Electoral Gender Quotas, Women's Health, and Transparency

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Abstract

Globally, only 25% of all seats in national legislatures are held by women (UN Women, 2021). To remedy this underrepresentation, countries have implemented Electoral Gender Quotas. These measures mandate or suggest that a certain proportion of seats within a political body be held by women, whether it be within a parliament or on a candidate list. Since the association between a nation maintaining a Gender Quota and managing women's substantive concerns has not been studied extensively, this thesis aims to explore how nations with quotas handle women's health issues. This thesis finds that Gender Quotas are associated with better health outcomes for women. This paper also studies the relationship between having a quota and reporting timely data on women's issues, since there is a historical legacy of underreporting gender-related statistics. The results suggest Gender Quotas are not associated with higher levels of transparency on women's issues.

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1. Introduction

In 2021, women are significantly underrepresented in governments around the world. Right now, only 25% of all national parliamentary seats are held by women (UN Women, 2021). UN Women (2021) projects that, if women's political representation continues to grow at this rate, gender parity will not be reached until at least 2063.

In acknowledgement of the unbalanced nature of their parliaments, many countries have implemented and continue to implement Gender Quotas to ensure that a certain minimum threshold for female political representation is established. The movement towards implementing Gender Quotas has become more popular in the past two decades, potentially due to the international community's growing focus on promoting gender equality (Schramm, 2019). The majority of UN Member States now maintain quotas (International IDEA, n.d.).

Governments supposedly use Gender Quotas to ensure that women's voices are heard in parliamentary bodies. However, the implementation of quota provisions varies markedly across the world, even when the same type of quota is utilized. For example, both Sweden and Hungary maintain Voluntary Party Quotas, and yet, women hold 46.99% of the seats in Sweden's parliament and only 12.56% of the seats in Hungary's parliament (Inter-Parliamentary Union [IPU], n.d.).

Furthermore, despite the increasing frequency of quota usage, there is little research on whether or not nations that implement quotas are genuinely committed to making changes to help all women. In theory, nations implement quotas to put legislators in office who know how to manage women's issues effectively, but even when quotas help certain women reach political office, are they associated with better conditions for all women?

To remedy the lack of research on the relationship between quotas and substantive concerns, this thesis aims to answer one overarching question: are Gender Quotas associated with more effective management of women's issues?

This thesis evaluates this question through the dimensions of Gender-Specific Health Outcomes (i.e. women's health) and transparency.

Four subqueries related to Gender Quotas are investigated:

1. Are Gender Quotas associated with more Women in Parliament?
2. Are Gender Quotas associated with better Gender-Specific Health Outcomes?
3. What types of Gender Quotas are associated with better Gender-Specific Health Outcomes?
4. Are nations with Gender Quotas more transparent than nations without them?

This thesis finds that Gender Quotas are associated with more Women in Parliament and better Gender-Specific Health Outcomes for the majority of variables, but they are not associated with more transparency. Thus, the maintenance of a Gender Quota is associated with more effective management of women's health concerns, but not with more transparency on gender-related issues as a whole. Women in Parliament are not significantly associated with the majority of Gender-Specific Health Outcomes or transparency.

2. Relevant Definitions

2.1 Gender Quotas

Electoral Gender Quotas – which will be referred to simply as "Gender Quotas" – aim to improve gender diversity in political bodies. To do this, quotas require or suggest that a certain proportion of seats in a political body or candidate list be held by women (International IDEA, n.d.). This thesis will focus exclusively on Gender Quotas implemented at the national level, but

some countries maintain quotas at the local government level. The specifications of quotas vary, but this thesis will focus on the three types of quotas listed below, per International IDEA (n.d.):

- ***Reserved Seat Quotas*** – Require that women hold at least a specified proportion of seats in national legislatures. Legally mandated.
- ***Candidate Quotas*** – Require that women constitute at least a specified proportion of places on candidate lists. Legally mandated.
- ***Voluntary Party Quotas*** – Specify a minimum proportion of places on candidate lists for women. Rather than being mandated by law, Voluntary Party Quotas are coded in the statutes of individual political parties.

2.2 Women in Parliament

The "Proportion of Women in Parliament" is defined as the percentage of seats in a "single or lower chamber" of a national legislature that are held by women, as of the country's most recent parliamentary election (World Health Organization [WHO], n.d.). For example, if a country holds an election in 2021 and 25% of the parliamentarians elected to its lower chamber are women, its Proportion of Women in Parliament would be considered "25" until the year of its next election. This thesis will refer to Proportions of Women in Parliament simply as "Women in Parliament."

2.3 Gender-Specific Health Outcomes

The term "Gender-Specific Health Outcomes" refers to the variables related to women's health listed below. The variables are mainly focused on women's sexual and reproductive health, and all five indicators deal with issues that primarily or exclusively affect women:

- ***Met Need for Family Planning (%) –*** The proportion of women of reproductive age (15-49) who are "married or in-union" and have their family planning needs met with

modern methods of contraception in a given country (United Nations Population Division [UNPD], 2019). This figure is represented by a percentage. The higher the percentage, the better the outcome, as a higher number indicates that a substantial proportion of women in a given country have their family planning needs met.

- ***Contraceptive Prevalence - Modern Method (%)*** – The proportion of women of reproductive age (15-49) who are "married or in-union" who use or have a sexual partner using "at least one modern method of contraception" in a given country (WHO, n.d.). Modern methods include but are not limited to: female and male condoms, IUDs, implants, and oral contraceptive pills. This figure is represented by a percentage. The higher the percentage, the better the outcome, as a higher number indicates that a substantial proportion of women in a given country have control over their family planning needs.
- ***Total Fertility Rate*** – The number of children each woman would have in a particular country if 1) she did not die before the end of her reproductive years and 2) she gave birth in "alignment with the prevailing age-specific fertility rates" (Organisation for Economic Cooperation and Development [OECD], n.d.). The lower the number, the better the outcome is interpreted, as a lower number indicates that women in a given country generally have control over their reproductive and sexual health decisions.
- ***Maternal Mortality Ratio - National Estimate*** – The number of deaths that occur among women giving birth in a given country during a specific period of time out of 100,000 live births (United Nations International Children's Emergency Fund [UNICEF], 2019). The lower the number, the better the outcome, as a lower number indicates that the risk of mortality for women giving birth in a particular country is relatively low.

- ***Share of Deaths From Unsafe Sanitation (%)*** – The share of premature deaths that are attributable to poor hygiene and sanitation services and/or unsafe water within a given country (Ritchie & Roser, 2019). Women are disproportionately impacted by inadequate sanitation facilities (Kayser, Rao, Jose, & Raj, 2019). The lower the percentage, the better the outcome, as a lower percentage indicates that sanitation issues are not primary drivers of mortality in a given country.

3. Literature Review

3.1 Gender Quotas and Women in Parliament

Numerous studies demonstrate an association between Gender Quotas and Women in Parliament. Tripp and Kang (2008) argue that Gender Quotas have served as an "explanatory factor" for high levels of female representation in legislatures since the mid-1990s. Furthermore, almost all of the countries that have had more than 30% of their lower chamber parliamentary seats held by women maintain Gender Quotas (Schramm, 2019).

Though these studies have shown a relationship between Gender Quotas and greater female representation, other studies have conflicting results. Dahlerup and Freidenvall (2011), for example, find that Gender Quotas have empirically had varying levels of success across Europe. As of 2011, female political representation had increased in only 13 of the 21 European countries that maintained quotas in their most recent elections (Dahlerup & Freidenvall, 2011).

In the past decade, political scientists have attempted to determine which specifications make Gender Quotas most effective. Solyom (2020) notes the efficacy of enforcement mechanisms and placement mandates, while Schwindt-Bayer (2009) finds that the quota threshold (i.e. the proportion of seats/places held for women) affects levels of representation.

Westfall and Chantiles (2016) argue that Reserved Seat and Candidate Quotas are typically more likely to be effective than Voluntary Quotas at ensuring female representation, as women's places (in parliament and on candidate-ranking lists respectively) are legally secured. Tripp and Kang (2008) provide support for Westfall and Chantiles' (2016) argument, finding that Reserved Seat Quotas in particular have been significant predictors of high levels of female political representation since the mid-1990s.Voluntary Party Quotas, on the other hand, do not come with legal mandates from national governments, and therefore, political parties with Voluntary Quotas do not face legal pressure to abide by quota provisions (International IDEA, n.d.). Additionally, political parties choose how to design and implement Voluntary Party Quotas, resulting in more variation amongst different quotas (Westfall & Chantiles, 2016).

3.2 Why Focus on Women's Health and Transparency?

I focus on women's health because, according to the WHO (2009), women have "particular health needs" and "health systems are failing them." Structural gender inequality within health care systems prevents women from achieving "optimal health status" in many national contexts (WHO, 2009). Women also have trouble getting adequate treatment for certain health conditions that affect men and women similarly due to this structural inequality (WHO, 2009). For this reason, the United Nations has labeled investments in women's health as "critical" to eradicating gender inequality and protecting women (United Nations, n.d.).

I focus on transparency due to the pervasiveness of the "global gender data gap" and how it remains a key factor in the persistence of gender inequality (The New York Times, 2016). The data gap refers to the relative lack of data on women compared to availability of data on men (The New York Times, 2016). The gap is caused by the disproportionate inclusion of men as subjects in research studies, "gender-biased collection techniques," and the failure of countries to

provide statistical information disaggregated by sex (The New York Times, 2016). Sarah Hendriks, the director of gender equality at the Bill & Melinda Gates Foundation, states that women can be rendered “invisible” by the data gap (The New York Times, 2016).

Right now, there exist "serious shortcomings” in data collection methods pertaining to women’s health issues (WHO, 2009). Accordingly, as stated by the WHO (2009), many findings on women’s health are based on "extrapolation from incomplete data." This lack of comprehensive data may hurt women for two reasons. First, governments may have difficulty understanding the true severity of women’s concerns when they lack data on them and therefore may struggle to allocate resources accordingly (WHO, n.d.). Second, lack of transparency prevents governments from being held accountable for their management of women’s issues (The New York Times, 2016). This may, in theory, shield governments that fail to handle these concerns effectively from criticism.

3.3 Women in Parliament, Women’s Interests, and Women’s Health

Certain studies have demonstrated a link between levels of female political representation and the amount of time devoted to addressing women’s issues in parliaments. Bratton (2005), for example, shows that female legislators are typically more likely to introduce legislation focused on women’s issues than men are. Bratton (2005) also finds that greater gender diversity in parliamentary bodies is correlated with more attention devoted to women’s interests.

Research has also shown evidence of a relationship between Women in Parliament and the advancement of women’s health interests specifically. Swers (2005) finds that female representatives in the 103rd and 104th Congresses of the United States were more likely than their male counterparts to cosponsor bills related to women’s health. Additionally, Bhalotra and

Clots-Figueras (2011) demonstrate an association between female political representation in India and better "antenatal and postnatal public health provision."

However, other studies have presented contradictory results on the association between female representation and the advancement of women's health interests. Tolbert and Steuernagel (2001) find no relationship between female representation in state assemblies in the United States and women's health policy adoptions during the 1990s. In other words, Tolbert and Steurenagel (2001) show that having female representatives did not make state legislatures more likely to actually adopt policies on women's health in the United States during this time period.

3.4 Gender Quotas, Women's Interests, and Women's Health

Since certain studies have shown that more Women in Parliament may be associated with better women's health outcomes, this thesis aims to determine whether Gender Quotas maintain the same association. Edgell (2017) suggests that this may not be the case. Edgell's research (2017) demonstrates that developing nations dependent on foreign aid from the United States may be inclined to use Gender Quotas as "signalling devices" rather than as measures indicative of a genuine desire to help women. Accordingly, nations that implement Gender Quotas may not always be committed to actually improving conditions for women.

Hopp (2015) also finds that Argentina's Gender Quota did not translate into "meaningful change," despite female legislators' efforts to redirect attention towards women's issues. Female representatives were unable to enact a higher number of policies that addressed women's issues due to institutional norms in the assembly, such as the control that party leaders maintained over the agenda (Hopp, 2015). Argentina's Gender Quota was therefore unable, in this instance, to provide the conditions necessary for female politicians to enact gender-specific legislation.

Westfall and Chantiles (2016), however, find an association between two types of Gender Quotas and better health outcomes for women. Westfall and Chantiles (2016) focus on the impact that Reserved Seat and Candidate Quotas have on 1) female political representation and 2) four gender-related health indicators: female life expectancy, maternal mortality, infant mortality, and fertility. Westfall and Chantiles (2016) find that both types of quotas are associated with higher levels of female representation. They also find that both types of quotas are associated with better health outcomes. Lastly, Westfall and Chantiles (2016) determine that the estimated regression coefficient of Reserved Seat Quotas on health outcomes is higher than the estimated regression coefficient of Candidate Quotas on health outcomes.

Westfall and Chantiles' research (2016) differs from this thesis in four ways. First, this thesis focuses on different indicators of women's health (of which two are mentioned by Westfall and Chantiles). Second, Westfall and Chantiles (2016) evaluate the impact of two types of quotas, whereas this paper discusses three types. Third, Westfall and Chantiles (2016) do not touch on the global gender data gap, whereas transparency is a key exploration in this thesis. Fourth, the study does not include the Interaction Effect of Gender Quotas and Polity2 Scores, while this thesis does (Westfall & Chantiles, 2016). Still, Westfall and Chantiles (2016) present findings that are important in establishing the theoretical foundations of this thesis.

4. Theory

4.1 Gender Quotas and Women in Parliament

First, I argue that Gender Quotas will be associated with more Women in Parliament. This argument is based on the fact that two types of quotas – Reserved Seat and Candidate Quotas – legally mandate female representation in parliaments and on candidate lists respectively. Though not legally mandated, Voluntary Party Quotas also encourage female

political representation. Since quotas present legal mandates and/or strong encouragement to have women represented in political entities and countries without quotas lack these mandates and encouragements, I predict a statistically significant difference in levels of female political representation between countries with quotas and countries without quotas. This prediction is supported by Tripp and Kang (2008), whose findings portray Gender Quotas as a key explanatory factor for growth in female political representation since the mid-1990s. This argument is also supported by Schramm (2019), who states that most nations with the highest levels of female representation have Gender Quotas.

Next, I argue that Reserved Seat Quotas will have the strongest association with more Women in Parliament (i.e. highest positive estimated regression coefficient). I make this prediction due to the fact that Reserved Seat Quotas legally require that a certain proportion of parliamentary seats are held by women. Candidate and Voluntary Party Quotas, on the other hand, focus on the election process, and the women who are required or encouraged to hold places on candidate lists may not end up in office. Thus, these quotas are not guaranteed to translate to female parliamentary representation while Reserved Seat Quotas do guarantee female parliamentary representation. This argument is supported by Westfall and Chantiles' (2016) study, which shows that Reserved Seat Quotas maintain a stronger association with more Women in Parliament than Candidate Quotas do.

Though I predict that Reserved Seat Quotas will maintain a stronger association with more Women in Parliament than Candidate Quotas do, I argue that Candidate Quotas will still be associated with more Women in Parliament (i.e. positive and second-highest estimated regression coefficient). This prediction is based on the fact that Candidate Quotas legally require women to hold places on candidate lists. Accordingly, they saturate the election process with female

candidates that may not have held places on candidate lists otherwise. This prediction is supported by Westfall and Chantiles (2016), who find an association between Candidate Quotas and more Women in Parliament.

Lastly, I argue that Voluntary Party Quotas will be associated with more Women in Parliament, but this relationship will be the weakest of the three types of quotas (i.e. positive estimated regression coefficient, but lowest of the three types). I argue that Voluntary Party Quotas will be associated with more Women in Parliament because they encourage women to run for political office. Additionally, Dahlerup and Freidenvall (2011) demonstrate a marked difference in female representation between countries with Voluntary Quotas and countries without quotas among 30 EU/EEA nations, finding that countries with Voluntary Party Quotas averaged 25.2% Women in Parliament, while countries without quotas averaged 22.6% in 2011. However, I argue that Voluntary Quotas will be weaker than both Reserved Seat and Candidate Quotas because they lack legal mandates and therefore do not always have the enforcement mechanisms that make quotas more likely to be effective (Solyom, 2020). Furthermore, given the widespread variation between different Voluntary Quotas noted by Westfall and Chantiles (2016), I argue that the way Voluntary Quotas translate to representation will not be consistent amongst different quotas, and this lack of standardization will weaken the overall relationship between the quotas and Women in Parliament.

4.2 The Impact of Representation vs. The Impact of Gender Quotas on Women's Health

I predict that more Women in Parliament will be associated with better Gender-Specific Health Outcomes. This prediction is based on the evidence provided by Bratton (2005) that shows that increased gender diversity in legislatures is associated with more attention devoted to women's issues. I posit that a greater focus on gender-specific interests enables a government to

manage those issues more effectively. Thus, I argue that nations with substantial female political representation will be associated with better Gender-Specific Health Outcomes. This argument is supported by Bhalotra and Clots-Figueras' study (2011), which demonstrates an association between female representation and better antenatal and postnatal public health provision in India, and Swers' (2005) study, which shows that female representatives were more likely to introduce legislation on women's health than their male counterparts in the United States' 103rd and 104th Congresses.

Next, I predict that Gender Quotas will be associated with better Gender-Specific Health Outcomes. This prediction is based on the point I made in Section 4.1: Gender Quotas may be associated with more Women in Parliament. This female representation may, in turn, be associated with better health outcomes, as I argued earlier in Section 4.2, due to the fact that increased gender diversity correlates with more attention paid to women's issues (Bratton, 2005). In summary, Gender Quotas could maintain a relationship with greater female representation, and female legislators may encourage parliaments to pay more attention to managing women's health. This argument is supported by Westfall and Chantiles' (2016) findings, which demonstrate a link between Reserved Seat and Candidate Quotas and better health outcomes.

However, I argue that when I control for Women in Parliament, Gender Quotas will not be associated with Gender-Specific Health Outcomes. This intuition is based on Edgell's (2017) and Hopp's (2015) papers. First, following the logic of Edgell's argument (2017), Gender Quotas are not necessarily evidence of a nation's commitment to improving conditions for women, as some nations may use Gender Quotas as devices to signal a feigned interest in promoting gender equality to the international community for the purpose of securing inflows of foreign aid. Thus, Gender Quotas themselves, when isolated from the impact of female representation, may not be

evidence of a nation pursuing liberalization efforts and focusing on women's health. Second, according to Hopp (2015), quotas attempt to put women in political office without necessarily committing national governments to the institutional changes required to enact policy that truly helps women. Even if Gender Quotas are associated with more Women in Parliament, Hopp (2015) shows that female legislators still may not have the ability to secure the enactment of legislation focused on women's issues in certain countries with quotas.

4.3 Types of Quotas

This paper posits that the relationships between different types of quotas and Gender-Specific Health Outcomes will vary significantly.

First, I argue that Reserved Seat Quotas will have the strongest association with better Gender-Specific Health Outcomes, while Candidate Quotas will have the second-strongest association with better Gender-Specific Health Outcomes (i.e. the estimated regression coefficient will be positive and significant for both quotas, but will be higher for Reserved Seat Quotas than it is for Candidate Quotas). This prediction is based on the difference in the parts of the political process that Reserved Seat Quotas and Candidate Quotas target, as mentioned in Sections 3.4 and 4.1: Reserved Seat Quotas reserve a proportion of parliamentary seats for women, while Candidate Quotas hold a proportion of places on candidate lists for women. Reserved Seat Quotas guarantee female parliamentary representation, while Candidate Quotas only guarantee female candidates in elections. Therefore, I argue that Candidate Quotas are not as likely as Reserved Seat Quotas to increase gender diversity in legislatures. Since gender diversity is a potential factor in increasing the amount of attention devoted to women's issues in parliaments (Bratton, 2005), Reserved Seat Quotas' heightened ability to increase gender diversity makes them more likely than Candidate Quotas to be associated with better health

outcomes. This argument is supported by Westfall and Chantiles' (2016) study, which shows that Reserved Seat Quotas maintain a stronger association with better health outcomes than Candidate Quotas do.

Lastly, I argue that Voluntary Party Quotas will have no association with Gender-Specific Health Outcomes. This prediction is based on the characteristics of Voluntary Quotas mentioned in Sections 3.4 and 4.1: Voluntary Quotas are 1) not legally mandated and therefore may lack enforcement mechanisms, 2) focused on the election process, and 3) different from country to country (Westfall & Chantiles, 2016). Due to the variation in the way Voluntary Quotas are structured amongst different political parties, I predict that they will maintain no statistically significant association with Gender-Specific Health Outcomes.

4.4 Transparency

I argue that Gender Quotas will be associated with higher levels of transparency and reporting on women's issues (i.e. higher "Transparency Indexes").

This is based on the argument that nations that choose to implement Gender Quotas signal a certain level of commitment to addressing women's issues to the international community and domestic actors. This commitment may be genuine or feigned, but for both situations, this paper predicts the same outcome: a greater incentive for a nation to calculate and report data on women's issues. This may occur in two ways. First, nations that use Gender Quotas as signalling devices may be likely to devote resources towards reporting data on women's issues to maintain the appearance that they are addressing them. Second, nations that are committed to helping women may be more likely to calculate and report data on gender-specific issues to evaluate the severity of the problems and fix the gender data gap.

4.5 Interpreting the Results

It is important to note that this thesis cannot and does not aim to prove causality. In other words, this thesis does not attempt to show that Gender Quotas cause any kind of outcome. What this thesis aims to show is whether or not Gender Quotas are associated with Women in Parliament and Gender-Specific Health Outcomes. If quotas are associated with better health outcomes, this thesis will not conclude that Gender Quotas force governments to spend money on women's health. Instead, this thesis will conclude that quotas can be viewed as evidence of a nation's commitment to addressing women's health issues.

5. Data Collection

5.1 Independent and Dependent Variables

I use Stata to perform regression analyses. My dataset's unit of analysis is country-year, and it includes 192 countries (all United Nations Member States except for South Sudan) across 61 years (1960-2020). I use five independent variables:

- **Women in Parliament (%)**
- **Gender Quotas** – Binary variable. 1 indicates the maintenance of at least one of the three types of quotas, while 0 indicates no quota at all.
- **Reserved Seat Quotas** – Binary variable. 1 indicates the maintenance of a Reserved Seat Quota, while 0 indicates no Reserved Seat Quota.
- **Candidate Quotas** – Binary variable. 1 indicates the maintenance of a Candidate Quota, while 0 indicates no Candidate Quota.
- **Voluntary Party Quotas** – Binary variable. 1 indicates the maintenance of a Voluntary Party Quota, while 0 indicates no Voluntary Party Quota.

I use three sets of dependent variables:

- **Women in Parliament (%)**
- **Gender-Specific Health Outcomes** – Summarized in Section 2.3.
- **Transparency Index** – Self-constructed dataset explained in Section 5.4.

A summary of all datasets is shown in Table 1 below.

5.2 Gender Quotas

To collect data on Gender Quotas, I use the International IDEA *Gender Quotas Database* (n.d.) (Datasets 2-5 in Table 1). The database includes only the countries that maintain quotas. To complete the dataset, I: 1) add countries that have implemented Gender Quotas since the database was last updated and 2) include the exact years in which nations adopted and implemented their Gender Quotas through external research. I use three sources to collect most of the information on quota adoption years: International IDEA (n.d.), Krook (2007), and Asiedu, Bransette, and Gaekwad-Babulal (n.d.). When data cannot be found on the year a quota was adopted in any of these sources, I search externally and cite separate sources. Then, when the year of quota adoption is found, I use the IFES Election Guide (n.d.) to see when the next national parliamentary election occurred after the quota was adopted in a given country. I then code that year as the year of quota implementation. If no information can be found on a country's quota adoption year, the quota is reported as missing data for that country. For Voluntary Party Quotas, I use the year in which the first political party to introduce a quota adopted it when multiple parties maintain quotas.

Table 1. Descriptive Statistics for Variables

Variable Name	*Dataset Number*	*Observations*	*Mean*	*Standard Deviation*	*Min*	*Max*	*Years Included*	*Source*
Year	1	11712	1990	17.608	1960	2020	1960 to 2020	.
Gender Quota	2	11004	.168	.374	0	1	1960 to 2020	International IDEA
Reserved Seat Quota	3	11712	.032	.177	0	1	1960 to 2020	International IDEA
Candidate Quota	4	11712	.062	.241	0	1	1960 to 2020	International IDEA
Voluntary Party Quota	5	10828	.087	.282	0	1	1960 to 2020	International IDEA
Women in Parliament (%)	6	8948	11.471	10.705	0	64	1945 to 2018	Inter-Parliamentary Union
Polity2 Score	7	8332	.556	.37	0	1	1800 to 2018	Polity Project
GDP Per Capita (current US$)	8	9287	7634.16	15911.973	34.791	189422.22	1960 to 2019	World Bank
Logged GDP Per Capita	9	9287	7.568	1.706	3.549	12.152	1960 to 2019	World Bank
Population, Total	10	11479	27267927	1.080e+08	4375	1.398e+09	1960 to 2019	World Bank
Logged Population	11	11479	15.145	2.232	8.384	21.058	1960 to 2019	World Bank
Population, Female (% of Total)	12	10882	50.119	2.559	23.289	55.867	1960 to 2019	World Bank
Proportion of Women of Reproductive Age (aged 15-49 years) who have their Need for Family Planning Satisfied with Modern Methods	13	8976	47.439	26.111	0	95.8	1970 to 2023	WHO, UNPD

Contraceptive Prevalence – Use of Modern Methods (%)	14	1151	38.187	22.061	.3	86.2	1950 to 2019	UNPD
Fertility Rate, Total Births per Woman	15	10669	4.096	2.027	.98	8.86	1960 to 2018	World Bank
Maternal Mortality Ratio (National Estimate per 100,000 live births)	16	2773	65.299	160.008	0	1778	1985 to 2018	World Bank
Share of Premature Deaths Attributed to Unsafe Sanitation (%)	17	5180	1.843	2.639	0	13.7	1990 to 2017	GBDCN, IHME
School Enrollment, Secondary, Female (% Gross)	18	5556	65.378	36.486	0	175.221	1970 to 2020	World Bank
Labor force participation rate, female (% of female population ages 15+) (national estimate)	19	3790	46.5	15.439	1.93	94.4	1960 to 2019	World Bank
Pregnant Women Receiving Prenatal Care (%)	20	861	83.911	18.225	15.4	100	1984 to 2018	World Bank
Births Attended by Skilled Health Staff (% of Total)	21	2433	88.109	21.126	5	100	1984 to 2018	World Bank
Children in Employment, Female (% of Female Children ages 7-14)	22	280	19.069	16.99	.4	76.1	1994 to 2016	World Bank
Literacy Rate, Youth (ages 15-24), Gender Parity Index (GPI)	23	885	.94	.135	.243	1.196	1970 to 2019	World Bank
Transparency Index	24	576	1.67	.777	0	3.443	2003 to 2017	.

A country is listed as having both a Voluntary Party Quota and a legally mandated quota when the threshold of its Voluntary Party Quota is higher than that of its legally mandated quota (International IDEA, n.d.). Bolivia, for example, is coded as having both a Candidate and a Voluntary Party Quota, since its Voluntary Party Quota's threshold is higher than that of its Candidate Quota (International IDEA, n.d.).

Seven countries with Voluntary Party Quotas were treated as missing data points because the years in which their quotas were implemented could not be found. These countries are: Equatorial Guinea, Malaysia, Malta, New Zealand, Philippines, Switzerland, and Thailand.

5.3 Women in Parliament

To collect data on Women in Parliament for various years, I use the Inter-Parliamentary Union's *Historical Data on Women in National Parliaments* dataset (Dataset 6 in Table 1). The dataset ranges from 1945 to 2018, but only maintains figures for election years. Accordingly, I use Stata to create an expanded variable in which the value for Women in Parliament in an election year is carried forward until the next election year. For example, if a nation has 25% of its seats held by women in its 2004 election and has its next election in 2008, its value for Women in Parliament is coded in the expanded variable as "25" for 2004, 2005, 2006, and 2007. This process is used for all 192 countries and 61 years included in my dataset.

5.3 Gender-Specific Health Outcomes

I utilize Datasets 13-17 in Table 1 to compose information on Met Need for Family Planning, Contraceptive Use - Modern Method, Total Fertility Rate, Maternal Mortality Ratio - National Estimate, and Share of Deaths From Unsafe Sanitation respectively.

5.4 Transparency

To evaluate transparency, I put together a spreadsheet detailing the availability of information on 11 gender-specific indicators for three five-year periods (Dataset 24 in Table 1). The indicators include the five Gender-Specific Health Outcomes in addition to: Female Enrollment in Secondary School, Female Labor Force Participation, Pregnant Women Receiving Prenatal Care, Births Attended by Skilled Health Staff, Female Children in Employment, and Female Youth Literacy Rate, GPI Index (Datasets 18-23 in Table 1 respectively).

Each of these 11 indicators feeds into the cumulative Transparency Index I construct for the following five-year periods: 2003 to 2007, 2008 to 2012, and 2013 to 2017. The last year I consider is 2017 because one dataset – Share of Deaths from Unsafe Sanitation – ends in 2017. To construct the dataset, I index each indicator (j) by each country (i) for each time period (p). If a nation has reported data on an indicator at least once in a given time period (p), its level of transparency, T_{jip}, on that indicator (j) is coded as a 1. If not, its T_{jip} is coded as a 0. This system results in 576 observations – 192 countries at three points in time. Then, a weighted Transparency Index is calculated using the equation below, where $Transparency\ Index_{ip}$ represents the availability of data on each of the indicators (j) for country (i) at time period (p):

$$Transparency\ Index_{ip} = \sum_{j=1}^{11} T_{jip}\, W_{jp}$$

W_{jp} represents the weighting of the Transparency Index. Its calculation is shown in the equation below. The variable "n" represents the number of countries included in the dataset:

$$W_{jp} = \frac{\sum_{i=1}^{n} T_{jip}}{n}$$

In this equation, the weighting is calculated by subtracting the average frequency that countries report on the indicators from 1. This calculation gives nations less "credit" for reporting data on indicators that most countries report data on. For example, W_{jp} will be lower for Met Need for Family Planning if most countries report data on that statistic, since a country is not necessarily demonstrating more of an inclination to calculate data on gender-related variables than most other nations when it reports this information.

5.5 Controls

I collect data on GDP Per Capita, Population, and Female Population (% of Total) through three World Bank datasets (Datasets 8, 10, and 12 in Table 1 respectively). I utilize the Polity IV Project's Polity Scores to classify regime type for countries (Marshall, Jaggers, and Gurr, 2019). I use the Polity2 variable, which classifies regime type on a -10 to 10 scale (Dataset 7 in Table 1). In this scale, countries with Polity2 scores between 6 and 10 are considered democracies, countries with scores between -5 and 5 are considered anocracies, and countries with scores between -10 and -6 are considered autocracies (Marshall, et al., 2019). I recode this Polity2 scale to a 0 to 1 scale, where 0 is a full autocracy and 1 is a full democracy.

5.6 Interaction Effect with Polity2 Score

For all regression models, I include the Interaction Effect of the independent variable (Gender Quota, Women in Parliament, Reserved Seat Quota, Candidate Quota, or Voluntary Party Quota) and Polity2. This is because Gender Quotas and Women in Parliament are indicators pertaining to governmental bodies, and the ability of legislators to make large-scale changes within nations may be tied to the nations' regime types. Legislators in parliament under one regime type may have substantially less power to effect change than ones in parliament under another regime type. Thus, the Interaction Effect of each variable and Polity2 is helpful in

determining if the impacts of Women in Parliament and Gender Quotas vary between democracies and non-democracies.

6. Hypotheses and Regression Models

6.1 Gender Quotas and Women in Parliament

These hypotheses evaluate the impact of Gender Quotas on Women in Parliament.

- ➔ **H1**: Gender Quotas will be associated with more Women in Parliament.
- ➔ **H2**: Reserved Seat Quotas will have the strongest association with more Women in Parliament of the three types of quotas (i.e. highest positive estimated regression coefficient).
- ➔ **H3**: Voluntary Party Quotas will have an association with more Women in Parliament, but it will be the weakest of the three types of quotas (i.e. lowest estimated regression coefficient, but still positive).

6.1.1 Testing H1-H3: Regression Models 1-4

To test H1-H3, I utilize Models 1-4. Model 1 measures the effect of having a Gender Quota on Women in Parliament for a given country (i) at year (t) controlling for the Interaction Effect between the Gender Quota and Polity2, Polity2 alone, Logged Population, Logged GDP Per Capita, and Female Population (% of Total). Model 1 also includes country and time fixed effects (α_i and δ_t respectively) and an error term, ε_{it}.

Model 1: OLS Regression with Controls and Fixed Effects

$$\textbf{Women in Parliament}_{it} = \beta_0 + \beta_1 (\text{Gender Quota})_{it} + \beta_2 (\text{Polity2})_{it} + \beta_3 (\text{Gender Quota})_{it}(\text{Polity2})_{it} + \beta_4 (\text{Logged Population})_{it} + \beta_5 (\text{Logged GDP Per Capita})_{it} + \beta_6 (\text{Female Population (\% of Total)})_{it} + \alpha_i + \delta_t + \varepsilon_{it}$$

Models 2-4 utilize the same equation as Model 1, but substitute Gender Quota for Reserved Seat Quota, Candidate Quota, and Voluntary Party Quota respectively.

6.2 The Impact of Representation vs. The Impact of Gender Quotas on Women's Health

H4-H6 evaluate the effects of Women in Parliament and Gender Quotas on Gender-Specific Health Outcomes.

- ➔ **H4:** More Women in Parliament will be associated with better Gender-Specific Health Outcomes for the majority of outcomes.
- ➔ **H5**: Gender Quotas will be associated with better Gender-Specific Health Outcomes for the majority of outcomes.
- ➔ **H6**: When controlling for Women in Parliament, there will be no association between Gender Quotas and the majority of Gender-Specific Health Outcomes.

6.2.1 Testing H4-H6: Regression Models 5-19

To test H4, I utilize Models 5-9. Model 5 measures the effect of Women in Parliament (WIP) on Met Need for Family Planning – the first Gender-Specific Health Outcome – for a given country (i) at year (t) controlling for the Interaction Effect between Women in Parliament and Polity2, Polity2 alone, Logged Population, Logged GDP Per Capita, and Female Population (% of Total). Model 5 also includes country and time fixed effects (α_i and δ_t respectively) and an error term, $\varepsilon_{it.}$

Model 5: OLS Regression with Controls and Fixed Effects

$$\textbf{MetNeedforFamilyPlanning}_{it} = \beta_0 + \beta_1(\text{WIP})_{it} + \beta_2(\text{Polity2})_{it} + \beta_3(\text{WIP})_{it}(\text{Polity2})_{it} + \beta_4(\text{Logged Population})_{it} + \beta_5(\text{Logged GDP Per Capita})_{it} + \beta_6(\text{Female Population (\% of Total)})_{it} + \alpha_i + \delta_t + \varepsilon_{it}$$

Models 6-9 utilize the same equation as Model 5, but substitute the dependent variable "MetNeedforFamilyPlanning" for Contraceptive Prevalence, Total Fertility Rate, Maternal Mortality Ratio, and Share of Deaths From Unsafe Sanitation respectively.

To test H5, I utilize Models 10-14. Model 10 measures the effect of having a Gender Quota on Met Need for Family Planning for a given country (i) at year (t) controlling for the Interaction Effect between the Gender Quota and Polity2, Polity2 alone, Logged Population, Logged GDP Per Capita, and Female Population (% of Total). Model 10 also includes country and time fixed effects (α_i and δ_t respectively) and an error term, $\varepsilon_{it.}$

Model 10: OLS Regression with Controls and Fixed Effects

$$\textbf{MetNeedforFamilyPlanning}_{it} = \beta_0 + \beta_1 (\text{Gender Quota})_{it} + \beta_2 (\text{Polity2})_{it} + \beta_3(\text{Gender Quota})_{it}(\text{Polity2})_{it} + \beta_4 (\text{Logged Population})_{it} + \beta_5 (\text{Logged GDP Per Capita})_{it} + \beta_6 (\text{Female Population (\% of Total)})_{it} + \alpha_i + \delta_t + \varepsilon_{it}$$

Models 11-14 use the same equation as Model 10, but substitute the dependent variable "MetNeedforFamilyPlanning" for each of the other health outcomes, as explained above.

To test H6, I utilize Models 15-19. Model 15 measures the effect of having a Gender Quota on Met Need for Family Planning for a given country (i) at year (t) controlling for the Interaction Effect between the Gender Quota and Polity2, Polity2 alone, Logged Population, Logged GDP Per Capita, Female Population (% of Total), and Women in Parliament (WIP). The control for Women in Parliament is included to isolate the impact of the maintenance of a quota from the impact of female representation. Model 15 also includes country and time fixed effects (α_i and δ_t respectively) and an error term, $\varepsilon_{it.}$

Model 15: OLS Regression with Controls and Fixed Effects

$$\textbf{MetNeedforFamilyPlanning}_{it} = \beta_0 + \beta_1 (\text{Gender Quota})_{it} + \beta_2 (\text{Polity2})_{it} + \beta_3 (\text{Gender Quota})_{it}(\text{Polity2})_{it} + \beta_4 (\text{Logged Population})_{it} + \beta_5 (\text{Logged GDP Per Capita})_{it} + \beta_6 (\text{Female Population (\% of Total)})_{it} + \beta_7 (\text{WIP})_{it} + \alpha_i + \delta_t + \varepsilon_{it}$$

Models 16-19 utilize the same equation as Model 15, but substitute the variable "MetNeedforFamilyPlanning" for each of the other health outcomes, as explained above.

6.3 Types of Quotas

H7-H9 evaluate the impacts of different quotas on Gender-Specific Health Outcomes.

- ➔ **H7**: Reserved Seat Quotas will have the strongest association with better Gender-Specific Health Outcomes of the three types of quotas for the majority of outcomes (i.e. highest positive estimated regression coefficient).
- ➔ **H8**: Candidate Quotas will have an association with better Gender-Specific Health Outcomes for the majority of outcomes, but this association will be weaker than that of Reserved Seat Quotas (i.e. second-highest estimated regression coefficient, still positive).
- ➔ **H9**: Voluntary Party Quotas will not be associated with the majority of Gender-Specific Health Outcomes.

6.3.1 Testing H7-H9: Regression Models 20-34

To test H7, I utilize Models 20-24. Model 20 measures the effect of maintaining a Reserved Seat Quota on Met Need for Family Planning for a given country (i) at year (t) controlling for the Interaction Effect between the Reserved Seat Quota and Polity2, Polity2 alone, Logged Population, Logged GDP Per Capita, and Female Population (% of Total). Model 20 also includes country and time fixed effects (α_i and δ_t respectively) and an error term, $\varepsilon_{it.}$

Model 20: OLS Regression with Controls and Fixed Effects

$$\textbf{MetNeedforFamilyPlanning}_{it} = \beta_0 + \beta_1 (\text{Reserved Seat Quota})_{it} + \beta_2 (\text{Polity2})_{it} + \beta_3 (\text{Reserved Seat Quota})_{it}(\text{Polity2})_{it} + \beta_4 (\text{Logged Population})_{it} + \beta_5 (\text{Logged GDP Per Capita})_{it} + \beta_6 (\text{Female Population (\% of Total)})_{it} + \alpha_i + \delta_t + \varepsilon_{it}$$

Models 21-24 utilize the same equation as Model 20, but substitute the variable "MetNeedforFamilyPlanning" for each of the other health outcomes, as explained above.

To test H8, I utilize Models 25-29. Model 25 measures the effect of the Candidate Quota on Met Need for Family Planning for a given country (i) at year (t) controlling for the Interaction Effect between the Candidate Quota and Polity2, Polity2 alone, Logged Population, Logged GDP Per Capita, and Female Population (% of Total). Model 25 also includes country and time fixed effects (α_i and δ_t respectively) and an error term, $\varepsilon_{it.}$

Model 25: OLS Regression with Controls and Fixed Effects

$$\textbf{MetNeedforFamilyPlanning}_{it} = \beta_0 + \beta_1 (\text{Candidate Quota})_{it} + \beta_2 (\text{Polity2})_{it} + \beta_3 (\text{Candidate Quota})_{it}(\text{Polity2})_{it} + \beta_4 (\text{Logged Population})_{it} + \beta_5 (\text{Logged GDP Per Capita})_{it} + \beta_6 (\text{Female Population (\% of Total)})_{it} + \alpha_i + \delta_t + \varepsilon_{it}$$

Models 26-29 utilize the same equation as Model 25, but substitute the variable "MetNeedforFamilyPlanning" for each of the other health outcomes, as explained above.

To test H9, I utilize Models 30-34. Model 30 measures the effect of the Voluntary Party Quota on Met Need for Family Planning for a given country (i) at year (t) controlling for the Interaction Effect between the Voluntary Party Quota and Polity2, Polity2 alone, Logged Population, Logged GDP Per Capita, and Female Population (% of Total). Model 30 also includes country and time fixed effects (α_i and δ_t respectively) and an error term, $\varepsilon_{it.}$

Model 30: OLS Regression with Controls and Fixed Effects

$$\textbf{MetNeedforFamilyPlanning}_{it} = \beta_0 + \beta_1 (\text{Voluntary Party Quota})_{it} + \beta_2 (\text{Polity2})_{it} + \beta_3(\text{Voluntary Party Quota})_{it}(\text{Polity2})_{it} + \beta_4 (\text{Logged Population})_{it} + \beta_5 (\text{Logged GDP Per Capita})_{it} + \beta_6 (\text{Female Population (\% of Total)})_{it} + \alpha_i + \delta_t + \varepsilon_{it}$$

Models 31-34 utilize the same equation as Model 30, but substitute the variable "MetNeedforFamilyPlanning" for each of the other health outcomes, as explained above.

6.4 Transparency

H10 evaluates the effect of Gender Quotas on transparency.

➔ **H10:** Gender Quotas will be associated with higher levels of transparency (higher Transparency Indexes).

6.4.1 Testing H10: Regression Model 35

Model 35 is used to test H10. Transparency Index_{ip} represents the availability of data on women's issues for a given country (i) at time period (p) (i.e. 2003-2007, 2008-2012, and 2013-2017). Model 35 measures the effect of the Gender Quota on the Transparency Index for a given country (i) in time period (p) controlling for the Interaction Effect between the Gender Quota and Polity2, Polity2 alone, Logged Population, Logged GDP Per Capita, and Female Population (% of Total) for country (i) during period (p) in year (t). Year (t) is the final year of every period. Therefore, its value is either 2007, 2012, or 2017. Model 35 includes country and time fixed effects (α_i and δ_{pt} respectively) and an error term, ε_{ipt}. The Transparency Index_{ip} was assembled using the equations described in Section 5.4.

Model 35: OLS Regression with Controls and Fixed Effects

$$\textbf{Transparency Index}_{ip} = \beta_0 + \beta_1 (\text{Gender Quota})_{ipt} + \beta_2 (\text{Polity2})_{ipt} + \beta_3 (\text{Gender Quota})_{ipt}(\text{Polity2})_{ipt} + \beta_4 (\text{Logged Population})_{ipt} + \beta_5 (\text{Logged GDP Per Capita})_{ipt} + \beta_6 (\text{Female Population (\% of Total)})_{ipt} + \alpha_i + \delta_{pt} + \varepsilon_{ipt}$$

7. Results

7.1 Gender Quotas and Women in Parliament

Models 1-4 regress types of quotas (Gender Quotas, Reserved Seat Quotas, Candidate Quotas, and Voluntary Party Quotas) on Women in Parliament.

The results of these regressions are shown in Table 2. Gender Quotas have a significant association with more Women in Parliament; the estimated regression coefficient of +5.186 demonstrates that countries that maintain a quota of any kind are expected to have 5.186% more Women in Parliament than countries without a quota of any kind. This result provides support for H1, which predicted an association between quotas and more Women in Parliament.

The regression results also provide support for H2, since H2 predicted that Reserved Seat Quotas would be associated with more Women in Parliament and the association would be the strongest of the three types of quotas. The estimated coefficient of the regression of Reserved Seat Quotas on Women in Parliament is +8.276, the highest of the three types of quotas.

Table 2. H1-H3: The Impact of Quotas on Women in Parliament (Models 1-4)

Variable	*Model 1 Women in Parliament (%)*	*Model 2 Women in Parliament (%)*	*Model 3 Women in Parliament (%)*	*Model 4 Women in Parliament (%)*
Gender Quota	**5.186***** **(0.651)**	--	--	--
Reserved Seat Quota	--	**8.276***** **(0.902)**	--	--
Candidate Quota	--	--	**2.849*** **(1.137)**	--
Voluntary Party Quota	--	--	--	**-10.75***** **(1.488)**
Polity2 Score	**-3.519***** **(0.379)**	**-2.170***** **(0.361)**	**-2.636***** **(0.355)**	**-2.570***** **(0.392)**
Interaction Effect of Gender Quota and Polity2 Score	**1.520*** **(0.767)**	**--**	--	**--**
Interaction Effect of Reserved Seat Quota and Polity2 Score	--	-2.328 (1.449)	--	--
Interaction Effect of Candidate Quota and Polity2 Score	--	--	**2.928*** **(1.314)**	--
Interaction Effect of Voluntary Party Quota and Polity2 Score	--	--	--	**16.63***** **(1.654)**
Logged Population	**-5.031***** **(0.481)**	**-6.638***** **(0.448)**	**-5.527***** **(0.449)**	**-3.836***** **(0.498)**
Logged GDP Per Capita	**-0.435*** **(0.200)**	-0.150 (0.185)	-0.332 (0.184)	-0.321 (0.208)
Female Population (% of Total)	-0.188 (0.117)	0.0724 (0.113)	-0.0145 (0.112)	0.0454 (0.121)
Constant	105.0*** (10.94)	115.7*** (10.70)	103.8*** (10.66)	73.62*** (11.35)
Observations	6200	6779	6779	6101
R^2	0.785	0.764	0.767	0.764

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Controls included for fixed effects but not shown above

The result of the regression of Voluntary Party Quotas on Women in Parliament, however, falsifies H3, which predicted that Voluntary Party Quotas would maintain the weakest positive association with Women in Parliament. The association between Voluntary Party Quotas and Women in Parliament is significantly negative, with an estimated regression coefficient of -10.75. It is important to acknowledge that seven countries with Voluntary Party Quotas are treated as missing data points on the "Gender Quota" and "Voluntary Party Quota" columns, since no information is available on the exact year in which their quotas were implemented. Two of these countries maintain high levels of female representation – Switzerland (with 42% of its parliamentary seats held by women) and New Zealand (48%) (IPU, n.d.). In the other five countries treated as missing data (Equatorial Guinea, Malaysia, Malta, Philippines, and Thailand), less than 30% of parliamentary seats are held by women (IPU, n.d.).

The Interaction Effects of the quotas and Polity2 scores are important to note. In every regression except for the Reserved Seat Quota model, the estimated regression coefficient of the Interaction Effect of the Quota and Polity2 is significant and positive. These results imply that the impacts of both Candidate and Voluntary Party Quotas are tied to whether they are implemented in democracies, especially for Voluntary Party Quotas. In non-democracies, the estimated regression coefficient of Voluntary Quotas on Women in Parliament is negative. In more democratic states, however, the estimated regression coefficient of Voluntary Quotas on Women in Parliament is positive.

The relationship between Polity2 Scores and Women in Parliament is important to note as well. In every model, the estimated regression coefficient of Polity2 on Women in Parliament when there is no quota is negative. For example, the association between Polity2 and Women in Parliament in the Gender Quota regression model has an estimated regression coefficient of

-3.519 when there is no quota in place. This implies that democracies without quotas are associated with lower levels of Women in Parliament than non-democracies without quotas. Additionally, larger populations are associated with lower levels of Women in Parliament.

The regressions of the quotas on Women in Parliament without the inclusion of the Interaction Effect of the quotas and Polity2 is shown in Table 11 in the Appendix.

7.1.1 Analyzing Quotas by Polity2 Scores

To see which countries implemented each type of quota, I divide countries into two categories – non-democracies and democracies – based on their Polity2 Scores and name the resulting variable "Polity2 Split." The Polity Project considers countries with Polity2 scores of 6 or higher as democracies, and in the recoded 0 to 1 scale I constructed, a 6 corresponds to a score of 0.8 (Marshall, et al., 2019). Thus, countries with scores of 0.8 or higher are represented as "democracies," while countries with Polity2 scores lower than 0.8 are represented as "non-democracies" in my Polity2 Split variable.

Table 3 displays the frequency of quotas divided by the Polity2 Split variable to illustrate the percentage of observations of each quota that occur in non-democracies and democracies. Observations of countries without quotas are not included in Table 3. Table 3 shows that 73.79% of observations of Gender Quotas are in democracies, while only 30.16% of observations of Reserved Seat Quotas are in democracies. 87.55% of observations of Voluntary Party Quotas are in democracies. Thus, most observations of Voluntary Party Quotas in my dataset occur in democracies, while most observations of Reserved Seat Quotas occur in non-democracies.

Table 3. The Frequency of Types of Quotas by Polity2 Split

	Non-Democracies	***Democracies***	***Total***
Gender Quota	400 26.21%	1,126 73.79%	1,526 100.00%
Reserved Seat Quota	213 69.84%	92 30.16%	305 100.00%
Candidate Quota	113 20.14%	448 79.86%	561 100.00%
Voluntary Party Quota	103 12.45%	724 87.55%	827 100.00%

Legend: The numbers within each cell are ordered as follows: number of occurrences, row percentage. The "Total" column shows the total number of occurrences of each type of quota in the dataset.

7.2 The Impact of Representation vs. The Impact of Gender Quotas on Women's Health

Models 5-19 regress Women in Parliament and Gender Quotas on five Gender-Specific Health Outcomes: Met Need for Family Planning, Contraceptive Prevalence - Modern Method, Total Fertility Rate, Maternal Mortality Ratio - National Estimate, and Share of Deaths From Unsafe Sanitation. The results of the regressions are shown in Tables 4 and 5.

Table 4 demonstrates that Women in Parliament are significantly associated with better health outcomes for only two of the five Gender-Specific Health Outcomes: Met Need for Family Planning and Share of Deaths From Unsafe Sanitation. Women in Parliament are not significantly associated with the other three outcomes. Thus, the results shown in Table 4 falsify H4, which predicted that Women in Parliament would be associated with better Gender-Specific Health Outcomes for the majority of outcomes.

Table 5 demonstrates that Gender Quotas are significantly associated with better health outcomes for four of the five variables, every indicator besides Contraceptive Prevalence - Modern Method. For instance, countries that maintain any type of quota are expected to have 6.313% higher Met Need for Family Planning than countries without quotas. Thus, the results in

Table 5 provide support for H5, which predicted that Gender Quotas would be associated with better health outcomes for the majority of variables.

In both Tables 4 and 5, higher values for all four control variables – Polity2, Logged GDP Per Capita, Logged Population, and Female Population (% of Total) – are associated with better health outcomes for the majority of variables. This implies that regime type, economic well-being, population, and gender ratio are all factors associated with how effectively a country manages women's health. A country is more likely to have better women's health outcomes if it is: 1) a democracy, 2) rich, 3) large, or 4) majority female.

It is important to note that the Interaction Effect of Gender Quotas and Polity2 is significant for every variable except Contraceptive Prevalence, but in the opposite way – the Interaction Effect is associated with worse health outcomes for four indicators. This is also true of the Interaction Effect of Women in Parliament and Polity2 on three variables – Met Need for Family Planning, Total Fertility Rate, and Share of Deaths From Unsafe Sanitation. This suggests that in more democratic states, the gap between countries with and without gender quotas is less substantial than it is in less democratic states. The same is true of the effect of Women in Parliament on the three aforementioned health indicators.

Table 4. H4: The Impact of Women in Parliament on Gender-Specific Health Outcomes (Models 5-9)

Variable	***Model 5 Met Need for Family Planning (%)***	***Model 6 Contraceptive Prevalence - Modern Method (%)***	***Model 7 Total Fertility Rate***	***Model 8 Maternal Mortality Ratio (National Estimate per 100k live births)***	***Model 9 Share of Deaths From Unsafe Sanitation (%)***
Women in Parliament (%)	**0.151***** **(0.0295)**	0.205 (0.107)	-0.00429 (0.00222)	-0.701 (0.458)	**-0.0156***** **(0.00419)**
Polity2 Score	**10.64***** **(0.561)**	**6.603**** **(2.039)**	**-0.634***** **(0.0396)**	**-35.92**** **(11.53)**	**-1.092***** **(0.103)**
Interaction of Women in Parliament and Polity2 Score	**-0.114**** **(0.0382)**	-0.142 (0.134)	**0.0139***** **(0.00285)**	0.887 (0.550)	**0.0134*** **(0.00552)**
Logged GDP Per Capita	**1.566***** **(0.262)**	**2.632**** **(0.925)**	**-0.162***** **(0.0183)**	**-16.33***** **(4.097)**	**-0.289***** **(0.0398)**
Logged Population	**11.21***** **(0.707)**	**17.12***** **(2.912)**	**-1.603***** **(0.0493)**	**-78.95***** **(13.26)**	**-2.980***** **(0.123)**
Female Population (% of Total)	**0.591***** **(0.152)**	0.465 (0.634)	**-0.165***** **(0.0112)**	**-6.601**** **(2.188)**	**-0.132***** **(0.0226)**
Constant	-178.5*** (15.91)	-293.2*** (62.26)	39.28*** (1.112)	1844.6*** (275.9)	59.61*** (2.690)
Observations	6068	926	6779	2225	3977
R^2	0.941	0.910	0.935	0.927	0.940

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Controls included for fixed effects but not shown above

Table 5. H5: The Impact of Gender Quotas on Gender-Specific Health Outcomes (Models 10-14)

Variable	*Model 10 Met Need for Family Planning (%)*	*Model 11 Contraceptive Prevalence - Modern Method (%)*	*Model 12 Total Fertility Rate*	*Model 13 Maternal Mortality Ratio (National Estimate per 100k live births)*	*Model 14 Share of Deaths From Unsafe Sanitation (%)*
Gender Quota	**6.538*****	1.308	**-0.282*****	**-35.30****	**-0.563*****
	(0.791)	(2.335)	**(0.0684)**	**(12.75)**	**(0.0977)**
Polity2 Score	**9.322*****	**4.538***	**-0.425*****	**-19.80***	**-1.120*****
	(0.509)	**(1.872)**	**(0.0404)**	**(9.588)**	**(0.0912)**
Interaction of Gender Quota and Polity2 Score	**-4.418*****	2.995	**0.377*****	**36.71***	**0.662*****
	(0.942)	(2.814)	**(0.0805)**	**(14.47)**	**(0.121)**
Logged GDP Per Capita	**1.444*****	1.450	**-0.265*****	**-14.80*****	**-0.122****
	(0.271)	(0.915)	**(0.0205)**	**(3.946)**	**(0.0416)**
Logged Population	**8.821*****	**14.63*****	**-1.517*****	**-66.66*****	**-2.503*****
	(0.656)	**(2.871)**	**(0.0502)**	**(12.97)**	**(0.119)**
Female Population (% of Total)	**0.812*****	0.837	**-0.0528*****	**-7.324*****	**-0.240*****
	(0.121)	(0.515)	**(0.00968)**	**(1.886)**	**(0.0190)**
Constant	-150.0***	-261.2***	33.06***	1658.2***	56.03***
	(14.90)	(62.25)	(1.142)	(276.6)	(2.605)
Observations	6128	930	6932	2142	3968
R^2	0.941	0.906	0.920	0.932	0.945

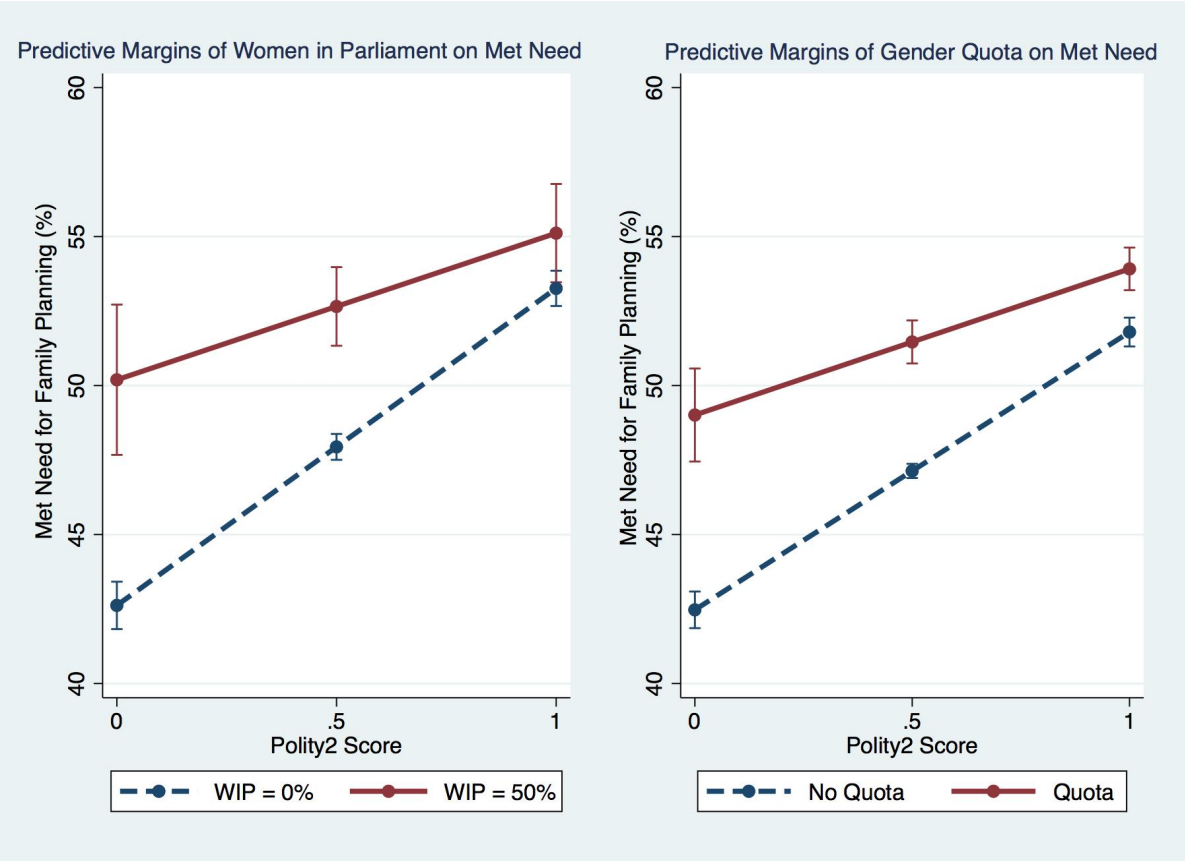
Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Controls included for fixed effects but not shown above

The effects of Women in Parliament and quotas in democracies and non-democracies are illustrated in the Predictive Margins graphs shown in Figure 1. In both graphs, the X-axis represents Polity2 and the Y-Axis represents the variable "Met Need for Family Planning." In the first graph, the red solid line represents Predictive Margins for countries with 50% of their parliamentary seats held by women while the blue dashed line represents Predictive Margins for countries with 0% of their parliamentary seats held by women. In the second graph, the red solid line represents Predictive Margins for countries with quotas while the blue dashed line represents Predictive Margins for countries without quotas. As Polity2 scores go up, the gaps between countries with and without female representation and countries with and without quotas get smaller. More Predictive Margins graphs are shown in Figures 2-4 in the Appendix.

Figure 1. Predictive Margins of Women in Parliament and Gender Quotas on Met Need for Family Planning with 95% Confidence Intervals



The results of Table 6 falsify H6, which predicted no association between quotas and health outcomes when controlling for Women in Parliament. In reality, the associations between quotas and four health outcomes remain significant even with the control for Women in Parliament. Also, the estimated regression coefficient of quotas on health outcomes is higher for three outcomes. This suggests that quotas themselves, independent of female representation, are associated with better health outcomes for women.

Table 6. H6: The Impact of Gender Quotas on Gender-Specific Health Outcomes, Control for Women in Parliament (Models 15-19)

Variable	***Model 15 Met Need for Family Planning (%)***	***Model 16 Contraceptive Prevalence - Modern Method (%)***	***Model 17 Total Fertility Rate***	***Model 18 Maternal Mortality Ratio (National Estimate per 100k live births)***	***Model 19 Share of Deaths From Unsafe Sanitation (%)***
Gender Quota	**8.915***** **(0.848)**	4.982 (2.563)	**-0.376***** **(0.0664)**	**-36.03*** **(14.67)**	**-0.505***** **(0.103)**
Polity2 Score	**9.721***** **(0.532)**	3.109 (1.869)	**-0.567***** **(0.0387)**	-18.77 (10.26)	**-1.064***** **(0.0941)**
Interaction of Gender Quota and Polity2 Score	**-7.425***** **(1.005)**	-1.096 (3.053)	**0.454***** **(0.0779)**	**37.40*** **(16.48)**	**0.590***** **(0.126)**
Women in Parliament (%)	0.0326 (0.0171)	0.0545 (0.0547)	**0.00382**** **(0.00131)**	0.115 (0.236)	**-0.00450*** **(0.00229)**
Constant	-147.5*** (15.73)	-270.1*** (62.85)	37.43*** (1.118)	1816.3*** (290.3)	56.06*** (2.672)
Observations	5605	858	6200	2020	3708
R^2	0.943	0.914	0.936	0.928	0.943

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Controls included for fixed effects and Logged Population, Logged GDP Per Capita, and Female Population (% of Total) but not shown above

7.3 Types of Quotas

Table 7 displays the results of Models 20-34, which tested H7-H9. The results falsify H7, which predicted that Reserved Seat Quotas would maintain the strongest association with better Gender-Specific Health Outcomes for the majority of outcomes. Reserved Seat Quotas are associated with better outcomes for four of the five outcomes (namely, Met Need for Family Planning, Total Fertility Rate, Maternal Mortality Ratio, and Share of Deaths From Unsafe Sanitation), but the estimated regression coefficients of Voluntary Party Quotas on Met Need for Family Planning and Share of Deaths From Unsafe Sanitation are higher than the estimated regression coefficients of Reserved Seat Quotas on those two variables. Still, Reserved Seat Quotas are associated with better health outcomes for the majority of outcomes, while Candidate and Voluntary Party Quotas are not. It is important to note that for three variables, the Interaction Effect of the Reserved Seat Quota and Polity2 is significant in the opposite direction. This suggests that, in non-democracies, the Reserved Seat Quota is associated with better health outcomes, while in democracies, the quota is associated with similar or worse health outcomes.

Table 7 provides evidence that falsifies H8, which predicted that Candidate Quotas would be associated with better health outcomes in the majority of cases, but that this association would be weaker than the one between Reserved Seat Quotas and health outcomes. Candidate Quotas maintain an association with better health outcomes for only one variable – Share of Deaths From Unsafe Sanitation. The Interaction Effect of the Candidate Quota and Polity2 is also significant for only one outcome – Total Fertility Rate.

Lastly, the results of Table 7 falsify H9, which predicted that Voluntary Party Quotas would not be associated with the majority of outcomes. Voluntary Quotas are associated with three outcomes – Met Need for Family Planning (for which the quota predicts better outcomes),

Total Fertility Rate (for which the quota predicts worse outcomes), and Share of Deaths From Unsafe Sanitation (for which the quota predicts better outcomes). For these three outcomes, the Interaction Effect of the Voluntary Quota and Polity2 is significant in the opposite direction. This result suggests, similarly to the result of the Reserved Seat Quota model, that the gap between countries with and without Voluntary Quotas is smaller when the countries are democracies.

Table 7 shows that Polity2 scores are associated with better health outcomes for the majority of variables. Table 13 in the Appendix section demonstrates the impacts of the other control variables – Logged GDP Per Capita, Logged Population, and Female Population (% of Total) – on the health outcomes in Models 20-34. All control variables are associated with better health outcomes for the majority of variables.

The Interaction Effects of Gender Quotas and Polity2 and Reserved Seat Quotas and Polity2 were similar. In both cases, the quotas were associated with better health outcomes for the majority of variables, but the Interaction Effects of the quotas and Polity2 were associated with worse health outcomes for the majority of variables. This suggests that a non-democratic country's maintenance of a Gender Quota may serve as a predictor for how well it manages women's health. A non-democratic country with a Gender Quota in place is likely to manage women's health better than a non-democratic country without a Gender Quota. However, the same is not true of democracies. As illustrated by the Predictive Margins graphs in Figures 1-4, the gap between democracies with and without quotas is relatively small in comparison to the gap between non-democracies with and without quotas. Thus, a Gender Quota is not a very useful tool for predicting how effectively a democracy will manage women's health outcomes.

Table 7. H7-H9: The Impact of Each Type of Quota on Gender-Specific Health Outcomes (Models 20-34)

	Models 20-24 Major Independent Variable = Reserved Seat Quota					***Models 25-29 Major Independent Variable = Candidate Quota***					***Models 30-34 Major Independent Variable = Voluntary Party Quota***				
Variable	*Met Need for Family Planning (%)*	*Contraceptive Prevalence – Modern Method(%)*	*Total Fertility Rate*	*Maternal Mortality Ratio (National Estimate per 100k live births)*	*Share of Deaths From Unsafe Sanitation (%)*	*Met Need for Family Planning (%)*	*Contraceptive Prevalence – Modern Method(%)*	*Total Fertility Rate*	*Maternal Mortality Ratio (National Estimate per 100k live births)*	*Share of Deaths From Unsafe Sanitation (%)*	*Met Need for Family Planning (%)*	*Contraceptive Prevalence – Modern Method(%)*	*Total Fertility Rate*	*Maternal Mortality Ratio (National Estimate per 100k live births)*	*Share of Deaths From Unsafe Sanitation (%)*
Quota	**7.411*****	0.924	**-0.591*****	**-100.5*****	**-0.527*****	-0.718	-2.446	0.158	12.36	**-0.352***	**8.349*****	1.240	**0.821*****	-21.57	**-1.799*****
	(0.986)	(2.672)	**(0.0858)**	**(21.92)**	**(0.130)**	(1.474)	(5.359)	(0.128)	(16.46)	**(0.168)**	**(1.973)**	(6.042)	**(0.163)**	(37.43)	**(0.265)**
Polity2 Score	**9.263*****	**6.397*****	**-0.466*****	**-22.52***	**-1.090*****	**9.170*****	**6.201*****	**-0.425*****	**-23.77****	**-1.026*****	**9.501*****	**5.813****	**-0.447*****	-18.79	**-1.108*****
	(0.478)	**(1.810)**	**(0.0376)**	**(8.797)**	**(0.0911)**	**(0.473)**	**(1.704)**	**(0.0372)**	**(8.873)**	**(0.0881)**	**(0.509)**	**(1.818)**	**(0.0398)**	(9.648)	**(0.0896)**
Interaction of Quota and Polity2	-2.517	1.414	**0.606*****	**83.42***	**0.852*****	2.652	7.069	**-0.318***	-9.951	0.359	**-6.718****	2.247	**-0.548****	24.75	**2.023*****
	(1.588)	(4.041)	**(0.138)**	**(35.04)**	**(0.221)**	(1.704)	(6.133)	**(0.148)**	(18.11)	(0.195)	**(2.205)**	(6.887)	**(0.180)**	(40.34)	**(0.300)**
Constant	-165.9***	-275.4***	35.85***	1696.4***	61.63***	-185.4***	-297.8***	36.72***	1821.4***	61.51***	-163.7***	-261.2***	34.45***	1756.0***	54.72***
	(14.23)	(60.02)	(1.082)	(259.2)	(2.564)	(14.37)	(59.43)	(1.087)	(263.7)	(2.591)	(15.08)	(62.65)	(1.136)	(275.6)	(2.581)
Observation	6592	998	7550	2347	4237	6592	998	7550	2347	4237	6032	916	6833	2104	3897
R^2	0.941	0.904	0.920	0.932	0.941	0.940	0.906	0.919	0.931	0.941	0.939	0.903	0.921	0.930	0.944

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Controls included for fixed effects, Logged GDP Per Capita, Logged Population, and Female Population (% of Total) but not shown above

7.4 Transparency

Table 8 shows the results of Model 35, which tested H10. H10 predicted that Gender Quotas would be associated with higher Transparency Indexes. The higher a country's Transparency Index, the more transparent it is on 11 women's issues.

Table 8. H10: The Impact of Gender Quotas on Transparency (Model 35)

Variable	***Model 35*** ***Transparency Index***
Gender Quota	0.382 (0.305)
Polity2 Score	0.464 (0.330)
Interaction of Gender Quota and Polity2 Score	-0.286 (0.375)
Logged GDP Per Capita	**0.408**** **(0.147)**
Logged Population	0.183 (0.444)
Female Population (% of Total)	-0.0230 (0.0601)
Constant	-3.862 (8.646)
Observations	433
R^2	0.690

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Controls included for fixed effects but not shown above

The results of Table 8 falsify H10, as they demonstrate that Gender Quotas do not maintain a statistically significant association with transparency. This suggests that countries that maintain quotas are no more likely to report data on the 11 women's issues included in this thesis than countries without quotas. Logged GDP Per Capita is the only variable that maintains a statistically significant association with higher transparency.

7.4.1 Women in Parliament and Transparency

To see if female representation maintains an association with higher transparency, I regress Women in Parliament on Transparency Indexes as well. The results shown in Table 9 demonstrate that Women in Parliament are also not associated with transparency.

Table 9. The Impact of Women in Parliament on Transparency

Variable	***Transparency Index***
Women in Parliament (%)	-0.00493 (0.0142)
Polity2 Score	0.595 (0.404)
Interaction of Women in Parliament (%) and Polity2 Score	0.00342 (0.0181)
Logged GDP Per Capita	**0.418**** **(0.146)**
Logged Population	0.0963 (0.449)
Female Population (% of Total)	-0.0285 (0.0598)
Constant	-2.286 (8.750)
Observations	437
R^2	0.702

Standard errors in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001
Controls included for fixed effects but not shown above

8. Conclusion

This thesis set out to answer one primary question: are Gender Quotas associated with more effective management of women's issues?

Through the dimension of women's health, the answer to this question is: yes. Gender Quotas are associated with more effective management of women's health, as the maintenance of at least one type of quota is associated with better Gender-Specific Health Outcomes for the majority of variables. Gender Quotas maintain this association with better health outcomes when Women in Parliament do not. Additionally, even when the regression model controls for Women in Parliament, Gender Quotas are associated with better health outcomes, suggesting that a nation's maintenance of a Gender Quota in and of itself may provide evidence that it is truly committed to addressing women's health issues, all else being equal.

Reserved Seat Quotas in particular are associated with better Gender-Specific Health Outcomes. Reserved Seat Quotas are associated with better health outcomes for four of the five variables, while Candidate and Voluntary Party Quotas are not associated with better health outcomes for the majority of variables.

It is important to note that the effects of quotas are tied to whether they are instituted in democracies or non-democracies. The results of this paper suggest that the gap between countries with and without quotas on women's health issues diminishes in more democratic countries. Thus, Gender Quotas are useful tools for predicting how well a non-democracy may manage certain women's health issues, but they are not as useful for predicting how well a democracy will manage women's health issues.

Through the dimension of transparency, the answer to the question of whether or not a quota indicates better management of women's issues is: no. Countries with Gender Quotas are

no more likely than countries without them to report data on the 11 women's issues included in the study. This is an important fact to note due to the aforementioned global gender data gap. Without universal information on women's issues, it is extremely difficult to get a truly accurate evaluation of the severity of the problems women face and address them accordingly. Nations that maintain Gender Quotas signal to the international community that they are committed to addressing women's concerns, and yet, this thesis shows that these same nations that create this signal are no more likely to report data on women's issues than nations without Gender Quotas.

Further research should be done on Gender Quotas. The impacts of placement mandates and quota thresholds on the quotas' efficacies should be evaluated. Additionally, the Transparency Index I constructed should be expanded to include more than 11 variables in order to provide a more comprehensive representation of women's issues.

References

Asiedu, E., Branstette, C., and Gaekwad-Babulal, N. “The Effect of Women’s Representation in Parliament and the Passing of Gender Sensitive Policies.” *The American Economic Association.* https://www.aeaweb.org/conference/2018/preliminary/paper/an5yEb5h. (Accessed 5 Mar. 2021).

“Births attended by skilled health staff (% of total).” *The World Bank Group.* https://data.worldbank.org/indicator/SH.STA.BRTC.ZS?view=chart. (Accessed 5 Mar. 2021).

Bhalotra, S. and Clots-Figueras, I. (2011). "Health and the Political Agency of Women." *Institute for the Study of Labor (IZA)*. http://ftp.iza.org/dp6216.pdf. (Accessed 17 Dec. 2020).

Bratton, K. (2005). “Critical Mass Theory Revisited: The Behavior and Success of Token Women in State Legislatures.” *Politics & Gender,* (1)(1), 97-125. doi:10.1017/S1743923X0505004X. (Accessed 18 Mar. 2021).

“Children in employment, female (% of female children ages 7-14).” *The World Bank Group.* https://data.worldbank.org/indicator/SL.TLF.0714.FE.ZS?end=2011&start=1994&view=chart. (Accessed 5 Mar. 2021).

“Closing data gaps in gender.” *World Health Organization.* https://www.who.int/activities/closing-data-gaps-in-gender. (Accessed 17 Dec. 2020).

“Closing the Gender Data Gap.” (2016, May 13). *The New York Times. Bill & Melinda Gates Foundation.* https://www.nytimes.com/paidpost/gates-foundation/closing-the-gender-data-gap.html. (Accessed 23 Mar. 2021).

“Contraceptive prevalence – use of modern methods (%). *World Health Organization*. https://www.who.int/data/gho/indicator-metadata-registry/imr-details/3334. (Accessed 17 Dec. 2020).

“Court: 25% Women Quota, All-Women Party List Constitutional.” (2020, September 27). *Civil Georgia*, News. https://civil.ge/archives/370851. (Accessed 5 Mar. 2021).

Dahlerup, D. (1988). "From a Small to a Large Minority: Women in Scandinavian Politics." *Scandinavian Political Studies*, (11)(4), 275-298. doi: 10.1111/j.1467-9477.1988.tb00372.x. (Accessed 17 Dec. 2020).

Dahlerup, D. and Freidenvall, L. (2011). “Electoral Gender Quotas and their Implementation in Europe.” *European Parliament, Policy Department C: Citizens’ Rights and Constitutional Affairs.* https://www.ndi.org/sites/default/files/Electoral%20Gender%20Quota%20Systems%20and%20Implem_Europe.pdf. (Accessed 17 Dec. 2020).

Edgell, A.B. (2017). “Foreign Aid, Democracy, and Gender Quota Laws.” *Democratization*, 24(6), 1103–114. doi: 10.1080/13510347.2016.1278209. (Accessed 17 Dec. 2020).

“Election Guide: Democracy Assistance & Election News.” *IFES*. https://www.electionguide.org/. (Accessed 5 Mar. 2021).

Ennaji, M. (2016). “Women, Gender, and Politics in Morocco.” *Social Sciences*, (5)(4), 75. doi: 10.3390/socsci5040075. (Accessed 5 Mar. 2021).

“Facts and figures: Women’s leadership and political participation.” (2021). *UN Women.* https://www.unwomen.org/en/what-we-do/leadership-and-political-participation/facts-and-figures. (Accessed 5 Mar. 2021).

“Fertility rates.” *OECD*. https://data.oecd.org/pop/fertility-rates.htm. (Accessed 17 Dec. 2020).

Fridell, M. (2009). “Consolidated Response on Gender Quotas in African Countries.” *ACE Electoral Knowledge Network.* http://aceproject.org/electoral-advice/archive/questions/replies/165671188. (Accessed 17 Dec. 2020).

“GDP Per Capita (current US$).” *The World Bank Group.* https://data.worldbank.org/indicator/NY.GDP.PCAP.CD. (Accessed 5 Mar. 2021).

“Gender About.” *International IDEA*. www.idea.int/data-tools/data/gender-Quotas/about. (Accessed 17 Dec. 2020).

“Gender Quotas Database.” *International IDEA*. www.idea.int/data-tools/data/gender-Quotas/database. (Accessed 17 Dec. 2020).

Jones, M.P. “Gender Quotas and PR in Argentina.” *FairVote.org.* http://archive.fairvote.org/reports/1995/chp7/jones.html. (Accessed 5 Mar. 2021).

Haynie, J.G. (2019, November 20). "Bridging the gender data gap." *The Brookings Institution.* https://www.brookings.edu/blog/techtank/2019/11/20/bridging-the-gender-data-gap/. (Accessed 17 Dec. 2020).

Hinojosa, M. and Piscopo, J.M. (2018, July 11). “Women won big in Mexico’s elections – taking nearly half the legislature’s seats. Here’s why.” *The Washington Post.* https://www.washingtonpost.com/news/monkey-cage/wp/2018/07/11/women-won-big-in-mexicos-elections-taking-nearly-half-the-legislatures-seats-heres-why/. (Accessed 5 Mar. 2021).

“Historical Data on women in national parliaments.” *Inter-Parliamentary Union.* https://data.ipu.org/historical-women. (Accessed 5 Mar. 2021).

Hopp, K.J. (2015). "How Effective are Gender Quotas in Achieving Meaningful Change for Women? A Case Study of Argentina. *Interstate-Journal of International Affairs.* http://www.inquiriesjournal.com/a?id=1238. (Accessed 17 Dec. 2020).

"In Albania, elections herald historic increase in number of women MPs." (2017). *UN Women.*

https://www.unwomen.org/en/news/stories/2017/7/feature-in-albania-elections-herald-historic-increase-in-number-of-women-mps. (Accessed 5 Mar. 2021).

Kayser, G.L., Rao, N., Jose, R. and Raj, A. (2019). "Water, sanitation and hygiene: measuring gender equality and empowerment." *Bulletin of the World Health Organization*, (97)(6), 377-440. https://www.who.int/bulletin/volumes/97/6/18-223305/en/. (Accessed 23 Mar. 2021).

"Kazakhstan to introduce Gender Quota for political candidates." (2020, May 22). *Fergana*. https://en.fergana.news/news/118392/. (Accessed 5 Mar. 2021).

Kmetova, T. (2016). "Women in Political Decision-making in Bulgaria." *European Union Rights, Equality and Citizenship Programme (2014-2020).* https://ec.europa.eu/info/sites/info/files/aid_development_cooperation_fundamental_rights/bg_comments_paper_si_2016_en.pdf. (Accessed 5 Mar. 2021).

Krook, M.L. (2007). "Quotas for Women in Elected Politics: Measures to Increase Women's Political Representation Worldwide." https://mlkrook.org/pdf/Krook_UNDP_Malaysia_2007.pdf. (Accessed 5 Mar. 2021).

"Labor force participation rate, female (% of female population ages 15+) (national estimate)." (2021). *The World Bank Group.* https://data.worldbank.org/indicator/SL.TLF.CACT.FE.NE.ZS. (Accessed 5 Mar. 2021)

Lambert, C. (2001, May 1). "French Women in Politics: The Long Road to Parity." *The Brookings Institution.* https://www.brookings.edu/articles/french-women-in-politics-the-long-road-to-parity/. (Accessed 5 Mar. 2021).

"Literacy rate, youth (ages 15-24), gender parity index (GPI)." (2020). *The World Bank Group.* https://data.worldbank.org/indicator/SE.ADT.1524.LT.FM.ZS. (Accessed 5 Mar. 2021).

Marshall, M., Jaggers, K., & Gurr, T. (2019). Polity IV Dataset.

"Maternal mortality ratio (national estimate, per 100,000 live births)." *The World Bank Group.* https://data.worldbank.org/indicator/SH.STA.MMRT.NE. (Accessed 17 Dec. 2020).

"Maternal mortality." (2019). *UNICEF*. https://data.unicef.org/topic/maternal-health/maternal-mortality/#:~:text=3.1.1%20Maternal%20mortality%20ratio,during%20the%20same%20time%20period. (Accessed 17 Dec. 2020).

"Mortality rate attributable to unsafe water, sanitation and hygiene (unsafe WASH services)." *World Health Organization.* https://www.who.int/data/gho/indicator-metadata-registry/imr-details/4675. (Accessed 17 Dec. 2020).

Morgan, J., Espinal, R., and Hartlyn, J. (2008). "Gender Politics in the Dominican Republic: Advances for Women, Ambivalence from Men" *Political Science Publications and Other Works*. https://trace.tennessee.edu/utk_polipubs/10. (Accessed 5 Mar. 2021).

Paasilinna, S. (2016). "Women's Reserved Seats in Bangladesh: A Systemic Analysis of Meaningful Representation." *International Foundation for Electoral Systems.* https://www.ifes.org/sites/default/files/2016_ifes_womens_reserved_seats_in_bangladesh_a_systemic_analysis_of_meaningful_representation.pdf. (Accessed 5 Mar. 2021).

Persadie, N. (2014). "Getting to One-Third? Creating Legislative Access for Women to Political Space in Guyana." *International Development Research Centre.* https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/53637/IDL-53637.pdf. (Accessed 5 Mar. 2021).

"Population, total." *The World Bank Group.* https://data.worldbank.org/indicator/SP.POP.TOTL. (Accessed 5 Mar. 2021)

"Population, female (% of total population)." (2019). *The World Bank Group.* https://data.worldbank.org/indicator/SP.POP.TOTL.FE.ZS. (Accessed 5 Mar. 2021)

"Pregnant women receiving prenatal care (%)." *The World Bank Group.* https://data.worldbank.org/indicator/SH.STA.ANVC.ZS?view=chart. (Accessed 5 Mar. 2021).

"Proportion of women of reproductive age (aged 15-49 years) who have their need for family planning satisfied with modern methods (SDG 3.7.1)." *World Health Organization.* https://www.who.int/data/maternal-newborn-child-adolescent-ageing/indicator-explorer-new/mca/proportion-of-women-of-reproductive-age-(aged-15-49-years)-who-have-their-need-for-family-planning-satisfied-with-modern-methods. (Accessed 5 Mar. 2021).

Ritchie, H. and Roser, M. (2019). "Sanitation." *Our World in Data.* https://ourworldindata.org/sanitation#unsafe-sanitation-is-a-leading-risk-factor-for-death. (Accessed 5 Mar. 2021).

"School enrollment, secondary, female (% gross)" (2021). *The World Bank Group.* https://data.worldbank.org/indicator/SE.SEC.ENRR.FE. (Accessed 5 Mar. 2021).

Schramm, M. (2019). "Do Quotas Actually Help Women in Politics?" *Georgetown Institute for Women, Peace and Security.* giwps.georgetown.edu/do-Quotas-actually-help-women-in-politics/. (Accessed 17 Dec. 2020).

Schwindt-Bayer, L.A. (2009). "Making Quotas Work: The Effect of Gender Quota Laws on the Election of Women." *Legislative Studies Quarterly,* (34) (1), 5-28 http://www.schwindt.rice.edu/pdf/publications/schwindtbayer2009_LSQ.pdf. (Accessed 17 Dec. 2020).

"Seats in parliament held by women (as % of total)." *World Health Organization.* https://www.who.int/data/gho/indicator-metadata-registry/imr-details/3755. (Accessed 5 Mar. 2021).

"Share of premature deaths attributed to unsafe sanitation." *Global Burden of Disease Collaborative Network.* http://ghdx.healthdata.org/gbd-results-tool. (Accessed 5 Mar. 2021).

Solyom, E. (2020) "Gender Quotas: Towards an Improved Democracy." https://www.e-ir.info/pdf/85754. (Accessed 17 Dec. 2020).

Swers, M. (2005). "Connecting Descriptive and Substantive Representation: An Analysis of Sex Differences in Cosponsorship Activity." *Legislative Studies Quarterly*, 30(3), 407-433. http://www.jstor.org.proxy.library.nyu.edu/stable/3598642. (Accessed 25 Mar. 2021).

Tolbert, C.J. and Steuernagel, G.A. (2001). "Women's Lawmakers, State Mandates, and Women's Health." *Women & Politics,* (22)(2), 1-39. doi: 10.1300/J014v22n02_01. (Accessed 17 Dec. 2020).

Tripp, A.M. and Kang, A. (2008). "The Global Impact of Quotas: On the Fast Track to Increased Female Legislative Representation." *Faculty Publications: Political Science, DigitalCommons @University of Nebraska-Lincoln.* https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1041&context=polisci facpub. (Accessed 23 Mar. 2021).

Uehara, A. (2019, September 25). "In Nepal, an uphill battle for gender parity." *SwissInfo,* Identities.. https://www.swissinfo.ch/eng/glass-ceiling-in-the-himalayas_in-nepal--an-uphill-battle-for-gender-parity/45235458. (Accessed 5 Mar. 2021).

"UN Report on World Contraceptive Use 2020." (2020). *United Nations, Department of Economic and Social Affairs, Population Division.*

Westfall, A. and Chantiles, C. (2016). "The Political Cure: Gender Quotas and Women's Health." *Politics & Gender*. Cambridge University Press, 12(3), 469–490. doi: 10.1017/S1743923X16000167. (Accessed 17 Dec. 2020).

"Women and Health: Today's Evidence Tomorrow's Agenda" (2009). *World Health Organization.* https://www.google.com/books/edition/Women_and_Health/9XZgopODsFwC?hl=en&gbpv=0. (Accessed 28 Mar. 2021).

"Women and Girls – Closing the Gender Gap." *United Nations.* un.org/en/un75/women_girls_closing_gender_gap. (Accessed 28 Mar. 2021).

Zeldin, W. (2012). "Mongolia: Election Law Amended, New Election System Adopted." *Library of Congress.* https://www.loc.gov/law/foreign-news/article/mongolia-election-law-amended-new-election-system-adopted/. (Accessed 5 Mar. 2021).

Appendix - Descriptive Statistics

Table 10. Countries with Quotas

Afghanistan	2005	Reserved Seat
Albania	2009	Candidate
Algeria	2012	Candidate
Angola	2012	Candidate
Argentina	1993	Candidate
Armenia	2003	Candidate
Australia	1996	Voluntary Party
Austria	1985	Voluntary Party
Bangladesh	1973	Reserved Seat
Belgium	1999	Candidate
Bolivia	1997, 2005	Candidate, Voluntary Party
Bosnia and Herzegovina	1998	Candidate
Botswana	1999	Voluntary Party
Brazil	1998	Candidate
Bulgaria	2009	Voluntary Party
Burkina Faso	2012	Candidate
Burundi	2005	Reserved Seat
Cameroon	1997	Voluntary Party
Canada	1988	Voluntary Party
Chile	1997, 2017	Voluntary Party, Candidate
China	2007	Reserved Seat
Colombia	2014	Candidate
Costa Rica	1994, 1998	Voluntary Party, Candidate
Côte d'Ivoire	2001	Voluntary Party
Croatia	2000, 2011	Voluntary Party, Candidate
Cyprus	2001	Voluntary Party
Djibouti	2003	Reserved Seat
Dominican Republic	1998	Candidate
Ecuador	1998	Candidate

El Salvador	1996, 2015	Voluntary Party, Candidate
Eswatini	2008	Reserved Seat
Ethiopia	2005	Voluntary Party
France	1993, 2002	Voluntary Party, Candidate
Georgia	2020	Candidate
Germany	1987	Voluntary Party
Greece	2012	Candidate
Guatemala	2003	Voluntary Party
Guinea	2013	Candidate
Guyana	2001	Reserved Seat
Haiti	2015	Reserved Seat
Honduras	2001	Candidate
Hungary	2002	Voluntary Party
Iceland	1999	Voluntary Party
Indonesia	2014	Candidate
Iraq	2005	Reserved Seat
Ireland	2016	Candidate
Israel	1992	Voluntary Party
Italy	2008, 2017	Voluntary Party, Candidate
Jordan	2003	Reserved Seat
Kenya	2013	Reserved Seat
Korea, Republic of	2000, 2004	Voluntary Party, Candidate
Lesotho	2012	Candidate
Liberia	2014	Candidate
Libya	2012	Candidate
Lithuania	1996	Voluntary Party
Malawi	2004	Voluntary Party
Mali	2020	Candidate
Mauritania	2006	Candidate
Mexico	2003	Candidate
Moldova	2019	Candidate
Mongolia	2012	Candidate

Montenegro	2012	Candidate	**Republic of Congo (Brazzaville)**	2007	Candidate
Morocco	2007	Reserved Seat	**Romania**	2004	Voluntary Party
Mozambique	1994	Voluntary Party	**Rwanda**	2003	Reserved Seat
Namibia	2014	Voluntary Party	**Samoa**	2016	Reserved Seat
Nepal	2017	Reserved Seat	**San Marino**	2008	Candidate
Netherlands	1977	Voluntary Party	**Sao Tome and Principe**	2010	Candidate
Nicaragua	2011	Candidate	**Saudi Arabia**	2015	Reserved Seat
Niger	1999, 2004	Voluntary Party, Reserved Seat	**Senegal**	2012	Candidate
Norway	1977	Voluntary Party	**Serbia**	2007	Candidate
Pakistan	1970	Reserved Seat	**Slovakia**	1998	Voluntary Party
Panama	1999	Candidate	**Slovenia**	1992	Voluntary Party
Paraguay	1998	Candidate	**Slovenia**	2008	Candidate
Paraguay	2001	Candidate	**Solomon Islands**	2014	Candidate
Peru	2000	Candidate	**Somalia**	2012	Reserved Seat
Poland	2011	Candidate	**South Africa**	1994	Voluntary Party
Portugal	2009	Candidate	**Spain**	1982	Voluntary Party

Spain	2008	Candidate	**Uganda**	2006	Reserved Seat
Sudan	2010	Reserved Seat	**United Arab Emirates**	2019	Reserved Seat
Sweden	1988	Voluntary Party	**United Kingdom**	1997	Voluntary Party
Tanzania	1995	Reserved Seat	**Uruguay**	2014	Candidate
The former Yugoslav Republic of Macedonia	2002	Candidate	**Uzbekistan**	2004	Candidate
Timor-Leste	2007	Candidate	**Venezuela**	1998	Candidate
Togo	2018	Candidate	**Zimbabwe**	2013	Reserved Seat
Tunisia	2014	Candidate			
Turkey	2015	Voluntary Party			

**Note: Only the countries for which the years of quota implementation were available are included in the dataset above. Only those countries' quotas were included in the models. In certain instances, countries have two quotas but data on the year of implementation is not available for one of them. In these cases, the second type of quota is not included in the models.

Table 11. OLS Regression of Quotas on Women in Parliament with No Interaction Effect between the Quotas and Polity2

Variable	***Women in Parliament (%)***	***Women in Parliament (%)***	***Women in Parliament (%)***	***Women in Parliament (%)***
Gender Quota	**6.377***** **(0.249)**	--	--	--
Reserved Seat Quota	--	**7.058***** **(0.489)**	--	--
Candidate Quota	--	--	**5.293***** **(0.303)**	--
Voluntary Party Quota	--	--	--	**3.869***** **(0.320)**
Polity2 Score	**-3.429***** **(0.377)**	**-2.272***** **(0.356)**	**-2.575***** **(0.354)**	**-2.599***** **(0.395)**
Logged Population	**-5.274***** **(0.465)**	**-6.622***** **(0.448)**	**-5.683***** **(0.443)**	**-4.980***** **(0.489)**
Logged GDP Per Capita	**-0.417*** **(0.200)**	-0.146 (0.185)	-0.334 (0.184)	-0.227 (0.210)
Female Population (% of Total)	-0.194 (0.117)	0.0743 (0.113)	-0.0185 (0.112)	-0.00609 (0.122)
Constant	109.0*** (10.75)	115.4*** (10.70)	106.5*** (10.60)	93.82*** (11.27)
Observations	6200	6779	6779	6101
R^2	0.785	0.764	0.767	0.760

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Controls included for fixed effects but not shown above

Figure 2. Predictive Margins of Women in Parliament and Gender Quotas on Share of Deaths From Unsafe Sanitation with 95% Confidence Intervals

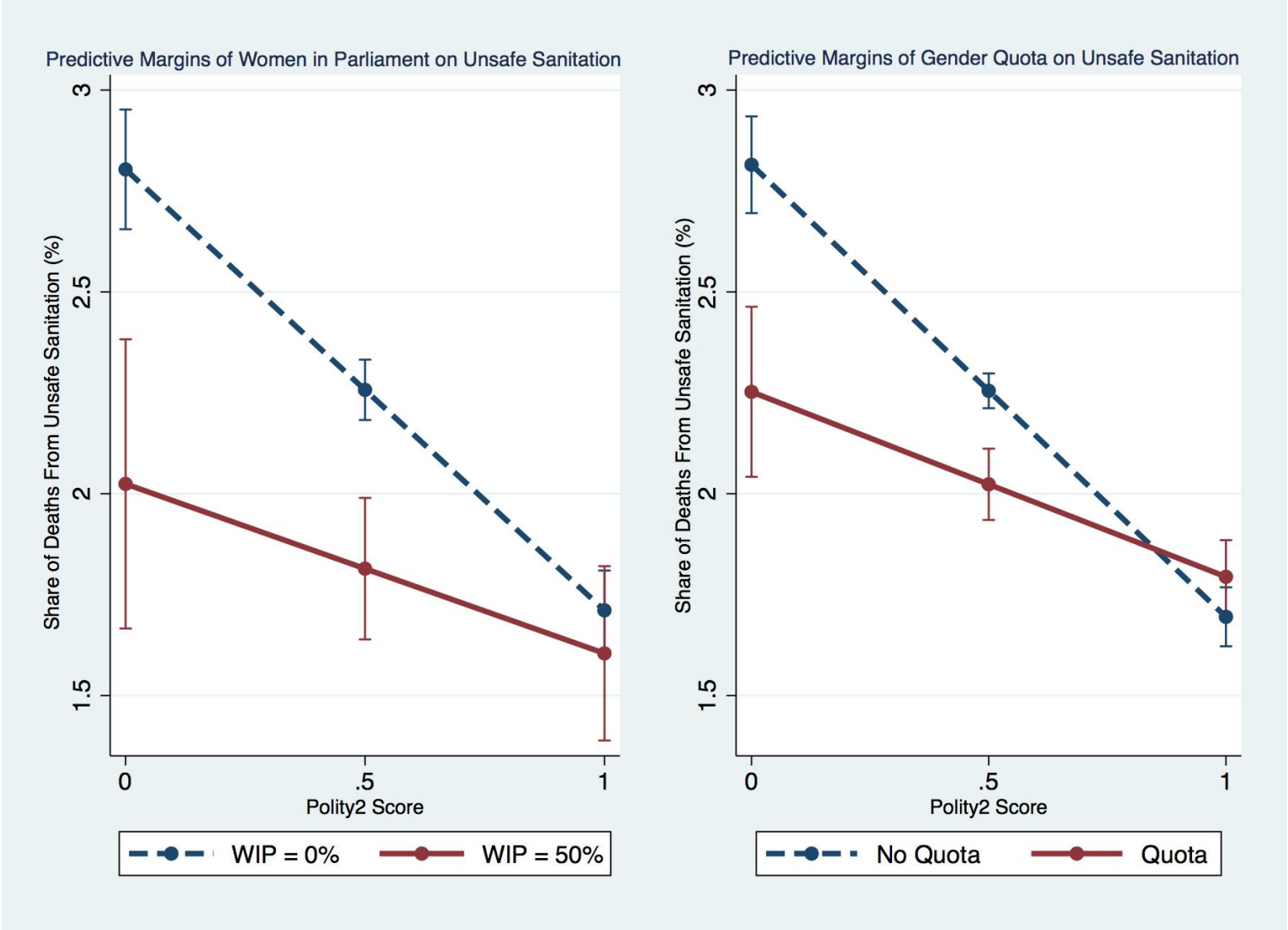


Figure 3. Predictive Margins of Gender Quotas on Total Fertility Rate with 95% Confidence Intervals

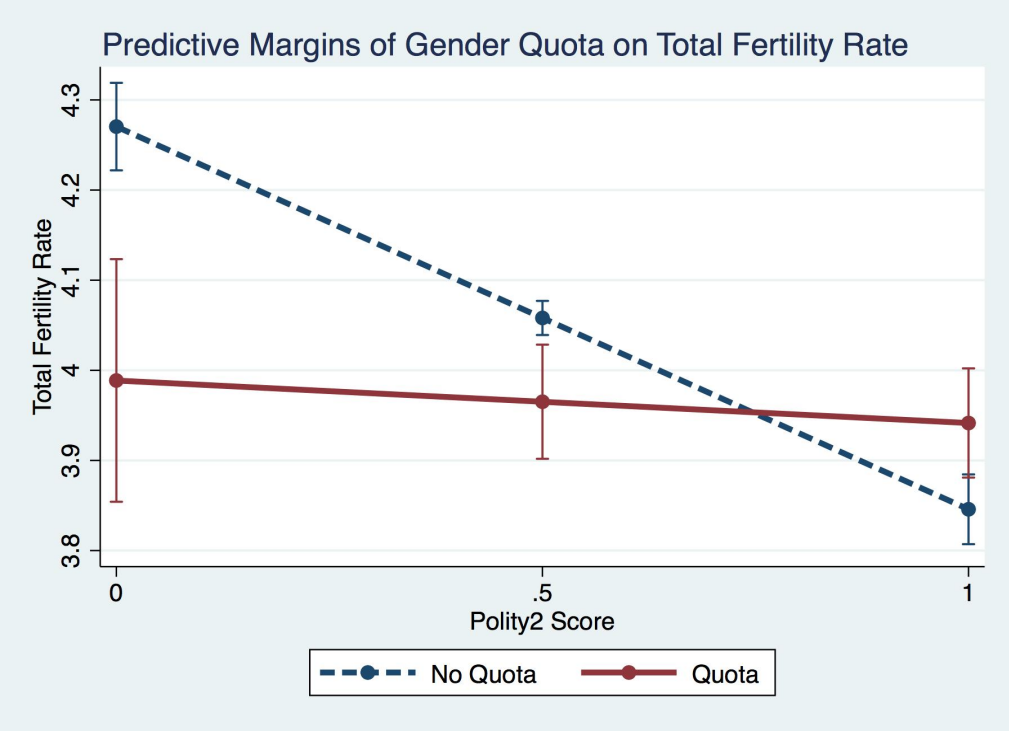


Figure 4. Predictive Margins of Gender Quotas on Maternal Mortality Ratio - National Estimate with 95% Confidence Intervals

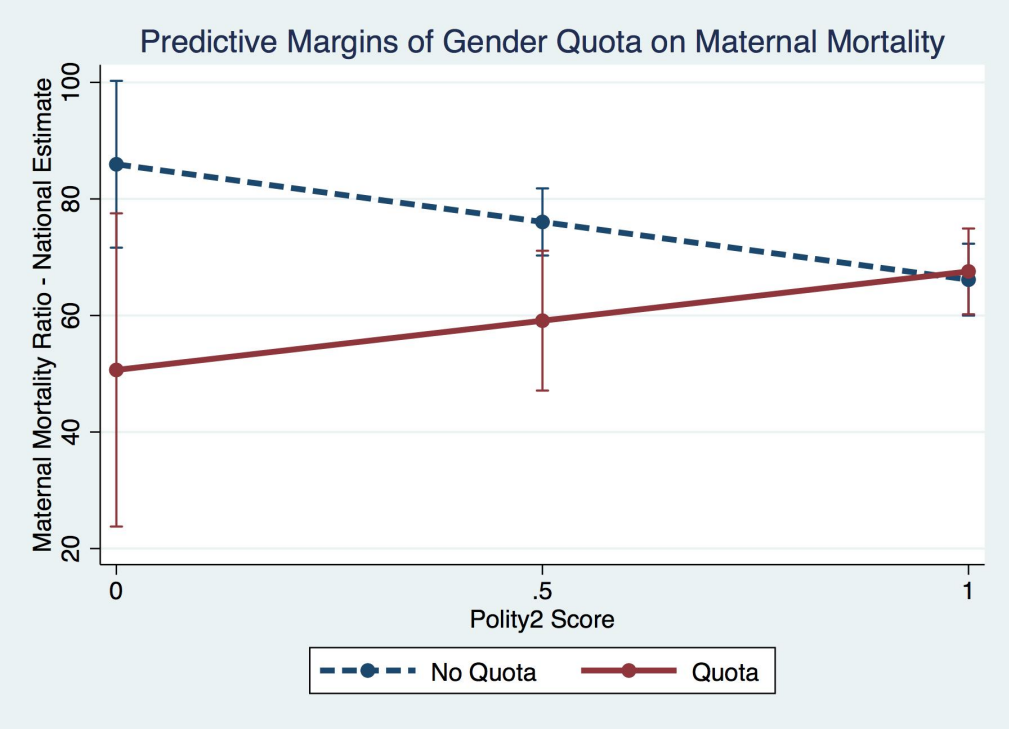


Table 12. The Association between Control Variables and Gender-Specific Health Outcomes in Models 15-19 (Table 6)

Variable	***Model 15 Met Need for Family Planning (%)***	***Model 16 Contraceptive Prevalence - Modern Method(%)***	***Model 17 Total Fertility Rate***	***Model 18 Maternal Mortality Ratio (National Estimate per 100k live births)***	***Model 19 Share of Deaths From Unsafe Sanitation (%)***
Logged GDP Per Capita	**2.633***** **(0.290)**	**2.077*** **(0.952)**	**-0.218***** **(0.0203)**	**-17.08***** **(4.283)**	**-0.184***** **(0.0439)**
Logged Population	**10.90***** **(0.696)**	**18.27***** **(2.979)**	**-1.582***** **(0.0492)**	**-78.09***** **(13.92)**	**-2.793***** **(0.122)**
Female Population (% of Total)	**-0.0838** **(0.159)**	-0.249 (0.639)	**-0.127***** **(0.0119)**	**-6.434**** **(2.303)**	**-0.138***** **(0.0232)**

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Controls included for fixed effects but not shown above

Table 13. The Association between Control Variables and Gender-Specific Health Outcomes in Models 20-34 (Table 7)

	Models 20-24 Major Independent Variable = Reserved Seat Quota					***Models 25-29 Major Independent Variable = Candidate Quota***					***Models 30-34 Major Independent Variable = Voluntary Party Quota***				
Variable	*Met Need for Family Planning (%)*	*Contraceptive Prevalence – Modern Method(%)*	*Total Fertility Rate*	*Maternal Mortality Ratio (National Estimate per 100k live births)*	*Share of Deaths From Unsafe Sanitation (%)*	*Met Need for Family Planning (%)*	*Contraceptive Prevalence – Modern Method(%)*	*Total Fertility Rate*	*Maternal Mortality Ratio (National Estimate per 100k live births)*	*Share of Deaths From Unsafe Sanitation (%)*	*Met Need for Family Planning (%)*	*Contraceptive Prevalence – Modern Method(%)*	*Total Fertility Rate*	*Maternal Mortality Ratio (National Estimate per 100k live births)*	*Share of Deaths From Unsafe Sanitation (%)*
Logged GDP Per Capita	**1.031***** **(0.246)**	**1.928*** **(0.885)**	**-0.219***** **(0.0188)**	**-13.54***** **(3.714)**	**-0.264***** **(0.0382)**	**1.042***** **(0.248)**	**1.952*** **(0.879)**	**-0.220***** **(0.0189)**	**-15.59***** **(3.741)**	**-0.268***** **(0.0383)**	**1.559***** **(0.275)**	1.405 (0.929)	**-0.282***** **(0.0204)**	**-15.87***** **(4.027)**	**-0.132**** **(0.0418)**
Logged Population	**9.188***** **(0.612)**	**14.08***** **(2.726)**	**-1.626***** **(0.0463)**	**-69.35***** **(12.16)**	**-2.779***** **(0.116)**	**10.18***** **(0.622)**	**15.31***** **(2.697)**	**-1.675***** **(0.0467)**	**-74.17***** **(12.36)**	**-2.774***** **(0.118)**	**9.260***** **(0.664)**	**14.49***** **(2.886)**	**-1.565***** **(0.0500)**	**-70.61***** **(12.99)**	**-2.429***** **(0.118)**
Female Population (% of Total)	**1.087***** **(0.117)**	**1.221*** **(0.509)**	**-0.0803***** **(0.00939)**	**-7.419***** **(1.783)**	**-0.242***** **(0.0189)**	**1.161***** **(0.118)**	**1.254*** **(0.506)**	**-0.0822***** **(0.00943)**	**-8.015***** **(1.813)**	**-0.242***** **(0.0189)**	**0.937***** **(0.121)**	0.889 (0.519)	**-0.0636***** **(0.00958)**	**-7.903***** **(1.881)**	**-0.238***** **(0.0188)**

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Controls included for fixed effects but not shown above