The Electoral System and the Share of Women in Parliament: A Mediation Effect on Political Corruption?

QUANTITATIVE ANALYSIS ON 92 COUNTRIES WORLDWIDE

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Abstract

Both the electoral system and the share of women in parliament are expected to influence the level of political corruption in a country. The electoral system, however, is also expected to influence the share of women in parliament. There could, therefore, be a mediation relationship at play between these concepts, where the electoral system only indirectly influences the level of political corruption through its effect on women in parliament. No previous research has investigated this potential relationship so far, so in this research I examined whether the share of women in parliament is a mediator in the relationship between the electoral system and political corruption. The electoral system is separated in three main elements: the electoral formula, the district magnitude and the ballot structure. None of these elements turn out to have a significant influence on political corruption when controlled for the effects of gender quota, economic development and the level of democracy. A mediation relationship was therefore not found either.

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List of abbreviations and acronyms

PR   = proportional representation
OLS   = ordinary least squares
DPI   = Database of Political Institutions
V-Dem   = Varieties of Democracy
GDP   = gross domestic production
P-P plot   = probability-probability plot
VIF   = Variance Inflation Factor

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1. Introduction

In April 2021, all the deputies and the governor of the Dutch province Limburg resigned because of a large corruption scandal (NOS, 2021). A group of people from the Christian democratic party, including some deputies, had created a network of party members to whom they gave large provincial subsidies (1limburg, 2021). This was not the first time that Limburg was the scene of a corruption scandal, the province in the Netherlands is infamous for its questionable governance culture. Why would this be such a bad thing?

Scandals in the political sphere such as in Limburg are called political corruption, which is "the abuse of public office for private gain" (The World Bank, 2020). Political corruption has a major impact on society. It comes with many heavy political, economic, environmental and social costs (Transparency International, n.d.-c), both directly and indirectly (Batabyal & Chowdhury, 2015). Most importantly, with political corruption, public resources are used for individual gain instead of public goods, which lowers the quality of public goods such as hospitals, schools and roads (Bargsted, Somma, & Castillo, 2017; Uslaner, 2017). The effects hereof are seen in, for example, poor access to public health care, worse quality of health care and higher mortality rates of a diversity of illnesses in countries with a high level of corruption, even when accounting for economic development (Transparency International, 2021a). All of these negative consequences weigh heavier on the poor than on the rich, thus increasing poverty and inequality (Batabyal & Chowdhury, 2015; Uslaner, 2017). Furthermore, corrupt politicians and all that they (do not) do, are very bad for citizens trust in politicians and political institutions. Political corruption therefore has shown to lead to a loss of political trust (Bargsted et al., 2017; Uslaner, 2017; Wang & You, 2016).

Political corruption is thus something to be avoided. It is therefore important that we know what causes it to be either high or low. For example, why is it specifically the province of Limburg that has such high political corruption levels in the Netherlands? Not only within countries, but the level of corruption especially differs a lot between countries. Every country in the world does suffer from political corruption, but not every country does so as much. This indicates that at least for some amount, system-level causes for corruption are at play. It is important to identify which factors this are, to allow countries to be better informed and equipped in the fight against political corruption. When we know what mechanisms influence corruption, we can build our political systems to be less receptive for political corruption.

In the last two decades, researchers have taken on this task and have investigated and found several important systematic forces that determine the amount of political corruption in a country. One of these is the share of women in parliament. A higher share of women in parliament, is expected to lead to a lower level of political corruption. There are two theories about this relationship. First of all, women are doing less corrupt things because they are on average more risk-averse. This means that if there are more women in parliament, there are less corrupt politicians. The risk-averseness of women influences their corrupt behaviour, because corrupt behaviour itself is risky. It always poses a risk for discovery and punishment, which is why they are more eager to avoid corruption. Furthermore, corruption itself is usually riskier for women than for men. Because of sexist ideas in society about women, they are easily judged and held to higher standards. They are therefore punished more strongly than men, which is another reason for them to watch out for acting corrupt. The second reason

that women are argued to lower the political corruption rate is because they are more likely to take on the fight against corruption. If this fight is successful, the corruption level will also go down. They are more likely to take on this fight, because they will, first of all, personally profit from it. Political corruption mostly takes place in male-dominated networks, where power is distributed. When female politicians succeed in the bread-down of these networks, they will themselves get more chances for power. Furthermore, gender experiences in life, through education and interaction, cause women's priorities to be more care-related. Political corruption is the opposite of care, which is why female politicians will actively mobilise against it.

Another element that scholars have found to be a contributing factor to political corruption is electoral system. The three most important elements of the electoral system are the electoral formula, the district magnitude and the ballot structure. All of these elements are expected to influence the level of political corruption in a country. The electoral formula can be seen as the difference between plurality, proportional representation (PR) and mixed systems. Plurality systems are expected to lead to lower levels of political corruption, because it is easier for voters to punish them electorally and they are more strongly monitored by colleague politicians, because they are mostly on opposite sides of the government instead of in coalition governments. If they are monitored better and can be punished more easily, corrupt politicians are more likely to disappear quickly, and politicians are less likely to be corrupt, as they do not want to get caught or punished. The level of corruption will therefore decrease. The district magnitude will also influence the political corruption level with a higher district magnitude leading to less political corruption. A higher district magnitude will lower the electoral threshold and give more room to honest competitors as opposed to corrupt ones. That will make it easier for voters to vote for an honest politician instead of a corrupt one. In ballot structure, we can distinguish an open and closed list system. In open list systems, voters have more freedom to choose an individual candidate as opposed to only a political party. They will therefore also have more freedom to choose an honest candidate from an ideologically close political party. This will cause them to choose less corrupt politicians into parliament. The electoral system influences the level of political corruption thus in different ways.

However, the electoral system also influences the share of women in parliament. A proportional system with a high district magnitude and a closed ballot structure is all expected to positively influence the share of women in parliament. This raises the question whether the share of women in parliament is the reason that the electoral system influences political corruption. The elements of the electoral system could, after all, first influence the share of women in parliament, which then influences the level of political corruption, without there being a direct relationship between the electoral system and the level of political corruption.

Nonetheless, to my knowledge, no research before has done on this relationship. Most researchers investigating the political corruption only take either the electoral system of the share of women in parliament into account. In this thesis, I therefore aim to contribute to the literature by analysing whether the electoral system affects political corruption directly, or indirectly through its influence on the share of women in parliament. Does the electoral system still wield a significant influence on political corruption in a country when research takes into account the effect of the share of women in parliament? To untangle these two

factors affecting political corruption, I will investigate and answer the following research question in this study:

To what extent is the influence of the electoral system on political corruption mediated by the share of women in parliament?

To answer this question, I will use data from three datasets, the Varieties of Democracy, Database of Political Institutions and World Bank dataset from 2017 and analyse this data using multiple regression analysis and OLS. I use data from 92 democratic countries from over the whole world with a wide diversity on the concepts of electoral formula, district magnitude, ballot structure and women in parliament.

In the next chapter, I will provide a more in-dept analysis on the theories around the influence of the electoral system and share of women in parliament on political corruption. I will compose several hypotheses that will help me answer the research question. In the third chapter, I will closely illustrate the research methods that will be used and the operationalisation of the variables. In the fourth chapter, the regression analysis is applied. Multiple models are estimated and the hypotheses are accepted or rejected based on the outcomes. To finish the thesis in the fifth chapter, the research question will be answered and a conclusion on the research is drawn. Furthermore, the shortcomings of this research and potential future research potentials are discusses.

2. Theoretical framework

In this chapter, I will further deepen the theoretical background and support for the research question. I will conceptualize and define the main concepts of this research and outline earlier research that was done on political corruption, the share of women in parliament, electoral systems and the relations between them. The focus will be specifically on how these variables relate and what the causal and theoretical mechanisms are. Based on this theoretical research, I will formulate the hypotheses used in this paper. Lastly, I will briefly highlight some alternative explanations for political corruption, that will be used in the analyses as control variables.

2.1 Political corruption

The most basic and common definition of corruption is that it is "the abuse of entrusted power for private gain" (Transparency International, n.d.-c). This definition is very comprehensive and can include many forms of corruption by different kinds of actors (e.g., corporations, civil servants or politicians) and in different spaces (e.g., courts, media or government). Because the electoral system and the share of women in parliament are both situated in the political realm, theoretically it makes the most sense to investigate their influence on political corruption specifically, as opposed to corruption in general. The general definition as formulated before by Transparency International will be used as a starting point to come to a more specific definition of political corruption.

Political, or grand, corruption is distinguished from other forms of corruption, specifically bureaucratic or petty corruption, based on the actors that abuse their entrusted power for private gain (Amundsen, 1999). Bureaucratic corruption takes place at the implementation side of state affairs, in public administration, and is usually characterised by relatively small-scale transactions (Bauhr, Charron, & Wangnerud, 2019). It is the kind of corruption that directly affects citizen's day to day life, when interacting with officials from hospitals, schools or the police (Transparency International, n.d.-a). Political corruption, in contrast, involves the political decisionmakers of a polity (Amundsen, 1999; Transparency International, n.d.-b), consisting of elected parliamentarians and other political officials (Alfano, Baraldi, & Papagni, 2016; Chang & Golden, 2006). The definition of political corruption can thus be set to "the abuse of public office for private gain" (The World Bank, 2020). This type of corruption takes place at the highest level of the state and is also called grand corruption, as it not only leads to misallocation of resources, but more fundamentally affects the way that decisions are made (Amundsen, 1999). This makes it much more difficult to counteract political than bureaucratic corruption. Bureaucratic corruption can be fought by implementing laws and rules, but political corruption means that the process of implementing laws and rules is already distorted. It therefore needs much more fundamental and radical political reforms to counter it.

Corruption, and political corruption, can exist in many forms. As far as it is made explicit in research articles on political corruption, authors include at least, but not exclusively, bribery, embezzlement, clientelism, extortion, nepotism and theft (see: Esarey & Schwindt-Bayer, 2018; Zimelis, 2020). Political corruption is thus primarily focused on financial and material gain (Alfano et al., 2016; Kunicová & Rose-Ackerman, 2005).

Most people agree that high levels of political corruption are generally bad for the country, as I have highlighted in the introduction. Both countries with high and low levels of corruption

have therefore introduced measures and mechanisms to prevent or counteract political corruption. The most basic way to counter corruption is of course to have good functioning judicial and prosecutorial systems (Amundsen, 1999; Britto & Fiorin, 2020). These institutions can function both to deter people from acting corrupt or to nip political corruption in the bud by eliminating the bad apples between politicians in an early stage. Furthermore, transparency and openness in the decision-making process are important in the battle against corruption, because it makes it more difficult for corrupt people to hide the corruption (Amundsen, 1999; Transparency International, 2021b). Another often occurring method is to implement a so-called anti-corruption agency (ACA). This is an institution specifically established for combatting corruption, for example by investigating corruption cases, providing information and policy assistance (Meagher, 2004). This can work very well against corruption, as the in 1974 founded Independent Commission Against Corruption, the ACA in Hong Kong, shows. This anti-corruption agency has successfully and structurally brought down the high corruption levels of the time, by focusing on law enforcement, prevention and education (Independent Commission Against Corruption, 2019). Its success can be explained by the integrated approach within a political, economic and social environment (Scott, 2017).

While these anti-corruption policies are very relevant and important for combatting corruption, they are generally more focused on bureaucratic corruption than political corruption. As mentioned before, political corruption is a much more fundamental problem of the political system. The centre of interest in this thesis will therefore be on two important structural factors that are argued to influence political corruption, namely the share of women in parliament and the electoral system. In the battle against corruption, it is relevant to know every possible cause and the mechanics that lie behind their influence on political corruption. Structural elements as these can explain some otherwise unexplainable differences in political corruption between countries, or maybe even the difference in success of anti-corruption policies. However, even though political corruption can be a structural problem and I will be focusing on structural factors that can influence political corruption, it is important to remember that corruption is always caused by individuals that act corrupt.

The theoretical framework will focus on these corrupt individuals, but also on the other side, on the people that monitor and sanction politicians. To do this I will use the distinction of Piattoni and Giglioli (2020, p. 81) between a demand and supply side of political corruption. However, because these terms are not intuitively when talking about political corruption, I will replace them for the input and output side. The input (supply) side is about the corrupt politicians themselves: what are their incentives and opportunities to act corrupt or not. The output (demand) side is what happens when they have been corrupt: who will monitor and sanction them (Kunicová & Rose-Ackerman, 2005). Piattoni and Giglioli (2020, p. 81) only use this framework for theories about the influence of electoral systems on corruption, but theories about the share of women in parliament can also be analysed along the lines of input and output of political corruption. For purposes of uniformity, I will therefore put all the discussed theories along the lines of this framework. This will make the theories and the empirical results more easily comparable.

On the output side, there are different people who can monitor and punish politicians for corruption. Most importantly, there are voters and colleague politicians. Politicians can have different motives for doing so, which will be more extensively discussed in the rest of the

chapter. For voters, however, one reason for punishing corrupt politicians is central. The relationship between voter and politician is a principal-agent relationship, in which the voter as principal entrusts the politician as agent with the responsibility to act on their behalf for spending public money wisely (Kunicová & Rose-Ackerman, 2005). When a politician acts corrupt, they break this trust by spending the public money for private gain. This is almost by definition bad for the public, because it means that public money goes into the pockets of private entities without having served any public function. The voters are therefore likely to punish the politician at the polls whenever corruption scandals become public, because they do not trust their public money anymore with this specific person. Honest politicians are much more likely to properly represent voter's interests and spend public money effectively.

Both of these elements simultaneously influence the corruption rate, whereby in practice it will sometimes be difficult to distinguish between the input and output side. When the monitoring and punishing abilities of voters or opposition parliamentarians increase, this can both directly and indirectly affect corruption levels. Directly, corrupt politicians are more easily caught, which will lower the amount of them. Meanwhile, knowing that they are monitored and can be easily punished, can also have a deterrent effect on individual politicians, causing them to behave less corrupt, which is more on the output side of the spectrum. While in practice this distinction might not always be very clear, theoretically it is. For analytical purposes, I will therefore hold onto the distinction between output and input, focusing on the initial mechanisms that are at play. In the rest of the chapter, I will thus fit the theories about the influence of the share of women in parliament and the electoral system on political corruption in the framework of input and output.

2.2 Women in parliament
Although women make up for half of the world's population, in most parliaments worldwide, they are not represented by the same numbers. Only a few parliaments in the world consist of even close to fifty percent women and the global average share of women in parliament is twenty-five percent (UN News, 2021). Much research indicates that the share of women in parliament is a good predictor of the amount of political corruption in a country. Analyses show that the higher the share of women in parliament, the less political corruption there is (Bauhr et al., 2019; Dollar, Fisman, & Gatti, 2001; Dong & Torgler, 2013; Jetter & Parmeter, 2018; Swamy, Knack, Lee, & Azfar, 2001). Women are therefore thought to have a positive impact on political corruption in a country. In Mexico, male police officers are even replaced in bulk by female ones with the explicit goal of reducing corruption (K. Watson & Close, 2016). In this chapter I will dive into the literature to explain why women could have this effect and how this would work in the political arena. There are several different explanations that can be categorised according to the input and output framework. On the input side, the theories are about why female politicians are less likely to act corrupt than their male counterparts. On the output side, theories focus on how female politicians are more likely to initiate and support anti-corruption policies.

Input
On the input side, researchers focus on the incentives and opportunities of female politicians to (not) act corrupt. The overarching argument is that women are less corrupt or less likely to act corrupt than men and that this is the same for female politicians as opposed to their male counterparts. If this is true, that means that when the share of women in parliament increases,

the share of less corrupt politicians increases too, causing the level of political corruption in a country to decrease.

One of the first theories for explaining the effect of the share of women in parliament on political corruption, was that women are more ethical than men, which would make them less likely to display corrupt behaviour (Grove, Hussey, & Jetter, 2011). For example, Dollar et al. (2001) argue that women might be less individually oriented or more concerned with the common good than men, which explains why others found that women more often think that corruption is never justified (Swamy et al., 2001; Torgler & Valev, 2010). This theory has harvested some criticism though, by people who argue that it is too essentialist and paints women as the saints of society. This line of thought is both problematic and highly unlikely. Such fundamental differences between men and women, and women being in and of themselves less corrupt, are not likely to truly exist (Goetz, 2007; Sung, 2003).

For this reason, researchers have argued that it may not be women's essence, but the opportunities that they get to act corrupt that differentiate from men (Goetz, 2007). They are for example less likely to be asked for a bribe (Mocan, 2008). This also applies to women in politics, who are often marginalised and excluded from powerful groups and networks, from which political corruption generally emerges (Barnes & Beaulieu, 2019; Swamy et al., 2001). However, when Torgler and Valev (2010) controlled for corruption opportunities, they still found that women are significantly more likely to disapprove of corruption.

Another theory about the effect of women on political corruption, is that women are not per se more ethical, or have less opportunities, but are more risk-averse than men (Swamy et al., 2001; J. Watson & McNaughton, 2007). Considering corruption brings the risk of discovery and punishment with it, this would mean that women are less likely to be corrupt than men (Esarey & Schwindt-Bayer, 2018).

Output

This is strongly linked with the output side of political corruption, where the two mechanisms enforce one another. Women are not only more risk-averse than men, being corrupt is also in practice riskier for them because of prevalent sexism in society. Voters hold women to a higher standard at the polls, in part because of the essentialist ideas about honest and ethical women that I highlighted before. For this reason, voters electorally punish women stronger for corrupt behaviour than they do with their male colleagues (Esarey & Chirillo, 2013; Esarey & Schwindt-Bayer, 2018). This makes the consideration for women to (not) act corrupt different than for men, an effect that is enforced by women being more risk-averse as well. The equation for women whether corruption is profitable will therefore often fall to a different side than for men, resulting in less corrupt behaviour for women.

Other theories on the output side focus not on why women themselves are less corrupt, but why they fight stronger than men against corruption (Bauhr et al., 2019). More women in parliament in this case means more people taking on this fight, resulting in less political corruption as practiced by other political officials. There are two theories why women would do this. Firstly, Bauhr et al. (2019) argue that women in parliament have personal advantage by lower levels of political corruption and therefore more actively advocate against it. Research shows that grand corruption is often carried out by elite networks dominated by

men (Goetz, 2007; Stockemer, 2011; Sundström & Wängnerud, 2014). These networks can be beneficial for the careers of (male) politicians, because it enlarges their network and the men in these networks support each other. However, women are often excluded from these networks, which puts them and their careers at disadvantage. Female politicians have therefore strong personal incentives to mobilise against grand corruption, as breaking up these male-dominated networks creates more space and possibilities for them to grow in the political arena.

Secondly, another theory about the output side is from Stensöta, Wängnerud, and Svensson (2015), who claim that gender differences in education and experience create different priorities. They argue that these differences emerge from experiences of reproduction and care responsibilities, which is more prevalent among women in most modern-day societies. These experiences are related with care and not-hurting, which is the opposite of corruption. The electoral arena is a place which enforces these asymmetrical experiences. Candidates choose a political agenda and policy issues that are important for them. These choices are likely based, at least in part, on their experiences, which are, as said, gendered. It could also be a way of attracting voters. To be elected, one has to stand out in something, and being a woman and taking a 'feminine' standpoint could function as a way to stand out and attract voters. Any initial gender differences will thus amplify in the electoral arena. This will have a positive outcome for corruption, because these mechanisms increase the chance that women choose an anti-corruption standpoint and advocate with that as opposed to men. More women in parliament could therefore mean that there are more people fighting corruption, with less political corruption as a consequence.

These mechanisms on the input and output side can work together to create circumstances in which more women in parliament leads to less political corruption. Being more risk-averse than men, and more likely to be punished by voters when the corruption comes to light, makes women less likely to act corrupt than men. At the same time, female politicians are more likely to take on the fight against corruption, which is also likely to bring the level of corruption down. Considering these theoretical mechanisms about the influence of the share of women in parliament on political corruption, the first hypothesis that I will test is:

Hypothesis 1: The higher the share of women in parliament, the lower the political corruption in a country.

2.3 Electoral systems

The electoral system consists of institutional arrangements and constitutional rules that shape how political institutions look like. More specifically, it consists of a set of rules that define how elections take place and how votes are translated into parliamentary seats. Political actors such as politicians and voters act within these systems and the way a system looks and works therefore shapes their political behaviour. For example, researchers already found that the electoral system influences political trust (Van der Meer, 2017), voter turnout (Karp & Banducci, 2008), policy design (Ponce Rodríguez & Rodríguez Hernández, 2020), but also political corruption.

There are some general choices on broad mechanisms that countries can or even have to make concerning electoral systems, of which I will discuss the most important ones in this

chapter. Nevertheless, in the end, there are so many small choices and additions that countries can make to design an electoral system, that each one turns out to be unique. Despite electoral systems all being different in the details, scholars have found several ways to conceptualise them and as such to generalise their results. In this literature review I will focus first of all on the most important elements of electoral systems for political corruption research, which are electoral formula, district magnitude and ballot structure (Blais, 1988). There are many more elements that shape electoral systems, like electoral thresholds and assembly size, but those are less likely to influence political corruption, and thus not my focus here (Norris, 1997).

Important to note is that, in this thesis, I will focus solely on democracies and within those systems on national legislatures (in case of bicameral systems on the lower house) and the elections for that legislatures. All theories on electoral systems assume a free and fair system of choosing representatives. Non-democratic elements such as one-party systems, a non-free press, or straight up election fraud, distort the electoral process. Electoral systems work therefore differently in democracies than in non-democracies, and the theories about electoral systems in democracies are thus not directly applicable to non-democracies. The choice to focus solely on national lower house elections makes more countries comparable. Not all democracies have a senate, a president or other electoral bodies, but they all have a national legislature, of which the lower house is in bicameral systems the most important one.

2.3.1 Electoral formula

First of all, I will discuss the electoral formula as part of the electoral system. The electoral formula determines how votes are translated into seats (Norris, 1997; Teorell & Lindstedt, 2010). The most basic categorisation of electoral formulas is that between proportional representation (PR) and plurality/majority (Blais, 1988; Teorell & Lindstedt, 2010). In proportional representation, the seats in parliament are divided proportionally according to the share of votes, generally by using party lists (Lijphart, 2012, p. 134). Plurality and majority rule systems, instead, are based on a winner-takes-all principle (Lijphart, 2012, p. 130). In plurality rule, all the seats in a district go to the candidate or political party who receives more votes than any of their opponents (Norris, 1997; Persson, Tabellini, & Trebbi, 2003). In majority rule, the candidate must have not only a plurality, but a majority too in order to win, which is at least 50% + 1 vote. The outcomes and mechanisms of plurality and majority systems are so alike, that they are often taken together as one category, both theoretically and analytically, which is what I will do too in this thesis. I will use the term plurality systems from now on to refer to both plurality and majority systems together.

Sometimes these two different methods are combined, for example in the mixed member proportional system in Germany and New-Zealand, where part of the parliament is chosen by plurality rule and the other part by proportional representation (Blais & Massicotte, 1997; Lijphart, 2012, p. 135). In these countries, all voters receive two votes: one where they can vote in a single-member district for a district candidate, and one where they can vote from a party list (The ACE Electoral Knowledge Network, n.d.). Furthermore, there are other electoral formulas that do not directly fit into these categories, but countries with these systems are very rare and sometimes even one of a kind, which makes them less relevant and interesting to discuss here. In the method section of this thesis, I will elaborate further on case selection and the classification into categories.

2.3.2 District magnitude

On the topic of electoral districts, several elements can be distinguished, such as the number, hierarchy and magnitude of districts (Teorell & Lindstedt, 2010). Most important for political corruption research are the number and magnitude of districts, together creating the average district magnitude in a country. The district magnitude refers to the number of electable seats within a district (Krennerich, 2009; Lucardi & Micozzi, 2020). With the district magnitude being determined per district, it can differ throughout a country. As the focus in this research is in comparing countries instead of districts, I am interested in the average district magnitude, which relates the district magnitude to the number of districts in a country. If a country has only a few districts with a lot of seats per district, the average district magnitude will be relatively high, whereas a country with a lot of districts and only a few seats per district will have a relatively low average district magnitude. As the number of districts and district magnitude differs per country, there are many different variations possible in average district magnitude.

The different variations concerning the combination of electoral formula and district magnitude are, however, not so rich. Some combinations occur more often together than others, some combinations necessarily belong together and others are not compatible at all. First of all, single-member districts, which have a district magnitude of one, are necessarily only used by plurality rule instead of PR. With only one seat available there is no possibility to proportionally divide seats over different candidates or political parties, as the seat will always go to the candidate or political party with the most votes (Blais & Massicotte, 1997; Lijphart, 2012, p. 137). At the same time, multi-member districts are possible within both PR and plurality systems, but they are extremely rare within the latter. Multi-member districts also have different effects in plurality systems and PR systems. For example, in PR systems, larger districts create more proportional election results, while in plurality systems, they create more disproportional results. In the theory on the influence of the district magnitude on political corruption, all plurality systems can and will therefore be taken together and analysed as though they consist of single-member districts, because the way they influence corruption will be the same as well. In the operationalisation of the variables in the third chapter I will further discuss this matter.

The combinations of electoral formula and district magnitude also influences the party system. In plurality systems, only large parties can win plurality elections. This leaves only a small number of parties, which is why two-party systems are likely to occur in plurality systems (Lijphart, 2012, p. 153). In two-party systems, the country is often governed by a one-party government, with the political parties alternating in government and seldomly governing together. In PR systems, otherwise, especially with a high district magnitude, multi-party systems and coalition governments are more frequent. These systems leave a lot of room for new parties to enter and thus for more parties to become part of the political arena. When there are more parties seating in parliament, the parties are becoming smaller, creating the need for coalition governments. The different elements of electoral systems thus form not only the electoral system itself, but also other structural elements in the political arena.

2.3.3 Ballot structure

The ballot structure is the manner in which citizens cast their votes (Gingerich, 2009). There are several ways in which the ballot structure differs between countries, for example in how many votes citizens can cast at once, whether multiple votes have the same value or there is a hierarchy and how many rounds of voting there are (Teorell & Lindstedt, 2010). The most important way in which ballot structure is distinguished in corruption research, however, is whether citizens vote for either party lists (closed lists) or individual (party) candidates (open lists). In plurality systems, only individual candidatures are possible, so the ballot structure only becomes interesting in PR systems using party lists (Krennerich, 2009). When talking about ballot structure, I will therefore disregard plurality systems for now and only focus on PR systems.

With closed lists, citizens can only vote for the exact list that political parties have composed, including the order of the candidates (Krennerich, 2009). After the election, the people receiving a seat in parliament are the ones first on the ballot, in the exact order that the political party decided beforehand, up to the number of seats that the political party won in total. In a system with open lists, the lists are also created by political parties, but citizens have the power to indicate a preference for candidates and rank them. That means that the most important thing that decides which candidates will be seated in parliament is how many people voted for them, instead of how much the political party wanted them to gain a seat (Gingerich, 2009). The most important difference between open and closed lists is to whom they attribute the power to choose which legislators are chosen. With open lists, it is the voters that hold this power and with closed lists, it is the party leaders.

Aside from closed and open lists, there is also a mixture of both, called flexible lists. The ballots in these systems are created similarly as closed lists, but in the voting process, citizens do have the opportunity to indicate some preference in candidates. This preference is not leading for the candidates gaining seats, but supplementary, hence the mixture between open and closed lists. In this thesis, however, I will only focus on the binary distinction between open and closed list systems.

2.4 Electoral systems and corruption

The framework of distinguishing between the input and output side of political corruption is very helpful in analysing the relation between the electoral system and political corruption. On the input side, there is the question which elements of the electoral system give politicians the opportunities and incentives to be corrupt. On the output side, it is about the incentives and ability of voters and competing candidates to monitor and sanction corruption (Kunicová & Rose-Ackerman, 2005). It is thus about the influence that the electoral system has on the behaviour of individuals. For example, some systems could provoke politicians to act more or less corrupt (input), or they could give voters more power to vote out corrupt politicians than other systems (output).

Important for this framework and a couple of theories explaining the output side of political corruption, is why voters vote for certain politicians. As mentioned before, voters are likely to vote out corrupt politicians, because they do not satisfy their wishes. Integrity is, however, not the only thing that matters for voters in their choice for politicians. Ideology is even more important (Rudolph & Daubler, 2016), which means that voters want to vote for an honest,

and thus not corrupt, candidate, but only if this candidate matches their ideology as well. Ideology is generally determined by the political party that the candidate is a member of (Myerson, 1993).

2.4.1 Electoral formula and corruption

Most theories on the influence of the electoral formula on political corruption take place on the output side and theorize about the ability of voters to punish corrupt politicians electorally and the motivations of politicians to monitor and reveal their corrupt colleagues. These theories argue that plurality systems better equip voters and politicians to do so because of the party system and higher levels of accountability. These systems are therefore argued to have a positive influence on corruption levels, as opposed to PR systems.

To best contrast the two types of electoral formula for the sake of the argument, I will follow Persson et al. (2003) and make a binary distinction between single-member plurality systems and PR systems with high district magnitude. Mixed systems and PR systems with a low district magnitude will fall in-between when it comes to their effect on political corruption.

One central difference between plurality and PR is how accountability works. Accountability is about how much an incumbent can be held accountable for their actions by the voters. This is much higher in plurality than in PR systems because plurality systems are more sensitive to changes in votes. In plurality systems, small changes in votes can result in large changes in outcomes in terms of seats, whereas in PR systems, changes in votes will generally result in approximately a similar change in seats – it will be proportional. If, for example, in a single member district with only two running parties, a politician in a first election receives 51% and in the next election 49%, the amount or share of people voting for them did not change much. The result, however, does change drastically, as the politician immediately loses their seat in legislature. This means that it is a lot easier for the electorate to punish corrupt politicians in plurality systems than in PR, which is why plurality systems are likely to have a positive effect on the level of political corruption (Alfano et al., 2016; Persson et al., 2003).

Aside from how voters punish corrupt politicians, the electoral formula also influences how politicians monitor and reveal other politicians. This is mainly a consequence of the number of political parties that the formulas create, which is a small number in plurality systems and a large number in PR systems. This theory focuses on the amount of cooperation that takes place between political parties. In a two-party system, generally one political party is in government and the other one in the opposition, they seldomly govern together. This makes it easy to critically monitor and call out each other on corrupt behaviour. As the political parties are always on opposite sides, they do not have to worry about keeping good relations for later cooperation. In these systems, politicians are thus both motivated and capable of critically monitoring and calling out other politicians on corrupt behaviour (Kunicová & Rose-Ackerman, 2005). This is a problem in PR systems, that often house several political parties in the legislature and make use of coalition governments. In such a system, as a politician, you never know with whom you might be working with next. Politicians might therefore refrain themselves from coming on too strong in criticism on the other political parties, like (suspicion of) corruption (Kunicová & Rose-Ackerman, 2005). Politicians in these systems are therefore less motivated of monitoring and punishing corrupt politicians from other political parties.

Both of these mechanisms make that plurality systems are argued to better equip voters and politicians to monitor, punish and reveal political corruption than PR systems. Mixed systems and PR systems with a low district magnitude harbour some of the advantages of plurality systems and less of the disadvantages of the PR systems with high district magnitude. These systems are therefore hypothesised to have less political corruption than in plurality systems, but more than in PR high district magnitude systems. The first hypotheses based on the electoral system, will therefore be:

Hypothesis 2: If a country uses a plurality formula, the political corruption will be lower than with a mixed formula or a PR formula with low district magnitude, in which it will be lower than with a PR formula with high district magnitude.

2.4.2 District magnitude and corruption

Although the district magnitude plays an important part in the theory of the electoral formula on political corruption, the main focus was on the latter. Hereafter I will highlight a theory that pay a more particular attention to the district magnitude itself.

This theory is placed on the output side, and is about the extent to which voters can choose for honest candidates as opposed to dishonest candidates. Generally, researchers argue that a low district magnitude will cause a higher level of corruption than a high district magnitude (Alfano et al., 2016; Persson et al., 2003). A low district magnitude, according to them, raises the entry threshold, which is the barrier for new – and honest – competitors to enter the electoral arena. It creates a small number of parties with less ideological differentiation at the polls, creating less opportunities for voters for electoral retribution. This is also related to the theory that voters prioritise ideology above integrity, as discussed previously. A high district magnitude, on the other hand, ensures a low entry threshold, will make it easier for new and honest competitors to challenge the corrupt ones. It creates more opportunities for new political parties, causing stiffer competition between political parties and candidates, which makes it more important for politicians to keep their integrity and not act corrupt (Alfano et al., 2016). Electoral systems with a high district magnitude thus create space for honest candidates on all ideological positions, as opposed to systems with low district magnitude. This will increase the possibility of voters for electoral retribution, and therefore lower the political corruption in a country. I have therefore come to the following hypothesis:

Hypothesis 3: The higher the average district magnitude in a country, the lower the political corruption in a country.

The effects in hypothesis 2 and 3 are opposite: a high district magnitude in hypothesis 2 will mean more political corruption, whereas in hypothesis 3 it will mean less political corruption. This works similarly (but reversed) for low district magnitude. Both of the hypotheses could in theory be true simultaneously. If both effects are equally strong, it could look like there is no effect, because they cancel each other out. If one of the two effects, however, is stronger than the other, this will be the only observable effect. In the analysis I will therefore measure which one of the effects is the strongest instead of which one is true, because the other can also be true but just weaker and thus less visible.

2.4.3 Ballot structure and corruption

Although there are more aspects that define the ballot structure, the difference between open and closed lists is most relevant in determining political corruption, so that will be my focus. The ballots of plurality systems, unfortunately, can not be put into one of these categories, as plurality systems do not know party lists as such. However, the characteristics that are connected with open and closed lists can also be seen in plurality systems. The theory that is used for the influence of ballot structure on political corruption, can therefore be applied onto plurality systems. As I will argue, the characteristics are most closely related to a closed list system, which I will discuss hereafter in more depth.

This theory is placed on the output side and argues that closed lists create more political corruption than open lists. In closed list systems, voters can not differentiate between candidates and political parties (and thus between integrity and ideology), they only allow the voter to vote for a political party. This withholds voters in these systems from the power to discipline or reward specific politicians (Persson et al., 2003). If a politician is corrupt or if voters perceive them as being corrupt, they are therefore not in a position to vote them out if the party leaders put them on a high place on the ballot. This means that it does not really matter whether you are corrupt as a politician, because people will still vote for you for ideological reasons. In plurality systems the same effect is at work, because there, too, you can not differentiate between the candidate and the political party, as there is only one candidate for the party (Rudolph & Daubler, 2016). This lack of differentiation between person and political party makes it more difficult for voters to exercise electoral retribution without hurting their own (ideological) interests. The other side of the story is about open list systems. In these systems, voters have a choice for individual candidates within their choice for a political party. This means that they can prioritise both ideology and integrity, making electoral retribution of corrupt politicians easier. This is likely to result in a lower rate of political corruption as opposed to closed list and plurality systems, which is how I come at the hypothesis on the influence of the ballot structure of a country on their political corruption rate.

Hypothesis 4: If a country has an open list structure, the political corruption will be lower than with a closed list structure or plurality system

2.5 Electoral systems and women in parliament

Aside from theories on the influence of the electoral system on political corruption, it has also been shown extensively that the electoral system influences the share of women in parliament. As the share of women in parliament is also argued to influence political corruption, it could therefore be that the electoral system only seems to influence political corruption, but that this effect is mediated by the share of women in parliament. That would mean that the electoral system does not, or only partly affects political corruption directly. The effect of the electoral system on political corruption that researchers find is then caused by the effect of the electoral system on the share of women in parliament and the effect of the share of women in parliament on political corruption. Nonetheless, to the best of my knowledge, none of the research on political corruption has seriously taken into account both the electoral system and the share of women in parliament, and nobody has yet investigated the possibility that there is a mediation effect at work in this relationship. I think it is important to perform this research, either to rule out the possibility, or to give direction for further research. For

that reason, I will not only test the influence of the electoral system and the share of women in parliament on political corruption, but also that of the electoral system on the share of women in parliament. In this section I will elaborate more on the relation between the electoral system and women in parliament, which poses the theoretical foundations for my suspicion of a mediation effect.

First of all, it is important to acknowledge that most people still, whether conscious or unconscious, generally have sexist ideas about women in politics. This is the idea that women are less suitable for being a politician than men, which is prevalent in our society and internalised by many people (Matland, 1998; Siaroff, 2000). This is the case for party leaders who, for example, create the party lists with or without women, but also for voters, which can translate itself into a voter bias (Batista Pereira, 2020). Different electoral systems facilitate the implementation of this sexism in different ways.

Looking at the evidence surrounding the electoral formula, PR systems are largely claimed to favour women's representation as opposed to plurality systems (Bird, 2003; Hughes, 2016; Maskarinec, 2018; Matland, 1998; McAllister & Studlar, 2002; Nkala & Ogunnubi, 2015; Siaroff, 2000; Stockemer, 2007; Tremblay, 2007). Even in mixed electoral systems, the highest share of women in parliament comes from the PR elections instead of the plurality elections (McAllister & Studlar, 2002). This is again necessarily related to the district magnitude of the systems, because they largely overlap. A higher district magnitude is for the same reasons expected to lead to a higher share of women in parliament (Krennerich, 2009; Lucardi & Micozzi, 2020; Nkala & Ogunnubi, 2015; Stockemer, 2007; Tremblay, 2007). I will therefore discuss the two together by opposing single-member plurality systems with PR systems with large district magnitude.

The reason why PR systems with a large district magnitude tend to elect more women in parliament, is mainly because of political parties and the creation of the ballot. In single-member plurality systems, a party chooses only one candidate to appear on the ballot. Women therefore always have to compete against men dominating the party, a zero-sum game that they often lose because of sexist ideas about female politicians. In PR systems with a large district magnitude, otherwise, parties have to create a whole list of candidates. They have incentives to create a balanced list for the elections, to attract a large array of voters (Bird, 2003). The ballots matter, because if the ballots represent more women, the chance of a larger share of women being voted into parliament, is also higher, which will probably increase the share of women in parliament. On the side of the voters, it might be easier for them to vote for a party list with both men and women than if they have to choose for one single woman if they do have sexist ideas on women in politics internalised (Stockemer, 2007). PR systems with a high district magnitude thus increase both the chance that women are on the ballot and the chance that they are chosen by the voters, meaning that it has a double positive impact on the share of women in parliament. Mixed systems and PR systems with low district magnitude fall in-between these two 'extremes', and are therefore expected to have a moderate positive influence on the share of women in parliament.

The ballot structure will also likely influence the share of women in parliament, because it determines who will choose the candidates that gain a seat (Krennerich, 2009, p. 13; Tremblay, 2007; Valdini, 2012). In open list systems, voters are the ones that determine the share of men

and women that is chosen into the legislature. This gives them the opportunity to discriminate against female candidates, which will result in a higher share of men in parliament (European Commission for Democracy Through Law (Venice Commission), 2018, p. 18; Nkala & Ogunnubi, 2015; Ragauskas, 2019). In closed list systems, on the other hand, the political parties are the ones that determine the list order, and thus in part who will enter parliament. As they are able to adapt a more general overview of the ballot than individual voters, they are more likely to create a balanced list (Allik, 2015). Furthermore, parties can implement measures such as quota to ensure a balanced list in closed list systems (Tremblay, 2007). Closed list systems are therefore associated with a higher share of women in parliament than open list systems.

Electoral systems, and the electoral formula, district magnitude and ballot structure more precisely, have thus much been shown to influence not only political corruption, but the share of women in parliament too. The fifth hypothesis that I will test in the analysis is therefore:

Hypothesis 5: The influence of the electoral system on political corruption can be explained by the effect of the electoral system on women in parliament.

An overview of the hypotheses in this thesis, and the division of the hypotheses in the input and output category can be found in Appendix 1. The core of my research, with the mediation hypothesis, can be illustrated as follows:

Figure 1: Conceptual model of the mediated relationship tested in this thesis
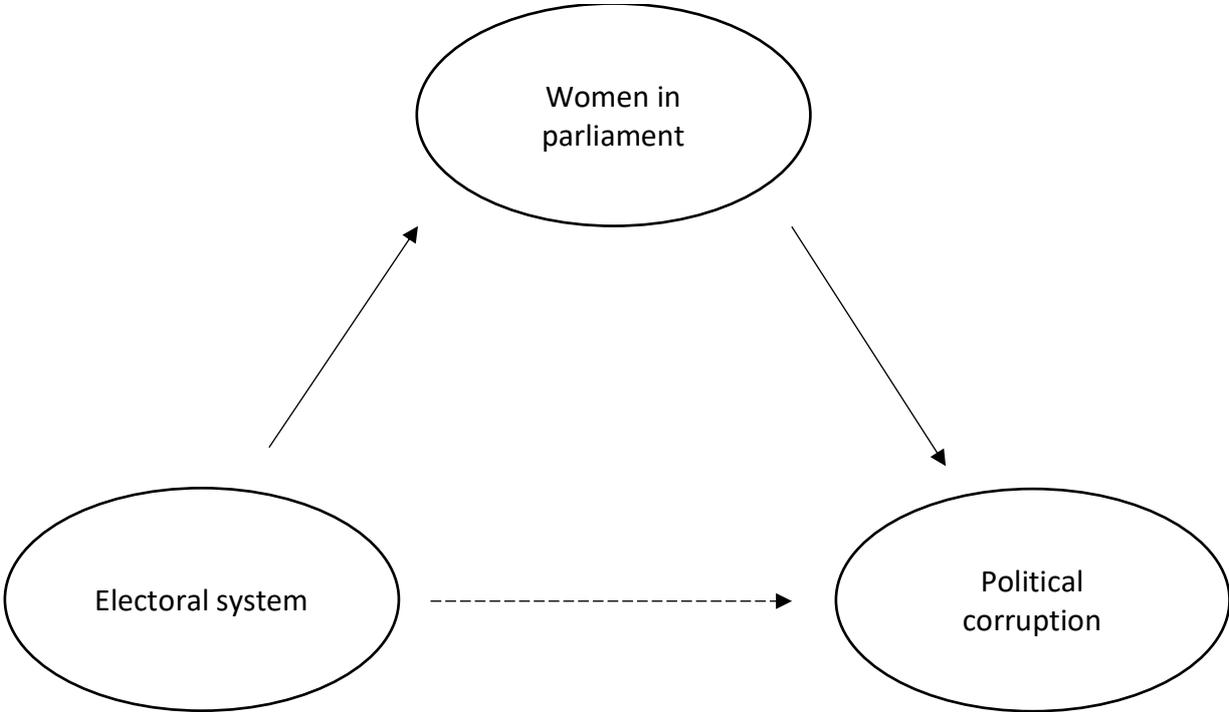
2.6 Other explanations

Aside from the share of women in politics and the electoral system, there are of course other factors that influence the political corruption rate in a country. To perform an analysis sensitive to those other factors, the most important ones will be taken into account, which I will explain below.

The first aspect that will be taken into account is whether or not a country has implemented gender quotas. Gender quotas are rules about the share of women on a party list, in parliament or in any other kind of organisation. These quotas can have consequences linked to them, if they are not lived up to by the responsible organisation, but they do not necessarily have to. Gender quota are implemented to boost the share of women in parliament, in which they generally succeed if set up well (Dahlerup & Freidenvall, 2005; Krennerich, 2009, p. 13; McAllister & Studlar, 2002; Nkala & Ogunnubi, 2015; Siaroff, 2000; Stockemer, 2007; Tremblay, 2007). It is therefore important to include this in the analysis because the existence of gender quota could otherwise distort the results on the influence of the electoral system on the share of women in parliament. Furthermore, it is also shown to influence political corruption directly, only in a negative way. Namely, in research on political corruption where both the share of women in parliament and gender quotas were included, gender quotas had significant negative influence on political corruption as opposed to the positive influence of women in parliament (Esarey & Schwindt-Bayer, 2018; D. Watson & Moreland, 2014). The way that gender quota relate to both the share of women in parliament and political corruption could get in the way of the analysis, hence I will include a measure of this in the analysis.

Another aspect with a much-investigated influence on corruption is the economic development of a country. According to several studies, richer countries have lower levels of corruption (Dong & Torgler, 2013; Golden & Chang, 2001; Treisman, 2007). I will therefore also control for the effect of economic development.

Lastly, research also showed that whether a country is democratic or not influences political corruption as well (Zimelis, 2020). Even though I only analyse democracies in this thesis, there is still a difference in level of democracy between different democracies, so it is important to take this difference into account. Furthermore, democracy also influences the relation between women in parliament and political corruption (Esarey & Chirillo, 2013; Sung, 2003). In democracies, corruption is more stigmatised than in authoritarian states, which has a larger impact on women as a result of discrimination and risk aversion (Esarey & Chirillo, 2013). By taking the level of democracy into account, I therefore also control for the effect of democracy on this relationship.

3. Method

After discussing the theoretical background and underpinnings of the research question, and formulating a couple of hypotheses that will help me answer this research question, in this chapter I will justify how I am going to test these hypotheses. I will set out the research method that I will use for this, operationalise the concepts from the theory, which will become the dependent and independent variables, and lastly, I will discuss and test the assumptions underlying the research method.

3.1 Research method

I will perform a cross-country statistical analysis on 92 countries with data from 2017. The variation in my main variables is mostly visible over cases than over time, so this way of measuring makes the most sense as opposed to an analysis over time. Electoral systems in particular are static over time, with only rarely the occurrence of large electoral system change. Furthermore, to answer the research question and to generalise this answer, I am interested in a large variety of electoral systems, with countries with different values, and especially a different set of values, on all the elements of the electoral system. That will be most closely achieved with including as many countries from all regions in the world. By including democratic countries from all over the world, my dataset will consist of as many varieties as possible[1].

To perform this analysis, I will make use of ordinary least squares (OLS) regression analysis. I expect a linear relationship in my model, the dependent variable is a continue variable and the data is not nested, so OLS is a good statistical method to try and answer the research question. I will perform a multiple regression analysis, as there are several independent (and control) variables that play a part in the analysis.

The research question asks to what extent women in parliament plays a mediative role in the relationship between the electoral system and political corruption. To correctly answer this question, I will therefore perform a mediation analysis. This implies that I create three different models and that, within these models, a couple of conditions need to be established to speak of a mediation relationship. The mediation hypothesis is hypothesis 5. In the process of testing this hypothesis, the other four hypotheses will also be tested. The first model that I will estimate is of the simple relationship between the electoral system and political corruption. In the second model, I will estimate the relationship between the electoral system and the share of women in parliament. In the third and last model, I will estimate both the influence of the electoral system and the share of women in parliament on political corruption at the same time. In order for the mediation hypothesis, four conditions must be met: 1) The effect of the electoral system on political corruption must be significant in model 1; 2) The effect of the electoral system on the share of women in parliament must be significant in model 2; 3) The effect of the share of women in parliament on political corruption in model 3 must be significant; 4) Lastly, the effect of the electoral system on political corruption must

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[1] See table 4 in appendix 3 for the dispersion of cases around the world. The table shows how many countries are included from every one of the six differentiated geo-political regions.

be smaller in model 3 than in model 1. If all of those conditions are met, then hypothesis 5, the mediation hypothesis, can be accepted.

3.2 Data

To answer the research question, a total number of 92 democratic countries throughout the world will be analysed.[2] These are all the countries that are both democratic and on which data is collected on the variables that I will use. I will focus on democratic countries, because only in those countries the electoral system truly defines something. In undemocratic countries, the electoral system, or elements in the system, might be unreal or a façade, which would make it difficult to impossible for me to draw conclusions about the effects of the electoral system on political corruption and women in parliament. To determine whether a country is democratic or not, I use the Freedom House index. Every year, Freedom House collects data on political rights and civil liberties, using several different subquestions. Based on this data they index countries in the categories 'free', 'partly free' and 'not free'. In the category 'free', all countries are liberal democracies (Freedom House, n.d.). However, countries do not necessarily need to be liberal democracies to be relevant for my thesis, electoral democracies are interesting and relevant cases as well. This is a broader category that includes all liberal democracies, but also countries that do not fully qualify as liberal democracies but do host (relatively) free and fair elections. Therefore, I will use the designation from Freedom House where they divide countries in electoral democracies or not. To be qualified as an electoral democracy, the overall political rights score needs to be at least 20/40, and within this category, countries have to score at least 7/12 in the subcategory Electoral Process (Freedom House, n.d.).

Aside from the data from Freedom House that determined which countries are included in my research, I use data from three data sources, from the Database of Political Institutions (DPI) by the Inter-American Development Bank, from Varieties of Democracy (V-Dem) by the V-Dem Institute and from the World Bank. These sources all collect yearly data on most countries in the world. They did not overlap on all countries, some smaller or newer states like Kosovo, the Bahamas and Belize had to be excluded from the dataset because only one of the datasets had data on them. I use data from 2017, because that is the most recent year with data on all variables from as much countries as possible. For some elements of the electoral system, the V-Dem dataset only collects the values in election years, as the data is specifically about elections. In these cases, I have used the values from either the 2017 parliamentary election, or the most recent election before 2017 in the analysis. The electoral system is a very stable institution, so it is not expected to have changed in a couple of years. Furthermore, electoral systems are, as the name reveals, only or most relevant with elections. That means that unless another election has passed, an electoral system can not have been truly changed anyway. It is therefore not probable to cause any problems for my analysis that the data on electoral systems are from a year before 2017. The elections that are taken into account in the analysis are from 2012 to 2017.

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[2] In appendix 2 I included a list of every country that was included in the analysis, with their values on every variable.

3.3 Operationalisation

In the next section, I will clarify how the variables are going to be measured in the analysis. A summary of the descriptive statistics of all variables can be found in appendix 4.

3.3.1 Dependent variable: Political corruption

The dependent variable in my analysis is the macro variable political corruption. As defined in the previous chapter, this is "the abuse of public office for private gain" (The World Bank, 2020). A couple of authors specify that they are only talking about elected politicians in this sense (Alfano et al., 2016; Chang & Golden, 2006), but most researchers do not specifically name who they are talking about, about which public offices. However, looking at the theories about the influence of both the electoral system and women in parliament on political corruption, I choose to include both corrupt activities from elected (most importantly, parliamentarians) and other high political officials. For example, the controlling power that the parliament has not only on other parliamentarians, but on the government as well, is important for the hypothesis on women in parliament, which could influence the level of corruption within the government. The parliament and government are thus related in such a way that it is most interesting for my research to analyse the level of corruption in both the legislature and the executive realm at the same time.

The most common way to measure corruption is as perceived corruption, in which a group of people (this could be citizens or country and/or subject experts) answer questions about the political corruption level in a country. Another way to measure corruption is to look at the numbers of corruption convictions. Problematic with this measure, however, is that what you are measuring is not only the level of political corruption in a country, but also the functioning of the judicial system, because that too determines how much convictions take place. In Singapore and Hong Kong, for example, the corruption conviction levels are very high, but corruption itself is very low (Zimelis, 2020). Furthermore, as politicians create the rules and are powerful, they could bend the rules or make more easily sure that they do not get caught. Perceived corruption is more suitable for cross-country research, because it sets standards on how to score countries, making the coding similar and reliable between different cases.

More specifically, for studying political corruption, perceived corruption by experts is more relevant than that perceived by citizens or other entities. Citizens are not likely to encounter this kind of corruption on a day-to-day basis[3], but experts studying the topic know more about the institutions and how political corruption might reveal itself. Country and/or subject experts study this topic and are thus very capable of detecting political corruption. For the measure of political corruption in this thesis, I will therefore make use of perceived corruption measures from the V-Dem dataset, based on reviews by country experts (Coppedge, Gerring, Knutsen, Lindberg, Teorell, Marquardt, et al., 2021). These country experts are mostly academics, but can also be professionals working in media or public affairs, and they answer several questions on country affairs related to their expertise. To fully catch the concept of political corruption in a variable, I will combine three variables from the V-Dem dataset that are specifically on corruption by legislators and executive politicians to create my own political

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[3] As opposed to bureaucratic corruption.

corruption index. The specific questions that I will use to create a political corruption index variable are the following:

1. Legislature corrupt activities:
   "Do members of the legislature abuse their position for financial gain?" (Coppedge, Gerring, Knutsen, Lindberg, Teorell, Altman, et al., 2021, p. 148)

2. Executive bribery and corrupt exchanges:
   "How routinely do members of the executive (the head of state, the head of government, and cabinet ministers), or their agents, grant favors in exchange for bribes, kickbacks, or other material inducements?" (Coppedge, Gerring, Knutsen, Lindberg, Teorell, Altman, et al., 2021, p. 112)

3. Executive embezzlement and theft:
   "How routinely do members of the executive, or their agents grant favors in exchange for bribes, kickbacks, or other material inducements, and how often do they steal, embezzle, or misappropriate public funds or other state resources for personal or family use?" (Coppedge, Gerring, Knutsen, Lindberg, Teorell, Altman, et al., 2021, p. 113)

For each of these questions, the experts had to give an answer in one of five categories, based on their best estimate what is known or suspected to be true. The specific text in these categories depends per question, but for these three questions, they rate from zero to four, where zero is the answer where countries are most corrupt and four where they are least corrupt. The specific answer categories per question can be found in table 7 in appendix 5. In this table you can also find the specific forms of corruption that are related to in question 1. For every question, the answers of the experts are aggregated using Bayesian item response theory measurement model (Coppedge, Gerring, Knutsen, Lindberg, Teorell, Altman, et al., 2021). These values are scaled similar to normal score, which means that the values fall typically between -5 and 5 with approximately 0 as mean. A higher score means that a country is less politically corrupt.

For my cases, these variables are coded by three to fifteen experts per variable per country per year. However, V-Dem advises against using variables that three or less experts have looked at, because it compromises the reliability of the value and therefore the analysis. I therefore exclude the case of Suriname, because only three experts have coded this country on the variable of Legislature corrupt activities. For all other cases, the number of coders was not problematic.

These three variables on political corruption are suited to be put together in an index, as they highly inter-correlated (see table 8 in appendix 5 for the correlations) and score a 0.955 on Chronbach's alpha. The theories that centre corruption by legislative and executive forces are equally important in my theoretical framework, which is why I want them to be equally important in the measurement of political corruption too. To ensure a balanced variable, which gives similar weight to the corruption in the legislature as in the executive sector, question 1 on legislative corruption will count twice as much as both variables on executive corruption in the index. These means that the index is made as such: legislature corrupt activities x 0.5 + executive bribery and corrupt exchanges x 0.25 + executive embezzlement

and theft x 0.25. The variable now still falls between -5 and 5 with an approximate mean of 0. However, for interpretation it is better if the index is slightly bigger. Especially the variable women in parliament is measured on a scale from 0-100, so to make interpretation in relation to this variable easier, I multiply the index with 10 and add 50, so the values now typically fall between 0 and 100, with 50 as the approximate mean. This does not change the meaning of the index, only how easily interpretable the results in the analysis will be. Again, a higher value on this scale means that a country is less politically corrupt, and a lower value means that the country is more politically corrupt.

3.3.2 Independent variable: Women in parliament

For the share of women in parliament I use a variable in the V-Dem dataset that measures the "percentage of the lower (or unicameral) chamber of the legislature [that] is female" (Coppedge, Gerring, Knutsen, Lindberg, Teorell, Altman, et al., 2021, p. 156). To answer this question, the coders from V-Dem have used several different sources to determine the right answer. This variable is an interval variable, with the potential range from 0-100, as it is measured in percentages. Although I have talked more broadly about women in parliament, this variable is only about the share of women in the lower chamber of parliament. In some countries this is only part of the whole parliament, but it is always the most important part. For the unity of the data, it is therefore best to only measure the percentage of women in the lower chamber in case of bicameralism.

3.3.3 Independent variable: Electoral systems

In the theory, I distinguished between the electoral formula, district magnitude and ballot structure. Because of the strong links between electoral formula and district magnitude, it is both theoretically and practically not always possible to distinguish which of the elements is the one that influences corruption, and it could as well be both. I will therefore create a variable that combines the two variables in four categories that incorporate as much diversity in these elements of the electoral system as practically possible. Before doing so, I will first discuss the elements separately.

To measure electoral formula, I use a variable from the V-Dem dataset answering the question: "What was the electoral system used in this election for the lower or unicameral chamber of the legislature?". This variable is coded only for election years, which are different in every country, but as explained before, I use the data on the last election from 2017 or before. The variable has four possible responses, which are majoritarian, proportional, mixed and other. 'Majoritarian' is an umbrella term for plurality and majority systems, referring to the often majoritarian (or disproportional) election results that the systems produce. 'Proportional' obviously refers to PR, 'mixed' to mixed systems and 'other' includes all systems that can not be classified as one of the other three. There is only one system in my dataset that falls into this category, which is Vanuata that uses a single non-transferable vote system. As this system can not be classified as either plurality, PR or mixed system and I do not have any theory and expectations on this country, I exclude the case from the dataset.

The average district magnitude in a country is measured using the V-Dem dataset with the question "For this election, what was the average district magnitude for seats in the lower (or unicameral) chamber of the legislature?". This variable, too, is coded per election, for which I will use the most recent results from the most recent election. It is a numeric variable,

however because it strongly relates with the electoral formula (most importantly: only – and all – plurality systems have a district magnitude of 1), I create a categorisation of low and high levels of district magnitude, combined with the electoral formula. This variable consists of four categories, which variations are shown in table 2.

Table 1: Categories of the electoral formula and district magnitude

Categories	Electoral formula	District magnitude
1.	Plurality	1
2.	Mixed	Low (1.1 – 3.5)
3.	PR	Low (2.2 – 7.7)
4.	PR	High (8.1 – 150)

The first category comprises all countries that were classified as a plurality system. In general, these systems know an average district magnitude of 1. In my dataset, there are three exceptions[4], which I will categorise as having a district magnitude of 1 anyway. This is because the effects as discussed in chapter 2 will work similarly in plurality systems with a district magnitude of 2.8 as they will in a plurality system with a district magnitude of 1. For example, the barrier to entry will still be very high and the number of parties that the system produces will still be low.

In the second category, all the countries that are classified as having a mixed electoral system are included. As these systems partly use single-member districts and partly multi-member districts, the average district magnitude is still quite low (range: 1.1-3.5; median 1.7; mean: 1.8). The third and fourth category consists of countries with a PR electoral formula and a low district magnitude. I have set the cut-off point between low and high district magnitude at 8.0. This creates the third category with a range of 2.2-7.7, a median of 5.3 and a mean of 5.5. The fourth and last category are the PR countries with high district magnitude, with values on the average district magnitude ranging from 8.1-150. This category knows a couple of values standing out, which can also be seen from the difference between the median (13.3) and the mean (31.1). This variable will be included as three dummy variables, with the first category 'Plurality' as the reference category.

To measure the ballot structure, I use data from the DPI dataset that distinguishes between open and closed list PR. If countries were classified as either PR or mixed in my classification, I used this variable to determine the ballot structure. For four countries (three with a PR system and one with a mixed system), this data was unfortunately not available, so I dismissed them from the dataset. In party list PR system, if voters can express preference for candidates within a party list, a country is categorised as an open list, if they can not express preference, it is categorised as closed list.

In the previous chapter, I argued that plurality systems work similarly as closed list systems concerning their intraparty competition and distinction between party (ideology) and candidate (integrity). The mechanisms of influence of the ballot structure on political corruption are therefore also argued to work similarly, which is why I categorise plurality

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[4] Two countries have a value of 1.2 as average district magnitude, and one has a value of 2.8.

systems together with closed list systems in the variable for ballot structure in my analysis. This variable will be a dummy variable 'Open lists', with the category 'Closed list & plurality' as the reference category.

3.3.4 Control variables
For gender quota, there is a variable in the V-Dem dataset that answers the question whether there is "a national-level gender quota for the lower (or unicameral) chamber of the legislature" (Coppedge, Gerring, Knutsen, Lindberg, Teorell, Alizada, et al., 2021, p. 157). There are five answer categories, where one is for the countries without any form of gender quota. The other four categories are for the countries with gender quota, and they differ in their indication whether there are no, weak or strong sanctions, or even reserved seats for women. As some of these categories are rather small, I put them all together and created a binary variable that only indicates whether countries do or do not know gender quota. This variable will be a dummy variable in the analysis, with 'No quota' as the reference category.

To measure economic development, I use the gross domestic production (GDP) per capita, for which I use data from the World Bank. GDP is the sum of all the economic value that residents of the country added in a certain year (The World Bank, 2021). For this analysis, it is divided by the population, so the numbers for smaller and larger countries are comparable. The raw GDP per capita data is not normally distributed for my sample, with several outliers and right-skewed. For my analysis this causes the residuals of the regression analysis to deviate from a normal distribution too. This problem of non-normality is not solved in this case by either a natural logarithm or square root transformation, which is why I will use a categorization in groups by the World Bank. The data is distributed among four income groups: a low, lower middle, upper middle and high income group. In my sample there are only five countries that fall in the lower income group, so I will combine that one with the lower middle income group for evenly distributed categories. As a categorical variable, in the analysis the variable will consist of three dummy variables, and the high income group as a reference group.

For a measure of democracy, I used the liberal democracy index from V-Dem. This index is created by combining the V-Dem index of electoral democracy and the V-Dem index of liberal values, which are both composed of several other indices as well. The interval variable of the liberal democracy index with values between 0 and 1, is not normally distributed and left-skewed. As with the variable of economic development, this drives the residuals towards non-normality and is not solved with a natural logarithmic or square root transformation. In these cases, too, the Shapiro-Wilk and Shapiro-Francia tests still show the variable to be not normally distributed. Therefore, I will use the categorisation by V-Dem, based on the liberal democracy index in five categories: closed autocratic, autocratic, ambivalent, minimally democratic and democratic. For my sample, there is only one value in the category closed autocratic, so I will merge this category with the category autocratic. This results in four categories of democracy that will be used as a control variable. Of these four categories, the three least democratic categories are dummy variables in the analysis, and the 'democratic' category is the reference category.

3.4 Assumptions
There are a couple of assumptions underlying multiple regression analysis and OLS. Before I will be able to perform the analysis, I therefore first have to check whether I have met these

assumptions. This will lower the chance of any bias in the regression analysis. Hereafter, I will discuss the assumptions of normality, homoscedasticity, additivity and linearity, independence of the errors and multicollinearity and how my data relates to these assumptions. In my final dataset, I do not suffer from missing values on any of the variables, because I have deleted all cases with missing variables on one of the variables. Fortunately, there are only a couple of cases that I had to delete from the dataset for this reason, so I do not expect this to have a strong influence on the analysis. Lastly, I looked for outliers on the variables that could independently strongly influence the regression analysis. To do this, I plotted a box plot for the variables political corruption and women in parliament, but these did not show any peculiar results. The other variables are all categorical with evenly distributed cases among the categories, which means that they do not know outliers.

The first assumption that needs to be fulfilled for my analysis is that of normal distribution. This means that the standardised errors of the regression analysis need to be normally distributed, which matters for the validity of the significance tests. In figure 3 in appendix 6, the frequency graph of the standardised residuals is pictured, which shows a relatively normally distributed set of standardised residuals. In figure 4 in the appendix 6, the probability-probability plot (P-P plot) in also tests the normal distribution of the residuals. It compares the cumulative distribution of residuals in my model with the expected cumulative distribution in a model with perfect normal distribution (Field, 2013, p. 179). This model too, does not show significant deviations from normality, so I therefore conclude my standardised errors to be normally distributed.

Homoscedasticity means that the scores of the residuals are equally distributed among different cases. This is contrasted with heteroscedasticity, when the variance of the residuals varies largely among different values of the independent variables. Heteroscedasticity in the residuals can result in biased and inconsistent standard errors, confidence intervals and significance tests (Field, 2013, p. 175), and will therefore make the analysis unreliable. To check the data for signs of heteroscedasticity, I plotted the predicted values against the residuals in a scatterplot in appendix 7. The dots are equally distributed over the graph, without a clear pattern. This indicates that among different values of the independent variables, the variance of the residuals is similar, which means that the data is homoscedastic.

Additivity means that adding up the individual effects of all independent variables gives the same result as their joint effect on the dependent variable. The assumption of linearity means that the relationship between the independent and the dependent variables can be illustrated by a straight line. In the scatterplot in appendix 7 you can see the linearity of the model, as the dots in the graph are equally distributed around the middle line. There is no curve visible, so I can assume that my model is linear and this assumption is met.

The assumption of independent errors means that the errors should not be related to one another. That is, knowing the error of one case, it should not be possible to guess another one. They should not influence one another. In case of violating this assumption, the confidence interval and significance of the model will be invalid. The assumption of independent errors is often violated in time-series or nested data. As my data is none of those, I can safely assume that the errors in my model are independent.

When two or more independent variables highly correlate with one another, it is called multicollinearity. When both or all of those variables are included in the analysis, the impact of the individual variables will not be clear, which will cause the regression model to be more difficult to interpret. Furthermore, it can cause problems with the performance of the regression analysis, such as blown-up standard errors. It is therefore important to know whether variables in your data might be multicollinear. To test for multicollinearity, I use Variance Inflation Factor (VIF) and Tolerance. These diagnostics are related, as Tolerance is computed as 1/VIF. These tests do not provide hard limits, and not everyone even agrees on the values to use as a rule of thumb for multicollinearity. In this research, I will use the rules of thumb as outlined by (Field, 2013, p. 325). He uses as a guideline that a VIF larger than 10 should be reason for concern. The value for Tolerance indicates a potential problem below 0.2, and a serious problem below 0.1. The test results for VIF and Tolerance in my regression analysis, can be seen in appendix 6. None of these values cause for concern as they all fall amply under (for VIF) or above (for Tolerance) the general guidelines.

4. Analysis

In this chapter, the hypotheses that I composed in the second chapter will be tested using the research method and operationalisation that I outlined in the third chapter. I will estimate several models for this purpose and discuss the hypotheses one by one. Afterwards I will do some sensitivity analysis to check whether the outcomes of the analysis still hold when I make some different methodological choices.

4.1 Hypotheses

4.1.1 Women in parliament

I will start off with the first hypothesis, that reads: *"The higher the share of women in parliament, the lower the political corruption in a country"*. The result can be seen in model 1 and 2 in table 2. In the first model, only the independent variable of the share of women in parliament is added to the model to explain the level of political corruption. This model explains almost twenty percent of the variance in political corruption, as can be seen from the R^2 of the model, which is quite a lot for a single variable. The coefficient of the share of women in parliament in this model is a positive 0.533 and significant. This means that if the share of women in parliament increases with one percent point, the level of political corruption in the country will improve (thus decrease) with 0.533 points (on a political corruption scale of approximately 100 points). This effect is in the expected direction and quite a large effect, considering the range of both variables. In model 7 in table 2, I added all of the other independent and control variables in the analysis at once. This massively increases the R^2 of the model to 0.725, meaning that model 7 explains 72.5% of the variance in political corruption. The coefficient of women in parliament is still significant in this model, even though it has slightly shrunk to a number of 0.311. This means that with every percent point that the share of women in parliament increases, the political corruption level in the country will improve with 0.311 on a scale of approximately 100 points, controlled for the electoral system, gender quota, GDP per capita, and the level of liberal democracy. This is still a notable effect. Because of the significance of the coefficient, and the direction, I can therefore accept the first hypothesis that the higher the share of women in parliament, the lower the political corruption in a country.

4.1.2 Electoral formula

The second hypothesis is: *"If a country uses a plurality formula, the political corruption will be lower than with a mixed formula or a PR formula with low district magnitude, in which it will be lower than with a PR formula with high district magnitude"*. This hypothesis is primarily about the electoral formula, but the district magnitude plays a big part too. That is why I created a variable that takes both into account. To test this hypothesis, I estimated model 2, which can be seen in table 2. This model explains 11.4% of the variance in political corruption and includes only the dummy variables for the variable 'Electoral formula and district magnitude'. Only one dummy variable in the model has a statistically significant effect. This is the dummy variable 'PR & district magnitude high', with a coefficient of 11.461. This means that in PR systems with a high district magnitude, the political corruption index is 11.461 points higher than in a plurality system with a district magnitude of 1. That means that PR systems with a high district magnitude have a lower level of political corruption than plurality systems. This is quite a big difference between these categories, especially as the standard deviation of the political corruption index is 13.68. The other categories with the low district magnitude also indicate a positive influence on the level of political corruption as opposed to

Model	1 b (SE)	2 b (SE)	3 b (SE)	4 b (SE)	5 b (SE)	6 b (SE)	7 b (SE)
Women in parliament	0.533*** (0.11)				0.520*** (0.13)		0.311*** (0.09)
Electoral formula & district magnitude							
Plurality & district magnitude 1		Reference		Reference	Reference	Reference	Reference
Mixed & district magnitude low		1.773 (4.09)		1.711 (4.13)	-3.706 (4.02)	2.660 (2.66)	-0.109 (2.63)
PR & district magnitude low		2.637 (3.71)		2.527 (3.81)	-1.956 (3.67)	1.976 (2.74)	0.412 (2.62)
PR & district magnitude high		11.461** (3.67)		11.230** (4.06)	3.099 (4.22)	1.315 (2.82)	-2.040 (2.83)
Open list							
Closed list & plurality			Reference	Reference	Reference	Reference	Reference
Open list			5.161 (3.58)	0.526 (3.82)	4.364 (3.64)	-1.745 (2.44)	0.297 (2.37)
Gender quota							
No						Reference	Reference
Yes						-2.435 (1.90)	-4.054* (1.85)
GDP per capita							
High income						Reference	Reference
Upper middle income						-10.523*** (2.89)	-10.604*** (2.72)
Low & lower middle income						-8.382* (3.25)	-7.281* (3.07)
Liberal democracy							
Democratic						Reference	Reference
Minimally democratic						-10.840*** (2.55)	-8.327** (2.51)
Ambivalent						-17.120*** (3.41)	-13.775*** (3.35)
(Closed) autocratic						-22.339*** (4.08)	-20.077*** (3.90)
Constant	42.747*** (3.01)	51.472*** (2.57)	54.593*** (1.58)	51.472*** (2.58)	42.557*** (3.22)	73.560*** (2.66)	65.589*** (3.42)
R^2	0.199	0.114	0.023	0.114	0.259	0.684	0.725

N = 92

b: unstandardised regression coefficient; SE: standard errors

Significance: $p < 0.001$: ***; $p < 0.01$: **; $p < 0.05$: *

Sources: Coppedge, Gerring, Knutsen, Lindberg, Teorell, Alizada, et al. (2021); Cruz, Keefer, and Scartascini (2021); The World Bank (2021)

a plurality system, but this effect is not significantly different from a plurality system. The effect that can be seen in model 2 is opposite of the one expected in hypothesis 2. In model 2 is the level of political corruption smaller in PR systems with high district magnitude than in plurality systems, while the hypothesis stated it to be the other way around. It therefore seems like I can reject hypothesis 2. To be complete, I also estimated this model with the inclusion of control variables in model 6 and with the inclusion of the control variables and the variable of the share of women in parliament in model 7. With the inclusion of these control variables, the significant effect of a PR system with high district magnitude as opposed to a plurality system disappears. I therefore reject hypothesis that "*If a country uses a plurality formula, the political corruption will be lower than with a mixed formula or a PR formula with low district magnitude, in which it will be lower than with a PR formula with high district magnitude*", because my models does not show any relationship between the electoral formula and district magnitude and political corruption, when controlled for the effects of gender quota, economic development and the level of democracy.

These results on hypothesis 2 also hold when disregarding the district magnitude and only using two dummy variables for a mixed and PR system. This is also the case when I filter out the mixed systems and only look at PR versus plurality systems. One last possible operationalisation is to divide the cases into whether most seats in parliament are filled using a PR or plurality system. In this operationalisation, the mixed systems are divided over either PR or plurality, depending on the most prominent system in the country. However, also this last operationalisation did not produce other results than the ones already reported, so hypothesis 2 is still rejected.

4.1.3 District magnitude
Hypothesis 3 is about the district magnitude: *The higher the average district magnitude in a country, the lower the political corruption in a country.* This hypothesis is tested in the same model as hypothesis 2, namely model 2 in table 2. This hypothesis assumes an opposite relationship with political corruption as the second hypothesis. In model 2, it therefore seems like we can accept this hypothesis, as this model shows, indeed, that in a system with a high district magnitude, the political corruption will be significantly better than in a model with a district magnitude of 1. The political corruption will be 11.461 points better, that is. However, as we already saw does the significance of the variable 'Electoral formula and district magnitude' disappear when the control variables (model 6) and the variable on women in parliament are added (model 7). When controlled for the effects of gender quota, economic development, the level of democracy and women in parliament, we can therefore not accept the hypothesis that a higher average district magnitude leads to a lower political corruption in a country.

For this hypothesis, I also checked some other ways of measuring district magnitude. I tested a variable with a high and a low category of district magnitude, but only larger than one; a variable with a high and a low category of district magnitude, but only for PR systems; a variable with five categories of district magnitude (1; 2-4; 4-8; 8-12; 12+). None of these alternative operationalisations changed anything on the significance level in the model that included the control variables.

4.1.4 Ballot structure

Next is hypothesis 4, which is *"If a country has an open list structure, the political corruption will be lower than with a closed list structure or plurality system"*. This hypothesis is tested in model 3 in table 2. This model has a R^2 of 0.023, which means that only 2.3% of the variance in political corruption is explained by the ballot structure. Furthermore, this is the only model that does not describe political corruption significantly better than the mean of the political corruption variable (that is, the p-value associated with the F-value is 0.152, so not statistically significant). The coefficient of the dummy variable 'open lists' is in the expected direction, where open list systems have 5.161 points better political corruption than closed list systems or plurality systems. However, this coefficient is not significant either, and in the models 6 and 7 where its effect is controlled for other variables, it is still not. So, I can not accept hypothesis 4, because it does not seem to matter for the political corruption whether a country has an open list or closed list or plurality system.

For the ballot structure, too, I tested some alternative operationalisations. First of all, I checked whether it would make any difference if I excluded all plurality systems and only investigated the difference between open and closed list systems. Secondly, I looked what happened when I included the plurality systems with the open list systems instead of the closed list systems. Both of these alternatives did not yield different results. For a third variation, I created three categories, with countries with a plurality system, a closed list structure and an open list structure. Interestingly, the dummy for open list systems was significantly different from plurality systems. However, the model as a whole was still not significantly different from the mean (with a p-value associated with the F-value of 0.126), and the significance did not hold when including other variables. For all of these alternatives, I checked one last variation, which is what would happen if I also excluded all the systems with a mixed electoral formula, but that did not make a difference either. These alternatives therefore do not change anything from my rejection of hypothesis 4.

4.1.5 Mediation hypothesis

Last of all, I will test hypothesis 5: *"The influence of the electoral system on political corruption can be explained by the effect of the electoral system on women in parliament"*. Testing this hypothesis will take a few more steps than the others, but when I have, it will give me an answer for my research question. As explained in the previous chapter, to say something about the validity of this hypothesis, I must estimate three different models and check four conditions within these models. The first model that I estimate, is on the direct relationship of the electoral system on political corruption. This relationship has to be significant for the first condition to be established. The electoral system is measured with two variables: one concerning the ballot structure and one about the combination of the electoral formula and district magnitude. I already tested the influence of these variables on political corruption for hypothesis 2 and 3 and concluded that,

For the second model within this mediation analysis, I have to test the influence of the electoral system on women in parliament. This effect should also be significant. The results of this model can be seen in table 3. In model 8, you can see the influence of the electoral formula and district magnitude on the share of women in parliament. For all three categories, the effects are positive and significant as opposed to a single-member plurality system. In model 9 you can see the influence of the ballot structure on the share of women in parliament. This

Table 3: Regression analysis on women in parliament

Model	8 b (SE)	9 b (SE)	10 b (SE)	11 b (SE)
Electoral formula & district magnitude				
Plurality & district magnitude 1	Reference		Reference	Reference
Mixed & district magnitude low	9.553** (3.29)		10.422*** (3.22)	8.898*** (3.05)
PR & district magnitude low	7.088* (2.99)		8.626** (2.97)	5.026 (3.15)
PR & district magnitude high	12.394*** (2.96)		15.643*** (3.16)	10.782*** (3.24)
Open list				
Closed list & plurality		Reference	Reference	Reference
Open list		-1.557 (3.02)	-7.384* (2.98)	-6.563* (2.80)
Gender quota				
No				Reference
Yes				5.203* (2.18)
GDP per capita				
High income				Reference
Upper middle income				0.262 (3.32)
Low & lower middle income				-3.537 (3.73)
Liberal democracy				
Democratic				Reference
Minimally democratic				-8.074** (2.93)
Ambivalent				-10.746** (3.91)
(Closed) autocratic				-7.270 (4.69)
Constant	17.152*** (2.07)	24.439*** (1.34)	17.152*** (2.01)	25.615*** (3.05)
R^2	0.177	0.003	0.231	0.406

N=92

b: unstandardised regression coefficient; SE: standard errors

Significance: $p < 0.001$: ***; $p < 0.01$: **; $p < 0.05$: *

Sources: Coppedge, Gerring, Knutsen, Lindberg, Teorell, Alizada, et al. (2021); Cruz et al. (2021); The World Bank (2021)

model only has a R^2 of 0.003, so only 3% of the variance in the share of women in parliament is explained by this model, which is very low. Furthermore, the F-value is not significant, so the model does not explain the share of women in parliament significantly better than the mean does. When model 8 and 9 are combined in model 10, however, the coefficient of the open list dummy is much higher and suddenly significant. Controlling for the electoral formula (and district magnitude) thus causes the effect of the ballot structure on the share of women in parliament to be visible. This is because for the effect of ballot structure on the share of women in parliament, the closed list structure and plurality system are most contrasting. This mechanism also becomes visible when changing the operationalisation of the variable into three separate categories, or contrasting a closed list structure against the other two. This works similarly when I add dummy variables for the electoral formula (and district magnitude) into the model. Model 10 therefore shows that all elements of the electoral system have a significant effect on the share of women in parliament. Taken all together, these elements explain 23.1% of the variance in the share of women in parliament. Having a mixed system with low district magnitude, will increase the share of women in parliament with 10.422 percent points as opposed to a plurality system. For a country with a PR system with low district magnitude, this is 8.626 and for a country with a PR system with high district magnitude, it is 15.643 percent points. An open list system will cause a system to have less women in parliament, namely 7.384 percent points less than a closed list or plurality system. Because these effects are significant, the second condition for a mediation analysis is also met.

The third model for the mediation analysis has political corruption as a dependent variable again, this time with both the electoral system and the share of women in parliament as independent variables. To mediate the influence of the electoral system on political corruption, the share of women in parliament itself needs to affect political corruption as well, of course. The third condition to be met for a mediation hypothesis is therefore a significant influence of the share of women in parliament on political corruption in this model. As can be seen in model 5 in table 2, this condition is met. For the fourth condition we need the same model with the effects of the electoral system and women in parliament on political corruption. Now, the effect of the electoral system on political corruption needs to be smaller than in the first model of the mediation analysis (model 4 in table 2). For the dummy PR system with a high district magnitude, the only significant variable from model 4, this is the case. The coefficient for this dummy variable dropped from 11.230 to 3.099. That means that the dummy variable 'PR system with a high district magnitude', with single-member plurality systems as reference category has met all the conditions for a mediation analysis. I could therefore say that the influence of PR systems with high district magnitude as opposed to single-member plurality systems can be explained by the effect of PR systems with high district magnitude on the share of women in parliament. That would mean that hypothesis 5 is accepted.

However, when we take the control variables for this research into account, especially in the first model of the mediation analysis, the support for this hypothesis immediately disappears. When we go from model 4 to model 6 in table 2 and the control variables are included, the significant relationship between a PR system with high district magnitude as opposed to a single-member plurality system fails to stay. That means that the first condition of a mediation hypothesis is not met when control variables are included. Hypothesis 5 read "*The influence of the electoral system on political corruption can be explained by the effect of the electoral*

system on women in parliament". I have to conclude that I can not accept it when controlling for gender quota, economic development and the level of democracy. The influence of the electoral system on political corruption just does not seem to be there.

4.2 Control variables

As we have seen in the discussion of the hypotheses, the control variables in the research had a big impact on the research outcomes. I will now shortly discuss their effects on political corruption as a dependent variable, as can be seen in model 7 in table 2. All of the control variables in this model are statistically significant. First of all, the GDP per capita had a large influence on the level of political corruption in a country. For countries in the upper middle income category, the score on the political corruption index worsens with 10.604 points as opposed to countries in the high income category. For countries in the low and lower middle income category, this effect is in the same direction and it is 7.281 points worse than in high income countries. The level of democracy also has a positive influence on political corruption. With democratic countries as a reference category, every category that is less democratic, is doing worse than the other. In minimal democracies, the level of political corruption is 8.327 points worse than in democratic countries. In ambivalent countries this is a difference of 13.775 and in autocratic countries 20.077. Both the level of democracy and the level of economic development have therefore a positive influence on the level of political corruption.

The existence of gender quota has a significantly negative influence on the level of political corruption. In countries with gender quota the level of political corruption is 4.054 points worse than in countries without gender quota. This effect is only visible when the variable women in parliament is also included in the model. That is probably the case because in model 6, when the share of women in parliament is not yet included, the negative influence of gender quota (which has a positive influence on women in parliament, see model 11 in table 3) is partly cancelled out by the positive influence of the share of women in parliament.

4.3 Sensitivity analysis

To check the robustness of my methods and analysis, I already repeated the analyses with other operationalisations of some of the independent variables. By doing so, I made sure that the results of my analysis are genuine instead of just coincidence. I will now repeat all the analysis again with a different operationalisation of the dependent variable and with a different case selection of countries, to see if that changes anything on the outcomes.

Firstly, I repeated the analysis using a different operationalisation of political corruption. In the original operationalisation, I created a political corruption index by combining one question on corruption in the legislative sphere, and two in the executive sphere. Although these variables highly correlated and were very suitable to be combined in an index, I repeated the analyses with the separate variables as dependent variables. Furthermore, I also created an executive political corruption index by using only the two variables on executive political corruption. None of these reproductions caused any large or interesting changes in the coefficients and p-values in the models.

Secondly, I redid the analysis a few times with a smaller set of cases. I used data from Freedom House to decide whether a country was democratic enough to be included in the dataset, these countries were called electoral democracies. For the control variable level of democracy,

I used a liberal democracy index from V-Dem. In this categorisation, some more authoritarian or less democratic countries were identified in my dataset. I repeated the analysis first by excluding the (closed) autocratic countries from this variable from the dataset and second by also excluding the ambivalent countries. In the last sample, I am therefore left with only the democratic and minimally democratic countries. In the first try when the most autocratic countries were excluded, none of the dummy variables of the 'electoral system and district magnitude' variable were significant anymore in the models 2 and 4 with political corruption as a dependent variable. The effects and significance levels of the 'electoral system and district magnitude' variable on the share of women in parliament decreased as well, but they were still significant. In the second sample with only the (minimally) democratic countries left, the electoral system variables were again not significant in their influence on political corruption. The coefficients and significance levels decreased even more in their influence on the share of women in parliament. These outcomes do not change anything for my previous analysis and acceptation or rejection of the hypotheses.

5. Conclusion

In this chapter, I will wrap up my thesis, answer the research question and discuss shortcomings and future research potentials. The research question that I set out to answer was:

To what extent is the influence of the electoral system on political corruption mediated by the share of women in parliament?

The electoral system was analysed along the line of three core elements: the electoral formula, the district magnitude and the ballot structure. The effect of the electoral formula was expected to be positive for plurality systems as opposed to PR systems with large district magnitudes, with a moderate positive effect for mixed systems and PR systems with small district magnitudes. The district magnitude was expected to lower the political corruption the higher it gets. The ballot structure, lastly, was expected to have a positive effect for open list systems as opposed to closed list systems and plurality systems. None of these elements, however, turned out to have a significant effect on the level of political corruption when control variables were included, irrespective of the inclusion of the share of women in parliament in the model. Even though the influence of the share of women in parliament on political corruption was significant and in the expected direction (a higher share of women in parliament lowers the level of political corruption) and the influence of the electoral formula, district magnitude and ballot structure on the share of women in parliament was significant, that means that there is no mediation relationship with the share of women in parliament. The answer on the research question is therefore: The influence of the electoral system on political corruption is not mediated by the share of women in parliament, because there does not seem to by any influence of the electoral system on political corruption. This is a very relevant outcome for scientific research on the subject of political corruption, and more specifically electoral systems and political corruption. The mediation relationship is now falsified, so other researchers do not have to worry about the potential mediation role of the share of women in parliament anymore.

Nonetheless, I would still recommend others to reproduce this research to be more sure of the reliability of the outcome. The analysis in this thesis still had some shortcomings, so maybe future research could improve upon that. One of the important shortcomings in the data was the data on the ballot structure. The data in my dataset on ballot structure, from the DPI dataset, was only divided into open and closed list systems, whereas there are also systems with flexible list systems. In the DPI dataset it was not clear how countries with these systems were coded, whether they were put into the open or the closed category. Maybe if I would have been able to make a distinction between also flexible list systems, that the outcomes of the research would have been different. It would be really interesting to create a new dataset in which different ballot structures in countries are collected and transparently coded into at least the three categories open, closed and flexible lists.

Furthermore, previous research almost always found significant relationships between elements of the electoral system and political corruption, whereas I did not in this analysis. It would be very valuable for this branch of research to further investigate why this difference occurred. I already tried to find out by running multiple alternative analyses, but I did not find

a significant relationship when using control variables. It would be interesting and important to dive deeper into the reasons for this. Is it the large number of countries that I used, is it the year that I analysed (2017), the way that I operationalised the variables, or maybe the control variables that I chose? This would be worth to further analyse and reflect upon.

One last recommendation has to do with the influence of the share of women in parliament on political corruption. In the theory about this influence, I identified two broad strands: one strand on the input side that argued that women are more risk-averse and would thus want to avoid risks such as acting corrupt. The other line of theory was about the output side, more specifically that women are more inclined to take on the fight against corruption, which will lower the political corruption levels. In this analysis, I only tested the effect, but not the specific theories. It would be interesting to truly test whether one of these theories explains the influence of the share of women in parliament on political corruption better than the other.

On a societal level one could learn from this thesis as well, if they would like to decrease the level of political corruption on a large scale. First of all: it does not seem to really matter how a country structures their electoral system for the level of political corruption, so that is one less thing to worry about. Secondly, the share of women in parliament does have a positive impact on the level of political corruption. If you want to decrease these corruption levels, it might therefore be interesting to enthusiast more women to enter parliament. Thirdly, a higher level of economic development works positively for the political corruption level. However, this is not easy for a country to improve, otherwise there would be no more countries with a low GDP per capita. Although effective, improving the level of economic development to improve political corruption levels might not be feasible for most countries. The last variable that my analysis found to be highly significant and influential for the level of political corruption, was the level of democracy. This is not easy to change either, of course, but if countries were to slowly take steps towards democratisation, maybe their levels of political corruption would decrease too.

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Appendices

Appendix 1: Hypotheses

All the hypotheses that are tested in this thesis:
- *Hypothesis 1*: The higher the share of women in parliament, the lower the political corruption in a country.
- *Hypothesis 2:* If a country uses a plurality formula, the political corruption will be lower than with a mixed formula or a PR formula with low district magnitude, in which it will be lower than with a PR formula with high district magnitude.
- *Hypothesis 3*: The higher the average district magnitude in a country, the lower the political corruption in a country.
- *Hypothesis 4*: If a country has an open list structure, the political corruption will be lower than with a closed list structure or plurality system
- *Hypothesis 5:* The influence of the electoral system on political corruption can be explained by the effect of the electoral system on women in parliament.

Table 4: An overview of hypotheses 1-4 as divided between the input and output side of political corruption

Input	Output
Hypothesis 1: The higher the share of women in parliament, the lower the political corruption in a country.	*Hypothesis 1*: The higher the share of women in parliament, the lower the political corruption in a country.
	Hypothesis 2: If a country uses a plurality formula, the political corruption will be lower than with a mixed formula or a PR formula with low district magnitude, in which it will be lower than with a PR formula with high district magnitude.
	Hypothesis 3: The higher the average district magnitude in a country, the lower the political corruption in a country.
	Hypothesis 4: If a country has an open list structure, the political corruption will be lower than with a closed list structure or plurality system

Appendix 2: Distribution cases among regions

Table 5: The distribution of cases among six politico-geographic regions around the world

Politico-geographic regions	Particularities	N
Eastern Europe and Central Asia	*Including Mongolia*	16
Latin America and the Caribbean		19
The Middle East and North Africa	*Including Israel, excluding Cyprus*	2
Sub-Saharan Africa		18
Western Europe and North America	*Including Cyprus, Australia and New Zealand*	24
Asia and Pacific	*Excluding Australia and New Zealand*	13

Source: Coppedge, Gerring, Knutsen, Lindberg, Teorell, Alizada, et al. (2021)
N: 92

Appendix 3: Data

Table 6: Summary of used data for all cases

Country	Political corruption	Women in parliament (%)	Electoral formula	Ballot structure	District magnitude	Gender quota	GDP per capita	Liberal democracy
Albania	-1,52	27,86	PR	Closed	High	Yes	Middle	Ambivalent
Argentina	0,40	38,91	PR	Closed	Low	Yes	Middle	Minimally democratic
Australia	2,16	28,67	Plurality		1	No	High	Democratic
Austria	1,81	34,43	PR	Closed	Low	No	High	Minimally democratic
Belgium	2,48	38,00	PR	Closed	High	Yes	High	Democratic
Benin	0,75	7,23	PR	Closed	Low	No	Low	Minimally democratic
Burkina Faso	0,70	11,02	PR	Closed	Low	Yes	Low	Ambivalent
Bangladesh	-1,21	20,29	Plurality		1	Yes	Low	(Closed) autocratic
Bulgaria	-0,26	23,75	PR	Closed	Low	No	Middle	Ambivalent
Bosnia and Herzegovina	-0,59	21,43	PR	Open	Low	Yes	Middle	(Closed) autocratic
Bolivia	-0,58	53,08	Mixed	Closed	Low	Yes	Low	(Closed) autocratic
Brazil	-1,08	10,72	PR	Open	High	Yes	Middle	Minimally democratic
Barbados	1,07	16,67	Plurality		1	No	High	Minimally democratic
Bhutan	2,31	8,51	Plurality		1	No	Low	Ambivalent
Botswana	1,10	9,52	Plurality		1	No	Middle	Ambivalent
Canada	2,18	27,00	Plurality		1	No	High	Minimally democratic
Switzerland	2,31	32,50	PR	Open	Low	No	High	Democratic
Chile	1,51	22,58	PR	Closed	Low	Yes	High	Democratic
Ivory Coast	-0,03	10,59	Plurality		1	No	Low	(Closed) autocratic
Colombia	-0,15	18,67	PR	Closed	Low	Yes	Middle	Ambivalent
Comoros	-0,68	6,06	Plurality		1	No	Low	(Closed) autocratic
Costa Rica	0,75	35,09	PR	Closed	High	Yes	Middle	Democratic
Cyprus	1,03	17,86	PR	Open	High	No	High	Minimally democratic
Czech Republic	0,69	22,00	PR	Open	High	No	High	Minimally democratic
Germany	2,68	30,89	Mixed	Closed	Low	No	High	Democratic
Denmark	3,70	37,43	PR	Open	High	No	High	Democratic
Dominican Republic	-1,58	26,84	PR	Closed	Low	Yes	Middle	(Closed) autocratic
Ecuador	-0,14	37,96	Mixed	Closed	Low	Yes	Middle	(Closed) autocratic
Spain	1,62	39,14	PR	Closed	Low	Yes	High	Minimally democratic
Estonia	2,08	26,73	PR	Open	High	No	High	Democratic
Finland	2,76	42,00	PR	Open	High	No	High	Democratic
France	1,68	36,69	Plurality		1	Yes	High	Democratic
United Kingdom	1,82	32,00	Plurality		1	No	High	Democratic
Georgia	1,29	16,00	Mixed	Closed	Low	No	Middle	Ambivalent
Ghana	-0,13	13,09	Plurality		1	No	Low	Minimally democratic
Greece	1,17	19,67	PR	Open	Low	Yes	High	Minimally democratic

Country	Political corruption	Women in parliament (%)	Electoral formula	Ballot structure	District magnitude	Gender quota	GDP per capita	Liberal democracy
Guatemala	-1,54	12,66	PR	Closed	Low	No	Middle	Ambivalent
Guyana	0,23	31,88	PR	Closed	Low	Yes	Middle	Ambivalent
Croatia	0,37	18,54	PR	Closed	High	Yes	High	Minimally democratic
Hungary	-1,18	10,05	Mixed	Open	Low	No	High	Ambivalent
Indonesia	-1,27	19,82	PR	Closed	Low	Yes	Low	Ambivalent
India	-0,06	11,81	Plurality		1	No	Low	Ambivalent
Ireland	2,07	22,15	PR	Open	Low	Yes	High	Democratic
Iceland	2,66	38,10	PR	Closed	High	No	High	Minimally democratic
Israel	0,92	27,50	PR	Closed	High	No	High	Minimally democratic
Italy	1,19	30,95	PR	Closed	High	No	High	Minimally democratic
Jamaica	1,07	17,46	Plurality		1	No	Middle	Minimally democratic
Japan	1,09	10,11	Mixed	Closed	Low	No	High	Minimally democratic
Kenya	-0,93	21,78	Plurality		1	Yes	Low	(Closed) autocratic
South Korea	1,23	17,00	Mixed	Closed	Low	Yes	High	Minimally democratic
Liberia	-1,15	12,33	Plurality		1	No	Low	Ambivalent
Sri Lanka	-0,60	5,78	PR	Open	High	No	Low	Ambivalent
Lesotho	0,50	22,88	Mixed	Closed	Low	Yes	Low	(Closed) autocratic
Lithuania	1,68	21,28	Mixed	Closed	Low	No	High	Minimally democratic
Luxembourg	3,00	28,33	PR	Open	High	No	High	Minimally democratic
Latvia	1,40	16,00	PR	Open	High	No	High	Minimally democratic
Madagascar	-1,37	19,21	Mixed	Closed	Low	No	Low	(Closed) autocratic
Mexico	-1,04	42,60	Mixed	Closed	Low	Yes	Middle	Ambivalent
Malta	0,25	11,94	PR	Open	Low	No	High	Ambivalent
Mongolia	-0,48	17,11	Plurality		1	Yes	Low	Ambivalent
Mauritius	-0,13	11,59	Plurality		1	No	Middle	Minimally democratic
Malawi	-0,79	16,67	Plurality		1	No	Low	Ambivalent
Namibia	0,85	41,35	PR	Closed	Low	No	Middle	Ambivalent
Nigeria	-1,67	5,56	Plurality		1	No	Low	Ambivalent
Netherlands	2,42	36,00	PR	Closed	High	No	High	Democratic
Norway	2,89	41,42	PR	Closed	High	No	High	Democratic
Nepal	-0,30	32,73	Mixed	Closed	Low	Yes	Low	Ambivalent
New Zealand	2,84	38,33	Mixed	Closed	Low	No	High	Democratic
Pakistan	-1,42	20,59	Plurality		1	Yes	Low	(Closed) autocratic
Panama	-0,20	18,31	Mixed	Open	Low	No	Middle	Ambivalent
Peru	-0,11	27,69	PR	Closed	Low	Yes	Middle	Minimally democratic
Philippines	-0,71	29,45	Mixed	Closed	Low	No	Low	(Closed) autocratic
Papua New Guinea	-2,00	0,00	Plurality		1	No	Low	(Closed) autocratic
Poland	1,61	28,04	PR	Closed	High	Yes	High	Ambivalent
Portugal	1,45	35,65	PR	Closed	High	Yes	High	Democratic
Paraguay	-1,40	13,75	PR	Closed	Low	Yes	Middle	Ambivalent
Romania	-0,36	20,67	PR	Closed	Low	No	Middle	Ambivalent
Senegal	0,77	41,82	Mixed	Closed	Low	Yes	Low	Ambivalent

Country	Political corruption	Women in parliament (%)	Electoral formula	Ballot structure	District magnitude	Gender quota	GDP per capita	Liberal democracy
Solomon Islands	-0,74	2,00	Plurality		1	Yes	Low	Ambivalent
Sierra Leone	-1,01	12,40	Plurality		1	No	Low	(Closed) autocratic
El Salvador	-0,10	32,14	PR	Closed	Low	Yes	Low	Ambivalent
Slovakia	0,33	20,00	PR	Closed	High	No	High	Minimally democratic
Slovenia	0,70	36,67	PR	Open	High	Yes	High	Minimally democratic
Sweden	3,38	43,55	PR	Closed	High	No	High	Democratic
Timor-Leste	0,02	32,31	PR	Open	High	Yes	Low	Ambivalent
Trinidad and Tobago	1,43	30,95	Plurality		1	No	High	Minimally democratic
Tunisia	1,27	31,34	PR	Closed	Low	Yes	Low	Minimally democratic
Tanzania	0,33	37,18	Plurality		1	Yes	Low	(Closed) autocratic
Ukraine	-1,05	12,29	Mixed	Closed	Low	No	Low	(Closed) autocratic
Uruguay	2,30	20,20	PR	Closed	Low	Yes	High	Democratic
United States of America	1,10	19,44	Plurality		1	No	High	Minimally democratic
South Africa	-0,32	42,13	PR	Closed	High	No	Middle	Minimally democratic

Sources: Coppedge, Gerring, Knutsen, Lindberg, Teorell, Alizada, et al. (2021); Cruz et al. (2021); The World Bank (2021)

Appendix 4: Descriptives

Table 7: Descriptive statistics

Variable	Valid N	%	Minimum	Maximum	Mean	Standard deviation
Political corruption	92		30.01	87.04	55.60	13.68
Women in parliament	92		0.00	53.08	24.13	11.45
Electoral formula & district magnitude	92					
Plurality & district magnitude 1	26	28.26				
Mixed & district magnitude low	17	18.48				
PR & district magnitude low	24	26.09				
PR & district magnitude high	25	27.17				
Open list	92					
Closed list & plurality	74	80.43				
Open list	18	19.57				
Gender quota	92					
No	53	57.61				
Yes	39	42.39				
GDP per capita	92					
High income	40	43.48				
Upper middle income	22	23.91				
Low & lower middle income	30	32.61				
Liberal democracy	92					
Democratic	18	19.57				
Minimally democratic	29	31.52				
Ambivalent	29	31.52				
(Closed) autocratic	16	17.39				

Sources: Coppedge, Gerring, Knutsen, Lindberg, Teorell, Alizada, et al. (2021); Cruz et al. (2021); The World Bank (2021)

Appendix 5: Political corruption variables

Table 8: Information on political corruption variables from the V-dem dataset

Variable	Question	Answer categories	Source
Political corruption: Legislature corrupt activities	Do members of the legislature abuse their position for financial gain? *Clarification*: This includes any of the following: (a) accepting bribes, (b) helping to obtain government contracts for firms that the legislator (or his/her family/friends/political supporters) own, (c) doing favors for firms in exchange for the opportunity of employment after leaving the legislature, (d) stealing money from the state or from campaign donations for personal use.	0: Commonly. Most legislators probably engage in these activities. 1: Often. Many legislators probably engage in these activities. 2: Sometimes. Some legislators probably engage in these activities. 3: Very occasionally. There may be a few legislators who engage in these activities but the vast majority do not. 4: Never, or hardly ever.	Coppedge, Gerring, Knutsen, Lindberg, Teorell, Altman, et al. (2021, p. 148)
Political corruption: Executive bribery and corrupt exchanges	How routinely do members of the executive (the head of state, the head of government, and cabinet ministers), or their agents, grant favors in exchange for bribes, kickbacks, or other material inducements?	0: It is routine and expected. 1: It happens more often than not in dealings with the executive. 2: It happens but is unpredictable: those dealing with the executive find it hard to predict when an inducement will be necessary. 3: It happens occasionally but is not expected. 4: It never, or hardly ever, happens.	Coppedge, Gerring, Knutsen, Lindberg, Teorell, Altman, et al. (2021, p. 112)
Political corruption: Executive embezzlement and theft	"How routinely do members of the executive, or their agents grant favors in exchange for bribes, kickbacks, or other material inducements, and how often do they steal, embezzle, or misappropriate public funds or other state resources for personal or family use?	0: Constantly. Members of the executive act as though all public resources were their personal or family property. 1: Often. Members of the executive are responsible stewards of selected public resources but treat the rest like personal property. 2: About half the time. Members of the executive are about as likely to be responsible stewards of selected public resources as they are to treat them like personal property. 3: Occasionally. Members of the executive are responsible stewards of	Coppedge, Gerring, Knutsen, Lindberg, Teorell, Altman, et al. (2021, p. 113)

most public resources but treat
selected others like personal
property.
4: Never, or hardly ever. Members of
the executive are almost always
responsible stewards of public
resources and keep them separate
from personal or family property.

Table 9: Correlation matrix for Political Corruption

|	Legislature corrupt activities	Executive bribery and corrupt exchanges	Executive embezzlement and theft
Legislature corrupt activities			
Executive bribery and corrupt exchanges	0,855***		
Executive embezzlement and theft	0,840***	0,942***	

N = 92
* *p* < 0.05; ** *p* < 0.01; *** *p* < 0.001; (two-tailed)
Source: Coppedge, Gerring, Knutsen, Lindberg, Teorell, Alizada, et al. (2021)
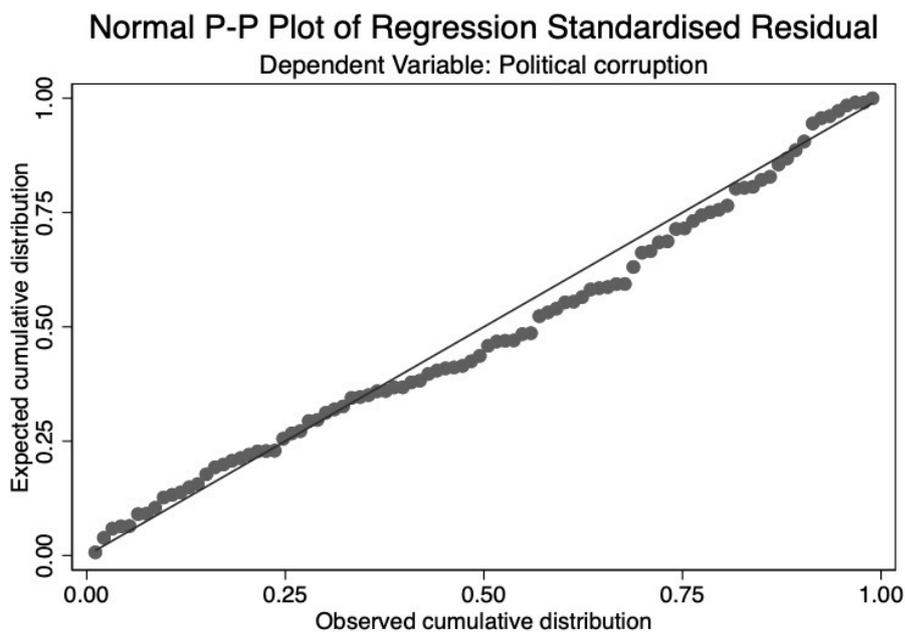
Appendix 6: Normal distribution

Figure 2: Frequency graph of the standardized residuals of the regression
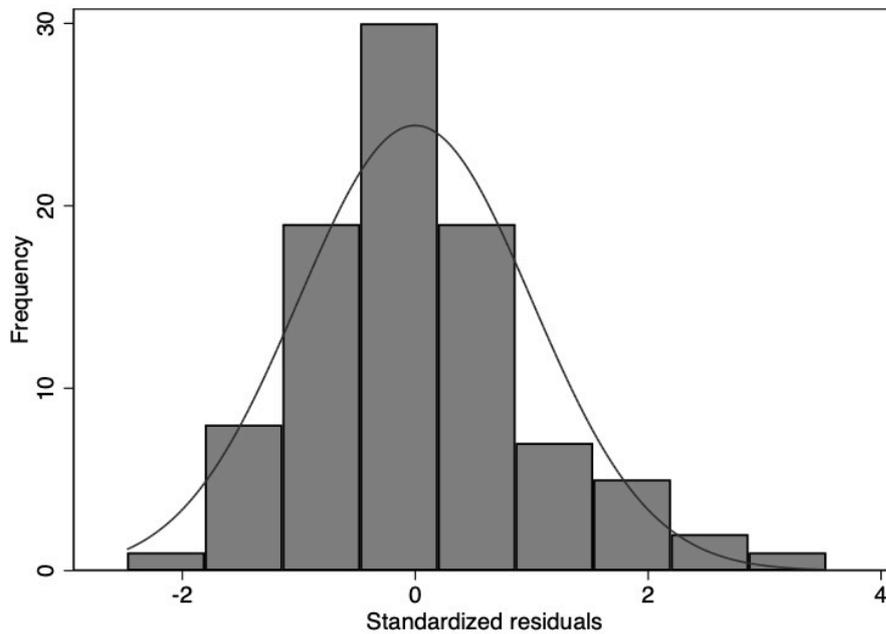
Sources: Coppedge, Gerring, Knutsen, Lindberg, Teorell, Alizada, et al. (2021); Cruz et al. (2021); The World Bank (2021)
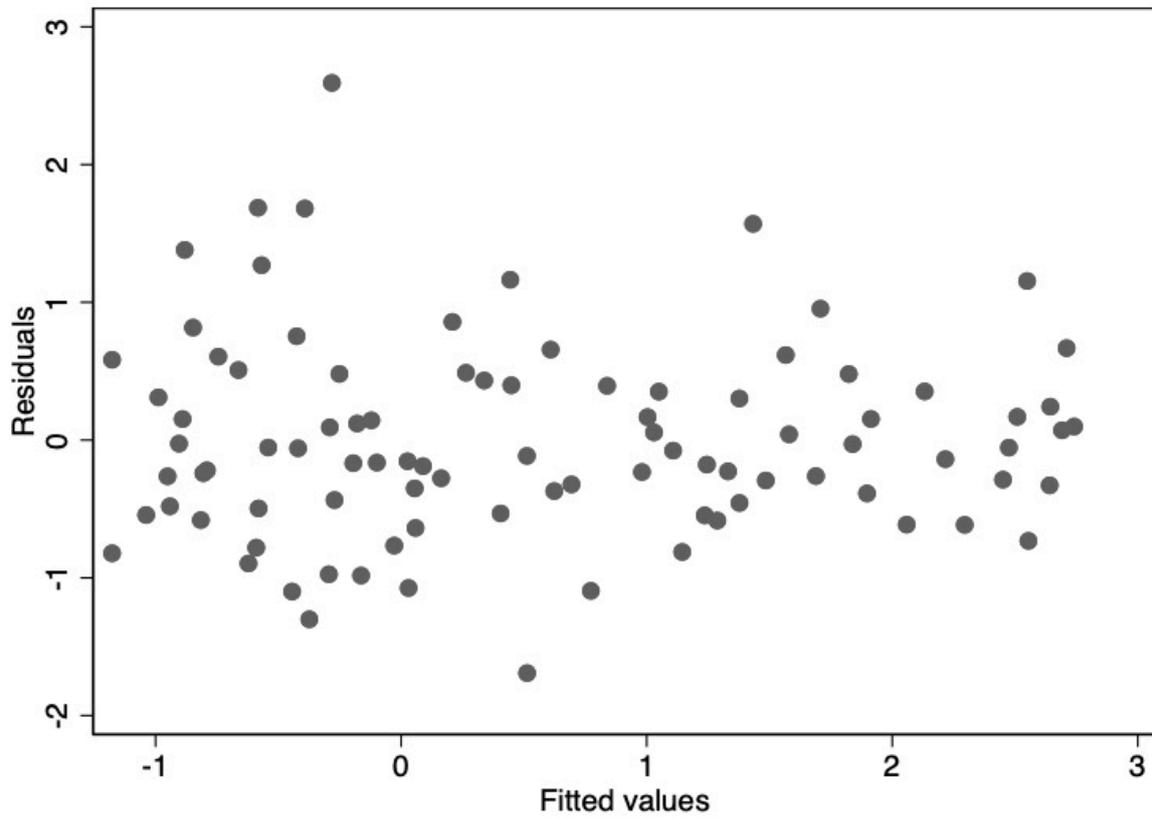
Figure 3: P-P plot showing the dispersion from the normal distribution

Sources: Coppedge, Gerring, Knutsen, Lindberg, Teorell, Alizada, et al. (2021); Cruz et al. (2021); The World Bank (2021)

Appendix 7: Homoscedasticity

Figure 4: Scatterplot of the fitted (predicted) values against the residuals of the regression analysis with political corruption as dependent variable

Sources: Coppedge, Gerring, Knutsen, Lindberg, Teorell, Alizada, et al. (2021); Cruz et al. (2021); The World Bank (2021)

Appendix 8: Multicollinearity

Table 10: Multicollinearity in independent variables

	VIF	Tolerance
Women in parliament	1.68	0.59
Electoral formula & district magnitude		
Plurality & district magnitude 1	Reference	Reference
Mixed & district magnitude low	1.63	0.61
PR & district magnitude low	2.07	0.48
PR & district magnitude high	2.48	0.40
Open list		
Closed list & plurality	Reference	Reference
Open list	1.39	0.72
Gender quota		
No	Reference	Reference
Yes	1.30	0.77
GDP per capita		
High income	Reference	Reference
Upper middle income	2.11	0.47
Low & lower middle income	3.25	0.31
Liberal democracy		
Democratic	Reference	Reference
Minimally democratic	2.13	0.47
Ambivalent	3.80	0.26
(Closed) autocratic	3.42	0.29
Mean	2.30	

Sources: Coppedge, Gerring, Knutsen, Lindberg, Teorell, Alizada, et al. (2021); Cruz et al. (2021); The World Bank (2021)