneficial because it was legitimized and had powerful national backing. However, there was no grassroots movement pushing for effective administration so states began implementation at different times and to different levels. Additionally, the lack of a grassroots movement meant that there was no ground-level push for substantive representation. Even though elites like Gandhi wanted to help the "weaker sections of society," it was hard to hold them accountable for the implementation of concrete change. Therefore, it is helpful to test women's abilities to participate effectively in order to analyze the level of true decentralization and empowerment of underrepresented groups initially promised by these elites.

The national government used the 73rd amendment to revitalize local government and target development with reservations and decentralization. Proponents of the amendment realized biased perceptions deter socially disadvantaged groups from breaking into politics without any affirmative action policies, thus making reservations an important part of the new amendment. (Duflo, 2012) Reservations for women are important because men and women have different preferences, which result in a different allocation of public goods. Minority groups, like women, are likely to provide minority or low spillover goods such as transfers, rations, and water connections, which only benefit other women. (Duflo, 2004) The majority of men do not find any benefit from these goods and are less likely to invest in them. Without reservations, it is hard for women to

have representation in government and provide these important minority goods. Additionally, political parties are less likely to field candidates from disadvantaged groups because they do not believe that they will win the majority vote. (Duflo, 2004) It was important for reservations to be included in the amendment in order to target the development of women and other minorities. As a result, after the first round of elections between 1993 and 1994, "almost 800,000 women were brought into local politics" in a country with no prior history of that level of women's political participation. (Kalsi, 2017, p.34) This thesis uses the fact that the legislation was implemented at varying dates across Indian states in order to test the effect of increased women's representation on female child mortality.

1.2 Female Child Mortality in the Indian Context

Female child mortality is a continuing problem throughout India's history and acts as an impediment to development and gender equality. Due to economic, social, and cultural norms, India is known to have a preference for boys, which results in a lower proportion of females ages 0-4 in relation to males. The main reason for this male preference is based on the economic benefits of having a son and the costs of having a daughter. In India, there is no social security system so parents look to their sons to ensure their futures and care for them in their old age. (Sen, 1990) Daughters are liabilities because they have to leave to another family once they are married and cannot take care of their parents. Additionally, they do not contribute economically to the family wealth and are costly because of the dowry system[3]. Sons are also able to pass down the family name

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[3] Dowry system- The bride's family must give the groom's family cash, goods, or property as a condition for marriage (Sen, 1990)

and inherit family property and thus are assets both socially and economically. (Sen, 1990) Overall, there has been a decline in fertility, but a rise in son preference, with various differences across regions and geographies in the nation. (Basu, 1999) This affects the female child in multiple aspects and can come into play in feticide rates, infanticide rates, and lack of access to basic facilities for young girls. Given similar health and nutrition, women are expected to live longer than men so the sex ratio should indicate more females than males at any age group. (Sen, 1990) However, the overall sex ratio in India has always been highly skewed in favor of men because most women and female children are not provided with the same level of care. (Premi, 2001) Since the rise of technology in the 2000s, there has been a decrease in female child mortality, but an increase in the overall child sex ratio, which can only be explained by an increase in prenatal sex selection. (Duflo, 2004) Technologies like the ultrasound and abortion methods have made it cheaper and more accessible for families to end an unwanted pregnancies. Although abortions are illegal in India, there are many black market clinics that people can use if they are able to afford them. These technologies allow families easier access to choosing the sex of the child in utero and are the catalyst for the substitution effect from postnatal to prenatal sex selection. (Duflo, 2012) Sex selection and child mortality are different indicators of the same topic of gender discrimination and are both important to understand in order to achieve the overarching goal of gender equality.

2. A Gender Perspective on Politics: Political Reservation and Women's Impacts on Policy-Making

2.1 Political Reservations in Panchayati Raj

A number of studies have examined the costs and benefits of political reservations for disadvantaged groups, especially women. Many studies have seen great positive impacts of women's reservations, while others have noticed unintended consequences such as a backlash against women in power. Even if there are women in government, the intended effect of the reservations to improve development for women, children, and society may not appear due to these negative unintended consequences. Therefore, it is important to test the impact of reservations to see their true effects in different contexts.

True equality would encompass a 50/50 ratio of men to women in government, but that is not true in many countries, including India, so there must be a mechanism to head in that direction. Over the period 1985-2007, "only 5.5% of state legislators in India on average were women" because there are many impediments to entering politics without reservations. (Iyer, 2012, p.8) The Goldberg paradigm explains how people of both sexes are more likely to rate someone's work as lower quality if they think the person is a woman. (Pande, 2012) Consequently, in politics, some people vote for men because they associate them with higher quality candidates due to long-standing gender norms of what characteristics a leader should possess. Schlozman, Burns, and Verba argue that the gender gap in politics is due to the income gap and men can enter politics because they have the resources and abilities to do so. (Burns, 2001) Constantini argues that it is due to women's general lack of political ambition and that women would rather take up other roles at home or in NGOs than enter the political scene. (Pande, 2012) There is a high cost of entry for women, which is accompanied with lower relative

benefits. They are often ridiculed and shamed and have a hard time passing their own policies in a patriarchal society. (Pande, 2012)

In India, reserved seats are kept for female candidates and allow for the direct regulation of the number of women in government. Those who are against the quota argue that these reservations crowd out other groups who are equally or more qualified to be in power. Reservations can be costly to society because potential women candidates are often less educated, have less experience and are less ambitious. (Pande, 2012) Lastly, these quotas may cause a social and political backlash of voters against women if people do not think that they deserve these seats. (Pande, 2012) Zipp and Plutzer also mention how strong female candidates win votes, while weak ones do not and it is more important to have an overall strong candidate than to regard their gender. (Zipp, 1985)

Pro-quota advocates argue that reservations improve women's representation so that they can have a say in politics. (Whitford, 2007) Men may not understand women's basic needs and their policies will reflect men's own preferences. If a percent of the population is not represented in government, its voice will not be heard and its preferences will not be prioritized. (Hirshman, 1970) However, Goldberg finds that the aforementioned taste discrimination against women decreases after two election cycles and this may reduce the need for quotas in the future. (Pande, 2012) This bias decreases over time and with increased exposure to female leaders, but it does not completely go away because of deeply ingrained male candidate preference. (Pande, 2012) Consequently, reduced discrimination makes backlash against women leaders obsolete in the long run. Also, women in power may have a role model effect on the aspirations of other women and this can create a cycle of more women entering into politics. (Beaman,

2012) Beaman observes that exposure to female leaders causes more parents to send their daughters to school and value education over housework. (Beaman, 2012) Increased political representation of women through reservations has a long term effect on women's empowerment and gender bias reduction.

2.2 The Impact of Women Office-Holders

In India, women were brought into government with the goals of decreasing gender bias and targeting female development at the local level. This thesis analyzes the effects of political reservations for women on increasing their level of substantive representation in politics. In order to do this, I use changes in female child mortality rates as a proxy for women successfully or unsuccessfully applying pro-female policies in panchayats. Three main schools of thought surround the election of women office-holders and their political impact on human development and specifically pro-female policy preferences. This thesis uses Adrienne Smith's definition of pro-female policies as "those that (a) improve women's social, political, and economic status in relation to men, (b) address women's unique needs related to their bodies and health, and/or (c) concern women's traditional role as caregivers." (Smith, 2014, p. 6)

The first theory argues that women representatives do not actively pass pro-female policies either due to cultural and social obstacles, structural impediments, or their own choices. (Mohanty, 1995) The Downsian model argues that a two-party, or in this case two-gender, system should converge to one platform for policies and a majority rule system will result in the outcome most preferred by the median voter. (Downs, 1957) In this case, the median voter in India is a male so candidates are more likely to pass

policies that benefit men. However, this theorem does not account for minority leaders refocusing policies on their own minority group once they are elected and do not need the majority vote. According to the political Coase Theorem, in the absence of transaction costs, "agents should agree to execute efficient policies regardless of the distribution of bargaining power among them." (Galiani, 2014, p.14) Even if the reservation policy increases women's bargaining power, the efficient policy choices will still be made and gender will not matter in the long run. This means that pro-female policies will only pass if they are effective, but will not be stressed by women office-holders if they are ineffective. Prasad also argues that women in India have more structural impediments in political positions due to familial and societal expectations, lack of access to training and experience, constituent stereotypes of gender roles, and low support from male colleagues. (Prasad 2009) Additionally, Manikyamba reports that women will be "unsexed" by participating in government and will have to embody primarily male characteristics in order to be taken seriously. (Manikyamba 1986) Due to deeply ingrained gender norms, people tend to value and vote for stereotypical male leaders. This does not leave much room for women to pass pro-female policies or advocate for the support of other women.

A number of other studies make the argument that women in government hurt human development as a whole and pass policies that adversely affect certain groups. These theorists argue that women lack experience, education, and ambition when compared to men. (Dhaliwal, 2011) Dhaliwal finds that cash transfers to girls in India come at the direct expense of boys because the money is not spent on benefitting both genders, such as hiring new teachers or deworming everyone. (Dhaliwal, 2011) Bardhan

also finds that women panchayat leaders negatively affect public goods targeting of SC/ST groups. (Bardhan, 2009) However, this is only because they are not ingrained in the same capture clientelism networks as men. (Bardhan, 2009) Beaman also finds that after their second terms in office, females are even more likely than males to provide both male and female public goods. (Beaman, 2012) Additionally, Ban and Rao find that the difference between male and female experience in government disappears once females gain 1.3 terms of experience, thereby disproving the theory that females will always remain less competent than males. (Ban, 2008) Lastly, the human development theory argues that having women in political positions is an end goal in itself and simply their involvement raises the development and equality of society as a whole. (Sen, 2001) Consequently, the idea that women policy makers hurt society lacks explanatory value in the long run and it is apparent that they are more likely to support general development goals.

The last theory argues that women policy makers are more likely to consider the social good and provide a greater number of public goods and services for women. (Revenga, 2012) Beaman argues that women office-holders value certain public goods that tend to improve the lives of women and children such as water access, transfers, and rations. (Beaman, 2012) Male politicians are less likely to invest in these low spillover goods because they mainly target women and do not cater to the majority of voters. (Beaman, 2012) According to the non-unitary model of households, men and women tend to have different preferences, which are showcased based on the breakdown of bargaining power between household members. (Rode, 2011) If women gain more bargaining power in the household or in politics, they will better be able to pursue their

preferences. Additionally, studies show that women leaders are more responsive to women's complaints because their preferences tend to align more closely and this is reflected in their policy-making. (Beaman, 2012) For example, Chattopadhyay and Duflo find that in West Bengal women complain more about water and roads and the women politicians invest more in those issues. In Rajasthan, where women complain more often about drinking water, women politicians invest more in water and less in roads. (Chattopadhyay, 2001) Additionally, Ghani describes how the increase of women office-holders in India does not affect the overall employment of women in manufacturing but does cause an increase in more women establishing work in the informal sector. (Ghani, 2014) Women leaders lower the cost of entrepreneurship of women by providing public goods and infrastructure and also inspiring women to start their own businesses. (Ghani, 2014) In this case, increasing women's representation does not have the intended effect, but creates unintentional change in another sector. It is therefore vital to observe both the intended and unintented consequences of women's reservations in order to understand their total impact. Another hypothesis argues that increased female representation helps to specifically reduce female child mortality. This can be through the improvement of overall health care and survival rates for girls or by specifically targeting female child mortality. (Kalsi, 2017) However, women leaders may focus on empowering women through increasing access to abortion and contraceptives. Though this is "pro-female", it may have the unintended consequence of increasing female sex selection. Although this thesis uses female child mortality and not female sex selection as the dependent variable, it is important to observe the unintended consequences of women's representation on both of these topics. This thesis focuses on filling the gap between these conflicting

theories and coming to a conclusion about whether or not a greater representation of women in government decreases female child mortality. Current literature is varied on the subject and does not analyze the reason behind the differences between states. This thesis will focus on the national and state effects of the 73rd amendment on female child mortality as a result of increased descriptive representation of women at the local level.

3. Data and Methods

3.1 Methodology

This research focuses on an empirical, analytical, and expository approach to addressing the research question of whether the passing of the 73rd amendment and the subsequent increase in women office-holders in India's panchayats results in the implementation of pro-female policies and a shift in female child mortality rates. I operationalize the variable of the implementation of pro-female policies by looking specifically at the impact of women's reservations on the proxy variable of female child mortality. There is a lack of available data on panchayat level policies passed by women leaders and most women leaders in panchayats are primarily responsible for the implementation of policies and distribution of funds to various projects. I observe changes in female child mortality to analyze women leader's actions in what issues they prioritize and whether or not they are able to affect "a women's issue" like female child mortality. I am able to identify the causal impact of reservations on female child mortality since the reservation status is randomly rotated among all Gram Panchayats. The empirical strategy is based on Lakshmi Iyer's technique of applying state-level variation in the year of implementation of women's reservations in India by election date. Some states executed the "not less than

one-third" political reservation for women before the 1993 amendment, others waited until the amendment was passed, and the last states did not implement it until the early 2000s[4]. (Iyer, 2012) The timing of effective implementation is considered to be the first election in which this quota system was enforced. One reason for the varied timing is that some states were already in the midst of a political term and had to wait until the next election cycle to employ the reservations. Additionally, other states began reservations for women long before the amendment because they knew about the change that was about to happen. Lastly, a few states had legal problems, budgetary constraints, and exogenous factors that caused election delays until years later. (Iyer, 2012) Through this time variation, I conduct a difference by difference estimate on the impact of women's representation on a specific human development indicator: female child mortality. Iyer et al. use this strategy to observe whether state-level implementations of reservations affect reporting of crimes against women. They found that having female political representation at the local level creates a strong positive effect on the number of women willing to report crimes. (Iyer, 2012) This thesis uses a similar strategy to see the effects of women's political reservations on the variable of female child mortality. The dependent variable acts as a proxy for pro-female initiatives and indicates the level of women's substantive representation at the local level in India. By observing changes in female child mortality, I analyze whether local women office-holders are able to administer policies and distribute funds to pro-female projects. In order to do this, I use a mixed method approach to analyze both quantitative data and qualitative case studies of states in India.

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[4] Table 1: Dates of Panchayati Raj Implementation Across States in India

3.2 Data Collection and Empirical Strategy

The main independent variable in the set is the date of the first effective election with

women reservations in each state and the dependent variable is female child mortality[5].

This data comes from many different sources, which are summarized in the Appendix.

Most of the data for the year of reservations is gathered from the Election Commission of

India and the various State Election Commissions. I also account for other variables that

may inadvertently affect the results such as changes in fertility[6], birth rates[7], male child

mortality[8], population[9], Gross Domestic Product[10], literacy rates[11], and monthly per

capita expenditure[12]. The main independent and dependent variables are isolated by

accounting for these exogenous variables in the regression model.

I obtained data on these indicators for the period 1987-2007 from various surveys

and datasets created by different offices in the Government of India[13] and NGOs. These

include the Office of the Registrar General and Census Commissioner of India, the

Ministry of Statistics and Program Implementation, the Ministry of Health and Family

Welfare, The World Bank, and the Reserve Bank of India. The data comes from reports

such as the Sample Registration System Statistical Report, State Human Development

Report, Family Welfare Statistics, District Level Household and Facility Survey, Census

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[5] Figure 1: Nationwide Trends in Female Child Mortality (1987-2007)

[6] Average number of children born to one woman in a lifetime (Indian Census, 2011)

[7] The number of live births per 1000 of population per year (Indian Census, 2011)

[8] Number of male deaths per 1000 live births of children under 1 year of age (Indian Census, 2011)

[9] Number of people in the state

[10] Monetary measure of the market value of all final goods and services produced in that year. This is calculated using constant prices from 2004-2005 and is written in crores. (Indian Census 2011)

[11] Literacy rates- total percentage of the population of an area at a particular time aged seven years or above who can read and write with understanding. (Indian Census 2011)

[12] Average per capita expenditure in rupees per person in one month (Indian Census 2011)

[13] These are all included in the Appendix: Data Sources

Reports, Central Statistics Office Reports, Economic Surveys of India, and World Bank reports. In my regression model, I include year fixed effects to account for changes that affected all places in a specific year.

Additionally, I control for other factors that may affect female child mortality. I include whether the Chief Minister in the state was a woman at the time in order to isolate local level female political participation instead of state-level female representation. Also, the local governments have women pradhans, or chiefs, during different election cycles and that might affect policy-making differently than women in council positions. However, this thesis looks at the overall increase of women and does not need to specify which position they take in each body of government. Some states also recently decided to increase the political reservation of women to 50% instead of the initially required one-third. Some of these states include Bihar, Uttarakhand, Madhya Pradesh, and Himachal Pradesh. (Prasad, 2014) The increase in reservations has no effect on this thesis because I focus on the initial increase of women with the original passage of the amendment.

Lastly, I analyze the political and social environment for policymaking in a state with low gender bias and a state with high gender bias. States such as Haryana and Punjab historically have high female child mortality rates and others like Kerala have successfully worked towards decreasing child mortality. (Bose, 2001) I qualitatively analyze benefits and constraints of the environment for women in each state and the relationship of these differences to female child mortality.

The empirical strategy provides a multi-faceted approach to the question and includes both quantitative data and qualitative case studies. The quantitative data is not

enough by itself because it uses female child mortality as a proxy for women leaders' ability to further pro-female causes. The case studies further flush out the data and analyze concrete policy implementation to observe what has and has not changed on a state level after reservations. It is also important to isolate each main independent and dependent variable by controlling for exogenous factors that could affect female child mortality rates. In order to do this, I draw a direct correlation between the timing of the political reservations, the increase in women office-holders, and the impact on female child mortality. In order to draw this comparison, I look at multiple datasets over time and reinforce them with literature that is relevant to the findings. I hypothesize that women office-holders want to implement pro-female policies and have a positive effect on female child mortality, but they are constrained by their social and political environments in reaching their desired outcomes. The final result of women's reservations is ambiguous due to these constraints on women, so it is important to test the results on indicators like female child mortality in order to analyze whether female office-holders are able to create substantive change in that issue.

3.3 Data: Analysis of the Model

I conduct the analysis for 15[14] major states in India over the time frame 1987 to 2007[15]. I drop states that were excluded from the purview of the amendment[16] and others that

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[14] Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal
[15] Table 2: Summary Statistics
[16] Meghalaya, and Nagaland, Mizoram

lacked sufficient data[17]. In order to find the relationship between the independent and dependent variables, I run state-level regressions of female child mortality rates based on the year of implementation of the 73rd amendment. The regression equation is the following:

$$Mst = as + \beta t + fRst + d'Xst + \varepsilon st$$

The variable *Mst* is the number of female children (ages 0-4) who died out of the mid year population of female children in that age group in s state in year t. *βt* is a fixed effect for year t, *Rst* is a dummy variable with 0 and 1 standing for years before and after the first election with political reservations for women in state s and year t. *Xst* is a set of state control variables including population, literacy rates, average MPCE, the presence of a female chief minister, fertility, and male infant mortality. The coefficient *f* captures the effect of political reservations for women on the dependent variable of female child mortality.

I control for differences between states by accounting for various characteristics that may affect female child mortality. According to the literature, female child mortality is affected by variables such as education, economic growth, population, and the general level of wellbeing. (Iyer, 2012) The variables literacy rates, population, and MPCE account for these characteristics. (Iyer, 2012) Fertility rates and male mortality account for whether female child mortality is an isolated problem or whether overall child mortality is the problem. Lastly, I control for whether the Chief Minister in each state in

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[17] Jammu & Kashmir, Goa, Uttarakhand, Tripura, Arunachal Pradesh, Manipur, Chhattisgarh, Sikkim, Jharkhand, Telangana

each year was a woman in order to make sure that the political representation for women at higher levels is not diluting my analysis of political representation of women at the local level.

The regression itself uses panel data in order to assess the behavior of the variables across a set of years. It controls for variables that are unobservable or immeasurable such as cultural factors, differences between states, or variables that change over time but not across states. The fixed effect of the regression isolates the impact of the variables over time and accounts for factors within the states or years that may impact or bias the outcome variable. The fixed effect removes the effect of those time-invariant characteristics in order to assess the net effect of the predictors on the outcome variable.

4. National Level Results and Discussion

4.1 National Level Results: Effect of Reservations on Female Child Mortality

I find that political reservations for women in this model do not have a significant impact on female child mortality rates. Table 3 shows the results of the relationship between each independent variable and the dependent variable of female child mortality. The coefficient[18] for reservations and female child mortality is small and statistically insignificant, which shows no important relationship between the year political reservations were made in each state and the impact on female child mortality.

However, there are correlations between female child mortality and other variables included in the regression[19]. It is important to control for these variables

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[18] Coefficient: 0.212

[19] Table 3: Women's Political Reservations and Female Child Mortality in India

because they impact female child mortality. Once they are controlled for, it is easier to see a truer impact of reservations on female child mortality. There is a statistically significant and negative correlation[20] between literacy and female child mortality. As literacy increases, female child mortality decreases. Additionally, the relationship between female child mortality and monthly per capita expenditure[21] is also significant and slightly positive. This shows that as people increase their wealth and consumption, female child mortality also increases. There is also a statistically significant and positive correlation between fertility and female child mortality[22]. As people have more children, there is a greater rate of female child mortality. Lastly, there is a slight positive correlation between male infant mortality and female child mortality[23]. Even though this model does not show any significant relationship between reservations and female child mortality, it does illustrate correlations between other variables and female child mortality. This is important in formulating a better idea about the various layers that affect female child mortality and isolating reservations as the main independent variable in the analysis.

4.2 Discussion: National Level Substantive Representation of Women

On a national level, the data in this model shows no statistically significant relationship between reservations for women and female child mortality. However, the data does show relationships between female child mortality, education, fertility, and economic growth. There is much discussion on the topic of political reservations and whether they

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[20] Coefficient: -0.248

[21] Coefficient:0. 0026

[22] Coefficient: 1.95

[23] Coefficient: 0.26

provide descriptive (women's presence in politics) or substantive (the active promotion of women's interests) representation of women. (Franceschet, 2008) In India, local women are able to make an impact in the political process with their presence, but have a hard time producing outcomes on a scale that can impact the national level data in the context of female child mortality. (Smith, 2014) The model's results can be explained by the administrative and environmental constraints that are placed on women leaders in India as well as their lack of agency in being able to implement and fund significant pro-female initiatives. Female child mortality outcomes act as proxies for policy implementation and indicate the level to which women have the freedom to follow their preferences. Additionally, the model itself is limited in its scope due to its observance of state-level data that might dilute the work of women at the local levels. Some women panchayat leaders are successful in implementing their preferences and others are not able to accomplish any change. State-level data cannot separate these results and the work of each individual woman leader is diluted when included with the mass number of women.

Reservations are expected to provide women with access to a political voice and a say in how the government is run. However, women's entry and impact on policies are often barred by issues such as gender bias, lack of access to basic education and training, lack of support by family and colleagues, and an unfriendly legal structure. (Chowdhury, 2002) Specifically in India, many women are often reduced to figureheads and are stand-ins for male relatives who make all the decisions. (Nanivadekar, 2006) These quota women may also be stereotyped as less experienced and less autonomous, which negatively affects voter's perceptions. (Franceschet, 2008) Most areas in India are also

highly patriarchal with male heads of households who do not want to see any change in the division of labor or gender roles. (Sen, 1990) Consequently, these men do not want women leaders to have any resources for effective participation that may lead to the passing of policies that will change the status quo. (Kalsi, 2017) Additionally, 33% reservation for women at the local level may not be enough to make an impact on data at the state level. Some women in panchayats may be able to implement pro-female policies, while others have more constraints and cannot administer their own programs. Thus the state-level data is highly aggregated and cannot accurately portray the struggles and successes of every woman panchayat leader. Even with 33% representation, women are still the minority in government and men are still able to pass policies according to their own preferences. Additionally, women newly introduced into politics do not have the same networks and ties to political clientelism that experienced men tend to exploit. (Bardhan, 2010) Women lack relationships with village elites and district level officials and are not able to use political contacts to have more of a say in policymaking. (Bardhan, 2010) It is, however, worth noting that the women's reservations allow women to gain self-confidence and for the general voting population to become more receptive towards women leaders over time. This may lead to women having more of a say in the future and greater positive targeting impacts in the long run. (Beaman, 2012)

The limited scope for political participation available to women is reflected in the fact that few women expect to be elected without reservations. (Jafar, 2013) The same seats are not reserved for every election cycle, so it is hard for women to overcome social and administrative challenges in order to win the same seat multiple times in a row. (Jafar, 2013) Thus women leaders are unable to strengthen the networks, skills, and other

mechanisms needed to develop effective leadership abilities. The analysis is also muddled by the fact that women leaders may want to increase access to abortion facilities and contraceptives in order to empower women to make their own choices. This is technically "pro-female", but it may result in an increase in female sex selection, which complicates the analysis on this topic. Prenatal sex selection is different from female child mortality, but it is important to understand the effects of reservations on both terms because they are interrelated and part of the same overarching problem of gender discrimination.

Along with social challenges, women in India also face larger scale administrative problems. Between 1987 and 2007, there was only an average of 8% women in India's National Parliament, which shows a gender bias in higher up political government where much of the policymaking occurs. (World Bank Data) In terms of Panchayati Raj, India was a fast track country that implemented quotas almost overnight and did not wait for a cultural change or push towards equality. Any feminist or grassroots movement did not accompany the reservations, so there was limited ground-level demand for them to be implemented in a way that benefitted women rather than the administration in power. (Nanivadekar, 2006) Additionally, panchayat funding and large policymaking are still controlled by individual states, which are dominated by males. (Jain, 1996) This leads to primarily male preferences included in state-level policies, which panchayats have to implement at the local level. Many panchayats also have committees for various sectors, but since there are no quotas for committees, they are used as a way of excluding women from the decision-making process. (Jayal, 2006)

There also may be limitations with the model itself, which make it hard to see the direct effect of women's reservations on female child mortality at the local level. The data is only available on a state level and may be too aggregated to show an impact of women's reservations at the local level. Additionally, there is much literature on women leaders gaining effectiveness and success in passing policies after two terms in office, but these reservations are rotational and the data does not focus on the long-term of women representatives in local bodies. (Beaman, 2012) In the long term, women are known to become more strategic, form elite networks, and make more informed and experienced decisions. However, it is hard to see these long-term effects when looking at a small time period of 20 years. Also, politics in rural India is slow and takes time to have an effect so the model might have to look at longer periods of female participation to see a shift in its impact. (Gleason, 2001) Lastly, I only look at female child mortality to indicate the effects of reservations on womens' abilities to pass pro-female policies, but results may vary with the use of a different proxy variable.

4.3 Discussion: Female Child Mortality and Control Variables

Although the model does not show a significant relationship between women's reservations and female child mortality, it does show a relationship with other independent variables. It is important to control for these variables because they impact female child mortality. Once they are controlled for, it is easier to see a truer impact of reservations on female child mortality. Without understanding the relationship between these variables and the dependent variable, there is no way to have an accurate analysis of the impact of reservations. According to the literature on the subject, the presence of

women representatives has increased the self-esteem and confidence of other women and given them the chance to voice their complaints and ideas. (Chattopadhyay, 2004) Women often deal with on the grounds issues at the local level and work with NGOs on topics such as water access, family and matrimonial matters, children's education, and land disputes. (Jayal, 2006) Women leaders stress the importance of female education and raise the aspirations of girls and their parents with a role model effect. (Beaman, 2012) According to the data, increased literacy results in decreased female child mortality and individual female panchayat members play a large role in the increased education of the girl child. (Jayal, 2006)

There is also a positive relationship between monthly expenditure per capita, which can be used as a characteristic of economic growth, and female child mortality. Economic development overall results in lower women's status relative to men's due to "the undermining of women's traditional roles or the disproportional increase in men's entitlements in relation to women's." (Miller, 2001, p.34) Additionally, due to the rise of sex selective abortion methods in the 1990s, the combination of access to new technologies and a rise in the wellbeing of households led to increased pre and postnatal sex discrimination. (Duflo, 2012) This can be shown through the changes in sex ratios at birth[24]. For example, a district-level study in Maharashtra found that wealthier districts such as Mumbai and Pune reported both a larger number of such abortion facilities as well as more distorted sex ratios than did such poorer districts. (Nagarajan, 2008)

The last two variables of male child mortality and fertility are both also positively correlated with female child mortality. In terms of fertility, a preference for sons may result in increased fertility as people attempt to achieve their preference and get rid of

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[24] Figure 2: Nationwide Trends in Sex Ratio at Birth

unwanted females through neglect or infanticide. (Sudha, 2003) Male child mortality also increases slightly as female child mortality increases. This positive relationship goes to show that areas of low resources for mothers and children may result in high mortality all around. These can be places with low hospital attendance, lack of healthcare, and few resources to care for children. (Bhalla, 1995) For example, less than 2.5% of all births in rural parts of Haryana take place in a hospital and it is also one of the states with high rates of child mortality. (Bhalla, 1995)

5 State-Level Results and Case Studies

5.1 State-Level Results: Female Child Mortality Rates Before and After Reservations

Specific states had varying levels of changes in female child mortality before and after reservations. I calculated the average female child mortality rate for each state for the years before and after reservations were implemented and then analyzed the percent change in those numbers. The results are summarized in Table 4 for each state. According to the literature on this topic, Kerala is a state with low child mortality and a strong emphasis on improving the lives of women. (Sen, 1990) The results show that Kerala already had a low average female child mortality rate of 5.54 before reservations and was able to bring it down even further to 2.91, thereby having a 47.5% decrease. This is the greatest percent improvement out of all of the states.

On the other hand, Haryana is one of the states with a history of high female child mortality and gender bias. (Sen 2001) The results show that Haryana had a high female child mortality rate of 27.58 before reservations and only managed to decrease female

child mortality by 18.5% after reservations. After Bihar, this is the lowest percent change in female child mortality pre and post reservations.

My analysis is confounded by the fact that with the rise of technology, people started to move to sex selective abortions, especially in rich communities. This is important to note when looking at female child mortality because sex selective abortions may be substituting child mortality, but there is no counter for that in the results. Even if there is a decrease in child mortality in both states, there may be a rise in female sex selection, which is outside the purview of this paper but important to keep in mind.

5.2 Case Study: Panchayati Raj in Kerala

Although the national level data does not show a significant relationship between reservations and female child mortality, the data for each state is less aggregated and provides more input into the impact of reservations. This thesis has been using the proxy of female child mortality to analyze political power given to women representatives because data on policy change at the local level is not readily available. These case studies give a better perspective on how women are affecting policy change and whether or not they are successful in reducing female child mortality.

Kerala is located in the southern region of India and is known to be a state with matriarchal values and relatively less gender bias in comparison to other states. The government of Kerala passed the Kerala Panchayati Raj Act in 1994[25], which called for no less than 33% of seats reserved for women in all levels of local government. (Chowdhury, 2002) The state has a history of property inheritance through the female family line as well as a high level of communal medicine, which helps disadvantaged

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[25] Figure 3: Kerala Year-by-Year Effects of Women's Reservations

groups such as women have a higher chance of survival. (Sen, 1990) Additionally, the total literacy campaign run by the state in the late 1980s increased levels of education for females in all parts of the state and provided them with educational empowerment. Compared to the rest of India, Kerala has a high level of literacy, better status for women, and more qualified women representatives. (Sen, 1990) However, this level of education and status is still low when compared to that of men in Kerala.

After the passage of the Panchayati Raj Act, the government of Kerala passed a development program called the People's Campaign for the Ninth Plan. The Plan Campaign in 1996 brought more women who were usually excluded from political life into Kerala's local government bodies and allowed women leaders to implement policies that impacted pro-female issues such as female child mortality. (M.S., 2002) For the first time, women were included as partners in the developmental program and not just beneficiaries. The plan itself called for a greater emphasis on the impact of gender in policy-making, greater participation of women in Gram Sabha, and at least 10% of the state budget to go to women's projects. (M.S., 2002) Two important projects for women came out of this campaign: one was to organize women in self-help groups (SHGs) called Kudumbasree and the other was to help rural women and children through the Angavadies or child care centers. (Women Development, 2003) Kudumbasree was formally known as the women poverty eradication program, which organized Neighborhood Groups (NHGs) of women for empowerment and resource provision. After the rise of the NHGs, there was further decentralization of governance to the sub-gram sabha level called Ayalkoottam, which gave women more opportunities to interact in the political sphere. (Chowdhury, 2002)

In Perambra panchayat, these groups run by women leaders helped other women move away from agriculture to diversifying their output. The groups also helped women market their new products in order to economically and socially empower these women entrepreneurs. (Mathew, 2013) Additionally, in Kanjikuzhy panchayat, the neighborhood groups helped move women from a dependence on fishing to joining in the production of umbrellas. This diversification allowed women to not only be financially stable and independent but empowered them in society, thereby increasing the value of females in society and helping decrease female child mortality. (Mathew, 2013) Women like Kanniyamma Sreerangan, the president of a tribal gram panchayat in India, work towards implementing community-specific projects to further development. Sreerangan began an initiative to "provide solar panels, batteries, and lights to all 240 families in the panchayat."(Shaji, 2014, p.3) She mentioned that before the reservation, her community was male-dominated and she was discouraged from entering public places such as meetings of elders to decide on community affairs. Due to political reservations for women, she claimed that "we, seven women in the panchayat, have started rewriting history."(Shaji, 2014, p.4) Her goal was to not only provide her community with the necessary resources, but to also increase the value of the girl child. Sreerangan and other like-minded woman panchayat leaders want to create a space where families do not feel the need to practice female child mortality for social or economic reasons. (Shaji, 2014). They are also working to improve education and reduce fertility, which are aforementioned variables that have a relationship with female child mortality rates.

Although Kerala has created a space for women to function and pass policies through further decentralization and self-help groups, there are still problems remaining

in the state. There has never been more than 10% women in the state assembly and many of these women are of an elite class and cannot understand the problems of rural women. (Chowdhury, 2002) The results of a 2002 survey in Kerala panchayats showed that only "16% report that they have to deal with women's issues, 9% deal with children's issues, and 10% say that they felt supported by their male colleagues." (Chowdhury, 2002, p.14) The support system for women in government needs improvement and women need to be equipped with the right skills and training. Additionally, many elected women representatives are not informed about panchayat meetings and are barred from taking up women's issues by their political party. (Chowdhury, 2002) Political parties are responsible for fielding candidates and can informally control their candidate's policy-making or preferences in order to be in line with their own platform. (Chowdhury, 2002) Due to the development program and self-help groups, women in Kerala are given more resources and political freedom than their counterparts in other Indian states. This results in a decrease in female child mortality but does not mean that they share equality with men in the political sphere. If they attempt to leave their gender roles in order to enter politics, they are often met with much of the same ridicule, bias, and stereotypes that women in other parts of India face.

5.3 Case Study: Panchayati Raj in Haryana

Unlike Kerala, the state of Haryana has a highly patriarchal history where men control both the public and private spheres. It is one of the richest states in India, yet trickle-down economics does not work and there is great inequality between sexes and classes. (Sen, 1990) During the last census in 2011, Haryana had the lowest child sex ratio at 834

females per 1000 males. (Jejeebhoy, 2015) The data in the model also shows that reservations led to less than 20% decrease in average female child mortality, which is a much smaller difference than in most other states[26].

Several previous studies have found constraints on women representatives in Haryana that have impeded their progress in policymaking and reducing gender bias. A study by Rekha Chaudhary "revealed that most of the elected women representatives have not been empowered because of a lack of education, awareness, and confidence." (Lohumi, 2013, p.35) Due to this lack of empowerment, they have not been able to change the status quo and decrease the prevalence of female feticide and infanticide. The Buch study concluded that out of the women representatives surveyed in Haryana, "40 percent of the women representatives belonged to families with incomes that place them below the poverty line; 14.2 percent of them were landless, 19.5 percent had marginal holdings and 20.6 percent had small farm holdings." (Buch, 1999, p. 23) Many of these women are poor and lack the financial flexibility to spend their time and energy on politics. Additionally, many of the women's election campaigns are run by the men of their family and allow for the empowerment of those men instead of the intended women. These women are neither economically nor politically empowered and lack the support and training needed to succeed in their positions. (Jayal, 2006) Lastly, in a survey by Chander, Kumari, and Singh, 33.13% of the elected women members did not have full information about the Panchayat budget and how it could be used, which indicates the severe lack of information given to women leaders in their positions. (Chander, 2013)

There are also administrative and institutional problems with Haryana's Panchayati Raj that act as constraints on women's power. In many of the villages in

[26] Figure 4: Haryana Year-by-Year Effects of Women's Reservations

Haryana, male members elect women to reserved seats instead of hosting democratic elections. (M.S., 2000) In these cases, the true policymaking power lies with the men who control the women figureheads. Another major problem is the two child norm that does not allow women with more than two children to enter into politics, thereby limiting many women from participating and perpetuating female child mortality. (Buch, 2006) There is a lack of true decentralization from the state to the local level and many panchayat leaders believe that they have no power due to the state's institutional constraints. (Jayal, 2006)

A study by Surat Singh from the Haryana Institute of Rural Development found that women in Haryana panchayats were not able to make a significant impact on policymaking and the male-dominated status quo remained. (Singh, 2013) Women also were not able to levy taxes or raise funds for projects due to the steadfast reluctance of men to share any power. (Singh, 2013) Singh concludes that many women representatives in panchayats have been able to gain status, but not concrete power to effectively implement their policy preferences. (Singh, 2013) Another reason for women's lack of power is the age-old tradition of unelected all-male village councils called khap panchayats who hold de facto lawmaking power. In an interview, a member of one of largest khaps, Raghuvir Nain, said, "Not once has the decision of the khap been overridden in this village. If anyone wants to challenge a decision they are free to go to the courts in this country. India's judicial system is notoriously slow and prone to corruption, so for many, the khap system is the only solution." (Kumar, 2012, p.3) Haryana has failed to pass or change policies to stop these khaps from gaining power and they continue to perpetuate gender bias and discrimination by denying rape charges and

forcing women to practice purdah[27]. (Kumar, 2012) Women's lack of power in Haryana may be one of the reasons for high female child mortality. A study by George and Dahiya, 1998, concluded that "41 percent of the female early neonatal deaths are due to direct female infanticide and excess female child mortality is caused by indirect infanticide and neglect." (George, 1998, p.14) This is especially bad in upper classes where a sex ratio of 1.27 from 1993-1998 meant that 16.8% of female fetuses were aborted at that time. (George, 1998)

The state of Haryana has attempted to reduce female child mortality through various schemes and policies, but due to ongoing cultural and institutional constraints on women politicians, these policies have not had a significant impact. Even policies such as the 2015 Haryana Panchayati Raj Ordinance, which was meant to emphasize women's education, result in increasing male power due to the state's deeply ingrained patriarchal society. The ordinance requires that only educated candidates contest in panchayat elections and therefore attempts to place more value on women's education. (Sehgal, 2015) However, this backfired when men began to marry educated women to control as figureheads in reserved positions. Additionally, besides educational qualifications, the ordinance requires candidates to prove payment of electricity bills, not have any bank loans, and have a working toilet. (Sehgal, 2015) These requirements make it hard for women without training or financial assets to compete in elections and further disempower them. Other ineffective initiatives by the state include cash transfer programs to stop female child mortality. The state passed the Apni Beti Apna Dhan initiative in

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[27] The practice among women in certain Muslim and Hindu societies of living in a separate room or behind a curtain, or of dressing in all-enveloping clothes, in order to stay out of the sight of men or strangers (BBC News, 2017).

1994 where poor families receive 25,000 rupees if they educate their daughters and do not marry them off before their 18th birthdays. (Jejeebhoy, 2015) The Devirupak Scheme was passed in 2002 and provides cash transfers for families that choose to get sterilized after their first child. (Kalsi, 2017) Lastly, the Ladli Scheme was passed in 2005 and provides money for second girl children born after 2005. (Jejeebhoy, 2015) A serious flaw that makes all of these programs highly ineffective is that they target only lower-income households, while higher-income households are the ones practicing female child mortality to a greater extent. (Miller, 2001) Upper-class families in Haryana are the ones with high rates of feticide and infanticide and the programs do not target these families. (Miller, 2001) A 2001 study in Haryana found that the sex ratio at birth for upper caste women was 127 males for 100 females, compared with 102 with lower caste women. (Miller, 2001) While cash transfers successfully improve school enrollment and immunization rates for girls, they do not directly address parent's demand for sons and gender-biased discrimination. The combination of women's lack of political power and ineffective programs results in an unbalanced juvenile sex ratio in Haryana and the continued prevalence of female child mortality.

6. Conclusion

This paper demonstrates that simply descriptive representation in India does not provide women with the capacity to advocate for pro-female issues such as female child mortality. There is a relationship between an increase in women representatives and their preferences towards helping women and children, but they are constrained by social, economic, and political impediments. In order for women to have substantive

representation and see policy outcomes, they must be given equal standing in politics and society and be provided with the training and skills needed to excel in their positions.

       I analyze the effects of political reservations of women on female child mortality using data from the Panchayati Raj amendment in India. The variable of female child mortality is a proxy for the substantive representation of women office-holders and their ability to administer pro-female programs and policies. I find that having a political representation of women at the local level does not have a significant relationship with female child mortality rates at the national level. In order to analyze policy implementation at the state level, I conducted case studies of Kerala, a state where reservations made a large impact on average female child mortality and Haryana, where reservations did not have a big impact. Kerala was successful in reducing female child mortality through decentralization to developmental programs and self-help groups run by women. This resulted in women being able to administer their own programs and pursue their policy preferences. On the other hand, women in Haryana were severely restricted in policy implementation and schemes to reduce child mortality were only targeted towards the poor and ignored the upper classes. Understanding the limitations of simply adding a number of women to local government without empowerment is an important first step in determining women's potential and actual impact on decision-making. The representation of women should be approached in a holistic manner in order for them to be able to pass pro-female policies that will improve human development indicators such as female child mortality. Even when such policies are passed, women must have the power to implement and fund their policy preferences in order for them to be effective.

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Appendix: Data Sources

A Series: General Population Tables, published by the Office of the Registrar General & Census Commissioner, India.

Birth Rate, Death Rate, Natural Growth Rate, Infant Mortality Rate & Total Fertility Rate by Residence for States/UTs (1972 to 2011), published by Planning Commission, Government of India, New Delhi.

Causes of Death Statistics: Sample Registration System, published by the Office of the Registrar General & Census Commissioner, India.

Compendium of India's Fertility and Mortality Indicators, 1971-2013: Sample Registration System, published by the Office of the Registrar General & Census Commissioner, India.

C Series: Social and Cultural Tables, published by the Office of the Registrar General & Census Commissioner, India.

DLHS Household Survey: Health Management Information System, published by the National Health Mission of Health & Family Welfare, Government of India.

Economic Surveys of India (1987-2007): Union Budget and Economic Survey, Ministry of Finance, Government of India.

Elementary Education in India: Progress Towards UEE, published by the National University of Educational Planning and Administration, New Delhi.

F Series: Fertility Tables, published by the Office of the Registrar General & Census Commissioner, India.

Gross State Domestic Product at Constant 2004-05 Prices and % Growth YoY (2004-05 to 2013-14), published by Planning Commission, Government of India, New Delhi.

India- Macro- economic Summary: 1990-00 to 2014-15, published by Planning Commission, Government of India, New Delhi.

India: Data, The World Bank Group.

Infant Mortality Rates for States & UTs-Male, Female, & Total (1961, 2006, 2008, 2011, 2012), published by Planning Commission, Government of India, New Delhi.

National Family Health Survey, 2016: Health Management Information System, published by the National Health Mission of Health & Family Welfare, Government of India.

State-wise Gini Co-efficient of Distribution of Consumption (73 to 11): published by Planning Commission, Government of India, New Delhi.

Table 1

Dates of Panchayati Raj Implementation Across States in India

States	Year of Reservation
Andhra Pradesh	1995
Assam	2000
Bihar	2001
Gujarat	1995
Haryana	1994
Karnataka	1993
Kerala	1995
Madhya Pradesh	1994
Maharashtra	1992
Orissa	1992
Punjab	1998
Rajasthan	1995
Tamil Nadu	1996
Uttar Pradesh	1995
West Bengal	1993

Table 2: Summary Statistics

Demographic & Economic control variables (1987-2007)	Obs	Mean	S.D.	Min	Max
Population	315	57341172	33762492	14591108	186755000
GDP	315	93303	85583	4685	594832
Literacy Rates	315	61	13	35	93
Female Chief Minister	315	0	0	0	1
Average MPCE (rupees)	315	569	296	162	1666
Fertility[28]	315	3	1	2	6
Birth Rate[29]	315	27	18	15	328
Male Infant Mortality[30]	315	66	24	9	137
Female Sex Selection Data					
Female Child Mortality [31]	315	23	10	2	2
Female Infant Mortality[32]	315	68	24	9	128
Female Death Rate[33]	315	8	2	5	15

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[28] Number of children born per woman per year (x 1000)

[29] Number of live births during the year per mid-year population (x 1000)

[30] Number of male infant deaths during the year per number of male live births (x 1000)

[31] Number of female deaths per mid-year female population of children age 0-4 (x 1000)

[32] Number of female infant deaths during the year per number of female live births (x 1000)

[33] Number of female deaths during the year Per mid-year population (x 1000)

Table 3

Women's Political Reservations and Female Child Mortality in India

Female Child Mortality

Reservation	0.212
	[0.383]
Population	***-0.0000000921
	[2.39e-08]
Literacy	***-0.248
	[0.049]
MPCE	***0.00265
	[0.00079]
Female Chief	
Minister	-0.459
	[0.434]
Fertility	***1.955
	[0.768]
Male Infant Mortality	***0.2603
	[0.183]
State Fixed Effect	X
Year Fixed Effect	X
R- Squared	0.858
Number of observations	315

- Numbers in brackets indicate the standard deviation of the variable
- *, ** and *** indicate significant at 10%, 5% and 1% respectively.
- Regression for 15 major states and years 1987-2007. Each cell represents the coefficient on the post-reform dummy for the outcome variables. Post-reform dummy equals 1 for years after the first local government elections with reservations for women.
- Includes state and fixed year effects

Table 4

Women's Political Reservations and Female Child Mortality by States of India

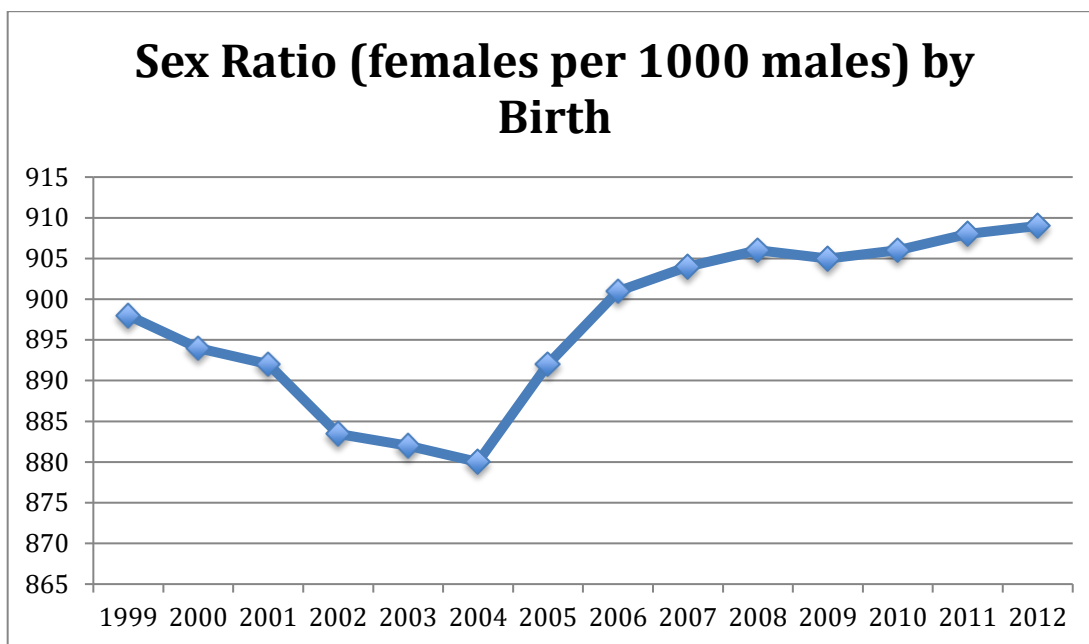| State	Pre-Reservation Average Female Child Mortality	Post Reservation Average Female Child Mortality	Difference	Percent Change (%)
Andhra Pradesh	22.72	16.18	6.54	28.79
Assam	29.08	21.22	7.86	27.03
Bihar	30.82	29.81	1.01	3.27
Gujarat	28.19	19.51	8.68	30.79
Haryana	27.58	22.49	5.09	**18.46**
Karnataka	23.86	16.31	7.54	31.62
Kerala	5.54	2.91	2.63	**47.51**
Madhya Pradesh	47.56	31.56	16.00	33.65
Maharashtra	19.45	12.14	7.31	37.59
Orissa	41.85	27.47	14.39	34.37
Punjab	20.56	15.36	5.20	25.29
Rajasthan	36.69	27.56	9.12	24.87
Tamil Nadu	18.08	11.26	6.83	37.76
Uttar Pradesh	44.11	29.66	14.45	32.75
West Bengal	22.40	14.21	8.19	36.58

- Number of female deaths per mid year female population of children ages 0-4
- (x 1000)
- Demographic & economic controls include GDP, literacy, monthly per capita expenditure, presence of a female chief minister, fertility, and male infant mortality
- *, ** and *** indicate significant at 10%, 5% and 1% respectively.

Figure 1

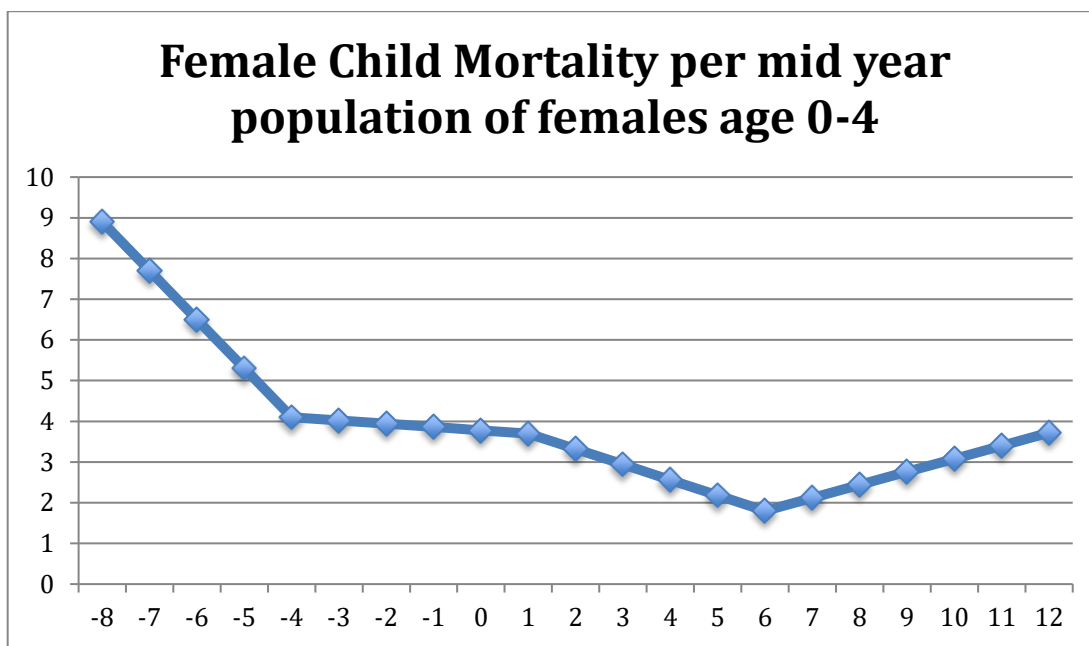*Nationwide Trends in Female Child Mortality (1987-2007)*

Number of female deaths out of mid year female child population (ages 0-4)
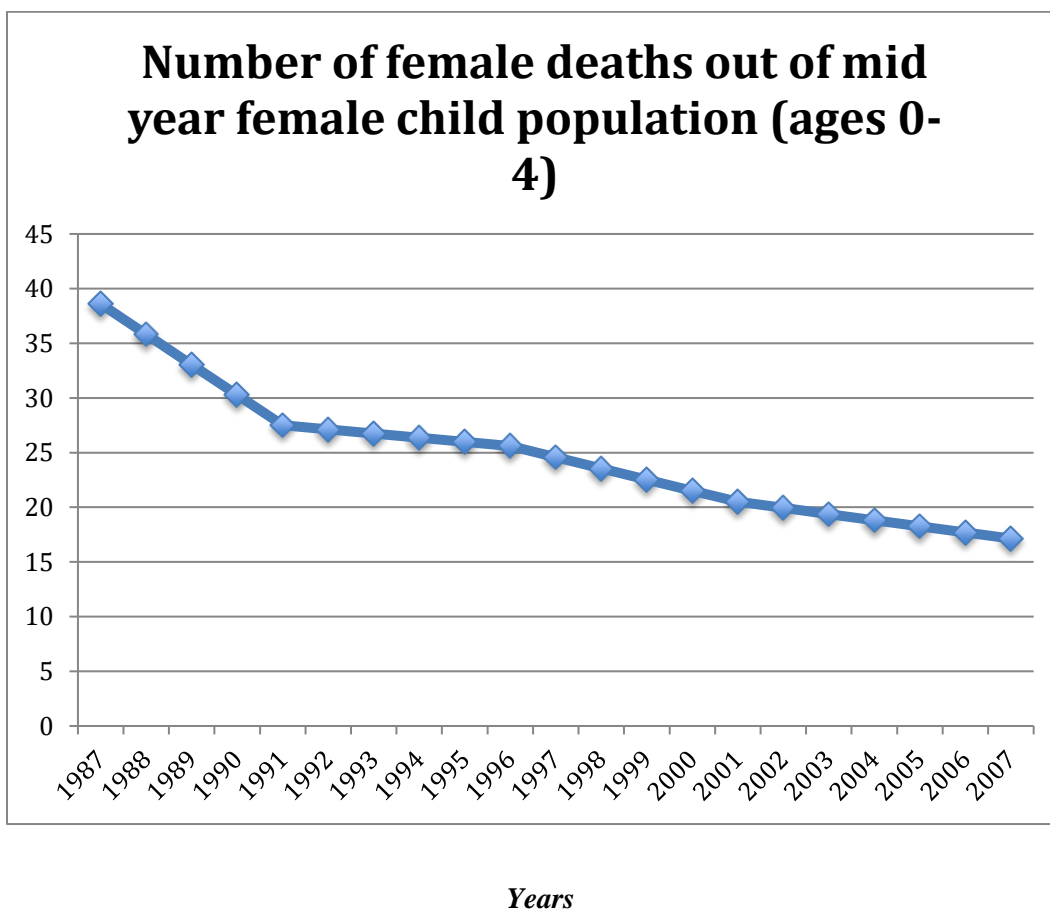
Years

Figure 2:

Nationwide Trends in Sex Ratio at Birth (1999-2012)

Sex Ratio (females per 1000 males) by Birth

Years

Figure 3:

Kerala Year-by-Year Effects of Women's Reservations

Female Child Mortality per mid year population of females age 0-4
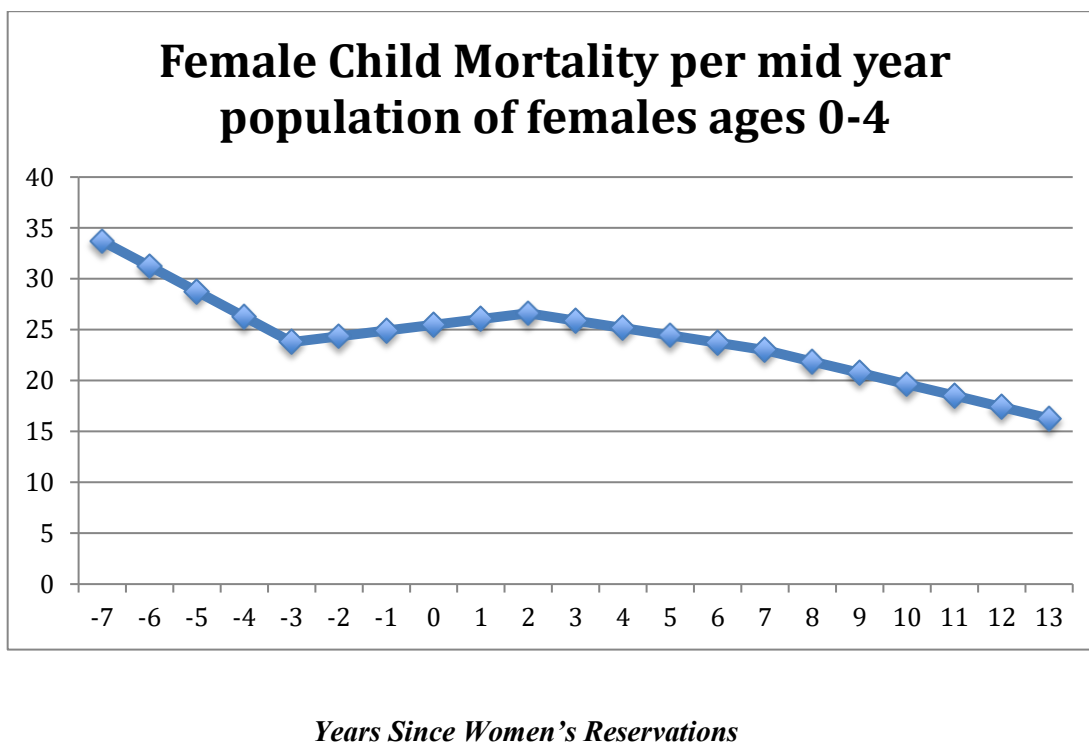
Years Since Women's Reservations

Notes: Each point on the graph represents the impact of women's representation on female child mortality 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 1.

Figure 4:

Haryana Year-by-Year Effects of Women's Reservations

Female Child Mortality per mid year population of females ages 0-4

Years Since Women's Reservations

Notes: Each point on the graph represents the impact of women's representation on female child mortality 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 1.