Do Gender Quotas Influence Women's Representation and Policies?

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Abstract

This paper investigates the effect of applying gender quotas on policy decisions. I first examine the effect of gender quotas on the representation of female legislators, study the correlation between gender quotas and different types of government expenditures, and then use quotas as an instrument for the proportion of female legislators to investigate the effect of female legislators on policy outcomes. The results show that an increase in the share of female legislators by one percentage point increases the ratio of government expenditure on health and social welfare to GDP by 0.18 and 0.67 percentage points, respectively. The robustness check supports that the effect of quotas on female legislators is likely to be translated into the influence of female policymakers on social welfare.

Keywords: female legislator, gender quotas, policy outcomes.

JEL-codes: D78, H50, J16.

1 Introduction

An increasing number of countries are currently introducing various types of gender quotas in public elections to reach a gender balance in political institutions. Most developing countries introduced electoral gender quotas during the 1990s, mainly due to the influence of the UN Conference on Women held in Beijing. On the other hand, most developed countries adopted gender quotas 10 or 15 years prior to the Conference. [1] A dramatic change has taken place in the established rank order of countries regarding the level of women's political representation. The five Nordic countries (Denmark, Finland, Iceland, Norway, and Sweden), which for many years were almost alone at the top of the list, are now being challenged by amazingly fast development in a number of countries around the globe. In 2007, Rwanda superseded Sweden as number one in the world in terms of women's parliamentary representation - 48.75% women against Sweden's 47.28%.

The core idea behind the gender quota systems is to recruit women into political positions and to ensure that women are not isolated in political life. The evidence suggests that women tend to have systematically

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[1] In response to mandates made at the Beijing UN Fourth World Conference on Women in 1995, greater advances were made with respect to governmental institutionalization for the promotion of women's rights in developing countries.

different preferences for household spending and in particular prefer investing in human capital for their children, along with spending on what might be considered necessities, such as food, education, and health care. [2] The incorporation of women's concerns in decision-making would, thereby, improve the nature of the public sphere. In addition, women's representation can also have an indirect influence by increasing men's attention to policies concerning women and children. According to the "critical mass" argument (Kanter (1977)), the influence from female legislators on policy decisions is not negligible when there is a significant presence of women in the legislature. Quota systems therefore aim at ensuring that women constitute a certain number or percentage of the members of a body, whether it is a candidate list, a parliamentary assembly, a committee, or a government.

Theoretically, if the candidates do not commit to implement specific policies once elected, the identity of the legislator matters for policy determination (Besley and Coate (1997) and Osborne and Slivinski (1996)). This influence on policy increases as there is increasing political representation of a group. Therefore, if gender quota systems lead to a pronounced increase in women's representation in politics, we should observe that government gives higher weights to policy outcomes related to women's concerns after introducing a gender quota system. This line of models has been applied by Pande (2003) and Chattopadhyay and Duflo (2004). Both of these studies investigate the effect of female legislators on policy outcomes in India, and state that the role of political reservations for women provides disadvantaged groups influence over policy-making.

However, existing empirical studies focus on the effect of political reservations on policy outcomes in the case of an individual country. [3] Do quotas work as well in general? Some countries take gender quotas as a symbolic policy to reflect the demand for gender equality without making related changes in institutions. The use of quotas is thereby not sufficient to ensure high levels of women in parliament. [4] On the other hand, a high level of representation might be achieved without quotas, such as that achieved in Nordic countries. Quotas were not introduced in the Nordic countries until women had already reached about 25% of the seats in 1970s. I therefore first investigate the effect of quotas on the representation of women in parliament. Taking the introduction of quotas as an exogenous source of variation, I can thereby compare women's representation before and after the policy is applied.

I then examine government spending on different functions before and after the introduction of quotas to check whether political reservations have increased expenditures on groups that should benefit from the mandate. Under the assumption that gender quotas have neither a direct impact on policy outcomes nor an influence on policy outcomes through channels other than the proportion of female legislators, I use gender quotas as an instrument for female legislators and study the effect of female legislators on policy outcomes.

The remainder of the paper is organized as follows. Section 2 provides the background of gender quota

[2] For example, see Davis (1997), Schwindt-Bayer (2007), Thomas (1994), and Wängenrud (2000).
[3] For example, see Pande (2003) and Chattopadhyay and Duflo (2004).
[4] See Dahlerup (2006).

systems adopted around the world. Section 3 discusses the empirical strategy and data collection. Section 4 presents the results of the analysis, including the effect of gender quotas on the representation of women in politics and the correlation between gender quotas and policy outcomes. In this section, I also discuss whether gender quotas influence policy outcomes through its effect on the proportion of female legislators. Section 5 provides robustness checks. First, I check if an omitted variable, due to a civil war, affects for the results. Then I discuss whether the results are driven by traditional OECD countries. Finally, I use another panel dataset with fewer countries but more observations per country to re-examine the effect of gender quotas. Section 6 concludes.

2 Background

2.1 What are quotas?

Quotas for women are a form of affirmative action to help them overcome the obstacles that prevent them from entering politics in the same way as their male colleagues. There are different types of quotas. According to the International Institute for Democracy and Electoral Assistance (International IDEA), the main distinction based on the mandating is between voluntary party quotas and legal gender quotas. [5]

Voluntary party quotas are adopted by political parties, and are set by the parties themselves to guarantee the nomination of a certain number or proportion of women. In some countries, such as Argentina, Bolivia, Germany, Italy, Norway and Sweden, a number of political parties have some types of quotas. Though there are also some countries with only one or two parties using quotas, it may have a significant impact on the overall rate of female representation if the leading party uses a quota. It has also been suggested that traditional political parties will feel forced to nominate more women if one of their political competitors, usually a smaller party to the left, starts to promote the representation of women (Matland and Studlar (1996)). Nevertheless, most of the world's political parties do not employ any kind of quotas at all.

Legal gender quotas are mandated either by the constitution or by the electoral law. [6] By definition, both forms are based on legal provisions, obliging all political entities participating in elections to apply them equally. Non-compliance with legislative or constitutional quotas can result in penalties for those political entities that do not apply them. [7] Even if constitutional amendments and new electoral laws

[5] See the website of IDEA, http://www.quotaproject.org/. In each type of gender quota system, quotas may target the first stage of the selection process, i.e., the stage of finding aspirants, the second stage of the actual nomination of candidates to be placed on the ballot by the party, and the third stage of reserved seats for women. This study only considers whether a quota system is introduced in a country, and who has mandated the quota system.

[6] For example, Bangladesh, Nepal, and Uganda have adopted constitutional quotas, and many countries in Latin America have adopted legislative quotas.

[7] Examples of sanctions issued by the legal authorities of a country can range from disqualifying candidates to the imposition of fines, and can include the disqualification of the entire party. See "Designing for Equality", published by IDEA in 2007.

providing gender quotas may seem more commanding, it is not at all evident that these methods are more efficient than political party quotas in increasing the number of women in parliament. The effectiveness of these initiatives depends on the actual rules and the possible sanctions for non-compliance, as well as on the general crucial issue like whether there is any rule considering the rank order of women candidates on the ballot. However, quotas may be introduced after a heated debate, but then have no effect on increasing women's representation because there are no mechanisms to ensure their implementation.

2.2 The world of quotas

Dahlerup (2006) defines two different tracks to equal political representation for women and men, which are the incremental track and the fast track. While the incremental track, such as what is used in Scandinavia, rests on a gradual increase in women's overall resources and on gradual historical changes in the perceptions of womanhood, the fast track represents a historical leap forward in women's representation, such as those used in Latin America.

It took approximately 60 years for Denmark, Norway, and Sweden to exceed the 20% threshold, and 70 years to reach 30% female representation in parliament. [8] However, quotas were not introduced among these countries until women had already reached about 25% of the seats in 1980s, which was, at that time, also the highest proportions in the world. Women mobilized and organized pressure to ensure that political parties increased their number of women candidates in order to give women candidates a fair chance of winning, which would change the political agenda as well as the climate and working procedures of political institutions. [9] In other words, quotas are not only for minimum requirements, but also for gender balance in this area. Moreover, no legal quotas in Nordic countries force all political parties to nominate a certain minimum of women on their lists, nor is the mere principle of equality between women and men included in the constitutions. Only some political parties and today only in Norway, Iceland, and Sweden are there quotas for public election, with other political parties strongly rejecting the idea.

Similar tracks can be found within other developed countries in Western Europe, North America, Australia, and New Zealand. [10] Increasing awareness of gender imbalances in political representation, political parties and national legislatures across the region have taken steps over the last 20 years to promote women's access to political office through party quotas and legal quotas. These policies have a much longer history than similar policies in other regions of the world, with many being adopted 10 or 15 years prior to the UN Fourth World Conference on Women in 1995. In all countries, these policies originated with women in civil society and inside the political parties, who presented gender quotas as a way to win support among female voters. [11] Left-wing parties are usually the first to pursue gender

[8] See Freidenvall, Dahlerup, and Skjeie (2006).

[9] In a 1984 survey among all women's sections and equality committees within the Nordic political parties, all, except for one "maybe", expressed the view that more women in politics would change the political agenda as well as the climate and working procedures of political institutions. However, many added "but only if there are a sufficient number of women" (Dahlerup (1988)).

[10] See Krook, Lovenduski, and Squires (2006).

[11] A new party may adopt gender quotas when seeking to establish an initial basis of support, while an existing

quotas. Nevertheless, voluntary party quotas may be ineffective so countries often turn to legal quotas, such as was the case in France. Quotas laws in France were adopted largely with the consensus of all parties in parliament, most of whom were concerned not to appear "out of touch" on the issue of women and politics. Belgium and France are only two countries with legal quotas among the developed countries.

In contrast, the fast track method is contrary to the idea of gradual improvement in women's representation if women do not have the same political resources as men, which is a common situation among developing countries. The responsibility for dealing with the under-representation of women rests with the political institutions. In line with this conception of women's under-representation, mandated quotas for the recruitment and election of female candidates are needed. In 1990 the UN Economic and Social Council endorsed a target of 30% women in decision-making positions in the world by 1995. However, in 1995, only 10% of the world's parliamentary members were women. The Beijing Platform in 1995, on the other hand, has been very influential, and women's movements all over the world have attempted to give the controversial demand for gender quotas legitimacy by referring to the Platform for Action.

Latin America is the leading continent when it comes to the introduction of gender quotas in politics after the Beijing Platform. [12] Eleven out of 19 Latin American countries have approved the quota system in legal or constitutional acts aimed at promoting greater gender equality in political parliamentary representation. All countries adopted them between 1996 and 2000, with the exception of Argentina, which acted earlier in 1991. Around the end of the 1980s and the beginning of the 1990s in Latin America, the main focus was on achieving political rights and guaranteeing constitutional civil rights. Although some important changes have occurred in the social and economic profile of women in the region, such as an increase in life expectancy, education level, employment, and non-discrimination laws, economic reforms aiming at reduced public spending had a significantly negative impact on women's living conditions. The epicenter of Latin American women's struggles during this period was therefore the process of re-democratization, strategically focused on enforcing their rights as women and as citizens in the political and social dimensions.

Since the early 1990s, women in most African countries have been increasingly forming and heading up political parties, running for the presidency, and they have become active in local politics. [13] The large majority of quotas in Africa were introduced after 1995, the year of the UN Conference on Women held in Beijing. Countries with higher representation of women due to quotas were more likely to be newly independent countries coming out of recent civil war or wars of liberation. The influence of civil conflict has perhaps served as an impetus to introduce legal quotas because it is easier to put questions of gender representation on the table. On the other hand, democratic countries tend to favor party-based quotas rather than reserved seats or constitutionally mandated quotas. Despite this, there has been perhaps a greater reliance on constitutionally mandated reserved seats in Africa compared with other regions in the

party may adopt it for aiming to overcome a string of electoral losses.

[12] See Araújo and García (2006).

[13] See Tripp, Konaté, and Lowe-Morna (2006).

world. This may reflect, in these instances, a greater concern for guaranteed outcomes in terms of female representation and a lack of confidence in party compliance or initiative.

Other regions in the world are without a clear categorization of track. Countries in the Balkans did not allow questions regarding gender equality and political participation of women to be raised in any of the respective countries in early 1990s, during the transitional period. [14] Gender quotas were gradually accepted within the parties in these areas after the release of the Beijing Platform for Action. Voluntary party quotas were first installed mostly by the left-wing parties, but most of them were neither fully applied nor effective. Therefore, female activists from the left and centre-left parties started to advocate for legal quotas, through which women are believed to achieve more political power. The Arab region is another without clear categorization. [15] Arab societies use all possible means to entrench their value-based heritage, by promoting customs and traditions that curb women's activities and confine their existence to the framework of the family. The majority of Arab countries do not apply gender quotas because of the sectarian division of the ruling powers. However, women's representation in parliament may still be high if there is sponsorship from the government, such as in Syria. [16] Tunisia, on the other hand, adopted voluntary party quotas and has the highest percentage of women in parliament of the Arab countries.

In sum, to elect women by the fast track may lead to rapid results with regard to the representation of women in politics, but the effect on policy outcomes may not be clear if these women legislators are elected with no power base in their party, civic organizations, or constituencies. Therefore, it would be more convincing to examine whether the quota system influences policies by including as many countries as possible and also considering countries with both the fast track and the incremental track.

3 Empirical strategy and data

3.1 Empirical strategy

I apply a Difference-in-Difference approach to investigate the effect of gender quota systems. I collect two observations for each variable in each country, one before and the other one after the introduction of gender quotas. These two time-points are distant from each other for the purpose of looking at the long term impact of quotas on female legislators and on policy outcomes. If the time-points are too close to each other, say, a 5-year difference, there may be negligible change in the government budget and no change of the representation of women in politics due to the same election period. Moreover, gender quotas may not have an immediate political impact. [17] Using this approach I study whether gender quotas influence women's representation in politics, and also examine whether there is correlation between the variation of government expenditures in different policy outcomes and gender quotas.

[14] See Antić and Lokar (2006).
[15] See Abou-Zeid (2006).
[16] The proportion of female legislators in the Syrian parliament is the second highest of all Arab states, although no quotas are applied.
[17] The effect of gender quotas on the level of female legislators in the fast track may be the only exception.

I consider the following empirical specifications:

$$FEM_{i,t} = \alpha_{1,i} + \beta_{1,t} + \gamma_1 Quotas_{i,t} + \delta_1 \mathbf{X}_{i,t} + \varepsilon_{1,i,t} \tag{1}$$

$$EXP_{i,t} = \alpha_{2,i} + \beta_{2,t} + \gamma_2 Quotas_{i,t} + \delta_2 \mathbf{X}_{i,t} + \varepsilon_{2,i,t} \tag{2}$$

where i denotes country indices and t denotes time indices. *Quotas* is a binary indicator, denoting whether the country applies gender quotas. FEM denotes the proportion of women in the lower chamber and EXP denotes policy outcomes. α_i denotes the country fixed effect, which controls for unobserved permanent differences in the dependent variables. Similarly, β_t captures the post-effect of gender quotas on the dependent variables. $\mathbf{X}_{i,t}$ is a set of control variables, such as real GDP per capita and year. Real GDP per capita is included because it is suggested that countries with better economic conditions may be more likely to adopt gender quotas and/or have more women in politics. I control for year, which captures the influence of duration between two observations in individual country after the first difference, since sampling occurred in different years for different countries. [18] In addition, I am concerned about the non-linear trend of the proportion of female legislators, i.e., female representation may increase enormously after the introduction of gender quotas. Thereafter, I control for the quadratic term of duration after the first difference.

Under the assumption that gender quotas have neither direct impact on policy outcomes nor influence on policy outcomes through channels other than the fraction of female legislators, gender quotas are a valid instrument for the proportion of female legislators and can be used to study the effect of female legislators on policy outcomes. The empirical specification is as following:

$$EXP_{i,t} = a_i + b_t + rFEM_{i,t} + d\mathbf{X}_{i,t} + \epsilon_{i,t} \tag{3}$$

where a_i reflects country dummies and b_t reflects the post-effect of gender quotas. According to Two Stage Least Squares (TSLS), the estimate of the average effect is the ratio between the reduced form effect to the effect at the first stage, i.e., $\widehat{r} = \frac{\widehat{\gamma}_2}{\widehat{\gamma}_1}$.

3.2 Data description

The dataset used here includes 103 countries between 1970 and 2006, which contains 22 countries with legal gender quotas, 47 countries with voluntary party quotas and 43 countries without any type of gender quotas. Most developed countries introduced gender quotas in the 1980s, while most developing countries adopted gender quotas in the 1990s. The data for the existence of gender quotas are collected from International IDEA, and are reported in Table 1. The website of International IDEA provides information about the type of gender quota system adopted, political party adopting quotas, and the year of adoption for each country. For the countries that introduced any type of gender quotas, the variable *Quotas* takes

[18] For example, the beginning and ending year for Argentina are 1976 and 2004, respectively. I include these controls in equation (1) and equation (2). The duration for Argentina is therefore 24 years.

a value of 1 in the year when they were first introduced. For voluntary party quotas, the variable *Quotas* takes a value of 1 in the year when the first political party applied gender quotas. [19] I then collect comparable data on other variables based on *Quotas*.

The measure of female involvement in politics mainly comes from the Inter-Parliamentary Union's survey, *Women in Parliaments: 1945-1995.* [20] This publication lists the proportion of parliamentary seats held by women in each country. I only consider women's representation in the lower chamber. [21]

Furthermore, policy outcomes refer to consolidated central government expenditures on general public service, defense, health, education, housing, economic affairs, and social services and welfare. [22] They are reported in *Government Finance Statistics (GFS) Yearbook* issued by the IMF. I divide these values by the GDP and multiply the result by 100.

Figure 1 provides the details of these expenses provided by the *Government Finance Statistics Manual 2001.* Based on the survey by political scientists, female legislators tend to focus on legislation dealing with issues related to traditional concerns of women. [23] Therefore, I would expect to see a positive effect of female legislators on education, health, and social welfare since they are categories related to children and the family. Moreover, women are less likely to support government expenditures on defense, and may exert a negative influence on such expenditures given the need for budget balance. [24] However, the directions of the signs of women's influence on general public service, housing, and economic affairs are not clear.

4 Results

Table 2 provides mean percentage points of women's representation in politics and expenditures on policy outcomes to GDP before and after applying gender quotas. The treatment, *Quotas*, equals 1 if the country adopts or has adopted any type of gender quotas in the national elections. There are only small differences in the mean proportion of female legislators among countries before the treatment. The female proportion prior to treatment is 6.24% for the treatment group and 6.23% for the control group including OECD countries, while it is 5.82% for the treatment group and 5.98% for the control group without OECD

[19] I categorize countries that have applied any type of quotas, but later abolished them, in the treatment group by assuming a continuous effect of gender quotas. For example, Denmark applied party quotas between 1977 and 1996, and legal quotas between 1988 and 1990. Other such cases are: Egypt, which applied legal quotas between 1979 and 1986; Italy, which applied legal quotas between 1993 and 1997; and Venezuela, which applied legal quotas between 1997 and 2000.

[20] The series after 1995 are collected from the website of IPU.

[21] According to IPU, there are no statistics of the level of women in the upper house for previous elections for some countries with a bicameral system because members of this chamber are not elected through universal direct suffrage. I therefore take into account only women's representation in the lower chamber.

[22] I consider only those categories that exist continuously during the sample periods. Other items, such as public order and safety, environment protection, recreation, and culture and religion, are ignored because they are either not defined in the early period or not reported for most of the countries.

[23] For example, see Thomas (1994), Davis (1997), Wängenrud (2000), and Schwindt-Bayer (2007).

[24] Davis (1997) points out that women never held positions in the sector of defense in government between 1968 and 1992 in Western European countries.

countries. [25] Even though the number of women in politics grows over time, there exist differences between groups after the treatment. The average level of female legislators for countries after applying gender quotas is about 1.52 times as large as that for countries without adopting any type of quota system. This number is about 1.31 times larger in the treatment group than in the control group when OECD countries are excluded. Therefore, gender quotas may explain the growing participation of women in politics.

Nevertheless, there is concern about the endogeneity problem of introducing gender quotas, which would result in selection bias. It is suggested that countries adopting gender quotas may be also countries with higher GDP per capita and/or with more social concerns. Figure 2 shows a positive correlation between the change in the proportion of female legislators and the change in real GDP per capita for all countries in the sample, including treatment and control groups. However, this correlation does not seem to be driven by certain groups of countries. For example, the correlation line may become a bit flatter by dropping those countries with an increasing proportion of female legislators of more than 25%, such as Austria, Belgium, Iceland, Netherlands, New Zealand, and Spain. Or, it may be a bit steeper if Hungary and Zimbabwe are excluded. No matter the case, the correlation line would not be influenced very much. In other words, selection bias due to the level of economic development is not likely to be a serious problem in this study.

Given countries with gender quotas, most of the traditional OECD countries introduced voluntary party quotas, while most of the developing countries introduced legal gender quotas. Does a country's choice of gender quota system relate to economic growth? Figure 3 and 4 present the relationship between the change in the proportion of female legislators and the change in real GDP per capita for countries adopting voluntary party quotas and legal gender quotas, respectively. In Figure 3, the correlation line might have a parallel downward shift if some OECD countries were excluded, such as Austria, Belgium, Iceland, Netherlands, New Zealand, and Spain. In Figure 4, the correlation line may become flatter if South Korea is dropped. On average, most countries have an economic growth rate around 0-1% and an increasing proportion of female legislators of around 0-30% during the sample period, no matter which type of gender quota system is introduced. Although the graphs are very suggestive, it seems that a country's choice of a gender quota system is not biased according to economic growth.

The effect of gender quotas on the proportion of female legislators, which is estimated by equation (1), is reported in Table 3. Here I include all countries. There is a significantly positive effect of gender quotas on the share of female legislators. In general, the proportion of female legislators in countries after adopting gender quotas is 5.03 percentage points higher than that in countries without any type of gender quota. I then investigate the effect of gender quotas considering the types of systems and present the results in column (2). Voluntary party quotas, relative to legal gender quotas, seem to be more relevant to

[25] OECD refers to Northern and Western European countries, Australia, Canada, New Zealand, and the United States. I only consider these countries as OECD countries for the purpose of controlling their similar historical socio-economic background, which may have effect on women's representation in politics and on policy outcomes. Moreover, it is also for the purpose of matching countries with the incremental track as defined by Dahlerup (2006).

the representation of women in politics. Since political parties adopt voluntary party quotas voluntarily, it is less likely that quotas will be a symbolic policy. In addition, electoral campaigns may strengthen the effect of voluntary party quotas on women's representation in politics since political parties without quotas may feel forced to nominate more women. Generally, the proportion of female legislators in countries with voluntary party quotas is 4.18 percentage points higher than that in countries without party quotas.

Do gender quotas influence policy outcomes? In Table 2, the mean percentage of GDP for expenditures on health, education, and social welfare, which are categories suggested to be women's concerns, are mostly increasing over time whether or not OECD countries are included. Even though expenditures on health are lower for the treatment group before gender quotas are applied, it is 1.35 times larger than the expenditures for the control group after the treatment. The same pattern emerges in spending on education; spending for the control group is higher than that for treatment group before the treatment, but it increases at a faster rate for the treatment group after the treatment. For the expenditures on social welfare, there is a more pronounced rise of its share of GDP within the treatment group. [26] There is also an increase in expenditures for general public service, and decreased spending on defense and economic affairs. The average share of expenditures on housing increases for non-OECD countries, but the pattern is not clear when OECD countries are taken into account.

An estimation of equation (2) including all countries is reported in Table 3. The results given in column (1) show that gender quotas are only relevant to social service and welfare among policy outcomes. On average, countries, after introducing gender quotas, tend to spend 3.38 percentage points more on social welfare than those countries without gender quotas. Even though the coefficients are not significant, gender quotas are also positively correlated with other policy outcomes that concern women, such as health and education. Column (2) provides the results considering the types of gender quota systems. Voluntary party quotas are relevant to social welfare in that the share of government expenditures on social welfare is 3.55 percentage points higher in countries adopting voluntary party quotas than that in countries without party quotas. Since voluntary party quotas are usually 1) adopted first; 2) mostly by left-wing parties, which have been suggested to prefer policies about social welfare more than right-wing parties; and 3) are more relevant to the representation of female legislators, who are more likely to give priority to legislation reflecting women's preferences, it may explain the effectiveness of party quotas on government expenditures on social welfare. [27]

Although there is a reduced form effect of gender quotas on government expenditures on social welfare, it would not necessarily extend to the effect of gender quotas on policy outcomes by its encouragement of greater participation of women in politics. Countries with gender quotas may be more liberal in general, and therefore would devote a higher share of government expenditures to social welfare. It may also be the

[26] Even though the average proportion of expenditures on social welfare for countries with legal quotas is less than that for the control group after the treatment, the growth rate is 74% for the treatment group and only 20% for the control group.

[27] Welfare State Expansion is one of the criteria to map the left positioning of a political party. For example, Budge, Ian, Klingemann, Hans-Dieter, Volkens, Andrea, L. Bara, Judith and Eric Tanenbaum (2001), "Mapping Policy Preferences: Estimates for Parties, Electors, and Governments 1945-1998", Oxford University Press.

case that male politicians in countries with gender quotas come under pressure to support policies related to women's concerns in order to decrease the chance of electoral loss. Nevertheless, it would be interesting to investigate the question of whether the increase of women's representation in politics, which results from adopting gender quotas, leads to more spending on policies related to women's traditional role in the family. Under the assumption that gender quotas have neither direct impact on policy outcomes nor influence on policy outcomes through channels other than increasing the proportion of female legislators, gender quotas are a valid instrument for female legislators and can be used to study the effect of female legislators on policy outcomes.

Table 4 provides the estimation of equation (3). Column (1) presents the results using gender quotas as an instrument for female legislators, while column (2) contains the results considering the types of quota systems and taking both as the instruments. I also report that the conditional p-value for the estimate, given by the STATA command *condivreg*, indicates robust results. [28] In the case with gender quotas as the instrument, there is an effect of female legislators on health and social welfare based on the conditional p-value. An increase in the share of female legislators by one percentage point increases the ratio of government expenditures on health and social welfare to GDP by 0.18 and 0.67 percentage points, respectively. In the case that considers different types of gender quota systems, female legislators are relevant only to the expenditures on social welfare. On average, female legislators exert positive influences on health, education, and social welfare, and yield negative influences on defense, which is expected.

To further examine of the casual effect of the share of women in politics, rather than gender quotas, on policy outcomes, I first compare the ratio of estimate value of γ_2 to $\gamma_1$with r. In addition, the estimate of the reduced form, i.e., equation (2), would be as significant as the estimate by applying TSLS if gender quotas are a good instrument. Both of the conditions are satisfied with government expenditures on social welfare. In other words, gender quotas may influence government expenditures on social welfare through their effect on the proportion of female legislators.

5 Robustness check

5.1 Does civil war matter?

Countries belonging to the fast track of gender equality in politics mostly came out of civil war or wars of liberation during the 1980s and early 1990s, which may result in enhanced eagerness for achieving political rights and guaranteeing constitutional civil rights. Additionally, it may be easier for these countries to introduce mandated political reserved seats for women. This raises a doubt about whether the presence of civil war is an omitted variable in this study. To simplify the analysis, I consider only "gender quotas" in

[28] The p-value and confidence interval for the parameter on the endogenous regressor could be incorrect if the instruments are weak. *Condivreg* reports the conditional likelihood ratio confidence region and p-value, both of which are robust to potentially weak instruments. The estimate by the limited information maximum likelihood (LIML) is exactly the same as the estimate by the two stage least squares method in this case.

this section and control for civil war. *War* refers to intra-state war with an ending year between 1970 and the year introducing a gender quota system, which is collected from the Correlates of War (COW) and is included as a binary indicator here.

Estimation of equation (1) and (2) is given in Table 5. Column (1) replicates the results from column (1) in Table 3, which is taken as the baseline results. I then control for *War* and present the results in column (2). The conclusions remain the same, i.e., gender quotas have an important impact on the increasing proportion of female legislators and there is a relevant reduced form effect of gender quotas on government expenditures on social welfare. Under the assumption that gender quotas influence policy choices only through higher levels of women in politics, I represent the proportion of female legislators with gender quotas and investigate the effect of female legislators on policy outcomes. The results are reported in column (2) of Table 6. There is an effect of female legislators on health and social welfare based on the conditional p-value. An increase in the share of female legislators by one percentage point increases the ratio of government expenditures on health and social welfare to GDP by 0.18 and 0.70 percentage points, respectively.

Similarly, socioeconomic background may influence a country's choice of adopting gender quotas, which may bias the results. In most of the African countries, civil conflicts came to an end and women became active in politics in the early 1990s. In Latin American countries, women struggled for their rights as women and citizens in the political and social dimensions when economic reforms by the end of the 1980s and the beginning of the 1990s aimed at reduced public spending had a significantly negative impact on women's living conditions. Since a dramatic change of the rank order at the level of women's representation in politics happened after countries in these two regions introduced gender quotas, it raises doubt about whether the results are driven by African countries and Latin American countries. [29] In column (3) of Table 5 I drop African countries and in column (4) of Table 5 I also drop Latin American countries. Excluding both African and Latin American countries, there is still a positive and significant effect of gender quotas on the share of female legislators, and a relevant reduced form effect of gender quotas on government expenditures on social welfare. Furthermore, the greater the share of female legislators, the higher the ratio of social welfare expenditures to GDP (this result is shown in column (4) of Table 6.). Overall, an omitted variable attributed to civil war does not drive the conclusions.

5.2 Do OECD countries drive the results?

There are 21 traditional OECD countries included in this study. [30] Most of them adopted party quotas, and only New Zealand and the United States are without any firm type of gender quotas. [31] These

[29] There are 6 African countries and 3 Latin American countries in the top 20 countries ranked by women in the parliament in 2008. Other countries on this list are traditional OECD countries.

[30] They are Australia, Austria, Belgium, Canada, Denmark, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

[31] Krook, Lovenduski, and Squires (2006) define the quota system in these two countries as "soft quotas". The aim of soft quotas is to increase women's representation more directly through informal targets and recommendations.

traditional OECD countries were, for long, at the top of the list of an established rank order of countries according to the level of women's political representation, and their better economic development may reflect different preferences on policies relative to non-OECD countries. This raises doubt about whether OECD countries are driving the effect of gender quotas. I therefore re-examine the effect of gender quotas excluding these traditional OECD countries.

An estimation of equation (1) excluding OECD countries is reported in Table 7. Compared with the results in Table 3, the influence of gender quotas on the level of female legislators is smaller, but still significant. [32] With regard to the types of quotas, column (2) shows that legal quotas have a relatively higher and significant effect on the level of female legislators. This may capture the phenomenon that developing countries usually improve women's representation in politics through the fast track. Most developing countries did not adopt gender quotas until the UN Conference on Women held in Beijing in 1995, and therefore experienced a significant jump in the share of female legislators after implementing legal gender quotas, such as in Latin American and African countries.

Estimation of equation (2), excluding OECD countries, is reported in Table 7. There is significant correlation between gender quotas and social welfare, but the scale is smaller than the case including all countries. Column (2) reports the results considering the types of gender quota systems. Voluntary party quotas are relevant to social welfare in that the share of government expenditures on social welfare is 2.32 percentage points higher in those countries adopting voluntary party quotas, as compared to those countries without party quotas.

Table 8 reports the estimation of equation (3). Column (1) provides the results using gender quotas as an instrument for female legislators, while column (2) presents the results taking both types of quota systems as instruments. When OECD countries are excluded, there is only an effect of female legislators on social welfare expenditure based on the conditional p-value. This implies that social welfare concerns women generally, even among non-OECD countries. In the case that considers different types of gender quota systems, female legislators are irrelevant to any policy outcome.

Overall, gender quotas have an important effect on the share of female legislators, and the result not driven by the OECD countries. Legal quotas, relative to voluntary party quotas, are more important when interpreting the representation of women in politics among developing countries. In addition, the effect of quotas on female legislators is likely to be translated into the influence of female policymakers on social welfare.

5.3 A smaller panel dataset: do trends matter?

To reduce the risk of biased estimates resulting from different time period backgrounds, in this section I consider a finer dataset containing only countries with a beginning sampling year before 1980 and an

It facilitates access, but does not necessarily mandate outcomes. For example, in the U.S., the presence of soft quotas has not translated into any great gains in legislative representation.

[32] The results of the other specification with quotas, OECD, and their interaction as independent variables show that gender quotas pass the joint F-test and has a strongly significant effect on the level of female politicians.

ending sampling year after 2000. Moreover, I collect two more observations around the year 1985 and the year 1995 for each country to capture the trend of policy outcomes and women's representation in politics. [33] The panel dataset in this section therefore covers 49 countries between 1970 and 2006, and contains 12 countries with legal gender quotas, 29 countries with voluntary party quotas, and 15 countries without any type of gender quotas. [34] Figure 5 provides a simple graphic illustration of the relationship between gender quotas and the average proportion of female legislators. The line with points indicates the treatment group, i.e., countries with gender quotas, and the line with triangles indicates the control group. Most traditional OECD countries introduced gender quotas during mid-1980s, and most developing countries introduced gender quotas during 1990s. While some caution is needed in interpreting this graph since no other factors are being controlled, the figure shows that the average proportion of female legislators grows faster in the treatment group than in the control group. The differences in the share of female legislators between two groups are 3.6 percentage points in 1970s, 6.7 percentage points in 1980s, 9.4 percentage points in 1990s, and 11.3 percentage points in 2000s. Gender quotas may be the factor resulting in this growing difference.

The following empirical specifications provide a more systematic investigation of the effect of gender quotas, which are similar to equation (1), (2) and (3), but including this trend.

$$FEM_{i,t} = \alpha_{1,i} + \beta_{1,t} + \gamma_1 Quotas_{i,t} + trend + \delta_1 Duration_{i,t} + \theta_1 GDP_{i,t} + \varepsilon_{1,i,t} \tag{4}$$

$$EXP_{i,t} = \alpha_{2,i} + \beta_{2,t} + \gamma_2 Quotas_{i,t} + trend + \delta_2 Duration_{i,t} + +\theta_2 GDP_{i,t} + \varepsilon_{2,i,t} \tag{5}$$

$$EXP_{i,t} = a_i + b_t + rFEM_{i,t} + trend + dDuration_{i,t} + cGDP_{i,t} + \epsilon_{i,t} \tag{6}$$

where *Duration* denotes the duration between each two adjacent observations for an individual country.

Estimation of equation (4) is reported in Table 9. Gender quotas are relevant to the level of female legislators (including the OECD countries) in that the proportion of female legislators in countries after the introduction of gender quotas is 4.46 percentage points higher than that in countries without any type of gender quotas. Column (2) is the results considering different types of gender quota systems. Voluntary party quotas are more relevant to female legislators in the sample that includes OECD countries. The proportion of female legislators in countries after adopting voluntary party quotas is 5.59 percentage points higher than that in countries without gender quotas. [35]

An estimation of equation (5) is also reported in Table 9. There is a positive and significant reduced form effect of gender quotas on social service and welfare. Government expenditures on social welfare in countries after the introduction of gender quotas is 1.25 percentage points higher than spending in

[33] The mean value of the beginning year is 1973.4, and the mean value of the ending year is 2003.6.

[34] These countries are Argentina, Australia, Austria, Bolivia, Canada, Chile, Costa Rica, Denmark, Dominican Re, El Salvador, Ethiopia, Germany, Iceland, India, Indonesia, Israel, Jordan, Korea Republic of, Lesotho, Luxembourg, Malta, Mexico, Morocco, Nepal, the Netherlands, Norway, Panama, Philippines, Romania, Spain, Sri Lanka, Sweden, Switzerland, Thailand, Tunisia, Uruguay, Venezuela, Bahamas, Bahrain, the Islamic Republic of Iran, Kuwait, Madagascar, Maldives, Mauritius, New Zealand, Oman, Singapore, Turkey, and the United States.

[35] On the other hand, legal quotas are more relevant in the sample excluding OECD countries. The level of female legislators in countries after adopting legal quotas is 6.20 percentage points higher than that in countries without quotas. These results are not reported in the table.

countries without any type of gender quotas. Gender quotas also yield influence on general public services, which include public debt transactions and transfers between different levels of government. This might be the case since it has been suggested that women are more liberal on average. [36] Therefore, female legislators may tend to raise the public debt and transfer money to local governments in order to provide better policies for children, the family, and women. Furthermore, regressions with the controls for different types of gender quotas point out that gender quotas produce effects on policy outcomes.

Estimation of equation (6) are reported in Table 10. In the cases with gender quotas as the instrument, there is an effect of female legislators on general public services, economic affairs, and social welfare. Nevertheless, there are only reduced form effects of gender quotas on government expenditures on general public services and social welfare, which implies that gender quotas may influence expenditures on these two functions of government through its effect on the proportion of female legislators. An increase in the share of female legislators by one percentage point increases the ratio of government expenditures on general public services and social welfare to GDP by 0.53 and 0.28 percentage points, respectively. In cases considering different types of gender quota systems, female legislators are relevant to both the expenditures on general public services and social welfare.

Generally, gender quotas have an important effect on the representation of women in politics, and may consequently yield a significant influence of female legislators on government expenditures on social welfare.

6 Conclusion

The purpose of this paper is to investigate whether political reservations have increased expenditures on groups that benefit from the mandate. While most economic research studying the effect of political reservation for women on policy outcomes uses within-country data, the contribution of this study is to investigate the reservation effect of women on a cross-country basis.

The results using two observations for each country suggest that there is an effect of female legislators on government expenditures of social welfare, where the increasing representation of female legislators resulted from a gender equality policy. In other words, gender quotas may influence policy outcomes through its effect on the proportion of female legislators. This conclusion is made under the assumption that gender quotas have neither a direct impact on policy outcomes nor do they influence policy outcomes through channels other than increasing the proportion of female legislators. Civil war and stage of development are less likely to influence countries' decisions on introducing gender quotas.

The second part of the analysis drops countries with a beginning sampling year after 1980 and an ending sampling year before 2000, and collects two more observations per country to capture the trend

[36] Lott and Kenny (1999) suggest that the influence of female voters may have been reflected in the large increase in state transfers to local governments. They also suggest that after the 1970s, women prefer big governments. Edlund and Pande (2002) claim that women are more likely to support the Democratic Party as the divorce rate increases.

of policy outcomes and the level of female legislators. The increasing representation of women in politics affects government spending decisions, especially for those issues related to women's traditional role in the family. Social welfare is again confirmed as the issue that is most concerning for women . An increase in the share of female legislators by one percentage point increases the ratio of expenditure on social welfare to GDP by 0.28 percentage points. This conclusion is not driven by a time trend. To make a more careful inference, it would be best to include as many countries as possible or collect more observations before and after the treatment.

The results also suggest that the fast track to gender equality by mandated legal gender quotas among developing countries has a sound effect on the representation of women in politics, but the increasing level of female legislators in developing countries may not yet yield an impact on policy outcomes. Therefore, continuous tracking of the data would facilitate investigation of the effect of women in politics on policy outcomes.

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Figure 1: Classification of expense by function of government

Table 6.2: Classification of Expense by Function of Government

7	**Total outlays**
701	**General public services**
7011	Executive and legislative organs, financial and fiscal affairs, external affairs
7012	Foreign economic aid
7013	General services
7014	Basic research
7015	R&D[1] General public services
7016	General public services n.e.c.[2]
7017	Public debt transactions
7018	Transfers of a general character between different levels of government
702	**Defense**
7021	Military defense
7022	Civil defense
7023	Foreign military aid
7024	R&D Defense
7025	Defense n.e.c.
703	**Public order and safety**
7031	Police services
7032	Fire protection services
7033	Law courts
7034	Prisons
7035	R&D Public order and safety
7036	Public order and safety n.e.c.
704	**Economic affairs**
7041	General economic, commercial, and labor affairs
7042	Agriculture, forestry, fishing, and hunting
7043	Fuel and energy
7044	Mining, manufacturing, and construction
7045	Transport
7046	Communication
7047	Other industries
7048	R&D Economic affairs
7049	Economic affairs n.e.c.
705	**Environmental protection**
7051	Waste management
7052	Waste water management
7053	Pollution abatement
7054	Protection of biodiversity and landscape
7055	R&D Environmental protection
7056	Environmental protection n.e.c.
706	**Housing and community amenities**
7061	Housing development
7062	Community development
7063	Water supply
7064	Street lighting
7065	R&D Housing and community amenities
7066	Housing and community amenities n.e.c.
707	**Health**
7071	Medical products, appliances, and equipment
7072	Outpatient services
7073	Hospital services
7074	Public health services
7075	R&D Health
7076	Health n.e.c.
708	**Recreation, culture, and religion**
7081	Recreational and sporting services
7082	Cultural services
7083	Broadcasting and publishing services
7084	Religious and other community services
7085	R&D Recreation, culture, and religion
7086	Recreation, culture, and religion n.e.c.
709	**Education**
7091	Pre-primary and primary education
7092	Secondary education
7093	Postsecondary nontertiary education
7094	Tertiary education
7095	Education not definable by level
7096	Subsidiary services to education
7097	R&D Education
7098	Education n.e.c.
710	**Social protection**
7101	Sickness and disability
7102	Old age
7103	Survivors
7104	Family and children
7105	Unemployment
7106	Housing
7107	Social exclusion n.e.c.
7108	R&D Social protection
7109	Social protection n.e.c.

[1]R&D = Research and development.
[2]n.e.c. = not elsewhere classified.

Source: Government Finance Statistics Manual 2001.

Figure 2: The relationship of female legislators and RGDP per capita

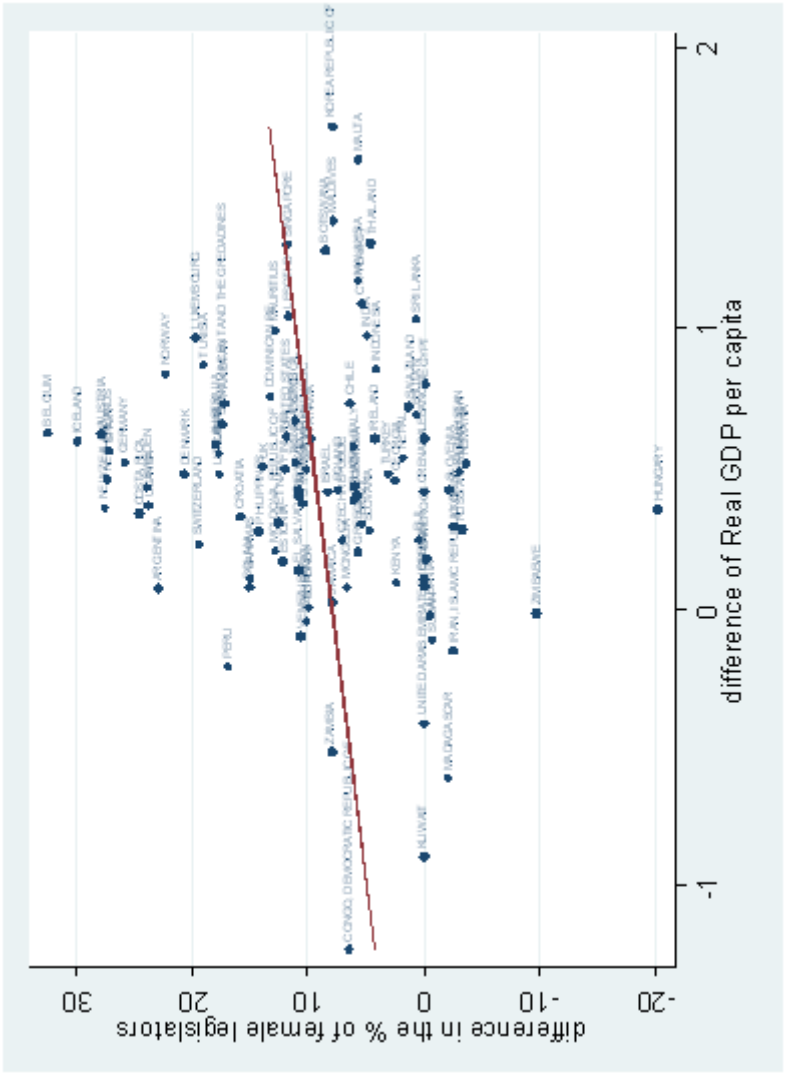

Figure 3: The relationship of female legislators and RGDP per capita: countries with voluntary party quotas

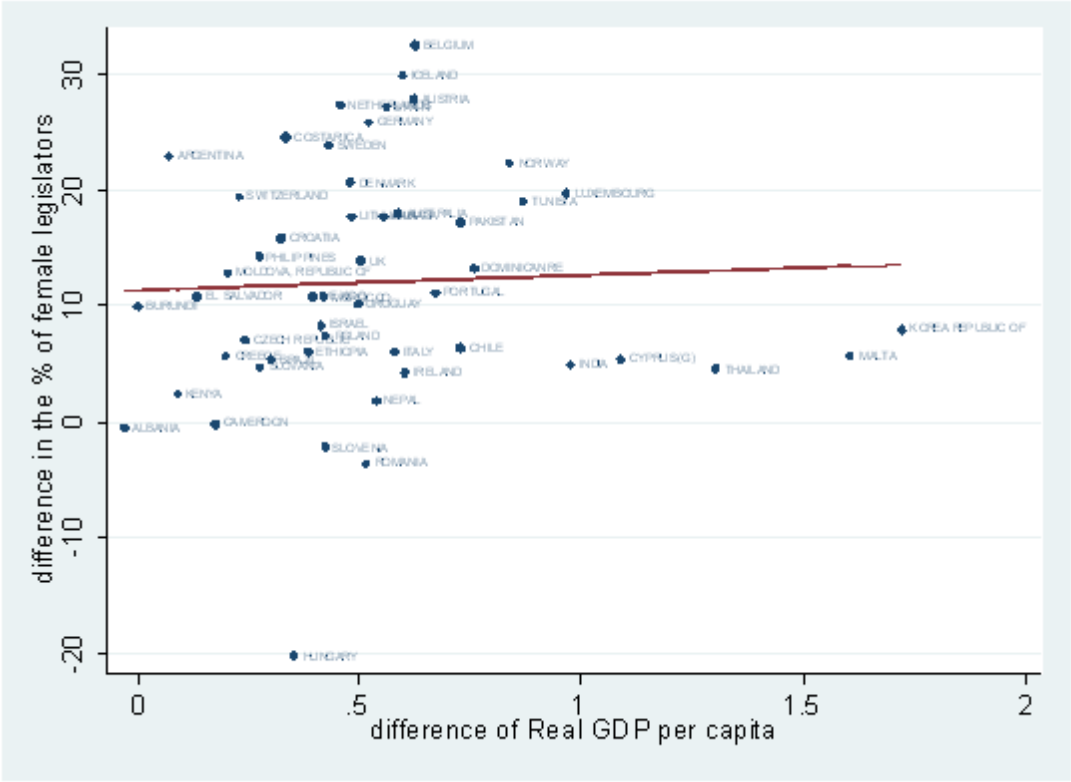

Figure 4: The relationship of female legislators and RGDP per capita: countries with legal gender quotas

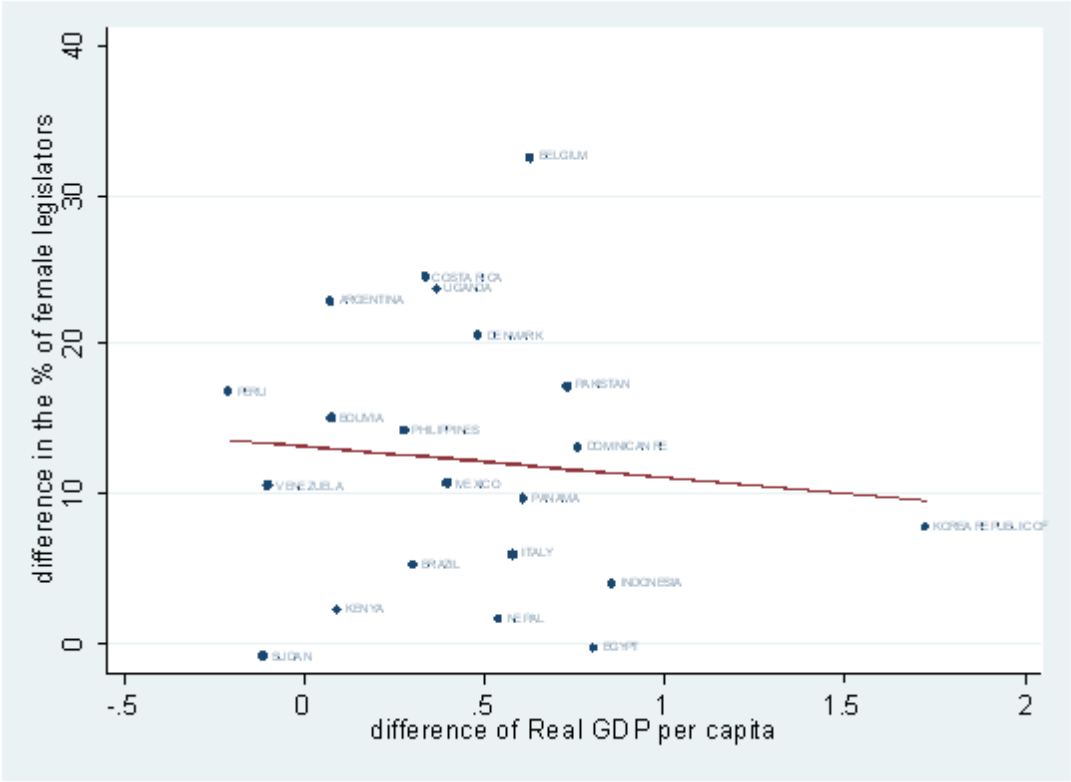

Figure 5: Effect of gender quotas on average proportion of female legislators

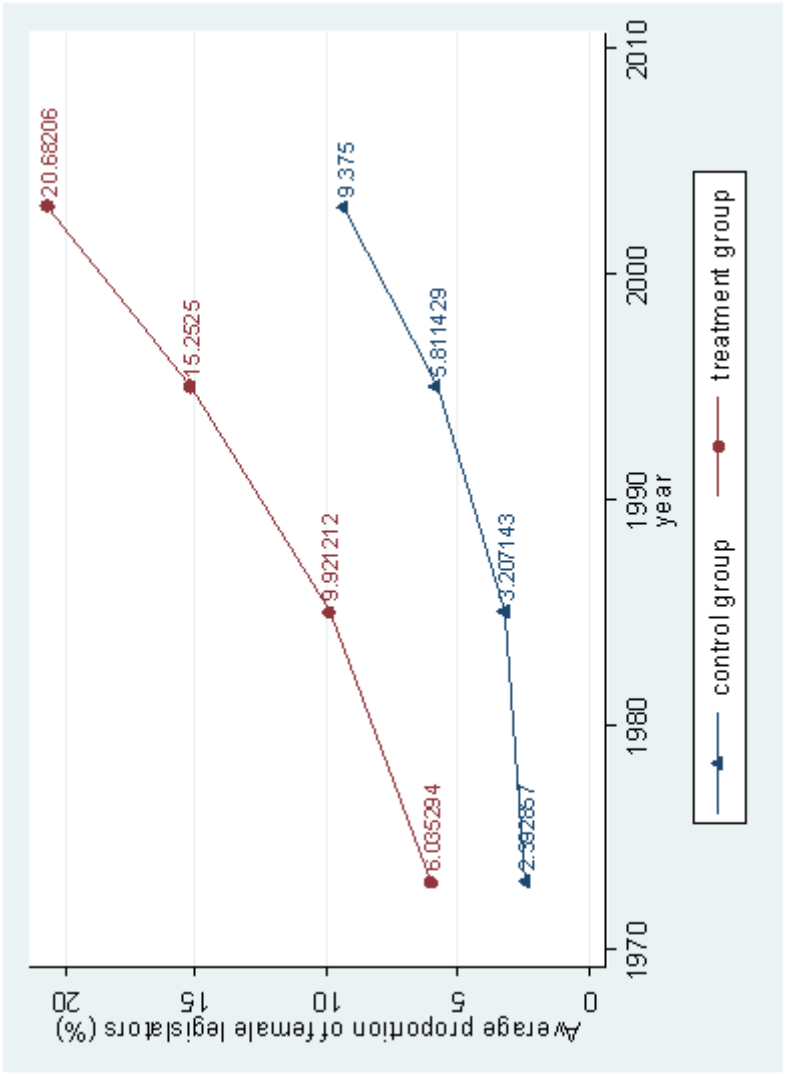

Table 1: Gender quotas policies by country, quota type and year of adoption

	Party Quotas		Legal Quotas			Party Quotas		Legal Quotas	
Albania	-		N		Jordan	N		Y	2003
Argentina	Y	2000	Y	1991	Kenya	Y	1990s	Y	1997
Australia	Y	1994	N		Korea, Republic of	N		Y	2004
Austria	Y	1985	N		Lithuania	Y	1995	N	
Bangladesh	N		Y	1972	Luxembourg	Y	1990s	N	
Belgium	Y	1985	Y	1994	Malta	Y	2000s	N	
Bolivia	N		Y	1997	Mexico	Y	2002	Y	1996
Botswana	Y	1999	N		Moldova, Republic of	Y	2004	N	
Brazil	Y	1986	Y	1997	Morocco	Y	1989	N	
Burkina Faso	Y	2002	N		Nepal	-		Y	1990
Burundi	-		Y	2004	The Netherlands	Y	1987	N	
Cameroon	Y	1996	N		Norway	Y	1975	N	
Canada	Y	1985	N		Pakistan	-		Y	2000
Chile	Y	1988	N		Panama	N		Y	1997
Costa Rica	Y	1995	Y	1997	Peru	N		Y	1997
Croatia	Y	1996	N		Philippines	Y	1984	Y	1995
Cyprus	Y	1990s	N		Poland	Y	2001	N	
Czech Republic	Y	1990s	N		Portugal	Y	2004	N	
Denmark	Y	1977	Y	1988	Romania	Y	2001	N	
Dominican Re	Y	1994	Y	1997	Slovakia	Y	1990s	N	
Egypt	N		Y	1979	Slovenia	Y	1992	N	
El Salvador	Y	1992	N		Spain	Y	1988	N	
Ethiopia	Y	2004	N		Sudan	N		Y	2000
Germany	Y	1986	N		Sweden	Y	1987	N	
Greece	Y	1994	N		Switzerland	Y	1986	N	
Hungary	Y	1993	N		Thailand	Y	2000s	N	
Iceland	Y	1999	N		Tunisia	Y	2004	N	
India	Y	1990s	N		Uganda	N		Y	1995
Indonesia	N		Y	2003	The United Kingdom	Y	1981	N	
Ireland	Y	1991	N		Uruguay	Y	1980	N	
Israel	Y	1997	N		Venezuela	N		Y	1997
Italy	Y	1987	Y	1993					

Source: International IDEA and Krook (2006).

Note: 1. '-' means data not available. 2. Year with 's' in the end refers to the decade of adoption provided in Krook (2006) since no further information could be obtained. 3. Countries without any type of gender quotas between 1970 and 2005 are Azerbaijan, Bahamas, Bahrain, Belarus, Bhutan, Bulgaria, Colombia, Democratic Republic of Congo, Estonia, Fiji, Finland, Georgia, Grenada, Islamic Republic of Iran, Jamaica, Kazakstan, Kuwait, Latvia, Libanon, Lesotho, Madagascar, Malaysia, Maldives, Mauritius, Mongolia, New Zealand, Oman, Russian Federation, Saint Vincent and the Grenadines, Seychelles, Singapore, Sri Lanka, Swaziland, Syrian Arab Republic, Trinidad & Tobago, Turkey, Ukraine, the United Arab Emirates, the United States, Viet Nam, Zambia, and Zimbabwe.

Table 2: Mean percentage points of the level of female legislators and expenditures on policy outcomes to GDP

Female Legislators	with OECD countries			without OECD countries		
	Before	After	Obs.	Before	After	Obs.
Quotas	6.24	18.41	56	5.82	14.45	38
	(0.76)	(1.36)		(0.94)	(1.15)	
Party quotas	6.86	19.46	47	6.71	14.93	29
	(0.87)	(1.52)		(1.16)	(1.34)	
Legal quotas	4.21	18.41	22	3.62	14.67	19
	(0.79)	(1.36)		(0.56)	(1.94)	
No quotas	6.23	12.12	43	5.98	11.01	40
	(1.06)	(1.37)		(1.07)	(1.26)	
General Public Services	with OECD countries			without OECD countries		
	Before	After	Obs.	Before	After	Obs.
Quotas	2.72	6.47	56	2.76	6.10	38
	(0.25)	(0.41)		(0.32)	(0.49)	
Party quotas	2.53	6.52	47	2.46	6.06	29
	(0.23)	(0.41)		(0.31)	(0.47)	
Legal quotas	2.68	6.71	22	2.62	5.81	19
	(0.42)	(0.86)		(0.49)	(0.78)	
No quotas	4.20	7.00	43	4.16	7.36	40
	(0.78)	(0.77)		(0.81)	(0.80)	
Defense	with OECD countries			without OECD countries		
	Before	After	Obs.	Before	After	Obs.
Quotas	2.70	1.61	56	2.90	1.59	38
	(0.56)	(0.20)		(0.81)	(0.23)	
Party quotas	2.59	1.63	47	2.77	1.61	29
	(0.64)	(0.24)		(1.02)	(0.29)	
Legal quotas	2.45	1.35	22	2.51	1.35	19
	(0.48)	(0.18)		(0.55)	(0.20)	
No quotas	2.87	2.22	43	2.71	2.24	40
	(0.55)	(0.25)		(0.57)	(0.25)	
Health	with OECD countries			without OECD countries		
	Before	After	Obs.	Before	After	Obs.
Quotas	1.86	3.15	56	1.61	2.53	38
	(0.24)	(0.32)		(0.27)	(0.33)	
Party quotas	1.97	3.44	47	1.72	2.81	29
	(0.27)	(0.35)		(0.34)	(0.40)	
Legal quotas	1.20	1.63	22	1.00	1.45	19
	(0.24)	(0.38)		(0.20)	(0.32)	
No quotas	2.00	2.33	43	1.64	2.22	40
	(0.35)	(0.22)		(0.18)	(0.20)	

Note: standard errors in parentheses.

(continued)

Education	with OECD countries			without OECD countries		
	Before	After	Obs.	Before	After	Obs.
Quotas	2.86	3.23	56	2.83	3.25	38
	(0.22)	(0.27)		(0.24)	(0.28)	
Party quotas	2.78	3.25	47	2.69	3.28	29
	(0.23)	(0.30)		(0.25)	(0.31)	
Legal quotas	2.92	3.02	22	2.61	3.00	19
	(0.36)	(0.38)		(0.37)	(0.42)	
No quotas	4.00	3.77	43	3.64	3.82	40
	(0.52)	(0.39)		(0.34)	(0.40)	
Housing	with OECD countries			without OECD countries		
	Before	After	Obs.	Before	After	Obs.
Quotas	0.56	0.52	56	0.50	0.57	38
	(0.08)	(0.07)		(0.10)	(0.08)	
Party quotas	0.57	0.48	47	0.51	0.53	29
	(0.09)	(0.07)		(0.12)	(0.09)	
Legal quotas	0.43	0.57	22	0.41	0.64	19
	(0.09)	(0.12)		(0.10)	(0.13)	
No quotas	0.92	1.02	43	0.92	1.06	40
	(0.22)	(0.29)		(0.24)	(0.31)	
Economic Affairs	with OECD countries			without OECD countries		
	Before	After	Obs.	Before	After	Obs.
Quotas	5.29	3.25	56	5.67	3.22	38
	(0.65)	(0.30)		(0.93)	(0.33)	
Party quotas	5.22	3.43	47	5.69	3.50	29
	(0.72)	(0.32)		(1.12)	(0.36)	
Legal quotas	5.08	2.34	22	5.03	2.39	19
	(0.70)	(0.35)		(0.81)	(0.40)	
No quotas	8.20	4.16	43	7.70	4.29	40
	(1.40)	(0.47)		(1.31)	(0.50)	
Social Welfare	with OECD countries			without OECD countries		
	Before	After	Obs.	Before	After	Obs.
Quotas	5.76	9.32	56	3.73	6.62	38
	(0.71)	(0.90)		(0.72)	(0.93)	
Party quotas	6.62	10.69	47	4.49	8.01	29
	(0.78)	(0.94)		(0.88)	(1.06)	
Legal quotas	3.31	4.81	22	1.65	2.87	19
	(1.00)	(1.26)		(0.44)	(0.76)	
No quotas	4.42	4.42	43	3.44	4.13	40
	(1.03)	(0.64)		(0.65)	(0.65)	

Note: standard errors in parentheses.

Table 3: The effect of gender quotas on the representation of female legislators and policy outcomes

Dependent Variable	Female Legislators		General Public Services		Defense		Health	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Quotas	5.034	-	1.684	-	-.567	-	.881	-
	(1.710)***		(1.092)		(.728)		(.559)	
Party Quotas	-	4.184	-	1.828	-	-.105	-	1.018
		(1.828)**		(.939)*		(.701)		(.499)**
Legal Quotas	-	2.325	-	.948	-	-.413	-	-.561
		(2.369)		(1.314)		(.730)		(.604)
R^2	0.24	0.24	0.04	0.05	0.02	0.02	0.05	0.07
Observations	94	94	94	94	94	94	94	94
(# of countries)	94	94	94	94	94	94	94	94
Dependent Variable	Education		Housing		Economic Affairs		Social Welfare	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Quotas	.156	-	-.458	-	1.508	-	3.383	-
	(.793)		(.383)		(1.406)		(1.189)***	
Party Quotas	-	.242	-	-.476	-	1.465	-	3.545
		(.699)		(.343)		(1.275)		(1.033)***
Legal Quotas	-	-.228	-	.015	-	.216	-	-.548
		(.646)		(.212)		(1.413)		(.999)
R^2	0.06	0.06	0.05	0.06	0.08	0.08	0.13	0.14
Observations	94	94	94	94	94	94	94	94
(# of countries)	94	94	94	94	94	94	94	94

Note: 1. Standard errors in parentheses. One, two and three * indicate significance at the 10, 5 and 1% level respectively. 2. Standard errors are corrected for clustering at the country level. 3. Real GDP per capita and year are control variables in each regression.

Table 4: The effect of female legislators on policy outcomes

	General Public Services		Defense		Health		Education	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Fem	.334	.390	-.113	-.055	.175	.115	.031	.019
	(.233)	(.210)*	(.154)	(.111)	(.113)	(.109)	(.133)	(.139)
IV								
Gender quotas	Y	-	Y	-	Y	-	Y	-
Party & Legal quotas	-	Y	-	Y	-	Y	-	Y
p-value	0.108		0.447		0.091		0.813	
Observations	94	94	94	94	94	94	94	94
(# of countries)	94	94	94	94	94	94	94	94

	Housing		Economic Affairs		Social Welfare	
	(1)	(2)	(1)	(2)	(1)	(2)
Fem	-.091	-.077	.299	.262	.672	.533
	(.060)	(.068)	(.259)	(.241)	(.322)**	(.277)*
IV						
Gender quotas	Y	-	Y	-	Y	-
Party & Legal quotas	-	Y	-	Y	-	Y
p-value	0.093		0.253		0.002	
Observations	94	94	94	94	94	94
(# of countries)	94	94	94	94	94	94

Note: 1. Standard errors in parentheses. One, two and three * indicate significance at the 10, 5 and 1% level respectively. 2. Standard errors are corrected for clustering at the country level. 3. Real GDP per capita and year are control variables in each regression. 4. P-value refers to conditional p-value estimated by LIML.

Table 5: Robustness check: does civil war matter? (I)

	Female Legislators				General Public Services				Defense			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Quotas	5.034	4.801	5.136	6.116	1.684	1.654	1.646	2.499	-.567	-.600	-.069	-.295
	(1.710)***	(1.691)***	(2.009)**	(2.211)***	(1.092)	(1.119)	(1.025)	(1.030)**	(.728)	(.720)	(.835)	(1.050)
War	-	Y	-	-	-	Y	-	-	-	Y	-	-
Africa	Y	Y	N	N	Y	Y	N	N	Y	Y	N	N
Latin America	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	N
R^2	0.24	0.30	0.24	0.29	0.04	0.04	0.05	0.13	0.02	0.03	0.03	0.05
Observations	94	94	78	62	94	94	78	62	94	94	78	62
(# of countries)	94	94	78	62	94	94	78	62	94	94	78	62
	Health				Education				Housing			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Quotas	.881	.875	1.062	1.176	.156	.158	.675	.691	-.458	-.450	-.716	-.936
	(.559)	(.569)	(.687)	(.873)	(.793)	(.807)	(.912)	(1.142)	(.383)	(.389)	(.436)	(.562)
War	-	Y	-	-	-	Y	-	-	-	Y	-	-
Africa	Y	Y	N	N	Y	Y	N	N	Y	Y	N	N
Latin America	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	N
R^2	0.05	0.05	0.06	0.05	0.06	0.06	0.02	0.02	0.05	0.06	0.06	0.19
Observations	94	94	78	62	94	94	78	62	94	94	78	62
(# of countries)	94	94	78	62	94	94	78	62	94	94	78	62
	Social Welfare				Economic Affairs							
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)				
Quotas	3.383	3.378	3.924	4.533	1.508	1.527	.865	1.171				
	(1.189)***	(1.213)***	(1.427)***	(1.758)**	(1.406)	(1.453)	(1.514)	(1.852)				
War	-	Y	-	-	-	Y	-	-				
Africa	Y	Y	N	N	Y	Y	N	N				
Latin America	Y	Y	Y	N	Y	Y	Y	N				
R^2	0.13	0.13	0.15	0.18	0.08	0.08	0.06	0.07				
Observations	94	94	78	62	94	94	78	62				
(# of countries)	94	94	78	62	94	94	78	62				

Note: 1. Standard errors in parentheses. One, two and three * indicate significance at the 10, 5 and 1% level respectively. 2. Standard errors are corrected for clustering at the country level. 3. Real GDP per capita and year are control variables in each regression.

Table 6: Robustness check: does civil war matter? (II)

IV: gender quotas	General Public Services				Defense				Health			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Fem	.334	.345	.320	.409	-.113	-.125	-.013	-.048	.175	.182	.207	.192
	(.233)	(.247)	(.224)	(.235)*	(.154)	(.161)	(.168)	(.176)	(.113)	(.119)	(.139)	(.140)
War	-	Y	-	-	-	Y	-	-	-	Y	-	-
Africa	Y	Y	N	N	Y	Y	N	N	Y	Y	N	N
Latin America	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	N
p-value	0.108	0.116	0.084	0.011	0.447	0.422	0.937	0.782	0.091	0.095	0.092	0.131
Observations	94	94	78	62	94	94	78	62	94	94	78	62
(# of countries)	94	94	78	62	94	94	78	62	94	94	78	62
	Education				Housing				Economic Affairs			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Fem	.031	.033	.131	.113	-.091	-.094	-.139	-.153	.299	.318	.168	.191
	(.133)	(.140)	(.164)	(.164)	(.060)	(.063)	(.079)	(.083)*	(.259)	(.272)	(.262)	(.269)
War	-	Y	-	-	-	Y	-	-	-	Y	-	-
Africa	Y	Y	N	N	Y	Y	N	N	Y	Y	N	N
Latin America	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	N
p-value	0.813	0.811	0.362	0.448	0.093	0.100	0.023	0.011	0.253	0.250	0.528	0.484
Observations	94	94	78	62	94	94	78	62	94	94	78	62
(# of countries)	94	94	78	62	94	94	78	62	94	94	78	62

	Social Welfare			
	(1)	(2)	(3)	(4)
Fem	.672	.704	.764	.741
	(.322)**	(.341)**	(.401)*	(.397)*
War	-	Y	-	-
Africa	Y	Y	N	N
Latin America	Y	Y	Y	N
p-value	0.002	0.002	0.002	0.002
Observations	94	94	78	62
(# of countries)	94	94	78	62

Note: 1. Standard errors in parentheses. One, two and three * indicate significance at the 10, 5 and 1% level respectively. 2. Standard errors are corrected for clustering at the country level. 3. Real GDP per capita and year are control variables in each regression. 4. P-value refers to conditional p-value estimated by LIML.

Table 7: Robustness check: do OECD countries drive the results? (I)

Dependent Variable	Female Legislators		General Public Services		Defense		Health	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Quotas	3.113	-	.846	-	-1.057	-	.236	-
	(1.813)*		(1.160)		(.851)		(.321)	
Party Quotas	-	.718	-	1.161	-	-.496	-	.397
		(1.937)		(.994)		(.935)		(.345)
Legal Quotas	-	6.561	-	-.219	-	-.562	-	-.283
		(2.370)***		(1.498)		(.967)		(.390)
R^2	0.10	0.19	0.03	0.03	0.04	0.03	0.03	0.05
Observations	73	73	73	73	73	73	73	73
(# of countries)	73	73	73	73	73	73	73	73
Dependent Variable	Education		Housing		Economic Affairs		Social Welfare	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Quotas	-.398	-	-.424	-	.194	-	1.924	-
	(.524)		(.411)		(1.232)		(.714)***	
Party Quotas	-	-.172	-	-.428	-	.165	-	2.316
		(.482)		(.359)		(1.356)		(.761)***
Legal Quotas	-	-.141	-	.022	-	.554	-	-.549
		(.575)		(.263)		(1.706)		(.867)
R^2	0.19	0.19	0.06	0.06	0.11	0.11	0.11	0.14
Observations	73	73	73	73	73	73	73	73
(# of countries)	73	73	73	73	73	73	73	73

Note: 1. Standard errors in parentheses. One, two and three * indicate significance at the 10, 5 and 1% level respectively. 2. Standard errors are corrected for clustering at the country level. 3. Real GDP per capita and year are control variables in each regression.

Table 8: Robustness check: do OECD countries drive the results? (II)

	General Public Services		Defense		Health		Education	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Fem	.272	.028	-.340	-.105	.076	-.024	-.128	-.028
	(.408)	(.246)	(.346)	(.122)	(.109)	(.061)	(.165)	(.084)
IV								
Gender quotas	Y	-	Y	-	Y	-	Y	-
Party & Legal quotas	-	Y	-	Y	-	Y	-	Y
p-value	0.483		0.233		0.468		0.407	
Observations	73	73	73	73	73	73	73	73
(# of countries)	73	73	73	73	73	73	73	73

	Housing		Economic Affairs		Social Welfare	
	(1)	(2)	(1)	(2)	(1)	(2)
Fem	-.136	-.022	.062	.089	.618	.021
	(.128)	(.047)	(.411)	(.210)	(.406)	(.116)
IV						
Gender quotas	Y	-	Y	-	Y	-
Party & Legal quotas	-	Y	-	Y	-	Y
p-value	0.195		0.884		0.007	
Observations	73	73	73	73	73	73
(# of countries)	73	73	73	73	73	73

Note: 1. Standard errors in parentheses. One, two and three * indicate significance at the 10, 5 and 1% level respectively. 2. Standard errors are corrected for clustering at the country level. 3. Real GDP per capita and year are control variables in each regression. 4. P-value refers to conditional p-value estimated by LIML.

Table 9: Robustness check: do trends matter? (I)

Dependent Variable	Female Legislators		General Public Services		Defense		Health	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Quotas	4.459	-	2.380	-	-.218	-	.274	-
	(1.780)**		(.922)**		(.601)		(.446)	
Party Quotas	-	5.593	-	1.506	-	-.406	-	.247
		(1.707)***		(.791)*		(.576)		(.447)
Legal Quotas	-	3.018	-	2.232	-	.536	-	-.463
		(2.463)		(1.251)*		(.498)		(.510)
R^2	0.82	0.83	0.65	0.64	0.66	0.66	0.66	0.66
Observations	189	184	189	184	189	184	189	184
(# of countries)	48	47	48	47	48	47	48	47
Dependent Variable	Education		Housing		Economic Affairs		Social Welfare	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Quotas	-.030	-	-.441	-	1.832	-	1.246	-
	(.570)		(.350)		(1.158)		(.558)**	
Party Quotas	-	-.281	-	-.511	-	1.210	-	1.325
		(.558)		(.331)		(1.075)		(.583)**
Legal Quotas	-	.546	-	.143	-	1.978	-	.131
		(.565)		(.285)		(1.512)		(.704)
R^2	0.70	0.70	0.55	0.55	0.71	0.71	0.86	0.86
Observations	189	184	189	184	189	184	189	184
(# of countries)	48	47	48	47	48	47	48	47

Note: 1. Standard errors in parentheses. One, two and three * indicate significance at the 10, 5 and 1% level respectively. 2. Standard errors are corrected for clustering at the country level. 3. Real GDP per capita and year are control variables in each regression. 4. Trend, country and time dummies are included.

Table 10: Robustness check: do trends matter? (II)

	General Public Services		Defense		Health		Education	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Fem	.534	.334	-.049	-.038	.062	.017	-.007	-.018
	(.256)**	(.142)**	(.113)	(.087)	(.086)	(.068)	(.107)	(.079)
IV								
Gender quotas	Y	-	Y	-	Y	-	Y	-
Party & Legal quotas	-	Y	-	Y	-	Y	-	Y
Observations	189	184	189	184	189	184	189	184
(# of countries)	48	47	48	47	48	47	48	47

	Housing		Economic Affairs		Social Welfare	
	(1)	(2)	(1)	(2)	(1)	(2)
Fem	-.099	-.072	.411	.277	.279	.210
	(.070)	(.050)	(.245)*	(.167)	(.122)**	(.081)***
IV						
Gender quotas	Y	-	Y	-	Y	-
Party & Legal quotas	-	Y	-	Y	-	Y
Observations	189	184	189	184	189	184
(# of countries)	48	47	48	47	48	47

Note: 1. Standard errors in parentheses. One, two and three * indicate significance at the 10, 5 and 1% level respectively. 2. Standard errors are corrected for clustering at the country level. 3. Real GDP per capita and year are control variables in each regression. 4. Country and time dummies are included.