Title
Women’s Political Representation and Corruption

Journal
Sociology of Development, 9(3)

ISSN
2374-538X

Authors
Gao, Manjing

Mahutga, Matthew C

Publication Date
2023-09-01

DOI
10.1525/sod.2022.0022

Peer reviewed

MANJING GAO
University of California, Riverside, mgao009@ucr.edu
MATTHEW C. MAHUTGA
University of California, Riverside, matthew.mahutga@ucr.edu

Women's Political Representation and Corruption

The Role of Social Spending

ABSTRACT We assess the degree to which the policy preferences of female legislators explain the widely observed negative association between women's political representation (known as "women in parliament," or WIP) and corruption. While a broad literature suggests that WIP reduces corruption, there is little consensus on how. Some suggest that the effect is driven by women's psychology—perhaps women are more prosocial or more risk-averse than men, and thus engage in less corruption. Others suggest that the effect is driven by policy preferences: because it serves the interest of their female constituents, women promote social spending, which in turn reduces corruption. We employ a mediation analysis that allows us to test the mediating effect of social spending, and to provide an upper bound for alternative explanations. Our results suggest that social spending explains as much as 69 percent of the effect of WIP on corruption, leaving as little as 31 percent for alternative explanations. These results are robust to concerns about spurious WIP effects, sample composition, and the potential for endogeneity in the link from either WIP or social spending to corruption. We conclude by implicating these findings in broader discussions about the beneficial effects of WIP for governance. KEYWORDS women's political representation, corruption, social spending, gender and politics

Corruption remains an important issue in both developed and developing countries (Treisman 2007). Studies document its negative consequences for economic and social development. For example, corruption inhibits economic growth (Mo 2001), threatens democracy (Moreno 2002), leads to greater income inequality and poverty (Gupta, Davoodi, and Alonso-Terme 2002), and reduces generalized social trust (Richey 2009). As the literature on corruption has grown, the impact of gender has become a key source of contention.

Within the broader literature on gender and development, women's political representation has been recognized as a key issue. Women's political representation and involvement in policy decision-making can lead to more inclusive and equitable policies that benefit women, children, and larger societies (Varriale et al. 2022). Research has documented the positive impacts of women's political representation on a range of development outcomes, including improvements in child health (Quamruzzaman and Lange 2016), reductions in gender-based violence (Iyer et al. 2012), and faster economic growth (Duflo 2012).

Sociology of Development, Vol. 9, Number 3, pps. 217–241, electronic ISSN: 2374-538X DOI: https://doi.org/10.1525/sod.2022.0022

Women's political representation can also contribute to better governance. For example, an important subset of research concludes that women's political representation reduces corruption cross-nationally. But the mechanism of such an effect is unclear. Some argue that women have a greater intrinsic aversion to corruption because they are more honest, altruistic, and risk-averse than men (Esarey and Chirillo 2013; Swamy et al. 2001). Others attribute the effect to the harsher punishment by voters women politicians may face if they participate in corruption (Barnes and Beaulieu 2019; Esarey and Chirillo 2013). A third argument suggests that women legislators reduce corruption indirectly through pursuing their policy preferences, such as the expansion of social spending (Bauhr, Charron, and Wängnerud 2019; Watson and Moreland 2014). Nevertheless, few studies attempt to disentangle explicitly the causal mechanisms proposed, and we are aware of no *empirical* work linking women's representation to corruption through social spending.

To empirically examine the mechanisms by which women's representation reduces corruption, we conduct a mediation analysis. This may provide mechanistic evidence in two distinct ways. First, it allows us to directly test the mechanism linking women's political representation to corruption through the policy preferences of female legislators. In particular, we ask whether social spending mediates the relationship between women's political representation and corruption, and we assess the relative contributions of this pathway in partial and full democracies. Second, it allows us to estimate upper bounds for alternative explanations—that is, the share of the total effect not explained by social spending.

Our results suggest that social spending does mediate the association between women's political representation and corruption. That is, we reject the null hypothesis of no indirect effect across three different measures of the dependent variable. This result is robust to the possibility of endogeneity in the link from either women's political representation or social spending to corruption, and to perturbations of the sample composition. Results accounting for the latter suggest that women's policy preferences explain as much as 69 percent of the association between women's political representation and corruption. We conclude by discussing the implications of these findings within the larger context of women's role in politics.

WOMEN'S POLITICAL REPRESENTATION AND CORRUPTION

In 2001, two pioneering studies reported a negative association between the presence of women in parliament (denoted WIP) and corruption (Dollar, Fisman, and Gatti 2001; Swamy et al. 2001). With cross-country comparative data, Dollar, Fisman, and Gatti (2001) found that WIP is negatively associated with corruption. Swamy and colleagues (2001) examined both micro-level and cross-country data and found comparable results: corruption is lower in countries with higher WIP, and at the individual level, women are less likely to condone and participate in corruption. Since then, other scholars have investigated this gender–corruption linkage. Despite some initial skepticism (e.g., Sung 2003), subsequent research based on experimental and more recent observational data has provided overwhelming evidence for the initial findings (Rivas 2013; Watson and Moreland 2014).[1] Thus, it is widely acknowledged that higher WIP is associated with less corruption in the government, though some suggest that this association varies with other factors such as the level of democracy or accountability (Esarey and Chirillo 2013; Esarey and Schwindt-Bayer 2018).

However, a growing body of research casts doubt on the nature of the association, questioning whether WIP has a *causal* effect on corruption. Some studies suggest causality in the reverse direction: corruption reduces WIP because clientelistic networks are dominated by men, who do not want women to interfere (Bjarnegård 2013; Stockemer 2011; Sundström and Wängnerud 2016). These studies proposed challenges, especially for observational studies, to address the possible presence of recursive causal associations. Motivated by such challenges, more recent studies focus on the causal nature of the association. Using the instrumental variables approach, they have confirmed that WIP reduces corruption in government, at least in certain contexts (Esarey and Schwindt-Bayer 2019; Jha and Sarangi 2018). But they have also confirmed that the causation goes both ways. That is, WIP reduces corruption, *and* corruption inhibits WIP (Esarey and Schwindt-Bayer 2019).

Multiple Causal Mechanisms and Mixed Evidence

Despite recent studies establishing a causal linkage between WIP and corruption, there is no consensus on *how* WIP reduces corruption. Multiple theoretical mechanisms have been proposed. In this section, we summarize them under two main themes: gender differences in psychosocial characteristics and gender differences in policy preferences.[2]

Gender differences in psychosocial characteristics. The first strand of research argues that intrinsic gender differences in psychological characteristics, which are due to the gendered socialization process, result in a difference in predispositions to engage in corruption. One such characteristic proposed by initial research is women's greater prosocial orientation. In this view, women are more resistant to corruption because they are more honest, more fair, and less likely than men to sacrifice the common interest for personal gain (Dollar et al. 2001; Swamy et al. 2001). Others suggest that women's well-documented greater aversion to risk (Byrnes, Miller, and Schafer 1999; Eckel and Grossman 2008; Esarey and Chirillo 2013; Watson and McNaughton 2007) explains the impact of WIP on corruption. That is, women are more risk-averse than men, which reduces their propensity for corruption. Moreover, risk aversion might have a particularly strong effect among women, since political minorities like women may face more extreme punishment due to their marginalized status and voters' stereotypes (Barnes and Beaulieu 2019; Esarey and Chirillo 2013).[3] Thus, an increase in WIP should be associated with less corruption as less corrupt women legislators crowd out their more corrupt men counterparts (Bauhr, Charron, and Wängnerud 2019). Esarey and Chirillo (2013) argue that the stronger effect of WIP in democracies is consistent with this view, insofar as democratic institutions increase the penalties for corruption (also see Esarey and Schwind-Bayer 2018).

In summary, these studies relied on gender differences in psychological characteristics to explain the linkage between WIP and corruption, assuming that these gender differences exist among political elites in the parliament as well.

Gender differences in policy preferences. A second strand of research points to women legislators' potential to exert influence as policy makers or shapers (Sainsbury 1996) to explain how WIP reduces corruption. Here, women legislators have policy preferences and engage in political behavior that advance the interests of women (Bauhr, Charron, and Wängnerud 2019; Celis 2007; Wängnerud 2009; Watson and Moreland 2014). These preferences and political engagements increase social spending, which in turn reduces corruption (Alexander and Bågenholm 2018; Jha and Sarangi 2018).

Figure 1 summarizes current thinking on the mediating effect of social spending. First, women legislators pursue social spending directly because it advances women's interests (Hernes 1987; Wilson 2002). According to the literature on the gendered welfare state, "the welfare state is largely produced and consumed by women" (Bolzendahl and Brooks 2007:1510). Women's self-determination in both the private household and the public sphere is closely related to the expansion of the welfare state (Alexander 2018). For example, greater female labor force participation is accompanied by growing demand for social services and an increase in state welfare spending (Huber and Stephens 2000). As social spending is closely related to women's welfare, women prefer more generous welfare arrangements than men (Inglehart and Norris, 2003). Women may also disproportionately rely on public welfare services; for example, elderly women are especially dependent on government healthcare services as they are more likely to live longer and alone (Courtemanche and Green 2017). Empirically, a large literature finds that women legislators are more supportive than men of the expansion of social spending (Poggione 2004; Wängnerud 2000). Further, WIP has been shown to be positively associated with social spending (Bolzendahl and Brooks 2007; Clayton and Zetterberg 2018).

How might social spending reduce corruption? Although some argue that more government spending provides more opportunity for corruption (Goel and Nelson 1998; Mueller 2003; Persson and Tabellini 2003; Warren 2011), much of this thinking refers to the overall size of the government. The counterargument with respect to *social* spending is that it reduces corruption through two channels: less *incentives* for corruption and more interest among the polity in the functioning of government (Themudo 2014).

With respect to the first channel, women in public office are likely to seek improvements in "public service delivery, particularly the care-oriented types of services that

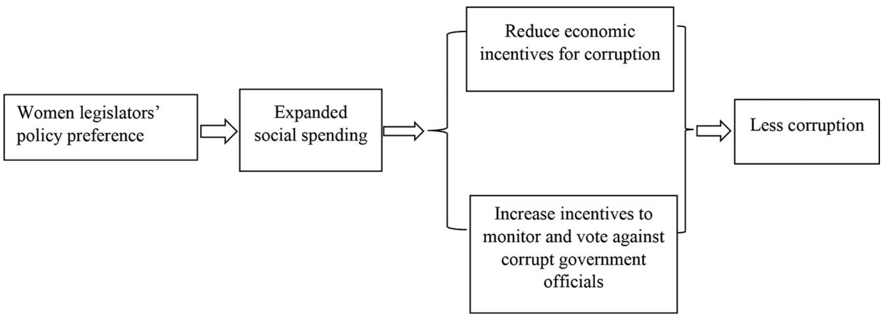

FIGURE 1. Conceptual model of how the presence of women in parliament might reduce corruption.

benefit traditionally female-oriented sectors, such as education and health care," which "is more likely to reduce the need for petty corruption among women" (Bauhr, Charron, and Wängnerud 2019:18). Moreover, more social spending expands access to social services, which limits the incentives for "citizens and private companies to directly interact with public servants to alter service provision outcomes" (Bergh, Fink, and Öhrvall 2012:22). Similarly, good public access limits the expected payoff for government officials to engage in corrupt service provision. In short, social spending is likely to reduce incentives for women, the citizenry writ large, and government officials to engage in corruption. With respect to the second channel, social spending can increase citizens' average interest in the functioning of government and the transparency of the state (Watson and Moreland 2014). Stensöta, Wängnerud, and Agerberg (2015) argue that women with greater access to social services have a vested interest in the quality of government. Because women make up approximately half (or more) of the population in most countries, better services for women increase the average interest in the quality of government (also see Alexander 2018; Alexander, Bågenholm, and Charron 2020).

Empirically, some prominent studies find that government spending reduces corruption, especially in the presence of democracy (Bauhr, Charron, and Wängnerud 2019; Bergh, Fink, and Öhrvall 2012; Kotera, Okada, and Samreth 2012; Magtulis and Poquiz 2017; Rothstein 2021; Themudo 2014). Survey data show that women are particularly invested in state capacity and transparency when social spending is high (Alexander 2018; Stensöta, Wängnerud, and Agerberg 2015), that individuals with access to state services have higher levels of political participation and political engagement than those without, and that those who perceive that the government is upholding its part of the welfare-state social contract are less likely to tolerate tax evasion or abuse of social insurance (Hern 2017; Rothstein 2021).

In short, social spending may reduce the incentives for citizens and public servants to engage in corruption, and/or it may provide more incentives for women and other citizens to monitor government activities and vote against corrupted officials. However, while these studies lend credence to the argument, to our knowledge, no studies have tested it empirically. In the next section, we illustrate how mediation analysis can be used to do this as well as to disentangle and evaluate the strength of various causal pathways.

EMPIRICAL FRAMEWORK: MEDIATION ANALYSIS AND CAUSAL MECHANISMS

To provide evidence on the precise mechanisms linking WIP to corruption, we propose mediation analysis. First, by directly testing the indirect effect, we investigate whether women politicians reduce corruption through their policy preferences for more social spending. While this cannot rule out social-psychological mechanisms, it can provide evidence for the policy channel. Second, however, mediation analysis allows us to decompose the total effect of WIP into direct and indirect effects. Here, the indirect effect captures the explanatory power of the social-spending argument, while the direct effect captures other theoretical explanations, such as women's greater tendency toward altruism or risk aversion. If the direct effect is small relative to the indirect effect, this would suggest that the social-psychological mechanisms—and any other mechanisms that may be operating proposed in the literature—are less important than policy preferences.

One challenge for the mediation analysis is the directionality of the relationships. The theories of gender differences in policy preferences posit that the causal arrow runs from WIP to social spending, and from social spending to corruption. To assess the direction of the relationship, we perform mediation analysis with several sets of instrumental variables that allow us to assess the degree to which either WIP or social spending is endogenous in corruption equations. We now turn to a more sustained discussion of our methodology.

DATA AND METHODS

Data and Sample

We compile our data mainly from two sources: the Quality of Government data set (QoG, Teorell et al. 2021) and the Varieties of Democracy data set (V-Dem, Coppedge et al. 2022a). We limit our sample to democratic-leaning countries where (1) the causal direction from WIP to corruption is well established (Esarey and Schwindt-Bayer 2019), (2) the government is held accountable to voters, (3) women's policy preferences are likely to be translated into policy outcomes (Wängnerud 2009), and (4) multiple causal mechanisms may work together to account for the gender–corruption association. For example, the observed link between WIP and corruption in democracies can be explained through women's greater tendency to avoid risks (Esarey and Chirillo 2013) and women's political power to influence policy outcomes. It is also possible that voters punish women politicians disproportionately more for corruption in contexts where corruption in general is less pervasive (Pavão 2018). These sample selection criteria rule out countries with nondemocratic regimes where women may have little real political power through formal institutions despite having substantial legislative representation (Fallon, Swiss, and Viterna 2012; Nistotskaya and Stensöta 2018). But they include semi-democracies along with full democracies to ensure a sufficient variation in corruption levels and generalization of the results to different levels of democracy. Following previous studies (Esarey and Schwindt-Bayer 2018, 2019), we define "democratic-leaning countries" as all countries and years for which Freedom House's average Civil Liberties and Political Rights ratings were 5 or lower for 10 years or more between 2000 and 2015. The total number of observations differs across the measures of corruption, as shown in Table 1. Data availability limits the time frame of our analysis to 2000 to 2015.[4] This represents a recent time period, where the dynamics of WIP and corruption may change, as the global average of WIP has nearly doubled, from 11.3 percent in 1995 to 22.1 percent in 2015 (Inter-Parliamentary Union 2015).

Measures

The dependent variable is the perceived level of corruption, since objective corruption is very difficult to assess across countries. We use three measures widely used in cross-national comparative studies on corruption. (1) *Control of Corruption*, one of the World Bank Governance Indicators (WBGI), measures "the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as 'capture' of the state by elites and private interests" (Kaufmann, Kraay, and Mastruzzi 2011). It ranges from –2.5 to 2.5 and is available from 2000 to 2015, with a year gap in 2001. (2) *Corruption*, one of the variables used in the International Country Risk Guide (ICRG), is "an assessment of corruption within the political system . . . concerned with actual or potential corruption in the form of excessive patronage, nepotism, job reservations, 'favor-for-favors', secret party funding, and suspiciously close ties between politics and business" (Political Risk Services Group 2014). This index ranges from 0 to 6 and is available from 2000 to 2015. (3) Transparency International's *Corruption Perceptions Index* (CPI) measures the perceived level of corruption in the public sector, including bribery, diversion of public funds, use of public office for private gain, nepotism in the civil service, and state capture (Transparency International 2012). It ranges from 0 to 10. We use data from 2000 to 2011 because the collection methodology changed in 2012.

In the original data for all three measures, a higher score indicates less corruption. For ease of interpretation, we recode them using each index's maximum value minus its original value so that a higher score represents more corruption. Although all three measure perceived levels of corruption, they differ in the following ways. WBGI captures both citizens' and experts' perceptions as it combines survey data and expert assessments from individuals, commercial businesses, NGOs, and the public sector. It also measures corruption in both the public and private sectors. CPI also aggregates assessments from experts and businesspeople but focuses on corruption in the public sector (Lambsdorff 2006). In contrast, ICRG is entirely based on expert evaluations and emphasizes the extent to which corruption is converted by the government into a potential threat to businesses and foreign investments (Esarey and Schwindt-Bayer 2018). Nevertheless, intercorrelations among the three measures are very high (WBGI and CPI correlate at $r = 0.98$; ICRG correlates with WBGI at $r = 0.90$ and with CPI at $r = 0.87$ between 2000 and 2015). Each measure has its own advantages and limitations (Lambsdorff 2006; Panizza 2017; Treisman 2007). Using all three allows us to assess the robustness of our findings to these various choices.

The independent variable is WIP. It is measured as the percentage of seats held by women in the national legislature or parliament—more specifically, the single or lower chamber. The yearly data are drawn from the V-Dem data set (Coppedge et al. 2022b).

The mediating variable is government health spending, measured as domestic general government expenditure on health as a percentage of GDP. We choose health spending for two reasons. First, health spending is identified by previous research as an important women's issue (Wängnerud 2009). Studies find that women legislators are more likely to support health-promoting social policy and that women prioritize health issues more than men (Funk, Paul, and Philips 2022; Quamruzzaman and Lange 2016). Second, health spending allows us to measure the social spending of developed countries as well as developing countries over time; the broader measurement of social spending is not available for the latter. The data were originally collected from the World Development Indicators (World Bank 2021) for the QoG data set (Teorell et al. 2021).

We also include a set of common control variables which may confound the association between WIP and corruption. We control for level of economic development (logged GDP per capita), because economic development increases women's political empowerment and reduces corruption (Duflo 2012; Treisman 2000). We control for democratic freedom, measured as average Freedom House (2021) scores on political rights and civil liberties. We reverse-coded these by multiplying the original score by –1 so that a higher number indicates more freedom. Culture is another potential confounder. For example, one paper finds that individualism has a causal and negative impact on corruption (Jha and Panda 2017). Countries with more egalitarian or individualistic religions, such as Protestantism, have less corruption than those with strong hierarchical religions (Treisman 2007). Further, individualism is associated with a greater degree of gender equality (Davis and Williamson 2019). The effect of culture can be partially addressed by controlling for regional dummies. We also control for percentage of Protestants, using data from the Religious Characteristics of States Dataset Project (Brown and James 2019).[5] Summary statistics of the variables are given in Table 1.

TABLE 1. Summary Statistics

Variables	Obs.	Mean	SD	Min.	Max.
WBGI	1,709	2.31	1.02	0.03	4.04
ICRG	1,557	3.12	1.22	0.00	5.50
CPI	1,226	5.41	2.29	0.00	9.60
Women's percentage in lower house	1,709	18.40	10.73	0.00	53.08
Health spending	1,709	3.59	2.14	0.18	9.20
log GDP per capita	1,709	9.13	1.21	6.17	11.55
Freedom House freedom rating	1,709	−2.43	1.25	−5.00	−1.00
Protestant percentage	1,709	12.39	18.17	0.02	92.56

Notes: WBGI = World Bank Governance Indicators Control of Corruption measure; ICRG = International Country Risk Guide corruption rating; CPI = Transparency International Corruption Perceptions Index. All three measures have been recoded so that higher values indicate more corruption. Summary statistics of covariates are calculated when WBGI is non-missing.

Statistical Methods

For panel data, fixed effects models are often used to control for unobserved time-invariant characteristics that vary across countries. However, fixed effects models are not appropriate for our analysis for several reasons. First, within-country changes in the commonly used measures of corruption are less valid than between-country differences (Dalton and Esarey 2022). Second, fixed effects models are inefficient in the presence of slow-moving variables, and most variables in our model are slow-moving (Esarey and Schwindt-Bayer 2018). Country fixed effects alone explain over 80% of the variation. Thus, following Esarey and Schwindt-Bayer (2018), we use pooled ordinary least square regression models and control for region and year fixed effects to account for spatial and temporal heterogeneity. The standard errors are clustered at the country level to adjust for country-level heteroskedasticity and serial correlation within countries.

To evaluate the research hypothesis, we test the null hypothesis that there is no indirect effect of WIP on corruption that works through health spending. We employ the three-step multiple regression approach (Baron and Kenny 1986) in the framework of the structural equation models (SEMs) to estimate indirect effects. To establish mediation, three conditions must be satisfied: the independent variables should be significantly related to the mediator variable; the mediator should influence the dependent variable; and the statistical test needs to reject the null hypothesis of no indirect effect (Baron and Kenny 1986). The SEMs simultaneously estimate the equations in which the mediator is both an independent variable and a dependent variable, increasing efficiency by pooling the error term across dependent variables.

This use of mediation analysis assumes that the causal arrow runs from WIP to corruption, and from health spending to corruption. However, the reverse path is also possible (see below). Thus, as a robustness check, we use instrumental variables and two-stage least squares (2SLS) regression to address potential endogeneity issues. Since it is not straightforward to combine SEMs with 2SLS regression, in our robustness analysis we use cross-model Sobel tests to test the null on the indirect effects (Mahutga 2016). The Sobel test statistic is calculated as $S = \frac{a \times b}{\sqrt{b^2 S_a^2 + a^2 S_b^2}}$, where a denotes the path from WIP to health spending, b denotes the effect of health spending on corruption, S_a and S_b denote the standard error for a and b, respectively, and $a \times b$ is the indirect effect (Sobel 1982). These hypothesis tests are more conservative than the SEM tests because they do not pool the error terms across models.

RESULTS

Table 2 presents the results of the SEMs of the mediation analysis across three measures of corruption while controlling for economic development, level of democracy, Protestant percentage, and regional and year dummies. Note that the total number of observations, the countries, and the years covered vary between models due to missing values in the corruption indexes. The specific countries included in our model are listed in the supplement in the online version of the journal.

Within each set of mediation models, Model A regresses corruption on WIP to produce an estimate of the *total* effect of WIP. Across the three measures of corruption, WIP has a negative and significant effect on corruption, which is consistent with previous studies (Dollar, et al. 2001; Esarey and Schwindt-Bayer 2019). Model B adds government health spending to the previous model to produce an estimate of the *direct* effect of WIP on corruption. We find that (1) health spending is significantly inversely associated with all three measures of corruption, and (2) the coefficient on WIP attenuates in Model B (the *direct* effect) relative to Model A (the *total* effect). Lastly, we regress government health spending on WIP and other covariates in Model C. We observe a significant positive association between WIP and government health spending.

TABLE 2. Mediating Effect of Government Health Spending on the Association between Women in Parliament and Three Measures of Corruption: Structural Equation Model Estimates

	(1)			(2)			(3)		
	(A) WBGI	(B) WBGI	(C) Health spending	(A) ICRG	(B) ICRG	(C) Health spending	(A) CPI	(B) CPI	(C) Health spending
Women's percentage in lower house	−0.0114**	−0.00853*	0.0352***	−0.0241***	−0.0197**	0.0325**	−0.0332**	−0.0258*	0.0342***
	(0.004)	(0.004)	(0.010)	(0.007)	(0.006)	(0.010)	(0.010)	(0.010)	(0.009)
log GDP per capita	−0.549***	−0.516***	0.402*	−0.540***	−0.470***	0.517**	−1.299***	−1.204***	0.436**
	(0.082)	(0.093)	(0.168)	(0.111)	(0.124)	(0.177)	(0.200)	(0.229)	(0.167)
Freedom House freedom rating	−0.241***	−0.201***	0.496***	−0.185**	−0.109	0.562***	−0.358*	−0.255	0.471***
	(0.059)	(0.059)	(0.108)	(0.067)	(0.075)	(0.127)	(0.146)	(0.149)	(0.117)
Protestant percentage	−0.0105***	−0.0095***	0.0118*	−0.0132***	−0.0121**	0.00854	−0.0242***	−0.0220***	0.0101*
	(0.002)	(0.002)	(0.005)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.004)
Health spending		−0.0807*			−0.135**			−0.218*	
		(0.032)			(0.051)			(0.086)	
Observations	1709	1709	1709	1557	1557	1557	1226	1226	1226
Countries	120	120	120	101	101	101	120	120	120
Years	15	15	15	16	16	16	12	12	12
Indirect effect	−0.00284*			−0.00438*			−0.00746*		
p for indirect effect	0.0352			0.0352			0.0375		
Total effect	−0.0114**			−0.0241***			−0.0332**		
Mediated percentage	25%			18.22%			22.42%		

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Notes: Coefficients are unstandardized net of region and year dummies. Heteroskedasticity and serial correlation consistent standard errors clustered at the country level in parentheses. WBGI = World Bank Governance Indicators Control of Corruption measure; ICRG = International Country Risk Guide corruption rating; CPI = Transparency International Corruption Perceptions Index. All three measures have been recoded so that higher values indicate more corruption. Indirect effects and *p* for indirect effect are from structural equation models. Mediated percentage = indirect effect / total effect ×100.

The *indirect* effect of WIP running through health spending—which is equal to the product of the coefficient on health spending in Model B and the coefficient on WIP in Model C—appears in the first row of the bottom panel. The p-value on the test of the null hypothesis means that the indirect effect is negative and significant for all three corruption indexes. Relative to the size of the standard error, these indirect effects are fairly consistent across our dependent variables.

ROBUSTNESS CHECKS

Endogeneity Issues

In testing the hypothesis that government expenditure on health mediates the relationship between WIP and corruption, we have made two assumptions which may not hold. First, we assume the causal arrow runs from WIP to corruption. However, some studies show that the relationship can work in the opposite direction: greater corruption tends to inhibit WIP (Bjarnegård 2013). More recent studies show that arrow may run in both directions (Esarey and Schwindt-Bayer 2019). Second, we assume that the causal arrow runs from (more) government health spending to (less) corruption. Here, too, some scholarship suggests that it could go the other way (Delavallade 2006; Jajkowicz and Drobiszová 2015). To assess the validity of these two assumptions, we test the null hypothesis that WIP and government health spending are exogenous in the model of corruption using 2SLS regression. We cluster the standard errors at the country level.

The power of the endogeneity test and the validity of the results depend critically on two conditions: the instruments are not weak—that is, they are strongly correlated with the potential endogenous variable; and the instruments are valid—that is, they are uncorrelated with the second-stage error term (Wooldridge 2010). In addition to selecting the instruments based on theoretical grounds, we use diagnostic tests in Stata. The first is the weak identification test. The null hypothesis is that the excluded instruments are only weakly correlated with the endogenous regressor in the first stage. If instruments are weak, then 2SLS regression provides no protection against endogeneity bias. We report the Kleibergen and Paap (2006) statistics, which relax the independent and identically distributed (IID) assumption and allows non-IID error terms.

The second is the Sargan-Hansen test, which tests for overidentifying restrictions. The null hypothesis is that the instruments are valid (uncorrelated with the dependent variable after conditioning on the instrumented version of the potentially endogenous variable they predict) and can thus be excluded from the second-stage regression (Baum, Schaffer, and Stillman 2007). Thus, failing to reject the null hypothesis is consistent with instrument validity. Finally, we conduct the endogeneity test. The null hypothesis is that the variable is exogenous; rejecting the null indicates the presence of endogeneity. The test for the exogeneity is valid only if the instruments are not weak and are valid.

Endogeneity of women's political representation. We first test the endogeneity of WIP in the model of corruption. Following previous studies, we select two sets of instruments for WIP. The first set is the percentage of women in the labor force and women's enrollment in secondary education (Esarey and Schwindt-Bayer 2019). The data are from the QoG data set (Teorell et al. 2021). This set of instruments results in the loss of some statistical power, because observations are dropped from the model due to missing data. Thus we also use another set of instruments: gender equality in respect for civil liberties and women's participation in civil society organizations (Esarey and Dalton, forthcoming). These are from the V-Dem data set (Coppedge et al. 2022a). The first measures the equality of civil liberties between women and men on a scale from 0 to 4, with 4 being the most equal. The second measures women's participation in civil society organizations on a scale from 0 to 4, with 4 being the most participation (Coppedge et al. 2022b). This set of instruments does not result in any loss of any observations or statistical power. In theory, these instruments are associated with WIP, and with corruption only through WIP.[6]

To test the endogeneity of WIP, we regress it on each set of excluded instruments, along with the rest of the covariates in Model B of Table 2 in the first stage. In the second stage, the potentially endogenous variable is replaced by the predicted values from the first-stage regression. The diagnostic tests are presented in the A and B columns of Table 3. Both sets of instruments are valid, as the p values of Hansen's J test are all above the conventional threshold. However, the instruments are not as strong as they could be, and thus we use the limited information maximum likelihood (LIML), an estimator that results in less bias than 2SLS (Stock and Yogo 2005). The LIML tests indicate that all models except Model 3A have less than 25 percent of the bias compared to models without instruments (row 9 of Table 3). The endogeneity test shows that WIP is not endogenous for corruption regardless of the measure of corruption.

In the C columns of Table 3, we also consider a third set of instruments: the first and second lags of WIP (Esarey and Schwindt-Bayer 2019). Statistically speaking, these instruments are both valid and strong. The remaining bias in the parameter estimates is no more than 10 percent of that in Table 2, the lowest threshold based on the critical values identified by Stock and Yogo (2005). Results from the third set of instruments are consistent with the previous findings. They should be read with some caution, however, because lagged values of a potentially endogenous variable are not ideal instruments unless the source of endogeneity is limited to contemporaneous bidirectionality.

In summary, our tests show that WIP is not endogenous for corruption, regardless of the measure of corruption or the instruments.[7] That is, in our sample, the first assumption—that WIP reduces corruption—is valid.

Endogeneity of health spending. Here, we test the null hypothesis that government health spending is exogenous in the model of corruption. We select the percentage of the population that is 65 or older and the percentage that is 14 or younger as two instruments for health spending (Hitiris and Posnett 1992). The data are available from the QoG project, which originally collected them from the World Bank (2021). Theoretically, previous scholarship has found that population demographics have an influence on national health expenditures (Hitiris and Posnett 1992; Di Matteo and Di Matteo 1998). Moreover, these instruments are likely valid since there is little reason to expect

TABLE 3. Results of Endogeneity Test of Women's Political Representation

	(1) WBGI			(2) ICRG			(3) CPI		
	(A)	(B)	(C)	(A)	(B)	(C)	(A)	(B)	(C)
Observations	1,309	1,709	1,552	1,225	1,557	1,339	972	1,226	1,054
Countries	113	120	120	96	101	101	108	120	120
Years	15	15	14	16	16	14	12	12	10
Hansen's J	2.017	2.064	1.216	0.218	0.246	1.609	2.927	0.873	1.465
Hansen's J p-value	0.156	0.151	0.270	0.641	0.62	0.205	0.0871	0.35	0.226
First stage F-stat (Kleibergen-Paap)	4.42	7.922	8788.889	5.669	4.276	9044.594	2.68	6.808	6116.055
Stock and Yogo critical value (LIML)	4.42 (20%)	5.33 (15%)	8.68 (10%)	5.33 (15%)	3.92 (25%)	8.68 (10%)	3.92 (25%)	5.33 (15%)	8.68 (10%)
Endogenous test	0.476	0.963	1.692	1.119	1.929	0.199	0.247	0.859	2.210
Endogenous test p-value	0.49	0.326	0.193	0.29	0.165	0.655	0.619	0.354	0.137

Notes: 1. The Stock and Yogo critical values are gained after limited information maximum likelihood (LIML); percentage maximum LIML size in parentheses. Results of Models A use the first set of instruments: percentage of women in the labor force and women's enrollment in secondary education. Results of Models B use the second set of instruments: gender equality in respect for civil liberties and women's participation in civil society organizations. Results of Models C use the third set of instruments: first and second lag of women's political representation. The covariates for all models are health spending, log GDP per capita, Freedom House freedom rating, Protestant percentage, and regional and year dummies. Heteroskedasticity and serial correlation consistent standard errors clustered at the country level in parentheses. WBGI = World Bank Governance Indicators Control of Corruption measure; ICRG = International Country Risk Guide corruption rating; CPI = Transparency International Corruption Perceptions Index.

that population demographics impact corruption except through their impact on health spending. Empirically, we perform the diagnostic tests on the instruments' strength and validity.

To test the endogeneity hypothesis and whether the instruments are strong and valid, we use 2SLS regression as above except that in the first stage we regress health spending on the two excluded instruments along with the rest of the covariates in Model B of Table 2. The results of the 2SLS regression are presented in the B models of Table 4. The instruments are valid for all measures of corruption, since the *p*-values for Hansen's J test are greater than 0.05 (Table 4). Our instruments are also relatively strong, as the remaining bias in the parameter estimates is no more than 15% of that in Table 2, the second-lowest threshold based on the critical values identified by Stock and Yogo (2005).[8]

Next, the endogeneity test suggests that health spending is indeed endogenous for WBGI and CPI, since the *p*-value is smaller than 0.05, and thus we reject the null hypothesis that health spending is exogeneous. For ICRG, however, we fail to reject the null hypothesis and conclude that health spending is exogeneous in the model of ICRG.

For WBGI and CPI, these results suggest that the coefficients underlying the mediation analysis in Table 2 are biased. Thus we replicate the mediation analysis for these two outcomes by replacing the coefficient on health spending in the model of corruption (B) with the 2SLS result. Models 1(A and C), 2(A, B, and C), and 3(A and C) of Table 4 simply reproduce the estimates in Table 2 (for convenience), while Models 1(B) and 3(B) report the 2SLS coefficients. Unlike in Table 2, the B models 1 and 3 of Table 4 using the 2SLS framework suggest that the *direct* effect of WIP (i.e., the effect remaining after conditioning on health spending) is no longer significant, suggesting that correcting for bias results in a larger role of health spending in the *total* effect of WIP. We return to this question below. The Sobel tests in the bottom panel of Table 4 show that the indirect effect we identified in Table 2 holds after correcting for endogeneity bias in the association between social spending and corruption, as we reject the null hypothesis on the indirect effect using standard thresholds for Models 1 and 3.

Other Ways to Select Democratic Countries

To ensure that our results are not sensitive to the sample selection, we tried two other approaches to selecting democratic-leaning countries. First, instead of limiting our sample to the countries for which Freedom House's average Civil Liberties and Political Rights ratings were 5 or lower for 10 years or more between 2000 and 2015, we calculate each country's average ratings for 2000 to 2015. Then we remove countries with a yearly average score above 5. The results are substantively identical to the results in Table 4 (see Table S1 in the supplement in the online version of the journal). Second, we used a different threshold: the composite Polity index gathered in the QoG data sets from Polity V. The index ranges from +10 (strongly democratic) to –10 (strongly autocratic), with 6 to 10 classified as democracy, –5 to 5 as anocracy, and –6 to –10 as autocracy. We included all countries and years for which the composite Polity index was –6 or higher for 10 years or more between 2000 and 2015. The results are substantively similar except

TABLE 4. Mediating Effect of Government Health Spending on the Association between Women in Parliament and Three Measures of Corruption, 2SLS Estimates

	(1)			(2)			(3)		
	(A) WBGI	(B) WBGI	(C) Health spending	(A) ICRG	(B) ICRG	(C) Health spending	(A) CPI	(B) CPI	(C) Health spending
% women in lower house	−0.0114**	−0.00348	0.0352***	−0.0241***	−0.0156*	0.0325**	−0.0332**	−0.0111	0.0342***
	(0.004)	(0.006)	(0.010)	(0.007)	(0.007)	(0.010)	(0.010)	(0.014)	(0.009)
log GDP per capita	−0.549***	−0.459***	0.402*	−0.540***	−0.406**	0.517**	−1.299***	−1.017***	0.436**
	(0.082)	(0.109)	(0.167)	(0.110)	(0.144)	(0.176)	(0.199)	(0.283)	(0.166)
FH freedom	−0.241***	−0.13	0.496***	−0.185**	−0.0391	0.562***	−0.358*	−0.0531	0.471***
	(0.059)	(0.079)	(0.108)	(0.067)	(0.101)	(0.126)	(0.145)	(0.196)	(0.116)
% protestants	−0.0105***	−0.00784***	0.0118*	−0.0132***	−0.0110**	0.00854	−0.0242***	−0.0176**	0.0101*
	(0.002)	(0.002)	(0.005)	(0.004)	(0.004)	(0.004)	(0.005)	(0.006)	(0.004)
Health spending		−0.224*			−0.259*			−0.646**	
		(0.088)			(0.108)			(0.219)	
Observations	1,709	1,709	1,709	1,557	1,557	1,557	1,226	1,226	1,226
Countries	120	120	120	101	101	101	120	120	120
Years	15	15	15	16	16	16	12	12	12
Hansen's J		0.264			3.140			0.609	
Hansen's J *p* value		0.607			0.0764			0.435	

(continued)

TABLE 4. Mediating Effect of Government Health Spending on the Association between Women in Parliament and Three Measures of Corruption, 2SLS Estimates (*continued*)

	(1)			(2)			(3)		
	(A) WBGI	(B) WBGI	(C) Health spending	(A) ICRG	(B) ICRG	(C) Health spending	(A) CPI	(B) CPI	(C) Health spending
1st stage F-stat (Kleibergen-Paap)		12.35			17.06			13.07	
Endogenous test		4.42			1.389			6.151	
Endogenous test. p value		0.0355			0.239			0.0131	
Indirect effect		−0.0078848*			Not Endogenous, see Table 3 for results.			−0.0220932*	
Sobel Z for indirect effect		−2.058						−2.330	
p value for indirect effect		0.0396						0.0198	
Total effect		−0.0114**						−0.0332**	
Mediated percentage		69.16%						66.55%	

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Notes: Coefficients are unstandardized net of region and year dummies. Heteroskedasticity- and serial correlation consistent standard errors clustered at the country level in parenthesis. WBGI = World Bank Governance Indicators Control of Corruption measure; ICRG = International Country Risk Guide corruption rating; CPI = Transparency International Corruption Perceptions Index. All three measures have been recoded so that higher values indicate more corruption. Indirect effects, the z score for the indirect effect and p value for indirect effect are calculated following the Sobel (1982)'s approach. Mediated percentage = indirect effect / total effect $\times 100$.

that we do not find that social spending is endogenous for corruption. We report the OLS estimates in the supplement in the online version of the journal (Table S2).

Additional Concerns

One additional concern might be that our results are driven by restricting the sample to democracies. For example, research has shown that corruption is lower in autocratic regimes than in partially democratized regimes (Montinola and Jackman 2002), and this curvilinearity may affect our results. Our scope conditions require minimally functioning democracies insofar as (a) without a sufficiently independent legislature women's policy preferences cannot sway social spending, and (b) in the absence of democracy, one of the two mechanisms we propose (increased interest in the functioning of government) is unlikely to matter.

Second, we considered different measures of democracy, including indicators of free/fair elections, legislative constraints on the executive (from the V-Dem data set), and a change score to measure democratization from one year to the next (Cole 2015). Those indicators are not statistically significant in our models, but the results are similar to those in Table 2.

Third, we checked whether our results are robust to additional control variables commonly used in the corruption literature (Cole 2015; Esarey and Schwindt-Bayer 2018; Jha and Sarangi 2018; Swamy et al. 2001). From V-Dem and QoG we collect data on income inequality (Gini index, estimated by the World Bank), ethnic fractionalization (data from the year 2000 from Alesina et al. 2003), trade openness (share of imports of goods and services in GDP), colonial history, and women's economic rights (from the Cingranelli-Richards Human Rights Dataset) and include them in the models. None of these are significant at the conventional levels. All of them lead to various degrees of sample loss. Because the nonsignificance of these covariates makes them unlikely candidates for confounders, and because we want to preserve the sample size and maximize the statistical power of the analysis, we do not include these variables in the models.

Substantive Significance

We assess the substantive significance of our findings in two ways. First, although the focus of this article is *how* WIP matters for corruption rather than *how much* it matters, we compare its effect size with other explanations of corruption in the model with standardized coefficients (Tables S3 and S4 in the supplement in the online version of the journal). For different measures of corruption, the effect size ranges from −0.12 to −0.21, suggesting that a one-standard-deviation increase in the share of women legislators is associated with a reduction of corruption by 0.12 to 0.21 standard deviations. The effect of WIP is similar to the effect of democracy for CPI and ICRG, suggesting that WIP is an important contributor to the reduction of corruption.

Second, and consistent with the primary goal of the article, we ask how important is the mediating effect of health spending. We evaluate the size of the indirect effect in comparison to the total effect. Here, we calculate the indirect effect of WIP attributable to social spending as a percentage of the total effect (A columns in Table 2). The results are shown at the bottom of Tables 2 and 4. The estimates from the SEMs suggest that *ceteris paribus*, 18 to 25 percent of the total effect of WIP is explained through government health spending. After correcting for bias in the Table 2 estimates, however, the indirect effect increases to 69 percent of the total effect on WBGI and 67 percent of the total effect on CPI (Table 4). Thus the indirect effect is not only statistically significant but also a sizable portion of the total effect. The nonsignificance of the direct effect of WIP in the WBGI and CPI models also suggests that the political preferences and legislative behavior of female politicians are quite important in explaining the association between WIP and corruption.

CONCLUSION

This article contributes to the literature on WIP and corruption by providing evidence on whether and how the presence of women politicians in parliament leads to less corruption in democracies. As the first empirical study to specifically test the mediating effect of social spending, our study confirms the mediating effect of social policies and thus provides evidence for the argument that WIP reduces corruption through women's policy preferences. Further, we evaluate the strength of the policy pathway relative to other potential pathways, such as women's greater risk aversion, which provides an upper bound on the relative role of other explanations for the gender–corruption relationship.

We conducted mediation analysis using government health spending as a mediator in both OLS and 2SLS frameworks. We find that women's policy preference is an important pathway linking WIP to less corruption. The indirect effect of health spending is significant, sizable, and robust even after addressing many other concerns, including potential endogeneity between government health spending and corruption. In fact, the indirect effect increases from 25 percent to 69 percent of the total effect for WBGI, and from 22 percent to 67 percent for CPI, after the correction for endogeneity bias. For ICRG, in which this endogeneity was not detected, the indirect effect still accounts for nearly one-fifth of the total effect (18 percent). Thus, our analysis suggests that alternative mechanisms may explain as little as 31 percent of the effect of WIP. Female legislators' ability to influence social policy is a critical pathway linking higher WIP to less corruption and is potentially the most important of all the explanatory pathways, at least in countries functioning according to minimal democratic principles.

The study also has policy implications. Since scholars have observed the association between higher WIP and less corruption, increasing WIP has been recommended to combat corruption around the world. Our results support such efforts. Despite recent increases, the world average of women's representation in the single house or the lower house remains far below parity (26 percent as of January 2022, per Inter-Parliamentary Union 2022). In the classic thesis of Kanter (2008), women can become little more than "tokens" when their proportional representation is low. Thus, continuing efforts should be made to further increase the inclusion of women in politics.

Further, it is not enough to simply increase the number of women in parliaments. We should also consider efforts to strengthen the link between their numerical representation and the substantive representation of women's interests. While increasing numerical representation may help reduce corruption because of women's stronger psychological aversion to corruption, our results suggest that a stronger effect will depend on offering women politicians more opportunities to enact their preferred policies, such as social spending. That is, empowering women politicians to pursue their policy preferences is essential for a clean government. Women politicians still face many challenges and barriers that limit their ability to shape legislation, such as discrimination, sexism, and exclusion from influential committees and cabinet positions (Galligan and Clavero 2008). Promoting a more women-friendly work environment within the government could help women politicians achieve their goals.

The study has some limitations we want to acknowledge. First, our definition of corruption is limited to an overall perception of corruption, so we cannot tease apart different forms of corruption, such as petty corruption versus grand corruption, or corruption in different sectors. Moreover, our measures of perceived corruption may not precisely capture citizens' general perception of corruption, although some measures include both citizens' perception and expert evaluations (e.g., WBGI). Second, more can always be done to establish a causal mediation effect of social spending. Although we found no *statistical* evidence to invalidate our chosen instruments, validity concerns can never be ruled out completely. Moreover, the instruments we use for WIP are not as strong as they could be. We checked for weak instruments by using a weak-instruments robust estimator method and considering multiple sets of instruments, but we cannot rule out the possibility that our finding on the exogeneity of WIP would change with stronger instruments. Thus, future work should consider theory that might suggest alternative instruments and identify other additional identification threats that may exist.

Despite these limitations, our study is the first to empirically test the hypothesis that women politicians reduce corruption through their pursuit of social spending. We are also the first to evaluate the importance of this mechanism relative to others, and thus to go some way toward disentangling various causal pathways. Investigating these mechanisms is critical for theoretical development as well as for refining policy interventions. Building on these contributions, future research could seek to explain the residual pathways identified here. For example, theories of state feminism suggest that WIP may increase favorable attitudes toward the state among women (Hernes 1987). WIP has been shown to increase women's political engagement in Sub-Saharan Africa (Barnes and Burchard 2012). Thus the presence of women legislators may reduce corruption by increasing women's investment in politics. It is also likely that women legislators reduce corruption by promoting greater government transparency and accountability. ■

Manjing Gao is a PhD candidate in Sociology at the University of California, Riverside.

Matthew C. Mahutga is a Professor of Sociology at the University of California, Riverside.

NOTES

1. Sung (2003) argued that the association between WIP and corruption was spurious, as the association between women's political representation and corruption lost significance once measures of democracy (rule of law, freedom of the press, and democratic elections) were controlled for.

2. There are other explanations with mixed empirical evidence. For example, some suggest that women's tenure in office is inversely associated with their susceptibility to corruption (Alhassan-Alolo 2007; Goetz 2007; for empirical evidence, see Afridi, Iversen, and Sharan 2017; Bauhr and Charron 2021; Brollo and Troiano 2016). Also, cultural factors like masculinity or power distance may mediate the link between WIP and corruption (Debski et al. 2018).

3. The empirical evidence on this argument (Esarey and Chirillo 2013) is mixed (Batista Pereira 2021; Eggers, Vivyan, and Wagner 2018; Schwindt-Bayer, Esarey, and Schumacher 2018).

4. Data on health spending (our measure of social spending) are only available for between 2000 and 2019. Further, data on the percentage of Protestants are available only for between 1800 and 2015, which eventually leads to the period of 2000 to 2015 as our sample timeframe.

5. Results are qualitatively identical if we control for Protestant, Muslim, or Catholic percentage. The latter two were not significant predictors of corruption.

6. For a more detailed discussion of the theoretical validity of the instruments, see Esarey and Schwindt-Bayer (2019); Esarey and Dalton (forthcoming).

7. One possible reason we did not find that WIP is endogenous to corruption, in contrast to previous studies (Esarey and Schwindt-Bayer 2019; Jha and Sarangi 2018), is that our study uses data from a more recent period (2000–2015), when the reverse causation between WIP and corruption is no longer operating, as the effect of corruption on the share of women in the parliament has weakened (Esarey and Dalton, forthcoming).

8. Since the instruments are valid but are less strong (that the instruments are weak is not rejected at 10% level of bias), we also use LIML as the estimator, since it can give less biased estimates compared to 2SLS. The results are substantively similar.

REFERENCES

Afridi, Farzana, Vegard Iversen, and M. R. Sharan. 2017. "Women Political Leaders, Corruption, and Learning: Evidence from a Large Public Program in India." *Economic Development and Cultural Change* 66(1):1–30.

Alesina, Alberto, Arnaud Devleeschauwer, William Easterly, Sergio Kurlat, and Romain Wacziarg. 2003. "Fractionalization." *Journal of Economic Growth* 8(2):155–94.

Alexander, Amy C. 2018. "Micro-perspectives on the Gender–Corruption Link." In *Corruption and Norms: Why Informal Rules Matter*, edited by Ina Kubbe and Annika Engelbert, 53–68. Springer.

Alexander, Amy C., and Andreas Bågenholm. 2018. "Does Gender Matter? Female Politicians' Engagement in Anti-corruption Efforts." In *Gender and Corruption*, edited by Helena Stensöta and Lena Wängnerud, 171–89. Springer.

Alexander, Amy C., Andreas Bågenholm, and Nicholas Charron. 2020. "Are Women More Likely to Throw the Rascals Out? The Mobilizing Effect of Social Service Spending on Female Voters." *Public Choice* 184(3):235–61.

Alhassan-Alolo, Namawu. 2007. "Gender and Corruption: Testing the New Consensus." *Public Administration and Development* 27(3):227–37.

Barnes, Tiffany D., and Emily Beaulieu. 2019. "Women Politicians, Institutions, and Perceptions of Corruption." *Comparative Political Studies* 52(1):134–67.

Barnes, Tiffany D., and Stephanie M. Burchard. 2012. "'Engendering Politics: The Impact of Descriptive Representation on Women's Political Engagement in Sub-Saharan Africa." *Comparative Political Studies* 46(7):767–90.

Baron, Reuben M., and David A. Kenny. 1986. "The Moderator–Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations." *Journal of Personality and Social Psychology* 51(6):1173.

Batista Pereira, Frederico. 2021. "Do Female Politicians Face Stronger Backlash for Corruption Allegations? Evidence from Survey-Experiments in Brazil and Mexico." *Political Behavior* 43(4):1561–80.

Bauhr, Monika, and Nicholas Charron. 2021. "Will Women Executives Reduce Corruption? Marginalization and Network Inclusion." *Comparative Political Studies* 54(7):1292–1322.

Bauhr, Monika, Nicholas Charron, and Lena Wängnerud. 2019. "Exclusion or Interests? Why Females in Elected Office Reduce Petty and Grand Corruption." *European Journal of Political Research* 58(4):1043–65.

Baum, Christopher F., Mark E. Schaffer, and Steven Stillman. 2007. "Enhanced Routines for Instrumental Variables/Generalized Method of Moments Estimation and Testing." *Stata Journal* 7(4):465–506.

Bergh, Andreas, Günther Fink, and Richard Öhrvall. 2012. *Public Sector Size and Corruption: Evidence from 290 Swedish Municipalities*. IFN Working Paper no. 938, Research Institute of Industrial Economics, Stockholm.

Bjarnegård, Elin. 2013. *Gender, Informal Institutions and Political Recruitment: Explaining Male Dominance in Parliamentary Representation*. Springer.

Bolzendahl, Catherine, and Clem Brooks. 2007. "Women's Political Representation and Welfare State Spending in 12 Capitalist Democracies." *Social Forces* 85(4):1509–34.

Brollo, Fernanda, and Ugo Troiano. 2016. "What Happens When a Woman Wins an Election? Evidence from Close Races in Brazil." *Journal of Development Economics* 122:28–45.

Brown, Davis, and Patrick James. 2019. "Religious Characteristics of States Dataset Project: Demographics v.2.0 (RCS-DEM 2.0), Countries Only."

Byrnes, James P., David C. Miller, and William D. Schafer. 1999. "Gender Differences in Risk Taking: A Meta-analysis." *Psychological Bulletin* 125(3):367.

Celis, Karen. 2007. "Substantive Representation of Women: The Representation of Women's Interests and the Impact of Descriptive Representation in the Belgian Parliament (1900–1979)." *Journal of Women, Politics & Policy* 28(2):85–114.

Clayton, Amanda, and Pär Zetterberg. 2018. "Quota Shocks: Electoral Gender Quotas and Government Spending Priorities Worldwide." *Journal of Politics* 80(3):916–32.

Cole, Wade M. 2015. "Institutionalizing a Global Anti-corruption Regime: Perverse Effects on Country Outcomes, 1984–2012." *International Journal of Comparative Sociology* 56(1):53–80.

Coppedge, Michael, John Gerring, Carl Henrik Knutsen, , et alet al. 2022a. "V-Dem [Country–-Year/Country–Date] Dataset v12." Varieties of Democracy Project (https://doi.org/10.23696/vdemds22).

Coppedge, Michael, John Gerring, Carl Henrik Knutsen, , et alet al. 2022b. *V-Dem Codebook v12*. Varieties of Democracy Project.

Courtemanche, Marie, and Joanne Green. 2017. "The Influence of Women Legislators on State Health Care Spending for the Poor." *Social Sciences* 6(2):40.

Dalton, Maya, and Justin Esarey. 2022. "Measuring Changes in Corruption over Time." Working paper, Wake Forest University (http://www.justinesarey.com/Corruption_Measurements___Fixed_Effects__Dalton___Esarey_.pdf).

Davis, Lewis S., and Claudia R. Williamson. 2019. "Does Individualism Promote Gender Equality?" *World Development* 123:104627.

Debski, Julia, Michael Jetter, Saskia Mösle, and David Stadelmann. 2018. "Gender and Corruption: The Neglected Role of Culture." *European Journal of Political Economy* 55:526–37.

Delavallade, Clara. 2006. "Corruption and Distribution of Public Spending in Developing Countries." *Journal of Economics and Finance* 30(2):222–39.

Di Matteo, Livio, and Rosanna Di Matteo. 1998. "Evidence on the Determinants of Canadian Provincial Government Health Expenditures: 1965–1991." *Journal of Health Economics* 17(2): 211–28.

Dollar, David, Raymond Fisman, and Roberta Gatti. 2001. "Are Women Really the 'Fairer' Sex? Corruption and Women in Government." *Journal of Economic Behavior & Organization* 46(4): 423–29.

Duflo, Esther. 2012. "Women Empowerment and Economic Development." *Journal of Economic Literature* 50(4):1051–79.

Eckel, Catherine C., and Philip J. Grossman. 2008. "Men, Women and Risk Aversion: Experimental Evidence." In *Handbook of Experimental Economics Results*, Vol. 1, edited by Charles Plott and Vernon Smith, 1061–73. Elsevier.

Eggers, Andrew C., Nick Vivyan, and Markus Wagner. 2018. "Corruption, Accountability, and Gender: Do Female Politicians Face Higher Standards in Public Life?" *Journal of Politics* 80(1):321–26.

Esarey, Justin, and Gina Chirillo. 2013. "'Fairer Sex' or Purity Myth? Corruption, Gender, and Institutional Context." *Politics & Gender* 9(4):361–89.

Esarey, Justin, and Maya Dalton. Forthcoming. "The Changing Relationship between Gender and Corruption." In *Gender and Corruption in Democracies: A Handbook*, edited by Tiffany Barnes and Emily Beaulieu. Cheltenham: Edward Elgar.

Esarey, Justin, and Leslie A. Schwindt-Bayer. 2018. "Women's Representation, Accountability and Corruption in Democracies." *British Journal of Political Science* 48(3):659–90.

Esarey, Justin, and Leslie A. Schwindt-Bayer. 2019. "Estimating Causal Relationships between Women's Representation in Government and Corruption." *Comparative Political Studies* 52(11):1713–41.

Fallon, Kathleen M., Liam Swiss, and Jocelyn Viterna. 2012. "Resolving the Democracy Paradox: Democratization and Women's Legislative Representation in Developing Nations, 1975 to 2009." *American Sociological Review* 77(3):380–408.

Freedom House. 2021. "Freedom in the World 2021" (https://freedomhouse.org/report/freedom-world, accessed December 14, 2021).

Funk, Kendall D., Hannah L. Paul, and Andrew Q. Philips. 2022. "Point Break: Using Machine Learning to Uncover a Critical Mass in Women's Representation." *Political Science Research and Methods* 10(2):372–90.

Galligan, Yvonne, and Sara Clavero. 2008. "Prospects for Women's Legislative Representation in Postsocialist Europe: The Views of Female Politicians." *Gender & Society* 22(2):149–71.

Goel, Rajeev K., and Michael A. Nelson. 1998. "Corruption and Government Size: A Disaggregated Analysis." *Public Choice* 97(1):107–20.

Goetz, Anne Marie. 2007. "Political Cleaners: Women as the New Anti-corruption Force?" *Development and Change* 38(1):87–105.

Gupta, Sanjeev, Hamid Davoodi, and Rosa Alonso-Terme. 2002. "Does Corruption Affect Income Inequality and Poverty?" *Economics of Governance* 3(4):23–45.

Hern, Erin Accampo. 2017. "Better than Nothing: How Policies Influence Political Participation in Low-Capacity Democracies." *Governance* 30(4):583–600.

Hernes, Helga Maria. 1987. *Welfare State and Woman Power: Essays in State Feminism*. Oxford University Press.

Hitiris, Theo, and John Posnett. 1992. "The Determinants and Effects of Health Expenditure in Developed Countries." *Journal of Health Economics* 11(2):173–81.

Huber, Evelyne, and John D. Stephens. 2000. "Partisan Governance, Women's Employment, and the Social Democratic Service State." *American Sociological Review* 65(3):323.

Inglehart, Ronald, and Pippa Norris. 2003. *Rising Tide: Gender Equality and Cultural Change around the World*. Cambridge University Press.

Iyer, Lakshmi, Anandi Mani, Prachi Mishra, and Petia Topalova.2012. "The Power of Political Voice: Women's Political Representation and Crime in India." *American Economic Journal: Applied Economics* 4(4):165–93.
Inter-Parliamentary Union. 2015. "Women in Parliament: 20 Years in Review" (http://archive.ipu.org/pdf/publications/WIP20Y-en.pdf).
Inter-Parliamentary Union. 2022. "Women in Parliament in 2021" (https://www.ipu.org/resources/publications/reports/2022-03/women-in-parliament-in-2021).
Jajkowicz, Ondřej, and Agata Drobiszová. 2015. "The Effect of Corruption on Government Expenditure Allocation in OECD Countries." *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis* 63(4):1251–59.
Jha, Chandan, and Bibhudutta Panda. 2017. "Individualism and Corruption: A Cross-Country Analysis." *Economic Papers* 36(1):60–74.
Jha, Chandan Kumar, and Sudipta Sarangi. 2018. "Women and Corruption: What Positions Must They Hold to Make a Difference?" *Journal of Economic Behavior & Organization* 151:219–33.
Kanter, Rosabeth Moss. 2008. *Men and Women of the Corporation: New Edition*. Basic Books.
Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi. 2011. "The Worldwide Governance Indicators: Methodology and Analytical Issues." *Hague Journal on the Rule of Law* 3(2):220–46.
Kleibergen, Frank, and Richard Paap. 2006. "Generalized Reduced Rank Tests Using the Singular Value Decomposition." *Journal of Econometrics* 133(1):97–126.
Kotera, Go, Keisuke Okada, and Sovannroeun Samreth. 2012. "Government Size, Democracy, and Corruption: An Empirical Investigation." *Economic Modelling* 29(6):2340–48.
Lambsdorff, Johann Graf. 2006. "Measuring Corruption: The Validity and Precision of Subjective Indicators." In *Measuring Corruption*, edited by C. Sampford et al., 81–100. Aldershot: Ashgate.
Magtulis, Prinz Parungao, and John Lourenze Poquiz. 2017. "Big Government, Big Corruption? Examining the Relationship between Government Size and Public Corruption in the Philippines." *International Journal of Public Administration* 40(11):954–67.
Mahutga, Matthew C. 2016. "Theoretical Holism in the Sociology of Development." *Sociology of Development* 2(1):1–24.
Mo, Pak Hung. 2001. "Corruption and Economic Growth." *Journal of Comparative Economics* 29(1):66–79.
Montinola, Gabriella R., and Robert W. Jackman. 2002. "Sources of Corruption: A Cross-Country Study." *British Journal of Political Science* 32(1).
Moreno, Alejandro. 2002. "Corruption and Democracy: A Cultural Assessment." *Comparative Sociology* 1(3-4):495–507.
Mueller, Dennis C. 2003. *Public Choice III*. Cambridge University Press.
Nistotskaya, Marina, and Helena Stensöta. 2018. "Is Women's Political Representation Beneficial to Women's Interests in Autocracies? Theory and Evidence from Post-Soviet Russia." In *Gender and Corruption*, edited by Helena Stensöta and Lena Wängnerud, 145–67. Springer.
Panizza, Ugo. 2017. "The Use of Corruption Indicators in Sovereign Ratings." Inter-American Development Bank.
Pavão, Nara. 2018. "Corruption as the Only Option: The Limits to Electoral Accountability." *Journal of Politics* 80(3):996–1010.
Persson, Torsten, and Guido Tabellini. 2003. *The Economic Effects of Constitutions*. Cambridge, MA: MIT Press.
Poggione, Sarah. 2004. "Exploring Gender Differences in State Legislators' Policy Preferences." *Political Research Quarterly* 57(2):305–14.
Political Risk Services Group. 2014. "The ICRG Methodology" (https://www.prsgroup.com/wp-content/uploads/2014/08/icrgmethodology.pdf).
Quamruzzaman, Amm, and Matthew Lange. 2016. "Female Political Representation and Child Health: Evidence from a Multilevel Analysis." *Social Science & Medicine* 171:48–57.

Richey, Sean. 2009. "The Impact of Corruption on Social Trust." *American Politics Research* 38(4): 676–90.
Rivas, M. Fernanda. 2013. "An Experiment on Corruption and Gender." *Bulletin of Economic Research* 65(1):10–42.
Rothstein, Bo. 2021. "Corruption and the Social Contract of the Welfare State." In *Controlling Corruption: The Social Contract Approach*. Oxford University Press.
Sainsbury, Diane. 1996. *Gender, Equality and Welfare States*. Cambridge University Press.
Schwindt-Bayer, Leslie A., Justin Esarey, and Erika Schumacher. 2018. "Gender and Citizen Responses to Corruption among Politicians: The US and Brazil." In *Gender and Corruption*, edited by Helena Stensöta and Lena Wängnerud, 59–62. Springer.
Sobel, Michael E. 1982. "Asymptotic Confidence Intervals for Indirect Effects in Structural Equation Models." *Sociological Methodology* 13:290–312.
Stensöta, Helena Olofsdotter, Lena Wängnerud, and Mattias Agerberg. 2015. "Why Women in Encompassing Welfare States Punish Corrupt Political Parties." In *Elites, Institutions and the Quality of Government*, edited by Carl Dahlström and Lena Wängnerud, 245–62. Springer.
Stock, James H., and Motohiro Yogo. 2005. "Testing for Weak Instruments in Linear IV Regression." In *Identification and Inference for Econometric Models: Essays in Honor of Thomas Rothenberg*, edited by Donald W. K. Andrews and James H. Stock, 80–108. Cambridge University Press.
Stockemer, Daniel. 2011. "Women's Parliamentary Representation in Africa: The Impact of Democracy and Corruption on the Number of Female Deputies in National Parliaments." *Political Studies* 59(3):693–712.
Sundström, Aksel, and Lena Wängnerud. 2016. "Corruption as an Obstacle to Women's Political Representation: Evidence from Local Councils in 18 European Countries." *Party Politics* 22(3): 354–69.
Sung, Hung-En. 2003. "Fairer Sex or Fairer System? Gender and Corruption Revisited." *Social Forces* 82(2):703–23.
Swamy, Anand, Stephen Knack, Young Lee, and Omar Azfar. 2001. "Gender and Corruption." *Journal of Development Economics* 64(1):25–55.
Teorell, Jan, Aksel Sundström, Sören Holmberg, Bo Rothstein, Natalia Alvarado Pachon, and Cem Mert Dalli. 2022. "The Quality of Government Standard Dataset, version jan22." Quality of Government Institute, University of Gothenburg (https://www.gu.se/en/quality-government doi:10.18157/qogstdjan22).
Themudo, Nuno S. 2014. "Government Size, Nonprofit Sector Strength, and Corruption." *American Review of Public Administration* 44(3):309–23.
Transparency International. 2012. "Corruption Perceptions Index: Technical Methodology Note" (https://www.transparency.org/files/content/pressrelease/2012_CPITechnicalMethodologyNote_EMBARGO_EN.pdf).
Treisman, Daniel. 2000. "The Causes of Corruption: A Cross-National Study." *Journal of Public Economics* 76(3):399–457.
Treisman, Daniel. 2007. "What Have We Learned about the Causes of Corruption from Ten Years of Cross-National Empirical Research?" *Annual Review of Political Science* 10(1):211–44.
Varriale, Carlotta, Luca Maria Pesando, Ridhi Kashyap, and Valentina Rotondi. 2022. "Mobile Phones and Attitudes towards Women's Participation in Politics: Evidence from Africa." *Sociology of Development* 8(1):1–37.
Wängnerud, Lena. 2000. "Testing the Politics of Presence: Women's Representation in the Swedish Riksdag." *Scandinavian Political Studies* 23(1):67–91.
Wängnerud, Lena. 2009. "Women in Parliaments: Descriptive and Substantive Representation." *Annual Review of Political Science* 12(1):51–69.

Warren, Mark E. 2011. "What Does Corruption Mean in a Democracy?" *American Journal of Political Science* 48(2):328–43.
Watson, David, and Amy Moreland. 2014. "Perceptions of Corruption and the Dynamics of Women's Representation." *Politics & Gender* 10(3):392–412.
Watson, John, and Mark McNaughton. 2007. "Gender Differences in Risk Aversion and Expected Retirement Benefits." *Financial Analysts Journal* 63(4):52–62.
Wilson, Elizabeth. 2002. *Women and the Welfare State*. Routledge.
Wooldridge, Jeffrey M. 2010. *Econometric Analysis of Cross Section and Panel Data*. MIT Press.
World Bank. (2021). "World Development Indicators" (https://databank.worldbank.org/source/world-development-indicators).