JOURNAL OF ECONOMIC DEVELOPMENT 87
Volume 46, Number 3, September 2021

SHARE OF WOMEN IN PARLIAMENT AND HEALTH AND EDUCATION OUTCOMES*

NABAMITA DUTTA AND HALEY MAUS

University of Wisconsin-La Crosse, U.S.A

Research has shown that increased political representation for minority groups can lead to positive outcomes for the same whether it be women, ethnic or religious groups. Building on such studies, our results show that greater share of women in parliament leads to better health and education outcomes for countries. In concurrence with existing studies, this can be plausible as women, being a minority group in terms of political representation, may care about health and education benefits of women in general. Further, in sync with findings of existing literature that show women being less corrupt than men or having different systematic preferences compared to males, greater share of women in parliament can mean more efficient utilization of funds and, thus, enhanced health and education outcomes for everyone. Robust identification strategies have been established to handle causality concerns

Keywords: Share of Women in Parliament, Health Outcomes, Education Outcomes, Cross-country Panel
JEL Classification: J16, I15, I25, O11

1. INTRODUCTION

A relatively large array of studies has looked into the effects of increased political representation for minority groups on policy implementation of countries. These disadvantaged groups can consist of women, sections of the population like certain castes[1] or specific ethnic or religious groups. Studies like Washington (2008), Powley (2007) and Chattopadhyay and Duflo (2004) have found positive impact of women or women-friendly leaders on female oriented policies. Other studies have shown that higher representation of disadvantaged castes in India have resulted in greater benefits

* Nabamita Dutta dedicates this paper to the memory of Sanjukta Roy.

[1] Caste is a form of social stratification that is often characterized by hierarchy, status in the society and often exclusion. Caste systems exist in countries like India, Nepal, Pakistan, Sri Lanka, Indonesia and so on.

for such castes (Bardhan et al., 2010; Besley et al., 2005). Studies have also tried to look into the question if greater participation of women in politics lead to better welfare for their own gender. Thomas (1991) shows that more priority bills dealing with issues of women, children, and families are introduced and passed in U.S. states that have highest number of female representatives.

In general, the literature has focused on more micro studies for developing countries that have relatively poor political representation of females or disadvantaged groups in politics. Since women's preferences seem to be systematically different from men's (Yao and You, 2018), it is worthwhile exploring how women's representation in politics affect development outcomes. A caveat exists in the literature in terms of exploring related questions from a macro perspective. While economic development outcomes can be affected by a multitude of factors as documented in the literature, the question of whether greater representation of women in politics affect such outcomes remain unexplored. This paper aims to fill this gap in the literature.

Specifically, the paper looks at the question whether greater share of women in parliament affect specific development outcomes. Given that micro literature has suggested that greater representation of minority groups in politics can potentially lead to better development outcomes, it is worthwhile to explore similar questions on a macro level. As suggested by the micro studies, minority groups care about the benefits of their own people whether it be women or people belonging to certain castes or certain ethnic groups. Following a similar argument, greater representation of women in parliament across countries should cater to better development outcomes for females in those countries. Additionally, as studies have pointed out, women systematically have different preferences than men (Yao and You, 2018) and, thus, it is possible that women, once in power, can use funds more efficiently towards development outcomes like health and education outcomes for everyone, which they care about more than men. Finally, greater share of women in parliament can also lead to better development outcomes in health and education since funds can be channelized effectively for successful policymaking. A strand of literature has talked about the role of gender on corruption. They have found that women were less involved in bribery and less likely to condone the practice of taking bribes (see Dollar, Fisman and Gatti, 2001; Swamy et al., 1999).

We hypothesize that greater share of women in parliament will enhance development outcomes in health and education. To the best of our knowledge, we are the first to examine political representation of women on a macro level and explore its impact on development outcomes. Specifically, we focus on two development outcomes – health and education. Our results show that greater share of women in parliament does have a significant impact in enhancing health and education outcomes. We consider several alternate measures of health and education outcomes, and results remain robust. We establish identification via System GMM instruments that use internal instruments generated via moment condition to control for endogeneity arising out of reverse causality or omitted variable bias. As part of robustness analysis, we have also checked our results with Difference GMM estimates that are constructed to do the same. Finally,

our fixed effect estimates based on a lagged panel structure mitigate endogeneity arising out of reverse causality to some extent.

Section 2 elaborates on the theoretical framework of the paper and describes how we build on the existing strands of literature. Data is described in Section 3. We discuss out panel set up, identification strategies, and empirical design in Section 4 while Section 5 reports our benchmark results, Section 6 talks about the robustness analysis. Finally, Section 7 concludes.

2. LITERATURE REVIEW

In this paper, we build on multiple strands of literature that look at the relationships between health and education outcomes and economic development emphasizing equitable distribution of resources across both genders, women's role in economic development and finally implications of greater representation of women in politics. As Fien (2010) points out, standards of living and social well-being are determined by multiple factors that are interconnected in a complex manner in the context of economic development.

The term "missing women" is often given to the high mortality rates of girls and women in countries that have considerable gender inequality in health and education (Klasen and Wink, 2002; Sen, 1989). Gender inequality is visibly represented in the continuation of trends in policy that has long looked past the issue. When education inequality is addressed, there are observed effects in terms of decrease in fertility and child mortality rates (Klasen, 1999; Murthi, Guio and Dreze, 1995; Summers, 1994). Low female to male enrollment ratio is associated with a lower GDP per capita (Knowles, Lorgelly and Owen, 2002). The empowerment of female labor forces and their incomes is found to elicit positive changes in health and overall, development. Increased access to resources for women and families reduces the excess vulnerability of women. Aid for poor families like free health insurance and access to nutrition benefit women and girls at higher rates (Dercon and Singh, 2013). Recent enrolment rates for primary and secondary schools have increased by over 15% over the 1991 to 2008 period (United Nations, 2011). Improvements in women's human capital leads to more opportunities and improves economic development. The importance of human capital is shown in many growth models and is emphasized as a key aspect for developing countries. Lagerlöf (1999) has shown that initial gender inequality in education can result in low economic growth and continued gender inequality in education, creating a poverty trap that justifies public intervention.

Self-perpetuating gender-gaps in education ultimately slow development. The extended Solow model, by Knowles, Lorgelly and Owen (2002) that separates the male and female human capital as substantial factors of production show that equal distribution of education among males and females would lead to higher steady state per capital income (Klasen, 2002). Women, like other underrepresented groups, are capable

of supporting legislation that improves outcomes for other women while at the same time improving human capital inputs for the rest of the population. Female parliamentarians in most instances have been able to shift legislative priorities, at the least, and change the outcomes to reflect women's interests. (Duflo, 2012). Women's involvement changes the way the countries choose to solve problems and can effectively increase the quality of decision-making. This is because as shown by the literature, women and men may have different systematic preferences (see Yao and You, 2018) and, thus, they might emphasize different aspects of decision making. Behavioral research shows differences in male and females decision making. Women are more likely to exhibit helping behaviors, score higher on 'integrity tests' and have stronger stances on ethical dilemmas (Bampton and Maclagan, 2009; Ones and Viswesvaran, 1998; MacGeorge, 2003). With economic decisions women act more generously and have been proven to support legislation that aims to decrease poverty (Swiss, Fallon, and Burgos 2012). Building on these sets of studies, we undertake a macro analysis and hypothesize that greater share of women in parliament should enhance health and education indicators of counties. Literature has also shown that women tend to be less corrupt than men when it comes to decision making and implementing policies. Studies like Dollar, Fisman, and Gatti (2001) and Swamy et al. (1999) have shown that women are less involved in bribery and are less accepting of the culture of taking bribes. Thus, this also adds support to our hypothesis. Funds for policy making will be used more effectively with greater share of women in parliament.

If women occupy positions of power (i.e., parliamentary roles) they have the ability to create policy to directly or indirectly benefit the women within that country. This, in turn, will eventually lead to faster economic growth for the entire country (Garboni, 2015). Understanding that women's well-being is essential to development is key for high levels of economic success. If women are unable to testify to their disadvantage in society, then it is increasingly difficult for their position to change within the economy (Young, 1993). If a judicial or political system does not implement equal rights to inherit resources than formal women's rights will be less important (Benschop, 2002). In parliamentary roles and politics change is not instant and it is important that male collogues, and peers also contribute to new legislation and public policy (Wang, 2015). Many developmental policies currently assume women as reproductive roles in society versus viewing them as active participants. This tends to lead to public policy that does not always meet the needs of the women in that economy. As stressed above, micro studies have acknowledged that women's participation in politics can lead to more women friendly policies, social policy spending and decreases in poverty levels (Bolzendahl, 2009; Bolzendahl and Brooks, 2007). But it is important to undertake such studies on macro levels to assess if the relationship holds good across countries. This study aims to fill this gap in the literature by providing evidence on a macro scale.

3. DATA AND SOURCES

We describe the summary statistics in Table 1 for the main variables used in the paper.

Table 1. Summary Statistics

Variables	Obs.	Mean	S.D.	Min	Max
Access to Anti R-V drugs (fem.)	1968.0	19.4	20.0	0.0	82.0
Access to Anti R-V drugs (male)	1968.0	21.5	22.0	0.0	95.0
Prevalence of stunting ht. (fem.)	504.0	28.8	15.5	1.2	77.3
Prevalence of stunting ht. (male)	506.0	31.8	16.1	1.0	76.1
Immunization-measles	5071.0	80.5	19.0	3.0	99.0
Tertiary enrollment (female)	2859.0	33.7	29.4	0.0	150.7
Gender parity index - Tertiary enro	2857.0	1.1	0.6	0.1	6.9
Tertiary graduation ratio (female)	1085.0	32.4	21.1	0.1	106.2
Tertiary graduation ratio (male)	1085.0	21.8	13.0	0.1	62.4
Primary completion (female)	2770.0	83.8	22.7	8.4	183.1
Primary completion (male)	3136.0	64.4	23.4	3.5	99.7
Prog. Secondary school (male)	1909.0	89.5	14.6	11.7	100.0
Enrollment primary school (male)	4162.0	101.6	17.7	20.7	222.0
Sec. Education peoples (% females)	3439.0	47.2	5.9	0.0	64.3
% of Women in parliament	4089.0	9.3	8.4	0.0	48.8
GDP per capita	2298.0	12757.1	15769.0	247.4	111066.8
Govt. final consumption	4038.0	16.6	7.3	0.0	84.5
Urban population	5264.0	48.6	23.9	3.4	100.0
Domestic credit	3627.0	29.9	27.5	0.0	190.9
Women share of population	3248.0	38.6	15.3	0.9	70.9
Tax revenue	2039.0	16.8	8.1	0.1	95.2
Polity 2	4248.0	0.5	7.5	-10.0	10.0

Based on our hypothesis, our dependent variables consist of different measures of development outcomes as reflected via health and education outcomes of countries. The data for health outcomes come from Gender Statistics provided by World Bank (2018, online version). Our benchmark measures consist of the percentage of adult females living with HIV who are receiving antiretroviral therapy, the percentage of adult males living with HIV who are receiving antiretroviral therapy, percentage of female children below 5 years of age who are of stunted height, percentage of male children below 5 years of age who are of stunted height and percentage of children who receive immunization for measles. The specific definition of percentage of male or female children of stunted height provided by the World Bank is “percentage of girls under age 5 whose height for age is more than two standard deviations below the median for the international reference population ages 0-59 months. For children up to two years old,

height is measured by recumbent length. For older children height is measured by stature while standing. The data are based on the WHO's new child growth standards released in 2006." Immunization measure consists of children of age 12 to 23 months who received the measles vaccination before 12 months or at any time before the survey. If a child receives one dose of vaccine, he or she is considered immunized. As evident from Table 1, the mean for males receiving antiretroviral therapy (21.5 percent) is a bit higher than females receiving the same (19.3 percent). In the case of prevalence of stunted height among children, however, the male mean (31.7 percent) is higher than the female mean (28.7 percent). The mean for immunization is around 80 percent.

Our benchmark measures of education outcomes consist of tertiary enrollment of females, gender parity index of tertiary level education, gross tertiary education rate of females and gross tertiary education rate of males. As defined by World Bank, gross enrollment ratio is "the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown" (World Bank, Gender Statisitics, 2018, online version). Tertiary education implies successful completion at the secondary level but may or may not imply further advanced educational attainment. The mean for gross tertiary enrollment of females is around 33 percent for our sample. The ratio of women to men enrolled at tertiary level in public and private schools defines the gender parity index. The mean for our sample is around 1.1 suggesting that for our sample there are more women enrolled at the tertiary level in public and private schools compared to men. Gross tertiary graduation rate for females is the number of graduates from first degree programs as a fraction of the population of the theoretical graduation age of the most common first-degree program. The definition is similar for males.

In the case of education measures, we consider other educational outcome variables as part of robustness analysis. Some of our benchmark measures of education outcome have relatively fewer observations and, thus, we check our results with a wider array of measures as part of robustness analysis. The alternate measures considered are primate completion rate of females, primary completion rate of males, enrolment rates of males in primary schools, progression to secondary schools for males and percent of female pupils in secondary education. Primary completion rate implies completion of primary school last year. World Bank defines the rate as 'total number of completers in the last grade of primary school divided by the total number of children of official graduation age' (World Bank, Gender Statistics, 2018, online version). In terms of means, the primary completion rate of female for our sample (83.8 percent) is significantly higher than males (64.3 percent).

Our main independent variable of interest is share of women in parliament. The data comes from Inter-University Consortium for Political and Social Research (ICPSR) database. As part of ICPSER database, the data is compiled by Paxton, Green and Hughes (2008). The specific definition provided by the authors is the percent of parliamentary body that is female. The data for our sample ranges from 0 to 48.8 percent with the mean being 9.3. Interestingly, Rwanda has the maximum value of 48.7 percent

in 2003. 0 corresponds to United Arab Emirates. In Appendix 1, we provide country means for share of women in parliament over the period 1974 to 2003. As we can see from the Appendix, countries like Afghanistan, Algeria, Belize, Bhutan, Comoros, Ethiopia, Fiji and so on have the average share of women in parliament over the period to be as low as 4 percent or less. Examples of countries with 30 percent or higher share are Norway, Finland, Sweden and so on. The data clearly shows the huge disparity among countries in terms of share of women in parliament and that even the countries with highest share do not have close to 50% share.

While the specific determinants of each outcome variable will differ based on the variable, we try to control for country macro factors that can explain variation across countries. One of the important determinants we control for is GDP per capita. Income per capita have been shown to be an important determinant of development outcomes in the development macro literature starting from economic growth, trade openness, foreign direct investment flows and so on. Higher income per capita reduces financial constraints for both individuals and government alike that, in turn, should lead to greater investment in health and education. We also control for government consumption as a percent of GDP. Greater government consumption can mean higher investment in education and health infrastructure. On the other hand, greater government consumption can also mean more rent seeking and, thus, crowing out of spending in education and health.

Urban population as a percentage of GDP is considered yet another determinant in our specifications. A higher urban population will be aware of an efficient health and education infrastructure of a country and, thus, will demand policies that are aligned with such needs. Thus, countries with higher urban population as a percentage of GDP should lead to better health and education outcomes. The other controls considered are a measure for financial development, tax revenue as a percentage of GDP, a measure of democracy and women's share in population. Polity 2 is the measure of democracy taken from Polity 2 database. The index ranges from -10 to +10 with higher number indicating a more democratic regime. A democratic regime will have greater accountability, better checks and balances and higher transparency all of which should lead to an efficient health and education infrastructure. Tax revenues are a source of spending for the government and can be used by the same to invest in developing better health and financial sector of countries. Finally, we also control for women's share in population and a measure of financial development. The measure of financial development considered is domestic credit to private money banks as a percentage of GDP. Appendix 2 lists the main variables used in the paper and the sources.

4. EMPIRICAL METHODOLOGY AND PLANEL STRUCTURE

4.1. Empirical Specifications

Our research question aims to explore if health and education outcomes of countries

are affected by women's share in parliament. To investigate this question empirically, we test the following specification

$$Health_{it} = \alpha_0 + \alpha_1 Women\ in\ par_{it} + \alpha_2 Controls_{it} + \alpha_3 \rho_i + \alpha_4 \theta_t + \epsilon_{it}, \quad (1)$$

where $Health_{it}$ stands for a specific health outcome for country i in period t. $Women\ in\ par_{it}$ stands for share of women in parliament for country i in period t. $Controls_{it}$ denotes the matrix of controls. As mentioned in the previous section, the benchmark controls considered are GDP per capita, urban population as a share of total population, government spending as a share of GDP, tax revenue as a percentage of GDP, domestic credit to the private sector as a percent of GDP, women's share in population and polity2. ρ_i is the vector of the time invariant country fixed effects. Time invariant fixed effects like colonial origins, legal origins, social capital, geographical location in terms of being landlocked or being on the coast, tropical or temperate climates should have significant impact on health and education outcomes. θ_t is the vector of time fixed effects. ϵ_{it} is the random error term. We hypothesize that a higher share of women in parliament should lead to better health outcomes. The sign of α_1 can be positive or negative though depending on the measure.

Similarly, the specification where we test the impact of share of women in parliament on education outcomes is given by

$$Edu_{it} = \alpha_0 + \alpha_1 Women\ in\ par_{it} + \alpha_2 Controls_{it} + \alpha_3 \rho_i + \alpha_4 \theta_t + \epsilon_{it}. \quad (2)$$

4.2. Panel Structure and Identification Strategies

The main challenge for our empirical analysis lies in establishing a clear identification strategy. Our main variable of interest, women's share in parliament, has the potential of being endogenous. Endogeneity can arise out of reverse causality, omitted variable bias or both. As health and education outcome of a country start improving, both the government and the masses might realize the need to have equal representation of male and female in politics. They might realize that to continue bettering the outcomes such representation might be necessary. Thus, women's share of parliament can suffer from endogeneity due to reverse causality. Further, women's share in parliament can be endogenous because of omitted variable bias. There can be variables not controlled for due to data constraints across country over time. For example, changing family dynamics over time for countries can affect health and development outcomes which are not accounted for in the specifications. Similarly, variables related to welfare can do the same. Since such variables can affect health and development outcomes, women's share in parliament is potentially biased due to omitted variable bias.

We deal with identification issues in multiple ways. As a starting point, we employ fixed effect estimates for which we employ a lagged panel structure. Our dependent

variables, consisting of several different measures of health and education outcomes, run from 1986 to 2015. Our main variable of interest, women's share in parliament, runs from 1974 to 2003. So, women's share in parliament is lagged twelve years relative to the dependent variables. All control variables, likewise, also run from 1974 to 2003 and, thus, are lagged twelve years as well. Lagged variables can mitigate endogeneity arising out of reverse causality although they may not resolve the concern fully since the lagged variable can still be correlated with the error term. Yet, an extensive lag of twelve years should resolve the reserve causality concern to a great extent. The time invariant factors described above are taken into account by fixed effect estimates making sure that our estimates are only capturing the variation within countries over time. In the case of fixed effect estimates, the demeaning process that is applied in the context of fixed effect estimates to remove unobserved heterogeneity results in Nickell bias. Nickell (1981) states that the demeaning process results in a bias due to the correlation arising between regressor and error. We consider Dynamic panel data

(DPD) estimates like System GMM and Difference GMM as our alternate estimator that are constructed to take into account the Nickell bias. Thus, for our fixed effect estimates, we do not incorporate a lagged dependent variable which we do for our System GMM estimates.

The alternate method via which we attempt to establish identification strategy is by employing a specific DPD estimator, System GMM estimator. GMM estimation takes into account endogeneity concerns by generating instruments via moment conditions. Such estimators help resolve endogeneity arising out of omitted variable bias or revere causality or both. Dynamic panel estimators can address endogeneity issues by not having to find strictly exogenous instruments. Instrumental variable (IV) estimation is the other alternate popular method to handle endogeneity concerns. Yet, successful implementation of IV estimation requires truly exogenous instruments. Inability to find truly exogenous instruments and, thus, apply Instrumental variable (IV) estimation can exacerbate the bias arising out of endogeneity (Clemens et al., 2012). Other than handling endogeneity concerns by generating internal instruments via moment generating conditions, System GMM estimators are also well suited for panel analysis because of their ability to take into account fixed country effects and also take into account autocorrelation and heteroscedasticity across countries (Roodman, 2009). Thus, they have been frequently used in recent empirical panel studies (Dutta and Mallick, 2018; Dutta and Williamson, 2016; Asiedu and Lien, 2011; Asiedu, Jin and Nandwa, 2009 to mention a few).

Arellano and Bond (1991) proposed the Difference GMM estimator that uses lags (second and further lags) of the dependent variable as instruments. But the estimator can suffer from small sample bias in the presence of smaller time periods. The System GMM estimator proposed by Arellano and Bover (1995) and Blundell and Bond (1998) use additional moment conditions along with the ones used for Difference GMM. Lagged first differences of the dependent variable is used to create orthogonality conditions for the error term by System GMM estimates (Heid, Langer and Larch, 2012). The

additional orthogonality conditions enhance the asymptotic efficiency of the estimator. The trade-off is relative to Difference GMM estimates, System GMM estimates can have a large number of instruments, and, thus, can have a large number of instruments. The large number of instruments can result in finite sample bias. We report *p* values from Sargan test to make sure that instruments are valid and that over-identification restrictions are met. We check our results with Difference GMM estimator as part of robustness analysis. Difference GMM estimators, like System GMM estimators, can handle endogeneity arising out of reverse causality or omitted variable bias or both.

5. BENCHMARK RESULTS

Table 2 presents our first set of benchmark results. Different measures of health outcomes are considered as dependent variables in Table 2. The different measures considered in columns (1) to (5) are the percentage of adult females living with HIV who are receiving antiretroviral therapy, the percentage of adult males living with HIV who are receiving antiretroviral therapy, percentage of female children below 5 years of age who are of stunted height, percentage of male children below 5 years of age who are of stunted height and percentage of children who receive immunization for measles respectively. The benchmark controls considered are GDP per capita, urban population as a share of total population, government spending as a share of GDP, tax revenue as a percentage of GDP, domestic credit to the private sector as a percent of GDP, women's share in population and polity2.

To reiterate, our independent variables of interest including controls are lagged by 12 years relative to our dependent variables of interest. This is our first attempt at establishing identification. We find that greater share of women in parliament lead to better health outcomes. Based on specifications in columns (1), (2) and (5), we find that greater share of women in parliament lead to greater access to anti-retroviral drugs for both males and females and greater immunization rates for measles. In terms of economic significance, based on column 1 estimates, a standard deviation rise in share of women in parliament leads to a 2.9 percentage point rise in access to antiretroviral therapy coverage for females. For males, the same rise in women in parliament leads to a 2.4 percentage point rise in access to coverage to antiretroviral therapy.

In case or prevalence of stunted height among children, we find, as expected, the coefficient of women in parliament is negative and significant for both males and females. A standard deviation rise in women in parliament lowers the prevalence among female children by 6.3 percentage points. The reduction for male kids for a similar rise is about 6 percentage points. Finally, in the case of immunization rate for measles, a standard deviation rises women's share in parliament raises immunization by about 1 percentage point. Thus, greater share of women in parliament leads to better public policies and allocation of resources in terms of health outcomes. This supports existing micro findings in the literature as well as our hypothesis.

Table 2. Health Outcomes and Share of Women in Parliament

	(1) Antiretroviral therapy coverage (female)	(2) Antiretroviral therapy coverage (male)	(3) Prevalence of stunting height (female)	(4) Prevalence of stunting height (male)	(5) Immunization measles
% of women in Par.	0.355***	0.299***	-0.770**	-0.729**	0.104*
	(0.0866)	(0.0663)	(0.292)	(0.305)	(0.0541)
GDP per capita	-0.0001	-0.0003	0.0001	0.00001	-0.0004
	(0.0003)	(0.0002)	(0.0004)	(0.0004)	(0.0002)
Govt. final cons.	-0.134	-0.0527	0.0631	-0.0894	-0.178***
	(0.106)	(0.0808)	(0.322)	(0.355)	(0.0682)
Urban population	-0.269	-0.537***	-1.091	-0.773	0.331**
	(0.264)	(0.202)	(0.696)	(0.707)	(0.151)
Domestic Credit	0.110***	0.0867***	-0.161*	-0.103	0.00837
	(0.0275)	(0.0211)	(0.0832)	(0.0907)	(0.0178)
Women share of pop.	0.743***	0.413***	0.295	0.261	0.323***
	(0.133)	(0.102)	(0.224)	(0.239)	(0.0853)
Tax revenue	0.0173	0.0188	0.242	0.138	-0.0675*
	(0.0589)	(0.0451)	(0.237)	(0.259)	(0.0380)
Polity 2	-0.0163	-0.0853	-0.749***	-0.600**	-0.198***
	(0.118)	(0.0905)	(0.266)	(0.291)	(0.0761)
Constant	-6.948	18.29*	73.78**	62.47**	66.32***
	(12.54)	(9.599)	(28.82)	(29.71)	(7.599)
Observations	589	589	101	102	595
R-squared	0.770	0.772	0.568	0.499	0.147
Number of countries	72	72	47	47	73

Note: Specifications are Fixed Effect Specifications: Dependent Variable are different health outcomes. The health outcomes considered are antiretroviral therapy coverage for males and females, prevalence of male and female children under 5 who are of stunted heights and immunization for measles. Our main independent variable of interest is share of women in parliament. The controls are GDP per capita, government consumption, urban population as a percent of total population, domestic credit to private sector banks, women's share in population, tax revenue as a percent of GDP and polity as a measure of democracy. We control for country and year fixed effects. Robust standard errors are considered in parenthesis.

Table 3. Education Outcomes and Share of Women in Parliament

	(1) Enrollment tertiary (female)	(2) Enrollment tertiary-gender parity index	(3) Gross tertiary graduation rate (male)	(4) Gross tertiary graduation rate (female)
% of women in Parliament	0.181*	0.00273*	0.386**	0.183
	(0.0965)	(0.00154)	(0.190)	(0.116)
GDP per capita	0.00319***	6.33e-06	0.00126	0.000975*
	(0.000396)	(6.48e-06)	(0.000839)	(0.000512)
Govt. final consumption	-0.0539	-0.00628***	-0.768**	-0.367*
	(0.133)	(0.00212)	(0.336)	(0.205)
Urban population	1.904***	0.0149***	0.600	0.573
	(0.227)	(0.00384)	(0.569)	(0.347)
Domestic Credit	-0.0424	-0.000430	-0.118**	-0.0525*
	(0.0260)	(0.000415)	(0.0488)	(0.0298)
Women share in population	-0.438***	0.00671***	-0.163	-0.195
	(0.121)	(0.00192)	(0.313)	(0.191)
Tax revenue	0.0222	0.000102	-0.00247	0.00631
	(0.0511)	(0.000817)	(0.0755)	(0.0461)
Polity 2	0.253**	-0.00261	0.375	0.446**
	(0.127)	(0.00203)	(0.302)	(0.184)
Constant	-79.59***	0.171	-10.30	-16.79
	(11.46)	(0.197)	(33.37)	(20.38)
Observations	403	403	211	211
Number of countries	67	67	68	44
Number of instruments	20	20	36	36

Note: Specifications are Fixed Effect Specifications: Dependent Variable are different education outcomes. The education outcomes considered are tertiary enrollment of females, gender parity index of tertiary enrollment and gross tertiary graduation rate of males and females. Our main independent variable of interest is share of women in parliament. The controls are GDP per capita, government consumption, urban population as a percent of total population, domestic credit to private sector banks, women's share in population, tax revenue as a percent of GDP and polity as a measure of democracy. We control for year fixed effects. Robust standard errors are considered in parenthesis.

In terms of controls, GDP per capita does not have a significance impact on any of the health outcomes. The coefficient of financial development measured by domestic credit is positive and significant for access to antiretroviral therapy coverage for both

males and females. It is, as expected, negative in the case of prevalence of stunted height among females. A better financial development can alleviate credit constraints by providing greater access to credit for everyone and by allowing mobilization of savings into investment more efficiently. Democracy proxied by polity2 has a negative and significant impact on prevalence of stunted height among both female and male kids. Democratic regimes ensure greater monitoring and transparency and, thus, has the potential to lead to efficient public health policy outcomes. Yet, we find that in the case of immunization, the impact is negative and significant.

In Table 3, we consider different measure of educational outcomes as the dependent variables instead of health outcomes. The format of Table 4 is very similar to Table 3. The same set of controls are considered. The different measures of education considered in columns (1) to (4) respectively are tertiary enrollment of females, gender parity index of tertiary enrollment, gross tertiary graduation rate of males and that of females. Except in the case of specification in column (4), the coefficient of share of women in parliament is positive and significant suggesting that greater share of women in parliament helps improve development outcomes in terms of education. Many of our controls are significant. Government consumption as a percentage of GDP has a negative and significant impact on most education outcomes. This provides support to the rent seeking literature that suggests that greater windfalls of gain in the form of government consumption or foreign aid or natural resource rents can lead to greater rent seeking and can divert resources from productive usage. Urban population as a share of total population is positive and significant for the first two specifications. A greater share of urban population might imply greater awareness about the need for an efficient education infrastructure and, thus, the populace might demand such policies. Polity2, our measure of democracy, is positive and significant in specifications (1) and (4). A democratic regime implies greater checks and balances and better accountability and, thus, there is higher probability of more effective public policy decision making.

As mentioned in our empirical methodology section, to establish our identification strategy further, we employ System GMM estimates. Instead of considering an annual panel, we consider a 3-year interval panel. As stated by Acemoglu et.al. (2008), an interval panel can deal with serial correlation better than an average panel. A 5-year interval panel would be idea but given the length of our sample period, we consider a 3-year panel to maximize our sample size. In Table 4, we consider System GMM estimates and different measures of health and education outcomes as the dependent variables. Since we consider a 3-year panel instruments to mitigate instrument proliferation, our sample shrinks to some extent. Due to the shrinkage of this sample size, we are unable to consider some of our benchmark measures of both education and health that do not have sufficient observations to begin with. The measures considered are access to antiretroviral drugs for males and females, immunization for measles, tertiary enrolment for females and tertiary gross graduation rate of females. For all the specifications in Table 4, we find that the coefficient of share of women in parliament is positive and significant suggesting that greater percent of women in parliament leads to

better health and development outcomes. In terms of economic significance for access to antiretroviral drugs, the impact is stronger in the case of females than males. A standard deviation rise in share of women in parliament raises access for females by 3.8 percentage points whereas the same rise will enhance access for males by 1.8 percentage points.

Table 4. Health and Education Outcomes and Share of Women in Parliament

	(1) Antiretroviral therapy coverage (female)	(2) Antiretroviral therapy coverage (male)	(3) Imm. -measles	(4) Enrol. Tert. (female)	(5) Gross tertiary graduation rate (female)
Dependent variable (lag)	0.883***	1.089***	0.387***	0.577***	0.344
	(0.117)	(0.0904)	(0.0492)	(0.0551)	(0.590)
% of women in Parliament	0.465**	0.229**	0.125***	0.470***	8.154**
	(0.181)	(0.0997)	(0.0483)	(0.152)	(3.204)
GDP per capita	0.000570*	-0.000189	-9.81e-05	-6.03e-05	-0.00596
	(0.000324)	(0.000206)	(0.000126)	(0.000519)	(0.00899)
Govt. final consumption	-0.0288	-0.365**	-0.199	-0.517**	-13.67**
	(0.192)	(0.180)	(0.168)	(0.261)	(5.827)
Urban population	-0.181	0.168	0.403***	1.006***	0.00885
	(0.214)	(0.212)	(0.103)	(0.182)	(4.523)
Domestic Credit	0.0965	0.0511	-0.0217	0.0141	-0.299
	(0.0633)	(0.0383)	(0.0222)	(0.0302)	(0.578)
Women share of population	0.393*	0.217	0.186***	-0.134	4.554**
	(0.201)	(0.229)	(0.0710)	(0.102)	(2.110)
Tax revenue	0.00277	0.182***	-0.0636**	-0.0623**	-0.867**
	(0.0418)	(0.0445)	(0.0287)	(0.0247)	(0.354)
Polity 2	0.416	-0.761***	-0.198*	0.169	-6.597**
	(0.503)	(0.279)	(0.112)	(0.129)	(2.863)
Constant	-9.791	-7.919	31.88***	-26.37***	109.8
	(15.28)	(13.88)	(7.181)	(8.006)	(168.3)
Observations	168	168	170	93	36
Number of countries	67	67	68	44	20
Number of instruments	20	20	36	36	19

Note: Specifications are System GMM Specifications: Dependent Variable are different health and education outcomes. The health outcomes considered are antiretroviral therapy coverage for males and females and immunization for measles. The education outcomes considered are tertiary enrollment of females and gross tertiary graduation rate of females. Our main independent variable of interest is share of women in parliament. The controls are GDP per capita, government consumption, urban population as a percent of total population, domestic credit to private sector banks, women's share in population, tax revenue as a percent of GDP and polity as a measure of democracy. We control for country and year fixed effects. Robust standard errors are considered in parenthesis.

6. ROBUSTNESS ANALYSIS

We carry out an array of sensitivity tests to make sure our results are robust. Our robustness analysis consists of checking our benchmark specification with further measures of educational outcomes, exploring a channel that can potentially affect the relationship between women's share in parliament and health and education outcomes and finally testing our results to alternate estimators.

Table 5. Health and Education Outcomes and Share of Women in Parliament

	(1) Primary comp. rate (males)	(2) % primary teachers (fem.)	(3) Progression to secondary school (male)	(4) Enrollment in primary edu (males)	(5) % females in secondary edu
Dependent variable (lagged)	0.289***	0.945***	0.337***	0.617***	0.599***
	(0.0652)	(0.0881)	(0.0883)	(0.0434)	(0.0447)
% of women in Parliament	0.185***		0.149**	0.141**	-0.00401
	(0.0664)	(0.0213)	(0.0678)	(0.0710)	(0.00871)
GDP per capita	3.48e-05	0.000248	0.00174*	-0.000742***	6.38e-05***
	(0.000122)	(0.000169)	(0.000962)	(0.000174)	(2.19e-05)
Govt. final consumption	-0.0855	-0.124***	-0.355**	0.0824	-0.0465***
	(0.0891)	(0.0461)	(0.150)	(0.0922)	(0.00933)
Urban population	0.551**	0.137	-0.128	-0.165	0.0332***
	(0.277)	(0.0947)	(0.147)	(0.146)	(0.0125)
Domestic Credit	0.00670	0.000395	0.00182	-0.102***	8.92e-05
	(0.0169)	(0.00842)	(0.0366)	(0.0146)	(0.00159)
Women share of population	-0.588***	0.0716	0.0505	0.347***	0.0392*
	(0.134)	(0.0677)	(0.127)	(0.0583)	(0.0238)
Tax revenue	0.000621	0.0629	0.0216**	-0.0603	-0.0057***
	(0.0272)	(0.0578)	(0.0101)	(0.0722)	(0.00142)
Polity 2	0.230	-0.220***	-0.107	0.0103	-0.108***
	(0.147)	(0.0382)	(0.156)	(0.0564)	(0.0169)
Constant	51.85***	-8.349	54.59***	47.51***	17.35***
	(14.29)	(6.925)	(7.581)	(9.912)	(2.272)
Observations	102	104	77	144	113
Number of countries	48	48	41	61	51
Number of Instruments	37	37	37	37	37

Note: Specifications are System GMM Specifications: Dependent Variable are different health and education outcomes. The education outcomes considered are primary completion rate of males, percent of female primary teachers, progression to secondary school for males, enrollment in primary education for males and percent of females in secondary education. The controls are GDP per capita, government consumption, urban population as a percent of total population, domestic credit to private sector banks, women's share in population, tax revenue as a percent of GDP and polity as a measure of democracy. We control for country and year fixed effects. Robust standard errors are considered in parenthesis.

In Table 5, we consider additional measures of educational outcomes. The measures that we are able to consider in Table 4 for educational outcomes have relatively low number of observations. To establish further robustness to our findings, we consider primary completion rate of males, percentage of female primary teachers, progression to secondary schools for males, school enrollment in primary education for males and percent of females in secondary education. The coefficient of women's share in parliament remains significant for all measures except in the case of percent of females. For all the measures of education, the coefficient of women's share in parliament is positive and significant suggesting that greater share of women in parliament help improve education outcomes. As suggested by existing studies, women are prone to engage in less corruption compared to men and, thus, funds allocated for education are targeted to improve the outcomes. Additionally, women might be aware of the need of an efficient education and health infrastructure and, thus, might put in all effort to channel funds to better education and health outcomes. In terms of economic significance, the impact is strongest in the case of primary completion rate of males. A standard deviation rise in women's share in parliament raises primary completion by 1.5 percentage points.

Our next set of robustness analysis consist of exploring a channel – income per capita - that can potentially affect the impact of women's share in parliament on education and health outcomes. Higher income per capita of countries helps relax financial constraints for individuals as well as for government. More income enables individuals to invest efficiently in health and education outcomes. Likewise, with more resources available, government can prioritize investment in health and education sector. To test this, we create an income per capita dummy. The dummy takes the value 1 if countries have above average income per capita; otherwise, it takes the value 0. We interact the dummy with women's share in parliament. The specification tested is as follows

$$Health_{it} = \alpha_0 + \alpha_1 Women\ in\ par_{it} + \alpha_2 (Womenpar * Inc)_{it} + \alpha_3 Inc._{it} + \alpha_4 Controls_{it} + \alpha_5 \rho_i + \alpha_6 \theta_t + \epsilon_{it}, \quad (3)$$

where α_2 captures the interactive effect. The overall impact of women in parliament on health outcomes is given by $\frac{\partial Health_{it}}{\partial Womenpar_{it}} = \alpha_1 + \alpha_2 Inc_{it}$. Depending on if Inc. dummy is 1 or 0, $\frac{\partial Health_{it}}{\partial Womenpar_{it}}$ will change. Whether $\frac{\partial Health_{it}}{\partial Womenpar_{it}}$ is > 0, = or < 0 depends on the sign and magnitude of α_1, α_2 and the Income dummy. Likewise, the specification with education measures will look similar.

We present the results in Table 6. We consider two measures of health outcomes and two measures of education outcomes. The measures considered for health are access to retroviral drugs for males and immunization rates. In the case of education, the measures considered are tertiary enrolment rates of females and tertiary gross graduation rate of females. Columns (1) and (2) consider the health measures and columns (3) and (4)

consider the education measures.

Table 6. Health and Education Outcomes and Share of Women in Parliament

	(1) Antiretroviral therapy coverage (male)	(2) Immunization measles	(3) Progression to Secondary school (male)	(4) Secondary Education (females)
Dependent variable (lagged)	1.089***			
	(0.0815)			
% of women in parliament	-0.0590	-0.109**	-0.247	-0.0350*
	(0.107)	(0.0526)	(0.324)	(0.0192)
Income dummy	-2.193	-1.343	-7.384	-1.816***
	(1.912)	(0.912)	(4.850)	(0.298)
Women in par.*Income dummy	0.431***	0.309***	0.509	0.0698***
	(0.131)	(0.0777)	(0.385)	(0.0175)
GDP per capita	4.23e-05	9.04e-05	0.00159	-9.37e-06
	(0.000228)	(0.000137)	(0.000989)	(3.23e-05)
Govt. final consumption	-0.561***	-0.317*	-0.148	0.0138
	(0.187)	(0.165)	(0.241)	(0.0148)
Urban population	0.0318	0.335***	-0.162	0.0209*
	(0.198)	(0.0903)	(0.143)	(0.0108)
Domestic Credit	0.0603	-0.0126	0.0386	-0.00179
	(0.0383)	(0.0189)	(0.0465)	(0.00163)
Women share of population	0.157	0.261***	-0.0144	0.00453
	(0.220)	(0.0727)	(0.124)	(0.0176)
Tax revenue	0.172***	-0.0743***	0.0124	-0.011***
	(0.0449)	(0.0282)	(0.0118)	(0.00055)
Polity 2	-0.708***	-0.103	0.020	-0.061***
	(0.249)	(0.0820)	(0.225)	(0.0158)
Constant	3.008	33.49***	78.53***	18.64***
	(14.35)	(6.876)	(20.28)	(1.635)
Observations	168	170	77	113
Number of countries	67	68	41	51

Note: Specifications are System GMM Specifications: Dependent Variable are different health and education outcomes. The health outcomes considered are antiretroviral therapy coverage for males and immunization for measles. The education outcomes considered are progression to secondary school (male) and secondary education (females). Income dummy takes the value 1 if a country has above average GDP per capita, 0 otherwise. Women in par.*Income dummy is the interaction term between share of women in parliament and income dummy. The controls are GDP per capita, government consumption, urban population as a percent of total population, domestic credit to private sector banks, women's share in population, tax revenue as a percent of GDP and polity as a measure of democracy. We control for country and year fixed effects. Robust standard errors are considered in parenthesis.

The results show that the coefficient of the interaction term, $Womenpar * Inc$, is positive and significant for all the specifications except the one in column (3). The positive and significant coefficient of the interaction term imply that for countries that have more than average income per capita, a higher share of women in parliament can more effectively lead to better health and education outcomes. With lesser financial constraints, women in parliament can more successfully formulate policies that can result in better health and education outcomes.

Our final set of robustness analysis consist of considering alternate model specifications to establish identification further. Difference GMM estimates, like System GMM, also can establish identification by mitigating endogeneity concerns. While System GMM is the superior estimator, the tradeoff relative to the Difference GMM estimator is that the System GMM can have a large number of instruments and, thus, can results in finite sample bias. Thus, we check our results with Difference GMM estimators as well to establish robustness of findings. Keeping space constraint in mind, we do not report the findings, but they are available on request. Our results remain robust.

7. CONCLUSION AND POLICY IMPLICATIONS

Undertaking a macro panel analysis of an extensive set of countries over a period of 30 years, we find that greater share of women in parliament significantly improve health and education indicators of a country. Our results are robust to a variety of health and education indicators. We establish identification via fixed effect estimated employing a lagged panel, System GMM estimates and Difference GMM estimates. Our results also show that as income rises, women in parliament are more effectively able to improve health and education outcomes of countries. We can draw two important conclusions from our findings. First, that women empowerment matters because women are likely to be less corrupt than men as identified in the literature and are more likely to support legislation that invests in human capital growth i.e., education, as well as health infrastructure. It also supports findings to the literature that shows that behaviorally, men and women are different and, thus, policy making can be effective as they focus on different aspects. Second, this paper provides evidence that when disadvantaged groups are able to advocate for their equality the country is economically and socially better off.

Women's empowerment continues to be a large topic of conversation and, thus, multiple organizations like World Bank, International Monetary fund, the United Nations and have shown the importance for women's empowerment. 2015 millennium development goals (MDGs) target eight specific goals to help reduce poverty, some of the goals being reversing the spread of HIV and achieving universal primary education. Successful implementation of the MDGs vary considerably. One way to ensure successful implementation of these developmental goals is by supporting an increase in women in parliament. The United Nations (UN) backs many different women

empowerment programs like the *Convention on the Elimination of All Forms of Discrimination against Women.* While the UN recognizes the growing literature that supports gender quality significantly impacting and advancing sustainable development, this study adds to that literature by concluding that education and health outcomes are also significantly impacted when women are empowered, specifically in government. With the results of our study, we can suggest that organizations that wish to reduce poverty, support economic development, and better health and education outcomes they should push for a greater share of women in parliaments. One way to achieve this can be via mandated quotas. State mandated quotas result in large increases in the proportion of women elected to these roles (Dahlerup and Freidenvall, 2005; Jones, 1998). While building such formal institutions can definitely impact political representation of women, informal institutions like culture and norms are also necessary components. Trust and respect for women in government roles among the populace will make the policy implementation more efficient.

APPENDIX

Table A1. Share of Women in Parliament – Country Means

Afghanistan	3.7	Denmark	28.6	Latvia	14.6	Saint Kitts and Nevis	9.6
Albania	20.2	Djibouti	0.4	Lebanon	1	Saint Lucia	3.6
Algeria	4	Dom. Rep.	11.7	Lesotho	6	St. Vincent	9.9
Andorra	6.6	Ecuador	6.6	Liberia	7.2	Samoa	3.5
Angola	12.1	Egypt	4	Libya		Saudi Arabia	
Antigua & Bar.	2.7	El Salvador	9.9	Liechtenstein	4	Senegal	10.4
Argentina	14.7	Eq. Guinea	7.3	Lithuania	11.5	Serbia	5.3
Armenia	4.4	Eritrea	21.5	Luxembourg	13.4	Seychelles	23.4
Australia	8.9	Estonia	14.5	Madagascar	4	Sierra Leone	3.6
Austria	16.8	Ethiopia	2.8	Malawi	8	Singapore	3.9
Azerbaijan	8.5	Fiji	2.9	Malaysia	6.2	Slovakia	14.8
Bahamas	6.3	Finland	31.3	Maldives	5	Slovenia	11.5
Bahrain	0	France	7	Mali	5.8	Somalia	6.8
Bangladesh	8.2	Gabon	8.9	Malta	4.2	South Africa	10.1
Barbados	6.4	Gambia	5	Mauritania	1.7	Spain	12.8
Belarus	7.1	Georgia	6.9	Mauritius	5.5	Sri Lanka	3.8
Belgium	11.3	Germany	26.8	Mexico	11.4	Sudan	6.4
Belize	3.6	Ghana	7.7	Mongolia	15.9	Suriname	10
Benin	6.2	Greece	5.1	Morocco	0.9	Swaziland	3.5
Bhutan	2.6	Grenada	18.2	Mozambique	19.5	Sweden	33.7
Bolivia	8.6	Guatemala	6.5	Myanmar	2.4	Switzerland	14.9
Bosnia	8.2	Guinea	12.5	Namibia	17.4	Syria	7.6
Botswana	6.8	Guinea-Bissau	12.7	Nepal	4.3	Tajikistan	7.3
Brazil	4	Guyana	22.4	Netherlands	22.3	Thailand	4.5
Bulgaria	17.9	Haiti	4.6	New Zealand	16.2	Togo	5.7
Burkina Faso	6.5	Honduras	8	Nicaragua	15.3	Tonga	0.4

Table A1. Share of Women in Parliament – Country Means (con't)

Burundi	12.5	Hungary	18.3	Niger	2.8	Trinidad and Tobago	13.5
Cambodia	14.3	Iceland	18.5	Nigeria	3.3	Tunisia	5.8
Cameroon	10.3	India	6.5	Norway	31.2	Turkey	2.2
Canada	12.1	Indonesia	9.7	Oman		Turkmenistan	18
CAR	4.8	Iran	3.6	Pakistan	5.7	Tuvalu	2.7
Chad	7.6	Iraq	9.4	Palau	0	Uganda	12.6
Chile	9.2	Ireland	8.5	Panama	6.3	Ukraine	4.9
China	21.4	Israel	8.4	Papua N.G.	1.1	UAE	0
Colombia	7.7	Italy	9.7	Paraguay	3.5	UK	8.4
Comoros	0.1	Jamaica	9.9	Peru	8.4	USA	7.9
Congo	8.3	Japan	2.9	Philippines	8.5	Uruguay	7.3
Costa Rica	12.4	Jordan	0.5	Poland	17.4	Uzbekistan	7.3
Cote d'Ivoire	6.7	Kazakhstan	10.4	Portugal	9.9	Vanuatu	1.4
Croatia	11.6	Kenya	3	Qatar		Venezuela	6.2
Cuba	26.8	Kiribati	1.3	Korea, South	3.5	Vietnam	22.6
Cyprus	3.4	Kuwait	0	Romania	17.5	Yemen	1.2
Czech Republic	14	Kyrgyzstan	5.6	Russia	9.4	Zambia	6.6
D.R. Congo	4.5	Laos	11.5	Rwanda	16.1	Zimbabwe	11.2

Table A2. Data Description

Variable	Description	Source
Access to Antiretroviral (R-V) Drugs (female, male)	Antiretroviral therapy coverage indicates the percentage of all people living with HIV who are receiving antiretroviral therapy	World Bank
Prevalence of stunting height (female, male)	Percentage of male and female children under age 5 whose height for age is more than two standard deviations below the median for the international reference population ages.	World Bank
Immunization- measles % of population	Percentage of children ages 12-23 months who received a measles vaccination before 12 months. A child is considered adequately immunized against measles after one dose of vaccine. Most countries vaccinate this as part of their basic health package.	World Bank
Tertiary school enrolment (female, male)	Total enrollment ratio, regardless of age, to the population of the age group that officially correspond to the level of education. Tertiary education as a minimum condition of admission requires completion of education at the secondary level	World Bank
Gross graduation rate ratio tertiary (female, male)	Number of graduates from first degree programmes expressed as a percentage of the population of the theoretical graduation age of the most common first-degree programme.	World Bank
Primary completion rate (male)	Primary completion rate or gross intake ration to the last grade of primary education divided by the population at the entrance age of the last grade of primary education adjusting for students who drop out during the final year of primary education.	World Bank
Progression to secondary school (male)	The number of new entrants to the first grade of secondary school is a given year as a percentage of the number of students enrolled in the final grade of primary school in the previous year.	World Bank
School enrolment primary (male)	Net enrollment rate is the ratio of children of official school age who are enrolled in school to the population of the corresponding official school age. Primary education provides children with basic skills such as reading, mathematics, history, and other areas.	World Bank

Table A2. Data Description (con't)

Variable	Description	Source
Secondary education pupils (%females)	Female pupils as a percentage of total pupils at secondary level and includes enrollments in public and private schools.	World Bank
Proportion of seats held by women in national parliaments (%)	Women in parliaments are the percentage of parliamentary seats in a single or lower chamber held by women.	World Bank
GDP per capita PPP constant (2011 international $)	Based on purchasing power parity (PPP) is gross domestic product converted to international dollars using ppp rates. An international dollar has the same purchasing power over GDP has the country's dollar has in their country. Data is consistent with 2011 international dollars.	World Bank
Government final consumption	Includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defense and security but excludes government military expenditures.	World Bank
Urban population (% of total)	People living in urban areas as defined by national statistical offices as a share of total population. Shifts from urbans to rural indicate a movement to mass industry, technology, and service.	World Bank
Domestic credit to private sector (%)	Financial resources provided to the private sector by financial corporations, such as through loans, purchases of non- quity securities, and trade credits and other accounts receivable, that establish a claim for repayment as a percentage of GDP	World Bank
Women share in population	Female population is the percentage of the population that is female. Population is based on the de facto definition of population. Which includes all residents regardless of legal status or citizenship	World Bank
Tax revenue	The compulsory transfers to the central government for public purposes. Some transfers like fines, social security contributions are excluded. Refunds are corrections of erroneously collected tax revenue is treated as a negative revenue.	World Bank
Polity 2	A measure of democracy ranging from -10 to +10 based on several components like competitiveness of elections, constraints on the chief executive and so on. 10 denotes a perfect democracy and -10 a perfect autocracy.	World Bank

REFERENCES

Acemoglu, D., S. Johnson, J.A. Robinson and P. Yared (2008), "Income and Democracy," *American Economic Review,* 98(3), 808-842.

Arellano, M., and S. Bond (1991), "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations," *Review of Economic Studies*, 58, 277-297.

Arellano, M. and O. Bover (1995), "Another Look at the Instrumental Variable

Estimation of Error Component Models," *Journal of Econometrics*, 68, 29-51.
Asiedu, E. and D. Lien (2011), "Democracy, Foreign Direct Investment and Natural Resources," *Journal of International Economics*, 84(1), 99-111.
Asiedu, E., Y.Jin and B. Nandwa (2009), "Does Foreign Aid Mitigate the Adverse Effect of Expropriation Risk on Foreign Direct Investment?" *Journal of International Economics,* 78 (2), 268-275.
Bampton, R. and P. Maclagan (2009), "Does a 'Care Orientation' Explain Gender Differences in Ethical Decision Making? A Critical Analysis and Fresh Fndings," *Business Ethics: A European Review,* 18, 179-191.
Bardhan, P. and D. Mookherjee (2010), "Impact of Political Reservations in West Bengal Local Governments on Anti-Poverty Targeting," *Journal of Globalization and Development,* 1, 1-38
Benschop, M (2002), "Rights and Reality: Are Women's Equal Rights to Land, Housing and Property Implemented in East Africa?" *Nairobi: UN-HABITAT,* United Nations and the Rule of Law
Besley, T., R. Pande and V. Rao (2005), "Participatory Democracy in Action: Survey Evidence from South India," *Journal of the European Economic Association*, 3, 648-657.
Blundell, R. and S. Bond (1998), "Initial Conditions and Moment Restrictions in Dynamic Panel Data Models," *Journal of Econometrics*, 87, 115-144.
Bolzendahl, C. (2009), "Making the Implicit Explicit: Gender Influences on Social Spending in Twelve Industrialized Democracies, 1980-99," *Social Forces,* 85(4), 1509-34.
Bolzendahl, C. and C. Brooks (2007). "Women's Political Representation and Welfare State Spending in 12 Capitalists Democracies," *Social Forces,* 84(4), 1509-1534.
Chattopadhyay, R. and E. Duflo (2004) "Women as Policy Makers: Evidence from a Randomized Policy Experiment in India," *Econometrica*, 72(5), 1409-1443.
Clemens, M.A., S. Radelet, R.R. Bhavani and S. Bazzi (2012), "Counting Chickens When They Hatch: Timing and the Effects of Aid on Growth," *Economic Journal*, 122, 590-617.
Dahlerup, D. and L. Freidenvall (2005), "Quotas as a 'Fast Track' to Equal Representation for Women: Why Scandinavia is No Longer the Model," *International Feminist Journal of Politics,* 7(1), 26-48.
Dercon S. and A. Singh (2013), "From Nutrition to Aspirations and Self-Efficacy: Gender Bias over Time among Children in Four Countries," *World Development*, 45, 31-50.
Dollar, D., R. Fisman and R. Gatti (2001), "Are Women Really the "Fairer" Sex: Corruption and Women in Government," *Policy Research Report on Gender and Developmen Working Paper Series,* No. 4, Washington, D.C: World Bank Group.
Duflo, E (2012), "Women Empowerment and Economic Development," *Journal of Economic Literature*, 50 (4), 1051-1079.
Dutta, N. and S. Mallick (2018), "Enabling Women Entrepreneurs: Exploring the Mitigating Factors for the Negative Effect of Fertility Rates on Female

Entrepreneurship," *Kyklos*, 71(3), 402-432.

Dutta, N. and C. Williamson (2016), "Aiding Economic Freedom: Exploring the Role of Political Institutions," *European Journal of Political Economy*, 45, 24-38.

Fien, J. (2010), "Home Teaching and Learning for a Sustainable Future," Retrieved on July 04, 2018, from http://www.unesco.org/education/tlsf/mods/theme_b/mod08.html

Garboni, E. S. (2015), "The Impact of Descriptive Representation on Substantive Representation of Women at European and National Parliamentary Levels. Case Study: Romania," *Procedia - Social and Behavioral Sciences,* 183, 85-92.

Heid, B. J. Langer and M. Larch (2012), "Income and Democracy: Evidence from System GMM Estimates," *Economic Letters*, 116(2), 166-169.

Inter-University Consortium for Political and Social Research (ICPSR) Database, (2008) compiled by Paxton, Green and Hughes.

Jones, M. P. (1998), "Gender Quotas, Electoral Laws, and the Election of Women: Lessons from the Argentine Provinces," *Comparative Political Studies,* 31(1), 3- 21.

Klasen, S. (2002), "Low Schooling for Girls, Slower Growth for All? Cross-Country Evidence on the Effect of Gender Inequality in Education on Economic Development," *World Bank Economic Review,* 16(3), 345-373.

_____ (1999), "Does Gender Inequality Reduce Growth and Development: Evidence from Cross-Country Regressions," *Policy Research Report on Gender and Development Working paper Series*, No. 7, Washington, D.C.: World Bank Group.

Knowles, S., P. Lorgelly and D. Owen (2002), "Are Educational Gender Gaps a Brake on Economic Development? Some Cross-Country Empirical Evidence," *Oxford Economic Papers*, 54 (1), 118-149

Lagerlöf, N. (1999), "Gender Inequality, Fertility, and Growth," *University of Sydney, Department of Economics.*

MacGeorge, E.L. (2003), "Gender Differences in Attributions and Emotions in Helping Contexts," *Sex Roles*, 48, 175-182.

Murthi, M., A. C. Guio, and J. Dreze (1995), "Mortality, Fertility, and Gender Bias in India: A District-Level Analysis," *Population and Development Review,* 21(4), 745-82.

Ones, D. S., and C. Viswesvaran (1998), "Gender, Age, and Race Differences on Overt Integrity Tests: Results across Four Large-scale Job Applicant Datasets," *Journal of Applied Psychology,* 83(1), 35-42.

Powley, E. (2007), "Rwanda: The Impact of Women Legislators on Policy Outcomes Affecting Children and Families," *Background Paper, State of the World's Children*, UNICEF.

Swamy, A. V., Y. Lee, O. Azfar and S. Knack (1999), "Gender and Corruption," IRIS Center Working Paper No. 232.

Swiss, L., K. M. Fallon, and G. Burgos (2012), "Does Critical Mass Matter? Women's Political Representation and Child Health in Developing Countries," *Social Forces,* 91(2), 531-558.

Summers, L. (1994), "Investing in All the People," Washington, D.C: World Bank.

Thomas, S. (1991), "The Impact of Women on State Legislative Policies," *Journal of Politics*, 53(4), 958-976.

Wang, V. (2013), "Women Changing Policy Outcomes: Learning from Pro-women legislation in the Ugandan Parliament," *Women's Studies International Forum,* 41, 113-121.

Washington, E. (2008), "Female Socialization: How Daughters Affect Their Legislator Fathers' Voting on Women's Issues," *American Economic Review*, 98(1), 311-332.

World Bank, (2018), Gender Statistics, Accessed May 2018.

Klasen, S. and C. Wink (2004), "A Turning Point in Gender Bias in Mortality? An Update on the Number of Missing Women," *Population and Development Review*, 28(2), 285-312.

Yao, Y. and W. You. (2018), "Women's Political Participation and Gender Gaps of Education in China: 1950–1990," *World Development*, 106(C), 220-237**.**

Young, K. (1993), *Planning Development with Women: Making a World of Difference,* London: Macmillan.

Mailing Address: Nabamita Dutta, Department of Economics, University of Wisconsin-La Crosse, 1725 State Street, La Crosse, WI 54601, USA, E-mail: ndutta@uwlax.edu.

Received March 04, 2020, Revised July 19, 2020, Accepted August 18, 2020.