

University of Nevada, Reno

**Women in Anti-Corruption Strategies: Antidote or Placebo?**

A thesis submitted in partial fulfillment  
of the requirements for the degree of

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by

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## Abstract

This paper revisits the idea that higher percentages of women in government reduce the overall perceived corruption in a state. Using data on 175 countries between 2001 and 2011, mixed evidence on women's influence on corruption is found. Basic regression results suggest that a greater proportion of women in government reduce the level of corruption. However, accounting for differences between countries reveals that women in parliament have no specific effect on the level of corruption. Potential explanation for this are discussed but remain unsolved.

Dedicated to my parents Elvira Diaz and Jose Diaz for always encouraging me to pursue  
a higher education

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## Introduction

Corruption is a government failure defined by the World Bank as “the use of public office for private gain” (World Development Report 1997). Corruption has many forms and can manifest itself at all levels of government, from local school board decisions to national elections and has been described as a costly obstacle in the allocation and provision of needed public services as well as a detriment to private business (Ko and Samajdar) in addition to being “a tax on productivity and a market distortion” (Drury, Kriekhaus and Lusztig).

One of the most pressing concerns with government failure is the effect it may have on the economy. This is especially true when we talk about a problem such as corruption, in which rent seeking by government officials and even private sector individuals can be thought of as an inefficient use of financial resources which could be better employed elsewhere in the economy.

It has been well documented that corruption is detrimental to economic growth around the world. There are many estimates as to how corruption takes a toll on an economy; specifically some researchers have found that a 1% increase in the corruption level (using Transparency International’s Corruption Perception Index) lowers the economic growth rate of a state by 0.72%<sup>1</sup> (Mo). Corruption has an even more devastating economic effect on non-democratic countries according to Drury et. al (2006)

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<sup>1</sup> Mo acknowledges that past researchers believe corruption may be a good thing for business, see (Leff)



due to the fact that corrupt politicians cannot be as rapidly removed from office as in a democracy.

Additionally, the existence of corruption has shown to be lower in freer and more “democratic leaning” countries. Freedom is usually measured by an index, such as the Freedom House International political rights and civil liberties index, and “democratic leaning” is a designation created by sources such as the Polity IV data and the index of democracy as suggested by Alvarez, Chiebus, Limongi, and Przeworski (Drury, Kriekhaus and Lusztig). Free governments, as per these indexes, are consistently linked to lower levels of corruption, telling us that corruption not only is detrimental to an economy, but can also be a sign of weak governance.

The subject of this research is important, therefore, because finding a deterrent for corruption is an important component for the advancement of the global economy. At the moment there are various international organizations attempting to combat corruption. These include the World Bank, the Organization for Economic Co-Operation and Development (OECD), the United Nations and various regional and national independent agencies. Additionally, there are watchdog organizations which conduct yearly surveys on corruption worldwide and which publish their findings in the form of an index (Drury, Kriekhaus and Lusztig).

There are currently many strategies in place by organizations and groups such as the World Bank and the Organization for Economic Co-Operation and Development (OECD) which attempt to curb corruption, specifically by putting restrictions on donated monies and on Foreign Direct Investment (FDI). The OECD, for example, holds a yearly

Development Assistance Committee High Level Meeting (DAC HLM) in which countries build consensus on ways to improve development assistance in a way which will prevent the corrupt use of FDI funds. At their 1996 meeting, for example, countries shared their anti-corruption clauses. Canada, for example, states:

“No offer, gift or payment, consideration or benefit of any kind, which constitutes an illegal or corrupt practice, has or will be made to anyone, either directly or indirectly, as an inducement or reward for the award or execution of this contract. Any such practice will be grounds for terminating this contract or taking any other corrective action as appropriate” (Recommendation on Anti-Corruption Proposals for Aid Funded Procurement: Follow up Report).

The Anti-Bribery Convention which came about from this meeting has been adopted by 34 OECD member countries and six non-member countries since its creation in 1997 and additional protocols of 2009 (OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions). In this way, developed countries, which typically see lower levels of corruption, can attempt to fight corruption in less developed countries by threatening the reduction or elimination of development assistance.

The creation of independent investigatory commissions has also been a popular way to address corruption. Hong Kong, for example, establishing its widely known Independent Commission Against Corruption (ICAC) in 1974 with much success. Similar government agencies have been put in place in countries such as Argentina, Guinea, South Korea and others (Heilbrunn). These agencies are typically given the authority to independently investigate any allegations of corruption by monitoring and seizing bank accounts and property of individuals involved in a case, as well by educating the general public on corruption. The creation of these agencies has been very

popular in past decades even though they do not show considerable evidence of being successful in every setting (Heilbrunn).

Many times this transfer of anti-corruption policy from one country to another is ineffective due to the differing political and judicial conditions and available resources. Only countries with significant FDI contributions, for example, can participate in anti-corruption campaigns which correspond with development assistance restrictions, whereas the independent agencies model requires the existence of a speedy and efficient judicial system in order to complete the prosecution process.

Many countries which created independent agencies to investigate corruption, e.g., Botswana, have seen an increase in incidents of corruption reported to their independent agency (up 24.8% in 2001), however they have no presence in the actual prosecution part of the process and cases forwarded to the judicial branch are minimal or not addressed (Heilbrunn). As we can see, there are many factors to consider when forming anti-corruption policy. Additionally, programs that curb corruption in freer societies tend to have a minimal or even negligible effect when implemented in less free societies or to those without well-established independent judiciaries. This shows us that the cultural and political context into which anti-corruption strategies are implemented is important.

In a continued attempt to find anti-corruption strategies which can be applied with success internationally, this past decade has seen a surge in corruption studies focused on the role of gender in anti-corruption. The main question of interest being, are women the

fairer sex? Applied to policy, can higher levels of women in government significantly reduce the level of corruption in governments across the globe?

This question was seemingly answered in 2001<sup>2</sup> by two separate studies put out by the World Bank and the Center for Institutional Reform and the Informal Sector (IRIS), later to appear in the *Journal of Economic Behavior & Organization* (Dollar, Fisman and Gatti, 2001) and the *Journal of Development Economics* (A. Swamy, S. Knack and Y. Lee) respectively. Each article uses a slightly different approach, yet both conclude that higher levels of women in government show robust signs of being negatively correlated with corruption levels around the world, controlling for GDP and political freedom among other things.

The Dollar, et. al (2001) and Swamy et. al (2001) studies start by pointing to individual level evidence that women are less prone to condone bribes or corruption in behavioral studies. These included a World Values Study as well as a country level analysis of corruption in Georgia.

Using this country specific insight, they expand the analysis to a macro-level model involving cross-sectional country data to test the relationship between women in parliament and corruption at-large. Using data on more than 100 countries for the years 1985, 1990, and 1995, Dollar et al. find that a one standard deviation increase in women in parliament decreases corruption by 20 percent of a standard deviation (Dollar, Fisman and Gatti, 2001). Swamy et. Al, using data on about 93 countries from the years 1982-1997 find that an increase of 25 percent in women's share of parliament decreases the

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<sup>2</sup> Also see (Eckel and Grossman) and (Kaufmann)

corruption index by one point out of a possible 10, 1 being the least corrupt (A. Swamy, S. Knack and Y. Lee).

Following their publication, global anti-corruption policy shifted significantly to include women as part of the solution. In Africa, for example, Ghana made it a point to increase women in varying levels of government. Nigeria saw a female appointed Minister of Finance to be a “fiery corruption-fighting” Minister and Uganda also saw more women in treasury departments with the idea that they would be less corrupt (Alhassan-Alolo). In Latin America, Mexico City made its ticket issuing traffic police force entirely female in order to reduce corruption and Peru also targeted women for its police force. Both countries reportedly experienced a decrease in corruption (Esarey and Chirillo).

Needless to say, it was an exciting time for anti-corruption and development studies. Criticisms of this idea, however, soon followed. Sung (2003), for example, concludes that results which find causation between women in government and low corruption are spurious and that those results are simply a product of the liberally democratic environment which accommodates high percentages of women in parliaments. A 2007 article suggests that when exposed to the opportunity to engage in a corruption network, women will be just as likely as men to engage in them based on a test of an African police force (Alhassan-Alolo). Finally, we see the feminist argument that women have no relationship with incorruptibility. This myth of women’s higher morals is not a new development and the goal of women in government should be pursued based purely on equity (Goetz).

In this paper I will analyze the effect, if any, that the surge in female participation in parliament has had on corruption worldwide. The figures below show us a visual representation of this surge. Figure one shows the relationship between the percentage of women in parliament and the Corruption Perception Index in 2001 when the initial papers were released. As we can see, there is a clear negative relationship between corruption and women in parliament at this point in time, with Scandinavian countries showing the highest percentage of women and lowest corruption. By Figure two, which shows us the state of the relationship in 2006, we can see the progressive increase of women's participation, yet the corruption in those countries persists. Finally, Figure three shows us the most recent 2011 relationship which is also characterized by high percentages of women in corrupt countries; however we can see that some countries such as Rwanda, Seychelles, Cuba and Costa Rica have seen significant reductions in corruption.

Figure 1: Corruption and Women in Parliament 2001

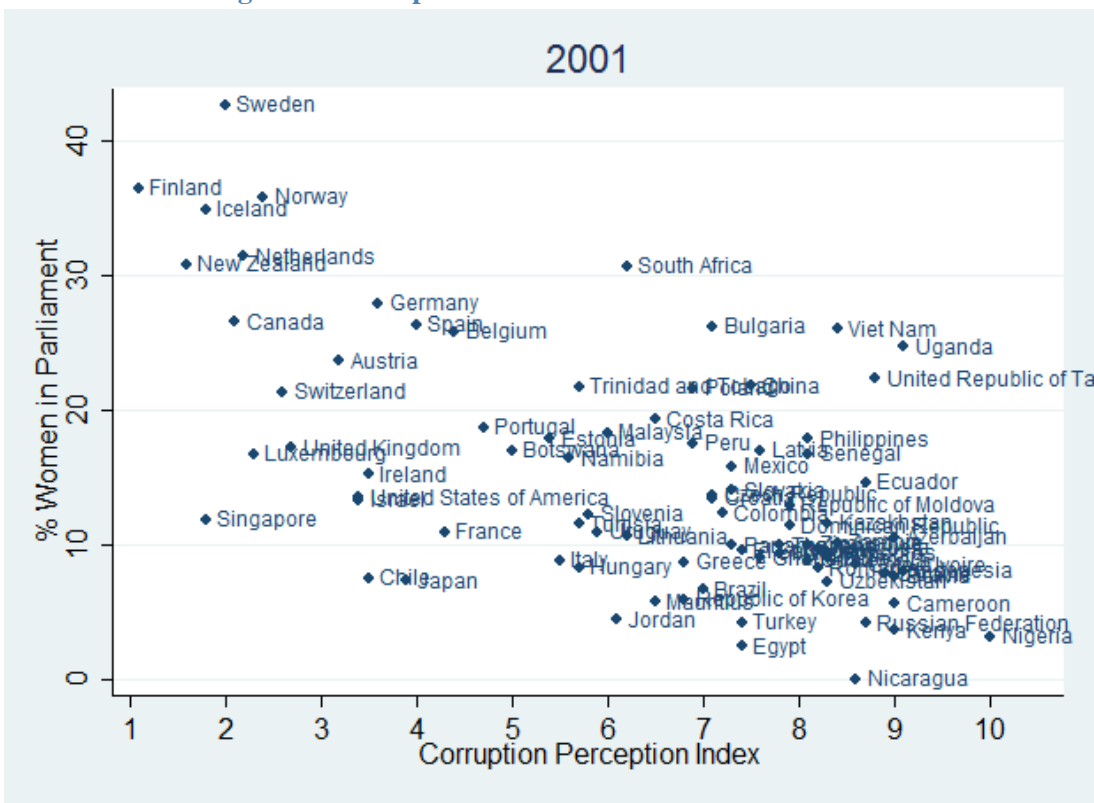


Figure 2: Corruption and Women in Parliament 2006

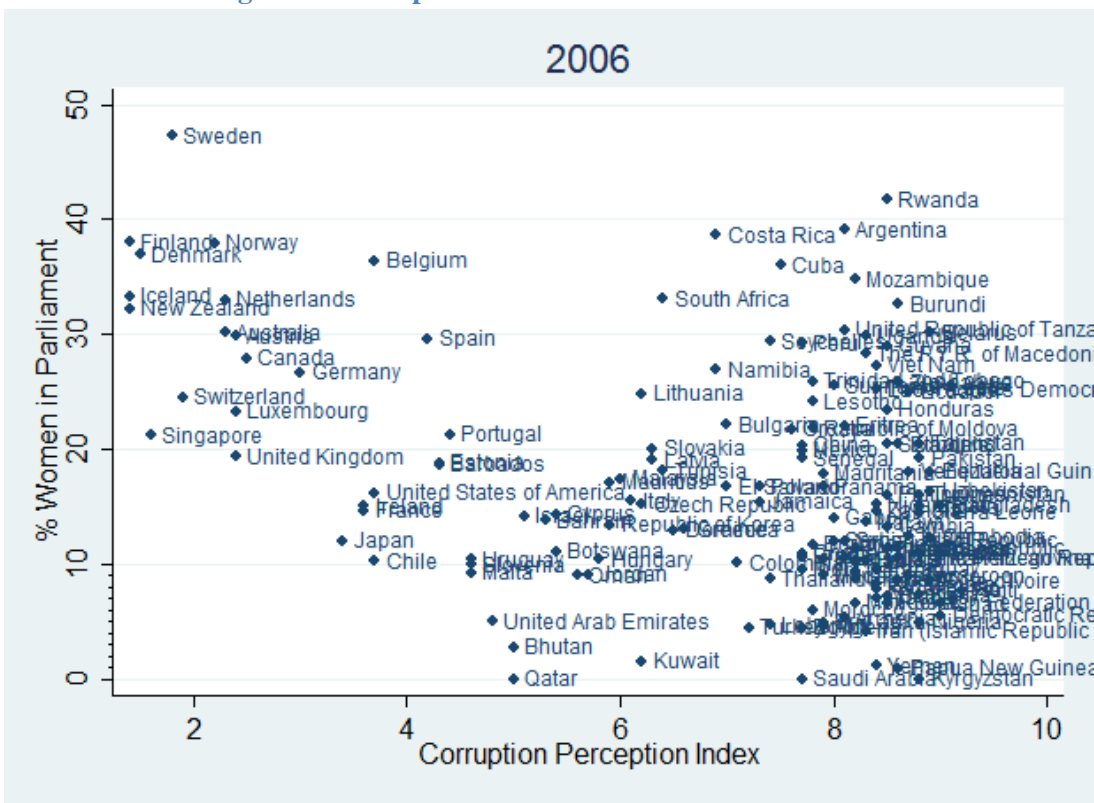
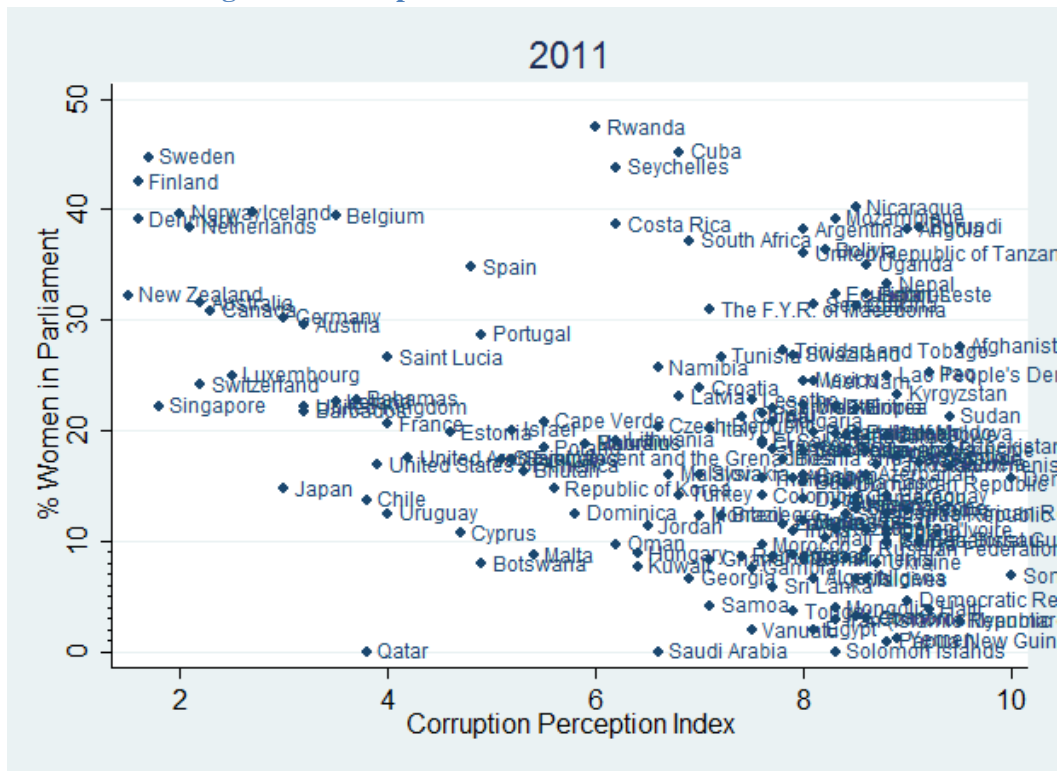


Figure 3: Corruption and Women in Parliament 2011





## Data and Methodology

The research method used in this paper is based on the approach of Swamy et. al and Dollar et al. as well as others who attribute women as a significant part of the solution for corruption. Based on their approach, I gather macroeconomic data from countries around the world over the time period 2001-2011, as this is the time which has passed since their model has been published. In gathering data through 2011, I extend the time period analyzed by Swamy by 14 years and Dollar by 16 years. I also use a larger sample of countries and my data also has a higher variation in the percentage of women in parliament. The summary statistics in Swamy et. al, for example, show a range of percentage from 0 – 39 of women in parliament with a mean of 9.7%, significantly smaller than my sample, as seen in Table 2. Using a corruption index, defined in more detail below, I design an econometric model to test whether the percentage of women in parliament affect corruption levels. In designing the model I also include other factors that have historically been shown to affect corruption. These variables are described in Table 1.

**Table 1: Choice Variables**

Variable Name	Unit	Description	Source
CORRUPT	1 – 10, 1-least corrupt 10-most corrupt	Converted Corruption Perception Index	Transparency International
PARL	Percent	Average percentage of women in parliament per country	Inter-Parliamentary Union
FREE	1-49, 1-most free 49-least free	Composite index of political rights and civil liberties	Freedom House
LNGDP	USD	Log of real 2011 gross domestic product	World Bank
EDUC	Percent	Literacy rate, over 15 years of age can read and write	CIA World Fact book
COL	Dummy Variable	1 if former British colony, 0 if not	The Colonial Office List for 1886
GEOG	Six Dummy Variables: Africa, E. Asia & Pacific, E. Europe & C. Asia, Latin America & Caribbean, Middle East & N. Africa, S. Asia	1 for continental designation, 0 if not, Western states omitted (N. America, W. Europe, Australia)	World Bank Designations

Obviously, the measure of corruption is a critical component. Due to the fact that corruption is generally illegal, there exists no objective calculation that measures the number of corrupt transactions that actually take place in a country at any given time. In order to be able to measure corruption, therefore, indexes exist which attempt to compute corruption as a measure of how much of it is perceived through surveys of citizens and civil servants around the world.

The most widely used indexes include the Corruption Perception Index (CPI) reported yearly by Transparency International, the Control of Corruption Index of the World Bank (WBCC), the Heritage Foundation's Index of Economic Freedom corruption

index (CI), and corruption data in the International Country Risk Guide (ICRG) published by the Political Risk Services (PRS) (Ko and Samajdar). These indexes do their best to provide a method of ranking countries based on their level of perceived corruption, describing fluctuations in corruption from year to year, and shining a light on the prevalence of corruption overall, though the actual level of corruption is always unknown.

These indexes are used by researchers and government leaders alike to assess a country's position and estimate the factors that cause corruption and on which corruption has an effect. We will use the CPI index as the method for measuring corruption (CORRUPT) in the empirical methods presented in this paper as it is the most widely cited and understood index and is a composite index which includes corruption figures reported by organizations such as the World Bank and the African Development Bank among others. It is worth noting that in 2012, two thirds of countries around the world were considered "not clean", or corrupt, by the CPI, showing that the problem is still rampant and worldwide (Corruption Perceptions Index 2012). In this analysis, the CPI is recoded such that higher levels of the CPI represent more corruption. This is done primarily for the intuition that a higher score represents a greater degree of corruption.

In order to see how female government participation is related to corruption, I use data from the Inter-Parliamentary Union's monthly reports on the percentage of women in the lower (or single) house and upper house of government for all countries (Women in National Parliaments). Since the majority of countries function as a single cameral government, the percentages for both the upper and lower houses will be averaged in

order to use a single percentage for each country (PARL). While this measurement tells us the participation of women at the congressional level of government, it unfortunately does not tell us how many women participate in other levels or in local governments, which would also be helpful for our study<sup>3</sup>.

Other factors which have proved to be consistently significant in various studies for predicting the level of corruption is freedom (FREE). I use the indexes of political rights and civil liberties calculated annually by Freedom House's Freedom in the World report as a measure for freedom in terms of freedom to vote, run for office, freedom of expression, of belief and press (Methodology). The score is reported as two separate indexes, one for political rights and one for civil liberties. Due to the high correlation between these indexes, I take their product to get a single number which represents freedom in general. The values of this variable range from 1-49, with 1 being the most free.

The variable chosen to capture economic development is the log of GDP (LNGDP). I gathered each country's nominal GDP in US dollars for each year and converted them to real 2011 US Dollars using the December Consumer Price Index for each year. Taking the log of this gives us our LNGDP variable.

Swamy et al. and Dollar et al. also found years of schooling to be significant and they gathered this data based on the report by (Barro and Lee) which computed average

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<sup>3</sup> See (A. Swamy, S. Knack and Y. Lee 40) on why data on lower-level government positions are not available. They use labor force participation as a proxy, but find the variable is too highly correlated with the women in parliament percentage. As a result, I choose not to include it as a control variable in this study.

years of schooling around the world. This report, however, is nearly twenty years old and no similar study has been compiled since. Because no comparable data is currently available, in its place I use the most recent census data available from each country reporting literacy rates (EDUC), broadly defined<sup>4</sup> as the percentage of the population aged fifteen or older that is able to read and write (Literacy).

Lastly, according to both Dollar et al. and Swamy et al., other factors such as whether or not the country had been a former British colony<sup>5</sup> (COL) and their geographic location are significant for level of corruption. Therefore I include the former British colony dummy variables in our analysis as well as six continental designations taken from the World Bank (GEOG).

Table 2 provides summary statistics for the data. As we can see, corruption tends to be high<sup>6</sup> on average, with a mean of 6.89, while percentage of women in government tends to be lower with a mean of 16.34%. Freedom tends to be prevalent in some aspects across the globe with a mean of 15.26 out of 49, the least free indication. Education, represented as a literacy rate is relatively high worldwide, with a mean of 83%.

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<sup>4</sup> There does not exist a universal standard for defining literacy. Furthermore each state conducts their census at different times therefore this data is static across all years

<sup>5</sup> (Staudt) argues that former colonies tend to have more women participants in government and (Triesman) argues that former British colonies in particular also tend to show less corruption on corruption measurements. (Dollar, Fisman and Gatti, Are Women Really the "Fairer" Sex? Corruption and Women in Government) found that former colonies alone showed no significance, however (A. Swamy, S. Knack and Y. Lee) found a 1% level of significance for former British colonies as it relates to corruption.

<sup>6</sup> The maximum of CORRUPT of 10.6 represents the rating of Bangladesh in 2001 which was a 0.4 in the unconverted score, obviously below the minimum of 1 but was consistent with their methodology due to a small sample of three surveys collected for the year.

Table 2: Summary Statistics  
175 countries over the years 2001-2011

Variable	Obs	Mean	Std. Dev.	Min	Max
STATE	1925	88	50.53	1	175
CORRUPT	1629	6.89	2.16	1.1	10.6
PARL	1850	16.34	10.08	0	47.4
FREE	1915	15.26	14.47	1	49
LNGDP	1886	21.84	2.47	15.31	30.34
EDUC	1870	83.44	18.89	21.8	100

Equation (1) provides the basic regression model to be estimated. Variables are defined in Table 1.  $YEAR_t$  and  $STATE_i$  are dummy variables for years 2001 through 2010 (2011 is the omitted category) and individual countries.

$$CORRUPT_{it} = \beta_0 + \beta_1 PARL_{it} + \beta_2 FREE_{it} + \beta_3 LNGDP_{it} + \beta_4 EDUC_{it} + \beta_5 YEAR_t + \beta_6 STATE_i + \varepsilon \quad (1)$$

## Empirical Results

Table 3 provides results from various specifications. The first column of results includes all socio-economic factors but no controls for colonial history, year, country, or geographic region. The second column of results includes a dummy variable for whether the country is a former British colony, while the third column of results includes year dummies to account for variations in corruption over time. Across these three

specifications, the results are generally robust with a one percent increase in women in parliament associated with a statistically significant reduction in corruption. The reduction, while statistically significant, is slightly inelastic. A ten percent increase in women in parliament would reduce the corruption index by 0.5, or roughly seven percent based on the average value of the corruption index of 6.89.

Other control variables are generally consistent with expectations and previous research. Less politically free countries (higher values of FREE) are more corrupt. Faster growing economies, accounted for by LNGDP, are also less corrupt. Similarly, higher literacy rates are associated with lower levels of corruption. Finally, former British colonies are also less corrupt, except in the regression including country fixed effects, which are likely accounting for colonial status.

The last two columns of results account for geographic and country specific variation. Including continental designations reduced the coefficient on  $PARL_{i,t}$ , but it remains statistically significant. The second to last column includes country fixed effects.<sup>7</sup> In this set of results, the coefficient on PARL switches sign, suggesting a greater proportion of women are associated with an increase in corruption. While the coefficient is small and only barely significant at the 10% level, it does suggest that the percentage of women in government does not necessarily have an effect on corruption. The last column shows Arellano-Bond estimation, which includes lagged values of CORRUPT to account for the persistence of corruption over time, as demonstrated in Figures 2 and 3. The effect of women in parliament, while of the correct sign and statistically significant

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<sup>7</sup> A Hausman test for fixed versus random effects revealed a better fit with fixed effects.

at the 10% level, is economically small (a 10% increase in women in parliament would only decrease corruption by 0.7%). There can be many reasons for this sudden loss in the robustness of the  $PARL_{i,t}$  coefficient since the 2001 studies.

**Table 3: Regression Estimates<sup>8</sup>**

	OLS	OLS	Fixed Effects	Fixed Effects	Fixed Effects	Arellano-Bond
PARL	-.0557 (.004)***	-.0569 (.004)***	-.0573 (.004)***	-.0392 (.003)***	.0049 (.002)*	-.005 (.002)*
FREE	.0564 (.003)***	.0504 (.003)***	.0491 (.003)***	.0441 (.002)***	.0137 (.003)***	-.001 (.004)
LNGDP	-.2217 (.017)***	-.2347 (.017)***	-.2872 (.019)***	-.0745 (.017)***	-.1955 (.058)***	.004 (.005)
EDUC	-.0260 (.002)***	-.0279 (.002)***	-.0256 (.002)***	-.0276 (.002)***	-.004 (.017)	.030 (.006)***
COL		-.7882 (.105)***	-.8296 (.104)***	-.556 (.085)***	3.310 (.331)***	Omitted
YEAR	No	No	Yes	Yes	Yes	No
GEOG	No	No	No	Yes	Yes	No
STATE	No	No	No	No	Yes	No
R <sup>2</sup>	0.4933	0.511	0.5250	0.6992	0.976	A one lag of corruption was also included at .645 (.081)***

<sup>8</sup> Standard errors are in parenthesis, asterisks indicate level of significance: 3, 2 or 1 asterisk signifying a 1%, 5% or 10% level of significance respectively. No asterisks indicate no significance.



As seen in Figures 1-3, the level of women in parliaments overall has increased significantly from the time of the studies in 2001 to 2011. Presumably this increase occurred for a variety of factors besides a dedicated gendered anti-corruption policy, yet the possibility of a reduction in corruption was anticipated by many. As of now, our data show that that has not yet occurred. We may, however, simply be observing a transitional period in which high corruption countries are introducing women into government. The expected move to being a low or medium corruption state may take more time, as we can only observe the last six years of increased levels of women in parliament. We do begin to see this shift, as mentioned, in countries such as Rwanda, Cuba, Seychelles and Costa Rica, suggesting that other countries may eventually follow.

Alternatively, there may be other institutional factors that have not adapted or changed as the percentage of women in parliament has changed, thereby preventing or slowing a reduction in corruption. The importance of the country dummy variables suggests that country-specific factors, such as the cultural and political context reviewed in the Introduction, are an important determinant of corruption. Unfortunately, specific details about those factors are lacking, but further exploration appears warranted given the findings of this this research

## **Conclusions**

The above results generally support the hypothesis that an increase in the percentage of women in parliament is associated with a reduction in corruption, with the caveat that other country specific factors are important. It would be beneficial to test this

relationship again when more time has passed to observe if these countries which have recently seen increases in female members of parliament have moved into the medium to low corruption region, given the current high percentages of women in parliament. Additionally, many improvements can be made to the analysis given the passage of time and more data. Another measure for female participation in government, for example, could be added to the model, one which can account for the women participating in government outside of parliament. In this way, we could test whether or not the introduction of women at lower levels of government can make a difference. Indeed, it is possible that one of the country-specific factors that the fixed effects regression captures could be a representation of women at lower levels of government.

Lastly, the measure for corruption used in this model is problematic because it is based on perception. According to a report by the World Bank, women experience corruption differently than men. Nawaz (2010) describes “currencies” of corruption: bribes in the form of cash or items with a monetary value and sexual favors, the later usually affecting only women, both in exchange for a public service or the avoidance of a public regulation or rule. The perception index may only be picking up bribes consisting of a transfer of wealth and may not necessarily address corruption which manifests itself as sexual extortion explicitly. This type of corruption is widely ignored, yet its presence has an equal effect on a state’s economy and development. In Botswana, for example, 11% of school girls considered leaving school due to sexual harassment and 67% reported they had been sexually harassed by educators (Nawaz). High levels of women in government may be addressing this issue indirectly through the rise of gendered anti-

corruption programs. However, this would be difficult to measure with the current indexes as they do not differentiate between forms of corruption.

While it is no question that the participation of women in government is intrinsically a valuable end, in the short-run their introduction into parliament shows no significant signs of having an impact on the perception level of corruption. In the medium and long-run we may find that they have had an impact if further research is conducted. Women's participation at all levels of civil service, however, may possibly lower the level of "sexual" corruption that tends to disproportionately impact women around the world. Coupled with the idea of equity, these may be reasons enough to continue to push for the inclusion of women in governments around the world.

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