Gender Egalitarianism and Gender Equality: How Public Opinion Shapes Politics and Policy in Global Perspective

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Preface for KIRL Readers

At present, we have a bunch of pieces that have yet to be well integrated. Chapter 2, on theory, is not much more than a sketch of hypotheses, and Chapter 4, on descriptive representation, is *extremely* drafty—it's still basically the transcript of a talk. Chapter 6, on the Korean case, is in better shape, but some of the material presented there likely goes elsewhere.

Nevertheless, we're excited for the manuscript's promise, and how it will come together in time.

So, with apologies for its current state, we thank you for taking a look at this work.

1 Introduction

The extent of public support for gender egalitarianism has been an important issue in many countries around the world since at least the past half-century. The improvement of public gender egalitarianism over the globe makes scholars examine the causes and consequences of the improvement. A wide range of studies pay their attention on the determinants of public gender egalitarianism. For instance, according to the crucial study done by Norris and Inglehart (2001) which is consistent with the work from Reynolds (1999), the role of cultural rigidity, religion, and generational value is critical for the persistency and spread of gender egalitarianism. Some studies focus on the impacts of regime types such as democracy and autocracy as a focal determinant of gender equality (Beer, 2009), while other studies maintain that political elites play a key role in shaping public attitudes toward gender equality (Bulut & Yildirim, 2023).

How do societal attitudes toward gender roles influence women's political success and policy influence? Taking advantage of a comprehensive col-

lection of survey data and recent advances in latent variable modeling of public opinion, this book provides new evidence of how and when public gender egalitarianism is translated into gender equality in countries around the world.

The influence of public support for gender equality on various social and political phenomena has received wide attention from scholars (Cannavale et al., 2022; Cavero-Rubio et al., 2019; Concha, 2023; Kanas & Steinmetz, 2021; Kaufman et al., 2023; McThomas & Tesler, 2016; Mustafa & Almazrouei, 2020). For instance, Winter (2008) showed that U.S. voters' support for Hilary Clinton depended on their attitudes toward the women's movement and gender equality. More recently, Bergqvist et al. (2013) examines both successful and unsuccessful cases and emphasizes the close association between public gender egalitarianism and gender equality policy adoption.

Despite the above-mentioned previous literature on the importance of public support for gender equality, the lack of time-series cross-national data on public opinion prevents us from fully understand its influence (Rule Krauss 1974). Especially, the causal influence of public gender egalitarianism on policy outcomes is still under a veil due to the lack of such data. Previous studies on the impact of public support for gender egalitarianism have largely relied on cross-sectional data with little or no leverage on change over time (Glas & Alexander, 2020; McThomas & Tesler, 2016;

Paxton & Kunovich, 2003; Steel & Kabashima, 2008). Given the non-negligible changes in the public support for gender equality over decades (Bolzendahl & Myers, 2004; Eriksson-Zetterquist & Renemark, 2016; Thijs et al., 2019), this is an unfortunate shortcoming that undermines our confidence in our current state of understanding. This book seeks to remedy this problem through the new Public Gender Egalitarianism (PGE) dataset, which provides a comparable time-series cross-national index for 124 countries over the years from 1972 to 2022, as well as other novel data.

The book proceeds in the following order. In the next chapter, we review extant theories and hypotheses about how public opinion shapes public policy on gender equality. Then we present how public gender egalitarian attitudes—attitudes favoring gender equality in the public sphere of politics and the workplace—vary across countries and how these attitudes have changed over the past three decades. Next the work examines women's success in achieving political office in countries around the world, identifying the extent to which more gender egalitarian attitudes translate into greater women's descriptive representation in legislatures, cabinets, and chief executive's offices.

Chapter 5 turns to the adoption of gender egalitarian policies in cross-national perspective, highlighting the roles of public gender egalitarianism and descriptive representation and relying on time-series cross-national

data on policies including the adoption of gender quotas and laws combating violence against women. In Chapters 6 and 7, we further examine the relationships between public opinion, descriptive representation, and policy outcomes in case studies of Mexico and South Korea, delving into the processes by which gender egalitarian attitudes are, and are not, converted into political outcomes that further gender equality. Our findings shed new light on the conditions in which policymakers take the public's views on egalitarian gender roles into account.

Collective attitudes toward the appropriate roles of women and men in society—whether labeled culture, norms, ideology, or public opinion—constitute one of the primary explanations for women's exclusion from the traditionally masculine public sphere of the workforce, political power, and policy influence (see, e.g., Paxton, Hughes, and Barnes 2021, 113–14). Yet even a half century after Rule Krauss (1974, 1719) called for more and better data on these collective attitudes, what we have available to us remains inadequate for fully examining their causes and consequences. In the decades since, national and cross-national surveys have included a plethora of relevant questions, but sustained focus has been scant and the variety of these survey items renders the resulting data incomparable. As a consequence, cross-national research has been constrained to study countries at just one or a few time points (see, e.g., Paxton and Kunovich 2003; Alexander 2012; Glas and Alexander 2020) or to rely on proxies such as

predominant religion or the percentage of women in office (see, e.g., Burns, Schlozman, and Verba 2001, 340–41; Claveria 2014; Barnes and O'Brien 2018).

2 How Public Opinion Shapes Gender Egalitarian Public Policy

The research question is one right at the heart of the politics of inequality: When do women win office? And what part do public attitudes toward gender roles play in the process? Not surprisingly, given the importance of the question, we have a range of theories on this.

The first contends that this is a top-down process. In this account, activists of the women's movement do the truly heroic work of convincing the patriarchal, male old guard of political parties to put women on the ballot.

On the one hand, this involves demanding–and getting–commitments that the party will have women make up a specific share of its slate of candidates, that is, that the party will adopt a gender quota.

On the other hand, whether or not a party makes a formal commitment

in the form of a quota, activists push for parties to run more female candidates–and the push to overcome the biases of the existing male party leadership has proven easier when and where the electoral system consists of, or includes, a party-list component rather than only highly personalized races within small districts. In the purest forms of the elite-led political theory, that's it: The activists' hard work within political parties to get more women on the ballot is the whole story. In this telling, the public, the voters, are basically ambivalent with regard to electing men or women–and there *are* various experimental studies that provide evidence that this is true in some contexts–so it is the *supply* of female candidates that determines how many women win elected office. Now, there's a *ton* of evidence–qualitative and quantitative–for the hypotheses implied by the elite-led account, decades' worth of work on this topic, really, that show that quotas and party lists yield more women's descriptive representation. It is, by now, super-well established stuff.

Yet there is a second theory, one that I'm going to label "bottom up," that contends that public attitudes cannot be dismissed as readily as they are in the purest elite-led accounts. The bottom-up story is straightforward: when the electorate holds a more gender-egalitarian view of women's roles in the public sphere, parties run more women, and more women win election. Where traditional attitudes relegating women to the private sphere of home and children are more dominant, conversely, parties put forward

fewer female candidates, and fewer women gain office. Now, btw, I should mention that people in *this* literature, which stretches back to at least Wilma Rule Krause's 1974 APSR article, people in this literature sometimes talk about these attitudes as ideology or culture; I'm with those who prefer to call broadly held attitudes and preferences "public opinion," but it's all the same concept.

The Scope of the Theory

But first we need to define the universe for the study. As always, there are competing concerns.

On the one hand, we want to look as broadly as possible: we want to minimize sampling bias that could influence our results and conclusions. The desire to get beyond "just the U.S." or "just western Europe" was of course a big reason to generate the PGE data in the first place, to enable "cross-national, cross-regional" work. But, on the other hand, we always need to avoid including cases to which the theory just doesn't apply. The theories outlined above, at least those beyond the elite-led theory, the ones that have to do with public opinion, presuppose a certain minimum level of democracy–at least the minimal Przeworkski, Alvarez, Cheibub, and Limongi definition of democracy, "contested elections with broad suffrage for the most important offices"–and so countries that don't clear that

very low bar should be excluded. And politics works in many developing democracies in ways that suggest that the processes these theories describe may unfold very differently there–widespread clientelism, for example, is thought to work to exclude women from politics at every level (see, e.g, **Arriola2014?**; **Franceschet2014?**; **Benstead2016?**; Paxton, Hughes, and Barnes 2021, 156–57). So in light of these considerations, we are looking at advanced democracies. It's important, though, to be sure to not interpret "advanced democracies" as simply "western Europe and the British offshoots." And, further, one doesn't want to open the door to the garden of forking paths that comes with hand-picking the countries. So we settled on the 38 countries of the current OECD. Yes, it's the usual suspects of most of Europe plus the United States and Canada-Australia-New Zealand, but also Japan and Korea in east Asia, Turkey and Israel in west Asia, and Mexico, Costa Rica, Colombia, and Chile in Latin America. Or, you know, about one China's worth of people; it's easy to see that there's still a lot of white countries to better understand also. But the theories outlined in this chapter apply to these darker shaded countries, so they will be the subject of this book.

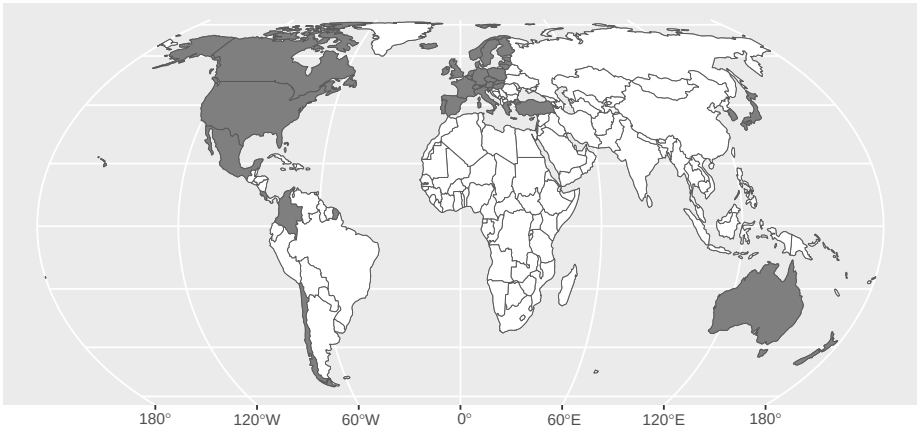

Figure 2.1: The Cases Examined in This Book: The OECD

3 Measuring Public Gender Egalitarianism Around the World

As outlined in the previous chapter, public opinion toward gender roles constitutes one of the primary explanations for women's exclusion from the traditionally masculine public sphere of the workforce, political power, and policy influence (see, e.g., Paxton, Hughes, and Barnes 2021, 113–14). Despite its theoretical importance, the extent to which gender egalitarian public opinion matters for these outcomes has drawn little sustained attention. The reason for this disconnect between explanation and evidence is that, despite a half century of calls for more and better data on these collective attitudes (see Rule Krauss 1974, 1719), what we have available to us remains inadequate for fully examining their causes and consequences. Although national and cross-national surveys have included a plethora of relevant questions, but their concentration has been sporadic and the variety of these survey items renders the resulting data incomparable. As a

consequence, cross-national research has been constrained to study countries at just one or a few time points (see, e.g., Paxton and Kunovich 2003; Alexander 2012; Glas and Alexander 2020) or to rely on proxies such as predominant religion or the percentage of women in office (see, e.g., Burns, Schlozman, and Verba 2001, 340–41; Claveria 2014; Barnes and O'Brien 2018). Cross-national and longitudinal investigation of, for example, the argument that such "attitudes influence both the supply of, and demand for, female candidates" has remained persistently a topic for future research (Paxton, Hughes, and Painter 2010, 47).

This chapter presents the latest version of the Public Gender Egalitarianism (PGE) dataset, which is based on the host of national and cross-national survey data available and recent advances in latent variable modeling of public opinion that allow us to make use of this sparse and incomparable data. It provides comparable estimates of the public's attitudes on gender equality in the public sphere of politics and paid work across countries and over time. We show that these PGE scores are strongly correlated with responses to single survey items as well as with measures of women's participation in the workforce and in the boardroom. The PGE data are an invaluable source for studying the consequences of collective attitudes toward gender equality in the public sphere over time in countries around the world, and they serve as the basis for many of the analyses we present in later chapters.

Source Data on Public Gender Egalitarianism

National and cross-national surveys have often included questions tapping attitudes toward equality for women and men over the past half-century, but the resulting data are both sparse, that is, unavailable for many countries and years, and incomparable, generated by many different survey items. Moreover, not all of those questions may in fact be relevant to our inquiry, which focuses on views toward gender equality in the traditionally masculine public sphere of paid work and politics. The questions we did select are nearly always explicit in comparing men and women, but a few, such as the Eurobarometer item asking responses to the statement "Women do not have the necessary qualities and skills to fill positions of responsibility in politics," leave men's traditional role implicit. Similarly, they nearly always explicitly invoke either paid work or politics, though they may also be broader, such as the Pew Research Center's item that asks, "On a different subject, do you think women should have equal rights with men, or shouldn't they?"

We carefully distinguished these questions from three other categories of questions on gender equality. First, we did not include the small set of questions focusing on gender equality in the traditionally feminine private sphere of housework and childcare, such as "Men should take as much responsibility as women for the home and children," asked (with differ-

ing response categories) in the European Values Survey and the European Social Survey. Second, we also excluded questions asking respondents how women should balance opportunities in the public sphere with their traditional duties in the private sphere, such as whether mothers in the workforce can have similarly warm relationships with their children as mothers who are not, asked in the World Values Survey and many others. Given that attitudes that women should prioritize housework and childcare over paid employment and politics—or convictions that there will be negative consequences if they do not—can be expected to lead to less gender egalitarian opinions with regard to these latter, public-sphere activities, this is clearly a very closely related set of items to those we sought, and there are many of them. (It is telling, though not surprising, that the complementary set of questions, on how *men* should balance responsibilities in the private sphere with their traditional roles in the public sphere, is only rarely included in surveys; one laudable example of this mostly unasked sort of question, apparently first included in Australia's 1989 National Social Science Survey and slowly becoming more common, is the item querying respondents the extent to which they agree with the statement, "Family life often suffers when men concentrate too much on their work.") The third and final category of excluded survey items includes respondents' views on various forms of women's domination by men, from whether wives should always adopt their husbands' surnames through the recognition that various forms of sexual harassment are not "flattering"

to the justifiability of intimate partner violence committed by husbands. In each case, as the included questions are not *directly* relevant to gender egalitarianism in the public sphere, we concluded that to ensure that the PGE scores tap only a single dimension of attitudes, we would exclude these others.

In all, we identified 54 survey items on gender equality in the public sphere that were asked in no fewer than five country-years in countries surveyed at least twice; these items were drawn from 148 different survey datasets. The two most common items include one on politics and one on the workplace. The first, included in the World Values Survey, the AmericasBarometer, and others, asked respondents' reactions to the statement, "On the whole, men make better political leaders than women do." The second, included in the European Values Survey and others, asked the extent of their agreement with the claim, "When jobs are scarce, men should have more right to a job than women." The complete list of public gender egalitarianism survey items is included in Appendix A.

Together, the survey items in the source data were asked in 127 different countries in at least two time points over 50 years, from 1972 to 2022, yielding a total of 2,919 country-year-item observations. Observations for every year in each country surveyed would number 6,350, and a complete set of country-year-items would encompass 342,900 observations. Compared to this complete set of country-year-items, the available data can

be seen to be very, very sparse. From a more optimistic standpoint, we note there there are 1,342 country-years in which we have at least *some* information about the public gender egalitarianism of the population, that is, some 47% of the 2,866 country-years spanned by the data we collected. But there can be no denying Claveria's (2014) observation that the many different survey items employed renders these data incomparable and difficult to use together.

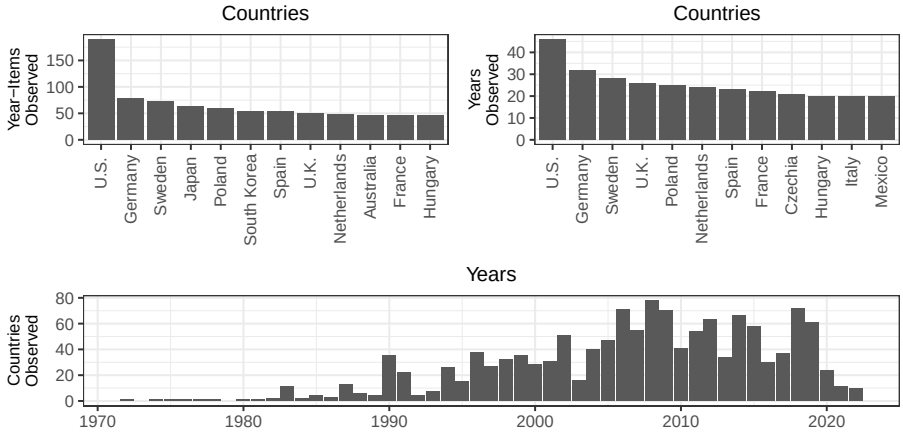

Figure 3.1: Countries and Years with the Most Observations in the PGE Source Data

Consider the most frequently asked item in these data, which asks respondents whether they strongly agree, agree, disagree, or strongly disagree with the statement "On the whole, men make better political leaders than women do." Employed by the Americas Barometer, the Arab Barometer,

the Eurobarometer, the Latinobarómetro, the Pew Research Center, and the World Values Survey, this question was asked in a total of 492 different country-years. That this constitutes only 17% of the country-years spanned by our data—and remember, this is the *most common* survey item—again underscores just how sparse the available public opinion data is on this topic.

The upper left panel of Figure 3.1 shows the dozen countries with the highest count of country-year-item observations. The United States, with 190 observations, is far and away the best represented country in the source data, followed by Germany, Sweden, Japan, and Poland. At the other end of the spectrum, two countries—Nepal and Suriname—have only the minimum two observations required to be included in the source dataset at all. The upper right panel shows the twelve countries with the most years observed; this group is similar, but with Czechia, Italy, and Mexico joining the list and Japan, South Korea, and Australia dropping off. The bottom panel counts the countries observed in each year and reveals just how few relevant survey items were asked before 1990. Country coverage reached its peak in 2008, when respondents in 78 countries were asked items about gender egalitarianism in the public sphere. In the next section, we describe how we are able to make use of all of this sparse and incomparable survey data to generate complete, comparable time-series PGE scores using a latent variable model.

A Model of Public Gender Egalitarianism

There has been a recent blossoming of scholarship developing latent variable models of public opinion based on cross-national survey data (see Claassen 2019; Caughey, O'Grady, and Warshaw 2019; McGann, Dellepiane-Avellaneda, and Bartle 2019; Kolczynska et al. 2020). To estimate public gender egalitarianism across countries and over time, we draw on the latest of these methods that is appropriate for data that is not only incomparable but also sparse, the Dynamic Comparative Public Opinion (DCPO) model presented in Solt (2020b). The DCPO model is a population-level two-parameter ordinal logistic item response theory (IRT) model with country-specific item-bias terms. For a detailed description of the DCPO model, see Solt (2020b, 3–8); here, we focus on how it deals with the principal issues raised by our source data, incomparability and sparsity.

The DCPO model accounts for the incomparability of different survey questions with two parameters. First, it incorporates the *difficulty* of each question's responses, that is, how much public gender egalitarianism is indicated by a given response. That each response evinces more or less of our latent trait is most easily seen with regard to the ordinal responses to the same question: strongly agreeing with the statement "both the husband and wife should contribute to household income," exhibits more public

gender egalitarianism than responding "agree," which in turn is more egalitarian than responding "disagree," which is a more egalitarian response than "strongly disagree." But this is also true across questions. For example, strongly disagreeing that "on the whole, men make better business executives than women do" likely expresses even more egalitarianism than strongly agreeing merely that both spouses should have paying jobs. Second, the DCPO model accounts for each question's *dispersion*, its noisiness with regard to our latent trait. The lower a question's dispersion, the better that changes in responses to the question map onto changes in public gender egalitarianism. Together, the model's difficulty and dispersion estimates work to generate comparable estimates of the latent variable of public gender egalitarianism from the available but incomparable source data.

To address the sparsity of the source data—the fact that there are gaps in the time series of each country, and even many observed country-years have only one or few observed items—DCPO uses local-level dynamic linear models, i.e., random-walk priors, for each country. That is, within each country, each year's value of public gender egalitarianism is modeled as the previous year's estimate plus a random shock. These dynamic models smooth the estimates of public gender egalitarianism over time and allow estimation even in years for which little or no survey data is available, albeit at the expense of greater measurement uncertainty.

We estimated the model on our source data using the `DCPO` and `cmdstanr` packages for R (Solt 2020a; Gabry and Češnovar 2022), running four chains for 1,000 iterations each and discarding the first half as warmup, which left us with 2,000 samples. All $\hat{R}$ diagnostics were below 1.02, indicating that the model converged.

The dispersion parameters of the survey items indicate that all of them load well on the latent variable (see Appendix A). The result is estimates, in all 2,847 country-years spanned by the source data, of mean public gender egalitarianism, what we call PGE scores.

Validation of the PGE Dataset

Before we can use the PGE scores to evaluate whether and to what extent that public gender egalitarianism contributes to women's descriptive representation and to gender egalitarian policy outcomes—and even before we put too much effort into examining how it varies around the world—we must assess the validity of these PGE scores. That is, we must make certain that the PGE scores, as a measure, reflect the concept of the public's gender egalitarianism with regard to the public sphere of politics and the workforce.

Above, we discussed how we distinguished this concept from broader conceptions of gender egalitarianism. Here, we first confirm that our refined

concept of public gender egalitarianism is not itself multidimensional—that attitudes toward gender equality in politics do in fact hang together with attitudes toward gender equality in the workplace—a crucial first step in the validation of latent variable measures like the PGE dataset (see, e.g., Hu et al. 2023). We used the survey items listed in Appendix A to estimate two separate indices of gender egalitarianism in politics and in the workplace. As shown in Figure 3.2, these two indices both correlate very highly with the PGE scores and with each other, reinforcing the conclusion that public gender egalitarianism exists as a single dimension across countries and years.

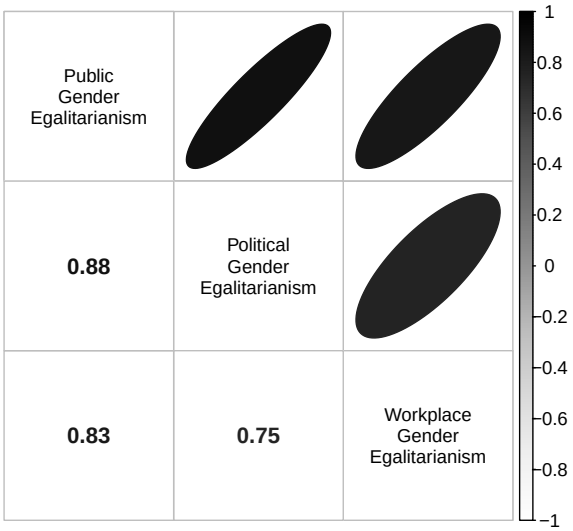

Figure 3.2: Pairwise Correlations Among PGE Index and Separate Political and Workplace Egalitarianism Indices

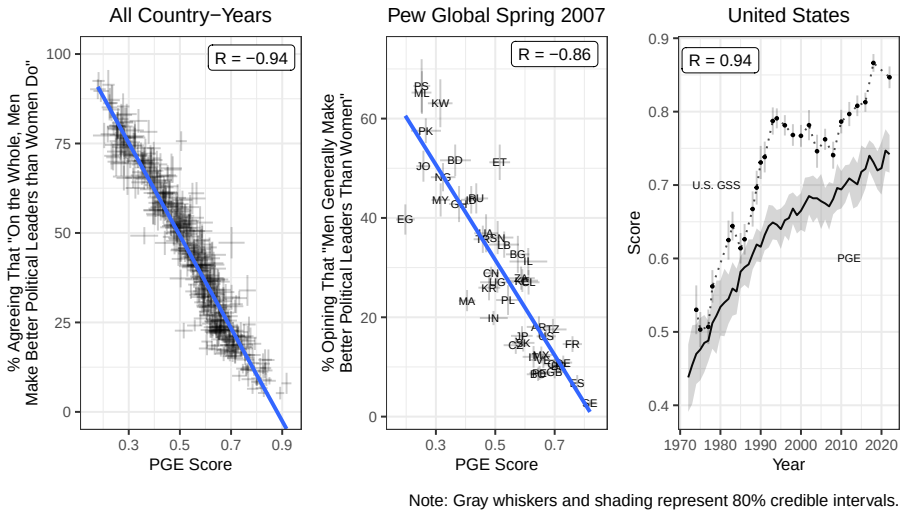

Figure 3.3: Convergent Validation: Correlations Between PGE Scores and Individual PGE Source Data Survey Items

Like Caughey, O'Grady, and Warshaw (2019, 684–85), we provide evidence of the measure's validity with convergent validation and construct validation. Convergent validation refers to showing that a measure is empirically associated with alternative indicators of the same concept (Adcock and Collier 2001, 540). Here, we compare PGE scores to responses to individual source-data survey items that were used to generate our estimates, that is, we provide an 'internal' validation test (see, e.g., Caughey, O'Grady, and Warshaw 2019, 689; Solt 2020b, 10). In the left panel of Figure 3.3, we examine the four-point question on political leaders mentioned above, the most common item in the source data across all country-years. Then, in the center panel, we look at the question that provides the most data-rich cross-section in the source data, which asked whether respondents felt "men generally make better political leaders than women" and was included in Pew Global's Spring 2007 survey. Finally, in the right panel, to evaluate how well the PGE scores capture change over time, we focus on the item with the largest number of observations for a single country in the source data, which asked respondents to the U.S. General Social Survey whether they agreed or disagreed that "most men are better suited emotionally for politics than are most women." In every case, the correlations—estimated taking into account the uncertainty in the measures—are in the expected direction and very strong.[1]

[1]The uncertainty in the PGE score and in the percentage in the population who would agree with the item does not substantially affect the correlation with the political leadership question, but failing to account for this uncertainty would overstate the

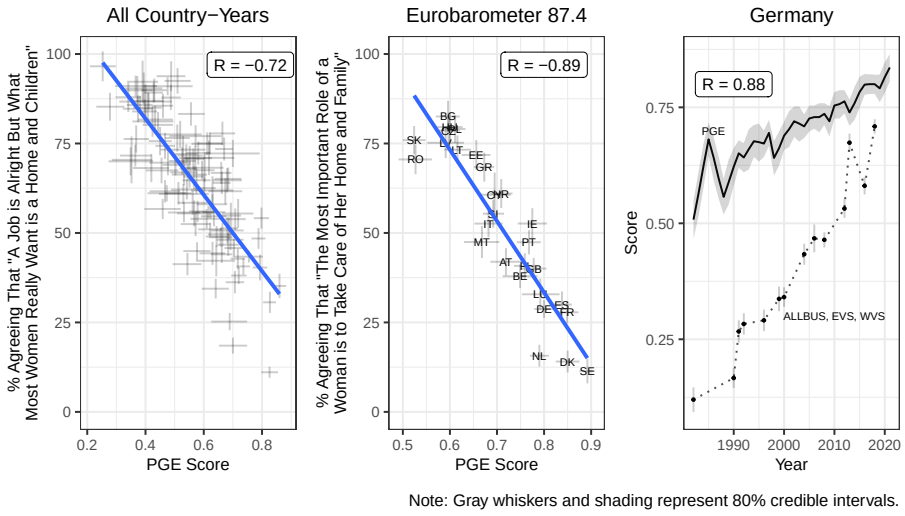

Figure 3.4: Construct Validation: Correlations Between PGE Scores and Individual 'Balancing' Gender Egalitarianism Survey Items

We continue, then, to construct validation, which refers to demonstrating, for some *other* concept believed causally related to the concept a measure seeks to represent, that the measure is empirically associated with measures of that other concept (Adcock and Collier 2001, 542). In Figure 3.4, we look to individual survey items not included in our source data but tapping a related category of gender egalitarianism, namely questions that ask how women should balance opportunities in the public sphere with their traditional duties in the private sphere. Assuming that attitudes that women should prioritize housework and childcare over paid employment and politics—or convictions that there will be negative consequences if they do not—will lead to less gender egalitarian opinions with regard to these latter, public-sphere activities, evidence for this theoretical relationship will provide construct validation for the PGE scores. Exemplars of such items across all available country-years ("a job is alright but what most women really want is a home and children" from the WVS and EVS), in cross-section ("the most important role of a woman is to take care of her home and family" from the Eurobarometer 87.4), and in time series ("a pre-school child is likely to suffer if his or her mother works" from the German ALLBUS, WVS, and EVS) all show strong correlations with the PGE scores.

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correlation with the Pew item, at R = -0.88, and the U.S. GSS item, at R = 0.97. We take up the issue of the importance of taking uncertainty into account when working with the PGE data in a subsequent section.

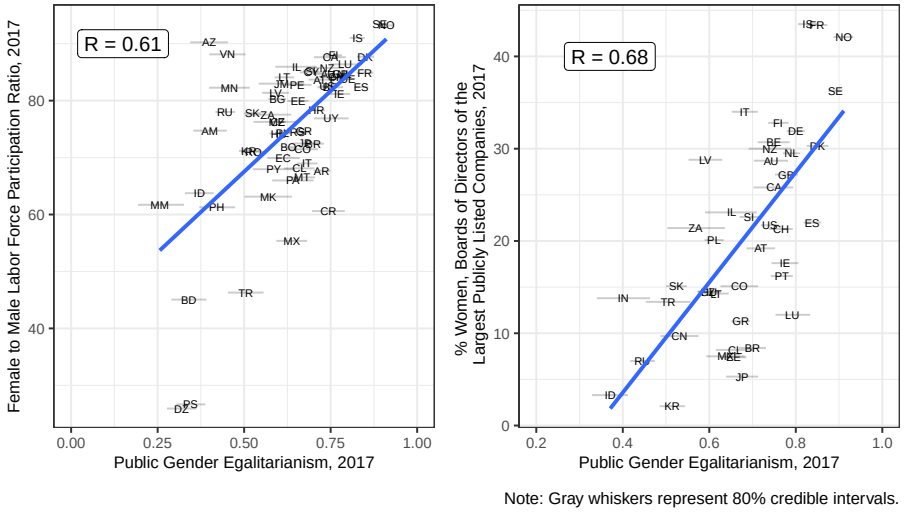


Figure 3.5: Construct Validation: Correlations Between PGE Scores and Indicators of Workplace Gender Equality

Finally, Figure 3.5 shows additional tests of construct validation. As attitudes toward gender egalitarianism in the public sphere plausibly both cause and are caused by women's gains in the workplace, strong relationships between the PGE scores and measures of workplace gender equality provide construct validation for our measure. In the left panel of Figure 3.5, we compare the PGE scores to the ratio of women's to men's labor force participation rates in 67 countries in 2017, drawing on data compiled by the Statistics Division of the UN Department of Economic and Social Affairs (2020). In the right panel, we plot the PGE scores against the percentage of women on the boards of directors of the largest publicly listed companies in 43 countries, also in 2017 (see OECD 2020). Both correlations are strong. Together, this evidence of construct validation and convergent validation attests to the validity of the PGE scores as measures of public opinion towards gender equality in the public sphere.

Public Gender Egalitarianism Around the World

Attitudes toward gender equality in the public sphere vary greatly across countries. Figure 3.6 and Figure 3.7 display the most recent available PGE score for each of the 126 countries and territories in the dataset. Together, they underscore the geographic breadth of the PGE dataset, which allows the study of countries and regions too often neglected in political science

research (see Wilson and Knutsen 2020).

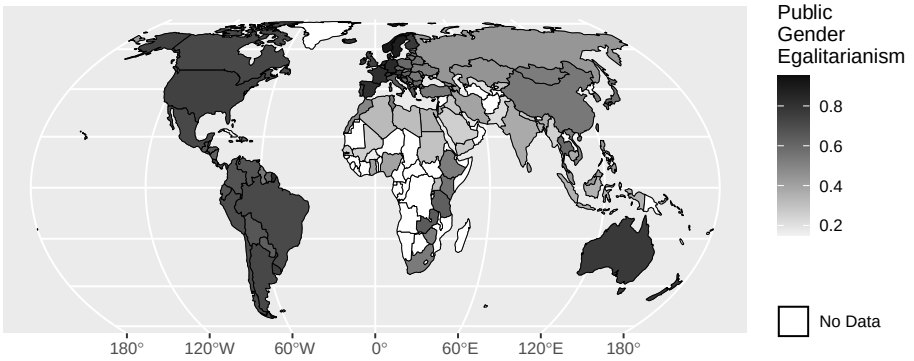


Figure 3.6: PGE Scores Around the World

Figure 3.7 shows that the Scandinavian countries and Germany are at the top of this list, along with Puerto Rico, which has had women of both of its major parties serve as chief executive and as recently as 2020 had a woman from each party holding the two most prominent elected offices on the island. The latest scores for Burkina Faso, Uzbekistan, Pakistan,

Figure 3.7: PGE Scores, Most Recent Available Year

Myanmar, and Saudi Arabia have them as the places where public opinion is least favorable to gender equality in the public sphere. The PGE scores vary considerably across countries. Next, we examine this variation more closely in each of the world's regions.

Europe

We turn first to Europe, the region with the largest number of countries in the PGE database. Figure 3.8 depicts how the point estimates of the most recent PGE score for each country vary across the region. The map reinforces that the public in many northern and western European countries have some of the most egalitarian views toward women in politics and the workforce in the world. Led by Norway, Sweden, and Denmark, nearly all of these countries have PGE scores of .75 or higher in the most recent available year. Gender egalitarianism tends to be lower in the countries to the east and southeast. The lowest levels of gender egalitarianism in Europe were observed in Ukraine, Slovakia, and Moldova. It should be noted, however, that the point estimates of the most recent available PGE scores in even these latter countries still attained or approached .5, indicating that roughly half the population holds egalitarian views. Gender egalitarianism is generally a widely held attitude among European publics.

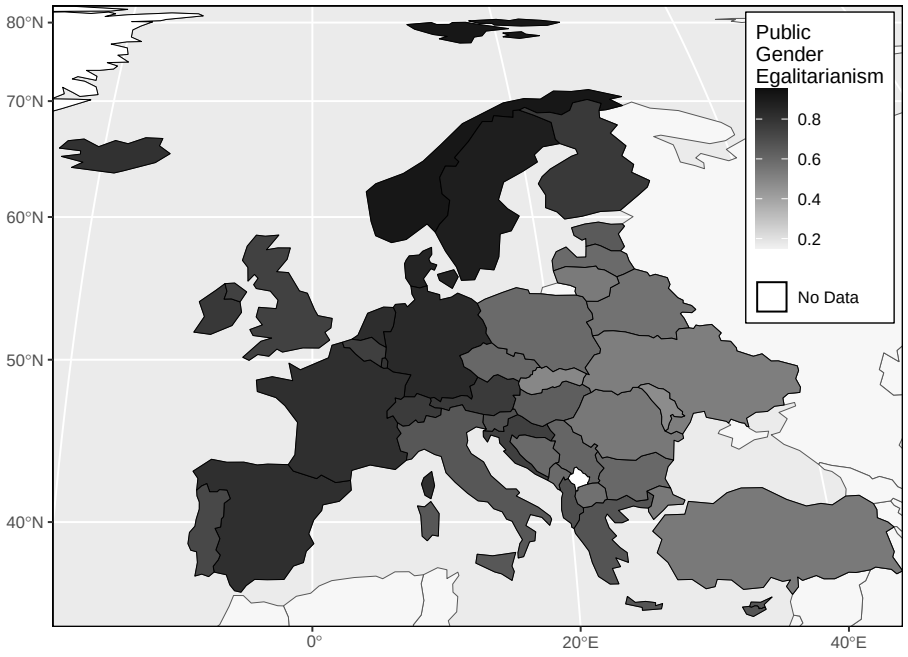


Figure 3.8: PGE Scores Across Europe, Most Recent Available Year

Figure 3.9 displays how PGE scores have changed over time in the forty European countries for which estimates are available. The biggest changes in gender egalitarianism over the observed years occurred in Estonia, Germany, and the Benelux countries of Belgium, the Netherlands, and Luxembourg. The PGE scores in each of those countries were estimated to have increased by 30% or more of the measure's theoretical range. On the other hand, shifts over time in the public's views toward gender equality were indiscernible in Moldova, Greece, Bosnia and Herzegovina, and North

Macedonia. Although some temporary declines are easily seen in this figure, and egalitarianism dips recently in a few, none of the countries of Europe exhibited lower levels of public gender egalitarianism in the most recent observed year than in their first observed year.

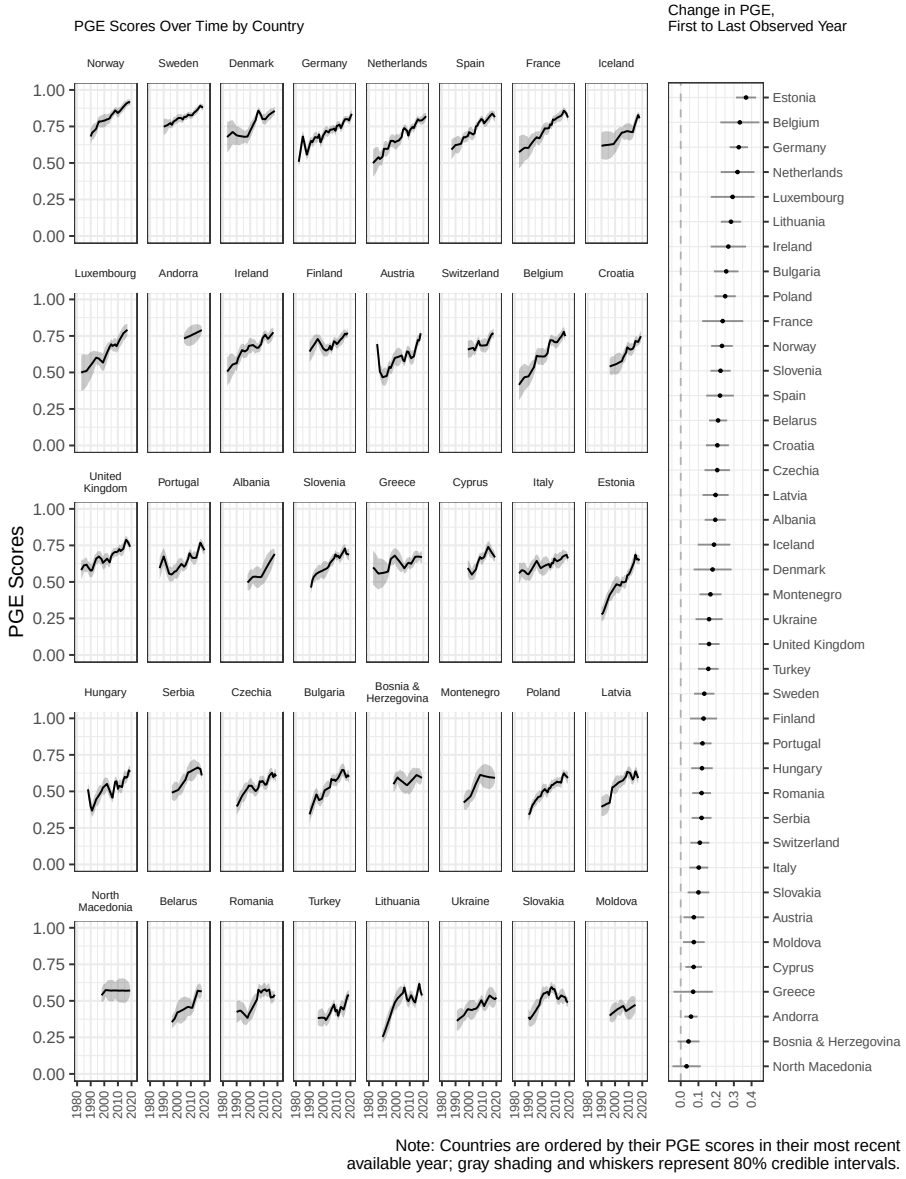


Figure 3.9: PGE Scores in Europe Over Time

Latin America and the Caribbean

Latin America and the Caribbean encompass the next largest number of countries and include one of the places with the world's most gender egalitarian attitudes with regard to politics and the workplace, Puerto Rico. Figure 3.10 shows the most recent PGE scores, as point estimates, for the region. It shows that public opinion in Latin America has generally become favorable to gender equality in the public sphere. In addition to Puerto Rico, Uruguay and Costa Rica have PGE scores of .75 or higher in the most recent available year. Argentina, Mexico, and Brazil—countries with three of the four biggest populations in the region—also exhibit gender egalitarianism scores nearly that high. The Latin American countries with the lowest levels of gender egalitarianism are Guyana and Haiti, but as with the least egalitarian countries in Europe, even these countries' most recent PGE scores are around .5, putting them not far below the median of all countries.

How PGE scores in Latin America and the Caribbean have changed over time is shown in Figure 3.11. Attitudes shifted the most in Costa Rica, Argentina, and Mexico, moving about a fifth of the theoretical range of the measure over the years spanned by our observations. But in nearly half of the region's countries, the difference in the estimated level of public gender egalitarianism from the first observed year to the last observed year

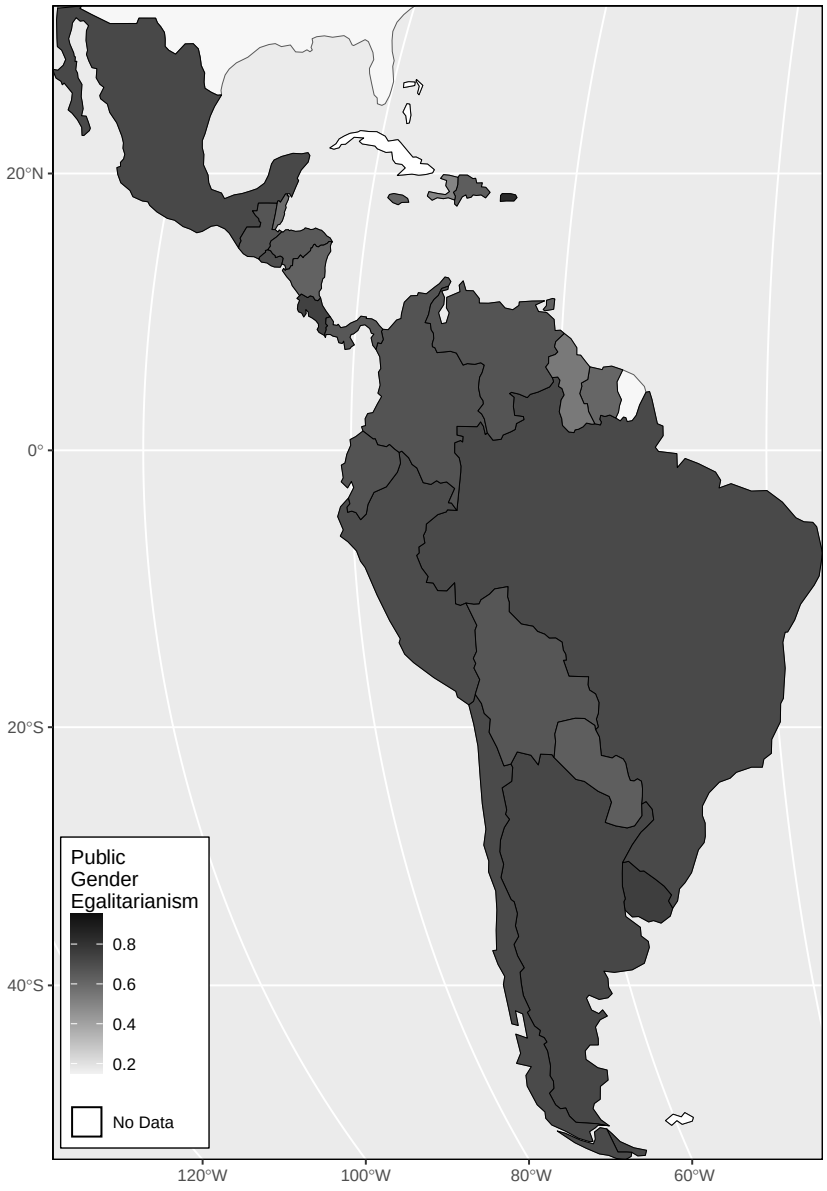


Figure 3.10: PGE Scores Across Latin America and the Caribbean, Most Recent Available Year

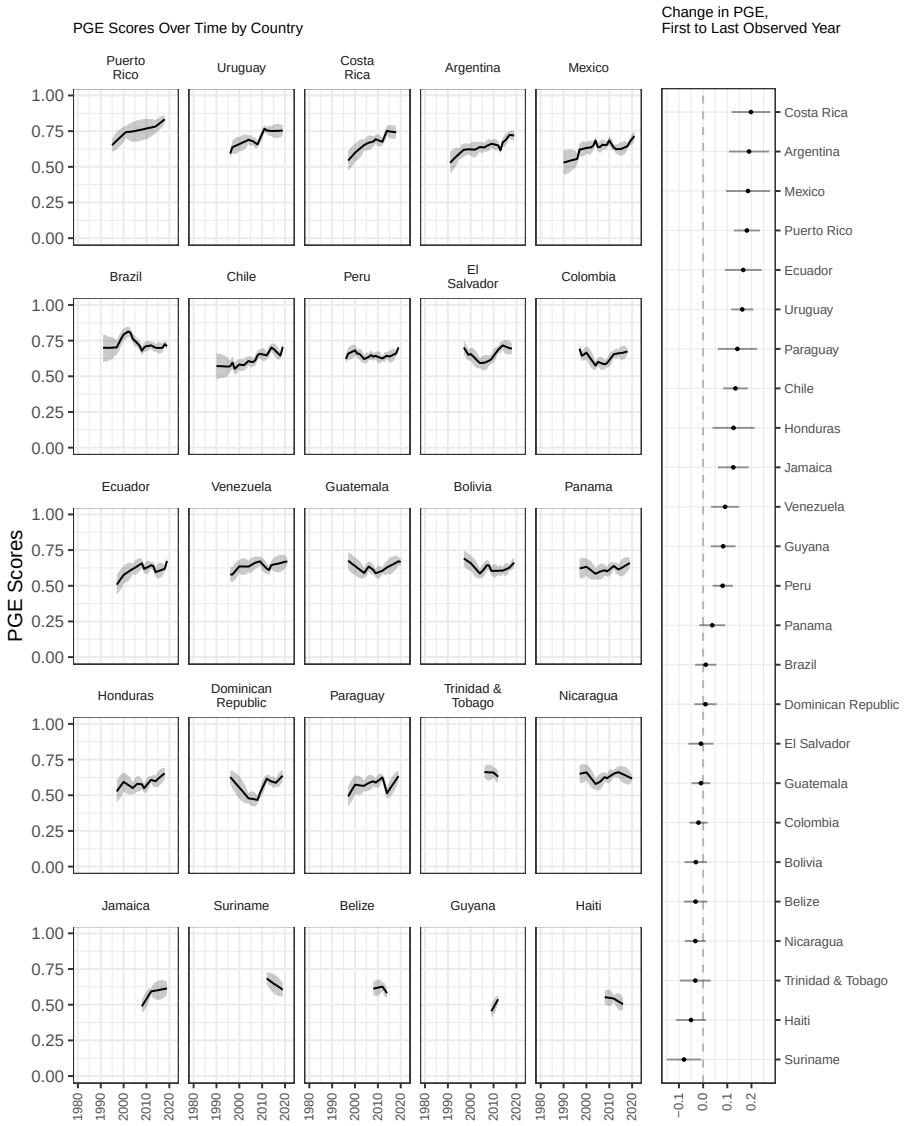


Figure 3.11: PGE Scores in Latin America and the Caribbean Over Time

is indistinguishable from zero. These countries are listed, from Panama to Suriname, towards the bottom of the rightmost pane of Figure 3.11. Still, only in Suriname did the public's views grow decisively less gender egalitarian, at least according to the 80% credible interval, over the observed time span.

East Asia and the Pacific

The countries of East Asia and the Pacific exhibit more variation than the countries of either of the two regions discussed above. Figure 3.12 shows the point estimates of the most recent PGE scores for each territory in the region. In New Zealand and Australia, these PGE scores exceed .75 in the most recent year available. On the other hand, attitudes remain decidedly opposed in gender equality in politics and the workplace in Myanmar. South Korea, where a PGE score just above .5 indicates the public is nearly evenly split in its views, constitutes the median of the region, with Japan and China close to either side.

Figure 3.13 shows how attitudes toward gender equality have evolved over time in the region. Comparing the first observed year to the last, nine of the seventeen countries and territories saw gains in public gender egalitarianism whose 80% credible intervals exclude zero, with the biggest increases occurring in Australia, South Korea, and Thailand. In six places—China, Vietnam, Mongolia, Myanmar, Macao, and the Philippines—the change from the first to last observed year is not distinguishable from zero. The public in both Cambodia and Indonesia registered a relatively small but statistically discernible decline in gender egalitarianism over the time observed.

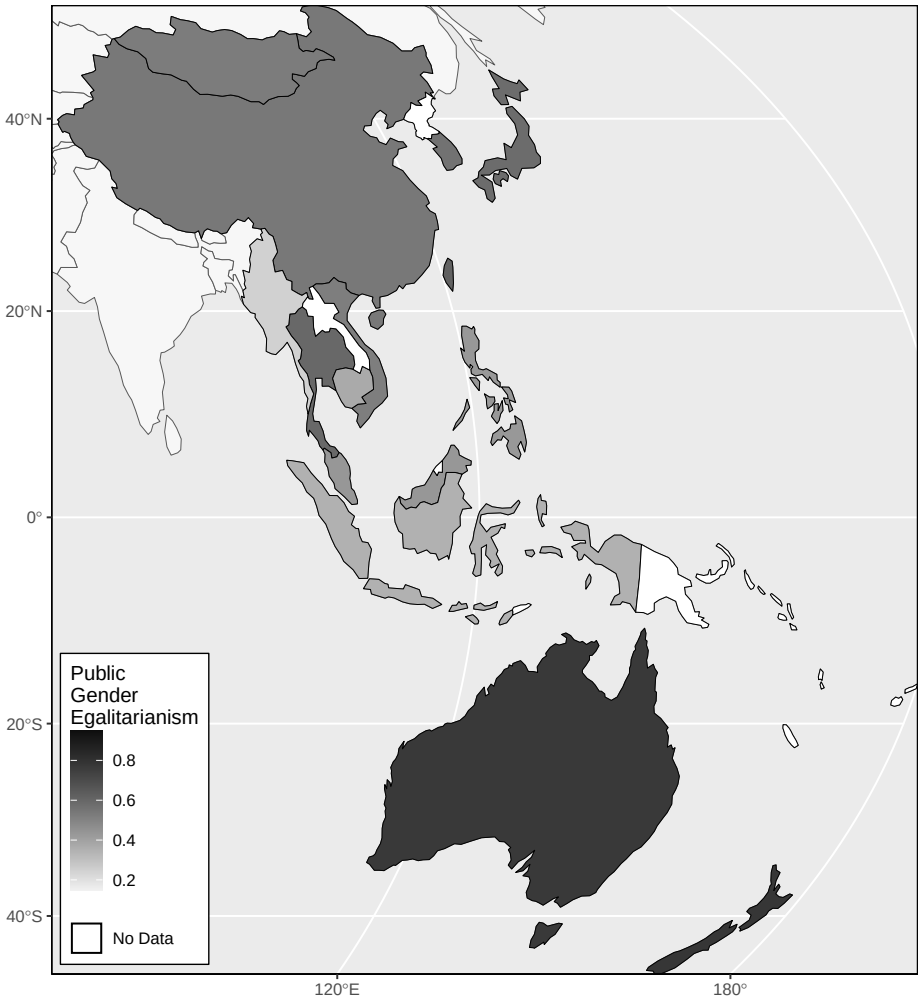


Figure 3.12: PGE Scores Across East Asia and the Pacific, Most Recent Available Year

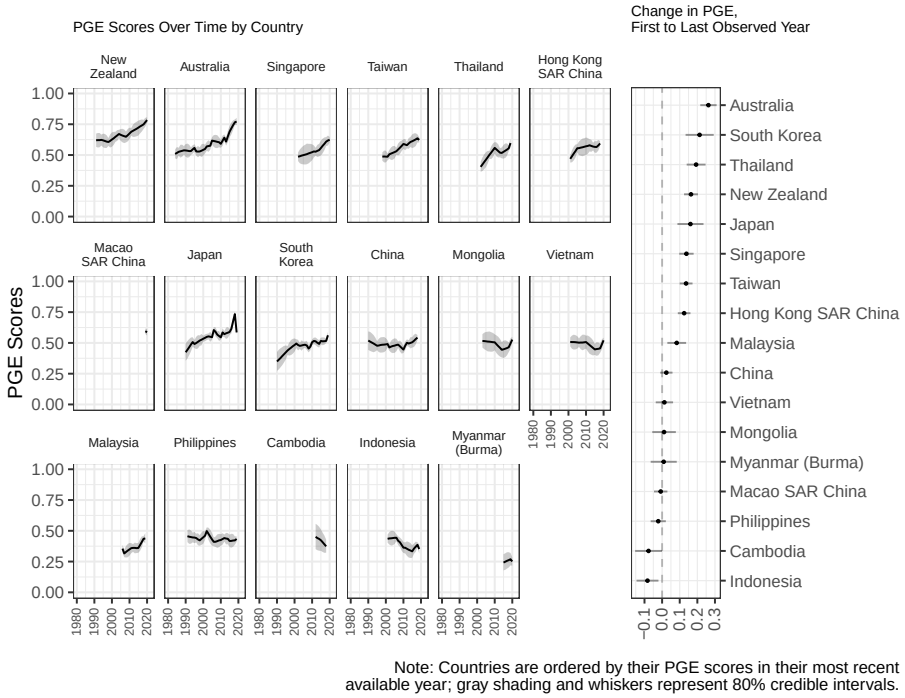


Figure 3.13: PGE Scores in East Asia and the Pacific Over Time

The Middle East and North Africa

The available survey data described in the first section of this chapter allows us to estimate public gender egalitarianism in fifteen countries across the Middle East and North Africa. The most recent point-estimate PGE scores that resulted in these countries are mapped in Figure 3.14. Attitudes are most egalitarian at the western end of the Mediterranean, exceeding .6 in both in Lebanon and in Israel. Public gender egalitarianism scores of over .5 are found in Tunisia and Morocco. Views toward equality between women and men at work and in politics are more negative in the rest of the region, particularly in Saudi Arabia, Iraq, and Yemen. The most recent PGE score is roughly .25 in each of these last three countries.

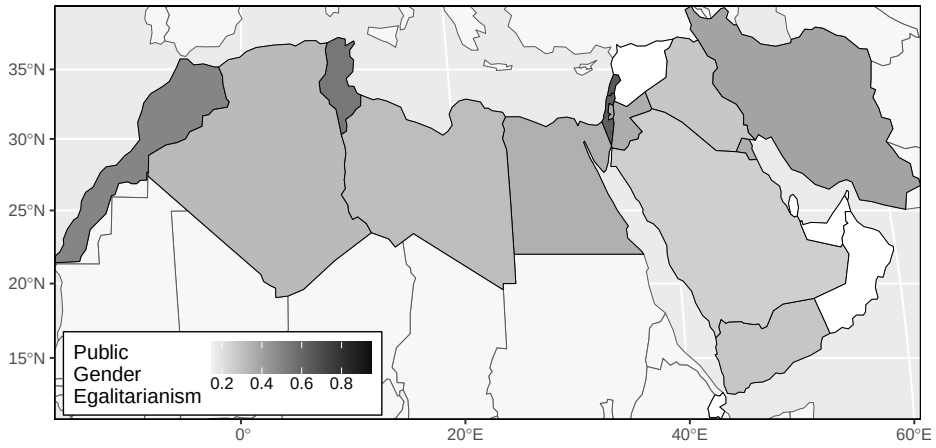


Figure 3.14: PGE Scores Across the Middle East and North Africa, Most Recent Available Year

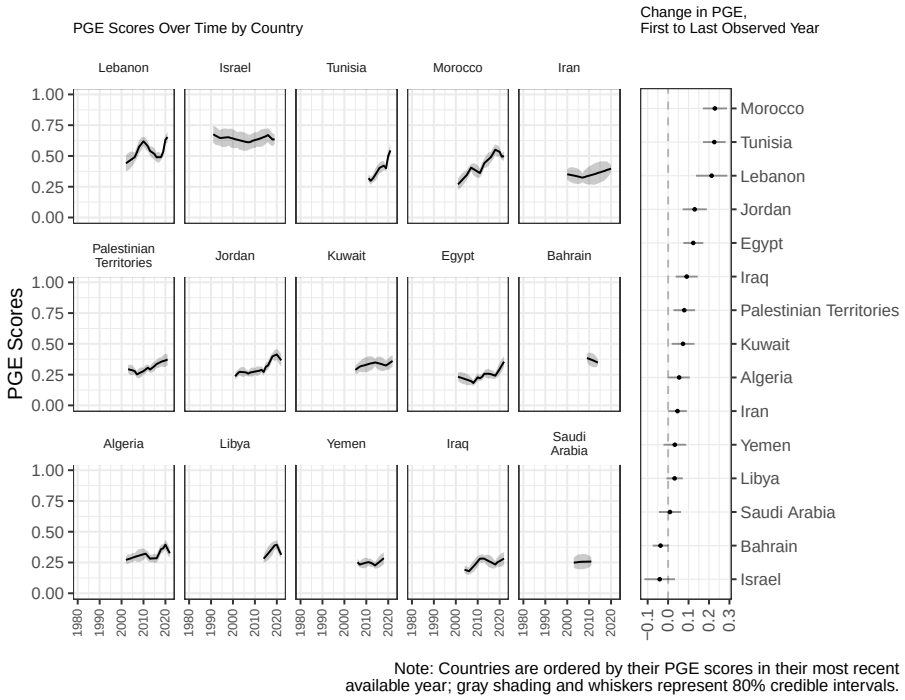


Figure 3.15: PGE Scores in the Middle East and North Africa Over Time

The trend over time in how the public considers gender equality in each of the countries of the Middle East and North Africa is plotted in Figure 3.15. Most of the countries for which data are available have seen some increase over the time observed, and indeed in Morocco, Tunisia, and Lebanon, these increases exceeded a fifth of the entire theoretical PGE scale. Gains in gender egalitarianism were not distinguishable from zero in Algeria, Yemen, Libya, and Saudi Arabia. Public gender egalitarianism was estimated to decline over the years observed in Bahrain and Israel, though only in the former country does the 80% credible interval of this drop exclude zero.

Sub-Saharan Africa

Although sub-Saharan Africa is a large region encompassing over forty countries, it is also among the parts of the world most neglected by survey research. Moreover, the premier survey of the region, the Afrobarometer, unfortunately does not include questions regarding gender equality in politics or work. As a result, even the PGE dataset includes only fourteen countries in the region, and generally over relatively short time periods. Still, these fourteen countries include eight of sub-Saharan Africa's ten most populous, missing only Congo-Kinshasa and Angola, and together the included countries account for nearly two-thirds of the region's total population.

Figure 3.16 maps the point estimates of the most recent PGE scores of these countries. Zambia and Tanzania are the countries where public opinion is the most gender egalitarian, with scores over .6, in the region. Kenya, South Africa, Rwanda, Ethiopia, and Zimbabwe score at or above .5 in the most recent available year. Of these countries, attitudes toward gender are least egalitarian in Sudan, Senegal, Mali, and particularly Burkina Faso. The most recent point estimates for Burkina Faso are the lowest of all of the countries in the PGE dataset (see Figure 3.7).

Figure 3.17 shows how the public's views on gender equality in the public sphere have changed over time, and the differences across sub-Saharan

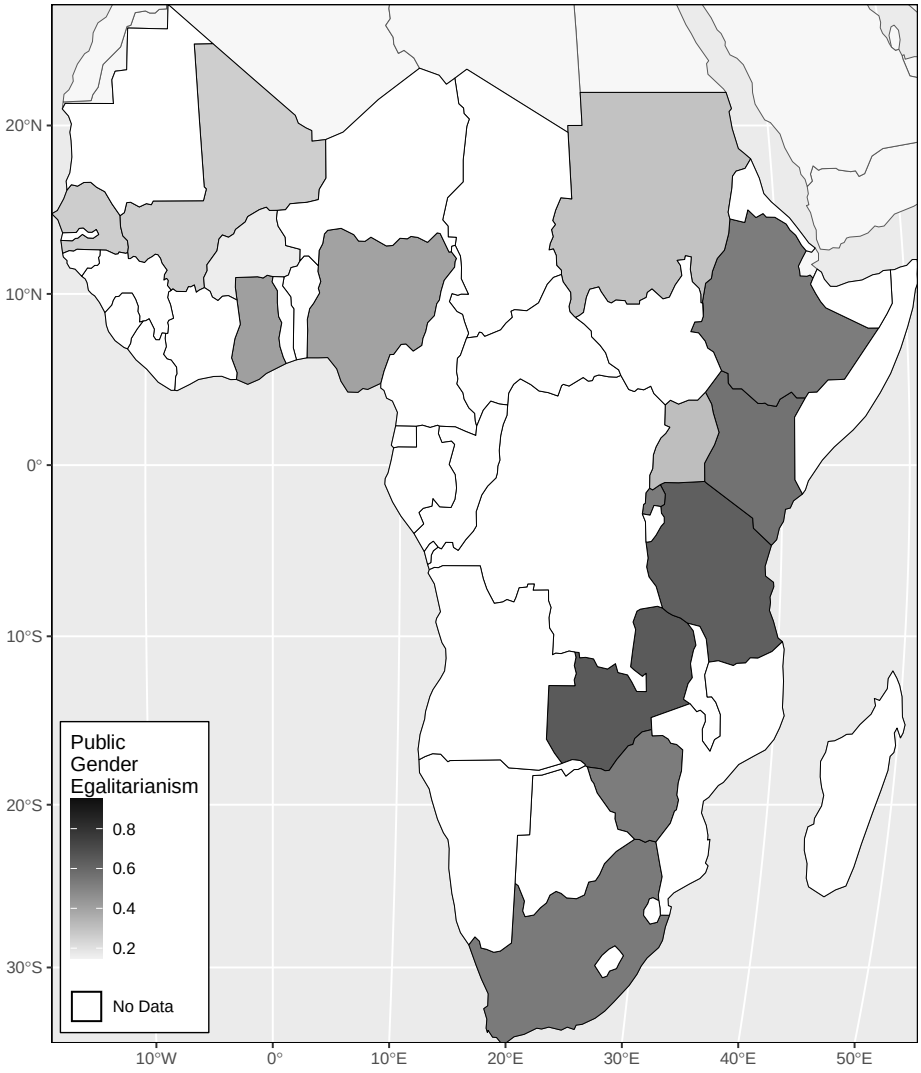


Figure 3.16: PGE Scores Across Sub-Saharan Africa, Most Recent Available Year

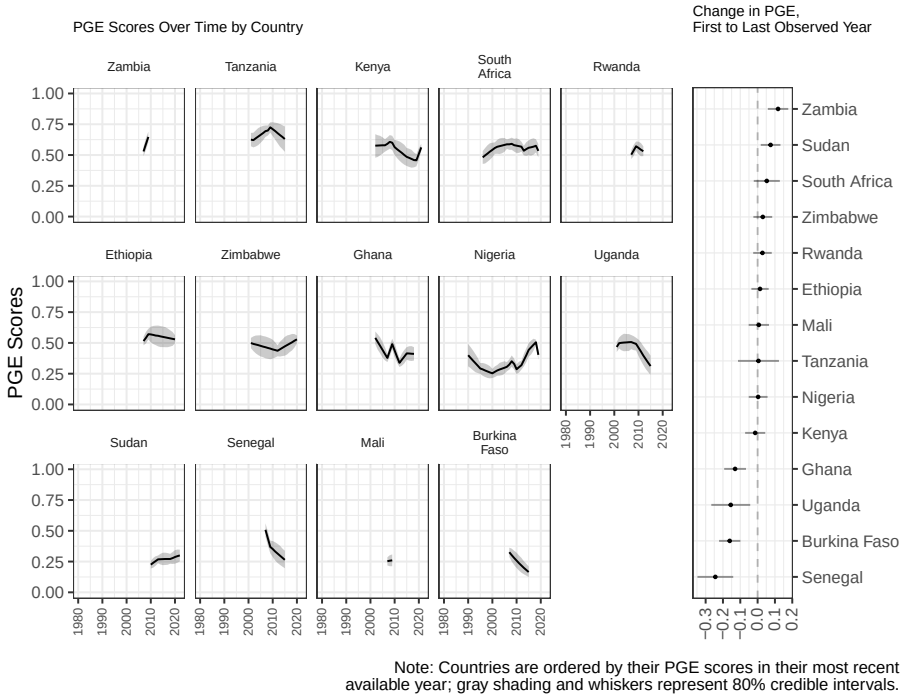


Figure 3.17: PGE Scores in Sub-Saharan Africa Over Time

countries are stark. The sparse data on attitudes in Zambia, covering only the three-year period from 2007 to 2009, indicates there was a small but sharp uptick in egalitarian views during that time. Of the fourteen countries included in the PGE data, only Sudan also saw an increase in public gender egalitarianism from the first observed year to the last, albeit a small one and from a very low base. Attitudes shifted considerably over time in Tanzania and Nigeria, but ended up roughly where they began in both of these cases. Trends in Ghana, Uganda, Burkina Faso, and Senegal all exhibit well-estimated declines in gender egalitarian public opinion.

Central Asia

The availability of relevant survey data allows better coverage of the countries of Central Asia than of sub-Saharan Africa, with only Tajikistan and Turkmenistan excluded from the PGE dataset for want of surveys. The most recent year of PGE point estimates available in the region is mapped in Figure 3.18. Only in Georgia does this score exceed .5, and there only barely: gender egalitarian views are not widespread in this part of the world. Across the region, public opinion is least favorable to gender equality in the public sphere in Uzbekistan. The point estimate of the most recent PGE score, that is, putting aside uncertainty, is scarcely above .2 in that country, making it one of the least gender egalitarian countries in the PGE dataset (see Figure 3.7).

How PGE scores have changed in Central Asia over the years is depicted in Figure 3.19. Georgia and Armenia have seen attitudes toward gender equality trend upwards over the past quarter-century by roughly a fifth of the PGE scale's range or more. Public gender egalitarianism has increased slightly and slowly from the first to last observed year in Russia, Kazakhstan, and Azerbaijan. Uzbekistan saw little change. But according to the PGE data, public opinion regarding gender equality declined considerably in Kyrgyzstan.

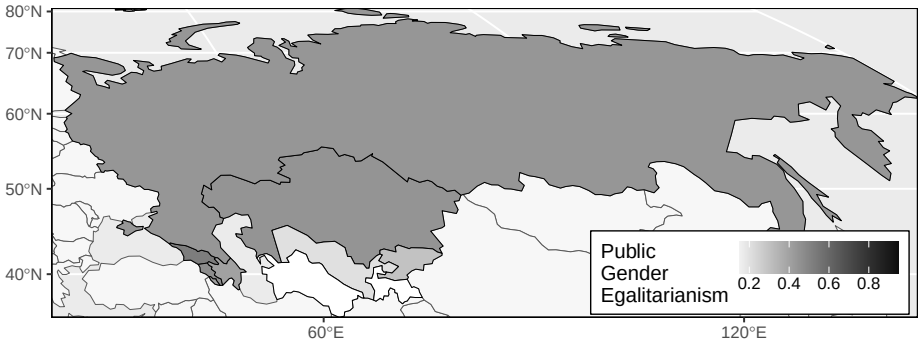


Figure 3.18: PGE Scores Across Central Asia, Most Recent Available Year

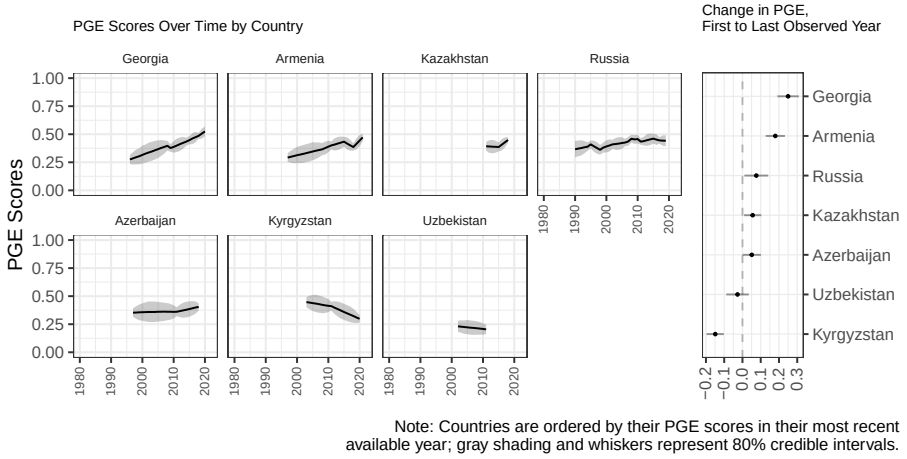


Figure 3.19: PGE Scores in Central Asia Over Time

South Asia

Across South Asia, the available survey data allows us to estimate PGE scores for only five of the region's seven countries; there are no estimates for Afghanistan or Bhutan. The top panel of Figure 3.20 provides a map showing the most recent score, as a point estimate, for each of the remaining countries. These estimates are below .5 for all of the South Asian countries: indeed, only for Sri Lanka does .5 even fall within the 80% credible interval. The public in each of these countries is, in the aggregate, opposed to gender equality in politics and in the workforce. This is particularly true in Pakistan, where the most recent PGE score is estimated to be below .25, among the lowest in the PGE database (see Figure 3.7).

Moreover, as shown in the trends over time are shown at the bottom of the figure, public attitudes toward gender equality in most of these countries have been veering downward. Only in Sri Lanka do the available data suggest that views have remained unchanged since the first observed year, 2005. In Pakistan, Bangladesh, and India, PGE scores appear to have declined by roughly a tenth of the index's full range, and in Nepal they have fallen by approximately twice that amount.

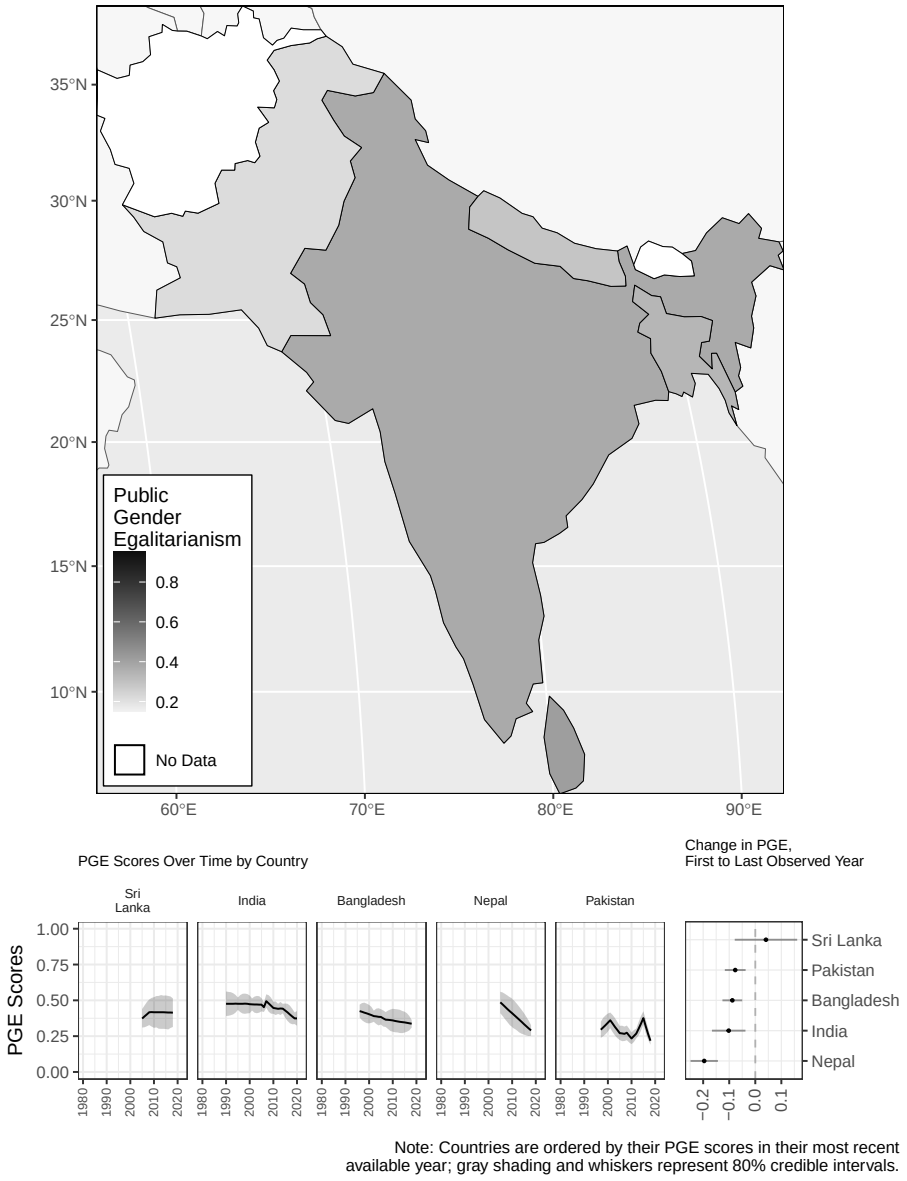


Figure 3.20: PGE Scores Across South Asia, Most Recent Available Year

North America

Canada and the United States comprise the last region of our survey of public gender egalitarianism around the world. As shown in the top panel of Figure 3.21, the point estimates of both countries' most recent PGE scores are fairly high. Each is around the .75 mark, comparable to such countries as Austria and Croatia in central Europe, Costa Rica and Mexico in Latin America, and Australia in the Pacific, but substantially lower than the most egalitarian countries of northern and western Europe, Puerto Rico, or New Zealand (see again Figure 3.7).

Their similar recent scores notwithstanding, the lower panels of Figure 3.21 show that public gender egalitarianism in Canada and in the United States followed very different trajectories over the past three decades. In the United States, PGE scores have climbed slowly but rather steadily over this time. In fact, although this time frame does not entirely appear on the plot, the public's views toward gender egalitarianism in work and politics have grown more positive in this fashion since 1972, gaining some 30% of the full theoretical range of the PGE index since then. Canadians' attitudes, on the other hand, were already quite gender egalitarian in 1990, the first year for which PGE scores in the country are available. In the intervening years, egalitarianism may have fallen slightly, only to recover in the latter half of the 2010s and then again decline somewhat after 2020.

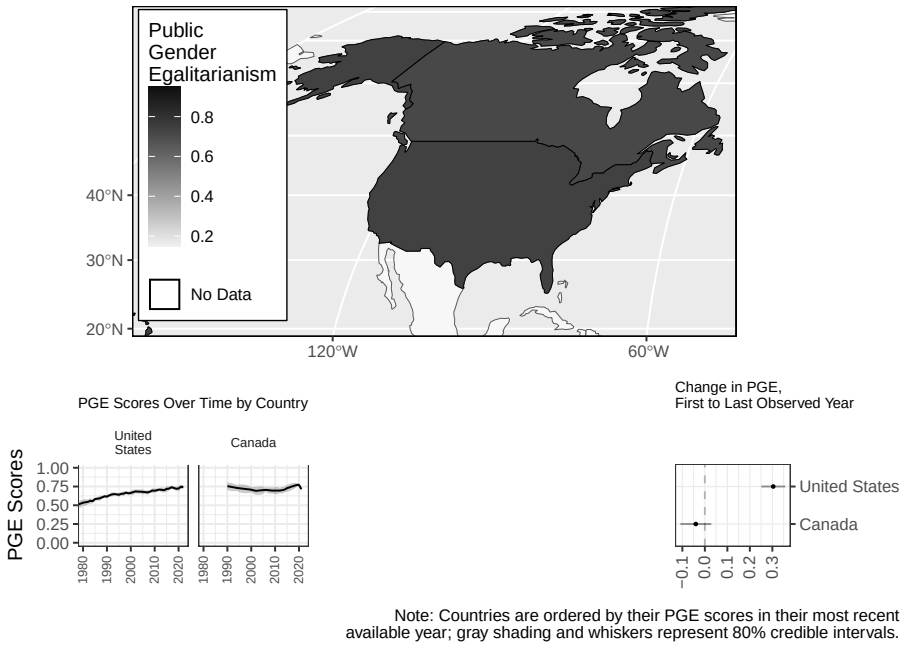


Figure 3.21: PGE Scores Across North America, Most Recent Available Year

The difference between the first and last observed years in Canada cannot be distinguished from zero.

Conclusions

Despite ample theorizing on the role of public opinion regarding gender roles in politics and the workplace, empirical evidence has been limited, consisting of studies of one or a few cross-sections or based on dubious proxies. The reason for this regrettable outcome is the want of data on this concept that is comparable both across countries and over time. The PGE dataset addresses this need.

It does so by compiling the available survey data on the subject and estimating a latent variable model built to take into account the both the differences in the items asked—i.e., their incomparability—and the variation across countries and years in the number of these items that are available—that is, their sparsity. The result is a set of complete time-series in countries around the world, a comparable measure of the public's attitudes toward equality for women and men in the public sphere, the traditionally male domain of politics and paid employment, along with quantified uncertainty in this measure. The PGE dataset covers nearly 3,000 country-years, almost six times as many as provided by the most commonly asked single survey item.

In the following chapters, we will take advantage of the PGE data to better address such long-standing questions as how collective attitudes on gender roles have influenced the election of women to national legislatures (see, e.g., Paxton and Kunovich 2003; Alexander 2012) and to pursue both new and more nuanced lines of inquiry on issues of policy responsiveness (cf., Kittilson 2008; Busemeyer, Abrassart, and Nezi 2021).

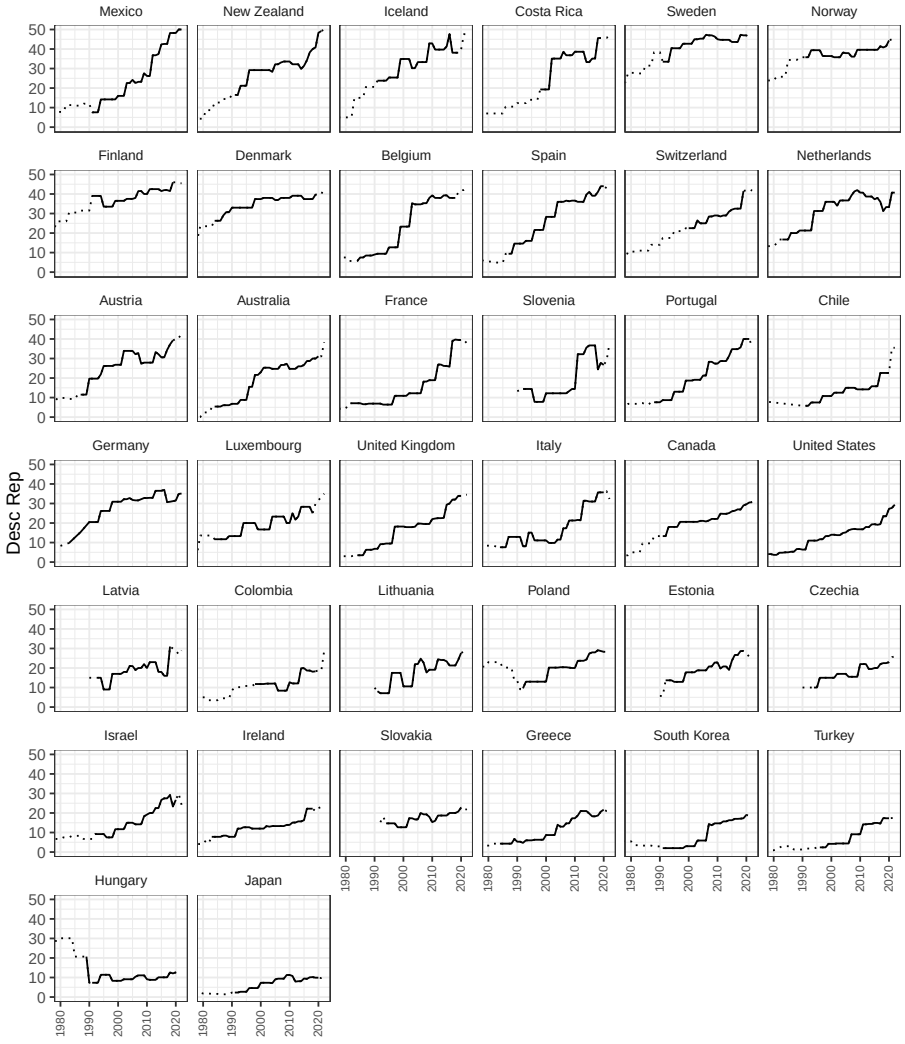
4 Gender Egalitarianism and Women's Descriptive Representation

In the traditional view, politics is a man's game. From this perspective, the public sphere, both politics and the workplace, is unsuited to the participation of women, and elected office is considered to be a position for men only. Nonetheless, around the world in rich democratic countries of the OECD, women have succeeded in winning election to seats in the national legislature. Such successes were once rare. In ten of these rich democracies, no more than one in twenty members of the lower house of the national legislature were women into the 1980s or even later. And success in gaining office remains uneven. At this writing, gender parity—equal numbers of men and women—has been achieved in the lower legislative houses of only two of these countries, Mexico and New Zealand. But

women continue to number fewer than one in five legislators in twice as many of these rich democratic countries.

Trends in the share of women elected to the lower houses of the legislature, the most commonly studied measure of women's descriptive representation, across the OECD countries over more than forty years can be found in Figure 4.1. The data are drawn from the Quota Adoption and Reform Over Time (QAROT) dataset (Hughes et al. 2019), supplemented with information provided by the Inter-Parliamentary Union (IPU) (2023). The OECD countries appear in order of women's percentage of legislative seats in the most recent available year. The differences are stark. Across much but not all of western Europe, women politicians have made rapid and substantial gains. These trends are perhaps most striking in Belgium and Spain. In the Nordics—Iceland, Sweden, Norway, Finland, and Denmark—parity has been relatively close, if yet unreached, for most or all of the twenty-first century. Along with Mexico, the Latin American countries of Costa Rica, Chile, and Colombia have seen sharp increases in the share of women in the legislature in their most recent elections, albeit from a range of previous values. On the other hand, any movement toward gender equality in legislative officeholding has been slow and halting in a number of countries, from Ireland and Greece to South Korea and Japan.

These differences across countries in women's descriptive representation have been closely studied. Case studies and cross-national work alike have



Note: Solid lines trace trends over the years covered in this chapter's analyses; dotted lines extend to years that were not included. Sources: Hughes et al. (2019); Inter−Parliamentary Union (2023).

Figure 4.1: Women's Descriptive Representation in the OECD

found support for the elite-led theory described in Chapter 2. Both ways in which this theory suggests the supply of women candidates may be increased appear to work. Countries that employ electoral systems that include party lists have been found to elect more women than those without, evidence that party lists provide better opportunities for feminist activists to convince party leaders to run more female candidates—or indeed to supplant those leaders and do it themselves (see, e.g., Matland 2005; Paxton, Hughes, and Barnes 2021, 164–69). And the national quota laws advocated by these activists that, when adopted, require all parties to put forward a minimum share of women as candidates, likewise have been found generally to increase the share of women elected, if not typically by the amount their mandated candidate shares would perhaps lead one to expect (see, e.g., Schwindt-Bayer 2009; Paxton and Hughes 2015).

The role in this process of public opinion has attracted much less attention. Again, this is not because scholars do not think that the public is important. They certainly do. In the rich democracies that we are concerned with in this book, after all, the public is the electorate, and the bottom-up theory described in Chapter 2 argues that the public is very important. But the limitations in the measures of public opinion available to researchers has constrained them to study countries at just one or a few time points (see, e.g., Paxton and Kunovich 2003; Alexander 2012) or to rely on very loose proxies such as predominant religion or the percent-

age of women already in office (see, e.g., Burns, Schlozman, and Verba 2001, 340–41; Claveria 2014; Barnes and O'Brien 2018). Cross-national and longitudinal investigation of, for example, the argument that such "attitudes influence both the supply of, and demand for, female candidates" has remained persistently a topic for future research (Paxton, Hughes, and Painter 2010, 47). Equipped with the PGE data, this chapter takes up the question of the role of public attitudes in the election of women to legislative office in the rich democratic countries.

To quickly review, the theory connecting gender egalitarianism in the public sphere with women's descriptive representation is straightforward. Where the public holds more egalitarian views toward women in politics and the workforce, voters will be more willing to elect female candidates running for office, and party gatekeepers will be more willing to allow women to run. In other words, more egalitarianism should be expected to increase both demand and supply, with the consequence that more women will hold office.

Although women's share of the legislature does vary somewhat in the course of most legislative terms—officeholders retire and are replaced, for example—those fluctuations are not really relevant to the explanations for descriptive representation that we have discussed, all of which focus on what happens in elections. Therefore, we examine only election years. Combining the data presented in Figure 4.1 with the PGE database gives

a substantial number of elections to study. In fact, across the 38 countries, there are 319 elections, for an average of more than eight elections per country. The sample is unbalanced, however: some countries hold elections more often than others, of course, but there are also longer series of PGE data for some countries than others.

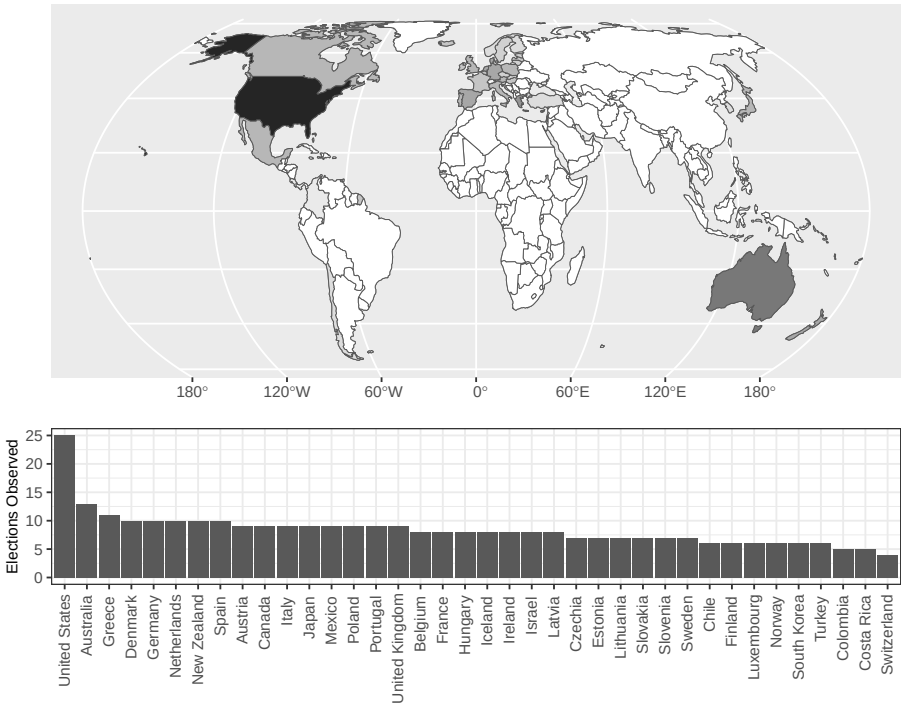


Figure 4.2: Observed Democratic Elections in the OECD

The number of elections available for our analyses in each country are depicted in Figure 4.2. Our scale here runs from light to dark: the darker

the country the more observed elections we have. The United States, with its short two-year terms to the House of Representatives and a series of PGE scores spanning a half century, has the most elections to examine, followed at considerable distance by Australia. Colombia and Costa Rica are observed in just five elections, and Switzerland in only four. Still, a solid majority of our countries, twenty-six of the thirty-eight, have been observed in at least eight elections, giving us some confidence that we have adequate data to capture not only the differences between the countries in which many women are elected and those with much smaller numbers of women in office but also and perhaps more importantly the dynamics of change over time. We will start, though, by looking at the raw bivariate data.

Are gender egalitarian public opinion and women's descriptive representation related? Every point in Figure 4.3 represents an election in a particular country, and each is labeled with that country's two-character codes assigned by the International Organization for Standardization. The figure's x-axis presents the country's Public Gender Egalitarianism score, measured in the year the election was held. And because the PGE scores are estimated with uncertainty, each point is shown with horizontal whiskers tracing its 80% credible interval. The plot's y-axis depicts the percentage of seats won by women in each election to the lower house of the national legislature in that election. There is a strong positive relationship between

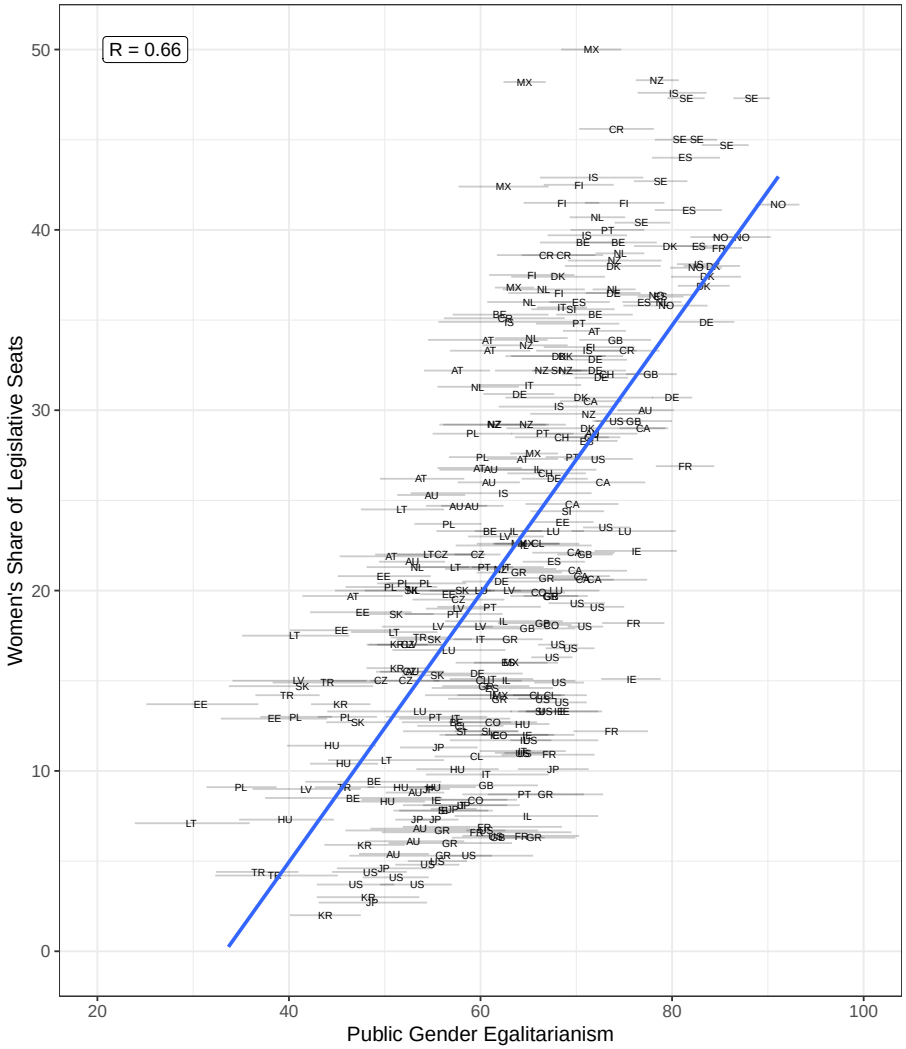


Figure 4.3: Public Gender Egalitarianism and Women's Share of Legislative Seats in OECD Democracies

the two. Taking the uncertainty in the PGE scores into account, the bivariate correlation is .66. This is promising evidence for the bottom-up theory, but there are many potential explanations for a strong correlation besides the theory that more egalitarian views among the public cause more women to win office.

Analyzing Descriptive Representation in National Legislatures

To better assess whether gender egalitarian public opinion influences women's descriptive representation, we need a more sophisticated analysis. To start, we will need to take into account other potential explanations for when more women are elected to office, in particular, those offered by the elite-led theory. After all, public opinion may simply reflect cues provided by the activists and party leaders who play a central role in the elite-led theory. If that is the case, the strong relationship seen in Figure 4.3 would result from both public opinion (through these cues) and descriptive representation (through their successes in getting national quotas enacted and women candidates on party lists) being consequences of the strength of feminist activists. To rule out this potential source of spurious association, we control for the strength of any national legislative quotas for women and the presence of an electoral system that includes

party lists. Data on whether a country's electoral system contains at least a party-list component comes from the Democratic Electoral Systems Around the World (Bormann and Golder 2022). Elections held under list proportional representation, mixed-member proportional, and mixed-member majoritarian electoral rules are coded one for this variable, while all other elections are coded zero. Some 77% of the elections in our sample were held with such rules.

Data on national quotas are drawn from the QAROT database and updated with information from the Gender Quotas Database maintained by the International Institute for Democracy and Electoral Assistance (2023). Hughes et al. (2019), which presents the QAROT data, provides an exceptionally good measure of quotas, the de facto threshold. The de facto threshold is based on "a country's stated quota threshold and the breadth of a quota's actual reach" (Hughes et al. 2019, 225). It is the combination of these two factors that determine the mandated minimum share of women on the ballot. For example, South Korea requires 50% of candidates on each party's list to be women. However, this quota applies exclusively to the proportion of the legislature that is elected from party lists, which, under the country's mixed-member electoral system, is only about a sixth of the National Assembly. For the remaining roughly five-sixths of the seats that are elected from single-member districts, only 30% of the candidates are required to be women. Taking these quota levels and

their respective breadths of application together, the de facto threshold in Korea is about one-third of each party's candidates. There are other important aspects of national legislative quotas, such as whether and how they are enforced or if the position of women on an electoral list is specified. Still, the de facto threshold provides a straightforward measure of the share of women candidates that is required to appear on the ballot, and we use it as our measure of national legislative gender quotas here.

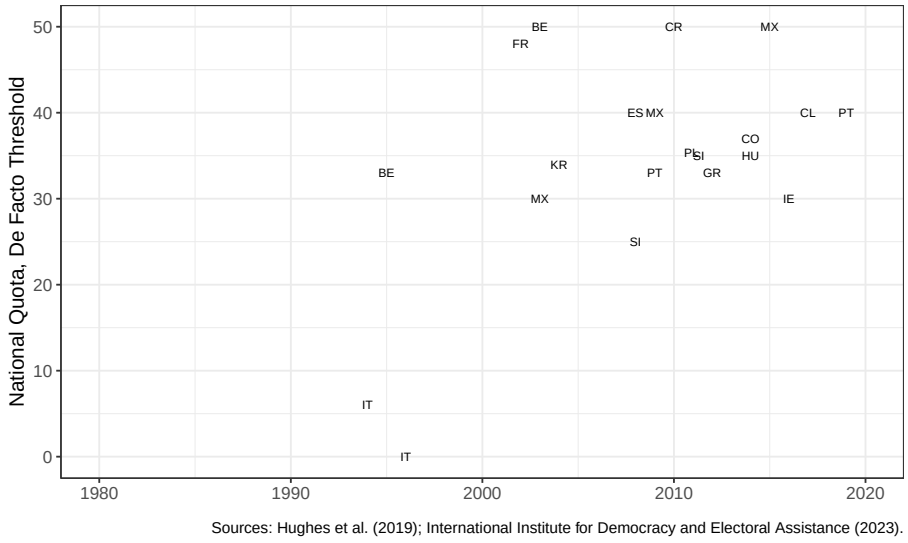


Figure 4.4: Adoption and Reform of National Legislative Gender Quotas in OECD Democracies

Figure 4.4 shows the adoption and reform of national legislative gender quotas over time in the rich democratic countries of our study. Italy was

the pioneering among these countries, but its small quota was abolished a few years later. In later years, those quotas that have been adopted have been more robust, and many countries that adopted quotas strengthened them over time. Belgium and Mexico, which along with Costa Rica now have de facto quotas requiring that women make up half of all candidates, had earlier adopted lower quotas.

With these data in hand, we can turn to how best to use them to test our theories. The dataset includes a series of time points representing years with democratic elections for each of the thirty-eight OECD member states. Pooling these time series and analyzing them together has two long-appreciated benefits (see, e.g., Stimson 1985, 916). On the one hand, examining changes over time can provide strong evidence of causality for even questions involving concepts like public opinion and women in office that are not subject to manipulation by researchers and so are ill-suited to experimental research. On the other, examining many countries can provide strong evidence that our conclusions are general and not specific to a particular, possibly exceptional, context. These are powerful advantages. But certain statistical difficulties associated with pooling time series have been long recognized as well (see, again, among others, Stimson 1985).

Shor et al. (2007) demonstrates that two of the difficulties with pooled time series are best addressed using a Bayesian multilevel model that includes varying intercepts for both space and time. Such models take into

account the distinctive structure of our data as comprised of observations of a particular country in a particular year. They incorporate the fact that what we see in an observation is influenced by *where* we are looking. All observations of Spain, for example, may share distinctively Spanish traits. If these distinctive traits are unknown and ignored, our model will consistently under- or over-estimate women's descriptive representation for all of our Spanish observations over time.[1] But these distinctive traits can be modeled by including a varying intercept for each country, a parameter that shifts our prediction of the outcome for all observations from that country by the same amount. Together, the country parameters avoid the problems caused from those national traits for which we do not have data or otherwise exclude from our analysis. These models also recognize that what we observe is also influenced by *when* we are looking; to give an instance, all observations from 2020 may share peculiarities as a result of the COVID-19 pandemic and other events felt around the globe that year.[2] These distinctive temporal characteristics are similarly modeled with a varying intercept for each year. The year parameters shift our predictions for all observations from a particular year equally to account for whatever 'time shocks' operated on all countries simultaneously at that point in time (Shor et al. 2007, 171–72).

[1]This problem is a form of *heteroscadisticity*, a violation of the assumption of regression analyses that error variances are equal.

[2]Such contemporaneous correlation violates the regression assumption that, conditional on the model, the errors in our predictions are independent.

Another persistent concern with in the analysis of pooled time-series data is that cross-country differences can be confused with over-time changes. Change in our explanatory variable followed in time by change in what we seek to explain provides strong evidence of causation. That our proposed cause and effect covary across countries, on the other hand, *may* reflect potentially different long-running and historical causal processes, but it may also reflect other, unmodeled cross-national differences. We follow Bell and Jones (2015) and employ the 'within-between random effects' specification to take into account the difference between change over time and differences across countries. To do this, we separate each time-varying predictor into its mean value for each country, which does not vary over time, and the difference between its value in a given year in a country and this country mean. The latter, time-varying difference variables capture the short-term causal effects of the predictors. The former, time-invariant country-mean variables reflect their often different long-run, historical effects as well as any country differences that would otherwise cause omitted-variable bias (Bell and Jones 2015, 137).

Yet another complication occurs when the processes observed are dynamic. That is, empirically, that past values predict current values and, theoretically, that there reasons to think that the past matters to the present. As in most events that unfold over time, that is true in this case. Here, in the present election, women serving in office in the just concluded legislative

term may on the one hand enjoy the benefits of incumbency, but on the other they may be held to higher standards of conduct than their male peers. Either way, the extent of women's descriptive representation in the preceding term can be expected to influence the extent of representation in this one. And public opinion, such as with regard to gender equality in the public sphere, is often theorized similarly, with present attitudes thought to be a function of past attitudes as updated with new information. Given these circumstances, we include as a predictor the lag of the variable to be predicted, that is, its value at the time of the last election, and we calculate the total effects of our time-varying difference values over the medium term (see Keele and Kelly 2006).

One last source of problems is measurement uncertainty. As described in the previous chapter, our measure of public gender egalitarianism, the PGE scores, are estimated with uncertainty as a result of the sparsity and incomparability of surveys addressing the topic. Because measurement uncertainty in a latent variable like the PGE scores can bias our the results of our analyses, to ignore it is to run the risk of drawing incorrect conclusions from the data (see Tai, Hu, and Solt 2022). We therefore incorporated the measurement uncertainty in the PGE scores into our analysis. The model was estimated using the `brms` R package (Bürkner 2017) with noninformative priors.[3]

[3]By default, `brms` assigns linear regression coefficients improper flat priors over the real numbers. That means that, before considering the data and model, the probability

Figure 4.5 presents the results. The shaded regions represent the posterior probability distributions; the higher the shading, the more likely that what each region depicts—here, one regression coefficient—takes on that value conditional on these data and this model. The dots mark the mean values of these distributions. The whiskers trace the 80% credible intervals; that is, there is an 80% probability that the regression coefficient falls within that range, again, conditional on these data and this model. The bottom panel shows, as expected, that descriptive representation is dynamic: the share of legislators who are women after the previous election strongly predicts the share of legislators who are women after this one. Incumbency matters. But the unstandardized coefficient is less than one, which suggests that absent the actions of elites and the support of the public as considered in the model, descriptive representation declines rather than grows over time. This provides suggestive evidence that women in office are held to a higher standard than their male colleagues.

The regression coefficients for the variables suggested by the elite-led and public opinion theories appear in the top panel of the figure. For the variables regarding electoral lists, these coefficients are scaled to the values of zero (the electoral system does not include party lists) and one (the system does have party lists). The coefficients of the other variables are

that a coefficient takes on any value, from negative infinity to positive infinity, is assumed to be equal. Weakly informative priors—for example, normal(0, 2)—yield substantively similar results for all analyses.

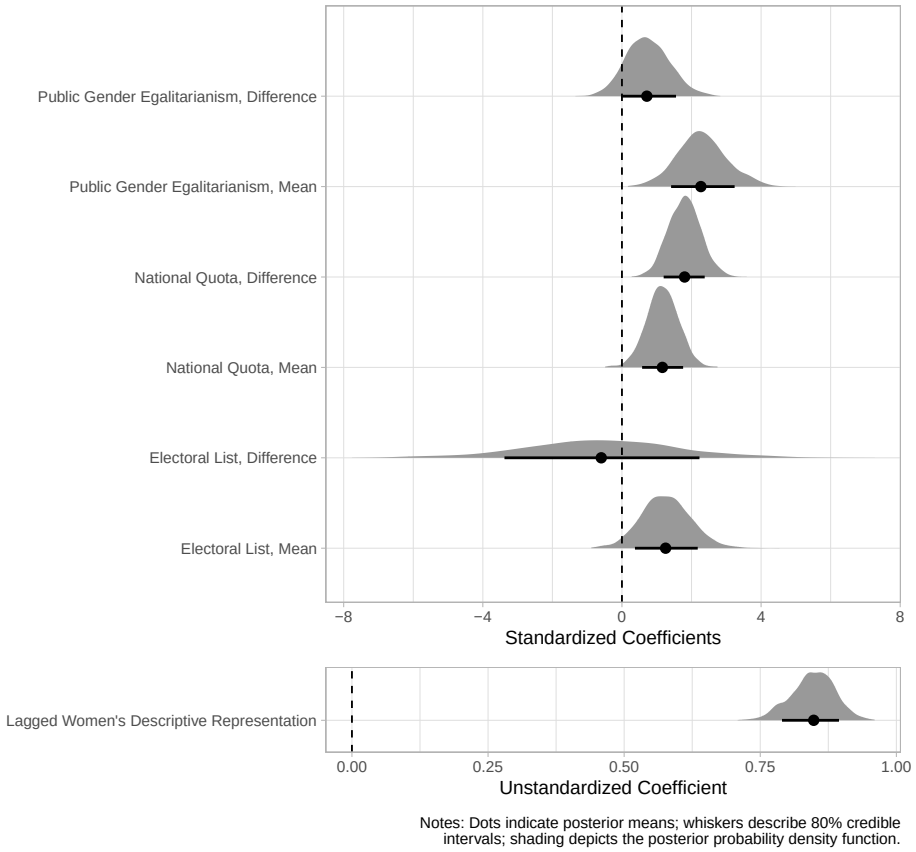


Figure 4.5: Predicting Women's Descriptive Representation in OECD Democratic Elections

multiplied by a factor of two times the variable's standard deviation; this puts all of the coefficients on the same scale for easy comparison (see Gelman 2008).

Party-Elections

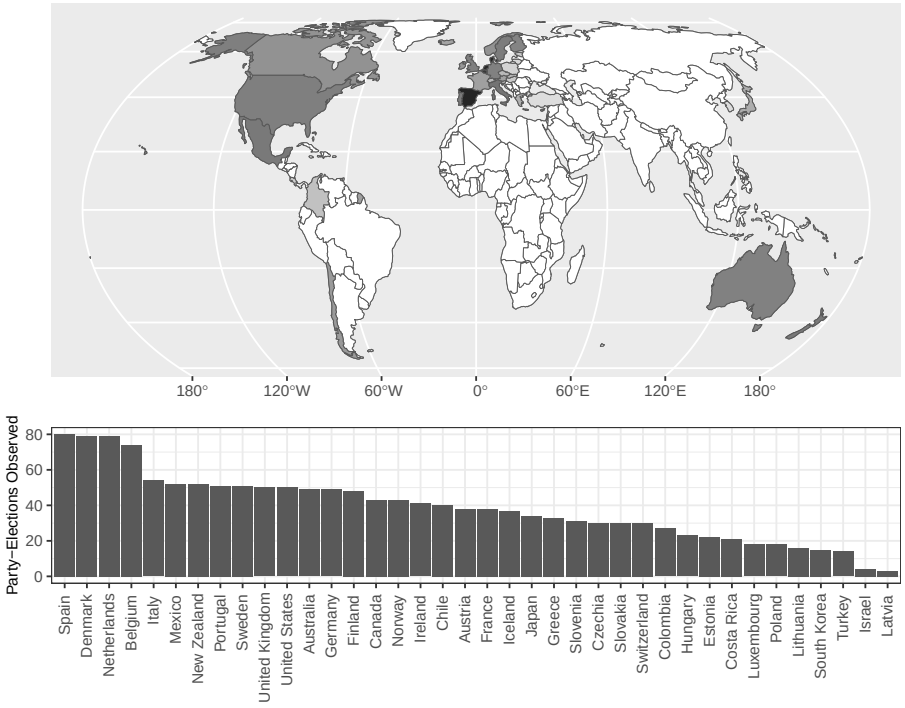


Figure 4.6: Party-Election Observations in OECD Democracies

BUT: I'm betting at least some of you have spotted a disconnect between

the theories as I laid them out and this evidence. The theories were all about things going on at the party level, right?

Parties respond to internal activist pressure and adopt quotas, *parties* react to an increasingly egalitarian public by running more women candidates who can get elected, and so on. But the unit of analysis here is the country-election. We can't really see what going on within the parties, really not at all.

So let's shift to the *party*-election level. I compiled data on women's share of each party's legislative representation after each election from a couple of great articles that became available FirstView in the APSR just this spring. Weeks, Meguid, Kittilson, and Coffé 2022 on when Europe's extreme right parties elect more women, and– Adams, Bracken, Gidron, Horne, O'Brien, and Senk 2022 on the moderating effect of elected women on outparty evaluations. I recommend both of these pieces to you, btw, if you haven't seen them yet: each of them is a fantastic work with an all-star cast of authors. Anyway, I raided those articles' replication materials for data, and then Byung-Deuk and I collected a bunch more, especially for the South Korean and the Latin American cases, which neither of those works had included at all. With party-elections as the unit of analysis, we have almost two thousand observations across our 38 OECD countries.

So, what do we see now? Well, as one might have expected, the bivariate relationship is a lot noisier. For the purposes of presentation, I faded the

points in this plot by the parties' share of the legislature: the biggest parties are darkest and the tiniest parties are very light. But, for the time being at least, I'm following the existing literature and doing nothing with weighting, which means, in effect, weighting each party-election observation equally. And to be upfront, I feel like these are together a really hard test, because in this literature almost nothing predicts when women will make up a larger share of a party's members of the legislature—sometimes not even national quotas.

These are, again, multilevel models, but now they are cross-classified: party-elections are nested in parties and in country-elections which are both nested in countries. In other words, we have varying intercepts for each party, for each election in a country, and for each country.

Yeah, enough stalling: here's what we get. A little surprisingly, I think, we get pretty much exactly the same results. A two-standard-deviation rise in public gender egalitarianism in the year before an election is associated with almost a twelve percentage point increase, plus-or-minus two-and-a-half points, in women's share of a party's seats in the legislature in the bivariate model.

This estimate drops to ten points plus-or-minus two when quotas are added–and now quotas are measured to include voluntary party quotas as well as statutory national quotas. The quota estimate is seven-and-a-half points plus or minus one–a bit larger than in the models at the

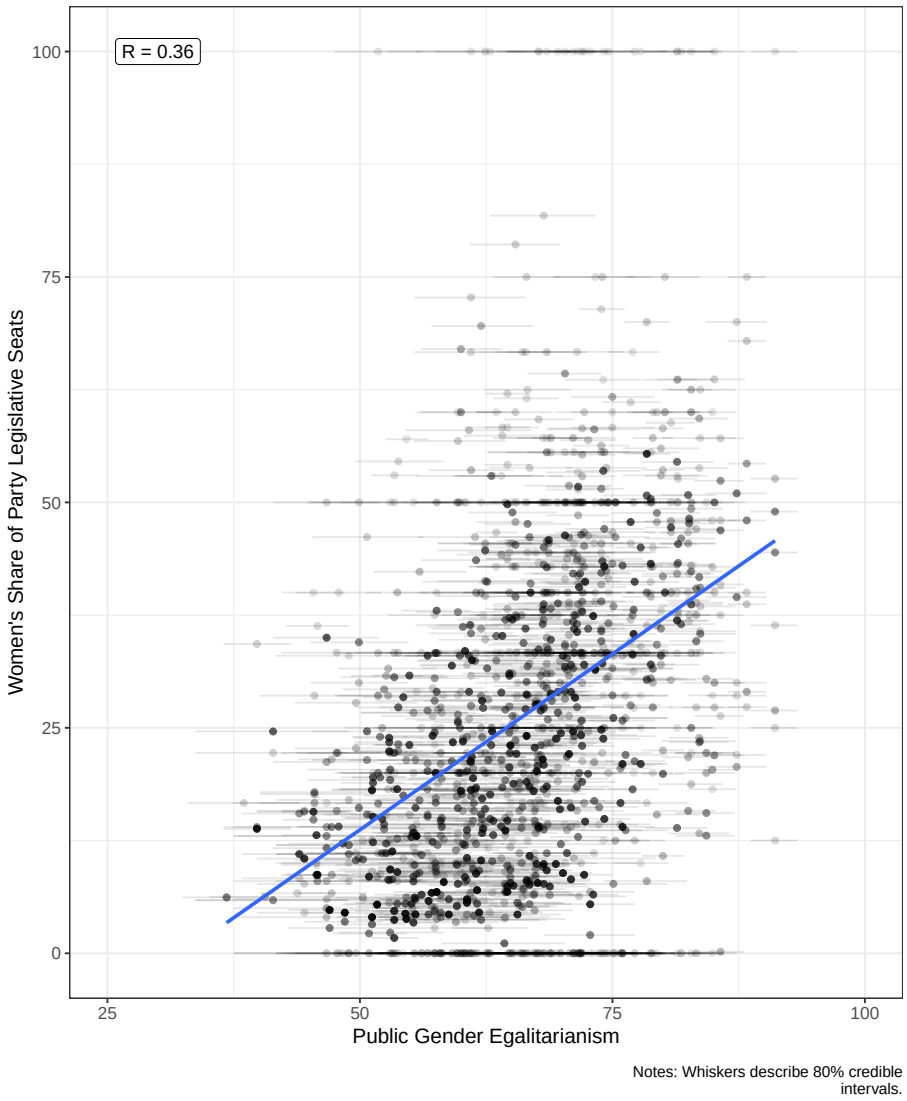


Figure 4.7: Public Gender Egalitarianism and Women's Share of Party Legislative Seats in OECD Democracies

country-election level. I put that down to the better measurement.

Reciprocal

An additional consideration arises where what we have theorized as the causal relationship, here that more gender egalitarian public opinion causes more women's descriptive representation, can also be theorized as running in the opposite direction. The reverse theory, that more descriptive representation yields more gender egalitarian public opinion, is very plausible. Indeed, it has been found to have empirical support in previous research. Working with data from twenty-five countries included in two waves of the World Values Survey conducted a decade apart, Alexander (2012) found that increases in women's presence in parliaments predicted greater belief that men are no better political leaders than women. We therefore model these potentially reciprocal relationships using multivariate simultaneous equations, meaning that descriptive representation and gender equality each used to predict the other and that the varying intercepts for each country and year are modeled as correlated across the two equations.

Yet another complication occurs when the processes observed are dynamic. That is, empirically, that past values predict current values and, theoretically, that there reasons to think that the past matters to the present. As

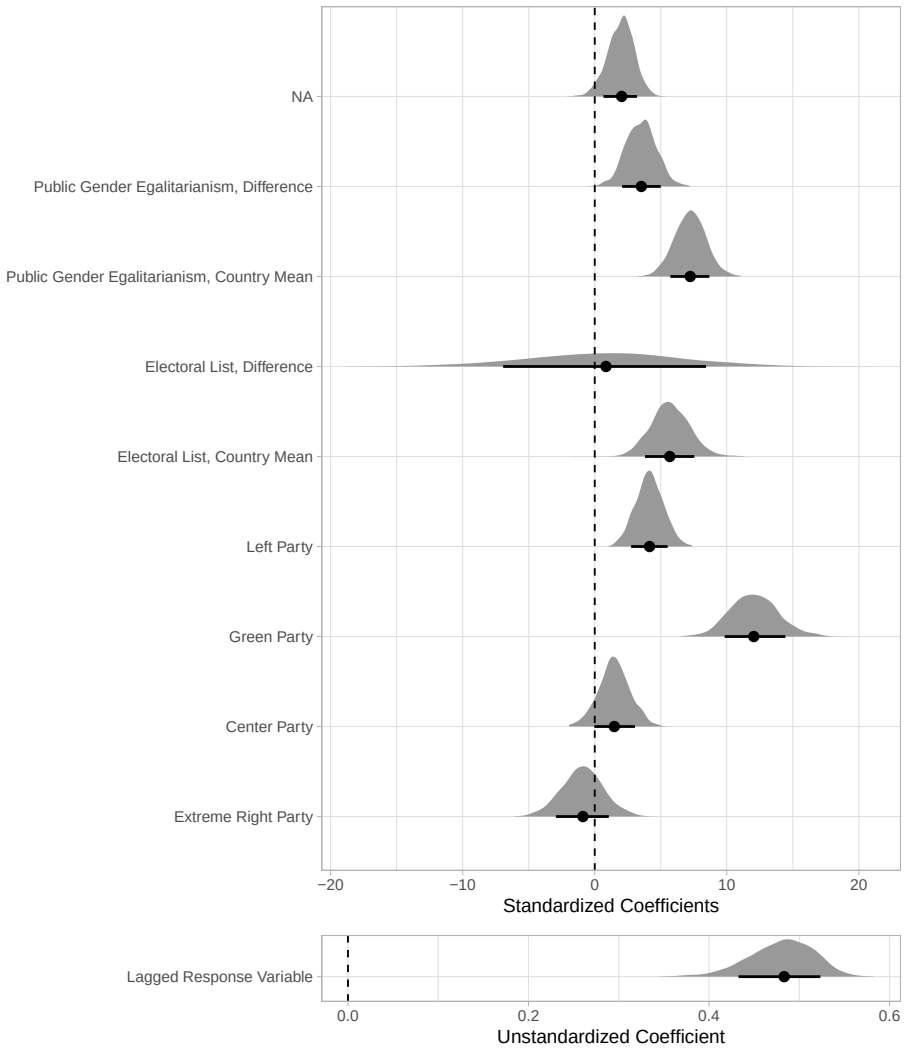


Figure 4.8: Predicting Women's Share of Parties' Legislative Seats in OECD Democracies

in most events that unfold over time, that is true in this case. Here, in the present election, women serving in office in the just concluded legislative term may on the one hand enjoy the benefits of incumbency, but on the other they may be held to higher standards of conduct than their male peers. Either way, the extent of women's descriptive representation in the preceding term can be expected to influence the extent of representation in this one. And public opinion, such as with regard to gender equality in the public sphere, is often theorized similarly, with present attitudes thought to be a function of past attitudes as updated with new information. Given these circumstances, we include as a predictor the lag of the variable to be predicted, that is, its value at the time of the last election, and we calculate the total effects of our time-varying difference values over the medium term (see Keele and Kelly 2006).

All right, it's time to wrap up. To review the findings, we found plenty of support for the well established elite-led theory that feminist activists working within political parties are a major force for getting women elected. Gender quotas and party lists, the key institutional features associated with this argument, are robustly associated with more female candidates winning office at both the country and the party level. But there's strong support, too, for the bottom-up theory, which complicates the purest versions of the elite-led political theory: the activists working hard within parties to build space for women are not the entire story. More women

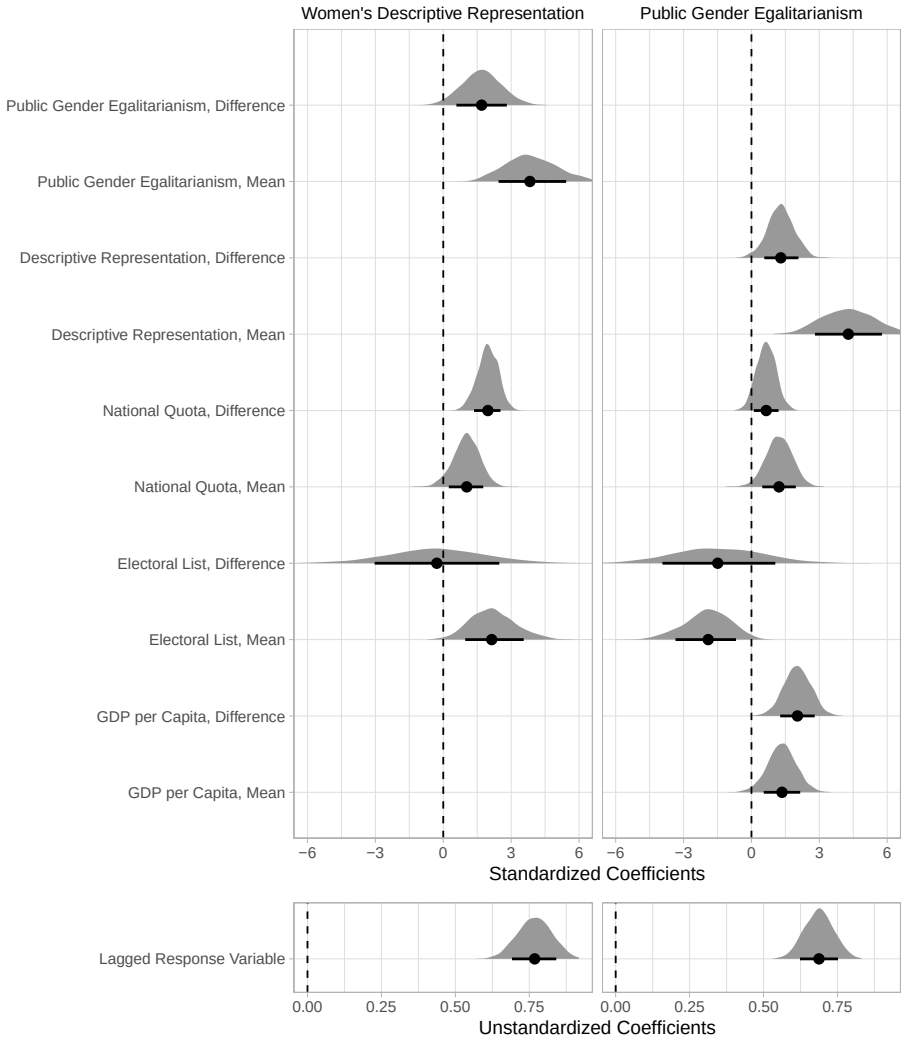


Figure 4.9: Predicting Women's Parliamentary Representation in OECD Democratic Elections

gain office when the public's views on the role of women in the workplace and in politics are more egalitarian. The two are complements. It does not appear, though, that they interact in the sense that parties do not seem to respond to greater public demand for gender equality by making their gender quotas more effective or placing women in better spots on their party list. These sorts of positive interactions just are not supported in the analyses I have shown you today. Conversely, in fact, our findings indicate that electoral systems with a party-list component seem to better position activists to get more candidates on the ballot and in office than electoral systems without this feature do *when the public's views are relatively _in_egalitarian*. Non-party-list systems elect similar numbers of women only when public gender egalitarianism is high.

So that's where things stand. The attitudes of the public, which were, back in the twentieth century and the early years of this one, a big part of how scholars tried to explain how women win office, these attitudes have lately been pretty neglected. And I think that is down to measurement–until now, it's been easier to measure the other sorts of things thought to enter party elites' calculations. But the PGE database gives us a new lens for examining these questions and others–for our book manuscript, we're also working on the question of whether public opinion, independent of women's descriptive representation, directly shapes the adoption of policies like family leave and efforts to combat violence against women. I mean,

it might: even male legislators will want to satisfy their constituents who want gender egalitarian policies, and they may be more likely to even be more egalitarian themselves. So we'll see, though it really could be that if there's a relationship it all works through women legislators. But that's future work. Right now, we conclude that taking public gender egalitarianism into account is a valuable complement to the elite-led political theory of how women gain descriptive representation.

5 From Public Egalitarianism to Equality: Understanding Policy Adoption

Gender quotas: Weeks2018 Family leave Anti-violence against women Gender equality of opportunity: see Kim2022 and https://wbl.worldbank.org/en/wbl

5.1 Quotas

```
party_quota_cor <- map(party_pge,
                ~ with(.x, cor(pge_lag, party_quota,
                               use = "pairwise.complete.obs"))) %>%
  unlist() %>%
  mean() %>%
  round(2) %>%
```

```
  sprintf("%.2f", .) %>%
  paste0("R = ", .)

party_quota_label <- tibble(summary_pge_lag = .3, party_quota = 51, label

ggplot(by_party,
       aes(x = summary_pge_lag,
           y = party_quota)) +
  geom_segment(aes(x = summary_p10_lag, xend = summary_p90_lag,
                   y = party_quota, yend = party_quota),
               na.rm = TRUE,
               alpha = .05) +
  geom_point(alpha = .05) +
  geom_smooth(method = 'lm', se = FALSE) +
  theme_bw() +
  theme(legend.position="none",
        axis.text  = element_text(size=10),
        axis.title = element_text(size=12)) +
  scale_x_continuous(limits=c(0.25, 1),
                     breaks=seq(.25, 1, by = .25)) +
  scale_y_continuous(limits=c(0, 51)) +
  labs(x = TeX("Public Gender Egalitarianism$_{t-1}$"), y = "Party Quota")
```

```
  geom_label(data = party_quota_label, aes(label = label))

ggsave(file.path(descrep_path,
                 "party_quota_plot.jpg"))
```

```
m0_party_quota <- party_pge %>%
  map(~ lmer(party_quota ~ pge_lag_by2sd +
               (1 | party) + (1 | cyear) + (1 | country), REML=FALSE,
             data = .x)) %>%
  sim_and_tidy()

m1_party_quota <- party_pge %>%
  map(~ lmer(party_quota ~ pge_lag_by2sd +
               list +
               (1 | party) + (1 | cyear) + (1 | country), REML=FALSE,
             data = .x)) %>%
  sim_and_tidy()

m2_party_quota <- party_pge %>%
  map(~ lmer(party_quota ~ pge_lag_by2sd +
               list +
               leftwing +
```

```
                pge_lag_by2sd:leftwing +
                (1 | party) + (1 | cyear) + (1 | country), REML=FALSE,
              data = .x)) %>%
  sim_and_tidy()

m2_party_quota_a <- party_pge %>%
  map(~ lmer(party_quota ~ pge_lag +
                list +
                leftwing +
                pge_lag:leftwing +
                (1 | party) + (1 | cyear) + (1 | country), REML=FALSE,
              data = .x))

m3_party_quota <- party_pge %>%
  map(~ lmer(party_quota ~ pge_lag_by2sd +
                list +
                green +
                left +
                extreme_right +
                pge_lag_by2sd:green +
                pge_lag_by2sd:left +
                pge_lag_by2sd:extreme_right +
```

```
              (1 | party) + (1 | cyear) + (1 | country), REML=FALSE,
            data = .x)) %>%
  sim_and_tidy()

m3_party_quota_a <- party_pge %>%
  map(~ lmer(party_quota ~ pge_lag +
               list +
               green +
               left +
               extreme_right +
               pge_lag:green +
               pge_lag:left +
               pge_lag:extreme_right +
               (1 | party) + (1 | cyear) + (1 | country), REML=FALSE,
             data = .x))

m02_party_quota <- bind_rows(m0_party_quota %>%
                       mutate(model = "Model 0"),
                     m1_party_quota %>%
                       mutate(model = "Model 1"),
                     m2_party_quota %>%
                       mutate(model = "Model 2")) %>%
```

```
  filter(!term=="(Intercept)")


quota_vars_proper <- c(bquote(PGE[t-1]),
                       "Party List",
                       "Leftwing Party",
                       bquote(PGE[t-1] %*% Leftwing~Party))


walk(1:3, function(mod) {
  m02_party_quota %>%
    mutate(estimate = if_else(as.numeric(as_factor(model)) > mod,
                              NA_real_,
                              estimate),
           std.error = if_else(as.numeric(as_factor(model)) > mod,
                               NA_real_,
                               std.error)) %>%
    dwplot() +
    scale_y_discrete(labels=do.call(expression,
                                    rev(quota_vars_proper))) +
    theme_bw() +
    theme(legend.position="none",
          plot.title.position = "plot",
          axis.text  = element_text(size=12)) +
```

```
    geom_vline(xintercept = 0, colour = "grey60", linetype = 2) +
    coord_cartesian(xlim = c(min(m02_party_quota$estimate -
                                   1.96*m02_party_quota$std.error),
                             max(m02_party_quota$estimate +
                                   1.96*m02_party_quota$std.error))) +
    scale_color_viridis_d(direction = -1,
                          end = .8) +
    xlab("Standardized Coefficients") +
    ggtitle("Multilevel Models of Gender Quotas")
  ggsave(here::here("paper",
                    "descriptive_representation",
                    paste0("m02_party_quota_", mod, ".jpg")))
})

interplot2(m2_party_quota_a, "leftwing", "pge_lag", hist = TRUE) +
  theme_bw() +
  theme(legend.position="none",
        axis.text  = element_text(size=10),
        axis.title = element_text(size=12)) +
  ylab("Coefficient for Leftwing Parties") +
  xlab(TeX("Public Gender Egalitarianism$_{t-1}$")) +
  geom_hline(yintercept = 0, colour = "grey60", linetype = 2) +
```

```
  ggtitle("Coefficients for Leftwing Parties\nby Public Gender Egalitarian
ggsave(file.path(descrep_path,
                 "quota_leftwing_by_pge.jpg"))
```

6 Gender Egalitarianism and Gender Equality in Mexico

7 Gender Egalitarian Policies in the Korean National Assembly: A Case Study

8 Summary

In summary, this book is just super, super drafty.

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