

# The Representation of Women in National Parliaments: A Cross-national Comparison

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Women's representation in national parliaments is examined using a large cross-national sample. Initially, the article seems to confirm previous findings that the electoral formula and quotas are good predictors for the proportion of women in parliament. In line with some recent contributions, this article finds that the proportion of women in parliament is explicable in terms of culture—particularly attitudes towards women as political leaders. It appears that regional differences reflect differences in attitudes relevant to women's political representation. Drawing on recent developments on gender quotas and insights on the influence of attitudes on gender representation, in this article, quotas and measured attitudes are considered at the same time. Once controlling for regional or cultural differences, the provision of voluntary party quotas does not appear to be significant at the national level. The results are tested for robustness over time, and using a subsample of OECD countries. This article provides further evidence for a strong association between cultural factors and the proportion of women in parliament.

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## Introduction

Despite constituting half the population, in most countries women remain greatly under-represented in positions of power and decision-making, such as in national parliaments. The proportion of women in parliament is of concern because of justice—the view that all humans are of equal worth, and therefore have an equal right to take part in decision-making. The claim for equal representation stands irrespective of whether a greater number of women in parliament leads to a better representation of women's interests. Although a greater number of women in parliament can be regarded as a necessary first step for the representation of women's interests, however these interests are defined. In order to contribute towards the goal of more women in parliament it is necessary

to understand what factors are associated with larger proportions. In this article, the influence of institutional, cultural, and other factors on the proportion of women in national parliaments is examined. The focus in this article is on the macro level, and the analyses are comparative in order to tease out significant patterns. By considering both institutional and cultural aspects, it will be possible to appreciate the effectiveness of gender quotas whilst also catering for directly measured attitudes for the first time. By so doing, this article combines recent developments on gender quotas (Tripp and Kang, 2008; Krook, 2010) with insights on the influence of culture on gender representation (Norris and Inglehart, 2001; Paxton and Kunovich, 2003).

There have been several attempts at explaining the difference in the proportion of female parliamentarians

amongst countries. The role of institutional factors is usually highlighted, but socio-economic aspects affecting the supply of candidates are also frequently considered. Despite recent interest, cultural factors are still less frequently studied than the other two. This is the case, even though many studies recognize the role attitudes towards women in public positions may play, without testing this directly (for example Paxton, 1997; Arcenaux, 2001; Yoon, 2004; Abou-Zeid, 2006). Many studies focus exclusively on Western societies or advanced industrial countries.

Institutional factors, such as the electoral system, are the most common explanation for the variance in the proportion of women in parliament across countries. Almost all studies find the electoral formula to be a good predictor, with proportional representation (PR) systems associated with higher proportions of women in parliament than majoritarian ones (e.g. Darcy, Welch and Clark, 1994; Paxton, 1997; Galligan and Tremblay, 2005). PR systems may lead to higher proportions of women in parliament because of their larger districts, a factor also commonly supported for the representation of women in parliament. Although rarely spelled out, what is at work here is the probability that a vote goes to a woman. Assuming that there are only a few women contenders, the likelihood that a woman is elected is increased where more candidates are picked.

Left-wing parties used to be associated with higher proportions of women, but in recent years, this no longer seems to be the case (Darcy, Welch and Clark, 1994; Matland and Studlar, 1996). In the past, left-wing parties were more likely to include women on their lists, and higher up on party lists. Additionally, quotas for women are generally found to work (Yoon, 2004; Dahlerup, 2006; Tripp and Kang, 2008). Usually, gender quotas take the form of voluntary party quotas. This means that a political party decides to include at least a certain proportion of women candidates, often a value between 20 and 30 per cent. In most cases, these quotas are voluntary commitments, with no further consequences if the target is not achieved (Dahlerup and Freidenvall, 2005).

Socio-economic factors are often suggested as contributing variables, even though the mechanisms involved are perhaps less clear and are rarely spelled out. Probably the supply of qualified women is affected. Socio-economic factors, such as the proportion of women in higher education are thus approximations of the true number of suitably qualified women in the wider population and their willingness to come forward as candidates. Of the possible

measures, women's share in the labour force is often found to be associated with the proportion of women in parliament (Rule, 1981; Norris, 1987; Mateo Diaz, 2005), especially women in professional jobs (Rule, 1987; Rule and Zimmerman, 1994; Paxton and Kunovich, 2003). Educational variables are sometimes used, in particular the proportion of girls in secondary education, although the evidence for such educational variables is mixed (Norris, 1985, 1987). The reason for this may be that educational variables do not incorporate women's participation in public life in general. The proportion of women in professional jobs, in contrast, covers all aspects of supply: qualifications, plus the willingness of women to put themselves forward for public roles of responsibility. Measures of supply may therefore also incorporate cultural aspects that affect the likelihood of candidates coming forward.

There have been different approaches to try to capture the influence of attitudes on the proportion of women in parliament more specifically. Of interest are attitudes akin the concept of sociological liberalism: the general outlook on life, the roles regarded as appropriate for different groups in society, and support for a peaceful coexistence of different groups—often linked to ideas of equality and social justice (Crouch, 1999). One approach is to focus on any of the underlying factors thought to shape attitudes towards women in politics. Regional dummy variables are sometimes used (Moore and Shackman, 1996; Paxton, 1997; Reynolds, 1999). Although not normally spelled out, regional variables may capture cultural differences due to different historical experiences. For example, access to trade routes, relative isolation, or involvement in seafaring can be thought to influence attitudes in a wider sense, and foster a certain degree of open-mindedness (Bystydzienski, 1995; Pettigrew and Tropp, 2006). By focusing on differences between regions, it is not implied that regions or even countries were homogenous, but the intuition is to capture relevant tendencies. Another way is to look at religion, in particular Catholicism (Rule, 1987; Leyenaar, 2004; Kunovich and Paxton, 2005; Norris, 2009). Here, religion is highlighted for its prescriptive views on the role of women in public life. Apart from predominantly Catholic countries, Muslim countries may also be expected as culturally restricting women's access to the public sphere.

A different approach is to look at measured attitudes related to women's position in society (Norris and Inglehart, 2001; Paxton and Kunovich, 2003; Yoon, 2004). The intuition is that these attitudes are influenced by a multitude of factors, including religion, historical differences, or the level of development.

In countries where more positive views towards women in politics are common, women are more likely to come forward as candidates, the elite are more likely to support women candidates, and the electorate are more likely to vote for women standing for election. The few studies that included a direct measure of attitudes towards women in politics all found very strong associations, with more positive views linked to a higher proportion of women in parliament. Because of this direct influence, a direct measure of attitudes towards women in politics is in many ways preferable over measures that capture underlying factors. In this article, I use a direct measure of attitudes towards women in politics where feasible, but I also pay attention to different measures that might approximate attitudes, enabling conclusions for all countries covered.

A number of hypotheses will be tested in this article. To start with institutional factors, there are different aspects of the electoral system that are thought to affect the proportion of women in national parliament. The underlying argument is that systems that are more proportional lead to a higher proportion of women in parliament. The electoral formula is a key factor, influencing the levels of proportionality: *PR systems can be expected to be associated with higher proportions of women in parliament.* The proportionality of the system can also be measured directly such as with the Gallagher index.

Linked to factors of the electoral system is the experience of working within certain parameters. A longer tradition of democratic rule means that there was more time to incorporate demands of women's inclusion in parliament. The intuition is that the involved actors over time learn to effectively deal with such demands. Consequently, *a positive correlation can be expected between the proportion of women in parliament and the age of democracy.* Another suitable approximation could probably be gained by using the time since women's suffrage. In a similar vein, the level of political rights can be understood as an indicator of how well a democracy is established. Political rights facilitate political communication, suggesting that *there is a positive correlation between the level of political rights and the proportion of women in parliament.*

Quotas are another factor considered, and these measures for the inclusion of women are generally implemented on a voluntary basis. Whilst this means that enforcement of such targets may be an issue, it can be assumed that the presence of quotas increases the number of female candidates at least to some extent. Therefore, in places *where parties implement*

*gender quotas, the number of women in parliament can be expected to be higher.* The same is true for countries with statutory quotas.

The supply of suitably qualified candidates is another factor considered. In places where not enough qualified women come forward as candidates, it is impossible to achieve high proportions of women in parliament, even if the elite and voters would support more women in parliament. The potential supply of qualified candidates can be approximated by capturing the share of girls in secondary education, and particularly women's involvement in the labour force. It can be expected that *there is a positive correlation between the proportion of women in the labour force and the proportion of women in parliament.* This is probably particularly the case for women's participation in professional jobs.

Turning to cultural variables, many factors can be expected to affect the proportion of women in parliament in one way or another. The argument is that attitudes towards women in public positions of power and responsibility are shaped by religious, regional, and developmental differences. This effect may be largest in predominantly Catholic and Muslim countries. Somewhat different in nature is the influence of the level of development on attitudes towards women as political leaders, where the shift from industrial to post-industrial countries is highlighted—at the same time a shift to post-material values with a greater concern for women's issues. In each case, the underlying argument is that *where attitudes towards women as political leaders are more positive, the proportion of women in parliament can be expected to be higher.* Attitudes measured directly should lead to better predictions than measures based on underlying factors. This is the case because the different factors influencing attitudes towards women as political leaders are synthesized in a way that is better captured at an immediate stage.

## Data and Methodology

Data on the proportion of women in parliament are taken from the Inter-Parliamentary Union (IPU, 2006), and are as of July 2006. The IPU provides a complete and accurate collection of all parliamentary elections across the world, in each case specifying the proportion of women in parliament. The results reported in this article are substantially unchanged when a measure is used controlling for the proportion of women in the population—the values correlate at a rate of 0.99 ( $P < 0.000$ ).

I focus on the 131 countries classified as *free* and *partly free* by Freedom House (2006), because meaningful and competitive elections are presumed in this article—meaning that presence in parliament is linked to power and involvement in decision-making. In some places this fundamental assumption of justice is violated, such as in repressive regimes (de Rezende Martins, 2004; Baldez, 2006; Matland, 2006). In such countries, the dynamics related to political representation may differ significantly, leading to different factors being associated with higher proportions of women in parliament (Paxton and Kunovich, 2003; Yoon, 2004; Viterna, Fallon and Beckfield, 2008). I circumvent these issues by excluding unfree countries in the empirical analyses, leaving 87 free and 44 partly free countries. In the countries covered, a noticeable variance in the proportion of women in parliament can be observed: between 0 and almost 50 per cent. The distribution is unimodal with a median of 15 per cent. Since partly free countries are included in the analysis, there are a sufficient number of countries in all world regions.

For the institutional factors, established reference works are drawn on, and in most cases, the classifications used are clear. Electoral systems were classified according to their tendency as either PR (PR/MMP, 53 per cent of countries) or majoritarian (Mj/MMM, 47 per cent of countries), following Shugart and Wattenberg (2003). The same substantive results can be achieved with different operationalizations that recognize more categories, such as the common inclusion of mixed systems as a separate category. Data on the presence of quotas are based on the Quota Project (IDEA, 2006), and cross-checked against various other sources, including party websites and handbooks of elections. Quotas are classified into voluntary party quotas, statutory quotas, and reserved seats, as common in the literature. Because of their small number in free and partly free countries, reserved seats cannot be included in the main analyses. Reserved seats for women can be found in Bangladesh, Burundi, Kenya, and Tanzania. Using different operationalizations, such as by considering the size of the quotas, does not change the findings reported in this article. For the direct measure of attitudes, a question from the World Value Survey (2006) is used, asking respondents whether they agree that men make better political leaders than women. This question directly captures the essence of the attitudes in question. This single question leads to a slightly better model fit than scales that incorporate related items.

In the multivariate analyses, I use ordinary least squares regressions, and collinearity between explanatory variables becomes a concern. Some of the variables measure aspects of the electoral system or attitudes towards women as political leaders that are closely related, and in some cases, I have multiple operationalizations available for the same concept. It was therefore necessary to identify key dimensions, which was done on a theoretical basis. For the purposes of this article, the effects of the electoral system can probably be reduced to proportionality. This factor is catered for using the electoral formula. Other measures are sometimes preferred, but ultimately the availability of data clearly favours the use of the electoral formula, to which these other factors are closely related.

In terms of institutional factors, special measures for women are treated separately: voluntary quotas and statutory provisions are factors independent from the electoral formula. All variables addressing cultural aspects are closely associated with each other. In order to maximize the number of cases, regional differences are used. I use a common classification: 22 countries in Western Europe, the United States, Canada, Australia, and New Zealand as one region, 5 Nordic countries, 17 countries in Eastern Europe, 24 in Asia and the Pacific, 7 in the Middle East, 24 sub-Saharan countries, and 32 countries in Latin America and the Caribbean. There is a strong theoretical reason to capture attitudes towards women as political leaders directly. Unfortunately, by doing so, the sample size is reduced significantly, because only 48 of the 131 countries covered in this article include the relevant question in the Word Value Survey. Consequently, the analyses are carried out once with all cases and regions, and once with fewer cases but an immediate variable of relevant attitudes.

The use of regional variables as a measure of attitudes towards women as political leaders can be justified on empirical grounds, because of their explanatory power for attitudes towards women as political leaders. Positive attitudes towards women in politics can be explained statistically with the prevalent religion and whether a country can be classified as post-industrial or not ( $R^2 = 0.69$ ). Institutional variables, the age of democracy, and the level of political rights are not significantly associated with the attitudinal variable ( $P > 0.1$ ). Once adding regional variables, neither religious nor developmental differences remain significant ( $R^2 = 0.85$ ), suggesting that regional differences approximate these two factors. In other words, this analysis suggests a high level of

correlational validity for the classification of regions common in the literature.

In addition, the factors of the age of democracy and political rights are also included in the analyses, on the basis that they may be modifying variables affecting many of the other variables. The age of democracy measures the number of years since democracy was established the last time, and there are 60 new democracies established in the past 20 years. Political rights are operationalized using data from Freedom House (2006). Data on labour-force participation were taken from UN statistics, and there is a range from 17 to 70 per cent of women in professional jobs across free and partly free countries. Both empirically and theoretically, all the identified key dimensions are reasonably independent. For many of the variables, in particular those of the electoral system and the provision of quotas, I also have tried different operationalizations, but the substantive results reported are unaffected. Other variables considered include the age of women's movement, or the level of development, leading to the same substantive results than with the variables used in this article—although with alternative operationalizations coding can be problematic.

## Findings

A noticeable variance in the proportion of women in parliament can be observed between countries in 2006. The inclusion of women more or less in proportion to the population is uncommon. In free and partly free countries, the highest value is achieved in Sweden, with 45 per cent women in parliament. At the same time, however, the complete absence of women is rare. In almost all free and partly free countries, at least one woman is included in parliament. In 2006, the exceptions were Kyrgyzstan, Micronesia, Nauru, Palau, Saint Kitts and Nevis, the Solomon Islands, and Tuvalu. In Kyrgyzstan, two women lost their court case, and parliament was left with no women for the time being. In the Solomon Islands, a number of women stood for parliament, but none of them was elected. A single-member system is sometimes blamed for this absence of women in parliament. The other countries with no women in parliament are all countries with a small population and very small parliaments. A single seat in such small chambers may constitute as much as 7 per cent of all the seats available.

In bivariate analyses, all the hypotheses seem to be supported. Variables measuring aspects of the electoral

system and vote-seat proportionality seem to confirm that systems that are more proportional are associated with a higher proportion of women in parliament ( $P < 0.05$ ). The gender quotas introduced in countries across the world appear to be successful: the number of female representatives is larger in countries where there are quotas relative to countries without ( $P < 0.01$ ). The results are comparable whether the 66 countries with party quotas or the 35 countries with statutory quotas are considered. Similarly, variables of the age of democracy ( $P < 0.000$ ), political rights ( $P < 0.01$ ), labour-force participation ( $P < 0.01$ ), and attitudes towards women as political leaders ( $P < 0.01$ ) are associated with differences in the proportion of women in parliament.

Turning to multivariate analyses, in a first step, the modelling is designed to maximize the number of cases in the analysis. Table 1 outlines the results of three multivariate models. Starting with the electoral formula, additional variables are introduced to increase the model fit. Model 1 includes the electoral formula, variables capturing the presence of gender quotas, as well as considerations of political rights and the age of democracy. Both voluntary party quotas and their statutory counterparts are included. Party quotas tend to be implemented without serious sanctions for non-compliance (Matland, 2006). The percentage of women in parliament is  $\sim 8$  per cent higher in countries with PR systems than in countries with majoritarian systems. The effects of voluntary party quotas are equivalent to  $\sim 1$  per cent more women in parliament ( $P < 0.01$ ), whilst the stronger association of statutory quotas is statistically significant at the 0.1 level. In none of the models are the other factors substantially affected by whether all statutory quotas or only enforced ones are included.

Considering the other variables in the model, the effects of political rights seem negligible ( $P > 0.1$ ). The age of democracy, in contrast, appears to be a significant yet substantially small factor. The unit of the age of democracy is 100 years, since the size of the effect is so small. The results of Model 2 suggest that it takes just over a decade for the number of women in parliament to increase by  $\sim 1$  per cent. Given the low number of female parliamentarians in many countries, this seems a very small effect. The interaction between the age of democracy and the electoral formula is not significant ( $P > 0.1$ ) and does not add to the model fit. In addition, I have also tested various other interaction effects in all the models reported, with no significant results. In particular, no significant interaction could be observed between institutional and cultural factors.



**Table 1** The proportion of women in parliament I

	Model 1			Model 2			Model 3		
	<i>B</i>	<i>SE</i>	<i>P-value</i>	<i>B</i>	<i>SE</i>	<i>P-value</i>	<i>B</i>	<i>SE</i>	<i>P-value</i>
Constant	0.09	0.02	0.000*	0.15	0.03	0.000*	0.15	0.06	0.000*
<i>Electoral formula</i>									
Mj/MMM (base)	—	—	—	—	—	—	—	—	—
PR/MMP	0.08	0.02	0.000*	0.04	0.02	0.003*	0.04	0.02	0.024*
<i>Quotas</i>									
No quotas (base)	—	—	—	—	—	—	—	—	—
Party quotas	0.01	0.01	0.017*	0.01	0.00	0.132	0.01	0.01	0.548
Statutory quotas	0.03	0.02	0.099 <sup>+</sup>	0.04	0.02	0.041*	0.05	0.02	0.035*
Political rights	0.00	0.01	0.362	0.00	0.01	0.481	0.00	0.01	0.873
Age of democracy	0.08	0.02	0.001*	0.03	0.03	0.295	0.02	0.03	0.556
Women in professional Jobs							0.00	0.00	0.754
<i>Attitudes: region</i>									
Western (base) <sup>a</sup>				—	—	—	—	—	—
Nordic				0.13	0.04	0.000*	0.15	0.04	0.001*
Eastern European				−0.04	0.03	0.096 <sup>+</sup>	−0.07	0.04	0.070 <sup>+</sup>
Asia and Pacific				−0.09	0.03	0.001*	−0.11	0.04	0.005*
Middle East <sup>b</sup>				−0.11	0.04	0.003*	−0.10	0.04	0.030*
Sub-Saharan Africa				−0.02	0.03	0.566	−0.03	0.04	0.389
Latin America				−0.03	0.03	0.263	−0.05	0.03	0.116
<i>R</i> <sup>2</sup>			0.39			0.53			0.54

<sup>a</sup>The base category includes Western Europe, the US, Canada, Australia, and New Zealand.

<sup>b</sup>The category Middle East also includes North-African countries.

\* $P < 0.05$ ; <sup>+</sup> $P < 0.1$ .  $N = 131$ .

Model 2 includes a variable that captures attitudes towards women in politics. In order to maintain the full sample, this is approximated by means of regional differences. The predicted effect of having PR rather than a majoritarian system is reduced, but remains statistically significant ( $P < 0.01$ ). Once adding the regional variable, voluntary party quotas no longer seem to make a significant difference ( $P > 0.1$ ), whilst the stricter statutory variant still seems to work ( $P < 0.05$ ). By considering different operationalizations, it is possible to address the fact that not all quotas are equal. For example, the percentage at which quotas are set varies, or not all parties in a country may use quotas. Using different measures of quotas does not change the reported findings substantively.

The factor that is probably affected most by the introduction of regional variables is the age of democracy: Model 2 suggests that the age of democracy has little significant impact. Instead, regional differences seem to matter most. Nordic countries have higher proportions of women in parliament than elsewhere, whilst all other regions have lower proportions of women in parliament compared to the base category of Western Europe, the United States,

Canada, Australia, and New Zealand. Some of these differences are marked and most of them are statistically significant. The inclusion of both free and partly free countries means that there is a significant number of countries in each region ( $N > 5$ ), and the lack of significance of sub-Saharan and Latin American countries is not attributable to a small  $N$ . Differences in the predominant religion of a country are another approach to consider cultural differences. Substituting regional with religious differences in Model 2 leads to a lower model fit ( $R^2 = 0.42$ ), but the differences are all significant ( $P < 0.01$ ).

Trying to cater for the supply of candidates, adding variables on education or labour-force participation does not increase the model fit, and the additional variables are statistically insignificant ( $P > 0.1$ ). This is made visible in Model 3, but the same is the case for subsequent models: it appears that the supply of suitably qualified candidates is a negligible factor. This contrasts with previous studies based on smaller samples or a focus on Western countries only.

Now in a second step, the nature of attitudes towards women in politics is investigated in more detail. It can be expected that attitudes measured

**Table 2** The proportion of women in parliament II

	Model 2 (reduced sample)			Model 4		
	<i>B</i>	SE	<i>P</i> -value	<i>B</i>	SE	<i>P</i> -value
Constant	0.17	0.06	0.000*	0.19	0.04	0.023*
<i>Electoral formula</i>						
Mj/MMM (base)	—	—	—	—	—	—
PR/MMP	0.03	0.03	0.714	0.02	0.03	0.357
<i>Quotas</i>						
No quotas (base)	—	—	—	—	—	—
Party quotas	0.01	0.01	0.201	0.01	0.01	0.336
Statutory quotas	0.04	0.02	0.092 <sup>+</sup>	0.02	0.03	0.751
Political rights	0.00	0.01	0.274	0.01	0.01	0.223
Age of democracy	0.01	0.01	0.116	0.03	0.04	0.485
<i>Attitudes: region</i>						
Western (base)	—	—	—			
Nordic	0.09	0.04	0.037*			
Eastern European	−0.06	0.02	0.001*			
Asia and Pacific	−0.11	0.05	0.000*			
Middle East	−0.16	0.06	0.000*			
Sub-Saharan Africa	0.01	0.01	0.917			
Latin America	−0.05	0.04	0.002*			
Attitudes: women as leader				0.18	0.04	0.000*
<i>R</i> <sup>2</sup>			0.52			0.58

Model 2 is identical to the one used in Table 1, but only includes the cases also used in Model 4. *N* = 48.

\**P* < 0.05; <sup>+</sup>*P* < 0.1.

directly lead to a better model fit. Unfortunately, such considerations result in a reduced sample. Table 2 includes Model 2 with only the countries where data on measured attitudes towards women in politics are available. This smaller sample includes a disproportionate number of Eastern European countries. A key difference is that in the reduced sample, the variable on the electoral system is no longer a significant factor, although the size of the estimated effect remains similar. This difference is due to the sample, because the electoral system is also not a significant variable in Model 2 when restricted to the reduced sample. For all the other variables, substantively the results are the same, with differences being negligibly small. The coefficients for the different regions remain almost unchanged, even though in some cases the number of cases is considerably small in the reduced sample. This means that the results from the smaller sample are likely to apply to all free and partly free countries.

Model 4 differs from Model 2 in that a direct measure of attitudes is used, directly measuring attitudes towards women as political leaders. As such, the link to political representation is closer than with underlying cultural variables, such as the regional differences included in Model 2. The introduction of

this variable not only increases the model fit significantly, but also overrides all the other variables: the estimated effects of the electoral system become smaller when attitudes are considered. The overriding nature of the cultural variable, reflected by standardized coefficients, reflects findings by Paxton and Kunovich (2003). However, here I also consider quotas as an institutional factor, which seem to make no difference when directly controlling for attitudes towards women in political roles (*P* > 0.1). It is not possible to include regional variables and the variable on women as political leaders because of significant collinearity issues.

The variable on liberal attitudes towards women in politics is measured using a 4-point scale, averaged for each country. The scale is centred to ease the interpretation of the other coefficients in the model, and the range across all countries is about 2 points. In a society where the national mean differs from another by 1 point, the proportion of women in parliament is affected by ~18 per cent. In other words, a country where the average position towards women is most liberal is estimated to include about a fifth more female parliamentarians than an average country; a country with least liberal attitudes a fifth fewer women than an average country.

Norris (2004) uses an indirect measure of attitudes towards women as political leaders—the predominant religion of a country—and suggests that institutional factors are more significant than cultural factors, as indicated by the standardized values. Based on Model 2, using regional or religious variables, and Model 4 using a direct measure of attitudes towards women in politics, it appears that the conclusion needs to be reversed (see also Paxton and Kunovich, 2003). With the data used in this article, I am unable to replicate Norris' findings.

Adding the time since women's suffrage to the final model, as did Norris (2004), does not increase the model fit, nor is the variable significant ( $P > 0.1$ ). None of the coefficients in any of the models is significantly affected by this additional variable. Adding regional or religious variables to Model 4—ignoring collinearity issues—does not notably change the coefficients already in the model, and none of the additional variables is significant. This finding disagrees with Paxton and Kunovich (2003) who found that Nordic countries remain significantly different even once considering attitudes towards women. Similarly, a variable that categorizes countries into industrial and post-industrial can be used to replace the age of democracy in Model 4, with no substantial effect on the reported coefficients. This suggests that the variable on the age of democracy to some extent may capture the effects of modernization outlined by Inglehart and Norris (2003). Because of collinearity issues, it is impossible to include both variables at the same time.

The multivariate analyses in the previous paragraphs are based on different samples, and in this section, I address the robustness of the findings in a number of ways. First, using an analysis over time, I further examine the relationship between attitudes and the proportion of women in parliament. Secondly, using a different subsample, I hope to illuminate the effects of sample restriction in Table 2. When capturing changes over time, the availability of data is unfortunately an issue, because relevant questions were only added recently to the World Value Survey. Nonetheless, even when using a smaller timeframe, changes in the proportion of women in parliament over time can be expected to be associated with changes in the key variables. I compare values for 2006 with 1995 for reasons of data availability.

Paxton (1997) also compared changes of the proportion of women in parliament over time. The analysis here, however, differs in a number of ways: rather than relying on proxies, in this section attitudes towards women in politics are measured directly. In addition, I consider the implementation of gender

quotas—probably the most commonly suggested intervention for increasing the proportion of women in parliament. Paxton finds no effect for supply-factors, but suggests that the presence of PR systems and ideology in its wider sense are significant.

In the time studied, there were no major changes in electoral formulas. Evidence from outside the time-span covered in this section—such as the change of formula in New Zealand—casts doubt on the suggestion that the electoral formula on its own is clearly associated with sustained increases in the number of women in parliament. The change to PR in New Zealand in 1996 is associated with an increase of 8 per cent more women in parliament. This is significantly more than the ~3 per cent, by which the proportion grew in preceding elections, beginning in the 1970s. However, the large increase in 1996 could not be sustained: in 2001, the election after the change of electoral formula, no further increase in the proportion of women in parliament could be achieved, and including the most recent elections in 2008, the average increase is still ~3 per cent per election. In other words, the proportion of women in 2008 would have been expected based on the linear trend starting in the 1970s, irrespective of the change in electoral formula. It is therefore difficult to speak of an electoral system effect with any confidence. In France, there was a short trial of PR in 1986, but it did not result in above average gains for women in parliament.

Changes in political rights were operationalized by subtracting the 1995 values of the *Freedom House Index* from those of 2006. Countries that became freer are associated with higher proportions of women in parliament, but not significantly higher than countries that did not ( $P > 0.1$ ). Changes in party quotas were recorded between 1995 and 2006, and changes in the attitudes towards women as political leaders were obtained by comparing the mean values of 2004 and 1995. These are the best matching time points possible with World Value Survey data. Changes in attitudes towards women as political leaders were recorded for 17 countries.

The number of parties introducing quotas in the period considered is relatively small. In most countries there were no changes; in 14 countries one or more parties introduced voluntary gender quotas between 1995 and 2006. Of these, 13 have increased their proportion of women in parliament. The exception is Botswana where two parties introduced gender quotas, but both failed to reach their target (IDEA, 2006). However, the estimated effect of party quotas is small, and there is no significant difference to countries where no party introduced gender quotas ( $P > 0.1$ ).



A different case is Iceland where the number of parties with quotas decreased, whilst the number of women in parliament increased.

In contrast, there is a relatively strong correlation between changes in attitudes and changes in the proportion of women in parliament ( $r=0.46$ ,  $P<0.1$ ). Counter to this correlation, in Bangladesh an increase of women in parliament was achieved by means of reserved seats for women (IDEA, 2006). With the data available, it is impossible to say whether the decreased support for women politicians in the population is linked to the establishment of reserved seats. In the cross-sectional analysis, quotas and reserved seats are not significantly associated with attitudes. Similarly, in the Philippines an all women's party was successfully elected in the period considered, accounting for almost all the changes. In India, a possible backlash in attitudes or party political reasons might have prevented an increase of women in parliament.

Although the evidence is limited, the analysis over time suggests that the findings reported in this article are robust, and that cultural variables are closely associated with the proportion of women in parliament: where attitudes towards women as political leaders become more liberal, the proportion of women in parliament tends to increase. This finding is in line with Paxton (1997), who used religion and other proxies as measures of ideology. In addition, the analysis here fails to find a clear indication that the introduction of quotas is associated with higher proportions of women in parliament.

In line with all the literature considering political culture in one form or another, in this article issues of causal direction cannot be resolved completely (Fuchs, 2007). Whilst a certain degree of reverse causality cannot and should not be ruled out, it seems likely that the main direction of influence is from attitudes to the proportion of women in parliament rather than the other way around. Unsurprisingly, the proportion of women in parliament in 1995 is strongly associated with the proportion of women in parliament in 2006 ( $r=0.88$ ,  $P<0.000$ ). The proportion of women in parliament in 1995 is also associated with positive attitudes towards women in politics in 2006 ( $r=0.73$ ,  $P<0.000$ ). This association, however, does not hold when controlling for the prevalent religion, region, or the level of development. When regressing attitudes towards women in politics in 2006 on regional differences, the level of development, and the proportion of women in parliament in 1995, only the first two variables are significant covariates. This substantive result can be replicated with different model specifications and control variables. The age of

democracy, the level of political rights, the electoral system, and the proportion of women in parliament in 1995 are not significantly associated with attitudes towards women as political leaders in 2006 ( $P>0.1$ ). This casts doubt on the argument that the proportion of women in parliament in the past has a significant impact on present attitudes towards women in politics, at least for the period considered.

In order to cater for possible sampling bias concerning the presence of quotas, I used propensity score matching (Rosenbaum and Rubin, 1983) to address the effectiveness of gender quotas in the cross-sectional analysis. Inglehart and Norris (2003) argue that the propensity of implementing quotas is linked to positive attitudes towards women in power, but no such association can be determined ( $P>0.1$ ). Empirically, the best prediction of the presence of quotas was achieved using the Human Development Index (HDI), political rights, as well as the time since suffrage was gained ( $R^2=0.26$ ). Using propensity score matching, the sample could be improved, but the presence of voluntary quotas remained insignificant. This suggests that voluntary quotas may not be the driving force to more women in parliament, possibly an extra step to reflect advances elsewhere in society (Freidenvall, Dahlerup and Skeje, 2006).

In a different analysis, I tried to address the nature of the reduced sample used when measuring attitudes towards women in politics directly. To this extent, I reran the analyses with a subsample of OECD countries. OECD countries are free and economically developed countries. In the multivariate analysis, the OECD subsample leads to similar results to the main analysis in this article. Replicating Model 1 in Table 1, only the electoral formula and the age of democracy are statistically significant variables ( $P<0.05$ ). Once introducing the regional variables, the age of democracy is no longer significant, in line with the analysis above. Similarly, voluntary gender quotas do not appear to be associated with higher proportions of women in parliament once controlling for regional differences. However, in contrast to the overall analysis, in the OECD subsample the presence of PR systems remains a significant factor even when controlling for attitudes towards women as political leaders ( $P<0.05$ ).

The fact that the electoral formula is a significant factor in the OECD subsample may indicate sampling issues for the reduced sample used in Table 2. However, when excluding Nordic countries from the OECD subsample, the variable on the electoral formula no longer remains significant; and the results reflect those reported in the overall analysis in Table 2.

This suggests that when it comes to the representation of women—apart from the Nordic countries—there appears to be no substantive difference between OECD countries and other free and partly free countries. Results for the electoral formula remain unclear, because in the reduced sample the variable was not significant, despite the sample being reasonably large. The suggestion that new democracies are substantively different because the parliamentary system was set up when gender issues were already salient (Norris, 1987; Leijenaar, 1993) seems unsupported, because, once controlling for regions or attitudes towards women in politics, the variable for the age of democracy is insignificant in all samples considered.

## Discussion

Bivariate associations suggest that all the factors initially identified as contributing variables for the proportion of women in parliament are significant. However, in the multivariate regression analyses, the inclusion of cultural variables leads to a surprising result. Whilst the relationship between attitudes and the proportion of women in parliament may be commonsensical to a certain degree, the size of the effect is surprising. Once considering cultural aspects, the effectiveness of voluntary gender quotas is in doubt: the presence of voluntary party quotas is no longer associated with higher proportions of women in parliament. This lack of association also appeared in the analysis over time: the introduction of quotas is not associated with an increase in the proportion of women in parliament greater than in countries where no quotas were introduced. Given the fact that voluntary gender quotas are a common measure implemented with the aim to address the low proportion of women in parliament, this lack of association between quotas and the proportion of women in parliament is significant for policymakers interested in increasing the number of female representatives.

The robustness of the reported findings was tested in a number of ways, and—once controlling for regional differences or attitudes towards women as political leaders—the effectiveness of unenforced gender quotas became doubtful in each case. The fact that, contrary to many previous studies, the electoral formula was not a significant variable in the final model was explained with sampling issues, although it seems difficult to suggest a systematic effect for the electoral formula. Looking at the subsample of OECD countries, I argued that it is possible that some cultural aspects are erroneously associated with the electoral formula.

For instance, it may be that part of the cultural heritage of Nordic countries becomes associated with the electoral formula. When removing Nordic countries from consideration, no significant differences between countries with PR and majoritarian systems remain in the subsample of OECD countries.

These findings do not affect the overall message of this article that attitudes towards women as political leaders appear to be the key drivers for the proportion of women in parliament. What follows is that studies entirely focusing on institutional factors probably overestimate the effects of the electoral system, in particular the effectiveness of voluntary party quotas. The influence of positive attitudes towards women in politics may also extend to aspects of the supply of suitable candidates. Whilst in the cross-sectional analyses variables on the supply of candidates remained insignificant, it is possible that the supply of potentially suitable candidates—as captured in levels of education or engagement in professional work—is secondary to the aspect of actually coming forward as a candidate. The former clearly is a necessary factor, but given the relatively small number of parliamentary seats in a country, the variables may be too generic. In contrast, a supportive environment—as approached in terms of attitudinal variables—can be understood as dominating in terms of supply. Unfortunately, with the data available, it is impossible to untangle separate effects of supply.

The results do not necessarily mean that quotas fail to work as such; but indicate that their effect may be more cosmetic. Unenforced voluntary gender quotas may merely reflect a society embracing the idea of having more women in politics, an extra assurance rather than jump-starting a process. On the other hand, the introduction of reserved seats—such as in Bangladesh—or other forms of enforced electoral engineering in order to increase the proportion of women in parliament may have an immediate impact (Jacquette, 1997; Norris, 2004), but such changes may lead to backlashes in the population (Ramet, 1997; Dahlerup, 2006). Such backlashes may have a significant impact on the elite: assuming that many politicians are primarily motivated by being re-elected (Downs, 1957; Manin, Przeworski and Stokes, 1999), members of the elite supportive of enforced measures to increase the number of women in parliament may reconsider their actions. It is in their rational interest not to be too much out of step with the demands of the electorate. This means in a country where a female candidate is unlikely to gain more votes than a man, the parties have little incentive to actively encourage women to come forward. In some instances, women

candidates are considered an electoral risk (Rule and Zimmerman, 1994; Norris and Lovenduski, 1995). This means that although the actual implementation of procedures can encourage better representation within parties, it seems that parties are unlikely to make use of this potential beyond what they consider beneficial for electoral success.

In contrast, it appears that trying to change attitudes towards women in politics may be an effective way to approach changes to the proportion of women in parliament in a lasting manner. This factor may be effective because it influences both the supply and demand side: more women coming forward as candidates, as well as an increased possibility that women are selected by the parties and the voters. The examination of changes over time highlighted that changes towards more positive attitudes are associated with higher proportions of women in parliament. In these cases, there are no other obvious causes for the increased proportion of women in parliament—such as reserved seats, or an all women's party. Further research is needed to understand the factors that influence attitudes towards women in politics over time: changes in the level of development, advocacy work, or different variables—such as the role of critical actors highlighted in recent contributions (Childs and Krook, 2006; Curtin, 2008; Mackay, 2008; Murray, 2008).

It is important to bear in mind that voluntary quotas appeared to be ineffective at the national level in free and partly free countries (see also Tripp and Kang, 2008). The analysis does not make claims about the effectiveness of quotas within parties. In order to make claims about the effectiveness of quotas in individual cases, the socio-historical and political context needs to be taken into consideration. Comparisons of the state before and after the introduction of quotas seem to indicate that quotas within parties generally work (Ballington, 1998; Childs, 2000; Yoon, 2004; Dahlerup, 2006), but such simple comparisons do not cater for the possibility that this might be a reflection of changed attitudes. Within parties, there might be threshold effects that make the change in attitudes appear instantaneous. In some places, there are also social-desirability effects, where quotas as such become associated with notions of progress (Baldez, 2006; Sawyer, Tremblay and Trimble, 2006; Schwindt-Bayer and Palmer, 2007).

Kunovich and Paxton (2005) suggested a number of qualitative reasons why quotas are not associated with the proportion of women in parliament at the national level. Of these, the fact that not all parties in a country use quotas, the size of the quotas, or the enforcement

of statutory quotas do not appear to make a difference to the findings outlined. Because of data availability, I was unable to test the compliance with voluntary quotas adequately, and in particular the influence of whether list positions are explicitly stated. Without clear list positions, it is possible that most women candidates end up in unwinnable districts or at the bottom of party lists. This would render quotas ineffective. The analysis in this article thus simply indicates that once cultural variables are taken into consideration, in practice voluntary quotas are not associated with a higher proportion of women in parliament at the national level. Studies that do not consider the role of attitudes in the population may over-estimate the effectiveness of quotas.

Quotas and affirmative action are often suggested to overcome recruitment issues within parties—forcing parties to actively look for suitably qualified aspirants—but without diligent implementation such actions may remain ineffective. In fact, when it comes to the successful implementation of gender quotas, the support for these quotas in the wider population may also play a role (Mueller, 1988; Gray, 2003). Contrasting quota regulations in Argentina and Chile, Gray (2003) argues that broad support for quotas in Argentina ensured a diligent implementation, which in turn led to more women in parliament. In Chile, in contrast, support for quotas in the wider population was largely absent, resulting in unenforced regulation and no significant gain for women in politics. Rather than focusing on the institutional part as Gray does, it may be more appropriate to consider the incentives of the elite and the influence of attitudes on the proportion of women in parliament. Members of the elite may be primarily interested in being re-elected, and will try to reflect attitudes in the population to make them sufficiently popular: in a country where the population do not support a higher proportion of women in parliament, introducing enforced measures would expose the political elite.

At the same time, seemingly unsuccessful and unenforced quotas can be welcomed, because they might be a way to raise awareness of the underrepresentation of women. Taking this approach, the actual implementation of quotas, or the enforcement of voluntary party quotas is no longer a central issue of concern. Instead, the focus is on the discussions about the political integration of different groups in society. Indeed, Bystydziński (1995) argued that discussions about quotas and equality have the largest impact, not the unenforced quotas that are commonplace. In this case, however, quotas could be replaced by a different stimulus to encourage discussions of equality

and justice. Indeed, it appears that the introduction of quotas in itself does not affect attitudes towards women as political leaders. When regressing attitudes at present on attitudes a decade ago, and whether quotas were introduced in the meantime, the introduction of quotas is not significantly associated ( $P > 0.1$ ), whereas attitudes in the past are ( $P < 0.000$ ). This analysis does not capture the discussions about quotas and equality that Bystydziński highlighted, but suggests that the introduction of quotas in itself does not appear to affect attitudes towards women in politics, perhaps because not all introductions of quotas stimulate the same level of political discussion.

Rather than a call against institutional interventions, the argument presented in this article should be understood as highlighting the need of attitudinal changes for a sustainable increase in the proportion of women in parliament. Enforced quotas or other forms of electoral engineering that cannot be sidestepped by changes in electoral behaviour cannot be dismissed as irrelevant. However, it needs to be borne in mind that in order to make such changes sustainable, there is a need for corresponding attitudes. If this is not the case, progressive members of the elite may pay a price at the elections, and there is a risk that the institutional setting changes in the future and the proportion of women in parliament decreases. This means that the elite are most likely to actively influence levels of representation in places where the electorate are either neutral towards an increased inclusion of women in parliament, or assign little importance to demographic representation—meaning that there is little electoral risk for the elite. At the same time, however, it seems that the actions of citizens and parliamentarians are such that they can largely adjust to a given institutional reality. One implication is that backlashes to electoral engineering might be temporarily limited. It seems reasonable to assume that if the institutional setting becomes a real obstacle in a society where there is significant demand for more inclusion, then this demand is translated into changes in the electoral institutions. The opposite—changes in the electoral system directly translating into changes in attitudes towards women as political leaders—does not appear to happen, because values and attitudes are only to a small part shaped by the electoral institutions in place.

## Conclusion

This article examined the factors that are associated with the proportion of women in parliament in free

and partly free countries in 2006. The strong effects of the electoral formula and voluntary gender quotas are reduced once considering regional differences and attitudes towards women as political leaders. Whilst broadly in line with the literature that considers the impact of cultural factors along with institutional ones, the extent to which attitudes towards women in politics proved dominant contrasts with many previous studies. The results suggest that cultural factors dominate in the case of gender representation—particularly attitudes towards women as political leaders. The electoral formula may also play a role, although it cannot account for changes over time. Further research is necessary to resolve the current tension between theory that emphasizes *changes* in attitudes and the common cross-sectional approach due to data availability.

Voluntary gender quotas do not appear to be associated with a higher proportion of women in parliament, particularly when controlling for attitudes directly. This consideration of quotas and attitudes at the same time sets this article apart from previous work capturing attitudes towards women directly and the many previous studies that emphasized electoral institutions. Although they are frequently suggested as a means to increase the number of women in parliament (Ballington, 1998; Childs, 2000; Dahlerup, 2006; Tripp and Kang, 2008), quotas might not be associated with higher proportions of women in parliament because they are not implemented diligently. I argued that the elite are unlikely to force quota regulations in places where the population is averse to such interventions. It would be wrong to dismiss institutional factors, despite the dominance of attitudes towards women in politics as an explanatory factor, since enforced measures—such as reserved seats, or some statutory quotas—clearly work. The findings in this article should be understood as a note of caution for those advocating changes in electoral law in order to increase the proportion of women in parliament: there is insufficient evidence to believe that changes in electoral institutions on their own will work well to boost the representation of women in national parliaments.

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