

Migration-induced Transfers of Norms. The case of Female Political Empowerment*

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Abstract

It is recognized that affirmative action, as anti-discriminatory policies whose aim is to benefit an underrepresented group, is a key driver of progress for women. However, the role of migrants in helping female voice from abroad has not been addressed yet. This paper empirically investigates the effect of international migration on the parliamentary participation of women left behind following the brand new strand of literature on ‘transfers of norms’. Panel data from 1960 to 2000 allows us to control either for selection due to women’s eligibility, observed and unobserved heterogeneity. After having controlled for traditional political and non political factors, total international migration to countries with higher female political empowerment significantly increases the female parliamentary shares in sending countries.

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‘Let us not forget that progress for women is progress for all’

(Mr Kochiro Matsuura¹)

1 Introduction

‘Promote Gender Equality and Empower Women’ is one of the Millennium Development Goals. Women make up more than half of the global population and female electorate yet continue to be under-represented in all economic and political decision-making bodies at all levels. According to 2010’s Interparliamentary Union (IPU) data, the international average representation of women in parliaments has increased slowly from 11 to 19% between 1995 and 2010 but this is far short of gender parity. Parliamentary elections in 2009 contributed to rising gains for women in sub-Saharan Africa and Latin America and the Caribbean, where 29% and 25% of the renewed seats went to women, respectively. But 58 countries still have 10 per cent or fewer female members of parliament. Moreover, the gap between countries is high with the Swedish Chamber being the most ‘feminized’ with 45% of women in the Parliament, then Netherlands with 40.7% and Belgium 39.3%. While the lowest shares pertain to the Arab Countries with 11.7%.

It has been put forward how women in politics result in tangible gains for democracy, including greater responsiveness to citizen needs, increased cooperation across party and ethnic lines, and more sustainable peace². In occasion of the 100th anniversary of International Women’s Day (March 8, 2011)³, whose theme was ‘investing in women and girls’ also the President Barack Obama praised *‘the extraordinary accomplishments of women*

¹Director-General of UNESCO on the occasion of the 2008’s International Women’s Day

²Citing Madeleine K. Albright, the United States first female secretary of state, in occasion of a lecture organized in honor of International Womens Day by the Informal Group of Women Parliamentarians (WIG) in cooperation with National Democratic Institute (NDI).

³International Women’s Day is celebrated in many countries around the world. It is a day when women are recognized for their achievements without regard to divisions, whether national, ethnic, linguistic, cultural, economic or political. It is an occasion for looking back on past struggles and accomplishments, and more importantly, for looking ahead to the untapped potential and opportunities that await future generations of women. In 1975, during International Women’s Year, the United Nations began celebrating International Women’s Day on 8 March. Two years later, in December 1977, the General Assembly adopted a resolution proclaiming a United Nations Day for Women’s Rights and International Peace to be observed on any day of the year by Member States, in accordance with their historical and national traditions. In adopting its resolution, the General Assembly recognized the role of women in peace efforts and development and urged an end to discrimination and an increase of support for women’s full and equal participation.

in shaping the country's history'. A large body of the literature has confirmed the role of women in politics. On the empirical side, Thomas (1991) shows that the states in US with higher female representation introduce and pass more priority bills dealing with issues of women, children and families than their male counterparts or than women in states with lower female representation. Thomas and Welch (1991) find that women in state houses in 12 states in the US place greater priority than men on legislation concerning women, family issues and children. Case (1998) finds that the state's child support enforcement policies strengthen as the number of female legislators in the state increased. Besley and Case (2000) find that women in the legislature apply pressure to increase family assistance and to strengthen child support. With Indian data, Clots-Figueras (2011) finds that female legislators have a differential impact on public goods, policy and expenditure decisions compared to the male counterparts. They invest more than men in schools, female teachers, primary educations and bed in hospitals and dispensaries. Moreover, female legislators in seats reserved for lower castes and disadvantaged tribes invest more in health and early education and favor 'women friendly' laws. Along the same lines, Iyer et al. (2011) find that an increase in female representation in local government induces large and significant effects on reporting of crimes against women in India, thus favoring access to justice for women. On the theoretical side instead, De la Croix and Vander Donckt (2010) recognize, from a more general viewpoint, the importance of female empowerment as a multidimensional concept including economic participation and opportunity, educational attainment, political empowerment, and health and survival. They argue that a range of socioeconomic virtues are widely attached to gender equality, including improved children's development (through better health and education) and growth⁴.

Given the importance of female political participation, different actions can be fostered in order to let women acquire more political power. Affirmative action, as policies that take factors including race, color, religion, gender, or national origin into consideration in order to benefit an underrepresented group, usually as a means to counter the effects of a history of discrimination, is a key driver of progress for women. In 2009, the average share of women elected to parliament was 13% points higher (27% as opposed to 14%) in countries that applied specific measures. Setting a gender quota can be a tangible measure as it happened for Parliament in Kyrgyzstan. In 2005, there were no women in the Kyrgyz Parliament and only one woman in a cabinet position. In 2007, following a nationwide discussion facilitated by the UN Development Programme (UNDP), a 30% gender quota was enshrined in the election code. By 2008, Kyrgyzstan had the highest proportion of women in Parliament (25.6 per cent) and in Government (21 per cent) in Central Asia. However, the European Womens Lobby (EWL), which is the largest umbrella organisation

⁴However, different forms of empowering women may lead to more controversial results (see Doepke and Tertilt, 2011; and Dynan, K.E. and C.E. Rouse, 1997)

of women's associations in the European Union (EU) stated that parity in democracy implies the equal representation of women and men in decision-making positions and this goes a step further than quotas as it is based on the idea that women are not a minority. Beside this, intangible measures⁵ are about to be fostered by nationals settled abroad through advocacy, communications and capacity building activities brought by International Governmental and Non-Governmental Organizations (NGOs). The United Nations Development Programme (UNDP) for example, has supported the participation of women in the political process in Rwanda, where women now make up 56% of the Parliament, the world's highest share. The United Nations Entity for Gender Equality and the Empowerment of Women (UN Women) facilitates the participation of NGOs⁶ in annual sessions of the Commission on the Status of Women (CSW) giving voice to their needs. Among others, the European Women's Lobby (EWL) has been running a project since 2006 for and with migrant women's organisations across Europe that aims to actively involve migrant women's organizations in the development, monitoring and implementation of policies at the European level: 'Equal Rights, Equal Voices. Migrant Women in the European Union'. One of the main achievements of this project has been the launch on 18 June 2010 of the European Network of Migrant Women⁷.

A very recent analysis of *spatial dependence*⁸ has also put forward the role of trade⁹ and FDI in fostering the empowerment of women (Neumayer and De Soysa, 2011). The authors test for the propagation of women's economic and social rights through trade and FDI. Specifically, it is suggested that the incentive to raise women's rights is stronger where,

⁵International climate affects somehow women's acquisition of political power (Paxton et al., 2006). International exchanges can empower women and girls (Hilary Clinton, 8 March 2011)

⁶See for example the European Womens Lobby (EWL), Iknowpolitics, Equalitynow, Femnet and the International Womens Rights Action Watch Asia Pacific. The full list is available at <http://www.un.org/esa/coordination/ngo/>

⁷The official launch of the European Network of Migrant Women (ENoMW), took place in Brussels in cooperation with the European Economic and Social Committee on 18 June 2010. More than 160 participants were present, including a number of high-level speakers. Representatives from the ENoMW, from a variety of European countries, were also present. The launch was followed by a two-day strategic meeting of the network aimed at reflecting on the achievements and challenges of the network at European and national level until now and devising the way forward.

⁸The phenomenon where policies, standards or similar choices of one unit of analysis depend on the choices of other units of analysis is commonly known as spatial dependence.

⁹One of the main messages of the very recent World Development Report 2012 stresses the role of trade openness has a potential instrument for reducing gender disparities. It is stated that 'In today's globalized world, forces such as trade openness and the spread of cheaper information and communication technologies have the potential to reduce gender disparities by connecting women to markets and economic opportunities, reshaping attitudes and norms among women and men about gender relations, and encouraging countries to promote gender equality. But their impact will be muted without effective domestic public action.'

firstly, major trading partners and secondly, the major source countries for FDI themselves provide strong rights. Economic and social rights are taken from the Cingranelli and Richards'(2009) Human Rights Database. Among the economic rights the 'free choice of profession' as well as 'the equality in hiring and promotion practices' are listed but there is no direct reference to political rights. Nonetheless, the role of other features of globalization such as migration has been not touched.

Our paper is about the propagation of political values through international migration, investigating whether migrants foster source country female political empowerment, affecting the status of women in political life. Research on women's political representation underlines that countries with a high number of women in national parliament tend to be countries where women enjoy a high social or economics status, and cultural norms support women's political participation (Norris, 1977, Jalalzai and Krook, 2010).

It is acknowledged that migrants abroad progressively assimilate in terms of cultural choices (Gordon, 1964). We presume that just as migrants facilitate transfers of knowledge and ideas, they are also likely to transfer cultural and political norms to those left behind (Guarnizo, Haller and Portes, 2003). The possible channels at work through which political ideas and other information are transferred can be the media coverage¹⁰ and other capacity building activities, as well as return or circular migration. Identifying the exact channel through which this transfer occurs is beyond the scope of this paper so we will restrict our analysis to simply address whether some 'transfer of norms' mechanism is in place and its causal direction.

For this purpose, we will consider the recent strand of international migration literature on the 'transfer of norms': the political and cultural externalities brought in favour of the country of origin by international migration. The work on democracy and foreign education by Spilimbergo (2009), and that of fertility and migration by Fargues (2007) and Beine, Docquier and Schiff (2008) will be our main references. According to them migrants act as preferential channel for fostering changes in the home country. In particular, Spilimbergo (2009) shows that foreign-educated individuals promote democracy in their home country, but only if the foreign education is acquired in democratic countries. Fargues (2007) and Beine et al. (2008) apply the same mechanism of migration-induced transfer of behavioral norms to fertility. Fargues' analysis is based on fertility behavior in three source countries, namely Morocco, Turkey and Egypt. Discriminating among destinations' high and low fertility behaviour, he shows that fertility rates in sending countries are affected by the rates prevailing in their migrants' host countries, with rates declining

¹⁰The African Women's Development and Communication Network (FEMNET) for example, produces two bilingual newsletters (in English and French), for FEMNET membership; has a bilingual website which is updated monthly; coordinate consistent engagement and collaborations with the media at local, regional and international spaces.

in case of migrants sent to low fertility destinations and increasing in case of migrants sent to high fertility ones. Beine et al. (2008) extend Fargues’ conclusions using a rigorous econometric model. They provide evidence of a transfer of fertility norms from migrants to their 208 countries of origin.

Our study contributes to the above findings showing that total international migration to countries where the share of female parliamentary seats is higher increased source country female political voice between 1960 and 2000. We construct the ‘norms’ accounting for asymmetries between the parliamentary share in the origin and destination country. We control for endogeneity and reflection problem¹¹ thanks to a system GMM estimation. Finally, we control for selection issues due to female eligibility through a two step Heckman estimation strategy in dynamic panel data.

The remainder of this paper is organized as follows. Section 2 presents the econometric model. Section 3 describes the datasets used to conduct the empirical analysis. Section 4 provides the two estimation methods adopted describing at length two issues: the selection problem and the observed/unobserved heterogeneity. Section 5 shows the empirical results. Finally, Section 6 concludes.

2 The Model

To test for the impact of international migration $MIG_{ij,t-1}$ ¹² on female parliamentary seats at origin ($seats_{i,t}^F$) through a ‘transfer of norms’ mechanism, we use the following dynamic specification:

$$seats_{i,t}^F = \alpha seats_{i,t-1}^F + \beta \sum_j \left[\frac{mig_{ij,t-1}}{pop_{i,t-1}} \times (seats_{j,t-1}^F - seats_{i,t-1}^F) \right] + \sum_{i=1}^n \rho_i R_{i,t} + \mu_i + \varphi_t + \epsilon_{i,t} \quad (1)$$

where:

¹¹See Manski (1993)

¹²The reason why we consider total migration instead of female migration is twofold. First of all, according to the message given in occasion of the 100th International Womens Day by the Director of the Secretariat of the International Strategy for Disaster Reduction (UN/ISDR) Salvano Briceno, ‘Advancing gender perspectives and women’s rights is not just a job for women, more men must advocate at a high level for the empowerment of women, and for the incorporation of gender budgeting into national and local development plans’. Secondly, there is no evidence on whether efforts to improve females’ conditions are just pursued by female migrants. Studying through which ‘gender channel’ the transfer of norms occurs is beyond the scope of this paper and it can be an extension to present work.

- Subscript t refers to the year of interest and goes from 1961 to 2000 (40 years).¹³ Subscript i refers to origin country and subscript j to destination country.¹⁴ The final panel is not balanced¹⁵.
- $seats_{i,t}^F$ represents the female parliamentary share at time t in the country of origin i
- $seats_{i,t-1}^F$ represents the female parliamentary share at time $(t - 1)$ in the country of origin i
- $\left[\frac{mig_{ij,t-1}}{pop_{i,t-1}} \times (seats_{j,t-1}^F - seats_{i,t-1}^F) \right]$ is the ‘norm’ at time $(t - 1)$ through which foreign female parliamentary participation is propagated at origin. Differently to previous works, we multiply the migration rate component $\frac{MIG_{ij,t-1}}{POP_{i,t-1}}$ with the difference between the parliamentary share at destination and that in the country of origin. We expect a positive effect of $(seats_j^F - seats_i^F)$ if $seats_j^F > seats_i^F$. In other terms, the origin country takes advantage from the political environment at destination just if the female political conditions at destination are better than those at origin (we will have instead a ‘negative transfer of norm’ if $seats_j^F < seats_i^F$ and no transfer if $seats_j^F = seats_i^F$).
- $mig_{ij,t-1}$ is the bilateral migration stock from i to j at time $(t - 1)$
- $pop_{i,t-1}$ is the total population at time $(t - 1)$ in country i
- $\sum_{i=1}^n \rho_i R_{i,t}$ contains other traditional covariates of interest. In the baseline model, we control for the female skill ratio in country i at time $t - 1$ computed as the ratio of tertiary educated over illiterate females; the presence of democratic values in the origin country i at time t ; a political variable for the occurrence of legal elections at time t in country i and the nature of country i ’s electoral system at time t . Then in the extended specification, the CEDAW (Convention on the Elimination of all Forms of Discrimination against Women) ratification, GDP and trade data, and female population at time $t - 1$ in country i are accounted for.
- μ_i and φ_t are country of origin and time fixed effects.

¹³ $t - 1$ goes from 1960 to 1999.

¹⁴In our baseline specification, our sample consists in 87 countries. With t equal to 40 and i equal to 87 we can consider our macro panel as a micro one in which N is large and T small. In this case there is no need to test for unit root (see Ch. 12 in Baltagi, B.H. (2008). ‘Econometric Analysis of Panel Data’, John Wiley and Sons, Ltd

¹⁵See Appendix A for the countries’ list and Appendix B for the construction of the norm when some values are missing.

The main references to Eq. (1) are the works by Spilimbergo (2009) and Beine et al. (2008). To determine the impact of students' migration on democracy at origin, Spilimbergo (2009) regresses the index of democracy¹⁶ at time t in country i over the five years' lagged value of democracy in country i , the number of students¹⁷ abroad as a share of total population in the sending country, the average level of democracy in the host countries, and the interaction between the two latter terms. The average level of democracy in the host countries is constructed as the weighted average of the institution in the host countries where the weights are given by the share of students from country i to country j over all students from country i . Beine et al. 2008, also apply the same specification in a cross section setting to assess the impact of migration on source country fertility. The norm is constructed as the interaction between the (log of) fertility rate¹⁸ at destination with the size of the diaspora¹⁹. With respect to previous studies, our norm differs in two aspects. First of all, its weights are given by emigration rates in order to control for collinearity problems and secondly it is able to control for asymmetries between source country and destination's female political empowerment²⁰.

3 Data

3.1 Political Data

Political data come from the database by Paxton, Green and Hughes (2006) titled 'Women in Parliament, 1945-2003: Cross-National Dataset'²¹. This data collection²² provides

¹⁶The author uses three measures of democracy: the Freedom Houses Political Rights Index, which summarizes a number of dimensions, including the existence of free elections, of competitive parties; the composite polity II index from the Polity IV dataset, which combines the Polity's democracy and autocracy indices; and the dichotomous democracy index proposed by Przeworski, Alvarez, Cheibub, and Limongi (1990) and extended by Boix and Rosato (2001). According to this index a country is not considered a democracy unless a political party has lost power.

¹⁷These data are constructed from the cross country student migration database as reported in the UNESCO Statistical Yearbook. The database covers the time period 1950 to 2003 and refers to students migration at the third tier of education (university education and higher).

¹⁸Data on fertility rates are taken from the World Development Indicators. The fertility rate is the average number of children that women have during their lives, from age 15 to age 50.

¹⁹Migration data are from the data set developed by Parsons, Skeldon, Walmsley and Winters (2007)

²⁰See Appendix D for a more detailed description of differences with previous studies. Appendix C contains the description of the 'norm' as constructed in Spilimbergo (2009) as well as estimation results' comparison between the norm in Eq.(1) and the Spilimbergo's one.

²¹<http://www.icpsr.umich.edu>

²²Data Source: CIA World Factbook, CIA World Factbook Web site., Women in Parliaments 1945-1995, Inter-Parliamentary Union, 1995, Inter-Parliamentary Union Statistical Archive, Inter-Parliamentary

yearly information on women’s inclusion in parliamentary bodies in 204 countries from 1945 to 2003. The dataset allows for extensive, large-scale, cross-national investigation of the factors that explain women’s attainment of political power over time and provides comprehensive international and historical information on women in a variety of political positions. Information is provided on female suffrage, the first female member of parliament, yearly percentages of women in parliaments (data refer to the percent of parliamentary female body in the lower or single house of each country’s national legislature), when women reached important representational milestones, such as 10 percent, 20 percent, and 30 percent of a legislature, and when women achieved highly-visible political positions, such as prime minister, president, or head of parliament.

In order to be consistent with migration data, we keep political data from 1960 to 2000. Then, as far the final country list is concerned, the original sample shrinks to 87 from 204 countries²³.

3.2 Migration Data

Migration information rely on a new released bilateral database described in Ozden et al. (2009)²⁴. They provide decennial global matrices of bilateral migrant stocks spanning the period 1960-2000, disaggregated by gender and based primarily on the foreign-born concept. Over one thousand separate census and population register records are combined to construct decennial matrices corresponding to census rounds for the entire period. In doing so, the authors provide for the first time, a complete picture of bilateral global migration over the second half of the twentieth century²⁵.

Since migration data are available by decade while political data contains yearly observations, in order to get annual data so to be consistent with each other, we extended the original migration matrix by interpolation. We interpolated within the decade to get the missing years in between. Accordingly to persistence in migration stocks, we computed the annual rate of growth (assumed to be constant) and apply progressively to each missing year.

Union Statistical Archive Web site., United States Department of State’s Background Notes, United States Department of State’s Background Notes Web site., United Nations Statistics Division, United Nations Statistics Division Web site., The Cingranelli-Richards (CIRI) Human Rights Database (Cingranelli and Richards 2004)., The New Book of World Rankings, 1984.

²³Only 173 countries out of the 204 in the original political data are available in the migration dataset. The final country sample shrinks then to 87 countries in order to be harmonized with all the other data described in subsection 3.3. See Appendix A.

²⁴Ozden, C., C. Parsons, M. Schiff and T. Walmsley (2011), ‘Where on Earth is Everybody? The Evolution of Global Bilateral Migration 1960-2000’, forthcoming in World Bank Economic Review

²⁵See Appendix B for the construction of missing migration data.

3.3 Other Data

Additional explanatories have been collected using the following databases. Data on total and female population, trade as percentage of GDP, GDP per capita are from the World Bank Development Indicators 2008. While female human capital indicators to construct the female skill ratio are from the new released version of Barro and Lee (2010). Barro and Lee's data are available every five years. We made them compatible with the political one (that are yearly data) thanks to the same interpolation technique we dealt with migration missing data²⁶. The indicator for democracy is from the POLITY IV data set while data on legal elections and electoral systems (proportional, majoritarian, mixed and multi-tier) are from Golder (2005). Data on CEDAW (Convention on the Elimination of all Forms of Discrimination against Women) ratification have been collected by ourselves. We construct a dummy variable that changes from 0 to 1 from the year in which the convention has been ratified by the country.²⁷ Religion data to identify countries with more than 80 percent of Muslim population are taken from LaPorta et al.(1999). For the exogenous instruments, data on natural disasters come from the International Disaster Database by the Centre on the Epidemiology of Disasters. EM-DAT contains essential core data on the occurrence and effects of over 18,000 mass disasters in the world from 1900 to present. The database is compiled from various sources, including UN agencies, non-governmental organisations, insurance companies, research institutes and press agencies.²⁸

4 Empirical Methodology

We estimate Eq.(1) adopting two methods. We start using the Blundell and Bond system GMM estimator and we then account for selection using an Heckman strategy applied to dynamic panel data (Jimenez-Martin, 2006 and Jimenez-Martin, Labeaga and Rochina-Barrachina, 2009, and Wooldridge, 2002). We are so able to account for selection issues, observed and unobserved heterogeneity.

²⁶We basically computed a five-yearly growth rate and apply it as constant to each missing human capital yearly observation

²⁷The Convention was opened for signature at the United Nations Headquarters on 1 March 1980. Although the United States never ratified the convention, CEDAW has become the main international legal document on women's rights.

²⁸EM-DAT defines a disaster as a natural situation or event which overwhelms local capacity, necessitating a request for external assistance. For a disaster to be entered into the EM-DAT database at least one of the following criteria must be fulfilled: (1) 10 or more people reported killed; (2) 100 people reported affected; (3) declaration of a state of emergency; or (4) call for international assistance.

4.1 Sample selection issue

The sample selection issue is linked to the nature of political data. In the original Paxton et al.(2006) political database, there are indeed three types of missing values. There are the so called ‘true missing’ (173 observations) due to the fact that the authors could not find positive data, a second type of missing (83 observations) due to coup d’etat, and a third type of missing due to the absence of the Parliament (4781 values). The absence of the Parliament can be due in her turn to several factors: the presence of a dictatorship, ‘false elections’ or the absence of sovereignty, i.e.colonial reasons.

In the original political database the number of zeroes is 1100 values. The authors of the original database do not discriminate between what we could name as ‘true zeroes’ (due to the fact that females are eligible but they have not been voted) and ‘false’ zeroes (due to the fact that females are not eligible yet: they cannot stand for election even if there is a Parliament).

Keeping the political data as they are and estimating directly Eq.(1) with GMM would provide biased estimates because of three reasons. First, the proportion of true missing values, secondly the presence of ‘false’ zeroes and thirdly a possible triple sample selection issue²⁹ linked to missing values due to the lack of Parliament. Concerning ‘true missing’ values, we have transformed them in a historical/political compatible way into either missing values, zeroes or positive observed values using additional political dataset (Armingeon and Careja, 2008)³⁰. Secondly, as far as the zeroes are concerned, we transformed ‘false’ zeroes into missing and keep the ‘true’ ones as they are. Finally, for the selection issue, we set the initial probability in such a way that allows us to specify the initial population of interest³¹. This makes the triple selection issue boiling down into a common sample selection one.

The initial probability is the probability for a woman to ‘*be eligible*’. In other terms, we construct a dummy variable equal to 1 if women are eligible and zero otherwise.

²⁹Following Gibson, J., D. McKenzie, and S. Stillman (2010), ‘ How Important is Selection? Experimental vs Non Experimental Measures of the Income Gains from Migration’, Journal of the European Economic Association, 8(4):913945; and Gibson, J., D. McKenzie, and S. Stillman (2009), ‘The Importance of Selectivity and Duration-Dependent Heterogeneity When Estimating the Impact of Emigration on Incomes and Poverty in Sending Areas: Evidence from the Samoan Quota Migration Lottery’, work in progress, a triple selection issue can arise if we kept the political dataset as it is. The first selection would be linked to the probability for a country of having a Parliament, the second selection consists of the probability that a woman can be elected given the presence of a Parliament. Third, there is the endogenous probability that the share of women elected in the Parliament is positive.

³⁰See Appendix B.

³¹See Wooldridge, 2002 ch17 ‘There is an important general point to remember: sample selection can only be an issue once the population of interest has been carefully specified’.

According to the political data at our disposal, women are eligible in two cases. When the parliamentary share is positive or when it is equal to a ‘true’ zero (i.e. women can be elected but they are not³²). Women are instead not eligible in two cases: first, in case of missing values due to the absence of the Parliament (i.e. coup d’etat, dictatorship war, ‘false elections’, no sovereignty or colonialism) and secondly in case of ‘false’ zeroes (i.e. women cannot be elected because they haven’t got the right to be voted yet). In other terms, under the condition corresponding to the probability for a woman to ‘*be not eligible*’, we reasonably assume that the lack of political right is as if the Parliament were not there. Table 1 describes the composition of the political database before and after the changes we have just mentioned in order to control for selection. The first column refers to the original database which goes from 1945 to 2003, while the second column (which refers to the period 1960-2000) takes into account the changes made by ourselves in order to control for selection.

Table 1: Composition of the political data

	(1945-2003)	(1960-2000)
Total observations	12036	7093
Positive observed values	5801	4274
True missing values	173	27
Missing Values (due to coup d’etat)	83	-
Missing Values (due to absence of Parliament)	4781	-
Missing Values	4864	2327
Zeroes	1100	465

4.2 System GMM without accounting for selection

To estimate Eq.(1), we first use the system GMM estimator (Blundell and Bond, 1998) without accounting for selection. This means that the estimation sample is restricted to cases in which the probability for a woman to ‘*be eligible*’ is equal to 1. This probability is 1 in two cases: if the parliamentary share is higher than 0 or if the parliamentary share is equal to zero because women have the right to be voted but nobody vote for them. As Table 2 shows, there are 4766 cases in which women are eligible and 2327 cases in which they are not. Then concerning the former case, there are 470 cases in which women had the total or partial right to be voted but the parliamentary share is 0 and 4296 cases in which women had the total or partial right to be voted and the parliamentary share is

³²Assuming that there are some women who run for the position when the female parliamentary share is equal to zero. Unfortunately we do not have data on political entry.

higher than 0. ³³

Table 2: Female political eligibility

	Fem. parl. share \geq 0	Fem. parl. share=0	Fem. parl. share $>$ 0
Women are eligible	4766	470	4296
Women are not eligible	2327	-	-

The system GMM estimator combines the regression in differences with the regression in levels in a single system. It allows us to overcome endogeneity issues due to the lagged dependent and other lagged explanatory variables as well as possible reflection problems (Manski, 1993), instrumenting endogenous variables with internal instruments. This estimator includes country-specific fixed effects and it is preferable to a standard fixed-effects estimator since the inclusion of the lagged dependent variable in a fixed effects model would lead to so-called Nickell (1981) bias because the lagged dependent variable is correlated with the error term. In addition, the system GMM is the most appropriate estimator when time series are very persistent as in our case (see Bond et al. (2001)). Using too many instruments can bias the GMM estimation results (Roodman, 2009). We have, therefore, restricted the maximum lag of instruments and collapsed the instrument sets in order to keep the number of instruments lower than the number of groups. ³⁴

As far as reflection issues are concerned, the ‘norm’ can be endogenous because if the equations for each of the countries i of the list were written in a system, the female parliamentary share would appear either as regressand for country i and as regressor within the norm for country $(i + 1)$, $(i + 2)$, etc. In addition to that it can be argued that the relationship between female political empowerment and international migration goes in the other way round through female migration. In other words, international female migration can be seen as a way out of political discrimination. However, even if a significant non-economic literature has examined the relationship between international migration and the empowerment of women, the direction of the causality is still an open issue (Hugo, 2000). It can indeed hinge on many factors, such as the context in which the migration occurs, the type of movement, the characteristics of the female migrants, and last but not least on the definition of empowerment used. In our regressions, the

³³After having merged the political data with the other data, the cases in which ‘women are eligible’ shrink to 1774 (1732) while those for which ‘women are not eligible’ become 978 (677) (if we account for selection). In the first case only 59 cases where parliamentary share is equal to 0 (55 if selection is accounted for.)

³⁴Usually, the system GMM estimator includes separate instruments for each time period. In our case, given the number of time periods we have, we would end up with too many instruments. This is why we collapsed the matrix of instruments.

‘norm’ variable is considered as endogenous and instrumented using from its own second lag onward.

4.3 GMM plus Heckman

The second method to estimate Eq.(1) consists in applying an Heckman strategy to a dynamic panel setting as in Jimenez-Martin, 2006, and Jimenez-Martin and Garcia, 2010. The first step consists in estimating a selection equation with a year-by-year Probit model where the dependent variable is a dummy equal to 1 if women are eligible and 0 otherwise. Then, we compute the inverse Mill’s ratio for each observation in each time period. In the second stage, we estimate with system GMM the initial model (where the female parliamentary share is on the left hand side) on the selected sample, including also the inverse Mills ratio, which controls for the selection bias.

To estimate the selection equation, we need at least one additional exogenous instrument. We have chosen data on natural disasters. The reason is straightforward. The effect of natural disasters can be as strong as those of wars in terms of poverty, dissatisfaction, lack of political stability, but contrary to them, they are heaven sent³⁵. Moreover, Wooldridge (2002, ch. 17, p. 585-587.) suggests we can also plug superior lags of initial covariates³⁶.

5 Estimation Results

5.1 General Results

Table 3 reports estimation results using OLS and system GMM (the most appropriate estimator in this context). Our dependent variable is the share of seats held by women in the lower or single house in national parliament. Column (1) and column (3) report respectively OLS and SYS-GMM estimates from our baseline specification. It contains the lagged female parliamentary share, the lagged index of female parliamentary share (or the ‘norm’) and several control variables. In particular, we consider a measure of female human capital, a measure of democracy, a variable (legal election) which indicates the

³⁵The rationale of the exogenous instrument is to bring the following additional information: what would have been the female parliamentary share in a country where females had have been eligible?

³⁶Under the assumption that the error term in Eq.(1) is not serially correlated, lags of variables are, in principle, valid internal instruments. They can therefore be included as explanatory variables in the selection Probit equation. However, the validity of superior lags as instruments can be indeed due to the non linear nature of the Probit model once it is plugged into a linear one instead of being due to the real exogeneity of the instruments. That’s why an exogenous instrument is strongly recommended.

number of elections to national lower chamber occurred in the year of the same legislature³⁷ and a dummy equal to 1 if the electoral system is proportional.

All the variables in the baseline specification have the expected sign, considering both the estimation methods, and they are stable when adding additional covariates (from column 4 onward). The lagged value of female parliamentary share is positive and significant. The norm is positive and significant, too, implying that total migration is a positive and important channel through which female parliamentary share in the origin country raises.

Female human capital is then positive and statistically significant, meaning that empowerment of women is dependent on decreasing female levels of illiteracy and increasing female education level³⁸. This is a crucial covariate in explaining female political empowerment: women need human and financial capital (gained through education and work experience) to stand for office (Paxton and Kunovich, 2003). As a proxy for female human capital, we generate the ratio between the number of female aged more than 25 years old with tertiary completed education and female with no schooling.

An indicator of democracy is also considered and estimates are in line with the literature. Indicators of democracy measure the general openness of political institutions and combine several aspects such as: the presence of institutions and procedures through which citizens can express effective preferences about alternative policies and leaders; the existence of institutionalized constraints to the exercise of power by the executive power; and the guarantee of civil liberties to all citizens in their daily lives and in acts of political participation. In our data set we consider a composite index (Polity2), that ranges from -10 to + 10, with 10 corresponding to the most democratic set of institutions. The effect of democracy on women's political representation, may be ambiguous. On the one hand, it may be easy for women to be elected in a powerless parliament and in authoritarian system, built on egalitarian ideologies in general, like in the ex-communist countries where the levels of women in national parliaments were high. On the other hand, more democratic countries may favor women's political participation. Polity II is positive and in general slightly significant, indicating that the average level of democracy enhances female political conditions.

³⁷It takes value equal to 1 if one legal election occurs and 0 otherwise. For 8 countries it takes value equal to 2, as two elections were held in the same year.

³⁸Women's workforce participation may also favor women's political participation. We indirectly control for workforce participation through human capital (of course, the two variables are highly correlated). We cannot introduce female labor force participation rate as a control variable, as data are available only from the 80's.

Finally, the election variable is positive and significant as well as the proportional nature of the electoral system. It is recognized in the literature on female parliamentary representation that proportional systems, rather than majority systems, help women to access to the political system (e.g., Paxton et al., 2010, Jalalzai and Krook, 2010, McAllister and Studlar, 2002). Proportional systems make use of multi-member districts, which means that more than one candidate can be elected from a particular district, and often have closed party list, which means that citizens vote for the party lists of candidates rather than individual candidates. Under a list system, parties may feel compelled to nominate women in order to balance the list. Moreover the higher the district magnitude, the greater the probability for a woman to be nominated, if the political party is expecting to win several seats in the district³⁹.

As our measure of female parliamentary share is highly persistent (new elections occur on average every five years, therefore it may happen that some values of parliamentary participation do not change year-by-year), using OLS and SYS-GMM, respectively in column (2) and (4), we also control for the second lagged value of female parliamentary share. The second lag is not statistically significant but what matters is that the sign and the significance of the other covariates do not change.

From columns (5)-(8), other potential traditional explanatory variables are added to the baseline specification. In particular, we consider the CEDAW (Convention on the Elimination of all Forms of Discrimination against Women) ratification, GDP per capita (in log), a trade variable and female population (in log). The CEDAW ratification implies that countries, which ratified the convention, should meet the minimum standards to reach equal women rights. Moreover, the countries involved should regularly provide the measures they have taken to reach this goal. As in True and Mintrom (2001), CEDAW is not significant (column 3) and this can be due to two reasons. First, some countries decide to ratify just because of international visibility with little intention to change gender

³⁹Of course, concerning electoral system characteristics, the introduction of an electoral gender quota may encourage greater representation of women. Unfortunately, we cannot directly control for quotas, as data are available only for the most recent election year (see the Global Database of Quotas for Women at <http://www.quotaproject.org/> by the International Institute for Democracy and Electoral Assistance-IDEA)). However, the rapid diffusion of gender quota across countries has occurred most within the last 15 years. The inclusion of time dummies in our regression should capture the general increase in female representation due to the contemporaneous introduction of gender quotas in political systems. In addition, as many studies find that quotas have the greatest impact in electoral system with closed list and higher district magnitude (see Julalzai and Krook, 2008), controlling for the proportional nature of electoral system means also indirectly controlling for possible positive implementations of gender quotas.

relation, secondly some countries ratify later as a consequence of lack of bureaucratic conditions. In column 4, we control for GDP per capita because development itself matters for women (Burn, 2005). GDP per capita is not statistically significant and this can be due to high correlation with the level of human capital. The same holds for female population, presumably highly correlated with total population in the migration rate. In column 5, we finally control for trade (as a percentage of GDP), because economic integration may also convey cultural norms supporting women's political participation. Our estimate is positive, but not statistically significant, probably because in our regressions migration is also a measure of openness that can act in the same direction⁴⁰.

In the last column, we include all the explanatory variables (except for the second lagged value of female parliamentary share). Our main results do not change.

In all the empirical specifications just mentioned we also include country and time fixed effects, therefore the results are robust to all country-specific time-invariant characteristics which may influence female political representation. They encounter religion (conservative religious ideologies promote a less public role for women. For example, Islamic law is typically proposed as an obstacle to female public activities); colonial history (since a country with a history of colonialism may exhibit slower incorporation of women into the political realm than countries never colonized (Paxton et al., 2006)) and many other unobservable characteristics.

In the SYS GMM estimations, the instruments used in the first differentiated equation are the same as in Arellano-Bond (1991), but the instruments for the equation in level are the lagged differences of the corresponding variables⁴¹. In our specifications, the lagged dependent variable is instrumented using from its own fifth to sixth lag. The reason is straightforward. As on average new elections occur every five years, the fifth and the sixth lags allow us to consider as instruments the parliamentary shares of previous elections (in other terms, this allows us to take into account the political change of each legislature). Our variable of interest, i.e. the lagged index of female parliamentary share, is treated as endogenous and instrumented using from its own second to sixth lag. The legal election variable, the proportional system dummy and the CEDAW variable are considered as

⁴⁰In unreported regressions, we control also for the updated version of Sachs and Warner's trade policy openness indicator of Wacziarg and Welch. Neither in this case, the openness indicator is statistically significant.

⁴¹In order to use these additional instruments, a moment condition for the level equation, which implies that first differences of pre-determined explanatory variables are orthogonal to the country fixed effects, must be satisfied.

exogenous. All the other explanatory variables are considered as pre-determined and instrumented using from their own first to sixth lags. All the instruments are collapsed, in order to avoid instrument proliferation due to the large number of time periods.

We test the validity of moments conditions by using the test of overidentifying restrictions proposed by Sargan and Hansen and by testing the null hypothesis that the error term is not second order serially correlated. Furthermore, we test the validity of the additional moment conditions associated with the level equation using the Hansen difference test for all GMM instruments. The tests confirm the validity of our instruments⁴².

5.2 Results accounting for selection

Table 4 reports estimation results after having controlled for selection. Columns (1) and (2) report estimates from a standard two-step Heckman selection model (in which the inverse mill ratio is derived from a probit estimation on the full sample, and then is added into the model which is estimated by OLS on the selected sample) applied to our baseline specification (both with and without the second lagged value of female parliamentary share). Then, in columns (3) and (4), the same specification is estimated applying the Heckman selection strategy to a SYS-GMM as described in sub-section 4.3.

In the probit model, we consider as regressors the index for democracy (lagged once), the skill ratio for females (lagged twice) and the number of natural disasters which occur in the country⁴³. The first two regressors are internal instruments⁴⁴ used in the SYS-GMM estimation, not correlated with the female parliamentary share, but presumably correlated with the probability for a woman to be eligible and/or to have parliamentary session in the country. The number of natural disasters is used as external instrument. While we do not see any direct correlation with the female parliamentary share, natural disasters are likely to affect the probability for a women to be eligible or, in a broader sense, the probability to have parliamentary session in the country. Natural disasters could indeed affect the likelihood of radical political revolutions⁴⁵. They could increase the risk of violent civil

⁴²A particular concern related to this method is the risk of instrument proliferation. Indeed, if on the one hand the use of the entire set of instruments in a GMM context gives significant efficiency gains, on the other hand, a large collection of instruments could overfit endogenous variables as well as weaken the Hansen test of the instruments' joint validity. The instrument proliferation problem is particularly important in small samples, but unfortunately there is no formal test to detect it, even if a possible rule of thumb is to keep the number of instruments lower than or equal to the number of groups.

⁴³We consider the logarithm of the number of natural disaster plus 1, in order not to lose observations for which natural disasters are zeros.

⁴⁴See Wooldridge, 2002.

⁴⁵It has been argued, for instance, that the 1972's earthquake which devastated Managua in Nicaragua

Table 3: Estimations without selection

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Female parliamentary share (lagged)	0.994*** (0.0172)	0.989*** (0.0177)	0.958*** (0.0796)	0.966*** (0.194)	0.959*** (0.0805)	0.779*** (0.122)	0.970*** (0.0593)	0.946*** (0.0686)	0.852*** (0.0973)
Female parliamentary share (lagged twice)		0.00501 (0.0142)		-0.0110 (0.211)					
Index of female parliamentary share (lagged)	0.795** (0.327)	0.787** (0.328)	2.623*** (0.421)	2.665*** (0.434)	2.644*** (0.433)	1.976*** (0.611)	2.400*** (0.427)	2.585*** (0.489)	1.833*** (0.466)
Skill ratio for females (lagged)	0.00603*** (0.00207)	0.00598*** (0.00208)	0.0142*** (0.00384)	0.0140*** (0.00397)	0.0141*** (0.00383)	0.0137* (0.00816)	0.0129*** (0.00330)	0.0157*** (0.00384)	0.0137*** (0.00431)
Democracy Index	0.0462** (0.0207)	0.0487** (0.0222)	0.239* (0.141)	0.315 (0.240)	0.244* (0.144)	0.187 (0.136)	0.148 (0.125)	0.191* (0.109)	0.0924 (0.112)
Legal election	0.767*** (0.214)	0.768*** (0.218)	0.660*** (0.199)	0.648*** (0.191)	0.656*** (0.198)	0.435 (0.281)	0.777*** (0.178)	0.610** (0.237)	0.655*** (0.217)
Proportional electoral system	0.813*** (0.314)	0.831*** (0.321)	0.972*** (0.314)	1.073*** (0.380)	0.984*** (0.314)	1.244*** (0.419)	0.838*** (0.290)	1.044*** (0.390)	0.947*** (0.337)
CEDAW				-0.458 (0.442)					-0.152 (0.614)
GDP in log (lagged)						1.012 (0.918)			0.493 (0.400)
Trade (lagged)							0.000463 (0.0178)		-0.00134 (0.0103)
Female population in log (lagged)								0.340 (1.137)	-0.185 (0.882)
Country fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year fixed effects									
Observations	1774	1711	1774	1711	1774	1746	1730	1774	1725
R ²	0.939	0.939							
Number of Groups			87	86	87	87	87	87	87
Number of Instruments			65	64	66	72	72	72	87
Arellano-Bond test for AR(2)			0.861	0.945	0.825	0.962	0.823	0.886	0.870
Hansen test p-value			0.288	0.565	0.272	0.304	0.439	0.261	0.508
Difference Hansen test p-value			0.496	0.246	0.495	0.346	0.376	0.254	0.312

* Significant at the 10% level ** 5% level *** 1% level

Robust standard errors in parentheses. Column (1) and (2) OLS estimations. Column (3) and onwards SYS GMM estimations.

conflict (Nel and Righarts, 2008), and foster political changes and/or democratization (see Axelrad, 2011). As countries with poor and less democratic institutions usually suffer more from natural disasters, being less able to manage the situation (Kahn, 2005), natural events can be crucial in showing the weakness of bad governments and therefore be a key factor for catalyzing political change in an authoritarian regime (Axelrad, 2011). In our probit regressions, the frequency of natural disasters statistically increases the probability for a women to be eligible and/or to have a parliament in the country.

After having estimated the Probit model, the inverse Mills ratios have been added into the baseline model as additional regressors. They are negative and statistically significant in all the estimated specifications.⁴⁶

After having controlled for sample selection, we still find that total migration is a positive and significant channel through which female parliamentary share in the country of origin raises. The additional explanatory variables still have the expected sign. The proxy for female human capital variable is positive and significant at 1%. The election variable is positive and significant as well as the proportional nature of the electoral system. Only the indicator of democracy now turns out to be negative, and not statistically significant in the GMM estimations. The AR(2) test, the Hansen test and the difference Hansen test confirm the validity of the instruments used in the SYS-GMM regressions.

5.3 Robustness tests

In order to test for the robustness of our empirical results, we estimate our baseline specification (with and without the second lagged parliamentary share, and controlling for selection) in selected subsamples. First of all, we exclude socialist countries (i.e. countries which belonged to the Iron Curtain) to be sure that their presence does not affect estimation results. In the former communist bloc, indeed, the proportion of women in parliaments was very high, given the fact that these authoritarian systems were built on egalitarian ideologies. After the fall of communism, as parliaments gain real power, the percentage of women representatives in parliaments sharply fell in all European post-communist countries. Table 5 shows that our main results are preserved when excluding socialist countries. Another concern refers to the presence of Sub-Saharan Africa countries. Looking at the Global Gender Gap Index 2010 (Hausmann et al., 2010), which

played a role in the fall of Somoza dictatorship; or that the 1978's earthquake in Iran caused the revolution that occurred just after (see Cavallo et al., 2010).

⁴⁶In Table 4 only the pooled probit is reported. In SYS-GMM estimations, the inverse Mill's ratio is obtained from a year-by-year model of the probability for a women to be eligible. Year-by-year estimations are not reported, but available upon request.

considers how equitably the available income, resources and opportunities are distributed between women and men, Sub-Saharan African countries have the lowest index after Mena countries. Since we do not have Mena countries in our initial sample, we exclude Sub-Saharan African countries. Our results are preserved. Finally, another concern is whether Muslim countries, where women are sometimes prevented from public activities, may affect our results. Countries with more than 80 percent of Muslim population are excluded from our sample.⁴⁷ Again, there is no evidence that heterogeneity plays any role in explaining our results.

⁴⁷We exclude from the sample: Bangladesh, Mali, Niger, Pakistan, Turkey.

Table 4: Heckman Estimation

	(1)	(2)	(3)	(4)
	Fem. parl. share	Fem. parl. share	Fem. parl. share	Fem. parl. share
Female parliamentary share (lagged)	1.001*** (0.00846)	0.997*** (0.0235)	0.988*** (0.0642)	0.828*** (0.139)
Female parliamentary share (lagged twice)		0.00515 (0.0231)		0.176 (0.148)
Index of female parliamentary share (lagged)	0.773*** (0.112)	0.769*** (0.113)	2.204*** (0.414)	2.265*** (0.391)
Skill ratio for females (lagged)	0.00642*** (0.00172)	0.00633*** (0.00174)	0.0141*** (0.00327)	0.0142*** (0.00315)
Democracy index	-0.0755*** (0.0244)	-0.0796*** (0.0252)	-0.0969 (0.103)	-0.132 (0.128)
Legal election	0.793*** (0.124)	0.812*** (0.125)	0.760*** (0.194)	0.712*** (0.163)
Proportional electoral system	0.884*** (0.188)	0.863*** (0.189)	0.918*** (0.308)	0.856*** (0.321)
Inv. Mills ratio	-1.747*** (0.247)	-1.783*** (0.249)	-5.746** (2.477)	-6.096** (2.678)
Country fixed effects		yes	yes	yes
Year fixed effects		yes	yes	yes
Natural disasters (log(1+))		0.327*** (0.0836)	0.337*** (0.0839)	
Democracy index (lagged)		0.205*** (0.00718)	0.206*** (0.00724)	
Skill ratio for females (lagged twice)		-0.00188 (0.00279)	-0.00176 (0.00284)	
Year fixed effects		yes	yes	
Censored Observations	677	677	677	
(Uncensored) Observations	1732	1703	1732	1703
Number of Groups			86	85
Number of Instruments			65	65
Arellano-Bond test for AR(2)			0.914	0.278
Hansen test p-value			0.242	0.676
Difference Hansen test p-value			0.570	0.432

* Significant at the 10% level ** 5% level *** 1% level

Robust standard errors in parentheses. Column (1) and (2) Heckit estimations. Column (3) and (4) SYS GMM estimations with selection. Mills derived from year-by-year Probit.

Table 5: Robustness: Heckman Estimation

	(1)	(2)	(3)	(4)	(5)	(6)
	no Socialist countries	no SSA countries	no Muslim countries			
Female parliamentary share (lagged)	1.013*** (0.0519)	0.543** (0.264)	0.983*** (0.0751)	0.732*** (0.141)	0.996*** (0.0680)	0.877*** (0.136)
Female parliamentary share (lagged twice)		0.478 (0.300)		0.277* (0.158)		0.132 (0.138)
Index of female parliamentary share (lagged)	2.444*** (0.222)	2.458*** (0.235)	2.207*** (0.376)	2.270*** (0.373)	2.256*** (0.384)	2.302*** (0.376)
Skill ratio for females (lagged)	0.0117*** (0.00244)	0.0124*** (0.00248)	0.0142*** (0.00353)	0.0145*** (0.00342)	0.0137*** (0.00310)	0.0139*** (0.00304)
Democracy index	-0.0238 (0.0793)	-0.0594 (0.107)	-0.0728 (0.104)	-0.143 (0.140)	-0.131 (0.131)	-0.162 (0.160)
Legal election	0.967*** (0.172)	0.742*** (0.154)	0.668*** (0.194)	0.603*** (0.153)	0.797*** (0.195)	0.756*** (0.170)
Proportional electoral system	0.660** (0.295)	0.534* (0.292)	0.946*** (0.300)	0.832*** (0.309)	0.925*** (0.314)	0.888*** (0.330)
Inv. Mills ratio	-1.390 (1.444)	-1.702 (1.674)	-5.445** (2.733)	-6.188** (3.065)	-6.616** (2.956)	-6.980** (3.203)
Country fixed effects	yes	yes	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes	yes	yes
Observations	1599	1576	1638	1616	1666	1641
Number of Groups	69	68	73	73	81	80
Number of Instruments	65	65	65	65	65	65
Arellano-Bond test for AR(2)	0.807	0.136	0.984	0.103	0.990	0.363
Hansen test p-value	0.386	0.797	0.259	0.793	0.343	0.722
Difference Hansen test p-value	0.598	0.978	0.728	0.849	0.500	0.505

* Significant at the 10% level ** 5% level *** 1% level

Robust standard errors in parentheses. Different samples SYS GMM estimations with selection. Mills derived from year-by-year Probit.

6 Conclusion

Women make up more than half of the population in the World. Female electorate have globally grown up in the last two decades but yet continue to be under-represented in political decision-making bodies at all levels. The very recent World Development Report 2012 states that gender equality matters for development enhancing productivity, creating a better environment for the next generation and making institutions more representative. In addition to that, there is evidence (Clots-Figueras, 2011; Thomas, 1991) that women in politics improve development outcomes for women themselves, children and families.

The World Bank (2011) wonders whether ‘globalization can help’ in fostering gender equality. In this paper we have partly answered to this providing some evidence on how a globalized outcome such as international migration has contributed to the increase of female parliamentary participation from 1960 to 2000. In other terms, international migrants have acted as ‘informational’ channels able to transfer foreign values, create favourable opportunities, reshape attitudes and create new norms about women in the origin country.

Following the brand new strand of literature on the transfer of norms (see Spilimbergo, 2009; Beine et al. 2008 and Fargues, 2007), we have applied the same mechanism to female political participation. To this end, we estimated a dynamic model in which female access to Parliament depends on traditional covariates plus international migration. The empirics contains three important insights. First of all, the norm (through which foreign female parliamentary participation is propagated at origin) has been constructed in such a way that the origin country takes advantage from the political environment at destination just if the female political conditions at destination are better than those at origin. Secondly, in order to control for selection due to women’s political eligibility, we have estimated our model using an Heckman selection strategy applied to dynamic panel data (Jimenez-Martin, 2006 and Jimenez-Martin, Labeaga and Rochina-Barrachina, 2009, and Wooldridge, 2002). Thirdly, in the first step of the Heckman procedure, an external instrument has been used exploiting the emerging works on natural disasters and political outcomes (Axelrad, 2011).

Results, which are robust to different geopolitical specifications, show that female political emancipation can be accounted as another migration non economic externality suggesting that the launch of domestic public actions can be also supported by the role of active national people from abroad.

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8 Appendix A: Countries'list

We work with 87 countries: Albania, Argentina, Armenia, Australia, Austria, Bangladesh, Belgium, Benin, Bolivia, Brazil, Bulgaria, Canada, Central African Republic, Chile, Colombia, Congo, Costa Rica, Croatia, Cyprus, Czech Republic, Czechoslovakia, Denmark, Dominican Republic, Ecuador, El Salvador, Estonia, Finland, France, Germany, Ghana, Greece, Guatemala, Guyana, Haiti, Honduras, Hungary, India, Indonesia, Ireland, Israel, Italy, Jamaica, Japan, Kyrgyzstan, Latvia, Lithuania, Malawi, Mali, Mauritius, Mexico, Mongolia, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Norway, Pakistan, Panama, Papua New Guinea, Peru, Philippines, Poland, Portugal, Republic of Korea, Republic of Moldova, Romania, Russian Federation, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Thailand, Trinidad and Tobago, Turkey, Uganda, Ukraine, United Kingdom, United States, Uruguay, Venezuela, Zambia.

9 Appendix B: Construction of the norms

In order to construct the ‘norms’ in Equation 1, the final matrix should be perfectly balanced. By final matrix we mean the matrix comprising: migration data (from Ozden et al., 2011), political data (from Paxton et al., 2006), total population (from World Development Indicators 2008).

For migration data, data for Czechoslovakia, the Socialist Federal Republic of Yugoslavia and USSR were not available. We reconstructed missing observations aggregating migration data for the countries belonging to them before the political scission. So for Czechoslovakia before year 1993 (replaced by missing values then), we aggregated data from Czech Republic and Slovakia. For the Socialist Federal Republic of Yugoslavia before year 1992 (replaced by missing values then), we aggregated data from Bosnia and Herzegovina, Croatia, Serbia and Montenegro, Slovenia and the Former Yugoslav Republic of Macedonia. For USSR before year 1991 (replaced by missing values then), we aggregated data from Ukraine, Russian Federation, Uzbekistan, Kazakhstan, Belarus, Azerbaijan, Georgia, Tajikistan, Republic of Moldova, Kyrgyzstan, Lithuania, Turkmenistan, Armenia, Latvia and Estonia. For the 19% of the sample cells (except for missing observations due to the splits we discussed before) which are missing, since the couples concerned do not belong to the main migration routes, we have set these values to 0. For political data, we explained in Appendix A how we dealt with ‘true missing values’, while for the other missing cells (about 31% of the sample) due to political instability, coup d’etat, dictatorship war, presence of ‘false elections’, lack of sovereignty due to colonialism, we have set them to 0 because of lack of Parliament. For total population (3% of the sample) missing values have been replaced using UN data. Missing population data are for: Nauru, Afghanistan 1990-2000, Andorra, Antigua and Barbuda, Comoros, Dominica, Iraq 2000, Kiribati, Kuwait 1992-1994, Liechtenstein, Marshall Islands, Monaco, Palau, Saint Kitts and Nevis, San Marino, Seychelles, Tuvalu. We dropped those countries for which all the time span from 1960 to 2000 was missing. We replaced missing total population cells for the other countries with data from United Nations Population Division. UN Population Data are available every five years. We assumed a constant rate of growth within the five years.

Once we have dealt with missing values in each dataset to make each of them balanced, we have merged the three of them to get the final one. Then the norms have been constructed.

10 Appendix C: Difference with previous studies

The main reference to our empirical specification is the work by Spilimbergo (2009). Following step by step the empirical dynamic specification by Spilimbergo (2009), Eq.(1) becomes:

$$seats_{i,t}^F = \alpha seats_{i,t-1}^F + \beta indexseats_{i,t-1}^F + \gamma migrate_{i,t-1} + \eta inter + \sum_{i=1}^n \rho_i R_{i,t} + \mu_i + \epsilon_{i,t} \quad (2)$$

where:

- $indexseats_{i,t-1}^F = \sum_j \left[\frac{mig_{ij,t-1}}{\sum_i mig_{ij,t-1}} \times (seats_{j,t-1}^F - seats_{i,t-1}^F) \right]$. In Spilimbergo (2009), the exact corresponding variable $indexseats_{i,t-1}^F$ would be constructed as the weighted average of the female parliamentary share in the host countries, e.g. $indexseats_{i,t-1}^F = \sum_j \left(\frac{mig_{ij,t-1}}{\sum_i mig_{ij,t-1}} \times seats_{i,t-1}^F \right)$. Considering the level of female parliamentary shares in destination countries, it would not be possible to take into account of asymmetries between origin and destination countries. With this specification, in fact, the ‘transfer of norm’ is always positive if $seats_{i,t-1}^F$ is greater than 0, independently of the level of female parliamentary shares in origin countries. Considering the difference between female parliamentary shares between destination and origin countries instead, we assume that we will have a ‘positive transfer’ only when migrants are in countries where female political conditions are better, and the transfer will be higher, the greater the difference between the two countries.
- $migrate_{i,t-1}$ is the ratio between $\left(\frac{\sum_i mig_{ij,t-1}}{pop_{i,t-1}} \right)$
- $inter$ is the interaction term and corresponds to $(migrate_{i,t-1} \times indexseats_{i,t-1}^F)$

Eq.(1) and Eq.(2) are symmetric. The only difference consists in the construction of the ‘norm’. In Eq.(2), the average female parliamentary share at destination is computed as:

$$indexseats_{i,t-1}^F = \sum_j \left(\frac{MIG_{ij,t-1}}{\sum_i MIG_{ij,t-1}} \times (seats_{j,t-1}^F - seats_{i,t-1}^F) \right)$$

where the weights are given by emigration shares. In Eq.(1), instead, the weights are just given by emigration rates. In other terms, we substitute $\frac{MIG_{ij,t-1}}{\sum_i MIG_{ij,t-1}}$ with $\frac{MIG_{ij,t-1}}{POP_{i,t-1}}$. So the norm in the benchmark specification becomes as follows:

$$indexseats_{i,t-1}^F = \sum_j \left(\frac{MIG_{ij,t-1}}{POP_{i,t-1}} \times (seats_{j,t-1}^F - seats_{i,t-1}^F) \right)$$

Obviously, due to the different nature of Spilimbergo's norm, Eq.(2) also contains the total migration rate calculated as the ratio between total aggregate migration from country i over total population in country i and the interaction term between the total migration rate and the average index of female political participation at destination.

Table 6 compares estimation results from estimating Eq.(1) and Eq.(2) with System GMM (with and without selection). The first two columns refer to Eq.(1) (as in column (2) of Table 3 and column (4) in Table 4) while the third and the fourth ones refer to Eq.(2). As far as estimation results from Eq.(2) are concerned, the lagged index of female parliamentary share à la Spilimbergo affects the female parliamentary participation at time t but the interaction with migration rate is not significant as in Beine et al. (2008) and sometimes in Spilimbergo (2009). The lack of significance can be due to collinearity since migration rate appears three times as regressor: alone, then it is used as weight in the norm, and as multiplicative term (as migration shares) in the interaction term. Indeed, the collinearity between the interaction term and the migration rate is more than 90%. A way to avoid collinearity is an alternative construction of the norm as in Eq.(1).

Table 6: Alternative specification of the ‘norm’ variable

	(1)	(2)	(3)	(4)
Female parliamentary share (lagged)	0.966*** (0.194)	0.828*** (0.139)	0.926*** (0.169)	0.852*** (0.149)
Female parliamentary share (lagged twice)	-0.0110 (0.211)	0.176 (0.148)	0.177 (0.146)	0.253** (0.115)
Index of female parliamentary share (lagged)	2.665*** (0.434)	2.265*** (0.391)		
Total migration rate (lagged)			10.59* (5.980)	10.88 (7.473)
Index of fem parl share a la Spilimbergo (lagged)			0.247** (0.104)	0.196** (0.0945)
Interaction term a la Spilimbergo (lagged)			-0.136 (0.983)	-1.070 (1.351)
Skill ratio for females (lagged)	0.0140*** (0.00397)	0.0142*** (0.00315)	0.0103*** (0.00362)	0.0102*** (0.00262)
Democracy index	0.315 (0.240)	-0.132 (0.128)	0.141 (0.200)	-0.235 (0.159)
Legal election	0.648*** (0.191)	0.712*** (0.163)	0.648*** (0.169)	0.739*** (0.168)
Proportional electoral system	1.073*** (0.380)	0.856*** (0.321)	0.777** (0.303)	0.672** (0.290)
Inv. Mills ratio		-6.096** (2.678)		-7.725** (3.078)
Country fixed effects	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes
Observations	1711	1703	1711	1703
Number of Groups	86	85	86	85
Number of Instruments	64	65	76	77
Arellano-Bond test for AR(2)	0.945	0.278	0.295	0.0560
Hansen test p-value	0.565	0.676	0.611	0.657
Difference Hansen test p-value	0.246	0.432	0.785	0.649

* Significant at the 10% level ** 5% level *** 1% level
 Robust standard errors in parentheses. Different specification SYS GMM estimation with and without selection. Mills derived from year-by-year Probit.

11 Appendix D: Addressing the ‘true missing’ values in Paxton et al. (2006)

Here is the list of countries which contains true missing values:

- Belarus : data from 1995-1999 are true missing. The missing cells have been complemented by the CPDS II (Armingeon and Careja 2008), which covers 28 post-communist countries for the 1989-2008 period.
- Benin: years 1960, 1961, 1962, 1964 are true missing. Following Benin political and historical information, we transformed true missing values into missing.
- Bhutan: year 1996 is a true missing. It has been replaced with an observed data from IPU (01/1996 elections)
- Bosnia Herzegovina: true missing for 1996-1999. We replaced years 1996-1997 with missing data in accordance with the female parliamentary share in contiguous countries, e.g. Croatia, Serbia and Montenegro. While years 1998-1999 have been complemented by the CPDS II (Armingeon and Careja, 2008), which covers 28 post-communist countries for the 1989-2008 period.
- Cambodia: year 2003 is a true missing. It has been replaced by the observed positive value from IPU, election 07-2003.
- Democratic Republic of the Congo: true missing data for 1992-1993, 2000-2002 and 2003. The average female parliamentary share between years 1991-1994 replace the first missing biennium since data are quite stable. True missing data from 2000-2002 have been transformed into missing because of political instability and civil war. True missing for 2003 has been replaced by data from IPU election 08/2003.
- Democratic Yemen: the country has been dropped because true missing cells exceed the 50%.
- Gambia: data from 1977 to 1981 are true missing. They have been replaced by 0 as women started to stand for election from 1982.
- Guinea: true missing data from 1981-1984 have been transformed into missing for political instability.
- Guyana: true missing from 1964-1967 have been changed into missing because the first parliamentary election occurs in 1968 (from Golder, 2005).

- Kiribati: true missing for year 2003 has been substituted with the observed positive value from IPU , election 05/2003.
- Latvia: true missing values from 1990 to 1992 have been replaced by missing. Latvia starts its sovereignty in 1991. According to Golder and to the Comparative Political Data Set II from Armingeon and Careja (2008) 1993 is the year of the first election after the fall of communist rule.
- Liberia: the country has been dropped because true missing cells exceed the 50%.
- Libya: the country has been dropped because true missing cells exceed the 50%.
- Mali: true missing values from 1988 to 1990 have been replaced by missing because of political instability due to the dictatorship of Moussa Traor, before a coup d'etat.
- Marshall Islands: true missing from 1995-1998 have been replaced by values of the previous (1994) and following (1999) elections which are equal.
- MyanMar : true missing from 1960 to 1963 have been replaced by missing because of political instability. While true missing data for 1985-1987 have been complemented by the average value from previous years.
- Nauru: true missing data from 1992 to 1994 have been replaced by the mean between previous and following years. While true missing for 2003 has been replaced by IPU value for election 05/2003.
- Niger: true missing value for year 1992 has been replaced by missing because of political instability.
- Nigeria: all the true missing values have been replaced by missing because of strong political instability and civil wars.
- Pakistan: true missing values from 1960-1972 have been replaced by missing because of political instability and lack of constitution. While the true missing for year 1996 has been replaced by the 1995's value, (stable data in the 90's).
- Peru: the true missing value for year 2000 has been replaced by the observed data from IPU (election 04-2000).
- Rwanda : true missing data from 1966-1971 have been replaced by missing because of political instability.

- Seychelles: true missing data for the biennium 1991-1992 have replaced by the value belonging to year 1990, because of the historical reasons. In 1977, a coup d'tat ousted the first president of the republic, James Mancham, who was replaced by France Albert René. The 1979 constitution declared a socialist one-party state, which lasted until 1991. The first draft of a new constitution failed to receive the requisite 60 percent of voters in 1992, but an amended version was approved in 1993.
- Sierra Leone: the country has been dropped because true missing cells exceed the 50%.
- South Vietnam, North Vietnam, Vietnam: the countries have been dropped because true missing cells exceed the 50%.
- Sri Lanka: true missing data for year 2000 has been replaced by the average between 1999 and 2001 values.
- Tonga: true missing data for 2002-2003 have been replaced by the observed value of the election 03/2002 from IPU.
- Uganda: true missing values from 1962 to 1965 have been replaced by missing because of political instability.
- Tanzania: true missing from 1965 to 1969 have been replaced by missing because of political instability.
- Vanatu: true missing values for 1995-1997 have been replaced by missing because of political instability.