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Fairer Sex or Fairer Analysis? Gender, Risk, and Corruption

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Abstract Scholars of the relationship between gender and corruption frequently assume that women are more risk averse than men in order to explain why women are less corrupt than men. Despite the popularity of this assumption, existing scholarship on gender and corruption lacks rigorous, large-N testing of the relationship between risk, gender, and corruption. We reviewed the economics literature around risk and gender and the literature in political science on risk, gender, and corruption to derive hypotheses. Using the World Values Survey (49 countries), we analysed the relationship between risk, gender, and bribery (generalised linear mixed model). Unsurprisingly, respondents who perceive higher risks of being held accountable for corrupt actions engage in less corruption than respondents who perceive low risks. Yet this relationship is rather weak. Surprisingly, we found no significant gender difference for perceived risk of being held accountable for corruption, nor did we find gendered differences for the relationship between risk and corruption.

Keywords Bribe · Risk aversion · Bribery · Women

These data were derived from the following resources available in the public domain: <https://www.worldvaluessurvey.org/WVSCContents.jsp?CMSID=wvswave7&CMSID=wvswave7>. R and do files will be made available on Natascha Neudorfer's university website.

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Gerechtes Geschlecht oder Gerechte Analyse? Geschlecht, Risiko und Korruption

Zusammenfassung Korruptionsforscher, die die Beziehung zwischen Geschlecht und Korruption untersuchen, stützen ihre Arbeit häufig auf die Annahme, dass Frauen risikoaverser sind als Männer, um zu erklären, warum Frauen weniger korrupt sind als Männer. Trotz der Popularität dieser Annahme fehlt der bestehenden Forschung zur Geschlechter- und Korruptionsfrage eine rigorose, umfangreiche Prüfung der Beziehung zwischen Risiko, Geschlecht und Korruption. Wir analysieren die wirtschaftswissenschaftliche Literatur zu Risiko und Geschlecht sowie die politikwissenschaftliche Literatur zu Risiko, Geschlecht und Korruption und leiten aus diesem systematischen Review Hypothesen ab. Unter Verwendung des World Values Survey (49 Länder) analysieren wir die Beziehung zwischen Risiko, Geschlecht und Bestechung (generalisiertes lineares gemischtes Modell). Es ist wenig überraschend, dass Befragte, die ein höheres Risiko wahrnehmen, für korruptes Verhalten zur Rechenschaft gezogen zu werden, sich weniger an Bestechungen beteiligen als Befragte, die ein geringes Risiko wahrnehmen. Dennoch ist die Stärke dieser Beziehung eher schwach. Überraschenderweise finden wir jedoch weder signifikante Geschlechtsunterschiede in der wahrgenommenen Risikoeinschätzung für Korruption noch geschlechtsspezifische Unterschiede in der Beziehung zwischen Risiko und Korruption.

Schlüsselwörter Bestechung · Risikoaversion · Erpressung · Frauen

1 Introduction

For two decades,¹ scholars have analysed the relationship between gender and corruption. The majority of researchers argue theoretically and show empirically that women are less corrupt than men. Although scholars have proposed a variety of theoretical explanations for why women are less corrupt than men (cultural, political, and social),² a large share of quantitative research articles propose that women are, on average, less corrupt than men because they are, on average, more risk averse than men. Given how popular this assumption is in the literature³ and that it has been around since the beginning of the debate, starting with Swamy et al. (2001), it is unusual that there is a lack of large-scale empirical testing of this assumption beyond a few individual experimental laboratory studies (e.g., Guerra and Zhurav-

¹ For the start of the debate, refer to Dollar et al. (2001) and Swamy et al. (2001).

² See, e.g., Barnes and Beaulieu (2019), Esarey and Schwindt-Bayer (2018), Stensöta and Wängnerud (2018), Neudorfer (2016).

³ The risk-aversion assumption was used or mentioned by, for instance, Bauhr et al. (partly; 2019), Barnes et al. (2018), Esarey and Chirillo (2013), Esarey and Schwindt-Bayer (2018), Lee and Guven (2013), Rivas (2013), Swamy et al. (2001), and Watson and Moreland (2014).

leva 2022).⁴ One reason for the persistence of this assumption might be the lack of available data. With the publication of the seventh wave of the World Values Survey (2021), this changed. We now have information on the risk perception of citizens of being held accountable for engaging in bribery.

There are two ways in which previous research evaluated the gender, risk, and corruption relationship: theoretically and empirically. Theoretically, most of the past political science research used risk aversion as an assumption in their theoretical argument to explain gender differences in corruption engagement.⁵ Much of the scholarly work that relies on this assumption draws on, through no fault of the researchers, slightly older risk studies in economics. In more recent publications in economics, however, the findings of traditional gender-related risk differences are called into question (Nelson 2014, 2015; Wieland et al. 2014). Empirically, scholars have examined the relationship between risk, gender, and corruption using (laboratory) experiments (Guerra and Zhuravleva 2022; Frank et al. 2011; Schulze and Frank 2003; Rivas 2013). These studies have yielded varying results regarding the impact of risk on engagement in bribery. Schulze and Frank (2003) discovered that women engage less in bribery when the risk of punishment is high while Frank et al. (2011) observed that women are significantly less willing to accept bribes in high-risk scenarios. Conversely, Rivas (2013) concluded that risk does not consistently influence bribery behaviour. Frank et al. (2011) found that in low-risk situations, women's likelihood of engaging in bribery was significantly lower.

The risk–gender–corruption literature lacks observational data testing, and although experiments are very useful for controlling for contextual factors, they sometimes overestimate the effects of corruption (e.g., Incerti's 2020 study on voting and corruption).

We derived three hypotheses from the existing academic debate. First, survey participants who perceive high risks of corruption being uncovered, with subsequent punishment, engage less in corruption than participants perceiving lower risks of being held accountable for engagement in bribery. Second, in line with the literature, we expect women to be less corrupt than men. Third, following previous authors, we propose that women who perceive risks at the same level as men are less corrupt than men.

Our contribution to the academic debate is an empirical one by testing the risk, gender, and corruption relationship using observational data in the form of the World Values Survey. The World Values Survey (2021) data cover 49 countries and 70,867 respondents⁶ and allow us to test the risk, gender, and corruption relationship in three ways. First, we can empirically test whether the perceived risk of being held accountable for corruption varies between men and women. Second, we can test

⁴ We are not the first ones to challenge this assumption, but previous publications have provided equal challenges by suggesting a women's interest or outsider mechanism; see, for instance, Armstrong et al. (2022), Bauhr and Charron (2021), and Bjarnegård (2013).

⁵ Scholars who assume that women are more risk averse than men include, for instance, Esarey and Chirillo (2013; risk depends on the political system), Esarey and Schwindt-Bayer (2018), Barnes et al. (2018), Lee and Guven (2013), Rivas (2013), Swamy et al. (2001), and Watson and Moreland (2014). Barnes and Beaulieu (2019) look at risk, gender, and the perception of political corruption at the national level.

⁶ Data were collected between 2017 and 2021.

whether women are less corrupt than men. Third, we can test whether perceived risk differences play a role in women's and men's engagement in corruption.⁷ We find that a higher perceived risk for being held accountable for corruption results in lower engagement in corruption. Further, at the same level of risk perception, women and men engage equally in corruption. This is contrary to the prediction in the literature. Further research is needed to understand the relationship between risk, gender, and corruption.

2 Theories, Arguments, and the State of the Art on Gender Differences and Corruption and Hypotheses

The gender and corruption debate is diverse in its theoretical explanations and empirical methodological approaches. Yet there seems to be a trend these days in which researchers have increasingly moved away from a macro-level theory and country-level analysis of broad corruption measures originally presented in seminal works such as those of Dollar et al. (2001) and Swamy et al. (2001), as well as others. Today, the gender and corruption debate seems to have moved on to focus on different areas of corruption (Bauhr et al. 2019) or on individual-level survey corruption data (Lee and Guven 2013). Theoretically, we identified three broad streams of argument in the existing gender and corruption literature: the gender argument, the system argument, and “a little bit of both” groups of arguments.

Some of the arguments brought forward in the corruption literature stress that women are different from men. For instance, society expects women to be more trustworthy (Barnes and Beaulieu 2019; Goetz 2007; Watson and Moreland 2014)⁸; to act according to moral values, ethical standards, and social norms (Barnes and Beaulieu 2019; Esarey and Chirillo 2013; Goetz 2007); to be motherly and closer to children than men are (Holmgren 2015; Stensöta et al. 2015); and to be more risk averse (Harris et al. 2006; Jianakoplos and Bernasek 1998; Rivas 2013). Because of those gender differences, women are less likely to engage in bribery. Engaging in corruption requires, to some extent, breaking the rules or engaging in selfish behaviour or risk-taking.

The system group of arguments suggests that it is the political system, namely liberal democracy, that leads to both a low level of corruption and gender equality (e.g., Sung 2003). In other words, the gender and corruption relationship is a spurious one “caused” by liberal democratic systems.

The third group of arguments proposes that there is a conditional effect of gender and systemic or other socioeconomic factors on corruption. Researchers have suggested that the gender effect might be culturally driven (Alatas et al. 2009; Esarey and Chirillo 2013). Alatas et al. (2009) found gender differences in their experimental design in Australia but not in India. Others have proposed that whether women are less corrupt than men depends on their access to networks (Bjarnegård 2013;

⁷ The World Values Survey (2021) wave 7 was collected from 2017 to 2021.

⁸ In politics, women in public office are not always held to a higher standard than men, but they are punished more by female voters (Esarey and Schwindt-Bayer 2018).

Rivas 2013) or whether the political system is democratic or autocratic (Esarey and Chirillo 2013).

Because we are specifically interested in the theoretical relationship between gender, risk, and corruption, we specifically focus in more detail on the debates and findings around gender and risk, and on gender, risk, and corruption not only in political science but also beyond.⁹ In publications in economics, however, the findings of traditional gender-related risk differences are called into question by authors such as Nelson (2014, 2015) and Wieland et al. (2014). One possible explanation for the difference in findings could be that gender roles have changed over time such that women engage more in risky behaviour today than they did a few decades ago.

Newer findings in economics in the second decade of the 21st century are as follows. Nelson (2014) analysed 35 studies, including many of the studies used by Croson and Gneezy (2009) and cited by Esarey and Schwindt-Bayer (2018), both experimental and survey based and from the fields of economics, decision science, and finance, that concluded that women were more risk averse than men. She found that only 14 of 35 studies had a Cohen's *d* that consistently showed positive values in favour of women's greater risk aversion and were statistically significant; *d*-values that exceeded half a standard deviation occurred in only five of 35 studies, and only two of 35 were found to have a standard deviation value of more than 1. Nelson's (2014) study is not without its critics, and other systematic reviews found that the risk–gender nexus is context dependent such that in some environments, but not in others, there are gender differences regarding risk aversion (Eckel and Grossman 2008).

Furthermore, economists have suggested that there might have been a confirmation bias around risk and gender (Nelson 2015, 2014). Nelson's (2014, 2015) findings seem to support that the gender difference in the risk literature has a tendency to exaggerate the real-world applicability of differences. Wieland et al. (2014) found that there is a lack of applicability of laboratory results to the real world.

The second way that scholars have previously analysed the risk, gender, and corruption relationship explicitly models risk in (laboratory) experiments (Frank et al. 2011; Schulze and Frank 2003; Rivas 2013). These studies sometimes found risk to play a role in bribery experiments, and sometimes not. Schulze and Frank (2003) found that women are less involved in bribery if the risk of punishment is set to be high, and Frank et al. (2011) found that women are significantly less willing to accept bribes in high-risk situations. Rivas (2013) found that risk does not always play a role in bribery, but that risk loving is often found to be insignificant. Frank et al. (2011) found that women were insignificantly less likely than men to engage in bribery in low-risk situations. Although experiments are very useful for controlling for contextual factors, we know that they can overestimate the effects

⁹ Countries where corruption might be deeply entrenched in the system might have lower likelihoods of corruption being punished. Yet three things need to be mentioned here. First, even if the likelihood of being punished for corruption were lower in countries where corruption is very prevalent, then this lower risk should apply to both men and women equally. Second, even in countries that have corruption deeply entrenched in their political systems and their society, engaging in corruption is illegal (Li 2019). Third, the aim of this study was to test only the assumption and not to provide an in-depth, new argument.

of corruption (e.g., Incerti's work 2020 on corruption and election) and that the risk–gender–corruption literature lacks observational data testing.

Further, scholars have analysed risk, gender, and corruption through observational studies. In observational studies using older World Values Survey data, gender differences in corruption tolerance were found to increase based on how democratic a country was (Esarey and Chirillo 2013). Esarey and Chirillo (2013) suggested that this is because the risk and stigma around corruption are lower in authoritarian countries and that women, due to gender discrimination and their greater risk aversion, are impacted more than men by these institutional contexts. Esarey and Schwindt-Bayer (2018) suggested that an increase in the number of women in lower houses of parliament reduces the amount of corruption in a country but that this is only true when corruption is risky in that country. They supported this argument with economics studies that found a difference in risk aversion between women and men (Croson and Gneezy 2009).

In summary, the risk and gender literature that political scientists traditionally build on has three problems: The economics findings that many rely on seem to be a little *outdated*, there seems to be a *confirmation bias* in the results, and the *applicability* of the laboratory results to real-world situations is sometimes *questionable*. Many of the studies that assume that women are more risk averse than men, on which political scientists rely, were published more than 10 years ago and, in some cases, more than 30 years ago.¹⁰ Time or publication is, of course, not a problem per se. The problem occurs because newer economic research on gender and risk finds substantially less support for gender differences in risk aversion or risk-taking (Nelson 2014, 2015; Wieland et al. 2014). Hence, if the assumption is somewhat invalidated by newer evidence, the question arises as to what is the basis for the gender–risk–corruption theories and the empirical findings that follow.

While conducting a thorough review of the literature in political science and economics, our primary objective was to make a useful contribution to the field of political science research. It is worth noting that existing political science research on gender and corruption has predominantly focused on political figures at the regional or local level (e.g., Bauhr et al. 2019) and in national parliaments (e.g., Sung 2003). Overall, it seems fair to say that gender dynamics and corruption have been more intensively studied in *grand corruption* than in *petty corruption*. Our research shifts the spotlight to ordinary citizens, emphasising their involvement in petty corruption and investigating the differences between male and female bribe payers. Although our findings specifically address small-scale bribery, it is reasonable to propose that if a gender–risk–corruption connection exists, it should manifest across diverse aspects of corruption within society, be it petty or grand, political or bureaucratic, or even in sectors such as sports and health care. Consequently, our study, while centred on bribe payers, encourages further investigation into the gender–corruption nexus. Furthermore, given the prevalent discourse among policymakers regarding the positive impact of more women in positions of power on reducing corruption and enhancing policy provisions, it is crucial to shed ample light on this relationship

¹⁰ “Some research has shown that women tend to be more risk averse than men (Eckel and Grossman 2008; Jianakoplos and Bernasek 1998; Watson and McNaughton 2007)” (Barnes et al. 2018, p. 146).

to ensure that the evidence aligns with these assertions. Nonetheless, our study serves as a hoop test for evaluating the gender–risk–corruption relationship within the context of the established literature on gender and corruption.

We derive three hypotheses from the academic debate, which we will test in the next section:

Hypothesis 1 Survey participants who perceive high risks of corruption being uncovered, with subsequent punishment, engage less in corruption than participants perceiving lower risks of being held accountable for engagement in bribery.¹¹

Hypothesis 2 Women engage less in corruption or bribery than men do.¹²

Hypothesis 3 Women who perceive risks at the same level as men engage less in corrupt or bribery than men.¹³

Our contribution to the academic debate is twofold. First, to our knowledge, we are the first to test risk perception, gender, and corruption on a large scale using data from various countries around the world using the World Values Survey. Second, we propose that the risk-aversion assumption dominating the discourse around gender and corruption in political science is outdated. We find that the effect of risk difference and corruption between men and women seems to be overemphasised in current theoretical discourse and potentially somewhat wrongly used as an explanation in gender and corruption research.

3 Research Design

We used data from the latest World Values Survey wave 7, which was conducted between early 2017 and mid-2020 and released in 2021 (World Values Survey 2021; Haerpfer et al. 2022). The survey covers between 1000 and 5000 respondents in 49 countries (2021), providing 54,584 observations that cover all the variables we need in order to test our hypotheses on gender, risk, and corruption. We used question 118: “We want to know about your experience with local officials and service providers, such as police officers, lawyers, doctors, teachers, and civil servants in your community. How often do you think ordinary people like yourself or people from your neighborhood have to pay a bribe, give a gift, or do a favor for these people in order to get the services you need? Does it happen never, rarely, frequently, or always?” The other explanatory variables on the individual level were gender, risk perception of corruption being punished, attendance at religious services, prayer, religious denomination, financial wealth, and social class. For the country level, we included economic wealth, political regime type, women empowerment, country, and region dummies.

¹¹ For a similar hypothesis, see Schulze and Frank (2003, p. 146).

¹² Hao et al. (2018) provide an overview of gender and corruption research.

¹³ We would like to note at this point that sometimes people have no choice but must engage in corruption whether they want to or not (see Bauhr 2017 for need/greed corruption).

Data from the World Values Survey have some limitations that are inherent to all surveys on corruption. We know that survey respondents sometimes may lie on surveys concerning sensitive issues such as corruption (Lee 1993). To avoid this downward bias of reporting about corruption and in line with Swamy et al. (2001) and Fan et al. (2009), we used a corruption question that allowed respondents to respond more honestly about their engagement in corruption without admitting that they themselves are corrupt. The wording of questions that use words that communicate necessity and lack of justifiability reduce the ethical burden on the individual answering the questions and may lead to less bias when answering the questions. For the exact operationalisation of the variables and further descriptive analysis used in the empirical analysis, please see Tables A.1 and A.2.

3.1 Descriptive Analysis

Although the existing body of literature would suggest that a higher perceived risk of facing consequences for corrupt activities would deter individuals from engaging in corruption, our analysis reveals a more nuanced relationship between the perceived risk of being held accountable and reported actual involvement in bribery. Figure 1 illustrates a notable trend in which a substantial portion of respondents appear willing to partake in corruption, even when the perceived risk is elevated. In more detail, examining the data concerning individuals who perceive a heightened likelihood of facing consequences for their corrupt actions, we find that 9048 re-

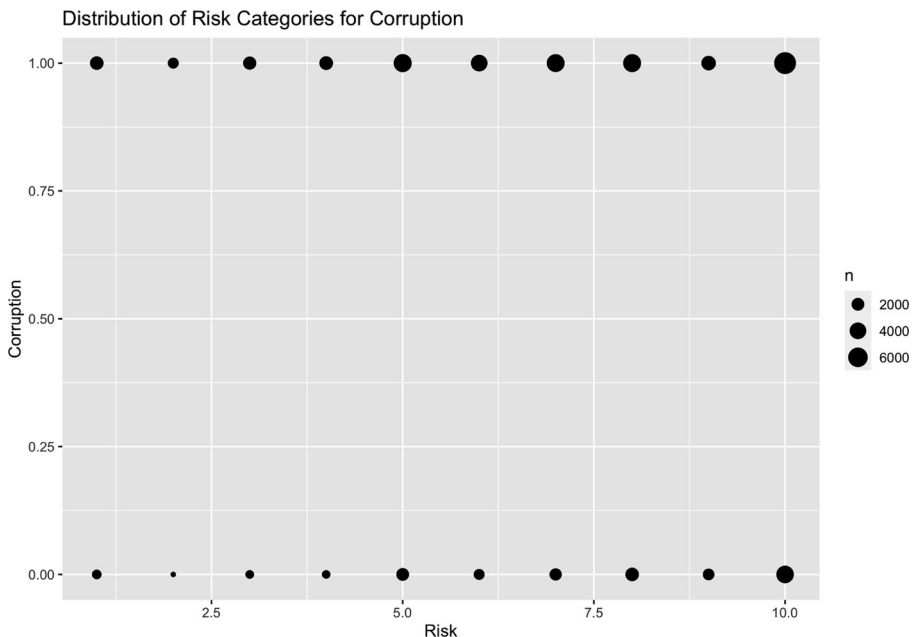


Fig. 1 Number of respondents and their perceived risk of being punished for corrupt action, divided by whether they engaged in corruption or not. Larger circles represent more respondents

spondents still admit to engaging in corruption, while only 5081 respondents claim to refrain from such behaviour. This defies conventional expectations drawn from the literature, which generally suggests that the presence of risk should serve as a deterrent against engaging in corruption. This outcome, while unexpected, is not entirely unprecedented in the realm of corruption research (see Frank and Schulze 2000).

The variance in risk aversion between men and women, as depicted in Figs. 2, 3, 4, and 5, is rather minimal. Both men and women exhibit remarkably similar perceptions of the likelihood of being apprehended for corrupt activities. This analysis fails to substantiate the common assumption that women generally perceive a greater risk of being held accountable for corruption than men do. Significant gender-based disparities in risk perception, as determined by a t-test, emerged only in the data from Zimbabwe, Mexico, Malaysia, Greece, and China. This observation runs counter to the prevailing expectations derived from prior publications, in which women were often presumed to hold a higher perception of the risk associated with corruption exposure and consequences. Notably, the countries exhibiting these marked differences in risk perception encompass a wide spectrum of political systems, cultural backgrounds, and economic statuses. Consequently, discerning an upfront clear pattern or explanation for the significant observed variation of gender risk-aversion.

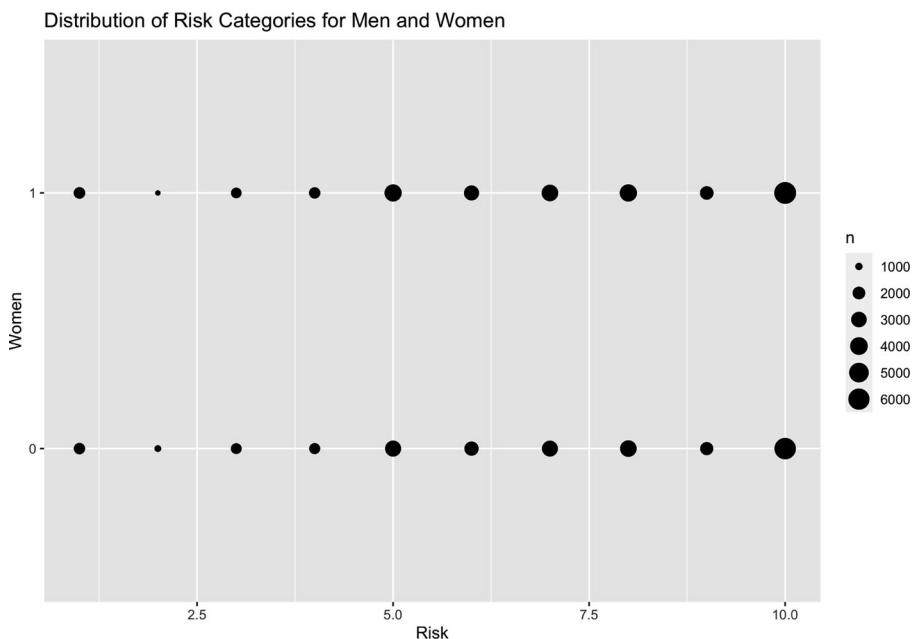


Fig. 2 Women's and men's perceived risk of being punished for corrupt action. Larger circles represent more respondents

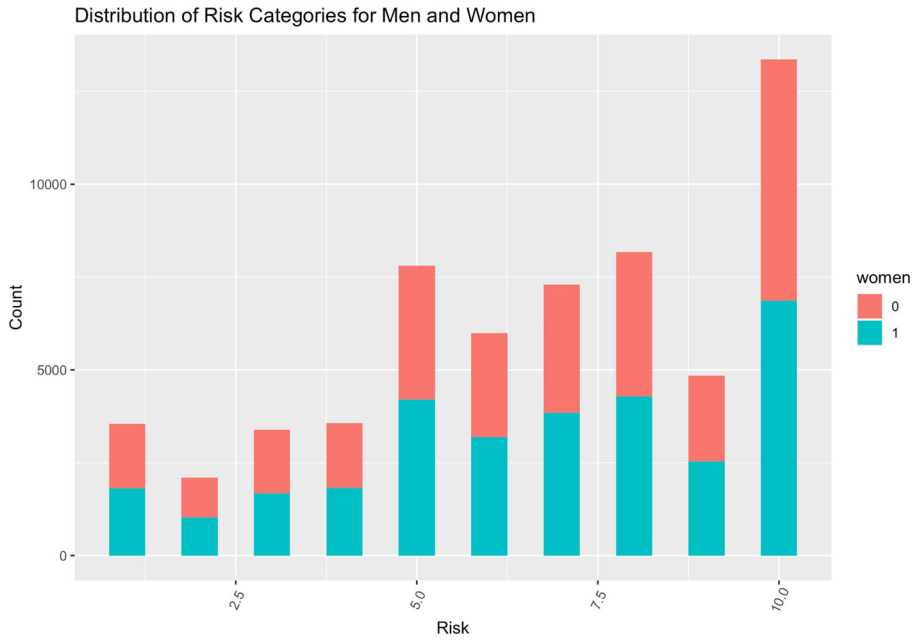


Fig. 3 Women's and men's perceived risk of being punished for corrupt action

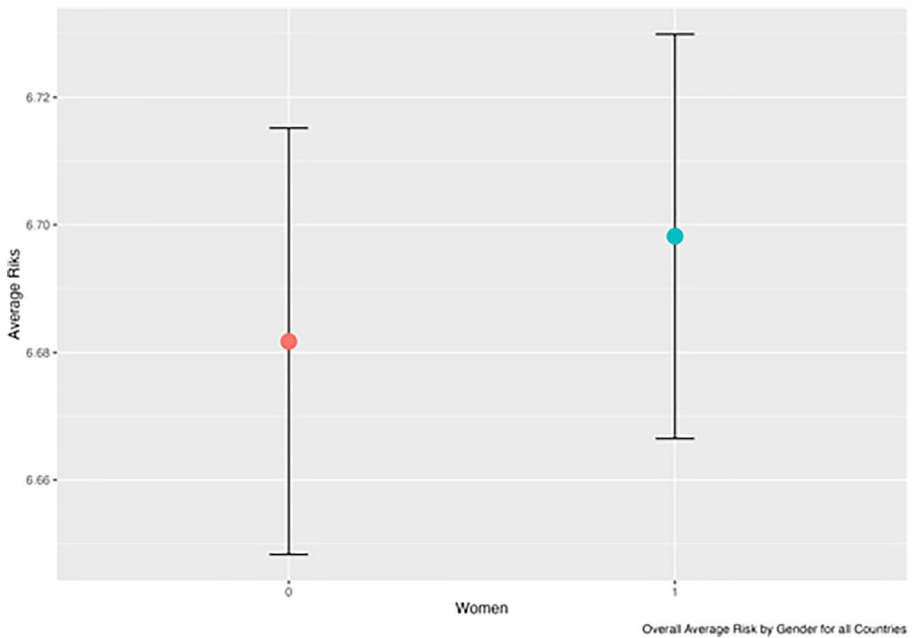


Fig. 4 Overall perceived risk for men and women for all countries at the same time

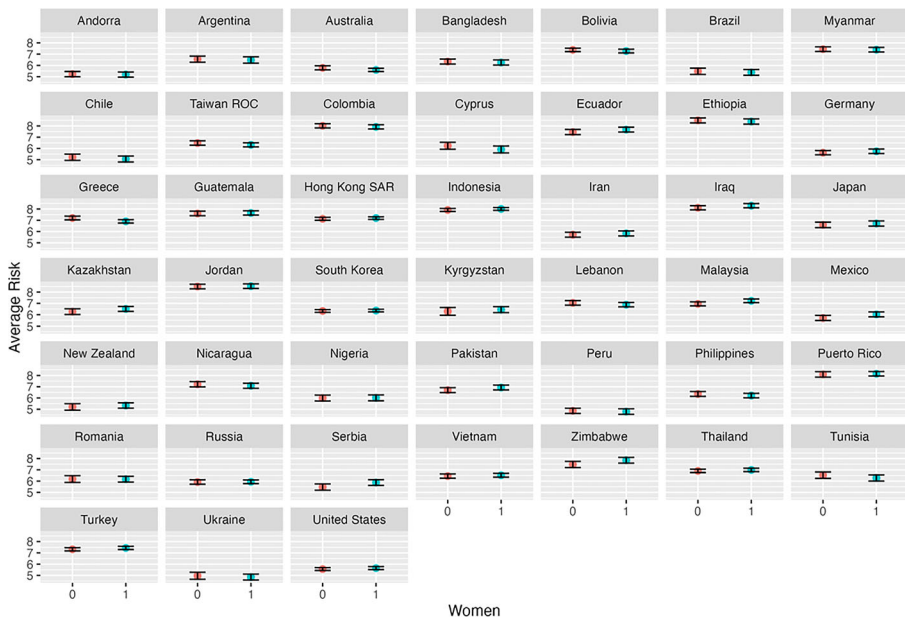


Fig. 5 Average corruption risk aversion for men and women

4 Empirical Analysis

We tested our hypotheses in a multivariate regression design. Engagement in the bribery of individuals is very likely to depend on contextual factors within a country, so we modelled the multilevel structure—individuals nested in countries. In line with previous findings, we included economic development (Treisman 2007) and political institutions (Esarey and Chirillo 2013) in our model. We used generalised linear mixed-effects models¹⁴—glmer in R—to specifically model the country context into the model for individual respondents.¹⁵ Table 1 provides the results for statistical models for testing our three hypotheses, and Figs. 6, A.6, and A.7 show the predicted probabilities for engaging in corruption based on models 1–3 of Table 1. A full version of Table 1 is provided in the online appendix as Table A.5.

Hypothesis 1 proposes that the greater the risk a person perceives, the less likely the individual is to engage in corruption. In our empirical results for models 1 and 4 in Table 1, we find statistically significant empirical support for this hypothesis: The more risk that respondents perceive, the less likely they are to choose the response category for bribery—“people like them have to engage in corruption.” The predicted probability line in Fig. 6 for model 1 and in Fig. A.8 for model 4

¹⁴ See Gill and Torres (2019) for the use of generalised linear mixed-effects models.

¹⁵ As a robustness test, we estimated a meprobit model using Stata 17 using country fixed effects (Online Appendix Table A.3 and Fig. A.4). There are also gender difference for risk perception and engagement in bribery.

Table 1 Effect of gender and risk on corruption (full table with all covariates, Table A.5)

	Model 1 women and risk	Model 2 women and risk	Model 3 women and risk	Model 4 women and risk	Model 5 women and risk
Women	-0.139*** (0.020)	-0.028 (0.054)	-0.025 (0.055)	-0.125*** (0.020)	-0.013 (0.056)
Risk	-0.051*** (0.004)	-0.042*** (0.005)	-0.041*** (0.006)	-0.048*** (0.004)	-0.042*** (0.006)
Women * risk	— —	-0.016* (0.007)	-0.015+ (0.007)	— —	-0.016* (0.008)
Intercept	1.377*** (0.126)	1.320*** (0.129)	1.318*** (0.142)	1.369** (0.140)	1.335*** (0.148)
Standard deviation (intercept)	0.819	0.820	0.797	0.796	0.813
Country-level variable	Country RE (1 per country)	Country RE (1 per country)	Country RE (1 per country)	Country RE (1 per country)	Country gender equality
Controls included	No	No	Yes	Yes	Yes
Women L.C.	-0.0329	—	—	-0.0303	—
Women	-0.0255	—	—	-0.0228	—
Women U.C.	-0.0181	—	—	-0.0154	—
Risk L.C.	-0.0108	—	—	-0.0103	—
Risk	-0.0093	—	—	-0.0088	—
Risk U.C.	-0.0077	—	—	-0.0072	—
AIC	59,851.5	59,848.7	59,512.3	59,514.5	57,103.9
BIC	59,887.1	59,893.2	59,841.8	59,861.9	57,458.8
Observations	54,584	54,584	54,584	54,584	52,738
Log. lik.	-29,921.75	-29,919.34	-29,719.13	-29,721.03	-28,515.34

Estimation performed using R

L.C. Lower confidence bound for marginal effect, U.C. Upper confidence bound for marginal effect

*significant at 0.05; **significant at 0.01; ***significant at 0.001

is slightly downward sloping and illustrates the empirical support for hypothesis 1. Despite supporting our hypothesis, the prediction line is not very steep. Overall, a respondent who perceives the risk of being caught for corruption to be 1—low risk of being held accountable for bribery—has a point estimate for engaging in corruption of around 80% (in other words, the respondent has a likelihood of 80% to engage in bribery), whereas a respondent who perceives the risk of being caught for corruption to be 10—very high risk of being held accountable for bribery—has a point estimate for engaging in corruption of around 70%. The estimates have relatively wide confidence bounds, but the marginal effects (dy/dx) are statistically significant, indicating that increasing the perceived risk of being held accountable for engaging in bribery results in a lower likelihood of a respondent engaging in bribery.

Hypothesis 2 predicts that women are less corrupt than men. Models 1 and 4 of Table 1 show a statistically significant effect of gender on engagement in bribery.

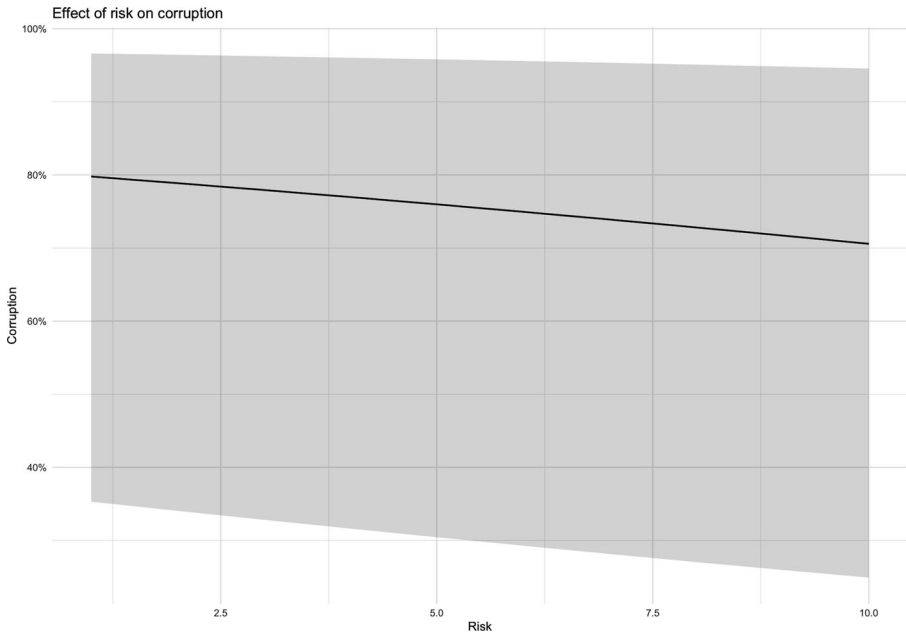


Fig. 6 Single effect of risk on corruption (model 1 in Table 1)

The marginal effects in Table 1 also support this conclusion: Being female reduces the likelihood of engaging in bribery by 2.6% for model 1 and by 2.3% for model 4. Hence, our findings are in line with the majority of research publications finding that women are, on average, less involved in corruption than men are.

Hypothesis 3 proposes that, given the same perceived level of risk, women are less corrupt than men. For hypothesis 3 to find empirical support, we would have to see that predicted engagement in bribery is higher for men than for women when there is a high perceived risk of being held accountable. The results for testing hypothesis 3 are presented in models 2, 3, and 5 in Table 1. Model 2 in Table 1 (Fig. A.5) includes country random effects but no control variables. Marginal effects are illustrated in Fig. A.6. Model 3 of Table 1 includes country random effects and control variables, and the predicted probabilities for gender and risk on bribery are included in Fig. 7 (men, top red line and red shading for confidence intervals; women, bottom blue line and blue shading for confidence intervals). Marginal effects are illustrated in Fig. A.1, and predicted probabilities per country are illustrated in Fig. A.2. Women are never significantly less likely to engage in bribery than men are when they perceive the same risk of being held accountable for it. These findings do not support the theoretical explanation that risk aversion causes women to engage less in corruption.

In model 5 of Table 1, we controlled for gender equality at the country level. Further illustrations of risk and gender are provided in the predicted probability graphs in Fig. A.3, risk–gender in Fig. A.9, and risk in Fig. A.10. All of these figures clearly show that there are no gender differences for risk, gender, and engagement

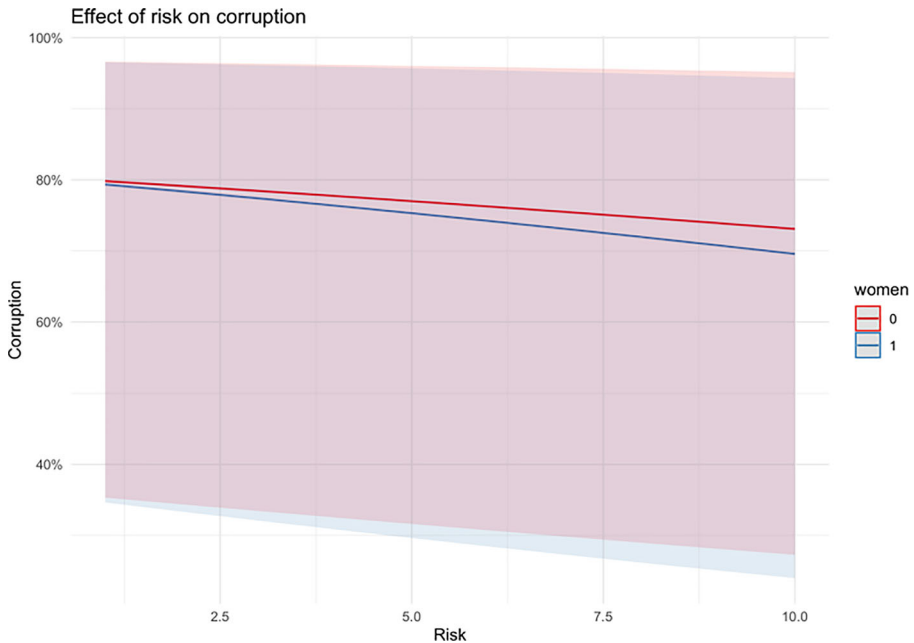


Fig. 7 Overall effect of gender and risk on corruption for all countries at the same time (model 3 in Table 1)

in bribery. Women and men who perceive the same risk are equally corrupt, and this lack of difference is not driven by specific statistical model specifications. Hence, there is no support for hypothesis 3. Our results are in line with those of Schulze and Frank (2003) and Frank et al. (2011), finding that in a low-risk situation, women and men are equally corrupt. However, our results are different from those of Schulze and Frank (2003), who found that in a high-risk situation, women are less corrupt than men.

Overall, we cannot find significant statistical empirical support for a low- or high-risk perception playing a role in the corruption engagement of men and women. For the majority of scholars who use a risk-aversion assumption as part of their theoretical explanation for their demonstrated gender difference, our results might be surprising. Just to be very clear, we are not saying that previous research is wrong but only that the theoretical assumption on which other scholars place their arguments might need further investigation. We also find that women are less corrupt than men, but risk might play a lesser role in the relationship between gender and corruption than we all thought.

For scholars working on gender and risk in other areas of social science, such as Nelson (2014, 2015) and Wieland et al. (2014), our results simply reconfirm that the effect of risk on behaviour observed in the laboratory might not translate one to one in a real-world situation. The statistical results are clear: There was no gender difference in risk perception or engagement in bribery for our observational

data tests. What is not clear is where we should go from here, but new theoretical explanations are needed.

Robustness tests are included in the online appendix. Again, we found no gender difference in the relationship between risk and bribery.

5 Conclusion

We systematically reviewed existing theories and evidence around risk, gender, and corruption in social science in general and in political science corruption research specifically, finding a lack of large-scale empirical studies on the relationship between risk, gender, and corruption. By aiming to fill the research gap left behind and rarely questioned by laboratory research, we first found that the effect of perceived risk on reducing engagement with corruption might be much weaker than we thought. Second, we found no gender differences in the relationship between risk and corruption. We have provided substantial evidence that gender may not matter in risk perception or engagement in bribery in various countries. Scholars need to rethink their theoretical explanations.

We cannot rule out that our results may be driven by a lack of data quality. Because we know from other research that women are generally punished less than men for the same crimes, the risk perception of women for being punished for corruption might accordingly be lower. Yet it seems fair to suggest that risk perception might be less important in understanding gender and corruption than we thought. Further, we cannot rule out that the mechanism at play is that women are asked for bribes less often than men are (*structure argument*) and therefore perceive the risk of being caught to be lower because they engage less often in bribery. We make an argument that women have *agency* to engage in corruption. Whether this means that women decide not to pay a bribe and then send their partners to “take care” of the problem, we do not know.

It is not the aim of this paper to theoretically solve the problem of risk, gender, and corruption, but rather to show that gender–risk–corruption research needs to rethink the use of the risk-aversion assumption. Future research needs to investigate in more detail why risk perception might be less important than we thought, using case study research of interviews with citizens and elites both in countries that are very prone to corruption and in countries that are generally very “clean.” Possible alternative explanations for gender differences in engagement in corruption have suggested that women are more *trustworthy* (Barnes and Beaulieu 2019; Goetz 2007; Watson and Moreland 2014) and act according to *moral values, ethical standards, and social norms* (Barnes and Beaulieu 2019; Esarey and Chirillo 2013; Goetz 2007; Holmgren 2015), or are more *motherly* and *closer to the children* (Holmgren 2015; Stensöta et al. 2015). In a next step, all of these competing theoretical explanations need to be studied in close comparison with the risk-aversion assumption. Experimental designs like the experiment by Guerra and Zhuravleva (2022) would be helpful to understand risk, gender, and corruption better. Moreover, in future research, investigating risk perception as a dependent variable could shed light on the underlying factors that drive perceptions of corruption risk.

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Conflict of interest V. Dietrich and N.S. Neudorfer declare that they have no competing interests.

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References

- Alatas, Vivi, Lisa Cameron, Ananish Chaudhuri, Nisvan Erkal, and Lata Gangadharan Alatas. 2009. Gender, culture, and corruption. *Southern Economic Journal* 75:663–680.
- Armstrong, Brenna, Tiffany D. Barnes, Diana Z. O'Brien, and Michelle M. Taylor-Robinson. 2022. Corruption, accountability, and women's access to power. *The Journal of Politics* 84:1207–1213.
- Barnes, Tiffany D., and Emily Beaulieu. 2019. Women politicians, institutions, and perceptions of corruption. *Comparative Political Studies* 52:134–167.
- Barnes, Tiffany D., Emily Beaulieu, and Gregory W. Saxton. 2018. Restoring trust in the police: why female officers reduce suspicions of corruption. *Governance* 31:143–161.
- Bauhr, Monika. 2017. Need or greed? *Governance* 30:561–581.
- Bauhr, Monika, and Nicholas Charron. 2021. Will women executives reduce corruption? *Comparative Political Studies* 54:1292–1322.
- Bauhr, Monika, Nicholas Charron, and Lena Wängnerud. 2019. Exclusion or interests? *European Journal of Political Research* 58:1043–1065.
- Bjarnegård, Elin. 2013. *Gender, informal institutions and political recruitment*. London: Palgrave Macmillan.
- Crosen, Rachel, and Uri Gneezy. 2009. Gender differences in preferences. *Journal of Economic Literature* 47:448–474.
- Dollar, David, Raymond Fisman, and Roberta Gatti. 2001. Are women really the “fairer” sex? *Journal of Economic Behavior & Organization* 46:423–429.
- Eckel, Catherine C., and Philip J. Grossman. 2008. Men, women and risk aversion. In *Handbook of experimental economics results*, Vol. 1, ed. C. Plott, V. Smith, 1061–1073. New York: Elsevier.
- Esarey, Justin, and Gina Chirillo. 2013. ‘Fairer sex’ or purity myth? *Politics & Gender* 9:361–389.
- Esarey, Justin, and Leslie A. Schwindt-Bayer. 2018. Women's representation, accountability and corruption in democracies. *British Journal of Political Science* 48:659–690.
- Fan, C. Simon, Chen Lin, and Daniel Treisman. 2009. Political decentralization and corruption: evidence from around the world. *Journal of Public Economics* 93:14–34.
- Frank, Björn, and Günther G. Schulze. 2000. Does economics make citizens corrupt? *Journal of Economic Behavior & Organization* 43:101–113.
- Frank, Björn, Graf Johann Lambsdorff, and Frédéric Boehm. 2011. Gender and corruption: lessons from laboratory corruption experiments. *European Journal of Development Research* 23:59–71.
- Gill, Jeff, and Michelle Torres. 2019. *Generalized linear models*. Vol. 134. Thousand Oaks: SAGE.
- Goetz, Anne Marie. 2007. Political cleaners: women as the new anti-corruption force? *Development and Change* 38:87–105.
- Guerra, Alice, and Tatyana Zhuravleva. 2022. Do women always behave as corruption cleaners? *Public Choice* 191:173–192.
- Haerpfer, Christian, Ronald F. Inglehart, Alejandro Moreno, Christian Welzel, Kseniya Kizilova, Jaime Diez-Medrano, Marta Lagos, Pippa Norris, Eduard Ponarin, and Bi Puranen (eds.). 2022. World Values Survey: Round Seven - Country-Pooled Datafile Version 5.0. Madrid, Spain and Vienna, Austria: JD Systems Institute and WVS Secretariat. <https://doi.org/10.14281/18241.20>.

- Hao, Yu, Chun-Ping Chang, and Zao Sun. 2018. Women and corruption: evidence from multinational panel data. *Quality & Quantity* 52:1447–1468.
- Harris, Christine R., Michael Jenkins, and Dale Glase. 2006. Gender differences in risk assessment: Why do women take fewer risks than men? *Judgment and Decision Making* 1(1):48–63.
- Holmgren, Veronica. 2015. Women and corruption. <http://urn.kb.se/resolve?urn=urn:nbn:se:su:diva-17659>.
- Incerti, Trevor. 2020. Corruption information and vote share. *American Political Science Review* 114:761–774.
- Jianakoplos, Nancy Ammon, and Alexandra Bernasek. 1998. Are women more risk averse? *Economic Inquiry* 36:620–630.
- Lee, Raymond M. 1993. *Doing research on sensitive topics*. Toronto: SAGE.
- Lee, Wang-Sheng, and Cahit Guven. 2013. Engaging in corruption. *Journal of Economic Psychology* 39:287–300.
- Li, Shaomin. 2019. *Bribery and corruption in weak institutional environments*. Cambridge: Cambridge University Press.
- Nelson, Julie A. 2014. The power of stereotyping and confirmation bias to overwhelm accurate assessment: the case of economics, gender, and risk aversion. *The Journal of Economic Methodology* 21:211–231.
- Nelson, Julie A. 2015. Are women really more risk-averse than men? *Journal of Economic Surveys* 29:566–585.
- Neudorfer, Natascha S. 2016. Gender and graft. *Journal of Women, Politics & Policy* 37:190–216.
- Rivas, M. Fernanda. 2013. An experiment on corruption and gender. *Bulletin of Economic Research* 65:10–42.
- Schulze, Günther G., and Björn Frank. 2003. Deterrence versus intrinsic motivation: experimental evidence on the determinants of corruptibility. *Economics of Governance* 4:143–160.
- Stensöta, Helena, and Lena Wängnerud. 2018. *Gender and corruption*. Cham: Palgrave Macmillan.
- Stensöta, Helena, Lena Wängnerud, and Richard Svensson. 2015. Gender and corruption. *Governance* 28:475–496.
- Sung, Hung-En. 2003. Fairer sex or fairer system? *Social Forces* 82:703–723.
- Swamy, Anand, Stephen Knack, Young Lee, and Omar Azfar. 2001. Gender and corruption. *Journal of Development Economics* 64:25–55.
- 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* 10:211–244.
- Watson, David, and Amy Moreland. 2014. Perceptions of corruption and the dynamics of women's representation. *Politics & Gender* 10:392–412.
- Watson, John, and Mark McNaughton. 2007. Gender differences in risk aversion and expected retirement benefits. *Financial Analysts Journal* 63(4):52–62.
- Wieland, Alice, James Sundali, Markus Kemmelmeier, and Rakesh Sarin. 2014. Gender differences in the endowment effect. *Judgment and Decision Making* 9:558–571.
- World Values Survey. 2021. WAVE 7. <https://www.worldvaluessurvey.org/WVSContents.jsp?CMSID=wvswave7&CMSID=wvswave7>. Accessed 6 Sept 2021.