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Gendered Economic Policy Making: The Case of Public Expenditures on Family Allowances

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Abstract

Parliament is the place where politicians make laws to set the policy direction of countries. Non-involvement of different voices such as gender, race and ethnicity in policy decisions may create an inequality in policy-making. Regarding gender, previous literature suggests that women and men may have different policy preferences and women give more priority to policies related to their traditional roles as care givers to children in the family. Public spending on family allowances is one of the economic policies that plays an important role in helping families for the childcare. This paper contributes to the literature by analyzing the relationship between female political representation and public spending on family allowances as well as within a perspective of critical-mass framework. Overall findings support the fact that when the fraction of female politicians is above a certain critical-mass threshold, there is a significantly different allocation of public spending on family allowances.

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Keywords Women in economic policy-making; public expenditures on family allowances; critical mass; panel data analysis

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1 Introduction

The participation of citizens in public policy-making process comes in two forms: a) *Direct democracy*: Direct participation of citizens in government affairs b) *Indirect democracy*: Indirect participation through representatives who are elected in elections. In line with the global trend to democratization, it has highly emphasized that the direct or the indirect political participation must cover diverse groups irrespective of race, class and gender (Guinier, 1994; Lijphart, 2012). The failure of involving different groups in policy-making may prove the existence of an inequality in political decisions related to public policy-making. Among these categories, in recent decades, the question of female political participation has emerged as a global issue in all over the world.

Over the last ten years, therefore, scholars have engaged in theoretical and empirical discussions on female participation in politics and ask whether there is a link between the number of female politicians and allocation of public resources to women's policy preferences (Phillips, 1995; Young, 2002). Contrary to unitary models, non-unitary models in family economics[1] suppose that differences in preferences of men and women influence the choices of families and women often have stronger preferences on childcare and child raising issues. The empirical studies also often emphasize on the preference differences between sexes. Their common argument is that women are more likely than man invest in children and favour redistribution and they give priority to public policies related to their traditional roles as care givers in the family and society (Besley and Case, 2000; Case and Deaton, 1998; Alesina and La Ferrara, 2005; Thomas, 1990; Duflo, 2003; Edlund and Pande, 2002; Chattopadhyay and Duflo, 2004). Such sex differences are now leading to promotion of gender equality as a potent means of human development[2](Duflo, 2012; UN, 2013). The gender differences in preferences within the society and the family may also be brought into political institutions, influencing the voting behaviour of politicians, therefore, the allocation of resources across spending categories.

To investigate the role of female politicians in policy making, scholars have empirically analyzed the relationship between the fraction of female politicians in politics and various public spending categories. Considering the existing studies in the empirical literature, findings for the effect of the gender specific decisions on the governance of public spending is mixed so far. On one hand, it has been argued that female politicians contribute to an increase in public spending that concerns women's preferences. On the other hand, some studies find no evidence that such policies are significantly affected by the gender of politicians.

[1]For more detailed information,see; Manser and Brown (1980); McElroy and Horney (1981); Lundberg and Pollak (1993).

[2]For instance, conditional cash transfers (CCT), which have recently been launched in many countries, target regular enrollment of the children into schools and getting regular health controls in the health centers (e.g receiving vaccinations). Considering the fact that women have higher tendency to spend for children in families, CCT qualify only mothers.

Theoretical literature also has diverging arguments on the importance of the identity of the politician in shaping the allocation of resources across spending categories. In contrast to Downs (1957)'s Median Voter Theorem, Citizen Candidate Models (Osborne and Slivinski, 1996; Besley and Coate, 1997) support the fact that the identity and preferences of a politician matters for the implementation of a policy.

This paper empirically tests the validity of these two alternative theories and contributes to the strand of literature by studying the relationship between female political participation and public spending on family allowances across OECD countries. Public spending on family allowances is one of the family-specific policies that plays an important role in helping families for the child raising which the literature suggests is one of the woman's primary concerns.

The preliminary result of this chapter is the lack of a relationship between the female political participation and public spending on family allowances. That result can be interpreted in three ways.

- *Median Voter Theorem may apply rather than Citizen Candidate Models.*

According to Median Voter Theorem, if candidates are office-seeking, they commit to implement only specific policies which reflect the preferences of the median voters (Downs, 1957), namely preferences and identities of the politicians do not matter in public policy making.

Most of the social spending goes to the old-age benefits and pensions over the forty years across OECD countries. The rapid growth in these spending categories is mainly due to the structural factors such as population ageing . Although the recent economic crisis (2007/08) has made an increase on family-specific spending with an idea to support future generations, social spending on the elderly amounted to 11% of GDP which is exactly half of the overall social welfare spending (22% of GDP) in 2009. 7% of the total is the share of public health expenditures and the remaining 4% of total social spending is shared by unemployment, housing, spending on active labor market programs and spending on families (OECD, 2013, 2012). The disparity in the resource allocation within social welfare areas might be a rational response by vote-seeking politicians due the population of many OECD countries is getting older and those are with the greatest propensity to vote[3].

- *Preferences and the gender identity of politicians might still matter for the policy determination but*

[3]Moreover, electoral participation is falling fastest among the young across the OECD countries, which gives a greater influence to older voters on political decisions. For instance, in 2010 British general election, just 44% of young people aged at 18-24 voted compared to 76% of those aged over 65. In general, older people are much more likely to vote than younger people across OECD countries (Diamond and Lodge, 2013). Among the OECD-34 countries, Italy, Belgium and Australia are the only countries with a small tendency for the young people to vote more than the old people. The higher participation of elderly people in national elections, as well as the growing share of the elderly population may also influence the political process, as introducing budget cuts in social welfare spending that unequally benefit the old. In 2011, the average percentage point difference in voting rates between those aged over 55 years old and those aged between 16-35 years old was 12.1% in the OECD (OECD, 2011).

the preferences of the women who involved in political activities might be close to those of their male colleagues.

- *Gender identity of the politician might matter but the ineffectiveness of the female political participation on policy-decision making and the insufficient allocation towards family allowances may depend on the under-representation of women in political institutions.*

Namely, the role of female politicians may start to be relevant in terms of bargaining power over policy making when the percentage share of the female politicians reach a given critical mass threshold.

Therefore, I have further aimed to analyze whether this lack of a relationship may turn to be a significant relationship after the number of female politicians reach a critical mass threshold in terms of bargaining power in policy making.

The secondary result of the paper shows that a simple positive relationship between the fraction of female parliamentarians and the public spending on family allowances exists only when a critical mass threshold is passed.

The paper is organized as follows: Section 2 discusses the theoretical background and presents recent empirical studies on the relationship between female political participation and public policies. Section 3 presents the data, specifies the empirical model and provides the first results. Section 4 investigates the robustness of the relevant results and Section 5 concludes.

2 Theoretical Background and Existing Studies

This paper tests the validity of two theories (Citizen Candidate Models versus Median Voter Theorem). Citizen Candidate Models of Political Economy claims that the identity or preferences of a politician matters for the policy determination (Besley and Coate, 1997; Osborne and Slivinski, 1996). If politicians can not commit on moderate policies before being elected, the identity and the individual preferences of the politician matters for the policy determination rather than the preferences of the median voter. These models assume that existing political institutions cannot enforce full policy commitment and an increase in political participation afforded to a disadvantaged group will enhance its influence on a specific policy. Namely, the political participation of disadvantaged groups such as women, poor or ethnic minorities can translate into public policy outcomes which reflect the preferences of such groups. For instance Pande (2003) has pointed out that policies chosen by minority politicians reflect the policy preferences of those minorities. Her empirical results show that the increasing proportions of the minority participation increase the level

of transfers going to this group. Similarly, the political participation of women may translate into a public policy which reflects women's preferences.

Existing single-country studies on the relationship between female political participation and policies that concern women's interests have heterogeneous results. Thomas (1991), using data gathered from a survey(1981) on members of the lower houses of the state legislatures of the twelve US states, reveals that states with the highest percentages of female representatives introduce more priority bills dealing with issues of women and children. Correspondingly, employing data on the bill introduction in Argentine Chamber of Deputies and the U.S House of Representatives, Jones (1997) has found that the gender of legislators matter in investing on the areas concern women rights, families and children. Moreover, Wängnerud (2009), using parliamentary surveys carried out in the Swedish Parliament, has emphasized on the necessity of female participation to take into account women's interests in policy-making. Her findings show that female members of the parliament address issues of social welfare policies such as family more than their male colleagues. A more recent work on Swedish municipalities by Svaleryd (2009) has found a positive impact of the female political participation on public spending towards education and childcare. Similarly Lovenduski and Norris (2003), using a survey from 2001 British Representation Study of 1,000 national politicians, have emphasized on the sex differences of legislators in policy making related to women's issues. One of the other applications to this line of models has been done by Chattopadhyay and Duflo (2004) who have carried on a survey for all investments in local public goods in sample villages of two districts in India. They have found that, female members of reserved village councils make more investment in drinking water than male members in where women complain more often then men about drinking water. Rehavi (2007), similarly with Dodson and Carroll (1991) has found a dramatic movement of women into US State Legislators over the past quarter century for a robustly significant 15% share of the rise in state health spending. In contrast to these single-country findings, a recent working paper by Ashworth et al. (2012) on Flemish Municipalities has found a contradictory result claiming that higher female participation to the local parliaments is not associated with higher spending levels. Furthermore, applying an empirical study on Italian municipalities, Rigon and Tanzi (2011) has found no evidence on a significant relationship between female politicians and social expenditures until the number of female politicians reach a critical mass threshold. According to them, this result indicates that even though Italy is one of the most developed countries, there are still very few numbers of female politicians in the parliament or municipal councils.

Although existing single-country studies have ambigious results, empirical macro level studies have so far agreed on the positive effectiveness of the female politicians on various policy outcomes such as social

welfare spending, health spending, spending on maternity and parental benefits and education expenditures. Bolzendahl and Brooks (2007) investigates the influence of female parliamentarians on social welfare spending in national legislatures within 12 capitalist democracies during the period from 1980 to 1999. They have found a strong support for the hypothesis that female political participation increases social welfare spending. Analyzing the impact of female representation in the legislative power on different policy outcomes including health, education, social welfare spending, Chen (2010) finds a positive effect of the female legislators on the government expenditures of social welfare. Bonoli and Reber (2010) find a strong impact of women's presence in parliament on total public family expenditures using fixed effects model. Kittilson (2008), with systematic analyses of 19 OECD countries between 1970 and 2000, has showed that women's parliamentary presence significantly influences the maternal and parental leave policies. Using a dataset of 80 countries in the year 2000, Mavisakalyan (2014) has quantified the implications of women's cabinet representation for public health policy outcomes. Her main finding is that a higher share of women in cabinet is associated with higher level of public health spending.

To sum up, this overview reveals several gaps in the prior cross-country research in OECD setting. First of all, this paper contributes to this strand of cross-country literature by studying public spending on famliy allowances as the main field of interest. Up to now, there has been no comparative study which examines the relationship between female political participation and public spending on family allowances. It also extends the time period of previous studies to 2008 and enlarges the geographical coverage to 27 OECD countries. Similar with Chen (2010), enlarging the geographical coverage helps to test the research question with different subsamples to deal with the cross-country heterogeneity bias. There are some traditional OECD countries which are for long, at the top of the rank order of countries according to the fraction of female parliamentarians (e.g. Norway, Finland, the Netherlands). Their high level women's political participation may translate into more policies considering women's preferences relative to countries that have recently joined the OECD (e.g. Korea, Israel, the Slovak Republic). That raises doubt about whether traditional OECD countries are driving the positive relationship between women's political participation and public spending on family allowances. I therefore examine the relationship between female political participation and public spending on family allowances both excluding and including these new OECD countries with different subsamples.

Moreover, the negligence of omitted variable bias is a factor which makes prior cross-country studies questionable. Some of them have neglected of using the country fixed effects, the time fixed effects, the lagged dependent variables for the historical perspective of phenomenon. In the contrary, this paper counts

for both country and the time fixed effects and the lagged dependent variable as well. Furthermore, prior cross-country panel data applications have used panel data with small numbers of time span. The usual fixed effect (FE) estimator is inconsistent when the time span is small (Nickell, 1981). In addition to previous cross-country literature, I apply generalized method of moments (GMM) estimator of Arellano and Bond (1991) to solve this issue and the reverse causality problem as well. Likewise, contemporaneous and autocorrelation across the countries are the important problems that some previous studies have ignored as well. I apply panel corrected standard errors (PCSE) following Beck and Katz (1995, 1996) to control for contemporaneous correlation across countries. I also focus on the autoregressive processes of order one (AR(1)) which indicates the presence of autocorrelation and allowing Prais-Winsten regression for the correction of autocorrelation. Moreover, this study contibutes to this strand of literature by studying the relationship between women's parliamentary participation and public spending on family allowances both in absolute terms (as a percentage of GDP) and in relative terms(as a percentage of total government spending). Lastly, considering the relevant literature, this study is the first attempt which analyze the role of critical mass issue on the relationship between female political participation and family allowances. Related empirical studies on the critical mass concept and public spending are mainly single-country works[4] and this paper will be the first attempt to analyze the threshold effect in cross-country settings where the main field of interest is the public spending on family allowances.

3 Data Description, Econometric Model and Empirical Results

Before empirically addressing the role of critical mass in public spending decisions, I firstly look at whether there is a relationship between the fraction of female parliamentarians and public spending on family allowances. In fact, if there is a relationship, there is no reason to assume that female parliamentary representation is currently irrelevant but could be relevant in affecting the allocation of public spending after reaching a certain critical mass threshold.

3.1 The Relationship Between Female Parliamentary Representation and Public Spending on Family Allowances

Table 1 provides descriptive statistics for the key variables of interest. Overall analysis are based on three different samples which consist of balanced panel data. The first sample, which is shown at Panel A, is called

[4]The most influential work on the critical mass is Thomas (1994), who focuses on the effects of different proportions of women on public policy in 12 state legislatures in the United States.

as *base sample* that covers 19 countries[5] from 1980 to 2008[6]. It is a full sample and includes countries which has the complete data on family allowances (as a percentage of GDP) from the initial year of OECD Social Expenditure Database (1980). The second sample at Panel B covers 27 countries[7] and also includes countries which are joined to the OECD recently. There are some traditional OECD countries which are for long, at the top of the list of an established rank order of countries according to the level of female parliamentary representation, and their high level representation may translate into larger amount of spending compare to countries having joined the OECD recently. Therefore, the second sample also includes countries such as Korea, Slovakia, Poland and the Czech Republic where the number of female politicians in parliaments is arguably lower compared to others. The second sample at Panel B also consists of balanced panel data but is restricted in terms of the time span, from 1995 to 2008, due to the incomplete data for those countries before 1995. In contrast to first two samples, the third sample at Panel C uses public spending on family allowances as a percentage of total government spending to analyze the relationship in relative terms (as a percentage of total government spending) rather than absolute terms (as a percentage of GDP). The third sample is also a full sample and covers the same period and almost the same countries of the second sample[8].

For all samples there is a substantial variation in public spending on family allowances: for the first sample shown in Panel A, the mean value of public spending on family allowances (% of GDP) is 0.886%, the standard deviation is 0.553%. For the larger second sample, mean value of public spending on family allowances (% of GDP) is 0.872% , and the standard deviation is 0.556%. For the third sample, the mean value of public spending on family allowances as a percentage of total government spending is %0.886, and the standard deviation is 0.553%.

The main independent variable is the fraction of female parliamentarians in lower chambers[9]. The mean score of the fraction of female parliamentarians is 17.392%, with Sweden (47.3%) being the highest and Korea (2%) is the lowest.

The panel data model has the following framework to analyze the relationship between female parliamentary participation and the public spending on family allowances;

[5]Australia, Belgium, Canada, Denmark, Finland, France, Greece, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States.

[6]Year 2009 is excluded due to the missing observations on family allowances for Switzerland in this year.

[7]Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Japan, Korea, Luxembourg, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, the United Kingdom and the United States.

[8]It excludes only Japan due to the absence of relevant data on family allowances as a percentage of total government spending.

[9]I employ the data of female parliamentarians in the lower chamber because the election results do not appear in the upper chamber for some countries with a bicameral system, such as in Canada.

$$y_{it} = \alpha w_{it} + \mathbf{x}_{it}\beta + \gamma_i + \mu_t + \upsilon_{it} \tag{1}$$

where y_{it} denotes the public spending on family allowances as a percentage of GDP of country i in period t for the first two samples. For the third sample, it represents public spending on family allowances as a percentage of total government spending of country i in period t. The main independent variable, w_{it}, represents the fraction of female parliamentarians (the percentage of female seats) in lower chambers across the OECD. Data on family allowances comes from OECD (2013), "Social Expenditure Statistics". The share of female seats in lower chambers is mainly from the IPU (1995), "Women in Parliaments: (1945-1995)" and the series after 1995 is collected from the website of IPU (Inter-Parliamentary Union). All other potential control variables are included in $\mathbf{x}_{it}$. Moreover, γ_i denote a full set of country dummies and μ_t denotes a full set of year dummies. υ_{it} is an error term, capturing all other omitted factors, with $E(\upsilon_{it}) = 0$ for all i and t. Model is initially estimated using pooled-OLS technique which excludes country dummies, γ_i. As it is well-known, strict exogeneity assumption is one of the crucial necessity for the unbiased and consistent estimates under pooled-OLS specification. Strict exogeneity assumes that idiosyncratic error term (υ_{it}) is uncorrelated with the individual specific effects. Since the pooled regression model neglects the heterogeneity across individuals and assumes that all individuals have a unique effect, pooled-OLS estimator will be biased and inconsistent. But the fixed effect estimator will be consistent since it allows for the heterogeneity among individuals by assuming each one will have its own specific effect. As an alternative to pooled-OLS framework, I therefore used the fixed effect estimation method to control for the country specific time invariant characteristics. Moreover, I also include country-specific time trends for the country-specific time-variant omitted factors.

Furthermore, I follow the related literature for selecting control variables such as the real GDP per capita, unemployment rate, population rate of the citizens above 65 years old, total old age benefits and below 15 years old to take into account general economic and labor market situation and demographic development. I have also added the female labor force participation rate and the female educational attainment for 15-44 year old women to take into account general social development as well. The data on real GDP per capita at constant prices in 2005 USD are collected from, "Penn World Table 7.1" (Heston et al., 2012)[10]. The data on female educational attainment (for 15-44 years old women) comes from IHME (2010),"Educational

[10]Definition: PPP Converted GDP Per Capita (Chain Series), at 2005 constant prices.

Attainment and Child Mortality Estimates by Country (1970-2009)"[11]. Furthermore, the data on female labor force participation rate is obtained from ILO (2012), "Online Key Indicators of the Labour Market Database". In addition, the data on the unemployment rate as a percentage of civilian labour force comes from OECD (2010),"OECD Employment and Labour Market Statistics". The data on the population rates is from UN (2012), "Department of Economic and Social Affairs (Population Division, Population Estimates and Projections Section)". Moreover, the data on total old-age benefits comes from OECD (2013), "Social Expenditure Statistics". Finally, to check the robustness of main results, the additional covariates come from "Comparative Political Data Set I (1960-2010)" (Armingeon et al., 2012). To test the validity of conclusions, I subject two different robustness tests to regressions which analyze the relationship between the fraction of female parliamentarians and family allowances[12].

To further take into account past occurrences or the historical perspective of phenomenon, the lagged dependent variable, $lny_{i,t-1}$, is also added on the right hand side of the regression equation.

$$y_{it} = \delta y_{it-1} + \alpha w_{it} + \mathbf{x}_{it}\beta + \gamma_i + \mu_t + \upsilon_{it} \tag{2}$$

The relationship between female political participation and public spending is not static and depends in part on the existing level of public spending. Including the lagged dependent variable may give rise to bias and autocorrelation problem as it will be correlated with the error term in the fixed effects specification. Even though the inclusion of the lagged dependent variables in the fixed effect specifications have not changed the main results,the relevant findings from the fixed effect estimations with lagged dependent variable are excluded from the tables. On the other hand, I solve the problems of bias and autocorrelation by estimating a dynamic panel version of equation (2) using the Arellano-Bond estimator which accounts for reverse causality as well. It estimates the parameters of the system by specifying the model in first differences and uses lagged levels of the endogenous variables as instruments (Holtz-Eakin et al., 1988; Arellano and Bond, 1991). Additionally, panel corrected standard errors (PCSE) are applied to control for contemporaneous correlation across countries (Beck and Katz, 1995, 1996). It also uses autoregressive processes of order one (AR(1)) which indicates the presence of autocorrelation and allowing Prais-Winsten regression for the correction of autocorrelation.

Table 2 shows the estimation results on the relationship between percentage share of female parliamentar-

[11]Female educational attainment is represented with mean years of education of women aged between 15-44.
[12]For the detailed information on the variables used for robustness tests see: Section 4.

ians and public spending on family allowances based on three different samples. The estimation frameworks in Panel A and Panel D use the *base sample* which is a panel data at one-year intervals for 19 countries between 1980 and 2008. Panel B and Panel E show some estimation results based on the second sample where the main regressand is public family allowances (as a percentage of GDP) as in the first sample but this additionally includes countries that have recently joined to OECD. Panel C and Panel F use the third sample which covers the same countries of the second sample where the main regressand is public family allowances as a percentage of total public spending. Using these three samples respectively, Panel A, Panel B and Panel C represent results on the relationship between family allowances and the fraction of female parliamentarians without adding any control variables. Panel D, Panel E and Panel F add other control variables following the suggestions of the previous literature. Considering the econometric specifications without control variables, the coefficients for the fraction of female parliamentarians are significant in pooled-OLS estimations (Columns (1) of Table 2 in Panel A, Panel B and Panel C). However, the pooled-OLS estimation results are biased since country-specific fixed effects are not taken into account. It is true that not only the pooled-OLS method but also other estimation techniques also give significant coefficient estimates for the fraction of female parliamentarians (FE and GMM in Panel A). However, using the second and the third samples, the coefficient of the fraction of female parliamentarians is not significant anymore with the FE and GMM estimations in Panel B and Panel C. Namely, the relevant results are not robust to estimations when the same techniques are used in the second and the third samples. Similar finding appears once other control variables are included to estimations. In addition to pooled-OLS method, GMM technique in Panel D also give a significant coefficient estimate for the fraction of female parliamentarians. However using neither FE nor GMM, the coefficient of the fraction of female parliamentarians is not significant in the estimations which are done based on the second and the third samples (Panel E and Panel F). It is an interesting finding that the positive association between female political participation and public family allowances is found by using only the first sample that covers traditional OECD countries. In contrast to neo-OECD countries, traditional OECD countries have for long had more numbers of female parliamentarians and results show that their high level participation to politics may have been translated into larger amount of family allowances compare to neo-OECD countries.

This finding raises a doubt on the fact that the contribution of female parliamentarians to an increase in family allowances may occur only when their percentage share in parliaments exceed a remarkable value or a critical mass threshold. Next section empirically discusses on the critical mass threshold argument.

3.2 The Relationship Between Female Critical Mass in Parliaments and Public Spending on Family Allowances

In this section, I investigate whether or not the relationship between the percentage share of female parliamentarians and political choices is linear. In fact, it is possible that the roles of women start to be relevant in terms of bargaining power only when the percentage share of female parliamentarians reach a given threshold.

The research on the influence of the critical mass of women relies primarily on Kanter (1977)'s foundational study. She has hypothesized that women would not be able show their influence in a male-dominated corporate enviornment, where men (dominants) constitute more than 85 percent and women (tokens) constitute less than 15 percent of total, since they are subject to performance pressures, role entrapment and boundary heightining. Although her work is the earliest source often cited on the topic and did not deduce a critical mass threshold for a political enviornment, some political scientists have attempted to determine a critical mass threshold at which elected female politicians can start to have influence on public spending decisions. However, the determination of a critical mass threshold is still problematic and undertheorized in the literature. Related literature can not answer whether there is a single threshold which would be universially applied. In the literature, threshold has been variously identified at different levels such as 15, 20, 25 or 30 percent (Beckwith and Cowell-Meyers, 2007; Studlar and McAllister, 2002).

Drawing on previous studies, I identify four different thresholds equal to 15, 20, 25 and 30 per cent of women over total parliamentary seats. Afterwards I test them to examine whether there exists a unique threshold at which the number of women translates into more public spending on family allowances. Each threshold is represented as a dummy variable, which takes value equal to 1 when the share of female seats exceeds the threshold itself. Overall findings show that a positive relationship between the fraction of female parliamentarians and public spending on family allowances exists only when the highest threshold is passed (30%). This result is highly robust to different econometric techniques, to estimation in various different samples and to the inclusion of different sets of covariates[13].

The panel data model has the following framework to analyze the role of female critical mass in parlia-

[13]However, it is known that removing remaining concerns about endogeneity of the female political participation variable would necessitate estimations with instrumental variables. A valid instrumental variable should causally influence female political participation variable and not be correlated with public spending on family allowances. I believe that such a variable does not exist as it is not used in similar studies that cover gender, public spending and human development issues due to the nature of these variables(Potrafke and Ursprung, 2012; Fortin, 2005; Erhel and Guergoat-Larivière, 2013; Ruhm, 2000; Tanaka, 2005; Kittilson, 2008).

mentary participation on public family allowances;

$$y_{it} = \alpha th_{it} + \mathbf{x}_{it}\beta + \gamma_i + \mu_t + \upsilon_{it} \tag{3}$$

As in the previous model, y_{it} denotes public spending on family allowances as a percentage of GDP for the first two samples. For the third sample it represents public spending on family allowances as a percentage of total government spending of country i in the period t. The main independent variables of interest, th_{it}, here represent four different dummy variables which take value equal to 1 when the share of female seats exceeds 15, 20, 25 and 30 per cent thresholds respectively. The rest of the model specification such as the inclusion of control variables is identitical with the equation (1). Further the lagged value of the regressand, $y_{i,t-1}$, is included on the right-hand side to capture persistence and also potentially mean-reverting dynamics in public spending on family allowances and to make analysis in a dynamic panel data setting.

$$y_{it} = \delta y_{it-1} + \alpha th_{it} + \mathbf{x}_{it}\beta + \gamma_i + \mu_t + \upsilon_{it} \tag{4}$$

Columns (1) in Table 3 show pooled-OLS estimations on the relationship between the 30% critical mass threshold and public spending on family allowances based on three different samples which are shown at Panel A, Panel B and Panel C respectively. If we look at the pooled-OLS estimation results in columns (1), the significance of the 30% critical mass threshold is not clear with the use of different samples. The pooled-OLS estimation results based on the first and the second samples show positive significance but the coefficient of the threshold is insignificant once the third sample is used for the estimations. However, it is well known that the pooled-OLS estimates are biased, since the specification used for the pooled-OLS estimation is identical to equation (3) except the inclusion of the country fixed effects, γ_i. These country fixed effects capture any time-invariant country characteristics that affect the public spending on family allowances. As it is well known, when the true model is given by (3) and the γ_i are correlated with covariates, then pooled-OLS estimates are biased and inconsistent. More specifically, let x_{it}^{j} denote jth component of the vector $\mathbf{x}_{it}$ and let Cov denote population covariances. $Cov(y_{it-1}, \gamma_i + \upsilon_{it}) \neq 0$ or $Cov(x_{it}^{\mathrm{j}}, \gamma_i + \upsilon_{it}) \neq 0$ for some j, the pooled-OLS estimator will be inconsistent. In contrast even these covariances are nonzero, the fixed effect estimator will be consistent if $Cov(y_{it-1}, \upsilon_{it}) = Cov(x_{it}^{\mathrm{j}}, \upsilon_{it}) = 0$ for all j (as $T \to \infty$). This structure of correlation is particularly relevant in the context of the relationship between the fraction of female parliamentarians and public spending on family allowances because of the possibility of underlying political and social forces

shaping both equilibrium of the female empowerment and the public resource allocation.

Once country fixed effects are introduced to capture any time-invariant country characteristics, the positive relationship between the female political representation over the 30% critical mass threshold and the public spending on family allowances remained unchanged. The estimates of α are 0.2324, 0.16 and 0.3236 with the standard errors 0.066, 0.0255, 0.0831 for the first, second and third samples respectively. They are significant at the one percent level where all the standard errors are robust to arbitrary heteroscedasticity. Moreover, the result on the positive significant relationship with the fixed effect estimation technique is robust to the inclusion of other additional covariates. As seen in columns (5) of Table 3, the inclusion of the most common control variables of the previous literature such as real GDP per capita, unemployment rate, population rate of the citizens above 65 years old (and below 15 years old) do not change the general finding on the the positive relationship between female political representation over the 30% critical mass threshold and the public spending on family allowances. As an extension to these control variables, columns (6) include two more control variables which are the female labor force participation rate and the female educational attainment. The fixed effect estimates of α remain significantly positive in this case as well.

In simple dynamic panel models as equation (4), however, it is well known that the usual fixed effects estimator is inconsistent when the time span is small (Nickell, 1981). Because the regressor y_{it-1} is mechanically correlated with υ_{is} for $s < t$,the standard fixed-effect estimation is not consistent in panels with short time dimensions. To deal with this problem, the generalized method of moments estimator (GMM) of (Arellano and Bond, 1991) is used in columns (3), (7) and (8) of Table 3. Findings on the positive significance of the 30% critical mass threshold is still robust to any sample and the controls that are used under GMM estimation framework as well.

Furthermore, when the true model is given by (4), both OLS and fixed effect standard errors might be wrong and the coefficients might be inefficient if the errors show panel heteroskedasticity and they are contemporaneously or serially correlated. Serial correlation (autocorrelation), which refers to the linear dynamics of a random variable, biases standard errors causing less efficient results in panel data models. The economic variables tend to evolve parsimoniously over time and that creates temporal dependence. This dependence can be a violation of one of the classical assumptions of the Gauss-Markov theorem. The Wooldridge test I applied implies the existence of an arbitrary autocorrelation and the null hyphothesis of no autocorrelation is strongly rejected (Wooldridge, 2002). To control for contemporaneous correlation, panel-corrected standard errors are reported in columns (4) and columns (9) of Table 3 which include autoregressive processes of order 1 (AR(1)). It indicates the presence of serial correlation and allowing

Prais-Winsten regression for the correction of autocorrelation. Irrespective of using different samples at Panel A, B or C, results on the positive relationship between the 30% critical mass threshold and the public spending on family allowances are strongly valid under these estimation technique as well. Additionally, all regression estimation techniques in Table 3 (except Pooled-OLS) use country specific time trends to capture the effects of omitted factors that vary over time within countries. The country-specific linear time trend helps capture the impact of slow-moving changes (including some unobserved policy changes) occuring in a specific country throughout the period of analysis.

As expected, lagged values of the family allowances are positively and strongly related to the public spending on family allowances in all of the specifications. Turning to other control variables, estimations based on the first and the third sample show that public and mandatory private spending on old-age benefits is significant in the specifications of both GMM and PCSE but this result is not robust to estimations based on the second sample. The log value of GDP per capita is positively significant in all regression estimations of the third sample (Panel C in Table 3) where the main outcome of interest is public spending on family allowances as a percentage of total government spending. However, estimations based on the first and the second sample give mixed results for the significance of GDP. Female labor market participation has a negative relationship with public spending on family allowances as a percentage of total government expenditures once the second and third sample are used for the estimations. Women's earnings may be considered as an additional income which families rely on. Increasing number of women in labor market increase the income level of households which causes a decrease in family allowances allocated to households with respect to their new income level. Some coefficients of the unemployment rate also give expectedly positive signs with GMM estimations when the third sample is used for the estimations. One possible interpretation for this result could be that family allowances is a good practice in anti-poverty family policies which are designed to support unemployed parents for the costs of raising children.

Overall results support (Dahlerup, 1988)'s argument on the critical mass issue. It states that *"The idea of a critical mass is most often applied to situations when women constitute less than 30 percent, in this way explaining why the entrance of women into politics has not made more difference yet!"*. The positive cross-sectional relationship between the fraction of female parliamentarians and family allowances exists when a certain threshold (30%) is passed. This result is highly robust to different econometric techniques from fixed effects to GMM estimation, to estimations in various different samples and to the inclusion of different sets of covariates. Correspondingly, UN CEDAW's (The Committee on the Elimination of Discrimination against Women) General Recommendation on Article 7 of the Convention have also agreed on the fact that

30 percent is the figure for the female political participation for having a real impact on the content of policy decisions (CEDAW 1997, paragraph.16).

On the contrary, I have not found any significant effect for the other dummy variables associated to the lower thresholds such as 15%, 20%, 25% (Table 4, Table 5 and Table 6). All the critical mass thresholds under the 30% critical mass threshold show a significant coefficient estimates while using only the pooled OLS estimation technique (Columns (1) of Tables 4, 5 and 6). For instance, Table 4 represents estimates on the relationship between the 15% critical mass threshold and the public spending on family allowances using three different samples. The coefficient of the 15% threshold is significant only with pooled OLS estimations (columns (1)). Once country dummies are included to get rid of omitted variable bias, the significance disappears. Table 5 and Table 6 represent results from regression estimations on the relationship between the 20% and the 25% thresholds and public spending on family allowances respectively. In line with the previous results of the 15% critical mass threshold, the fraction of female parliamentarians over the 20% or the 25% critical mass thresholds are also positively significant in the the Pooled-OLS estimation framework based on three different samples. However, these results are not robust to inclusion of country fixed effects, additional covariates or to the use of different samples. Namely, there is no robust positive relationship between any critical mass threshold level under the 30% female political representation and the public spending on family allowances.

This main result might be a possible answer for the absence of a relationship between the fraction of female parliamentarians and public spending on family allowances over the last thirthy years across the OECD. The average percentage of the female seats in OECD parliaments has not peaked at the 30% critical mass threshold yet. Although those countries have showed up with significant increases since 1980, the average percentage share of the female seats has been under the 30% of overall seats over the thirthy years (In 2012, 26.8%). On the other hand, despite to an increasing trend in the fraction of female parliamentarians, public spending on family allowances (% of GDP) does not have a continuous increasing trend in most of the OECD countries. In other words, the higher percentages of women across OECD countries might be required in order to be effective in policy-making towards women's interests.

4 Empirical Robustness

Based on three different samples, Table 7 investigates the robustness of the main results on the positive significance of the female 30% critical mass threshold. Each panel of the Table 7 investigates the influence

of different covariates on the relationship between the 30% critical mass threshold and the public spending on family allowances.

Panel A adds electoral fractionalization of the party-system. Electoral fractionalization shows the degree to which political parties in a parliament share the votes in a more equitable way[14]. In most of the countries in the world, two big main parties usually share the votes after an election. Liphart (1977) and Mueller and Murrell (1986) pointed out that the larger number of political parties in a parliament might decrease efficiency of public spending since multiparty parliaments might make more promises to different interest groups which can be resulted with less effective reallocation of public expenditures. Econometric specifications at Panels A of Table 7 control for the electoral fractionalization to check the robustness of the positive relationship between the 30% critical mass threshold and public spending on family allowances. All results support the positive significance of the 30% critical mass threshold after controlling for the electoral fractionalization as well. Electoral fractionalization itself has a positive sign only in the PCSE estimations which are done based on the second and the third samples. However both results are not robust to using GMM and FE techniques. Therefore it is difficult to make an interpretation on the relationship between the electoral fractionalization and public spending on family allowances.

Furthermore, Panel B includes legislative fractionalization of the party-system as an other robustness check variable[15]. Legislative fractionalization is defined as "the probability that any two members of the parliament picked at random from the legislature will be from different parties. This is a measure of the division within parliament which has substantial influence over the budget". A higher legislative fractionalization indicates a larger number of small parties occupying legislative seats. The public finance literature has recently discussed that legislative fractionalization might affect the level of public spending. Persson and Tabellini (2004) indicate that since majoritarian parliamentary systems are more likely to produce single party majority governments, whereas coalition and minority governments become more likely under proportional elections, majoritarian elections lead to smaller welfare programs than proportional elections. Similarly Roubini and Sachs (1989) explain the higher amount of public spending with high level of legislative fractionalization and show the presence of many political parties in a ruling coalition as the reason of larger budget deficits. On the other hand, Bawn and Rosenbluth (2006) find no effect of a greater number of parties in the legislature on public spending. In line, Volkerink and De Haan (2001) and Perotti and Kontopoulos

[14]Index of electoral fractionalization of the party-system according to the formula $(1 - \sum_{i=1}^{m} (v_i)^2$ where v_i is the share of votes for party i and m is the number of parties) proposed by Rae (1968).

[15]Index of legislative fractionalization of the party-system according to the formula $(1 - \sum_{i=1}^{m} (s_i)^2$ where s_i is the share of seats for party i and m is the number of parties) proposed by Rae (1968).

(2002) also find some effects that are only marginally significant or not robust to different estimation frameworks. In my regression estimates, legislative fractionalization itself does not show any significant relevance on public family allowances. On the other hand, controlling legislative fractionalization does not change the positive significance of the 30% critical mass threshold on public family allowances.

5 Conclusions

Representative democracy and the good governance approaches suggest that the participation of the citizens from different groups in policy making is essential for the fair redistribution. Different voices in public policy making leads to a resource allocation concerning the preferences of all citizens irrespective of gender, class and race. Due to the persistent gap between women and men in the political arena, especially female voices in policy-making has emerged as a global issue all over the world.

The under-representation of women in politics still persist even in the most advanced OECD countries. Women have constituted just 26.8% percent of the members of parliaments across the OECD in 2012, up from 19.9% in 2009. There is no country which has reached to equal participation of women and men in politics among the OECD. Sweden is the only country where male and female parliamentarians have nearly equal participation with 44.7% of female seats in the parliament. Moreover, the percentage share of the female seats are still less than one-third in 23 out of 34 OECD countries.

Correspondingly, the percentage share of some public spending categories which reflects women's preferences are much more lower than the other spending categories(OECD, 2013). Previous literature suggest that women are more likely than man to support policies on children and family(Besley and Case, 2000; Case and Deaton, 1998; Alesina and La Ferrara, 2005; Thomas, 1990; Duflo, 2003; Edlund and Pande, 2002; Chattopadhyay and Duflo, 2004). Public spending on family allowances is one of the important policies target especially families who have financial needs for the schooling and the health controls of the children. Therefore, this paper analyzes whether female under-representation over the thirty years across the OECD parliaments matters for the low level distribution towards public family allowances. Public spending on family allowances is a novel contribution which has not been studied before in the relevant literature. My preference in this subject has also been influenced by the availability of the dataset on family allowances drawn many new OECD countries that have recently joined the OECD to control the cross-country heterogeneity. In fact, estimations based on the data that only includes traditional OECD countries, which have for long had higher number of female parliamentarians than the new OECD countries, show different results.

To sum up, this paper substantially improves our understanding on the role of female voice. In particular, it helps to explain an important result that small raises in the number of elected female parliamentarians across the OECD over thirty years is not enough to observe policy changes in public family allowances, which probably require stronger changes in female political participation. Using data from the OECD countries that covers the period of 1980-2010, it is found that female parliamentarians are effective on increasing the amount of public spending on family allowances once they peaked at the 30% critical mass threshold. This result suggests that the persistent under-representation of women in the OECD parliaments might still be an obstacle for their efficiency in policy decision making on public family allowances.

Table 1: Summary Statistics

	(1)	(2)	(3)
SAMPLES			
PANEL A: Base Sample			
	Mean	**Std. Dev.**	**N**
Public spending on family allowances as a percentage of GDP	0.866	0.553	551
The fraction of female parliamentarians	17.392	11.322	551
(Lag) Public spending on family allowances as a percentage of GDP	0.867	0.552	550
Population rate of the citizens below 15 years old	0.193	0.03	551
Population rate of the citizens above 65 years old	0.141	0.023	551
Log(GDP per capita)	10.185	0.308	551
Female labor force participation rate	60.035	11.492	551
Female educational attainment (aged between 15-44)	11.022	1.705	551
Public and mandatory private spending on old-age benefits	6.774	2.417	551
Unemployment rate	7.433	4.052	551
Electoral fractionalization of the party-system (Rae-Index)	73.794	8.858	551
Legislative fractionalization of the party-system (Rae-Index)	67.642	11.581	551
PANEL B: Base Sample with Neo-OECD Countries			
(Regressand:Public spending on family allowances (as a % of GDP))			
	Mean	**Std. Dev.**	**N**
Public spending on family allowances (%GDP)	0.872	0.556	378
The fraction of female parliamentarians	21.916	10.734	378
(Lag) Public spending on family allowances (%GDP)	0.874	0.555	377
Population rate of the citizens below 15 years old	0.468	1.221	378
Population rate of the citizens above 65 years old	0.145	0.027	378
Log(GDP per capita)	10.25	0.365	378
Female labor force participation rate	63.324	8.412	378
Female educational attainment (aged between 15-44)	11.968	1.211	378
Public and mandatory private spending old-age benefits	7.485	2.4	378
Unemployment rate	7.267	3.822	378
Electoral fractionalization of the party-system (Rae-Index)	75.852	7.893	350
Legislative fractionalization of the party-system (Rae-Index)	70.11	10.102	350
PANEL C: Base Sample with Neo-OECD Countries			
(Regressand:Public spending on family allowances (as a % of Total Government Spending))			
	Mean	**Std. Dev.**	**N**
Public Spending on Family Allowances (% Total Gov.Spending)	2.033	1.335	364
The Fraction of Female Parliamentarians	22.499	10.503	364
(Lag) Public Spending on Family Allowances (% Total Gov.Spending)	2.038	1.334	363
Population rate of the citizens below 15 years old	0.481	1.243	364
Population rate of the citizens above 65 years old	0.143	0.026	364
Log(GDP per capita)	10.246	0.372	364
Female Labor Force Participation Rate	63.448	8.545	364
Female Educational Attainment (aged between 15-44)	11.931	1.217	364
Public and Mandatory Private Spending Old-Age Benefits	7.476	2.43	364
Unemployment Rate	7.381	3.847	364
Electoral Fractionalization of the party-system (Rae-Index)	75.967	7.98	336
Legislative Fractionalization of the party-system (Rae-Index)	70.376	10.152	336

Column (1) of the each sample show the mean values of observations with standard deviations represented in Column (2). "N" in column (3) stands for the number of observations used in samples. The first sample in Panel A, is a balanced panel data at one-year intervals for 19 countries between 1980 and 2008: Australia, Belgium, Canada, Denmark, Finland, France, Greece, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States. The second sample in Panel B adds eight more countries (Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Japan, Korea, Luxembourg, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, the United Kingdom and the United States) which have recently joined to OECD and could not be included to first sample due to the data incompleteness for previous years from 1995. The third sample covers same units (except Japan due to the data unavailability) and the time span (1995-2008). In contrast to first two samples, the third sample takes into account public spending on family allowances as a percentage of total government spending (in relative terms) rather than public spending on family allowances as a percentage of GDP (in absolute terms) and excludes Japan due to the unavailable data on family allowances as a percentage of total government spending for this country.

Table 2: The Percentage Share of Female Parliamentarians and Public Spending on Family Allowances across OECD Countries

	Panel-A			Panel-B			Panel-C		
	Pooled-OLS	FE	GMM	Pooled-OLS	FE	GMM	Pooled-OLS	FE	GMM
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
P. of FP	0.0089***	0.0127*	0.0062**	0.0147***	0.0127	0.0155	0.0176***	0.0351	0.0130
	(0.0017)	(0.0070)	(0.0031)	(0.0022)	(0.0093)	(0.0099)	(0.0054)	(0.0251)	(0.0207)
Lag(Family Allowances)			0.7110***			0.4023***			0.4886***
			(0.0534)			(0.0462)			(0.0704)
R-Square	0.0360	0.7666		0.0796	0.6183		0.0188	0.5710	
Number of Cases	551	551	494	378	378	297	364	364	286
	Panel-D			Panel-E			Panel-F		
	Pooled-OLS	FE	GMM	Pooled-OLS	FE	GMM	Pooled-OLS	FE	GMM
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
P. of FP	0.0085***	0.0095	0.0056*	0.0090***	0.0113	0.0147	0.0023	0.0339	0.0180
	(0.0023)	(0.0074)	(0.0031)	(0.0035)	(0.0090)	(0.0094)	(0.0087)	(0.0242)	(0.0188)
Population rate (above 65)	7.8101***	-5.5704	-3.1578	-7.8168***	-3.6853	-4.6416	-18.1912***	-9.8695	-15.2043*
	(1.5681)	(3.3169)	(1.9761)	(1.3077)	(5.1412)	(4.6581)	(3.4036)	(12.9277)	(8.4061)
Population rate (under 15)	9.4977***	0.4025	-0.6911	0.0093	0.0043	-0.2325	0.0247	0.5254	1.7985
	(1.0131)	(2.9943)	(1.3122)	(0.0098)	(0.5933)	(1.1841)	(0.0219)	(1.4310)	(2.0726)
Total Old-Age Benefits(%GDP)	0.0011	0.0328	0.0349**	0.0242*	0.0126	0.0154	-0.0167	0.0403	0.0690**
	(0.0099)	(0.0283)	(0.0144)	(0.0129)	(0.0172)	(0.0176)	(0.0286)	(0.0323)	(0.0328)
Unemployment Rate	0.0130	0.0043	-0.0032	0.0185	0.0028	0.0180*	0.0361	0.0150	0.0279***
	(0.0087)	(0.0124)	(0.0069)	(0.0118)	(0.0106)	(0.0093)	(0.0260)	(0.0208)	(0.0106)
Log(GDP per capita)	1.3506***	-0.6713	-0.1025	0.8376***	0.1396	1.1538***	2.1949***	2.6899***	4.4270***
	(0.1006)	(0.4370)	(0.2009)	(0.1154)	(0.3627)	(0.4376)	(0.2757)	(0.8758)	(0.8784)
FLFP	-0.0029	0.0100	0.0029	0.0041	-0.0259*	-0.0217*	0.0148	-0.0664*	-0.0462**
	(0.0026)	(0.0107)	(0.0045)	(0.0047)	(0.0132)	(0.0131)	(0.0107)	(0.0343)	(0.0193)
Female Education	-0.0919***	0.2436	0.1206	-0.1381***	-0.1413	-0.0922	-0.3626***	-0.4736	0.1039
	(0.0184)	(0.2701)	(0.1486)	(0.0248)	(0.1359)	(0.1637)	(0.0618)	(0.4086)	(0.4403)
Lag(Family Allowances)			0.6773***			0.3827***			0.4434***
			(0.0499)			(0.0530)			(0.0655)
R-Square	0.2646	0.7899		0.2788	0.6344		0.2821	0.5985	
Number of Cases	551	551	494	378	378	297	364	364	286

The pooled cross-sectional OLS estimates are shown in columns 1. The fixed effects estimation results are represented in columns 2 with country dummies. Columns 3 use the GMM of Manuel Arellano and Stephen R. Bond (1991) with robust standard errors which instrument for the female parliamentary representation using a double lag. Estimation frameworks in Panel A,B and C do not control any variable. Panel D,E and F add additional covariates such as real GDP per capita, unemployment rate, population rate of the citizens above 65 years old and below 15 years old, female labor force participation rate and female educational attainment for 15-44 year old women to take into account general economic, labor market situation, demographic and social development. Year dummies are included in all regressions. All regressions include country dummies except the pooled cross-sectional OLS estimations. The main independent variable (female parliamentary representation) is the percentage share of female seats in lower chambers across OECD parliaments. Panel A and D use a yearly balanced panel dataset from 1980 to 2008 where the public spending on family allowances as a percentage of GDP is the main regressand. Panel B and E use the same annual data from 1995 to 2008 including other countries for which necesssary data is not available for the previous years. Panel C and F represent results using the third sample which consider public spending on family allowances as a percentage of total govenment spending as the main regressand. One, two and three * indicate significance at the 10, 5 and 1% level respectively. All standard errors are robust for the arbitrary heteroscedasticity. Total Old-Age Benefits (%GDP) refers to public and mandatory private spending on old-age benefits as a percentage of GDP. FLFP stands for Female Labor Force Participation Rate. P. of FP stands for percentage share of female parliamentarians.

Table 3: Female Political Representation over the 30% Female Critical Mass Threshold and Public Spending on Family Allowances

	Pooled-OLS (1)	FE (2)	GMM (3)	PCSE (4)	FE (5)	FE (6)	GMM (7)	GMM (8)	PCSE (9)
PANEL A									
Threshold-30	0.0905**	0.2324***	0.0938**	0.1557***	0.2342***	0.2202***	0.0914***	0.0878***	0.1466***
	(0.0433)	(0.0666)	(0.0369)	(0.0344)	(0.0639)	(0.0649)	(0.0325)	(0.0326)	(0.0326)
Lag(Family Allowances)			0.6951***	0.3042***			0.6597***	0.6570***	0.2735***
			(0.0483)	(0.0416)			(0.0451)	(0.0416)	(0.0394)
Population rate (above 65)					-2.9085	-3.3633	-2.3954	-2.3147	-2.4424
					(3.5364)	(3.2378)	(1.9522)	(1.8273)	(1.8396)
Population rate (under 15)					0.7809	0.6214	-0.5627	-0.5740	0.9065
					(2.3761)	(2.5208)	(1.1386)	(1.1467)	(0.9941)
Total Old-Age Benefits (%GDP)					0.0324	0.0308	0.0351***	0.0346**	0.0285**
					(0.0256)	(0.0276)	(0.0123)	(0.0138)	(0.0128)
Unemployment Rate					0.0086	0.0077	-0.0024	-0.0030	0.0041
					(0.0123)	(0.0117)	(0.0066)	(0.0063)	(0.0040)
Log(GDP per capita)					-0.5268	-0.5689	-0.1239	-0.1321	-0.3079*
					(0.3774)	(0.4006)	(0.2028)	(0.1876)	(0.1728)
FLFP						0.0035		0.0014	0.0043
						(0.0096)		(0.0042)	(0.0046)
Female education						0.1881		0.1277	0.1345
						(0.2494)		(0.1449)	(0.1042)
R-Square	0.0144	0.7778		0.9452	0.7999	0.8010			0.9471
Number of Cases	551	551	494	550	551	551	494	494	550
PANEL B									
Threshold-30	0.1714***	0.1600***	0.1660***	0.1298***	0.1594***	0.1589***	0.1401***	0.1399***	0.1223**
	(0.0529)	(0.0255)	(0.0358)	(0.0446)	(0.0361)	(0.0310)	(0.0396)	(0.0401)	(0.0504)
Lag(Family Allowances)			0.4018***	0.1495***			0.4153***	0.3919***	0.1510***
			(0.0257)	(0.0527)			(0.0230)	(0.0309)	(0.0506)
Population rate (above 65)					0.1974	-0.7751	-5.1652	-4.7919	-1.4248
					(5.2623)	(4.7253)	(3.9390)	(3.4854)	(2.4118)
Population rate (under 15)					0.1091	0.4422	0.8149	0.9142	0.1274
					(0.5228)	(0.5897)	(1.1499)	(1.1054)	(0.4370)
Total Old-Age Benefits (%GDP)					0.0217	0.0154	0.0277	0.0221	0.0181*
					(0.0205)	(0.0190)	(0.0188)	(0.0199)	(0.0095)
Unemployment Rate					-0.0051	-0.0000	0.0103	0.0132**	0.0014
					(0.0125)	(0.0107)	(0.0067)	(0.0063)	(0.0051)
Log(GDP per capita)					-0.1656	0.0898	0.9990***	1.0698***	0.2562
					(0.2518)	(0.2744)	(0.3625)	(0.3488)	(0.3064)
FLFP						-0.0273*		-0.0163	-0.0216***
						(0.0139)		(0.0126)	(0.0062)
Female education						-0.1419		-0.0217	-0.1278
						(0.1411)		(0.1670)	(0.1790)
R-Square	0.0220	0.6189		0.9688	0.6224	0.6357			0.9702
Number of Cases	378	378	297	377	378	378	297	297	377
PANEL C									
Threshold-30	-0.0434	0.3236***	0.2741**	0.2407**	0.3498***	0.3453***	0.3126*	0.3190*	0.2459**
	(0.1258)	(0.0831)	(0.1345)	(0.0956)	(0.1220)	(0.1100)	(0.1613)	(0.1635)	(0.1100)
Lag(Family Allowances)			0.4742***	0.0985**			0.4523***	0.4321***	0.1158***
			(0.0542)	(0.0462)			(0.0440)	(0.0385)	(0.0435)
Population rate (above 65)					-1.8965	-4.3171	-12.0685	-10.9883	-5.9324
					(12.2389)	(12.1523)	(8.1553)	(7.4311)	(5.3226)
Population rate (under 15)					0.6006	1.4352	4.0887	4.2439	0.6932
					(1.1791)	(1.4231)	(2.7923)	(2.6876)	(1.0663)
Total Old-Age Benefits(%GDP)					0.0643	0.0483	0.0805***	0.0726**	0.0497**
					(0.0425)	(0.0388)	(0.0306)	(0.0321)	(0.0242)
Unemployment Rate					-0.0052	0.0079	0.0177**	0.0239**	0.0134
					(0.0256)	(0.0219)	(0.0089)	(0.0103)	(0.0142)
Log(GDP per capita)					1.8844**	2.5017***	4.2015***	4.4777***	2.7556***
					(0.7206)	(0.8376)	(0.8918)	(0.9131)	(0.8818)
FLFP						-0.0703*		-0.0405*	-0.0579***
						(0.0376)		(0.0211)	(0.0135)
Female education						-0.4974		0.1634	-0.4291
						(0.4388)		(0.4250)	(0.4168)
R-Square	0.0011	0.5594		0.9611	0.5709	0.5885			0.9652
Number of Cases	364	364	286	363	364	364	286	286	363

The pooled cross-sectional OLS estimates are shown in columns (1) of each panel. The fixed effects estimation results are shown in columns (2), (5), (6). Columns (3), (7) and (8) use the GMM of Manuel Arellano and Stephen R. Bond (1991) which instrument for the 30% female parliamentary representation using a double lag. To control for contemporaneous correlation, panel-corrected standard errors are reported in columns (4) and columns (9) which include autoregressive processes of order one (AR(1)). It indicates the presence of serial correlation and allowing Prais-Winsten regression for the correction of serial correlation. Following the previous literature, columns (5) and columns (7) add additional covariates such as real GDP per capita, unemployment rate, population rate of the citizens above 65 years old and below 15 years old to take into account general economic development, labor market situation and demographic development. In addition to these covariates, columns (6), (8) and (9) add also female labor force participation rate and female educational attainment for 15-44 year old women to take into account social development. Year dummies are included in all regressions. Except the pooled cross-sectional OLS regression, all estimations include country dummies and country specific time trends. The main independent variable (Threshold-30) is a dummy variable which is the proxy for gender bargaining power. It takes a value equal to 1 when the share of female seats in national parliaments across OECD exceed 30%. Panel A uses a yearly balanced panel data from 19802008 where the public spending on family allowances as a percentage of GDP is the main regressand. Panel B uses the same annual data from 1995 to 2008 including other countries for which the necesssary data is not available for the previous years. Panel C uses the same sample in Panel B where the public spending on family allowances as a percentage of total govenment spending is the main regressand. One, two and three * indicate significance at the 10, 5 and 1% level respectively. Total Old-Age Benefits (%GDP) refers to public and mandatory private spending on old-age benefits as a percentage of GDP. All standard errors are robust for the arbitrary heteroscedasticity. FLFP stands for Female Labor Force Participation Rate.

Table 4: Female Political Representation over the 15% Female Critical Mass Threshold and Public Spending on Family Allowances

	Pooled-OLS (1)	FE (2)	GMM (3)	PCSE (4)	FE (5)	FE (6)	GMM (7)	GMM (8)	PCSE (9)
PANEL A									
Threshold-15	0.2093***	0.0592	0.0128	0.0346	0.0218	0.0295	-0.0009	-0.0015	0.0209
	(0.0457)	(0.0563)	(0.0289)	(0.0220)	(0.0624)	(0.0620)	(0.0272)	(0.0280)	(0.0235)
Lag(Family Allowances)			0.7209***	0.3294***			0.6902***	0.6843***	0.3041***
			(0.0491)	(0.0409)			(0.0474)	(0.0431)	(0.0390)
Population rate (above 65)					-3.6130	-5.1599	-3.0490*	-3.1061*	-3.3516*
					(3.8626)	(3.1571)	(1.8422)	(1.7185)	(1.8296)
Population rate (under 15)					1.5831	0.8035	-0.4062	-0.5375	1.1020
					(2.9625)	(3.1294)	(1.1619)	(1.1972)	(1.0098)
Total Old-Age Benefits(%GDP)					0.0339	0.0349	0.0356***	0.0362***	0.0310**
					(0.0262)	(0.0283)	(0.0122)	(0.0133)	(0.0127)
Unemployment rate					0.0029	0.0025	-0.0046	-0.0051	0.0010
					(0.0132)	(0.0121)	(0.0068)	(0.0064)	(0.0041)
Log(GDP per capita)					-0.6272	-0.7334	-0.1451	-0.1724	-0.3726**
					(0.4289)	(0.4419)	(0.1979)	(0.1810)	(0.1727)
FLFP						0.0122		0.0035	0.0094**
						(0.0108)		(0.0043)	(0.0047)
Female education						0.2942		0.1431	0.1885*
						(0.2627)		(0.1388)	(0.1050)
R-Square	0.0384	0.7591		0.9432	0.7803	0.7854			0.9467
Number of Cases	551	551	494	550	551	551	494	494	550
PANEL B									
Threshold-15	0.3306***	0.0284	-0.0678	-0.0115	0.0263	0.0268	-0.0243	-0.0163	-0.0105
	(0.0576)	(0.0509)	(0.1102)	(0.0213)	(0.0487)	(0.0488)	(0.0973)	(0.0998)	(0.0228)
Lag(Family Allowances)			0.4416***	0.1576***			0.4502***	0.4277***	0.1616***
			(0.0385)	(0.0531)			(0.0411)	(0.0481)	(0.0509)
Population rate (above 65)					-3.9712	-4.8906	-8.5034*	-8.1130*	-4.1440*
					(5.5927)	(5.2166)	(5.0563)	(4.4256)	(2.2365)
Population rate (under 15)					-0.3897	-0.0593	-0.3043	-0.2226	-0.2487
					(0.5373)	(0.6071)	(1.1743)	(1.1209)	(0.4088)
Total Old-Age Benefits(%GDP)					0.0204	0.0141	0.0302	0.0247	0.0186*
					(0.0207)	(0.0192)	(0.0227)	(0.0242)	(0.0099)
Unemployment Rate					-0.0030	0.0021	0.0105	0.0135**	0.0024
					(0.0126)	(0.0109)	(0.0070)	(0.0069)	(0.0052)
Log(GDP per capita)					-0.1738	0.0788	0.8863**	0.9648***	0.2269
					(0.2815)	(0.3300)	(0.3689)	(0.3570)	(0.3184)
FLFP						-0.0271*		-0.0156	-0.0210***
						(0.0141)		(0.0138)	(0.0064)
Female education						-0.1636		-0.0285	-0.1525
						(0.1411)		(0.1466)	(0.1879)
R-Square	0.0787	0.6013		0.9672	0.6079	0.6213			0.9693
Number of Cases	378	378	297	377	378	378	297	297	377
PANEL C									
Threshold-15	0.6551***	0.1299	-0.4065	0.0150	0.1485	0.1481	-0.2864	-0.2849	0.0360
	(0.1417)	(0.1380)	(0.3552)	(0.0491)	(0.1332)	(0.1328)	(0.3510)	(0.3467)	(0.0512)
Lag(Family Allowances)			0.4759***	0.0983**			0.4639***	0.4498***	0.1185***
			(0.0517)	(0.0467)			(0.0429)	(0.0418)	(0.0440)
Population rate (above 65)					-12.2343	-14.5408	-18.9292*	-18.5989*	-11.9071**
					(11.8198)	(12.0780)	(10.4325)	(9.8070)	(4.9188)
Population rate (under 15)					-0.5358	0.3182	1.5682	1.7596	-0.0505
					(1.1675)	(1.4205)	(2.4868)	(2.2532)	(1.0329)
Total Old-Age Benefits(%GDP)					0.0576	0.0414	0.0867**	0.0801*	0.0477*
					(0.0404)	(0.0367)	(0.0413)	(0.0429)	(0.0250)
Unemployment Rate					0.0010	0.0141	0.0182*	0.0238**	0.0166
					(0.0256)	(0.0220)	(0.0103)	(0.0119)	(0.0141)
Log(GDP per capita)					1.9516**	2.5730**	3.7372***	4.0139***	2.7388***
					(0.8120)	(0.9687)	(0.8781)	(0.9421)	(0.8856)
FLFP						-0.0708*		-0.0364	-0.0574***
						(0.0376)		(0.0231)	(0.0137)
Female education						-0.5109		0.3085	-0.4381
						(0.4608)		(0.4427)	(0.4312)
R-Square	0.0498	0.5484		0.9587	0.5613	0.5792			0.9637
Number of Cases	364	364	286	363	364	364	286	286	363

The pooled cross-sectional OLS estimates are shown in columns (1) of each panel. The fixed effects estimation results are shown in columns (2), (5), (6). Columns (3), (7) and (8) use the GMM of Manuel Arellano and Stephen R. Bond (1991) which instrument for the 15% female parliamentary representation using a double lag. To control for contemporaneous correlation, panel-corrected standard errors are reported in columns (4) and columns (9) which include autoregressive processes of order one (AR(1)). It indicates the presence of serial correlation and allowing Prais-Winsten regression for the correction of serial correlation. Following the previous literature, columns (5) and columns (7) add additional covariates such as real GDP per capita, unemployment rate, population rate of the citizens above 65 years old and below 15 years old to take into account general economic development, labor market situation and demographic development. In addition to these covariates, columns (6), (8) and (9) add also female labor force participation rate and female educational attainment for 15-44 year old women to take into account social development. Year dummies are included in all regressions. Except the pooled cross-sectional OLS regression, all estimations include country dummies and country specific time trends. The main independent variable (Threshold-15) is a dummy variable which is the proxy for gender bargaining power. It takes a value equal to 1 when the share of female seats in national parliaments across OECD exceed 15%. Panel A uses a yearly balanced panel data from 1980 to 2008 where the public spending on family allowances as a percentage of GDP is the main regressand. Panel B uses the same annual data from 1995 to 2008 including other countries for which the necesssary data is not available for the previous years. Panel C uses the same sample in Panel B where the public spending on family allowances as a percentage of total govenment spending is the main regressand. One, two and three * indicate significance at the 10, 5 and 1% level respectively. Total Old-Age Benefits (%GDP) refers to public and mandatory private spending on old-age benefits as a percentage of GDP. All standard errors are robust for the arbitrary heteroscedasticity. FLFP stands for Female Labor Force Participation Rate.

Table 5: Female Political Representation over the 20% Female Critical Mass Threshold and Public Spending on Family Allowances

	Pooled-OLS (1)	FE (2)	GMM (3)	PCSE (4)	FE (5)	FE (6)	GMM (7)	GMM (8)	PCSE (9)
PANEL A									
Threshold-20	0.2059***	0.0080	-0.0090	-0.0090	-0.0184	-0.0089	-0.0286	-0.0287	-0.0194
	(0.0452)	(0.0830)	(0.0289)	(0.0261)	(0.0818)	(0.0819)	(0.0265)	(0.0262)	(0.0271)
Lag(Family Allowances)			0.7173***	0.3342***			0.6834***	0.6778***	0.3109***
			(0.0453)	(0.0413)			(0.0419)	(0.0381)	(0.0392)
Population rate (above 65)					-3.6457	-5.0801	-3.0448	-3.1020*	-3.2563*
					(3.9627)	(3.2857)	(1.8543)	(1.7062)	(1.8526)
Population rate(under 15)					1.3911	0.6754	-0.4714	-0.5925	0.9583
					(2.9175)	(3.1717)	(1.0719)	(1.1276)	(1.0038)
Total Old-Age Benefits(%GDP)					0.0374	0.0379	0.0390***	0.0395***	0.0339***
					(0.0245)	(0.0278)	(0.0111)	(0.0124)	(0.0129)
Unemployment Rate					0.0020	0.0017	-0.0055	-0.0060	0.0002
					(0.0134)	(0.0124)	(0.0065)	(0.0062)	(0.0041)
Log(GDP per capita)					-0.6769	-0.7736	-0.1841	-0.2105	-0.4105**
					(0.4313)	(0.4602)	(0.1843)	(0.1719)	(0.1714)
FLFP						0.0113		0.0036	0.0088*
						(0.0108)		(0.0043)	(0.0046)
Female education						0.2966		0.1422	0.1872*
						(0.2650)		(0.1308)	(0.1057)
R-Square	0.0380	0.7571		0.9434	0.7802	0.7850			0.9476
Number of Cases	551	551	494	550	551	551	494	494	550
PANEL B									
Threshold-20	0.3614***	0.0431	0.0776	0.0487	0.0384	0.0364	0.0649	0.0785	0.0444
	(0.0541)	(0.1048)	(0.0815)	(0.0332)	(0.1080)	(0.1057)	(0.0812)	(0.0811)	(0.0325)
Lag(Family Allowances)			0.4330***	0.1602***			0.4445***	0.4148***	0.1656***
			(0.0493)	(0.0524)			(0.0538)	(0.0608)	(0.0506)
Population rate (above 65)					-4.0635	-4.8568	-8.7556*	-8.1076*	-4.6521**
					(5.6425)	(5.2650)	(5.2136)	(4.6448)	(2.2330)
Population rate (under 15)					-0.3969	-0.0792	-0.4949	-0.4465	-0.2834
					(0.5404)	(0.5967)	(1.1658)	(1.1687)	(0.4125)
Total Old-Age Benefits(%GDP)					0.0180	0.0120	0.0238	0.0163	0.0145
					(0.0179)	(0.0168)	(0.0180)	(0.0185)	(0.0094)
Unemployment Rate					-0.0033	0.0016	0.0119	0.0154*	0.0028
					(0.0128)	(0.0112)	(0.0082)	(0.0080)	(0.0051)
Log(GDP per capita)					-0.2122	0.0294	0.9179**	0.9948**	0.2261
					(0.2914)	(0.3108)	(0.4003)	(0.3919)	(0.3169)
FLFP						-0.0263*		-0.0181	-0.0205***
						(0.0130)		(0.0124)	(0.0064)
Female education						-0.1985		-0.0643	-0.1738
						(0.1907)		(0.1646)	(0.1824)
R-Square	0.1062	0.6026		0.9671	0.6088	0.6220			0.9694
Number of Cases	378	378	297	377	378	378	297	297	377
PANEL C									
Threshold-20	0.6801***	0.1403	0.0236	0.1219	0.1367	0.1339	0.0049	0.0145	0.1261
	(0.1359)	(0.2768)	(0.1874)	(0.0855)	(0.2886)	(0.2832)	(0.2108)	(0.2193)	(0.0779)
Lag(Family Allowances)			0.4932***	0.1004**			0.4762***	0.4579***	0.1189***
			(0.0638)	(0.0461)			(0.0567)	(0.0597)	(0.0435)
Population rate (above 65)					-11.8924	-13.7466	-21.6274*	-20.6897**	-12.4718**
					(11.7089)	(12.0153)	(11.0895)	(10.3939)	(5.0215)
Population rate (under 15)					-0.5350	0.2606	1.5782	1.6812	-0.1344
					(1.2211)	(1.4332)	(2.2619)	(2.0451)	(1.0575)
Total Old-Age Benefits(%GDP)					0.0512	0.0358	0.0819**	0.0738*	0.0386
					(0.0341)	(0.0318)	(0.0384)	(0.0393)	(0.0244)
Unemployment Rate					-0.0012	0.0115	0.0189**	0.0250***	0.0164
					(0.0259)	(0.0226)	(0.0085)	(0.0097)	(0.0141)
Log(GDP per capita)					1.7563**	2.3281**	3.9378***	4.2057***	2.6533***
					(0.8474)	(0.9804)	(0.8604)	(0.8952)	(0.9023)
FLFP						-0.0674*		-0.0387*	-0.0552***
						(0.0349)		(0.0205)	(0.0137)
Female education						-0.6700		0.1922	-0.5259
						(0.5806)		(0.4534)	(0.4177)
R-Square	0.0637	0.5492		0.9587	0.5608	0.5785			0.9633
Number of Cases	364	364	286	363	364	364	286	286	363

The pooled cross-sectional OLS estimates are shown in columns (1) of each panel. The fixed effects estimation results are shown in columns (2), (5), (6). Columns (3), (7) and (8) use the GMM of Manuel Arellano and Stephen R. Bond (1991) which instrument for the 20% female parliamentary representation using a double lag. To control for contemporaneous correlation, panel-corrected standard errors are reported in columns (4) and columns (9) which include autoregressive processes of order one (AR(1)). It indicates the presence of serial correlation and allowing Prais-Winsten regression for the correction of serial correlation. Following the previous literature, columns (5) and columns (7) add additional covariates such as real GDP per capita, unemployment rate, population rate of the citizens above 65 years old and below 15 years old to take into account general economic development, labor market situation and demographic development. In addition to these covariates, columns (6), (8) and (9) add also female labor force participation rate and female educational attainment for 15-44 year old women to take into account social development. Year dummies are included in all regressions. Except the pooled cross-sectional OLS regression, all estimations include country dummies and country specific time trends. The main independent variable (Threshold-20) is a dummy variable which is the proxy for gender bargaining power. It takes a value equal to 1 when the share of female seats in national parliaments across OECD exceed 20%. Panel A uses a yearly balanced panel data from 1980 to 2008 where the public spending on family allowances as a percentage of GDP is the main regressand. Panel B uses the same annual data from 1995 to 2008 including other countries for which the necesssary data is not available for the previous years. Panel C uses the same sample in Panel B where the public spending on family allowances as a percentage of total govenment spending is the main regressand. One, two and three * indicate significance at the 10, 5 and 1% level respectively. Total Old-Age Benefits (%GDP) refers to public and mandatory private spending on old-age benefits as a percentage of GDP. All standard errors are robust for the arbitrary heteroscedasticity. FLFP stands for Female Labor Force Participation Rate.

Table 6: Female Political Representation over the 25% Female Critical Mass Threshold and Public Spending on Family Allowances

	PooledOLS (1)	FE (2)	GMM (3)	PCSE (4)	FE (5)	FE (6)	GMM (7)	GMM (8)	PCSE (9)
PANEL A									
Threshold-25	0.1215***	0.0272	-0.0120	0.0096	0.0475	0.0404	-0.0041	-0.0068	0.0192
	(0.0450)	(0.0597)	(0.0402)	(0.0310)	(0.0702)	(0.0605)	(0.0386)	(0.0371)	(0.0309)
Lag(Family Allowances)			0.7237***	0.3320***			0.6918***	0.6861***	0.3046***
			(0.0452)	(0.0413)			(0.0456)	(0.0409)	(0.0392)
Population rate (above 65)					-3.5512	-5.0277	-3.0293	-3.0995*	-3.2719*
					(3.9074)	(3.2379)	(1.8824)	(1.7329)	(1.8511)
Population rate (under 15)					1.5918	0.8023	-0.3762	-0.5090	1.0725
					(2.7439)	(2.9700)	(1.1251)	(1.1798)	(1.0094)
Total Old-Age Benefits (%GDP)					0.0375	0.0388	0.0353***	0.0357***	0.0333***
					(0.0265)	(0.0290)	(0.0113)	(0.0126)	(0.0125)
Unemployment Rate					0.0039	0.0032	-0.0045	-0.0051	0.0012
					(0.0132)	(0.0122)	(0.0068)	(0.0064)	(0.0042)
Log(GDP per capita)					-0.6100	-0.7262*	-0.1414	-0.1709	-0.3766**
					(0.3836)	(0.4113)	(0.1950)	(0.1787)	(0.1716)
FLFP						0.0115		0.0037	0.0089*
						(0.0107)		(0.0043)	(0.0046)
Female education						0.2848		0.1463	0.1852*
						(0.2632)		(0.1321)	(0.1043)
R-Square	0.0191	0.7573		0.9432	0.7808	0.7856			0.9468
Number of Cases	551	551	494	550	551	551	494	494	550
PANEL B									
Threshold-25	0.3142***	0.0295	0.0179	0.0260	0.0389	0.0256	0.0431	0.0368	0.0270
	(0.0555)	(0.0235)	(0.0635)	(0.0561)	(0.0261)	(0.0267)	(0.0560)	(0.0523)	(0.0557)
Lag(Family Allowances)			0.4427***	0.1559***			0.4425***	0.4201***	0.1598***
			(0.0416)	(0.0523)			(0.0443)	(0.0511)	(0.0503)
Population rate(above 65)					-3.7852	-4.5905	-8.9747*	-8.3740*	-4.3201*
					(5.6069)	(5.1966)	(4.8826)	(4.2985)	(2.2210)
Population rate (under 15)					-0.3557	-0.0433	-0.2703	-0.2030	-0.2443
					(0.5755)	(0.6353)	(1.1040)	(1.0817)	(0.4138)
Total Old-Age Benefits (%GDP)					0.0230	0.0163	0.0317	0.0261	0.0193**
					(0.0234)	(0.0214)	(0.0232)	(0.0241)	(0.0094)
Unemployment Rate					-0.0037	0.0014	0.0101	0.0131*	0.0024
					(0.0130)	(0.0112)	(0.0076)	(0.0070)	(0.0052)
Log(GDP per capita)					-0.1863	0.0523	0.9240**	0.9929***	0.2414
					(0.2801)	(0.3149)	(0.3895)	(0.3683)	(0.3098)
FLFP						-0.0264*		-0.0158	-0.0206***
						(0.0139)		(0.0130)	(0.0065)
Female education						-0.1817		-0.0409	-0.1529
						(0.1481)		(0.1585)	(0.1842)
R-Square	0.0766	0.6009		0.9671	0.6079	0.6209			0.9691
Number of Cases	378	378	297	377	378	378	297	297	377
PANEL C									
Threshold-25	0.4413***	0.0908	-0.1834	0.0617	0.1286	0.0964	-0.0693	-0.1001	0.0804
	(0.1396)	(0.0693)	(0.1576)	(0.1476)	(0.0808)	(0.0734)	(0.1204)	(0.1499)	(0.1456)
Lag(Family Allowances)			0.5094	0.1002**			0.4830***	0.4676***	0.1176***
			(0.0608)	(0.0462)			(0.0563)	(0.0560)	(0.0434)
Population rate(above 65)					-10.8623	-12.7640	-21.3013*	-20.2773*	-11.6396**
					(11.8780)	(12.0480)	(11.2712)	(10.7781)	(4.8694)
Population rate (under 15)					-0.3941	0.3932	1.4774	1.5590	-0.0246
					(1.3285)	(1.5376)	(2.3579)	(2.1752)	(1.0389)
Total Old-Age Benefits (%GDP)					0.0686	0.0517	0.0795**	0.0712*	0.0523**
					(0.0506)	(0.0458)	(0.0352)	(0.0366)	(0.0233)
Unemployment Rate					-0.0023	0.0105	0.0191**	0.0252**	0.0153
					(0.0266)	(0.0229)	(0.0091)	(0.0105)	(0.0143)
Log(GDP per capita)					1.8418**	2.4117**	3.8967***	4.1595***	2.7086***
					(0.7821)	(0.9337)	(0.8703)	(0.9125)	(0.8795)
FLFP						-0.0678*		-0.0392*	-0.0556***
						(0.0370)		(0.0228)	(0.0138)
Female education						-0.6070		0.2293	-0.4702
						(0.4769)		(0.4033)	(0.4292)
R-Square	0.0263	0.0263	0.0263	0.9593	0.5585	0.5758			0.9637
Number of Cases	364	364	364	363	364	364	286	286	363

The pooled cross-sectional OLS estimates are shown in columns (1) of each panel. The fixed effects estimation results are shown in columns (2), (5), (6). Columns (3), (7) and (8) use the GMM of Manuel Arellano and Stephen R. Bond (1991) which instrument for the 25% female parliamentary representation using a double lag. To control for contemporaneous correlation, panel-corrected standard errors are reported in columns (4) and columns (9) which include autoregressive processes of order one (AR(1)). It indicates the presence of serial correlation and allowing Prais-Winsten regression for the correction of serial correlation. Following the previous literature, columns (5) and columns (7) add additional covariates such as real GDP per capita, unemployment rate, population rate of the citizens above 65 years old and below 15 years old to take into account general economic development, labor market situation and demographic development. In addition to these covariates, columns (6), (8) and (9) add also female labor force participation rate and female educational attainment for 15-44 year old women to take into account social development. Year dummies are included in all regressions. Except the pooled cross-sectional OLS regression, all estimations include country dummies and country specific time trends. The main independent variable (Threshold-25) is a dummy variable which is the proxy for gender bargaining power. It takes a value equal to 1 when the share of female seats in national parliaments across OECD exceed 25%. Panel A uses a yearly balanced panel data from 1980 to 2008 where the public spending on family allowances as a percentage of GDP is the main regressand. Panel B uses the same annual data from 1995 to 2008 including other countries for which the necesssary data is not available for the previous years. Panel C uses the same sample in Panel B where the public spending on family allowances as a percentage of total govenment spending is the main regressand. One, two and three * indicate significance at the 10, 5 and 1% level respectively. Total Old-Age Benefits (%GDP) refers to public and mandatory private spending on old-age benefits as a percentage of GDP. All standard errors are robust for the arbitrary heteroscedasticity. FLFP stands for Female Labor Force Participation Rate.

Table 7: Robustness Checks: Female Political Representation over the 30% Female Critical Mass Threshold and Public Spending on Family Allowances

	PANEL A				PANEL B			
	FE	GMM	GMM	PCSE	FE	GMM	GMM	PCSE
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
The First Sample								
Threshold-30	0.2290***	0.0954**	0.0892***	0.1440***	0.2315***	0.0938**	0.0875***	0.1449***
	(0.0626)	(0.0379)	(0.0335)	(0.0326)	(0.0651)	(0.0370)	(0.0325)	(0.0326)
Electoral Fractionalization	-0.0052	0.0015	0.0013	-0.0024				
	(0.0048)	(0.0019)	(0.0016)	(0.0022)				
Legislative Fractionalization					-0.0029	0.0002	0.0000	-0.0021
					(0.0025)	(0.0011)	(0.0010)	(0.0014)
R-Square	0.7798			0.9466	0.7790			0.9476
Number of Cases	551	494	494	550	551	494	494	550
The Second Sample								
Threshold-30	0.1857***	0.2041***	0.1675***	0.1361***	0.1672***	0.1736***	0.1378***	0.1195**
	(0.0384)	(0.0455)	(0.0457)	(0.0503)	(0.0276)	(0.0371)	(0.0389)	(0.0504)
Electoral Fractionalization	0.0066	0.0081	0.0079	0.0054*				
	(0.0067)	(0.0052)	(0.0056)	(0.0030)				
Legislative Fractionalization					0.0021	0.0033	0.0029	0.0014
					(0.0030)	(0.0024)	(0.0030)	(0.0021)
R-Square	0.5870			0.9701	0.5830			0.9697
Number of Cases	350	275	275	349	350	275	275	349
The Third Sample								
Threshold-30	0.4028***	0.4229**	0.4460**	0.2885**	0.3419***	0.3313**	0.3610**	0.2440**
	(0.1152)	(0.1940)	(0.1988)	(0.1156)	(0.0843)	(0.1492)	(0.1646)	(0.1140)
Electoral Fractionalization	0.0202	0.0203	0.0226	0.0147*				
	(0.0201)	(0.0168)	(0.0165)	(0.0080)				
Legislative Fractionalization					0.0053	0.0095	0.0117	0.0046
					(0.0088)	(0.0077)	(0.0076)	(0.0055)
R-Square	0.5399			0.9644	0.5333			0.9634
Number of Cases	336	264	264	335	336	264	264	335

Using three different samples, Panel A and Panel B represent robustness checks for the electoral and legislative fractionalization respectively. The first sample is a yearly balanced panel data that covers 19 countries from 1980 to 2008 where the public spending on family allowances as a percentage of GDP is the main regressand. The second sample which is a yearly balanced panel data that covers 25 countries from 1995 to 2008 where the public spending on family allowances as a percentage of GDP is the main regressand. The third sample which is a yearly balanced panel data that covers 24 countries from 1995 to 2008 where public spending on family allowances as a percentage of total government spending is the main regressand. The main independent variable (Threshold-30) is a dummy variable which is the proxy for gender bargaining power. It takes a value equal to 1 when the share of female seats in national parliaments across OECD exceed 30%. Panel A of each sample only controls for the electoral fractionalization and Panel B of each sample only controls for the legislative fractionalization. To take into account economic, demographic and labor market situation and the general social development, GMM and PCSE estimation methods in columns (3) and columns (4) of each panel add also other control variables such as real GDP per capita, unemployment rate, population rate of the citizens above 65 years old and below 15 years old, female labor force participation rate and female educational attainment for 15-44 year old women. Year dummies, country dummies and country specific time trends are included in all regressions. All standard errors are robust for the arbitrary heteroscedasticity and represented in parentheses. One, two and three * indicate significance at the 10, 5 and 1% level respectively.The focus on 25 and 24 countries is due to the missing value of electoral and legislative fractionalization variables for some countries in the second and third samples.

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