

# Understanding the Impact of Electoral Systems on Women’s Representation

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The study of electoral systems is a key area of research within political science. In part, the attention paid to electoral systems reflects their importance to democratic political systems. Electoral systems define “what constitutes” a vote, establish “a rule for how votes are totaled,” and create a mechanism for “translating vote share into seat allocations” for representative institutions (Bawn 1993, 966). These roles mean that electoral systems impact not only how interests are represented, but also how accountability is structured.

The central political role of electoral systems has not escaped the attention of scholars seeking to explain women’s legislative representation. A significant number of studies find that majoritarian electoral systems are inimical for women’s representation (e.g., Caul Kittelson and Schwindt Bayer 2012; Matland 1998; Matland and Studlar 1996; Salmond 2006; Schwindt-Bayer and Mishler 2005; Vengroff, Nyiria, and Fugiero 2003). There is a broad consensus in the literature that proportional representation systems create fewer obstacles to women’s representation. The implication of this research is that for those countries wishing to improve women’s representation, the adoption of a more proportional system will increase the number of women elected to the legislature.

The consequences of electoral systems for women’s representation, however, is not unquestioned. Recent studies focusing on the gender consequences of electoral system reform find little evidence that

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electoral system change results in appreciably more women elected to the legislature (Hinojosa and Franceschet 2012; Roberts, Seawright, and Cyr 2013). The conclusion of this research casts doubt on the importance that electoral rules play in deciding the level of women's representation.

This article attempts to push the debate on the gender effects of electoral institutions further by helping us to rethink how we conceive of electoral system effects. I argue that the impact of electoral systems is greatest over the long term, not the short term. The expectation that electoral reform will bring about significant, immediate changes in the number of female legislators is misguided, since electoral institutions create equilibria that often require time to obtain. Using a dataset of 98 countries from 1955 to 2012, I show that while there are modest, short-term effects of electoral system change, the long-term effects of electoral systems are significantly greater.

The article will proceed as follows. First, I examine the existing literature on electoral systems and women's representation. Here I will explain why some scholars believe that electoral systems have such an important impact on women's representation. I will also explain why we should expect that electoral systems will have a long-term effect. Second, I will estimate the influence electoral systems have on women's representation. I use an error-correction model that can model both the short-term and long-term effects of electoral institutions. Finally, I will conclude with the significance of these findings.

## THE IMPACT OF ELECTORAL SYSTEMS ON WOMEN'S REPRESENTATION

Figure 1 plots the average % age of women in the world's democratic legislatures between 1955 and 2012. While it has steadily increased over time, the average, at its height in 2012, was only 20.2%, well short of the % age of women in the population. In addition, the standard deviation around the average, also plotted in Figure 1, remains quite large across this period. Thus, we see substantial variation around the global average across time.

The data presented in Figure 1 raise an important question: why do women remain underrepresented in the world's democratic legislatures? Scholars researching this question have answered it in several different ways. For some, differences in political culture explain variation in women's representation (Inglehart and Norris 2003; Kenworthy and Malami 1999; Norris 1985; Paxton and Hughes 2007; Reynolds 1999; Rule 1987; Tripp and Kang 2008; Yoon 2004). Some countries simply

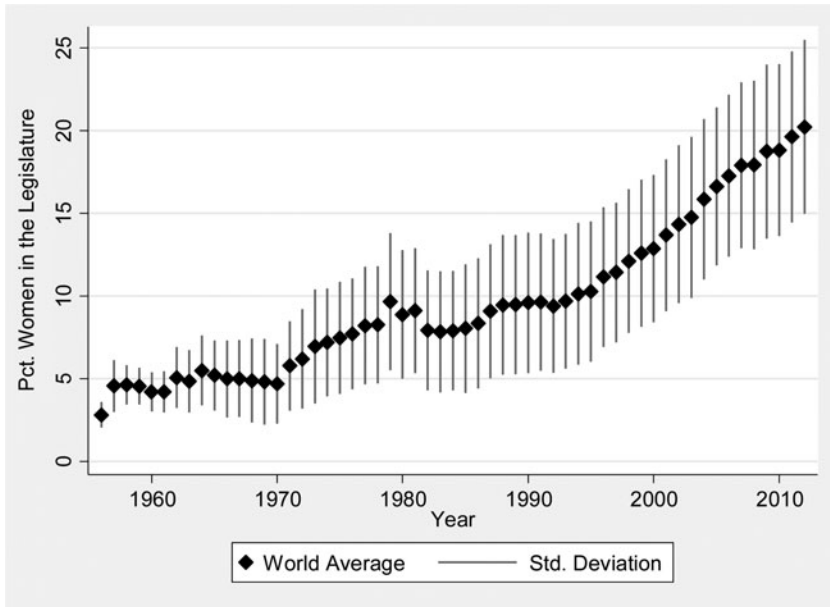


FIGURE 1. Average percentage of women in the legislature, 1955–2012.

have a culture supportive of women's equality, while others maintain traditional, paternalistic cultures that do not encourage gender equality. Others point to differences in levels of female participation in the labor force (Matland 1998; Norris 1985; Rule 1987; Salmond 2006). As women become more active in the job market, they not only gain more resources that enable them to be politically active, but also gain greater insights about the position of women in society, which may also increase their likelihood of political participation. More expansive welfare state policies may also create greater representation for women (Rosenbluth, Salmond, and Thies 2006). Such policies are thought to enable women to participate more in political life. Recent research also demonstrates the importance of gender quotas, which can significantly increase the number of women elected to the legislature (Caul 2001; Caul Kittilson 2006; Krook 2007, 2009; Murray, Krook, and Opello 2012; Thames and Williams 2013; Tripp and Kang 2008).<sup>1</sup>

1. Celis, Krook, and Meier (2011, 517–18) argue that “[g]ender quotas are rarely analyzed as an instance of electoral reform, but clearly entail modifications to election rules by stipulation who may – and may not – stand as a political candidate.” In fact, much of the logic behind the impact of electoral institutions more broadly rests on arguments about how candidates are

Much of the existing research also concludes that differences in electoral systems can explain variation in women's representation. The primary conclusion of the literature on electoral systems and gender is that proportional representation systems, on average, promote women's representation better than others (e.g., Caul Kittelson and Schwindt Bayer 2012; Darcy, Welch, and Clark 1994; Kenworthy and Malami 1999; Lakeman 1976; Matland 1998; Matland and Studlar 1996; Norris 1985; Reynolds 1999; Rule 1987; Salmond 2006; Schwindt-Bayer and Mishler 2005; Thames and Williams 2010; Vengroff, Nyiria, and Fugiero 2003).<sup>2</sup> In these systems, the potential costs for party leaders to nominate women is lower in comparison with majoritarian systems (Darcy, Welch, and Clark 1994; Lakeman 1976; Matland 1998; Salmond 2006). In proportional representation systems, party leaders typically have considerable control over nominations to the list; therefore, they can create a list that includes women without arousing the ire of influential, entrenched incumbents. This adaptability allows them to compete better for the votes of those who want to support female candidates. In fact, research shows that parties in such systems are more likely to adopt gender quotas in order to compete better with other parties adopting similar rules (Thames and Williams 2013). In majoritarian systems, however, parties have weaker control over candidates, meaning party leaders cannot as easily nominate female candidates. Parties in such systems must cater to strong, entrenched interests to maximize seat share; therefore, party leaders cannot balance nominations as freely.

The strong incumbency advantages of majoritarian systems also help explain why such systems fail to elect more women. The main source of this advantage stems from the fact that incumbents seeking reelection in districts can build personal vote coalitions rather than simply rely upon party labels to obtain votes. Voters may support incumbents because of their personal traits such as their ethnicity or their personalities;

nominated for office. The literature on the impact of personal vote systems on women's representation, for example, tests how variation in candidate selection procedures explains variation in number of women elected (Thames and Williams 2010).

2. We differentiate between closed-list proportional representation systems, in which party leaders dictate lists and voters cannot change list orders, and open-list systems, in which voters can "disturb" the list rankings usually through some form of preference votes. The ability of voters to change ranks might undermine women's representation, since women often do not fare well in systems with personal vote incentives (Thames and Williams 2010). The existing literature on whether open-list systems elect women less frequently is mixed (Boric 2005; Górecki and Kukołowicz 2014; Jones 2009; Kunovich 2012).

furthermore, the provision of state resources in the form of “pork” to the district can aid the formation of such coalitions. The ability of incumbents to exploit legislative “perks” (such as travel support, office resources, etc.) can further strengthen incumbents. Because of the incumbent advantage, legislator turnover in majoritarian systems is lower, creating obstacles for the entrance of new, female representatives (Darcy and Choike 1986; Matland and Brown 1992; Studlar and McAllister 1991; Welch and Studlar 1996). This turnover is one of the reasons why proportional representation systems tend to elect more women than do majoritarian systems (Matland 1993). In proportional representation systems, party votes are much more important; therefore, personal vote coalitions are weak or nonexistent. Incumbent personal vote coalitions do not impact party votes substantially, so party leaders can replace incumbents with new candidates — women, for example — without risking vote share. The relative weakness of incumbency advantages in proportional representation systems increases turnover, creating new opportunities for outsider candidates (Andersen and Thorson 1984; Welch and Studlar 1996; Zimmerman and Rule 1998).

Even among parties in similar systems, we do see variation in female nominations by party. For some, this variation is explained by ideology. Ample research suggests that party ideology is a strong predictor of the nomination of female candidates (Caul 1999; Caul Kittilson 2006; Kunovich 2003; Paxton and Kunovich 2003). Often, “left” parties tend to nominate women more than other types of political parties. In addition, some research suggests that parties are more likely to nominate women when women hold critical positions in the party hierarchy. In Canada, Cheng and Tavits (2009) find that women were more likely to run when the local party presidents were women as opposed to men, though this finding may depend on the party (Tremblay and Pelletier 2001). Evidence that male party elites prefer nominating male candidates may also discourage representation (Niven 1998). Other research has found a positive correlation between women’s legislative representation and the number of women in key party positions (Caul 1999; Caul Kittilson 2006).

If the electoral system does, in fact, independently affect women’s legislative representation, then we would expect that changes in the electoral system or electoral reform will lead to changes in the level of women’s representation. If, for example, a country changes from a single-member district plurality system to a closed-list proportional representation system, one would expect that women’s representation

would increase after the change. The current state of the literature remains, however, split on this question. King (2002) uses a quasi-experimental design to test the effect of replacing multimember districts with single-member districts in U.S. state legislative elections. The switch to a less proportional system led to fewer women elected, according to this study. This study makes a similar finding as an earlier one that also found that the switch to single-member districts from multimember districts undermined women's representation (Rule 1994). In case studies of New Zealand and Russia, Caul Kittelson and Schwindt Bayer (2012) reveal that the switch to a more proportional mixed-member majoritarian system increased women's representation.

Other research, however, casts doubt on the impact of electoral reform. Hinojosa and Franceschet (2012) examine the effect of municipal electoral reform in Chile. They discovered that informal rules defining candidate selection were able to reduce the impact of beneficial electoral reforms. The finding raises the possibility that scholars overestimate the positive effect of formal institutions such as electoral systems. Roberts, Seawright, and Cyr (2013) also reports limited evidence that electoral system change increases women's representation, concluding that other factors, such as changes in cultural values, can swamp the impact of electoral systems.

Does the lack of evidence on the impact of electoral reform on women's representation undermine the conclusion that electoral institutions matter? I argue that the failure to find the impact of short-term changes is based on a faulty understanding of how electoral systems affect women's representation and politics more broadly. Typically, studies examining the effect of electoral reform examine changes in a relatively short time frame (e.g., Roberts, Seawright, and Cyr 2013). The logic being that in the election immediately following a reform, we should expect to see an appreciable change in the level of women's representation. This change, in theory, is the result of new electoral incentives created by the electoral rules, all else being equal. Given the extensive literature on the effect of electoral systems on women's representation and more broadly on other political outcomes, the expectation that actors will adapt their strategies seems plausible.

Yet, there is also reason to be skeptical of the expectation that electoral reform will lead to immediate changes in women's representation. Di Virgilio and Reed (2011, 75) argue that "[m]ost generalizations about the effects of electoral systems are correctly framed in terms of statements about equilibrium outcomes. A basic but often-overlooked fact is that it

takes time to reach any equilibrium.” For actors, electoral system change often generates uncertainty over future electoral outcomes (Andrews and Jackman 2005; Donovan 1995; Dunleavy and Margetts 1995; Lehoucq 2000; Rahat 2004, 2008; Remington and Smith 1996; Shvetsova 2003). Given this uncertainty, actors may not immediately understand or react to the incentives created by the new electoral system (Christensen 1998; Crisp and Ingall 2002). In fact, contextual factors such as the nature of social cleavages or party organization may slow adaptation (Jou 2009).

There are several reasons to expect that the transition to a more proportional electoral system will not immediately translate into more female representatives. Party leaders may not immediately comprehend the incentives of the new electoral system and proceed to balance their tickets. Demands for electoral reform can come from many sources, such as the desire to increase seats (e.g., Benoit and Hayden 2004; Benoit and Schiemann 2001; Boix 1999; Brady and Mo 1992; Calvo and Micozzi 2005; Remington and Smith 1996), the desire to influence policy (Bawn 1993), concerns for democracy and fairness (Benoit 2004; Renwick 2010), and even from voters (Tolbert, Smith, and Green 2009). In fact, recent literature often highlights the sheer complexity of electoral reform causes, arguing against the belief that one logic drives reform (Rahat 2008; Rahat and Hazan 2011). The desire to increase women’s representation, however, is rarely, if ever, a primary demand of reformers. The adoption of quotas for female candidates, for example, are examples of electoral reform but are rarely considered as instances of it (Celis, Krook, and Meier 2011). Thus, it is possible that parties may not instantly respond to the new electoral environment. In addition, party actors who previously understood the value of personal vote coalitions may be slow to adapt to a system where they are reduced or are less important. If nominating women was not a priority in the past, parties may lack a significant number of qualified female candidates. In addition, entrenched incumbents may be difficult to replace due to their influence within the party. These incumbents might use their positions to persist, even if party leaders have an incentive to better balance the list.

This logic suggests that we should not necessarily expect political parties to adapt instantly to a new, more proportional system and nominate more women. Instead, it may take several electoral cycles for parties to adapt to the new environment, pushing women’s representation higher, toward the expected long-term equilibrium. If this is the case, then we should expect that the impact of the electoral system should take place over time. Put another way, electoral system effects on women’s

representation may occur primarily over the long term, not the short term. If this is the case, then simply testing the impact of electoral system change may not be the best method to understand how electoral systems affect women's representation. I argue that the greatest impact of electoral systems on women's representation is, in fact, not in the short term, but over the long term.

## ESTIMATING THE IMPACT OF ELECTORAL SYSTEMS

To test my argument, I created an unbalanced, times-series cross-sectional dataset of 98 democratic countries from 1955 to 2012.<sup>3</sup> I code each country year with the percentage of women elected in the lower house of the legislature (Inter-Parliamentary Union 2012; Paxton, Green, and Hughes 2008; Salmond 2006; Thames and Williams 2013). I use the percentage of women elected to the lower house as my dependent variable in all specifications.

Measuring the electoral system and electoral system reform is complicated. Part of the difficulty is that we can operationalize electoral systems in various ways. In fact, there is no one accepted measure for them. For this study, I use four different electoral system measures. First, I create a dummy variable that indicates whether a country used a majoritarian electoral formula (Bormann and Golder 2013). The electoral system literature clearly indicates that these systems elect fewer women in comparison to other systems. A change from a majoritarian system, however, would be toward a more proportional system that should increase women's representation. Several previous studies employed dummy variables to measure the electoral system's effect on women's legislative representation (e.g., Caul 1999; Rosen 2012; Rule 1981, 1987, 1990, 1994; Vengroff, Nyiria, and Fugiero 2003; Yoon 2004). Second, I use the natural log of district magnitude (Bormann and Golder 2013). A number of studies test the effect of the electoral systems on women's representation using district magnitude (e.g., Matland and Brown 1992; Rule 1987; Salmond 2006; Studlar and Welch 1991; Welch and Studlar 1990). As district magnitude increases, so does electoral system proportionality. Consequently, I expect that increases in district magnitude should increase women's representation. Third, I code each country with its overall rank in terms of incentives for

3. Regime-type classification is based on Cheibub, Gandhi, and Vreeland (2009).



personal votes (Johnson and Wallack 2008).<sup>4</sup> Previous research used the personal vote index to test the impact of the electoral system on women's representation (Thames and Williams 2010). The measure includes information concerning electoral rules beyond simply district magnitude. It measures the incentives of individual candidates to build personal, as opposed to party, vote coalitions. I expect that as the system creates greater personal vote incentives, the level of women's representation will decrease. I include a logged version of the personal vote rank variable. Finally, I code each country year with the natural log of the number of seats in the legislature. Previous research finds that women's representation increases as does the number of seats (e.g., Kjaer and Elklit 2014; Salmond 2006). As the number of seats increase, we should expect more women to be elected, since they will have more opportunities.

I selected these measures for several reasons. First, as indicated previously, these four measures have been used by the existing literatures on women's representation. Consequently, I can test the impact of the electoral systems using variables that have been previously shown to affect female legislative representation. Thus, this study builds on the existing literature, framing the analysis around already accepted electoral system measures. Second, the measures used here are often used in the electoral reform literature, with the exception of the personal vote index. In fact, Lijphart (1994) utilizes three of these measures to code electoral reform: district magnitude, electoral rules, and the assembly size. Thus, these measures touch on concepts that fit within the broader electoral reform literature. Finally, by using four, oft-used electoral system variables, I avoid making inferences using only one measure; instead, I can test whether the expected findings are robust across multiple measures of the electoral system. Given the absence of a single, generally accepted measure of electoral system, I argue that using multiple measures of the electoral system is a safer approach for inference.

To measure electoral reform, I simply create a variable that measures the change in each electoral system measure from  $t$  to  $t + 1$ . In each case, a change in the variables reflects a change in characteristics that would impact women's representation. Moving from a majoritarian to a

4. The Johnson and Wallack (2008) personal vote index is based on the personal vote index created by Carey and Shugart (1995). The index is based on three different aspects of electoral system: the level of ballot control by party leaders, the level at which votes are pooled, and for whom voters cast votes. Systems with higher personal vote incentives are those in which party leaders have little control over ballot access, votes are pooled to individual candidates, and voters cast ballots for individual candidates, not parties.

proportional system should increase women's representation. An increase in district magnitude or assembly size should increase women's representation, while a decrease in either measure should reduce women's representation. Decreasing incentives for personal votes should increase the number of women elected to the legislature, while increasing personal vote incentives should decrease women's representation.

I adopt this approach for three reasons. First, this strategy allows me to measure electoral reform or change without arbitrarily classifying its "significance." Many electoral reform scholars concentrate primarily on those reforms considered "major" or "significant" (e.g., Golder 2005; Lijphart 1994; Roberts, Seawright, and Cyr 2013). Lijphart (1994) defines major electoral reforms as those that change the electoral formula or at least 20% of district magnitude, the electoral threshold, or the assembly size. Such reforms would result in significant changes to electoral dynamics, indicating the weight of the reform. Yet, the focus on only "major" reforms obscures the potential important impact of more minor reforms. Jacobs and Leyenaar (2011) presented a more detailed typology of electoral reform that posits five dimensions of reform: proportionality, level of election, inclusiveness of election, ballot structure, and electoral procedures. In this formulation, electoral reform includes such issues as the expansion of the franchise (inclusiveness) and the electoral system used to select the head of government (election level). The authors go further to suggest these reforms have different levels of impact. Major reforms, such as a more than 20% increase in inclusiveness or a change of the electoral formula, do occur; however, minor reforms, such as a change in the district magnitude of less than 20%, and technical reforms, such as a less than 1% change in district magnitude, also occur.

Second, this strategy avoids the arbitrary standard employed to measure the significance of change used in much of the existing electoral reform literature. It is not obvious why a 20% change in district magnitude, for example, is a "major" electoral system change, while a 19% change in district magnitude is only a "minor" reform. The decision, therefore, that a major reform requires a 20% change in district magnitude is, at best, an arbitrary standard. Given that we have alternatives to this arbitrary standard, I prefer to use electoral reform measures that are not based on one.

Finally, creating categorical variables from continuous measures such as district magnitude or seat share tosses out valuable information that we can use to produce better results. If, for example, we categorized electoral

reform into major and minor categories, both a 40% change in seat share and a 20% change in seat share are categorized as major reforms. We cannot, with this example, distinguish between the impacts of a 40% and 20% change. Essentially, categorizing reform in this way removes information that we could use to produce better, more robust results. The logic of the argument linking seat share to women's representation, after all, suggests that a 40% increase in seat share should increase women's representation more than would a 20% increase. This difference can only be tested by using a continuous measure.

I include several variables to control for additional factors associated with women's legislative representation. First, the existing literature posits a relationship between female labor force participation and representation. Women's participation in the labor force is thought to grant women greater resources, enabling them to participate politically more easily as well as raising their consciousness about political issues, further enabling participation. Second, I include the number of years since women's suffrage. Countries that allow women to vote earlier, may be more likely to elect female legislators (Kenworthy and Malami 1999; Moore and Shackman 1996; Tripp and Kang 2008; Wolbrecht and Campbell 2007). Third, I also include a measure of democracy taken from Pemstein, Meserve, and Melton (2010). While the dataset does include only democracies as defined by Bormann and Golder (2013), there is still significant variation in the level of democracy within the sample. Thus, I include the median for each country year for the democracy measure from the Unified Democracy Score database.

I also include two variables to control for the impact of gender quotas. Typically, quotas fall into two broad categories: Party quotas are adopted by individual political parties that require parties to nominate a certain number of female candidates. In some systems, such quotas require parties to organize the list by gender, ensuring that women are not simply relegated to low list positions. National quotas, either in the form of mandatory nomination quotas for parties or reserved seats for women, are adopted by individual countries. While more rare than party quotas, national quotas are often more effective, since they affect a broader number of actors in the system (Thames and Williams 2013).

Table 1 contains the descriptive statistics for all variables. For my analysis, I estimate error correction models using Prais-Winsten regression with panel-corrected standard errors and an AR(1) correction (De Boef and Keele 2008; Goodhart and Xenias 2012). Error correction models provide three advantages for estimating the effect of electoral

Table 1. Descriptive statistics

<i>Variable</i>	<i>Mean</i>	<i>St. Deviation</i>
Pct. women	12.401	9.708
Female labor force participation	49.712	12.365
Years since suffrage	53.297	21.085
N of quota parties	0.580	1.125
Seats	214.111	166.488
District magnitude	10.937	32.695
Personal vote rank	17.485	12.510
Democracy	0.991	0.570
National quota	0.133	0.339
Majoritarian reform	0.002	0.050

systems on women's representation. First, data that trend over time are often nonstationary. In nonstationary series, parameters, such as means or variances, trend over time. Most time-series models assume stationarity, however. In this analysis, many of the data series employed in the regression models, such as the percentage of women in the legislature, female labor force participation, and so forth, often trend over time. To test for evidence of nonstationarity, I used augmented Dickey-Fuller tests for panel data.<sup>5</sup> I found evidence of nonstationarity across all of the main, continuous independent variables used in this study. Error correction models deal with nonstationarity by modeling the first difference of the dependent variable (De Boef and Keele 2008). Thus, in all specifications I model the change in women's representation from one year to the next.

Second, time-series models often suffer from cointegration. Cointegration occurs when two variables contain common stochastic trends. Error correction models can model cointegrated variables. To check for cointegration, I ran Westerlund error-correction panel cointegration tests on all specifications and found evidence that the model variables were, indeed, cointegrated.<sup>6</sup>

Finally, by using a "dynamic specification," I can test both the short-term and long-term effects of the covariates on women's representation (De Boef and Keele 2008, 191). For understanding electoral systems, this is particularly important. First, I can estimate the immediate impact of

5. The tests were run using the `xtunitroot` command in Stata 13.1 (StataCorp 2013).

6. The tests were run in Stata 13.1 using the `xtwest` package (Persyn and Westerlund 2008; StataCorp 2013; Westerlund 2007).

electoral reform in the current time period,  $t$ . This is the short-term effect of changing the electoral system. Second, I can estimate the long-run effects of covariates on the equilibrium level of women's representation. This particular error correction model specification can tell us whether differences in electoral systems, and other covariates, can increase or decrease this long-run equilibrium.

Typically, error correction models take the following form:

$$\Delta Y_t = \alpha_0 + \beta_1 \Delta X_t + \rho(Y_{t-1} - \gamma_1 X_{t-1}) + \varepsilon_t$$

By taking the first difference of the dependent variable,  $\Delta Y_t$ , we create a stationary variable. The  $\beta_1$  coefficient measures the impact of a one-time change in  $X_t$  on the change in  $Y_t$ . Thus, I can estimate how changes in the independent variables at time  $t$  will affect the change in women's representation at time  $t$ . For the electoral system variables, I can, therefore, estimate the impact of changing the electoral system at time  $t$  on the change in women's representation ( $\Delta Y_t$ ). If electoral system reform has an immediate effect, then we would expect the  $\beta$  coefficients of the electoral system change variables to be statistically and substantively significant.

To measure the long-term impact of a variable, we first estimate the error correction coefficient  $\rho$ . The  $\rho$  coefficient is the coefficient of the lagged dependent variable,  $Y_{t-1}$ . It measures the "error" between the actual and expected levels of women's representation. A statistically significant  $\rho$  indicates the existence of an error correction relationship, which provides justification for using an error correction model. The  $\rho$  coefficient expresses the speed of adjustment to changes in the long-term equilibrium created by changes in the values of the lagged independent variables. A large  $\rho$  indicates that annual changes in women's representation react quickly to changes in the covariates, while a small  $\rho$  indicates that annual changes in women's representation react slowly to changes in the covariates.

We measure the impact of a change in the values of an individual covariate  $X$  on the long-term equilibrium of  $Y$  by calculating the  $\gamma_1$  coefficient on the lagged value of  $X$  ( $X_{t-1}$ ). The  $\gamma$  parameter represents the long-term impact of the independent variables on the equilibrium level of the dependent variable. Positive values of  $\gamma_1$  indicate that as  $X_{t-1}$  increases, a new higher long-term equilibrium will be established. Negative values indicate that as the variable increases, a new lower long-term equilibrium will be established. The model does not estimate  $\gamma$

directly. I calculate  $\gamma$  using the formula  $\hat{\gamma}_i = \frac{\hat{\beta}_i}{\hat{\rho}}$  (Goodhart and Xenias 2012). The table of results below presents these transformations for the lagged independent variables.<sup>7</sup>

## RESULTS

Tables 2 and 3 contain the results of four error correction models, each using a separate measure of the electoral system: the majoritarian system dummy variable (Model 1), the log of district magnitude (Model 2), the log of the personal vote rank (Model 3), and the log of legislative seats (Model 4) variables. Table 2 presents the results of the long-term effects (the  $\rho$  and  $\gamma$  parameters) for all four electoral system variables and the control variables. Table 3 contains the results of the short-term effects (the  $\beta$  coefficients) for all variables and the model statistics.

In all specifications (see Table 2), the error correcting  $\rho$  is statistically significant, indicating the presence of an error correction relationship in which changes in the lagged covariates lead to changes in the long-run equilibrium level of women's representation. The coefficient varies between  $-0.04$  and  $-0.053$  in all models, indicating that changes in the covariates lead to relatively small yearly changes in women's representation. Consequently, the long-term effects of electoral system changes may only be realized after 10 years, in most cases, meaning several electoral cycles.

We have evidence of an error correction mechanism; moreover, we have evidence that electoral systems are long-term factors that impact the women's representation (see Table 2). The majoritarian  $\gamma$  parameter is statistically significant and negatively correlated with women's legislative representation. Majoritarian systems, over the long term, lower women's representation by just more than 5% in comparison with other systems. Greater levels of district magnitude increase women's representation. In the model, the parameter is statistically significant. A 1% increase in district magnitude increase women's representation by just more than 2%. We also find evidence that those systems with strong personal vote incentives reduce women's representation. The log of personal vote rank is statistically significant and shows that a 1% increase in personal vote

7. The tables present coefficient ratios. I follow De Boef and Keele (2008) and estimate the variance of a ratio coefficient to calculate the standard errors.

Table 2. Model results: long-term effect

Independent Variable	Model 1		Model 2		Model 3		Model 4	
	$\gamma$ , (p.c.s.e.)	p-value	$\gamma$ , (p.c.s.e.)	p-value	$\gamma$ , (p.c.s.e.)	p-value	$\gamma$ , (p.c.s.e.)	p-value
Majoritarian system <sub>t-1</sub>	-0.051 (0.021)	0.015						
Log district mag <sub>t-1</sub>			0.022 (0.008)	0.010				
Log personal vote rank <sub>t-1</sub>					-0.032 (0.012)	0.006		
Log seats <sub>t-1</sub>							-0.012 (0.012)	0.332
Yrs. since suffrage <sub>t-1</sub>	0.002 (0.000)	0.000	0.002 (0.000)	0.000	0.002 (0.000)	0.000	0.002 (0.000)	0.000
Female labor force <sub>t-1</sub>	0.003 (0.001)	0.004	0.002 (0.001)	0.011	0.002 (0.001)	0.026	0.002 (0.001)	0.035
Democracy <sub>t-1</sub>	0.070 (0.022)	0.002	0.066 (0.023)	0.004	0.110 (0.029)	0.000	0.077 (0.023)	0.001
National quota <sub>t-1</sub>	0.207 (0.057)	0.000	0.216 (0.057)	0.000	0.207 (0.059)	0.000	0.215 (0.059)	0.000
N. quota parties <sub>t-1</sub>	0.030 (0.011)	0.006	0.028 (0.010)	0.008	0.016 (0.011)	0.153	0.036 (0.011)	0.001
Error correcting $\rho$	-0.040 (0.010)	0.000	-0.040 (0.010)	0.000	-0.053 (0.014)	0.000	-0.040 (0.010)	0.000

Table 3. Model results: Long-term effects

Independent variable	Model 1		Model 2		Model 3		Model 4	
	<i>b</i> , (p.c.s.e.)	<i>p</i> -value	<i>b</i> , (p.c.s.e.)	<i>p</i> -value	<i>b</i> , (p.c.s.e.)	<i>p</i> -value	<i>b</i> , (p.c.s.e.)	<i>p</i> -value
Δ Majoritarian system	0.030 (0.006)	0.000						
Δ Log district mag.			0.009 (0.002)	0.000				
Δ Log personal vote rank					0.000 (0.004)	0.965		
Δ Log seats							0.083 (0.013)	0.000
Δ Years since suff.	-0.003 (0.004)	0.547	0.013 (0.002)	0.000	0.011 (0.001)	0.000	0.014 (0.002)	0.000
Δ Female labor force	0.0002 (0.0001)	0.056	0.0003 (0.0001)	0.044	0.0003 (0.0003)	0.327	0.0002 (0.0001)	0.057
Δ Democracy	0.006 (0.003)	0.037	0.006 (0.003)	0.022	0.008 (0.005)	0.080	0.006 (0.003)	0.022
Δ National quota	0.002 (0.005)	0.681	0.005 (0.005)	0.272	0.000 (0.006)	0.942	0.005 (0.005)	0.326
Δ # of quota parties	0.009 (0.002)	0.000	0.009 (0.002)	0.000	0.007 (0.003)	0.008	0.009 (0.002)	0.000
Intercept	-0.002 (0.004)	0.718	-0.018 (0.003)	0.000	-0.016 (0.004)	0.000	-0.015 (0.004)	0.000
Wald $\chi^2$	91.517	0.000	145.885	0.000	353.022	0.000	159.066	0.000
R <sup>2</sup>	0.042	0.069	0.063	0.075				
# of countries	98	98	84	98				
# of cases		2719		2725		1487		2725



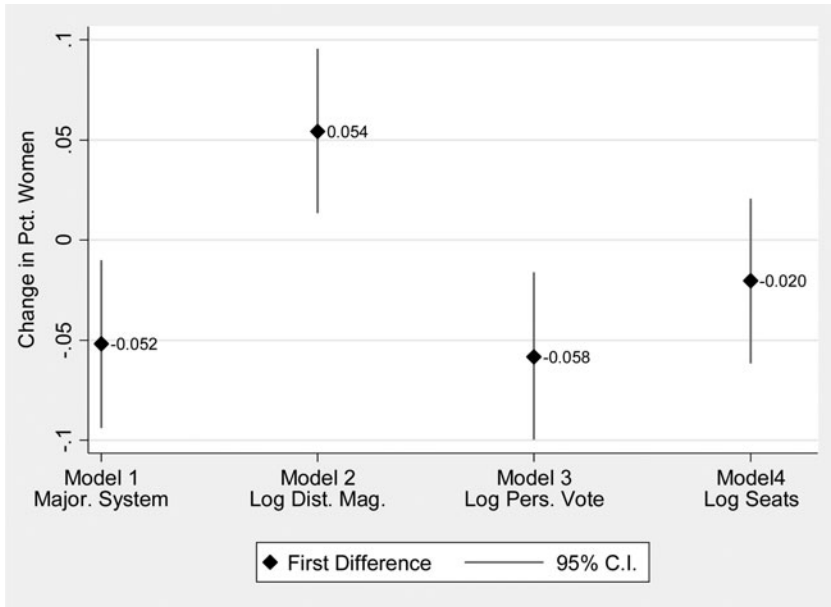


FIGURE 2. Long-term impacts of electoral systems.

ranking decreases women’s representation by 3.2%. There does not appear to be, however, a statistically significant relationship between the log of seats and women’s representation in the long term.

To better address the substantive effect of electoral systems on the long-term equilibrium of women’s representation, I used Monte Carlo simulations to calculate expected values, first differences, and 95% confidence intervals for changes in the four main electoral system variables. I plot the results of the long-term effects in Figure 2. In all estimations, I set the values of the control variables at their means. I set the short-term change values at 0. For Model 1, I plot the first difference of increasing the majoritarian variable from 0 to 1. For the remaining three models, I plot the difference of increasing the variable from one standard deviation below its mean to one standard deviation above its mean.

The results of the simulations demonstrate the substantive long-term impact of electoral systems. In the long term, majoritarian systems reduce women’s representation by 5.2% (Model 1). If we increase district magnitude from one standard deviation below its mean to one above, we see a 5.4% increase in women’s representation (Model 2). We observe a

significant decrease in women's representation by increasing personal vote incentives (Model 3). Based on this simulation, we would expect women's representation to fall by nearly 6%. The simulation for the long-term effect of a change in seats (Model 4) does show an expected increase in women's representation if we increase seats; however, as in the case of the parameter estimate, the first difference of the expected value is not statistically significant.

Table 3 contains the results of the short term, immediate impact of electoral system reform. Again, we find that electoral systems do affect the level of women's representation, even in the short term. The majoritarian system variable here represents the change from a majoritarian system to a more proportional system. The change produces an immediate, statistically significant 3% increase in women's representation in the next year. For the log of district magnitude, we see a similar, statistically significant effect. A one% increase in the log of district magnitude increases women's representation by just less than 1%. We do not, however, find a statistically significant effect for a change in the log of personal vote rank. Lastly, we find a statistically significant increase in women's representation associated with an increase in the number of seats. A 1% increase in seats increases women's representation by just more than 8% in the following year.

Figure 3 plots the simulated first differences and 95% confidence intervals generated using the methods indicated above. To simulate the impact of changing the electoral rule, I differenced the expected values of one simulation with the long-term majoritarian variable set to 0 and the change variable set to 0 from one where the long-term variable is set to 0 and the change to one. This increased women's representation by 3% (Model 1). I also simulated a change in the log of district magnitude (Model 2). The long-term value was set to 0, which represents a majoritarian system with a magnitude of 1, while the change variable was set to simulate an increase of one standard deviation in the log of district magnitude. This increased women's representation by just more than 1%. We find no simulated impact for a change in the log of personal vote rank. While the number of seats did not have a long-term impact on women's representation, it does appear to have had a short-term one. If I set the long-term value at the mean of the log of seats and then difference a one standard deviation increase in the log of seats, I find a 7% immediate increase in women's representation.

The results of the control variables are relatively straightforward and consistent across all specifications. If we examine the long-term effects

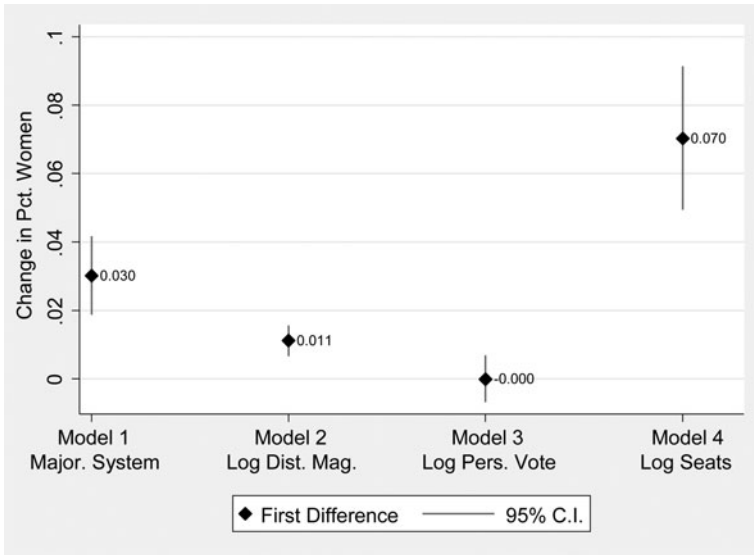


FIGURE 3. Short-term impacts of electoral systems

(Table 2), we find just this. The number of years since suffrage variable is statistically significant and positively correlated with women’s representation across all specifications. A one year increase is associated with a 0.2% increase in the percentage of women in the legislature over the long term. I also find a statistically significant, positive correlation between female labor force participation and the percentage of women in the legislature. Increasing labor force participation by 1% increased women’s representation by between 0.2 and 0.3% across the different models. The Unified Democracy Score median is also statistically significant and positively correlated with women’s representation. The magnitude fluctuates between a 6 and 11% increase in representation for a one unit increase in democracy. This finding is interesting since the variable is measuring differences between a set of democratic countries. National quotas improve women’s representation in all specifications. The effect is around 20% in all cases. Thus, a national quota substantially increases women’s representation. Finally, with the exception of model 3, we see a statistically significant impact of then number of quota parties; a one party increase results in 2.8 to 3.6% increase in representation.

There is weaker evidence of short-term effects of the control variables (see Table 3). The variable measuring the number of years since suffrage

is statistically significant and positively correlated in three of the models. The impact of a one unit increase is around 1% for each one-year change. The female labor force participation variable is also statistically significant and positively correlated in 3 of 4 models. The impact of a 1% change is, however, small — between 0.2 and 0.3% across the models. There appears to be a short-term effect for a change in the level of democracy. The positive impact does vary, between 0.6 and 0.8% for a one unit increase in democracy. Interestingly, the adoption of a national quota does not have a short-term impact. The variable is not statistically significant in any specification. This may reflect the fact that quotas may be adopted in periods more than a year before the next election. The addition of a quota party does have an impact. Increasing by one party leads to a 0.7 to 0.9 increase in women's representation across the different models.

## DISCUSSION OF RESULTS AND CONCLUSION

Explaining women's legislative underrepresentation remains an important question for gender scholars. The existing research points to a number of determinants of underrepresentation — from socioeconomic factors to cultural explanations. My goal has been to help readers understand better the role of electoral systems in determining the number of women elected to democratic legislatures. Recent research on the gender consequences of electoral system change or reform raised questions about the true influence of electoral systems on women's representation. In this article, I argued that the greatest impact of the electoral system on women's representation will be felt over the long term. The literature on electoral system effects more broadly contends that electoral systems create long-run equilibriums that are reached over time. If this is the case, then we should expect that the true impact of electoral system incentives might occur in time, only after parties and other actors understand more fully the incentives the system creates. Using a dataset of 98 democratic countries from 1955 to 2012, the novel empirical analysis undertaken here did find some short-term consequences of electoral system change; however, many of the effects were found in the long term.

One of the more interesting findings of the research presented here is that the impact of electoral system rules varies across the type of rules measured. The results found the positive impacts of both district magnitude, party-centered electoral rules, and proportional

representation electoral rules. The magnitude of their impacts did vary, however — not only between them in the short term, but also in the long term. One of the more interesting findings was the strong, positive impact of simply changing the size of the legislature. The result suggests that short-term increases in the number of legislative seats increases opportunities for women that are exploited by parties and other actors. Interestingly enough, there was no long-term impact of legislature size.

The results also suggest the importance of both national and party quotas. The consequences of quotas, however, appear to play out over time. This may reflect the fact that quota adoption often takes places years before the next electoral cycle. Nonetheless, the extremely strong long-term effect of quotas supports the research that envisions them as a “fast-track” approach to gender equity (Freidnevall 2003; Tripp, Konaté, and Lowe-Morna 2006).

There is similarly clear evidence that sociocultural factors matter, again especially in the long term. Both female labor participation and the number of years since suffrage influenced the number of women elected to the legislature. In addition, there are clear, long-term, positive impacts of the level of democracy. The effects of these variables in the short term was smaller, less substantive.

In the end, the empirical results clearly demonstrate that many of the factors we believe impact women’s legislative representation have both short- and long-term effects. Yet, the long-term impacts appear more substantive across the board for both institutional and sociocultural factors. This finding is important for two reasons. First, the expectation that electoral systems or other social factors are the only determinants of women’s representation are clearly incorrect. Electoral systems do matter, but that does not mean that other elements are trivial. If anything, we may need to pay more attention to models that specify all of the components of women’s representation and pay less attention to the role of individual covariates.

Second, the myriad of long-term effects does raise the question of whether we should expect interactive effects between sociocultural factors and institutional ones. In fact, it is possible that the speed at which a change in labor force participation, for example, reaches a new equilibrium may vary by the electoral system. This is the next step in the future of this research.

Finally, and perhaps more importantly, the results of this analysis do suggest that the level of women’s representation in any system represents a long-run equilibrium. As such, the exact percentage of women in any

given legislature at any given time may be above or below that equilibrium; however, over time, we should expect a return to that equilibrium based on the institutional, social, and cultural context within the system. One clear consequence of this is that any type of change that should improve women's representation — whether institutional, economic, cultural — may take time to improve gender equity.

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## REFERENCES

- Andersen, Kristi, and Stuart Thorson. 1984. "Congressional Turnover and the Election of Women." *The Western Political Quarterly* 37 (1): 143–56.
- Andrews, Josephine, and Robert Jackman. 2005. "Strategic Fools: Electoral Rule Choice under Extreme Uncertainty." *Electoral Studies* 24 (1): 65–84.
- Bawn, Kathleen. 1993. "The Logic of Institutional Preferences: German Electoral Law as a Social Choice Outcome." *American Journal of Political Science* 37 (4): 965–89.
- Benoit, Kenneth. 2004. "Models of Electoral System Change." *Electoral Studies* 23 (3): 363–89.
- Benoit, Kenneth, and Jacqueline Hayden. 2004. "Institutional Change and Persistence: The Evolution of Poland's Electoral System, 1989–2001." *Journal of Politics* 66 (2): 396–427.
- Benoit, Kenneth, and John Schiemann. 2001. "Institutional Choice in New Democracies: Bargaining over Hungary's 1989 Electoral Law." *Journal of Theoretical Politics* 13 (2): 159–88.
- Boix, Carles. 1999. "Setting the Rules of the Game: The Choice of Electoral Systems in Advanced Democracies." *American Political Science Review* 93 (3): 609–24.
- Boric, Besima. 2005. "Application of Quotas: Legal Reforms and Implementation in Bosnia and Herzegovina." In *The Implementation of Quotas: European Experiences*. Stockholm: IDEA.
- Bormann, Nils-Christian, and Matt Golder. 2013. "Democratic Electoral Systems around the World." *Electoral Studies* 32 (2): 360–69.
- Brady, David, and Jongryn Mo. 1992. "Electoral Systems and Institutional Choice: A Case Study of the 1988 Korean Elections." *Comparative Political Studies* 24 (4): 405–29.
- Calvo, Ernesto, and Juan Pablo Micozzi. 2005. "The Governor's Backyard: A Seat-Vote Model of Electoral Reform for Subnational Multiparty Races." *Journal of Politics* 67 (4): 1050–74.
- Carey, John, and Matthew Shugart. 1995. "Incentives to Cultivate a Personal Vote: A Rank Ordering of Electoral Formulas." *Electoral Studies* 14 (4): 417–39.
- Caul, Miki. 1999. "Women's Representation in Parliament." *Party Politics* 5 (1): 79–98.
- . 2001. "Political Parties and the Adoption of Candidate Gender Quotas: A Cross-National Analysis." *Journal of Politics* 63 (4): 1214–29.
- Caul Kittilson, Miki. 2006. *Challenging Parties, Changing Parliaments: Women and Elected Office in Contemporary Western Europe*. Columbus: Ohio State University Press.

- Caul Kittelson, Miki, and Leslie Schwindt Bayer. 2012. *The Gendered Effects of Political Institutions: Political Engagement and Participation*. New York: Oxford University Press.
- Celis, Karen, Mona Lena Krook, and Petra Meier. 2011. "The Rise of Gender Quota Laws: Expanding the Spectrum of Determinants for Electoral Reform." *West European Politics* 34 (3): 514–30.
- Cheibub, Jose Antonio, Jennifer Gandhi, and James Raymond Vreeland. 2009. "Democracy and Dictatorship Revisited." *Public Choice* 143 (1–2): 67–101.
- Cheng, Christine, and Margit Tavits. 2009. "Informal Influences in Selecting Female Political Candidates." *Political Research Quarterly* 64 (2): 460–71.
- Christensen, Ray. 1998. "The Effect of Electoral Reforms on Campaign Practices in Japan: Putting New Wine into Old Bottles." *Asian Survey* 38 (10): 986–1004.
- Crisp, Brian, and Rachael Ingall. 2002. "Institutional Engineering and the Nature of Representation: Mapping the Effects of Electoral Reform in Colombia." *American Journal of Political Science* 46 (4): 733–48.
- Darcy, Robert, and James R. Choike. 1986. "A Formal Analysis of Legislative Turnover: Women Candidates and Legislative Representation." *American Journal of Political Science* 30 (1): 237–55.
- Darcy, Robert, Susan Welch, and Janet Clark. 1994. *Women, Elections, and Representation*. New York: Longman.
- De Boef, Suzanna, and Luke Keele. 2008. "Taking Time Seriously." *American Journal of Political Science* 52 (1): 184–200.
- Di Virgilio, Aldo, and Steven R. Reed. 2011. "Nominating Candidates under New Rules in Italy and Japan: You Cannot Bargain with Resources You Do Not Have." In *A Natural Experiment on Electoral Law Reform: Evaluating the Long Run Consequences of 1990s Electoral Reform in Italy and Japan*, ed. Daniela Giannetti and Bernard Grofman. New York: Springer, 61–75.
- Donovan, Mark. 1995. "The Politics of Electoral Reform in Italy." *International Political Science Review/Revue internationale de science pol* 16 (1): 47–64.
- Dunleavy, Patrick, and Helen Margetts. 1995. "Understanding the Dynamics of Electoral Reform." *International Political Science Review* 16 (1): 9–29.
- Freidnevall, Lenita. "Women's Political Representation and Gender Quotas — the Swedish Case." The Research Program on Gender Quotas — a Key to Equality? Stockholm University Working Paper Series 2003:2.
- Golder, Matt. 2005. "Democratic Electoral Systems around the World, 1946–2000." *Electoral Studies* 24 (1): 103–21.
- Goodhart, Lucy, and Anastasia Xenias. 2012. "Guns and Money in the Open Economy: The Exchange Rate and the Demand for Arms Imports." *International Studies Quarterly* 56 (4): 786–92.
- Górecki, Maciej A., and Paula Kukołowicz. 2014. "Gender Quotas, Candidate Background and the Election of Women: A Paradox of Gender Quotas in Open-list Proportional Representation Systems." *Electoral Studies* 36: 65–80.
- Hinojosa, Magda, and Susan Franceschet. 2012. "Separate but Not Equal: The Effects of Municipal Electoral Reform on Female Representation in Chile." *Political Research Quarterly* 65 (4): 758–70.
- Inglehart, Ronald, and Pippa Norris. 2003. *Rising Tide: Gender Equality and Cultural Change*. Cambridge: Cambridge University Press.
- Inter-Parliamentary Union. 2012. *Women in National Parliaments Statistical Archive*. <http://www.ipu.org>.
- Jacobs, Kiristof, and Monique Leyenaar. 2011. "A Conceptual Framework for Major, Minor, and Technical Electoral Reform." *West European Politics* 34 (3): 495–513.

- Johnson, Joel, and Jessica Wallack. 2008. Electoral Systems and the Personal Vote. <https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/17901>
- Jones, Mark P. 2009. "Gender Quotas, Electoral Laws, and the Election of Women." *Comparative Political Studies* 42 (1): 56–81.
- Jou, Willy. 2009. "Electoral Reform and Party System Development in Japan and Taiwan: A Comparative Study." *Asian Survey* 49 (5): 759–85.
- Kenworthy, Lane, and Melissa Malami. 1999. "Inequality in Political Representation: A Worldwide Comparative Analysis." *Social Forces* 78 (1): 235–68.
- King, James. 2002. "Single-Member Districts and the Representation of Women in American State Legislatures: The Effects of Electoral System Change." *State Politics & Policy Quarterly* 2 (2): 161–75.
- Kjaer, Ulrik, and Jergen Elklit. 2014. "The Impact of Assembly Size on Representativeness." *Journal of Legislative Studies* 20 (2): 156–73.
- Krook, Mona Lena. 2007. "Candidate Gender Quotas: A Framework for Analysis." *European Journal of Political Research* 46 (3): 367–94.
- . 2009. *Quotas for Women in Politics: Gender and Candidate Selection Reform Worldwide*. New York: Oxford University Press.
- Kunovich, Sheri. 2003. "The Representation of Polish and Czech Women in National Politics: Predicting Electoral List Position." *Comparative Politics* 35 (3): 273–91.
- . 2012. "Unexpected Winners: The Significance of an Open-List System on Women's Representation in Poland." *Politics & Gender* 8 (2): 153–77.
- Lakeman, Enid. 1976. "Electoral Systems and Women in Parliament." *Parliamentarian* 57: 159–62.
- Lehoucq, Fabrice Edouard. 2000. "Institutionalizing Democracy: Constraint and Ambition in the Politics of Electoral Reform." *Comparative Politics* 32 (4): 459–77.
- Lijphart, Arend. 1994. *Electoral Systems and Party Systems: A Study of Twenty-Seven Democracies, 1945–1990*. Oxford: Oxford University Press.
- Matland, Richard. 1993. "Institutional Variables Affecting Female Representation in National Legislatures: The Case of Norway." *Journal of Politics* 55 (3): 737–57.
- . 1998. "Women's Representation in National Legislatures: Developed and Developing Countries." *Legislative Studies Quarterly* 23 (1): 109–25.
- Matland, Richard, and Deborah Dwight Brown. 1992. "District Magnitude's Effect on Female Representation in U. S. State Legislatures." *Legislative Studies Quarterly* 17 (4): 469–92.
- Matland, Richard, and Donley Studlar. 1996. "The Contagion of Women Candidates in Single-Member Districts and Proportional Representation: Canada and Norway." *Journal of Politics* 58 (3): 707–33.
- Moore, Gwen, and Gene Shackman. 1996. "Gender and Authority: A Cross-National Study." *Social Science Quarterly* 77 (2): 273–88.
- Murray, Rainbow, Mona Lena Krook, and Katherine A. R. Opello. 2012. "Why are Gender Quotas Adopted? Party Pragmatism and Parity in France." *Political Research Quarterly* 65 (3): 529–43.
- Niven, David. 1998. "Party Elites and Women Candidates." *Women & Politics* 19 (2): 57–80.
- Norris, Pippa. 1985. "Women's Legislative Participation in Western Europe." *West European Politics* 8 (4): 90–101.
- Paxton, Pamela, and Melanie Hughes. 2007. *Women, Politics, and Power: A Global Perspective*. Los Angeles: Pine Forge Press.
- Paxton, Pamela, and Sherri Kunovich. 2003. "Women's Political Representation: The Importance of Ideology." *Social Forces* 82 (1): 87–114.



- Paxton, Pamela, Jennifer Green, and Melanie Hughes. 2008. "Women in Parliament, 1945–2003: Cross-National Dataset." The Inter-University Consortium for Political and Social Research. <http://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/24340> (accessed May 30, 2016).
- Pemstein, Daniel, Stephen Meserve, and James Melton. 2010. "Democratic Compromise: A Latent Variable Analysis of Ten Measures of Regime Type." *Political Analysis* 18 (4): 426–49.
- Persyn, Damiaan, and Joakim Westerlund. 2008. "Error-Correction-Based Cointegration Tests for Panel Data." *Stata Journal* 8 (2): 232–41.
- Rahat, Gideon. 2004. "The Study of the Politics of Electoral Reform in the 1990s: Theoretical and Methodological Lessons." *Comparative Politics* 36(4): 461–479.
- . 2008. *The Politics of Regime Structural Reform in Democracy*. Albany: State University of New York.
- Rahat, Gideon, and Reuven Hazan. 2011. "The Barriers to Electoral System Reform: A Synthesis of Alternative Approaches." *West European Politics* 34 (3): 478–94.
- Remington, Thomas, and Steven Smith. 1996. "Political Goals, Institutional Context, and the Choice of an Electoral System: The Russian Parliamentary Electoral Law." *American Journal of Political Science* 40 (4): 545–72.
- Renwick, Alan. 2010. *The Politics of Electoral Reform: Changing the Rules of Democracy*. Cambridge: Cambridge University Press.
- Reynolds, Andrew. 1999. "Women in the Legislatures and Executives in the World: Knocking at the Highest Glass Ceiling." *World Politics* 51 (4): 547–72.
- Roberts, Andrew, Jason Seawright, and Jennifer Cyr. 2013. "Do Electoral Laws Affect Women's Representation?" *Comparative Political Studies* 46 (12): 1555–81.
- Rosen, Jennifer. 2012. "The Effects of Political Institutions on Women's Political Representation: A Comparative Analysis of 168 Countries from 1992 to 2010." *Political Research Quarterly* 66 (2): 306–321.
- Rosenbluth, Frances, Rob Salmond, and Michael Thies. 2006. "Welfare Works: Explaining Female Legislative Representation." *Politics and Gender* 2 (2): 165–92.
- Rule, Wilma. 1981. "Why Women Don't Run: The Critical Contextual Factors in Women's Legislative Recruitment." *Western Political Quarterly* 34 (1): 60–67.
- . 1987. "Electoral Systems, Contextual Factors, and Women's Opportunity for Election to Parliament in Twenty-Three Democracies." *Western Political Quarterly* 40 (3): 477–98.
- . 1990. "Why More Women Are State Legislators. A Research Note." *The Western Political Quarterly* 43 (2): 437–48.
- . 1994. "Women's Underrepresentation and Electoral Systems." *PS: Political Science and Politics* 27 (4): 689–92.
- Salmond, Rob. 2006. "Proportional Representation and Female Parliamentarians." *Legislative Studies Quarterly* 31 (2): 175–204.
- Schwindt-Bayer, Leslie, and William Mishler. 2005. "An Integrated Model of Women's Representation." *Journal of Politics* 67 (2): 407–28.
- Shvetsova, Olga. 2003. "Endogenous Selection of Institutions and their Exogenous Effects." *Constitutional Political Economy* 14 (3): 191–212.
- StataCorp. 2013. *Stata Statistical Software: Release 13.1*. College Station, TX: StataCorp LP.
- Studlar, Donley, and Ian McAllister. 1991. "Political Recruitment to the Australian Legislature: Toward an Explanation of Women's Electoral Disadvantages." *Western Political Quarterly* 44 (2): 467–85.
- Studlar, Donley, and Susan Welch. 1991. "Does District Magnitude Matter? Women Candidates in London Local Elections." *Western Political Quarterly* 44 (2): 457–66.

- Thames, Frank, and Margaret Williams. 2010. "Incentives for Personal Votes and Women's Representation in Legislatures." *Comparative Political Studies* 43 (12): 1575–1600.
- . 2013. *Contagious Representation: Women's Political Representation in Democracies around the World*. New York: New York University Press.
- Tolbert, Caroline, Daniel Smith, and John Green. 2009. "Strategic Voting and Legislative Redistricting Reform: District and Statewide Representational Winners and Losers." *Political Research Quarterly* 62 (1): 92–109.
- Tremblay, Manon, and Rejean Pelletier. 2001. "More Women Constituency Party Presidents: A Strategy for Increasing the Number of Women Candidates in Canada?" *Party Politics* 7 (2): 157–190.
- Tripp, Aili Mari, and Alice Kang. 2008. "The Global Impact of Quotas: On the Fast Track to Increased Female Legislative Representation." *Comparative Political Studies* 41 (3): 338–61.
- Tripp, Aili Mari, Dior Konaté, and Colleen Lowe-Morna. 2006. "Sub-Saharan Africa: On the Fast Track to Women's Representation." In *Women, Quotas, and Politics*, ed. Drude Dahlerup. New York: Routledge.
- Vengroff, Richard, Zsolt Nyiria, and Melissa Fugiero. 2003. "Electoral System and Gender Representation in Sub-National Legislatures: Is There a National – Sub-National Gender Gap?" *Political Research Quarterly* 2 (2): 163–73.
- Welch, Susan, and Donley Studlar. 1990. "Multi-Member Districts and the Representation of Women: Evidence from Britain and the United States." *Journal of Politics* 52 (2): 391–412.
- . "The Opportunity Structure for Women's Candidacies and Electability in Britain and the United States." *Political Research Quarterly* 49 (4): 861–74.
- Westerlund, Joakin. 2007. "Testing for Error Correction in Panel Data." *Oxford Bulletin of Economics and Statistics* 69 (6): 709–48.
- Wolbrecht, Christina, and David E. Campbell. 2007. "Leading by Example: Female Members of Parliament as Political Role Models." *American Journal of Political Science* 51 (4): 921–39.
- Yoon, Mi Yung. 2004. "Explaining Women's Legislative Representation in Sub-Saharan Africa." *Legislative Studies Quarterly* 29 (3): 447–68.
- Zimmerman, Joseph, and Wilma Rule. 1998. "A More Representative United States House of Representatives?" *PS: Political Science and Politics* 31 (1): 5–10.