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Free to represent you and me: Gender attitudes and women's share of parliament, 1995–2021

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ABSTRACT

Women are under-represented in political leadership roles, comprising only a quarter of national parliament members across the world. This is surprising, given women's comparatively high level of education and labor force participation. Why has women's political leadership lagged behind other indicators of gender equality? In this study, we revisit the importance of gender attitudes and examine the extent to which they shape women's share of parliament. Prior studies either examine gender attitudes by relying on cross-sectional research designs with small samples or adopt proxy measures that serve as crude indicators of gender ideology. We overcome these limitations by directly measuring gender attitudes from the World Values Survey and European Values Study, while adopting a panel design with a larger sample of countries and a more comprehensive set of controls. Drawing from our dataset of 275 observations across 101 countries during the 1995–2021 period, we find that our attitudinal measure, gender egalitarianism, wipes away most of the observed differences in women's share of parliament between world regions. Moreover, when we add two-way fixed effects, we find that a one-unit increase in a country's gender egalitarianism score is associated with an increase in women's parliament share by about four or five percentage points. Finally, we address concerns about endogeneity by replicating our results using two-stage least squares models with fixed effects. Overall, our findings suggest that gender ideology helps account for the growing success and persistent obstacles faced by women political candidates across the world.

1. Introduction

Women are under-represented in political leadership roles, comprising only 26.6% of national parliament members across the world on average. Moreover, as [Fig. 1](#) shows, the severity of this gender gap varies considerably across geographic regions. Women's share of parliament ranges from over 30% in Western nations and Latin America, to only about 15% in Asia and the Middle East. Thus, although women's political power has increased substantially in recent decades, their under-representation in national parliament remains endemic, and the discrepancies that exist between world regions have not appreciably narrowed.

These gender disparities are both surprising and important. First, such low levels of political representation are unexpected, given that women have reached comparatively high levels of empowerment in other domains, accounting for 40% of the global workforce and more than half of all university enrollments ([World Bank 2022](#)). Second, while this under-representation merits attention in its own right, the gender composition of national legislatures has also been linked to significant welfare and policy outcomes. Higher

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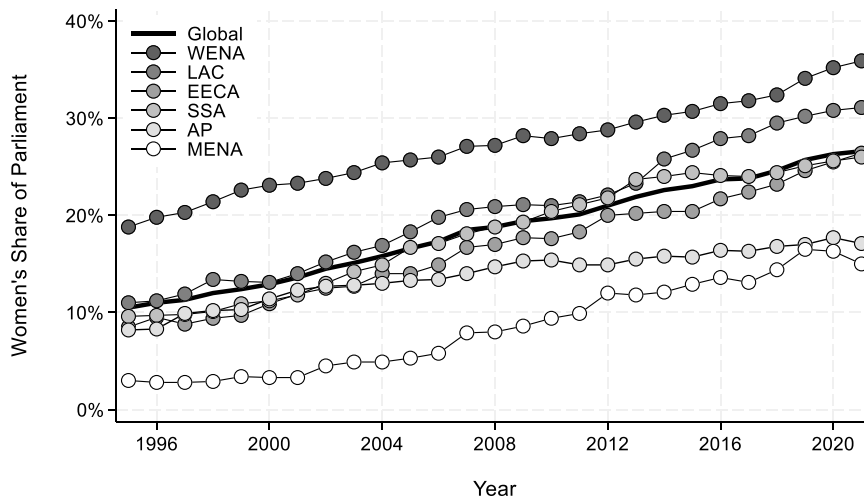
0049-089X/© 2024 Elsevier Inc. All rights are reserved, including those for text and data mining, AI training, and similar technologies.

shares of women in parliament increase economic growth (Dahlum et al., 2022), welfare state spending (Bolzendahl and Brooks 2007), child health (Burroway 2016; Swiss et al., 2012), and abortion liberalization (Boyle et al., 2015). We situate the present study within this context, examining what factors contribute to the recent gains and persistent gaps in women's political representation, while underscoring the implications that stem from gender inequality in political power.

Why has women's political leadership lagged behind other indicators of gender equality? In this study, we revisit the role of ideology. According to this explanation, gender attitudes affect a range of political outcomes in every country, including the decision to run for office, the likelihood of receiving support from party gatekeepers, and the odds of securing votes from citizens. We hypothesize that a society's gender beliefs affect the gender composition of national parliament net of other common predictors. Prior work often measures cultural attitudes through a country's geographic region or its dominant religion, and studies show that these proxy measures do account for much of the cross-sectional variation in women's share of parliament (Cole 2022; Paxton et al., 2006; Rosen 2017). However, these measures are imprecise in that they do not measure each country's gender ideology, much less as it pertains to the question of political leadership. Moreover, such measures assume that all countries with the same regional or religious classification share the same gender attitudes. Finally, these measures are time-invariant and do not account for changes in women's parliament share over time.

To address these concerns, we revive a sparse line of work that adopts a survey-based approach to operationalize each country's gender ideology. Using data from the World Values Survey and European Values Study, we measure gender attitudes with each country's mean survey response to the following statement, "On the whole, men make better political leaders than women do." Past work shows a significant association between a country's mean response to this survey item and its gender composition in national parliament (Inglehart and Norris 2003; Norris and Inglehart 2001; Paxton and Kunovich 2003; Ruedin 2012). Yet, while this approach overcomes the problems associated with proxy measures, these survey-based studies are restricted to cross-sectional analyses with smaller samples, ranging from 46 to 55 countries. By contrast, we examine change in women's parliament share during the 1995–2021 period, using a sample of 275 observations across 101 countries. Thus, we go beyond prior work by using a longitudinal approach with a larger sample of nations and a more comprehensive set of controls.

Consistent with the extant literature, our fractional response models of women's parliament share show that gender egalitarianism explains much of the cross-sectional variation that exists between world regions. When we add two-way fixed effects, we find that a one-unit increase in gender egalitarianism is associated with positive change in women's political leadership by about four to five percentage points. We then replicate these results with an alternative measure of gender attitudes involving the importance of education for boys and girls. Finally, we address concerns that gender egalitarianism may be endogenous in our model, and that women's parliament share may reciprocally impact ideology through demonstration effects. Thus, in one final class of models, we replicate our results using two-stage least squares models with fixed effects, using the gender egalitarianism of regional neighbors as our instrument. In total, our findings are consistent with the idea that changes in a society's gender attitudes may play a role in shaping the gender composition of its political leadership.



Notes: The global trend is comprised of a constant sample of 137 countries that contribute observations each year between 1995 and 2021. The regional trends are comprised of subsets of the global sample. WENA = Western Europe and North America (N = 24); LAC = Latin America and Caribbean (N = 24); EECA = Eastern Europe and Central Asia (N = 27); SSA = Sub-Saharan Africa (N = 32); AP = Asia and Pacific (N = 19); MENA = Middle East and North Africa (N = 11).

Fig. 1. Trends in women's share of parliament, 1995–2021 (N = 137). Notes: The global trend is comprised of a constant sample of 137 countries that contribute observations each year between 1995 and 2021. The regional trends are comprised of subsets of the global sample. WENA = Western Europe and North America (N = 24); LAC = Latin America and Caribbean (N = 24); EECA = Eastern Europe and Central Asia (N = 27); SSA = Sub-Saharan Africa (N = 32); AP = Asia and Pacific (N = 19); MENA = Middle East and North Africa (N = 11).

2. Explaining Women's share of parliament

In this section, we review factors that are commonly used to account for cross-national variation in women's political leadership. We focus on "supply-side" explanations (the supply of viable women candidates), "demand-side" explanations (institutional characteristics, including election systems, gender quotas, and regime type), the global diffusion of world cultural norms, and the structural transformations that result from economic development. We then consider prior work that examines the role of culture, typically measured by geographic region, religion, or more directly by attitudinal measures.

Supply-Side Explanations. The gender composition of parliament may be a function of a country's "supply" of women who are viable political candidates (Norris and Lovenduski 1995; Paxton 1997). Because candidates are typically drawn from elite populations with impressive educational credentials and professional careers, societies that elect more women to political office should also feature a larger pool of educated women who are economically active. Yet, this explanation receives little empirical support. Apart from two studies that link women's share of parliament to women's literacy rates (Rosen 2011) and secondary school enrollment (Fallon et al., 2012), most studies reveal that women's human capital has little impact (Kenworthy and Malami 1999; Lee 2015; Paxton 1997; Paxton and Kunovich 2003; Rosen 2017; Viterna et al., 2008; Yoon 2004). Labor force participation appears to be a better predictor of women's political leadership (Paxton and Kunovich 2003; Rosen 2011, 2017; Thames 2017), especially when focusing on women in professional occupations (Kenworthy and Malami 1999; Viterna et al., 2008) and managerial positions (Stockemer 2007). Nevertheless, just as many studies find no significant association (Goodnow et al., 2019; Hughes 2009; Kunovich and Paxton 2005; Lee 2015; Paxton 1997; Yoon 2004).

We suspect that measures such as school enrollment and labor force activity are too broad to predict women's political empowerment. Instead, we propose that women's participation in civil society (e.g., non-governmental organizations, community groups, labor unions, professional associations, charitable foundations) offers a more direct channel through which women gain experience in the public sphere, develop social capital, and foster political aspirations. Prior work examining the impact of women's organizations produces mixed results (Kenworthy and Malami 1999; Lee 2015; Viterna et al., 2008). However, a more recent study finds that women's civil society participation and women's international organizations jointly increase women's share of parliament (Hong and Kim 2022). We build on this idea by including women's civil society participation as a supply-side variable in our model.

Demand-Side Explanations. Demand-side factors refer to institutional characteristics that affect the likelihood that women will be elected into office from the supply of available candidates. Among these, the type of election system that nations adopt has proven to be one of the most robust predictors of women's share of parliament. Under proportional representation, citizens vote for political parties rather than individual candidates, and parties are then awarded a proportional number of seats in parliament. Thus, women are not competing against men for political office, but instead are included together on party lists. By contrast, under majoritarian systems, individual candidates with the highest vote share win the election, and it is under these conditions where voter discrimination against women should most likely occur. Accordingly, past work shows that proportional representation increases the presence of women in parliament (Cole 2022; Goodnow et al., 2019; Hogstrom 2016; Kenworthy and Malami 1999; Lee 2015; Paxton 1997; Paxton et al., 2006, 2010; Paxton and Kunovich 2003; Rosen 2011, 2017; Stockemer 2007; Swiss 2009; Viterna et al., 2008; Yoon 2004).

Quotas have also been shown to boost women's parliament share. Gender-based quotas are relatively recent, having emerged out of Latin America and other developing nations in the 1990s (Towns 2012). Since then, the adoption of quotas in over 70 countries has led to an impressive surge in parliament shares for women across the world (Paxton et al., 2007; Rosen 2017). There are several types of quotas, including voluntary quotas adopted by individual political parties, legally mandated quotas for all political parties, and the reservation of a minimum number of parliamentary seats for women (Rosen 2017). Legally mandated quotas also vary by the extent to which they are accompanied by sanctions (e.g., penalizing political parties for not placing enough women in winnable positions on party lists). Overall, past work shows robust support linking gender-based quotas to women's share of parliamentary seats (Cole 2022; Fallon et al., 2012; Hogstrom 2016; Hong and Kim 2022; Hughes 2011; Hughes and Tripp 2015; Lee 2015; Paxton et al., 2010; Rosen 2011, 2017; Thames 2017; Yoon 2004).

Finally, a number of scholars anticipate that regime type should be an important factor. Democracy is designed to support a broader representation of interests (Hughes 2009) and provide greater opportunities for women to mobilize and participate in the political process (Hogstrom 2016). Clean elections and open competition should also create fewer artificial and arbitrary barriers against women (Kunovich and Paxton 2005) and improve access to political power (Viterna et al., 2008). Yet, past research has been mixed, showing that the effect of democracy can be positive (Paxton et al., 2010; Thames 2017) or negative (Hogstrom 2016; Kunovich and Paxton 2005; Paxton 1997), but mostly non-significant (Hughes 2007; Kenworthy and Malami 1999; Paxton and Kunovich 2003; Rosen 2017; Ruedin 2012; Swiss 2009). More recently, analysts have found that the relationship between democracy and women's political leadership is curvilinear (Cole 2022; Fallon et al., 2012; Viterna et al., 2008). According to this argument, the transition to democracy from communism, authoritarianism, or civil strife all tend to produce declines in women's representation, as concerns for gender equity are de-emphasized during democratization. Eventually, though, as democracy is institutionalized over time, political power for women begins to rise again (Fallon et al., 2012). In the present study, we test this latter argument and adopt a curvilinear specification for democracy.

Globalization. Prior work shows that a country's embeddedness in world polity institutions, including memberships in international governmental organizations (IGOs) and international non-governmental organizations (INGOs), leads to more rapid adoption of world cultural norms (e.g., Frank et al., 2000). Importantly, Paxton et al. (2006) extend this line of work by demonstrating the positive effect of the international women's movement (as measured by membership in women's INGOs) on women's political leadership. However, subsequent studies report mixed findings regarding the impact of women's INGOs (Cole 2022; Fallon et al., 2012; Hong and Kim 2022; Swiss 2009). Likewise, prior work examining the effect of treaty ratifications offers no consistent results. In particular,

several studies find a positive association between women's parliament share and the ratification of CEDAW (the UN Convention on the Elimination of All Forms of Discrimination Against Women) (Fallon et al., 2012; Hong and Kim 2022; Kenworthy and Malami 1999; Paxton 1997; Viterna et al., 2008), while others report a negative or non-significant relationship (Hughes 2009; Lee 2015; Paxton et al., 2006).

We continue to test these ideas using CEDAW ratification to capture the cross-national diffusion of world cultural norms to those countries that are deeply embedded within this treaty network. Importantly, past work shows that world polity institutions, such as CEDAW and women's INGOs (Kim 2020; Pandian 2019), are linked to progressive gender attitudes. Thus, the inclusion of CEDAW ratification in our models could attenuate the effect of our gender attitude measure. Nevertheless, we envision the spread of gender equity models as distinct from the adoption of progressive gender attitudes by individuals. That is, world polity institutions spread models of "appropriate" behavior that nations embrace ceremonially, but that individual citizens may not necessarily or fully internalize. For example, the adoption of gender quotas is often interpreted by scholars as an attempt by less developed countries to achieve legitimacy in the international community (Paxton et al., 2007; Rosen 2011, 2017; Towns 2012). "Exhibiting a larger share of female legislators is seen as one indication of a state being 'advanced' and 'modern,' a sign of being a developed democracy with political institutions that are conducive to investments and market-based growth" (Towns 2012: 183). Likewise, individuals may support popular women candidates in order to appear fashionable, thereby conforming to elite cultural models without necessarily believing that women *in general* are equally capable of serving as political leaders. Thus, we distinguish this process from the independent effect that individual gender attitudes may have on election outcomes.

Development. Economic development is also a popular explanation for women's growing political power. One line of thinking is that traditional attitudes begin to erode as societies modernize and younger cohorts replace older ones. Accordingly, past work shows that younger cohorts report more progressive gender attitudes than older age groups (Inglehart and Norris 2003). Thus, we estimate the effect of each country's age structure on women's parliament share. In addition, development is thought to produce greater educational and economic opportunities for women, whose social roles revolve less around unpaid work obligations inside the home (Rosen 2011, 2017). Thus, we might anticipate that economic development significantly predicts women's parliament share. However, prior work finds little support for this hypothesis, as most studies show no significant association between the two (Cole 2022; Fallon et al., 2012; Hughes and Tripp 2015; Kenworthy and Malami 1999; Stockemer 2007; Viterna et al., 2008). We suspect that much of the association between economic development and women's political empowerment might be absorbed by other predictors in the model that are correlated with development (e.g., geographic region) or that mediate the relationship (e.g., supply variables). Nevertheless, following much of the prior work in this literature, we control for economic development in our models.

3. The role of culture

Culture also plays a role in the political process. Culture has no universally accepted definition (Valentino and Vaisey 2022). But scholars often distinguish between personal culture, which is internalized within individuals, and public culture, which refers to externalized symbols, discourses, and institutions (Valentino and Vaisey 2022; Cerulo et al., 2021). Culture is, of course, a multifaceted feature of society that is manifested in its people, objects, and social interactions (Cerulo et al., 2021; Mohr et al., 2020; Valentino and Vaisey 2022). Thus, the empirical measurement of culture would ideally reflect this complex reality, focusing on individual behavior (such as thoughts, speech, and actions), as well as physical objects, written texts, works of art, or even social networks (Mohr et al., 2020). Ultimately, though, culture is thought to be an umbrella term, referring to many related concepts, and that more precise terms should be used whenever possible (Valentino and Vaisey 2022). In this study, we necessarily focus on one aspect of culture that can be measured across a large sample of countries over an extended period of time. Specifically, we examine the impact of gender attitudes. To be sure, attitudes are only one component of culture. But they *are* a component, and using them to predict women's political representation moves our study beyond the approaches adopted by others in prior work. Moreover, we focus on *attitudes* in this study rather than something like cultural *values* because (1) values are more abstract than attitudes, (2) values are more durable over time than attitudes, and (3) values are less directly implicated in behavior than attitudes (Hitlin and Piliavin 2004).

Gender attitudes are likely to affect the political process at multiple stages, including the decision to become a candidate, party support and media portrayal of that candidate, and electoral decisions by voters (Paxton et al., 2007; Yates and Hughes 2017). Gender attitudes about political leadership are rooted in two sets of beliefs about women's inherent nature and beliefs about their proper place in the world. The first set of beliefs holds that women lack the rationality, temperament, and skills needed to successfully lead, while the second set proposes that women's appropriate societal role is caring for their families in the home (Paxton and Hughes 2021). Closely related work suggests that these two beliefs can be mapped on to two dimensions of gender ideology. The first set of beliefs are embedded within notions of "male primacy," producing vertical segregation between men and women, while the latter set of beliefs are embedded within ideas about "gender essentialism," leading to more horizontal forms of sex segregation (Chatillon et al., 2018). Thus, when women pursue (or occupy) public leadership roles, they risk social reprisals (or "backlash") for their gender norm violation (Rudman 1998). This serves as a powerful deterrent for women who consider running for office and disadvantages those who do run relative to men (Eagly and Carli 2007). Because leadership is often assumed to be a masculine trait (Paxton et al., 2007), women candidates are confronted with a "double bind" and receive criticism for displaying either too little or too much masculine behavior (Eagly and Carli 2007; Yates and Hughes 2017).

Past work shows that traditional gender attitudes reduce the likelihood of voting for female candidates (Al Subhi and Smith 2019; Mo 2015). Similarly, party leaders are often reluctant to endorse women candidates either because of their own attitudes or those that they ascribe to voters (Aspinall et al., 2021). Not surprisingly, women politicians perceive this skepticism and report that gender traditionalism among voters is one of their largest obstacles (Allen and Cutts 2019; Aspinall et al., 2021). Thus, there is reason to

suspect that gender attitudes may explain cross-national variation in women's political empowerment. Yet, modeling gender ideology in cross-national research has been a challenge.

Early attempts to measure cultural determinants of women's political leadership focused on using proxy indicators, classifying countries by their geographic region or dominant religion (Kenworthy and Malami 1999; Paxton 1997). This practice has widely continued, as more recent studies show that women's parliament share varies significantly by world region (Fallon et al., 2012; Rosen 2017), primary religion (Hogstrom 2016; Paxton et al., 2006), or both (Cole 2022; Hughes 2007, 2009; Rosen 2011; Viterna et al., 2008). Yet, regional and religious classifications do not actually measure gender attitudes, much less gender attitudes about women's political leadership. Moreover, these classifications treat all countries within the same category as identical with respect to cultural values. In addition, regional and religious categories are time-invariant, so they do not account for the rise of women's parliament share over the past several decades or any changes in a country's gender attitudes over time.

In the present study, we adopt a survey-based measure of gender ideology, building on earlier work that shows a significant association between gender attitudes and women's parliament share (Inglehart and Norris 2003; Norris and Inglehart 2001; Paxton and Kunovich 2003; Ruedin 2012).¹

Similar to these studies, we measure gender ideology with each country's mean survey response to the following statement, "On the whole, men make better political leaders than women do." As Paxton and Kunovich (2003:88) note, regional and religious variables are "weak proxies for ideology," and they find that their predictive power diminishes dramatically when including their gender attitude measure. In fact, they find that gender ideology was "by far the strongest predictor" (Paxton and Kunovich 2003: 102) in their model. Unfortunately, prior work using surveys to measure gender attitudes is limited by data availability, as these studies are restricted to cross-sectional analyses using smaller samples, ranging from 46 to 55 countries. By contrast, we advance this line of work by adopting a panel design with a larger sample of countries and a more extensive range of controls.

4. Methods

Dependent Variable. Women's Share of Parliament. Following prior work (Cole 2022; Fallon et al., 2012; Hogstrom 2016; Hong and Kim 2022; Hughes 2009, 2011; Hughes and Tripp, 2015; Kenworthy and Malami 1999; Paxton et al., 2010; Rosen 2011, 2017; Viterna et al., 2008), we measure women's political leadership as the proportion of each country's national parliament (lower or unicameral chamber of the national legislature) who are women. Data come from the *Varieties of Democracy* (2022) dataset.

Independent Variables. Gender Egalitarianism. We measure gender attitudes with each country's mean survey response to the following statement: "On the whole, men make better political leaders than women do." Responses range from 1 to 4 (1 = Strongly Agree; 2 = Agree; 3 = Disagree; 4 = Strongly Disagree). Data come from the *World Values Survey* (2022) and *European Values Study* (2022). We apply country-specific sample weights provided by these surveys so that each country's mean response better approximates the population from which the sample was drawn. Sample weights are determined on the basis of sex, age, education, and urban/rural status. We also replicate our models using a non-political measure of gender ideology based on each country's mean response to the following statement, "A university education is more important for a boy than for a girl." Responses again range from 1 to 4 (1 = Strongly Agree; 2 = Agree; 3 = Disagree; 4 = Strongly Disagree), and these data also come from the *World Values Survey* (2022) and *European Values Study* (2022).

Control Variables. We are guided by the extant literature when selecting our control variables. *Region.* We use the regional classification provided by the *Varieties of Democracy* (2022) dataset, including (1) Western Europe and North America (the excluded reference category), (2) Latin America and Caribbean, (3) Eastern Europe and Central Asia, (4) Sub-Saharan Africa, (5) Asia and Pacific, and (6) Middle East and North Africa.

Religiosity. We draw from the *World Values Survey* (2022) and *European Values Study* (2022) to construct a country-specific and time-varying measure of religiosity. Our primary measure is based on attendance, "How often do you attend religious services?" We created three categories of responses, including (1) once a week or more often, (2) never or practically never, and (3) an intermediate category ranging from once a month to less often than once a year (the excluded reference category). We also report results when using an alternative measure based on religious belief, "How important is God in your life?" This is a continuous measure, ranging from 1 (not at all important) to 10 (very important).

Women's Labor Force Participation. The labor force participation rate for women refers to the proportion of the female population ages 15 and older who are economically active. We also report results when estimating the effect of the gender composition of the labor force (i.e., the percent of the total labor force who are women). Data for both employment measures come from the *World Bank* (2022).

Women's Civil Society Participation. This is a composite measure from the *Varieties of Democracy* (2022) dataset consisting of three indicators: (1) *freedom of discussion*, which refers to the extent to which women are legally or culturally restricted from engaging in private discussion, particularly on political issues, in private homes and public spaces without fear of harassment by others, (2) *civil society organizations*, which refers to the extent to which women are prevented from participating in civil society organizations because of their gender and whether civil society organizations that pursue women's interests are prevented from operating, and (3) *print and broadcast media*, which refers to the estimated percent of journalists in print and broadcast media who are women.

Election System. *Varieties of Democracy* (2022) also reports information about each country's election system. We adopt their schema and categorize states as (1) Majoritarian (the excluded reference category), (2) Proportional, (3) Mixed, or (4) Other (a residual

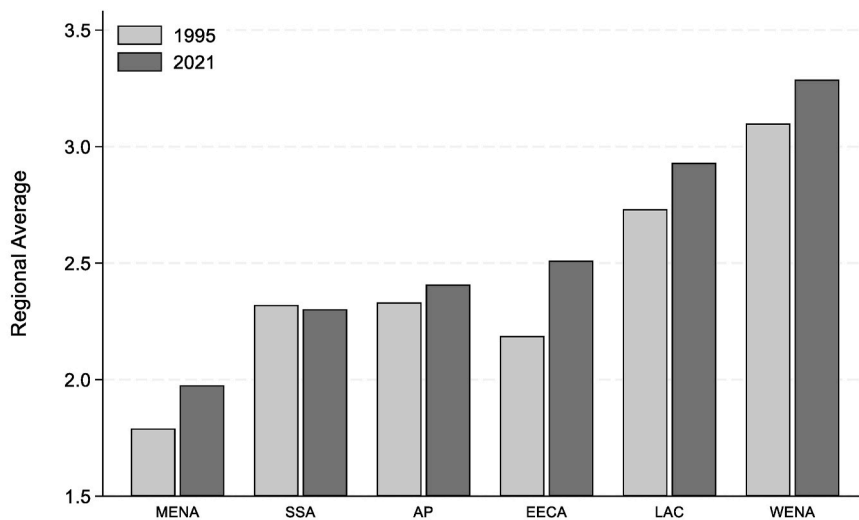
¹ Related work shows that emancipative beliefs (a set of 14 survey items, one of which is "men make better political leaders than women do") positively affect women's empowerment (a set of seven indicators, one of which is women's share of parliament) (Alexander and Welzel 2011).

category featuring all other election systems or unclassified election systems).

Quota System. We also use *Varieties of Democracy* (2022) to identify states by their use of gender quotas. We adopt their schema and categorize states as having (1) no national level gender quota (the excluded reference category), (2) a statutory gender quota without sanctions, (3) a statutory gender quota with weak sanctions, (4) a statutory gender quota with strong sanctions, or (5) reserved seats in the legislature for women.

Electoral Democracy. We use the *Varieties of Democracy* (2022) dataset for our measure of electoral democracy, which refers to the extent to which nations feature universal suffrage, clean elections, an independent media, freedom of expression, and civil society organizations that operate freely. Consistent with prior work (Cole 2022; Fallon et al., 2012; Viterba et al., 2008), we specify electoral democracy with a quadratic term in order to model a curvilinear relationship with women's share of parliament. We standardized the linear term (mean = 0; standard deviation = 1) prior to calculating the second-order term.

CEDAW Ratification. We control for the cross-national diffusion of gender equity norms with each country's participation in the United Nation's 1979 Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW). We measure each country's embeddedness in world society as the number of years that have passed since it ratified CEDAW, with early ratifiers considered to be more embedded than late ratifiers. In separate analyses, we also considered political globalization from the KOF Globalization Index (Dreher 2006), a composite measure comprised of a country's memberships in international organizations (both governmental and non-governmental), participation in international treaties (both the ratification of treaties and number of treaty partners), participation in UN peace keeping missions, and its number of embassies. This measure performs well in our fully specified two-way fixed effects models ($dy/dx = 0.002$, $p < 0.001$), but it does not substantially impact the positive effect of gender



Note: Gender egalitarianism is measured as each country's mean response to the following statement: "On the whole, men make better political leaders than women do" (1 = Strongly Agree; 2 = Agree; 3 = Disagree; 4 = Strongly Disagree). **Middle East and North Africa (MENA)** includes Algeria, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Palestine, Qatar, Saudi Arabia, Tunisia, Turkey, and Yemen (N = 15); **Sub-Saharan Africa (SSA)** includes Burkina Faso, Ethiopia, Ghana, Kenya, Mali, Nigeria, Rwanda, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe (N = 12); **Asia and Pacific (AP)** includes Bangladesh, China, Hong Kong, India, Indonesia, Japan, Malaysia, Myanmar, Pakistan, Philippines, Singapore, South Korea, Taiwan, Thailand, and Vietnam (N = 15); **Eastern Europe and Central Asia (EECA)** includes Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Mongolia, North Macedonia, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Tajikistan, Ukraine, and Uzbekistan (N = 27); **Latin America and Caribbean (LAC)** includes Argentina, Bolivia, Brazil, Chile, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Mexico, Nicaragua, Peru, Trinidad-Tobago, Uruguay, and Venezuela (N = 16); **Western Europe and North America (WENA)** includes Australia, Austria, Canada, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Italy, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, and United States (N = 20).

Fig. 2. Average gender egalitarianism by region (N = 105). *Note:* Gender egalitarianism is measured as each country's mean response to the following statement: "On the whole, men make better political leaders than women do" (1 = Strongly Agree; 2 = Agree; 3 = Disagree; 4 = Strongly Disagree). Middle East and North Africa (MENA) includes Algeria, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Palestine, Qatar, Saudi Arabia, Tunisia, Turkey, and Yemen (N = 15); Sub-Saharan Africa (SSA) includes Burkina Faso, Ethiopia, Ghana, Kenya, Mali, Nigeria, Rwanda, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe (N = 12); Asia and Pacific (AP) includes Bangladesh, China, Hong Kong, India, Indonesia, Japan, Malaysia, Myanmar, Pakistan, Philippines, Singapore, South Korea, Taiwan, Thailand, and Vietnam (N = 15); Eastern Europe and Central Asia (EECA) includes Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Mongolia, North Macedonia, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Tajikistan, Ukraine, and Uzbekistan (N = 27); Latin America and Caribbean (LAC) includes Argentina, Bolivia, Brazil, Chile, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Mexico, Nicaragua, Peru, Trinidad-Tobago, Uruguay, and Venezuela (N = 16); Western Europe and North America (WENA) includes Australia, Austria, Canada, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Italy, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, and United States (N = 20).

egalitarianism ($dy/dx = 0.039, p < 0.05$).

GDP PC. We also control for each country's level of economic development, as measured by gross domestic product per capita converted to constant 2017 international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. This measure is logged for skewness. Data come from the [World Bank \(2022\)](#).

Age Structure. We measure each country's age structure by controlling for the percent of the population that is 50 years or older. Data come from the [United Nations \(2022\)](#). Descriptive statistics and correlations for all variables in our analysis appear in [Appendices A and B](#).

Analysis. Because our dependent variable is a proportional outcome bounded between 0 and 1, we follow prior work ([Cole 2022](#)) and use fractional response models with a quasi-likelihood logit estimator for our analyses. We report results with clustered standard errors that are robust to heteroskedasticity and autocorrelation. Our sample features 275 observations across 101 countries, with 76 of these countries contributing multiple observations (ranging from two to five) during the 1995–2021 period. See [Appendix C](#) for a list of all countries and the number of cases they contribute. We lag all time-varying predictors by one year to establish temporal ordering except for election system and quota system, whose effects should theoretically be simultaneous.

Our panel structure allows us to use estimation techniques that deal with potential heterogeneity bias (the confounding effect of unmeasured time-invariant variables). The introduction of fixed effects represents one estimation strategy designed to correct for this problem. The procedure simulates the unmeasured time-invariant factors as country-specific intercepts ([Nielsen and Alderson 1995](#)). Thus, fixed effects models hold constant the average effect of each state through the inclusion of unit indicators, thereby restricting their attention to longitudinal variation in the data. In addition, we also include temporal fixed effects with a series of indicator variables for each year in our sample period in order to account for unmeasured variables that change over time, but are constant between states. Typically, these refer to events, conflicts, or crises that occur on a global scale. But here we are thinking also of the potential rise in social desirability bias with respect to gender attitudes across the world. Thus, we also present a set of fractional response models that include two-way fixed effects (i.e., both unit and time fixed effects), which correct for unobserved heterogeneity that is both time-invariant within countries, as well as cross-sectionally invariant within years.

Finally, we are also concerned that gender egalitarianism may be endogenous, as women's political leadership may reciprocally affect attitudes through demonstration effects ([Alexander and Jalalzai 2020](#); [Neundorf and Shorrocks 2022](#)). Women who are elected to national office can serve as role models and challenge traditional norms or stereotypes. Women political leaders can also prompt other women and girls to become more politically active and engaged ([Liu and Banaszak 2017](#)) and to run for office themselves ([Gilardi 2015](#)). Thus, women in elected office can alter gender attitudes among their constituents and empower other women to become more active, creating a positive feedback loop between women in political leadership roles and the spread of gender egalitarian norms among citizens.

Thus, in one final class of models, we report results from two-stage least squares (2SLS) regression with fixed effects and clustered standard errors that are robust to heteroskedasticity and autocorrelation. In these models, we account for potential endogeneity stemming from the reciprocal relationship between gender egalitarianism and women's parliament share by using the gender egalitarianism of one's regional neighbors as our instrument. We construct this instrument by calculating the average gender egalitarianism in country i 's region when excluding country i . We use the most recent gender egalitarianism score for each country between 1995 and 2021 so that regional averages are constructed each year using a constant set of countries throughout our sample period. In total, we are able to use 105 states to construct the gender egalitarianism of each country's regional neighbors. In the results, we present descriptive trends for each region's average gender egalitarianism using this measure (see [Fig. 2](#)).

In the first stage of 2SLS, the suspected endogenous measure (gender egalitarianism) is regressed on the other predictors and our selected instrument. In the second stage, the dependent variable (women's share of parliament) is regressed on the exogenous and endogenous predictors except that the endogenous measure (gender egalitarianism) is replaced with the predicted values from the first equation. Instrumental variables should be correlated with the endogenous measure, but uncorrelated with the error term from the second-stage equation.

We capitalize on the popular use of spatial instruments to address our concerns with endogeneity. One version of this approach uses geographic proximity to one's neighbors by using the treatment value of those neighbors to serve as an instrument. For example, this strategy has been employed to address potential endogeneity involving democracy and women's political representation ([Hong and Kim 2022](#)), as well as work examining the impact of cultural attitudes on welfare systems ([Grundler and Kollner 2020](#)). Following this prior work, we use the regional average of each country's gender ideology to serve as our instrument. In other words, the gender egalitarianism of country i 's regional neighbors should only effect women's parliament share in country i through its association with the gender egalitarianism of country i . Theoretically, we argue that the only plausible channel through which gender attitudes in a neighboring country would affect electoral outcomes in country i would be through impacting country i 's gender attitudes. The idea behind this approach is that regional averages capture broader, exogenous forces that affect individual countries within each region, thereby providing a source of variation that is not directly affected by each country's internal dynamics.

We performed several diagnostics to determine the strength of our instrument (i.e., whether gender egalitarianism in country i is correlated with the gender egalitarianism of country i 's regional neighbors). Among the cases in our sample, gender egalitarianism in country i is highly correlated with the gender egalitarianism of its regional neighbors ($r = 0.823$). Moreover, as we report below (see [Table 4](#)), the instrument is a significant predictor in our first-stage models ($p < 0.01$ or stronger), and the F-statistic is always above the customary threshold of 10 ([Stock et al., 2002](#)). In sum, we conclude that our instrument is effective in addressing concerns with the endogeneity of our focal predictor.

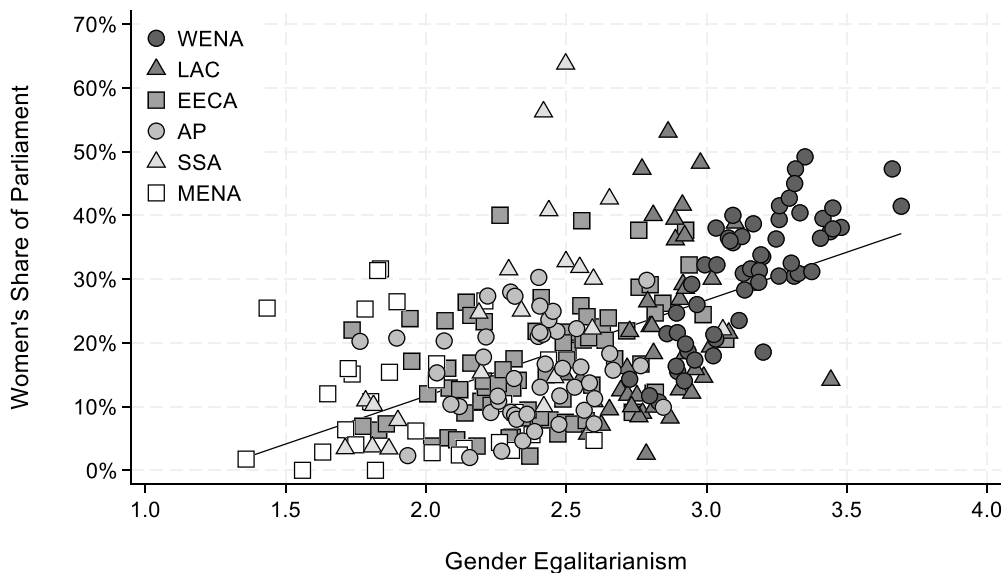
5. Results

Gender Egalitarianism. Fig. 2 presents descriptive trends in gender egalitarianism scores by our six geographic regions. In five of the six regions, the average gender egalitarianism score increases. Thus, across most regions, survey respondents in 2021 are expressing greater disagreement with the statement “men make better political leaders than women” relative to survey respondents in 1995. Among countries in Africa and Asia, the trends are relatively flat on average. In the remaining four regions, however, the average scores are becoming noticeably more progressive. Overall, Western and Latin American countries express the most gender egalitarian attitudes, while countries in the Middle East and Africa tend to be more traditional.

In separate analyses, we used the Theil index (T) to calculate cross-national variation in gender egalitarianism scores for the first and final years of our sample, and then decomposed the amount of variation that exists between our six geographic regions (T_b) and within them (T_w). Overall, the total amount of cross-national variation has remained similar during this time period ($T = 0.01945$ in 1995; $T = 0.01997$ in 2021). But, when decomposing these scores, we found that world regions have become more similar to one another ($T_b = 0.01491$ in 1995; $T_b = 0.01316$ in 2021), while the regions themselves have become more diverse ($T_w = 0.00453$ in 1995; $T_w = 0.00682$ in 2021). Thus, in 1995, more than three-fourths (76.7%) of the cross-national variation in gender egalitarianism scores was between geographic regions. But, by 2021, that percentage had dropped to less than two-thirds (65.9%). In sum, cross-national variation in gender ideology remains highly associated with regional differences. But regional classifications mask considerable variation within these groups, and they are less valid today as proxy measures of gender attitudes than they were several decades ago.

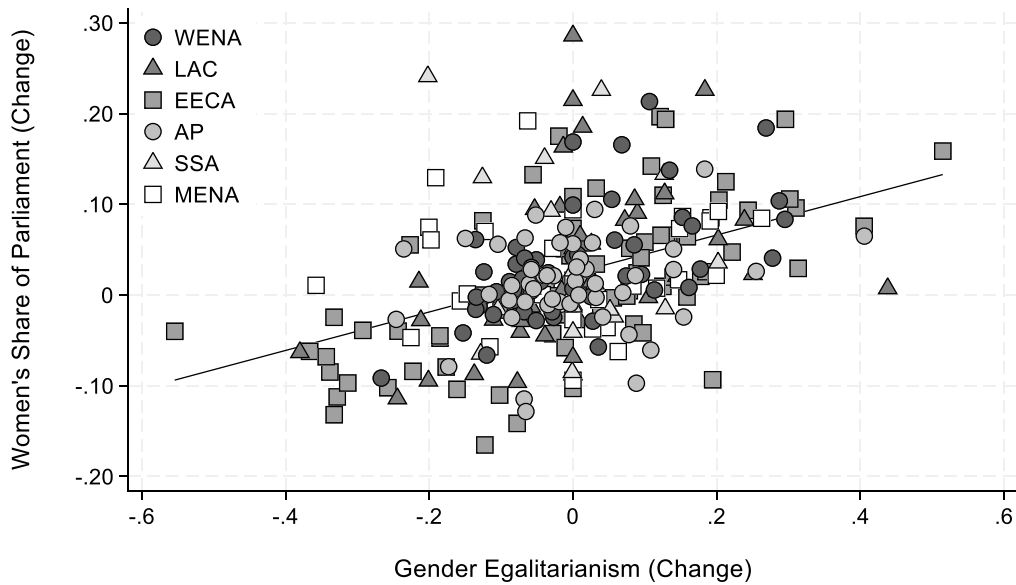
Fig. 3 displays a plot of our two focal measures: gender egalitarianism and women’s share of parliament. We use all available observations in our sample ($N = 275$), and we identify each case with its geographic region. The two measures are positively associated with one another ($r = 0.569$), as countries with more progressive gender attitudes tend to also feature higher shares of women in national parliament. The plot shows some regional clustering, with much of the Middle East located in the bottom left of the graph and most Western countries appearing in the top right. Africa is the most diverse region, with Rwanda featuring the two highest parliament shares for women in our entire sample (56.3% in 2008 and 63.8% in 2013) and Nigeria featuring the three lowest shares in the region (ranging from 3.4% to 3.7%). Overall, though, despite the presence of several outliers, gender attitudes and women’s political power are positively associated with one another.

Taking matters one step further, Fig. 4 displays a plot of each country’s *change* in gender egalitarianism and women’s share of parliament during the sample period. Specifically, we used centered values for both measures so that each data point represents deviation from that country’s average. Negative (positive) scores indicate that a country is below (above) its period average that year. As Fig. 4 illustrates, the centered values tend to be positively associated with one another ($r = 0.426$). This provides some initial support for the idea that gender egalitarianism and women’s parliament share are not only broadly associated with one another, but that changes in these two variables tend to correspond with one another. Next, we turn to our main analyses to examine this association further.



Note: Scatterplot depicts the association between a country’s gender egalitarianism and its share of parliament comprised of women ($r = .569$).

Fig. 3. Gender egalitarianism and women’s share of parliament, 1995–2021 ($N = 275$). Note: Scatterplot depicts the association between a country’s gender egalitarianism and its share of parliament comprised of women ($r = 0.569$).



Note: Scatterplot depicts the association between change in a country's gender egalitarianism and change in its share of parliament comprised of women ($r = .426$).

Fig. 4. Gender egalitarianism and women's share of parliament (change), 1995–2021 (N = 275). Note: Scatterplot depicts the association between change in a country's gender egalitarianism and change in its share of parliament comprised of women ($r = 0.426$).

Table 1
Fractional response models of women's share of parliament.

	Model 1	Model 2	Model 3
Region (Reference: Western Europe & North America)			
Latin America & Caribbean	-0.062* (0.026)	-0.034 (0.027)	-0.071* (0.028)
Eastern Europe & Central Asia	-0.108*** (0.018)	-0.041 (0.025)	-0.048 (0.029)
Asia & Pacific	-0.113*** (0.019)	-0.046 (0.031)	-0.040 (0.031)
Sub-Saharan Africa	-0.042 (0.043)	0.048 (0.051)	0.040 (0.060)
Middle East & North Africa	-0.144*** (0.019)	-0.058 (0.041)	-0.093* (0.037)
Year	0.006*** (0.001)	0.005*** (0.001)	0.003* (0.001)
Gender Egalitarianism		0.106** (0.031)	0.108*** (0.028)
Religious Attendance (Reference: Monthly – Infrequently)			
Weekly +			-0.036 (0.051)
Never			0.031 (0.058)
Women's Labor Force Participation			0.000 (0.001)
Women's Civil Society Participation			0.150* (0.070)
Election System (Reference: Majoritarian)			
Proportional			0.050* (0.020)
Mixed			0.029 (0.022)
Other			-0.055 (0.038)
Quota System (Reference: No Quota)			
No Sanctions			0.027 (0.035)
Weak Sanctions			-0.007 (0.023)
Strong Sanctions			0.084*** (0.023)
Reserved Seats			0.089* (0.037)
Electoral Democracy			-0.047** (0.014)
Electoral Democracy ²			0.030* (0.013)
CEDAW Ratification			0.002** (0.001)
GDP PC (PPP) (log)			0.017 (0.015)
Age Structure (Percent 50 Years and Above)			-0.003* (0.001)
Observations	275	275	275
States	101	101	101
Pseudo R ²	0.040	0.045	0.060

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$ (two-tailed tests).

Note: Table 1 presents results from fractional response models using a quasi-likelihood logit estimator with clustered standard errors that are robust to heteroskedasticity and autocorrelation. Each cell reports the marginal effect, with the robust standard error in parentheses.

Main Analyses. Table 1 presents results from fractional response models (FRMs). Each cell reports the marginal effect, followed by the robust standard error in parentheses. In model 1, we estimate the effect of region (Western countries are the excluded reference category) and a linear time trend. The positive effect of time indicates that women’s share of parliament has significantly grown during the 1995–2021 sample period. Meanwhile, all world regions report significantly lower parliament shares for women than the West except for Africa, most likely due to the considerable heterogeneity in this region. On average, women’s share of parliament among countries in the Middle East is about 14 percentage points lower than in the West ($dy/dx = -0.144, p < 0.001$). In Eastern Europe ($dy/dx = -0.108, p < 0.001$) and Asia ($dy/dx = -0.113, p < 0.001$), the gap is a little over 10 percentage points. And Latin America’s parliament share for women is about six percentage points lower than the West ($dy/dx = -0.062, p < 0.05$).

In model 2, we add gender egalitarianism. The results show that gender egalitarianism scores that are one unit higher are associated with parliament shares for women that are about 10 percentage points greater ($dy/dx = 0.106, p < 0.01$). Moreover, note that the regional effects are now effectively wiped out, indicating that cross-national variation in gender ideology accounts for most of the gaps in parliament shares between Western countries and the rest of the world. By contrast, the linear time trend declines very little ($dy/dx = 0.005, p < 0.001$), suggesting that gender egalitarianism does not account for as much of the longitudinal change in women’s political empowerment during the sample period.

We then add the remaining predictors in model 3. One of the more notable results is the discrepancy between the two supply variables. While women’s labor force participation has virtually no association with women’s share of parliament ($dy/dx = 0.000, p = ns$), women’s civil society participation is more strongly linked ($dy/dx = 0.150, p < 0.05$). As we expected, labor force participation may be too blunt a measure for identifying the supply of political candidates among women, while freedom to engage in civil society more effectively indicates which countries foster women’s political participation. The results from this model also show that election systems based on proportional representation produce significantly higher shares of women in parliament than those that are majoritarian, while countries with gender quotas featuring strong sanctions or reserved seats have parliament shares that are almost 10% higher than those with no quotas at all. Electoral democracy shows the expected curvilinear relationship, as women’s share of parliament is predicted to be lowest among countries that are in the process of democratizing. CEDAW ratification is positively associated with women’s political representation, as expected ($dy/dx = 0.002; p < 0.01$). Meanwhile, age structure is negatively associated with women’s political leadership ($dy/dx = -0.003, p < 0.05$), indicating that countries with older populations have national parliaments with significantly fewer women. Most importantly, the addition of our control variables has little impact on the effect of gender egalitarianism ($dy/dx = 0.108, p < 0.001$). In separate analyses, we obtained elasticities for this model and found that gender egalitarianism scores that are 1% higher are associated with women’s parliament shares that are almost 1.5% greater ($ey/ex = 1.440, p < 0.001$), which is considerably larger than elasticities reported for women’s civil society participation ($ey/ex = 0.598; p < 0.05$), age structure ($ey/ex = -0.420; p < 0.05$), CEDAW ratification ($ey/ex = 0.227; p < 0.01$), and democracy ($ey/ex = -0.087$

Table 2
FRMs of women’s share of parliament with two-way fixed effects.

	Model 4	Model 5	Model 6
Gender Egalitarianism	0.061* (0.031)	0.049* (0.023)	0.046* (0.023)
Religious Attendance (Reference: Monthly – Infrequently)			
Weekly +		0.025 (0.049)	0.010 (0.055)
Never		-0.078 (0.050)	-0.093 (0.052)
Women’s Labor Force Participation		-0.002 (0.001)	-0.001 (0.001)
Women’s Civil Society Participation		0.404*** (0.090)	
Freedom of Discussion			0.020 (0.011)
Civil Society Organizations			0.037** (0.013)
Print and Broadcast Media			0.001 (0.001)
Election System (Reference: Majoritarian)			
Proportional		0.085** (0.026)	0.083** (0.028)
Mixed		0.086** (0.027)	0.080** (0.030)
Other		-0.020 (0.024)	-0.011 (0.026)
Quota System (Reference: No Quota)			
No Sanctions		0.062* (0.027)	0.064* (0.028)
Weak Sanctions		0.105*** (0.027)	0.123*** (0.029)
Strong Sanctions		0.096*** (0.018)	0.098*** (0.019)
Reserved Seats		0.050 (0.052)	0.061 (0.056)
Electoral Democracy		-0.056*** (0.014)	-0.058** (0.020)
Electoral Democracy ²		0.038** (0.013)	0.033** (0.012)
CEDAW Ratification		-0.001 (0.002)	-0.001 (0.002)
GDP PC (PPP) (log)		0.027 (0.027)	0.025 (0.028)
Age Structure (Percent 50 Years and Above)		-0.004* (0.002)	-0.004* (0.002)
Observations	275	275	275
States	101	101	101
Pseudo R ²	0.086	0.090	0.089

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$ (two-tailed tests).

Note: Table 2 presents results from fractional response models (FRMs) with two-way fixed effects using a quasi-likelihood logit estimator with clustered standard errors that are robust to heteroskedasticity and autocorrelation. Each cell reports the marginal effect, with the robust standard error in parentheses. All models include state and year fixed effects (not shown to preserve space).

and 0.159; $p < 0.01$ and 0.05). But does the association between gender attitudes and women’s share of parliament persist when we restrict our analysis to longitudinal change? We next address this question.

Table 2 presents results from FRMs when adding two-way fixed effects. Model 4 reports the effect of gender egalitarianism without any control measures included. The estimate is noticeably lower once state and year fixed effects are added. Nevertheless, the results show that changes in a country’s gender egalitarianism score are positively associated with changes in its parliament share for women ($dy/dx = 0.061, p < 0.05$). Model 5 is fully specified, and the estimated effect of gender egalitarianism is attenuated further ($dy/dx = 0.049, p < 0.05$). In this specification, a one-unit increase in gender egalitarianism is associated with an increase in women’s parliament share by almost five percentage points. Thus, while the longitudinal effect of gender egalitarianism is smaller, these results suggest that changes in gender attitudes do correspond with changes in the gender composition of parliament.

Model 5 also shows that women’s civil society participation ($dy/dx = 0.404, p < 0.001$) plays a significant role in boosting women’s parliament share, while democracy continues to exhibit a curvilinear relationship. We also find that the introduction of proportional representation or a mixed system produces higher levels of representation for women, while the introduction of quotas with strong, weak, or even no sanctions creates the same effect. And countries with aging populations show a small negative association with parliament share. In separate analyses, we again obtained elasticities and found that a 1% increase in a country’s gender egalitarianism score is associated with a 0.67% increase in its parliament share for women ($ey/ex = 0.674, p < 0.05$), which is a larger elasticity than all other significant predictors except for women’s civil society participation ($ey/ex = 1.659, p < 0.001$).

Finally, in model 6, we decomposed the effect of women’s civil society participation into its component parts. When doing so, we find that civil society organizations is the indicator driving most of the effect of this composite measure ($dy/dx = 0.037, p < 0.01$), although women’s parliament share also tends to increase among societies where freedom of discussion becomes more legally and culturally protected for women ($dy/dx = 0.020, p > 0.05$).

We performed several other robustness checks and report these alternative specifications in Table 3. In model 7, we replace our primary measure of gender ideology with a non-political measure, focusing on the perceived importance of university education for boys versus girls. These two gender ideology measures are positively correlated with one another ($r = 0.790$), and the replication produces fairly consistent results, with this alternative measure continuing to positively affect women’s parliament share ($dy/dx = 0.046, p < 0.05$). This suggests that gender ideology, broadly conceived, may be influential in shaping the gender composition of parliament, and not simply gender attitudes related to political representation. In model 8, we replace religious attendance with religious belief, focusing on the importance of God. This alternative measure produces similar results, showing no significant relationship with women’s political representation, nor does it impact the effect of gender ideology ($dy/dx = 0.050, p < 0.05$). Finally, in model 9, we replace women’s labor force participation with the gender composition of the labor force. Again, the results are consistent in that participation in the labor force appears to be negatively associated with changes in women’s share of parliament. More

Table 3
FRMs of Women’s share of parliament with two-way fixed effects.

	Model 7	Model 8	Model 9
Gender Egalitarianism (Political Leaders)		0.050* (0.024)	0.046* (0.023)
Gender Egalitarianism (University Education)	0.046* (0.022)		
Religious Attendance (Reference: Monthly – Infrequently)			
Weekly +	0.014 (0.050)		0.019 (0.052)
Never	-0.088 (0.052)		-0.081 (0.053)
Religious Belief (Importance of God)		0.006 (0.007)	
Women’s Labor Force Participation	-0.002 (0.001)	-0.002* (0.001)	
Labor Force Gender Composition			-0.004 (0.002)
Women’s Civil Society Participation	0.356*** (0.094)	0.367** (0.108)	0.397*** (0.094)
Election System (Reference: Majoritarian)			
Proportional	0.081** (0.026)	0.091*** (0.025)	0.083** (0.028)
Mixed	0.081** (0.027)	0.097*** (0.026)	0.082** (0.030)
Other	-0.016 (0.023)	0.001 (0.025)	-0.017 (0.025)
Quota System (Reference: No Quota)			
No Sanctions	0.064* (0.028)	0.090** (0.033)	0.066* (0.027)
Weak Sanctions	0.124*** (0.027)	0.111** (0.032)	0.112*** (0.028)
Strong Sanctions	0.098*** (0.018)	0.095*** (0.019)	0.097*** (0.019)
Reserved Seats	0.050 (0.052)	0.075 (0.051)	0.057 (0.053)
Electoral Democracy	-0.053*** (0.013)	-0.054*** (0.015)	-0.058*** (0.014)
Electoral Democracy ²	0.038** (0.012)	0.035** (0.012)	0.038** (0.013)
CEDAW Ratification	-0.001 (0.002)	0.000 (0.002)	-0.001 (0.002)
GDP PC (PPP) (log)	0.021 (0.027)	0.045 (0.030)	0.026 (0.029)
Age Structure (Percent 50 Years and Above)	-0.004* (0.002)	-0.004* (0.002)	-0.004* (0.002)
Observations	275	269	275
States	101	100	101
Pseudo R ²	0.090	0.090	0.090

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$ (two-tailed tests).

Note: Table 3 presents results from fractional response models (FRMs) with two-way fixed effects using a quasi-likelihood logit estimator with clustered standard errors that are robust to heteroskedasticity and autocorrelation. Each cell reports the marginal effect, with the robust standard error in parentheses. All models include state and year fixed effects (not shown to preserve space).

Table 4
Two-stage least squares regression of women's share of parliament.

	Model 10	Model 11	Model 12
<i>Second-Stage Results</i>			
Gender Egalitarianism	0.272* (0.128)	0.177* (0.088)	0.198* (0.095)
Religious Attendance (Reference: Monthly – Infrequently)			
Weekly +	–0.027 (0.073)	0.020 (0.049)	0.005 (0.048)
Never	–0.021 (0.064)	–0.003 (0.044)	0.001 (0.047)
Women's Labor Force Participation	0.000 (0.001)	–0.001 (0.001)	–0.001 (0.001)
Women's Civil Society Participation	0.381** (0.147)	0.407** (0.132)	0.393** (0.143)
Election System (Reference: Majoritarian)			
Proportional	0.038 (0.040)	0.048 (0.029)	0.039 (0.030)
Mixed	0.042 (0.044)	0.039 (0.031)	0.037 (0.033)
Other	0.054 (0.052)		
Quota System (Reference: No Quota)			
No Sanctions	0.039 (0.024)	0.044 (0.024)	0.039 (0.025)
Weak Sanctions	0.035 (0.036)	0.029 (0.026)	0.033 (0.030)
Strong Sanctions	0.082*** (0.015)	0.085*** (0.017)	0.083*** (0.018)
Reserved Seats	–0.005 (0.048)	0.021 (0.037)	0.026 (0.038)
Electoral Democracy	–0.054* (0.021)	–0.049** (0.018)	–0.046* (0.018)
Electoral Democracy ²	0.024 (0.016)	0.021 (0.014)	0.016 (0.014)
CEDAW Ratification	0.001 (0.002)	0.003 (0.001)	0.002 (0.001)
GDP PC (PPP) (log)	0.003 (0.038)	0.002 (0.033)	–0.002 (0.032)
Age Structure (Percent 50 Years and Above)	–0.008** (0.003)	–0.005* (0.002)	–0.006* (0.003)
State Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	No	No
Period Fixed Effects	No	Yes	No
Linear Time Trend	No	No	0.004* (0.002)
Observations	250	250	250
States	76	76	76
R ²	0.627	0.667	0.636
<i>First-Stage Results</i>			
Instrument: Gender Egalitarianism (Regional Neighbors)	0.843** (0.242)	1.074*** (0.223)	0.974*** (0.227)
Partial R ²	0.076***	0.122***	0.107***
Kleibergen-Paap rk Wald F Statistic	12.118	23.130	18.351

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$ (two-tailed tests).

Note: Table 4 presents results from two-stage least squares regression, with the gender egalitarianism of each country's regional neighbors serving as an instrument for gender egalitarianism. All models include clustered standard errors that are robust to heteroskedasticity and autocorrelation. Each cell reports the marginal effect, with the robust standard error in parentheses.

importantly, the positive effect of gender ideology is not dramatically impacted ($dy/dx = 0.046$, $p < 0.05$).

Finally, in Table 4, we address concerns with endogeneity by replicating our results using two-stage least squares (2SLS) regression with fixed effects, with the gender egalitarianism of each country's regional neighbors serving as an instrument for gender egalitarianism. Each cell reports the marginal effect, with the robust standard error in parentheses. In model 10, we estimate a fully specified 2SLS model with two-way fixed effects and clustered standard errors. We continue to observe a positive association between gender egalitarianism and women's share of parliament. However, the estimated covariance matrix is not of full rank, which makes the computation of standard errors unreliable. This is most likely due to the large number of dummy variables in our model, which do not vary enough to provide useful information for model estimation. Our dummy variables include the indicator variables from the time fixed effects (by contrast, the unit fixed effects are specified through demeaning), as well as the system predictors.

One solution is to partial out all the predictors (i.e., residualize gender egalitarianism by the other right-hand side predictors) and re-estimate the model. Doing so produces the same estimates for our instrument in the first-stage results ($dy/dx = 0.843$, $p < 0.01$) and gender egalitarianism in the second-stage results ($dy/dx = 0.272$, $p < 0.05$). A second solution is to replace the time fixed effects with period fixed effects (consisting of three nine-year period indicators) and drop one of the election system indicators, making majoritarian and other election systems the excluded reference group. Model 11 reports this specification. The results do not change dramatically, including that for gender egalitarianism ($dy/dx = 0.177$, $p < 0.05$). A third solution is to replace the period effects with a linear time trend, and model 12 reports the result of this specification. Gender egalitarianism's positive association persists ($dy/dx = 0.198$, $p < 0.05$). Note also that the marginal effects of gender egalitarianism in the 2SLS models are larger, but that the standard errors are larger, as well. In effect, opting for the 2SLS model reduces the potential bias found in our prior models that do not correct for endogeneity, but does so at the expense of efficiency. Overall, though, the different specifications reported in Table 4 produce results that are consistent with the idea that changes in a country's gender egalitarianism produce changes in the gender composition of its national parliament.

6. Discussion

Women represent only 26.6% of the members of national parliaments worldwide. Although their representation has increased in recent decades, these gains have not closed the gaps between world regions. Western countries continue to report the largest average share among all regions, but even this average (35.9%) remains well below parity. The gender gap in political empowerment is surprising, given women's comparatively high level of education and labor force participation. Our findings suggest that gender attitudes help account for the skewed gender composition of national legislatures across the world. According to this explanation, gender ideology shapes women's share of parliament by affecting women's participation and success at multiple stages in the political process (Paxton and Hughes 2021), with two types of belief being especially important: the belief that women lack the requisite temperament, rationality, and leadership skills to successfully lead, and the belief that women's proper place is working in the home. Collectively, we propose that these beliefs (and the norms they engender) discourage women from running for office and reduce voter support when they do.

Despite the intuitive appeal of this explanation, existing tests of gender ideology's impact have significant shortcomings. Many studies use crude proxy measures, while those that directly measure gender attitudes are limited to cross-sectional designs with small samples and sparse models. We build on the latter approach, pioneered by Paxton and Kunovich (2003), operationalizing gender ideology with the same focal survey item, but with a larger sample (101 countries), a panel design (1995–2021), and a more comprehensive set of controls. These methodological features allow us to measure attitudes directly, isolate its effect, and address concerns about heterogeneity bias.

To be sure, culture is a multifaceted and multi-level construct that can be measured by examining the attributes, affective sentiments, and practices of individuals, the material qualities of objects, and the nature of interpersonal relationships (Cerulo et al., 2021; Mohr et al., 2020; Valentino and Vaisey 2022). Thus, we acknowledge that attitudes are only one component of culture. Nevertheless, we argue that attitudes *are* a component, and they represent a significant measurement upgrade over classification schemes involving geographic region and dominant religion that are often employed in this literature.

Consistent with our hypothesis, fractional response models show that gender egalitarianism accounts for regional variation in women's share of parliament. When we add two-way fixed effects, gender egalitarianism continues to positively affect women's political power net of other influences, including supply-side and demand-side factors, globalization, and development. In particular, we find that a one-unit increase in gender egalitarianism is associated with an increase in women's parliament share by about four or five percentage points. Finally, we appreciate that gender ideology might be reciprocally related to women's share of parliament through demonstration effects, so we also replicated our findings with two-stage least squares models with fixed effects and a spatial instrument.

Collectively, our models provide a robust assessment of the effect of attitudes on women's political empowerment across a diverse set of nations over the past quarter century. Our findings suggest that this component of a country's culture – gender attitudes towards women political leaders – helps explain both the growing success and the persistent obstacles faced by women political candidates around the world. Our findings also provide a cross-cultural and macro-level demonstration of the importance of attitudes for predicting behavior, building on work in cultural sociology.

We also find, consistent with prior work, that women's labor force participation is unrelated to women's share of parliament. We introduce a new supply-side measure, women's civil society participation, that serves as a more powerful predictor of women's political representation. We find that the positive effect of this composite measure is driven by women's participation in civil society organizations. These results suggest that supply-side mechanisms are potentially important, but that the operationalization of this concept (i.e., the supply of viable women candidates) should be fine-tuned to better gauge women's opportunities for gaining experience in the public sphere, developing social capital, and fostering political aspirations.

A number of studies suggest that explicit measures of gender ideology under-represent gender traditionalism. For example, a field experiment in Kenya found that survey respondents were less likely to report their support for female genital mutilation and early marriage when they believed that the survey was for an international audience (Cloward 2014). Similarly, studies in the U.S. show that implicitly measured gender attitudes affect the selection of women candidates net of explicitly measured gender attitudes (Mo 2015) and that support for women's ability to serve as political leaders is higher when the attitude is measured explicitly rather than indirectly (Setzler 2019). Contrary to these studies, a three-part survey experiment in the U.S. showed no evidence of social desirability in gender attitudes towards political candidates (Holman 2023). Despite this recent finding, though, the bulk of these studies suggest that explicitly measured gender attitudes under-represent bias against women, a pattern that would weaken the link between gender ideology and women's share of parliament. Although we cannot overcome this possible bias, if it exists in our data, it would dampen the link between gender ideology and women's parliament share, thereby making our test a conservative one.

We are also limited by missing data. The WVS and EVS waves do not cover every country for every year, which limits the ability to perform a panel analysis. To that end, however, the present study represents an important first step for examining the impact of gender ideology on women's political representation in a cross-national and longitudinal context. Moreover, the datasets we draw from, including the WVS and EVS, disproportionately cover more developed nations in North America, Western Europe, and Eastern Europe. Almost half the cases in our sample stem from these regions, while less than 10% of our cases come from countries within Africa. Finally, while our models include a more comprehensive range of controls than prior efforts that examine gender attitudes, the

availability of important supply variables remains limited. Human capital measures that focus on gender equity (e.g., gender disparities in school enrollment or chosen fields of study) still come with large amounts of missing data across time and space. Likewise, labor force measures that report the participation rates of women in professional occupations are not as readily available as more crude measures that simply focus on women's overall economic activity. In sum, while our study breaks new ground, we acknowledge shortcomings to our research design that we look forward to seeing addressed in future work.

Our results carry a number of implications for governments, organizations, and social groups seeking to increase women's political engagement. First, programs that promote gender egalitarian attitudes should contribute to women obtaining more leadership roles both within and outside of government. Studies suggest that education increases gender egalitarian attitudes (Shu 2004; Thijs et al., 2019). Relatedly, policies that promote education and provide greater access to candidate information should also reduce the negative effects of gender traditionalism on women's political representation (Mo 2015). When considered together, educational programs and informational campaigns that affirm meritocratic principles, equity, and fully informed decision making may contribute to a more balanced distribution of power in government. Moreover, gender egalitarian attitudes shape a variety of other outcomes that may contribute to greater political engagement for women in the long term. For example, gender ideology impacts competency beliefs, schooling aspirations, and occupational values among boys and girls (van der Vleuten et al., 2016). Gender attitudes also affect the distribution of household and child care among men and women (Davis and Greenstein 2009), norms which are then transmitted to their children (Platt and Polavieja 2016). In sum, our findings underscore the importance of promoting gender egalitarian beliefs across society, producing wide ranging effects on women's role socialization, economic opportunities, and political empowerment.

Finally, we envision several future studies that can build on our findings. Researchers could test the effects of attitudes on political empowerment for other underrepresented groups, including racial and religious minorities and LGBTQIA + individuals. Although the WVS and EVS do not currently include survey items that allow us to directly test these ideas, related items (e.g., acceptability of homosexuality, willingness to have racial minorities as neighbors) in these surveys might be useful indicators of such attitudes, providing a way to examine the link between attitudes and the political representation of different social groups.

CRedit authorship contribution statement

Rob Clark: Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Conceptualization. **Amy Kroska:** Writing – review & editing, Writing – original draft, Conceptualization.

Appendix A. Descriptive statistics (N = 275)

	Mean	SD	Minimum	Maximum
Women's Share of Parliament	0.201	0.122	0.000	0.638
Region (Reference: Western Europe & North America)				
Latin America & Caribbean	0.153	0.360	0	1
Eastern Europe & Central Asia	0.280	0.450	0	1
Asia & Pacific	0.178	0.383	0	1
Sub-Saharan Africa	0.076	0.266	0	1
Middle East & North Africa	0.109	0.312	0	1
Gender Egalitarianism	2.559	0.461	1.359	3.694
Religious Attendance (Reference: Monthly – Infrequently)				
Weekly +	0.327	0.247	0.025	1.000
Never	0.220	0.178	0.000	0.832
Women's Labor Force Participation	49.248	14.233	11.287	84.356
Women's Civil Society Participation	0.758	0.168	0.187	0.947
Election System (Reference: Majoritarian)				
Proportional	0.484	0.501	0	1
Mixed	0.233	0.423	0	1
Other	0.033	0.178	0	1
Quota System (Reference: No Quota)				
No Sanctions	0.051	0.220	0	1
Weak Sanctions	0.029	0.168	0	1
Strong Sanctions	0.164	0.371	0	1
Reserved Seats	0.069	0.254	0	1
Electoral Democracy	0.606	0.253	0.017	0.923
CEDAW Ratification	20.498	10.599	0	40
GDP PC (PPP) (log)	9.611	0.958	6.916	11.471
Age Structure (Percent 50 Years and Above)	24.878	10.445	6.100	47.900

Appendix B. Correlation matrix (N = 275)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	
(1) Women's Share of Parliament	-----																							
(2) Latin America & Caribbean	.047	-----																						
(3) Eastern Europe & Central Asia	-.173	-.265	-----																					
(4) Asia & Pacific	-.178	-.198	-.290	-----																				
(5) Sub-Saharan Africa	.092	-.122	-.179	-.134	-----																			
(6) Middle East & North Africa	-.240	-.149	-.218	-.163	-.101	-----																		
(7) Year	.414	-.038	-.032	-.023	-.019	.069	-----																	
(8) Gender Egalitarianism	.569	.258	-.208	-.194	-.168	-.464	.166	-----																
(9) Weekly +	-.174	.102	-.385	.128	.501	.281	-.057	-.394	-----															
(10) Never	.297	-.112	.027	-.183	-.287	-.044	.109	.391	-.652	-----														
(11) Women's LFP	.342	.020	.055	-.029	.325	-.651	.054	.408	-.146	.142	-----													
(12) Women's CSP	.313	.036	.232	-.223	-.083	-.541	.003	.519	-.413	.282	.402	-----												
(13) Proportional	.226	.216	.126	-.394	-.087	.058	.004	.236	-.127	.108	-.083	.251	-----											
(14) Mixed	-.044	-.043	.097	.171	-.094	-.138	.020	-.012	-.156	-.025	.078	.055	-.533	-----										
(15) Other	-.097	-.078	-.115	.181	-.053	.198	-.021	-.178	.256	-.011	.034	-.235	-.178	-.101	-----									
(16) No Sanctions	-.015	.086	-.034	.108	-.067	-.028	.013	-.047	.013	.039	-.012	-.109	.008	-.049	.236	-----								
(17) Weak Sanctions	.058	.047	-.012	-.024	-.050	-.061	.164	.157	-.032	.072	.024	.083	.092	-.095	-.032	-.040	-----							
(18) Strong Sanctions	.269	.277	.096	-.129	-.127	-.029	.223	.120	-.049	-.026	-.051	.120	.221	.012	-.081	-.102	-.077	-----						
(19) Reserved Seats	.077	-.116	-.170	.061	.246	.273	.046	-.264	.391	-.202	-.191	-.235	-.034	-.048	.031	-.063	-.047	-.121	-----					
(20) Electoral Democracy	.241	.172	-.106	-.234	-.132	-.355	-.075	.630	-.352	.305	.156	.621	.300	-.010	-.351	-.102	.110	.116	-.318	-----				
(21) CEDAW Ratification	.457	.145	-.143	-.038	.007	-.076	.716	.274	-.025	.131	.197	.097	.059	.036	-.022	.092	.166	.180	.001	.101	-----			
(22) GDP PC (PPP) (log)	.266	-.057	-.071	-.122	-.468	-.030	.235	.551	-.537	.494	.063	.402	.130	.066	-.008	-.097	.072	.044	-.369	.526	.131	-----		
(23) Age Structure	.292	-.237	.325	-.098	-.412	-.340	.252	.572	-.719	.479	.235	.602	.158	.144	-.136	-.066	.129	.066	-.354	.509	.206	.719	-----	

Appendix C. Primary sample (N = 275)

State	N	State	N	State	N
Albania	3	Greece	1	Pakistan	4
Algeria	2	Guatemala	2	Peru	5
Argentina	5	Haiti	1	Philippines	4
Armenia	3	Hong Kong	3	Poland	4
Australia	4	Hungary	3	Portugal	1
Austria	1	Iceland	1	Qatar	1
Azerbaijan	3	India	4	Romania	4
Bangladesh	3	Indonesia	3	Russia	4
Belarus	3	Iran	3	Rwanda	2
Bolivia	1	Iraq	3	Saudi Arabia	1
Bosnia and Herzegovina	3	Italy	2	Serbia	5
Brazil	4	Japan	5	Singapore	3
Bulgaria	3	Jordan	3	Slovakia	2
Burkina Faso	1	Kazakhstan	2	Slovenia	4
Canada	3	Kuwait	1	South Africa	4
Chile	5	Kyrgyzstan	3	South Korea	5
China	5	Latvia	1	Spain	5
Colombia	4	Lebanon	2	Sweden	5
Croatia	2	Libya	1	Switzerland	2
Cyprus	3	Lithuania	2	Tajikistan	1
Czech Republic	2	Malaysia	3	Tanzania	1
Denmark	1	Mali	1	Thailand	3
Dominican Republic	1	Mexico	5	Trinidad and Tobago	2
Ecuador	2	Moldova	3	Tunisia	2
Egypt	3	Mongolia	1	Turkey	5
El Salvador	1	Montenegro	1	Uganda	1
Estonia	3	Morocco	3	Ukraine	4
Ethiopia	2	Myanmar	1	United Kingdom	2
Finland	3	Netherlands	3	United States	5
France	2	New Zealand	4	Uruguay	3
Georgia	4	Nicaragua	1	Uzbekistan	1
Germany	5	Nigeria	3	Vietnam	3
Ghana	2	North Macedonia	3	Zambia	1
		Norway	3	Zimbabwe	3

Note: States appearing in the primary sample, along with the number of observations they contribute.

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