DEPARTMENT OF POLITICAL SCIENCE
CENTRE FOR EUROPEAN STUDIES (CES)

# CORRUPTION IN EUROPE

## Economic determinants

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| Bachelor thesis: | 15 credits |
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# Abstract

Corruption is a phenomenon which affects societies negatively in various ways. The costs of corruption are pollical, economic and social, as well as environmental. The phenomena have numerous explanations, and this study focuses on the economic determinants of corruption being economic development, economic freedom and income distribution. The aim with this study is to examine the relationship between corruption and its economic determinants, answering the research question "*How does economic determinants, such as economic development, economic freedom and income distribution, affect corruption in Europe?"*. Previous research has placed great emphasis on the relationship between economic components and corruption, however more focus on the determinants and their effects on corruptions needs to be contributed. Further, the relationship needs more recent examination as well as focus on the European countries. By using data from the Quality of Government Institute (QoG), regression analysis is carried out examining the relationship between corruption and its economic determinants. The results indicate that some economic determinants have an effect on corruption in Europe, where economic development has an explanatory effect, and economic freedom has a direct effect on corruption. Income distribution indicated no significance when testing at a bivariate level but turned out significant at a multivariate level with controls.


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# Table of content

# Introduction

Europe as a continent has some of the cleanest economies in the world, in terms of being free from corruption. Although, when measuring levels of corruption in Europe, results shows that corruption exists. Despite the fact that it exists, it is also frequently increasing (MacDonald and Majeed, 2011). The levels of corruption in Europe are still relatively low when comparing to developing economies around the world. Thus, when comparing some of the more developed countries in Europe, some are more corrupt than other although they might have a more developed economy than the other. Within Europe, the corruption levels vary a lot from county to country (MacDonald and Majeed, 2011). It does not seem to matter whether a country is located near a less or more corrupt country, the levels of corruption still differ. The corruption is neither bound to stay within just one country, although it can. (MacDonald and Majeed, 2011).

Corruption is a complex phenomenon which has numerous consequences and explanations. It is usually understood as '*misuse of public power for private benefit'*, where the *'private benefit'* may accumulate on different levels (Lambsdorff, 2005b, p.4). Corruption can be attributed to local, national and regional, as well as global level. One can see corruption as a general disarray that permeates and distorts the economic and political system, primarily at a country level, although often with international siding. On a concrete level it is about immense amounts of money diverted from public funds, often relocated through companies and offshores in a way that makes it difficult to trace, to subsequently use the money for private interests. On a national, regional and global level the question is closely related to for example embezzlement, tax avoidance, money laundering, bribery, nepotism and VAT frauds (OECD, 2020).

Societies suffer from corruption in a variety of ways, since it has a negative impact on the politics, economy, social context and the environment. The negative impact on politics imprints on the democracy and rule of law. It is damaging both established and developing democracies since the actions of corruption makes institutions and offices lose their legitimacy. Corrupt societies also suffer economically and make them loose their national wealth. Politicians misuse

their public power for private benefits by for example investing public resources in projects, commonly being infrastructural enlengthened processes. These projects are in line with the politician's pockets which makes them wealthier while the society suffers from their actions. Corruption also affects the market negatively by being an obstacle for fair structures and competition, thus hinders investments. Corruption also destroys the structure in a society as it undermines citizen's trust in political institutions and politicians. This kind of situation makes it even harder to fight the corruption. Further, corrupt societies often either lacks or do not apply the environmental regulations and legislation which results in the environment suffering from corruption. It has serious consequences meaning that entire ecological systems are being destroyed and valuable natural resources are being disrespectfully advantaged (International, 2020).

What causes corruption, and in turn results in these consequences, cannot be explained by only one determinant. The phenomenon is complex and exists through many different factors. Common determinants of corruption are the political and economic environment, authority's ethics and morality, as well as tradition, religion and geographic factors (Lambsdorff, 2005a; Rose-Ackerman, 1996). However, this study will focus on the economic determinants of corruption which many researchers have pointed out as causes of corruption (Ahmed et al., 2004; Ata and Arvas, 2011; Bosco, 2016; MacDonald and Majeed, 2011; Paldam, 2002; Rose-Ackerman, 1996). Economic development is the first determinant of corruption which will be focused on in this study. It is one of the well-known causes of corruption, as corruption mostly appears in poor and middle-income countries. Corruption tends to decrease when a great transition is made into becoming a high-income country (Paldam, 2002).

Economic development is also declared as a continual determinant of corruption since more recent literature (Bosco, 2016) does not differ from previous literature (Paldam, 2002). The fact that increased economic development reduces corruption levels also indicates that rich and developed countries have the inquiry for institutional control, as well as good governance which decreases corrupt and illegal activities among officeholders (Bosco, 2016). Furthermore, rich countries also have the ability to afford efficient tax administration and provide higher salaries

to the highest state administration (Bosco, 2016), as well as reduce discount rates of both bribery givers and takers (MacDonald and Majeed, 2011). In contrast to wealthy societies, countries with low income levels close to minimal wealth rather encourages corrupt solutions to enable higher incomes (MacDonald and Majeed, 2011).

The second determinant of corruption that will be focused on is economic freedom. Countries with low economic freedom and much regulation tend to be rent seeking and high in corruption, as restricting the economic freedom, expectably reduces the competition levels which in turn also encourages corruption (Ades and Tella, 1999; Paldam, 2002). The regulatory regime has an important economic role that interacts with the inflation levels. The illegal rent seeking is a huge problem of corruption and the correlation between high levels of corruption and potential for rent seeking is strong (Paldam, 2002). Researches have also been studying on the extent to which corruption can be explained by low level of competition between private firms (Ades and Tella, 1999; Paldam, 2002). The explanation between this link is that when the competition is low and restricted, the profits increase which in turn means that politicians can make the most out of the situation and inflict the profits in exchange for a share (Ades and Tella, 1999).

The third economic determinant of corruption that will be focused on is income distribution. The corruption level is often higher when there is a skewed income distribution. This correlation occurs as a consequence of inequality and poverty, which leads to an increased inducement for illegal gains, thus corruption. A skewed income distribution should result in a high level of corruption (Paldam, 2002), and empirical results ascertain that corruption increases when the income distribution does (Ata and Arvas, 2011). However, income distribution does not always appear statistically significant, but should not be excluded as potential correlation in future research (Paldam, 2002; Treisman, 2007). For example, Paldam (2002) believes that that a skewed income distribution should result in a high level of corruption, although his study does not show strong empirical evidence. There is a connection between skewed income distribution and high corruption, but these results are not robust (Paldam, 2002). Therefore, further research should be done in this relation (Paldam, 2002; Treisman, 2007), for instance by adding more

countries to the dataset and representing a complete global selection, income distribution shows up statistically significant (Ahmed et al., 2004).

Most of the research on the extent of economic determinants of corruption is not quite recent nor up to date (Ades and Tella, 1999; Ahmed et al., 2004; Ata and Arvas, 2011; Bosco, 2016; Gerring and Thacker, 2005; MacDonald and Majeed, 2011; Paldam, 2002; Rose-Ackerman, 1996; Sandholtz and Koetzle, 2000; Treisman, 2007). There are only a few studies with specific focus on Europe (Bosco, 2016; MacDonald and Majeed, 2011) and it is also more common to study the effects of corruption rather than its causes. Therefore, my ambition is to contribute with a study on how economic determinants affects corruption that is more up to date, as well as prioritizing the European countries. I believe that it is important to raise awareness in the extent that even Europe, with one of the cleanest economies, is corrupt with underlaying economic causes. Since some of the economic determinants are continual it is also interesting to see if it is still the case, and also if some of determinants are more or less correlated than in previous research.

## Aim

This study aims to examine the relationship between corruption and economic determinants such as economic development, economic freedom and income distribution. Based on previous theories on the relationship, I aim to contribute to the field of research with more focus on the effect that economic determinants have on corruption, rather than the effects of corruption. This study also aims to contribute more recent statistics on the topic, as well as focusing on the European countries. Due to this, my research question is:

*How does economic determinants, such as economic development, economic freedom and income distribution, affect corruption in Europe?*

## Disposition

The thesis will begin with presenting previous research and my theory regarding corruption and its explanatories; economic development, economic freedom and income distribution. Furthermore, I will go through my chosen quantitative method and the material I am using. After that follows my results with interpretation, and lastly ending my thesis with discussion, conclusions and proposals for future research.

# Previous research and theory

## Corruption

In this study corruption is measured according to The Bayesian Corruption Index which is a composite index of the apprehended overall level of corruption (Standaert, 2015). Within the framework of The Bayesian Corruption Index, corruption is defined as '*misuse of public power for private benefit'* (Lambsdorff, 2005b, p.4). Considering the hidden character of corruption, direct measures are hard to archive. Therefore, the comprehensive corruption is compounded by opinions on corruption levels from inhabitants of the country, operative companies, non-governmental organisations and office holders from both governmental and supranational organizations (Standaert, 2015).

Corruption occurs when public power and private wealth superimpose. It is practised by political leaders who does business with private actors, for instance by buying off politicians with deals including money or job opportunities, but also by interfering with criminal groups and wealthy business interests. Politicians are practising a decision-making with an illegal use of willingness-to-pay. The repressive development within the central relationship is the key to the corrupt activity. Officeholders encourage briberies to take measure, even though it is often against their principal's interests. However, there is a distinction between low-level selfish payments, and systematic corruption. Low-level briberies are often practised by officeholders in countries with a history of civil war or with very weak governments. In this case the officeholders are working under unclear rules which makes it easy for them to invent illegal acts or compel funds from ordinary people. In some cases, public authorities even provide protection for ordinary people who practice illegal activates such as smuggling or trafficking arms (Rose-Ackerman, 1996).

Low-level corruption can result into inefficient and injustice distribution of already narrow benefits. It can also weaken the aspire of public programmes, encourage bureaucracy, make it more expensive doing business and lower the legitimacy of the state. In post-conflict countries aiming for economic development, corruption makes it even harder which further slows down

the process of economic recovery. High-level corruption has similarities to low-level, corruption, but at a deeper level which is destructing for the state functioning. It can bring the state to a collapsing point and undermine the economy. In a post-conflict state, high-level corruption could lead to hit the actual bottom (Rose-Ackerman, 1996).

Even in some of the cleanest economies in the world, such as countries located in Europe, corruption occurs. When measuring levels of corruption in Europe, results shows that corruption exists. In a time period between 1984 and 2007, the average corruption level in Europe has increased by 22 percent of the corruption index (MacDonald and Majeed, 2011). Despite the fact that the average corruption level in Europe is increasing, the levels are still relatively low when comparing to developing economies. Thus, when comparing some of the more developed countries in Europe, some are more corrupt than other although they might have a more developed economy than the other. Corruption levels varies across Europe, from country to country. It does not seem to matter whether a country is located near a less or more corrupt country, the levels still differ (MacDonald and Majeed, 2011). Nevertheless, within the European Union where a boarder free environment is provided for the citizens, the corruption is convenient to blossom over boarders. Corruption is not bound to stay within just one country, although it can (MacDonald and Majeed, 2011).

## Economic determinants of corruption

Many researchers have pointed out the economic determinants of corruption, and some economic factors are more determinant to corruption than others (Ahmed et al., 2004; Ata and Arvas, 2011; Bosco, 2016; MacDonald and Majeed, 2011; Paldam, 2002; Rose-Ackerman, 1996). Most of the researches on economic determinants of corruption are focusing on market corruption or bribery, since a common view of corruption is mistreating power of the public office for self-interests. Therefore, the focus of what is left to counteract the corruption, often leads to discretionary power, economic rents and weak institutions (Aidt, 2003). However, corruption is complicated and consists of multiple parts, even among the economic factors which results in many different theories. However, this study will focus on the economic determinants such as economic development, economic freedom and income distribution.

### *Economic development*

Corruption mostly appears in poor and middle-income countries, and the corruption tends to disappear when they do a great transition into becoming high-income countries. Rich countries are transparent and fast in their transactions and therefore also efficient, whilst in poor countries corruption is a further factor which makes transactions even slower, non-transparent and therefore more inefficient (Paldam, 2002). Countries with less reported corruption and better functioning government, often tends to be wealthier and have higher growth rates. Nevertheless, it is indefinable if low levels of economic development and income is the cause or consequence of corruption. Presumably, there is a causal relationship in both directions, meaning that the causal arrow most likely runs both ways between corruption and economic development (Rose-Ackerman, 1996).

Recent literature (Bosco, 2016) does not differ from more previous literature (Paldam, 2002), which indicates that economic development is a continual determinant of corruption. Latter results still indicates that corruption is reduced by an increased economic development measured in GDP per capita, however the analysis includes only European countries (Bosco, 2016). The fact that increased economic development reduces corruption levels also indicates that rich and developed countries have the inquiry for institutional control, as well as good governance which decreases corrupt and illegal activities among officeholders (Bosco, 2016). Furthermore, rich countries also have the ability to afford efficient tax administration and provide higher salaries to the highest state administration (Bosco, 2016). This is acknowledged by other researchers as well (i.e. MacDonald and Majeed, 2011).

A high level of economic development affects corruption in various ways, for example it reduces discount rates of both bribery givers and takers which increases the illegal activity since they will not find it as keen anymore. Punishment costs as deterrent for corruption works good for wealthy individuals since the cost may be much higher for them. Further, similarly as mentioned before (Bosco, 2016) rich societies do not accept corruption since the citizens are aware of their rights and often reacts to illegal activities such as corruption (MacDonald and

Majeed, 2011). In contrast to wealthy societies, countries with low income levels close to minimal wealth rather encourages corrupt solutions to enable higher incomes (MacDonald and Majeed, 2011). The problem with economic development in relation to corruption is relevant even in Europe. Although many of the European countries are developed economies, there are still other European countries that are not developed economies. The variety makes the European countries relevant, but also putting the corruption and economic development in relation to other factors affecting corruption ( Bosco, 2016; MacDonald and Majeed, 2011).

*Hypothesis 1: The higher the level of economic development, the lower the level of corruption.*

### *Economic freedom*

Countries with low economic freedom and much too regulation tend to be rent seeking and high in corruption. However, regulation is still needed in order to ensure competition between companies and to prevent monopoly (Ades and Tella, 1999; Paldam, 2002). The illegal rent seeking is a huge problem of corruption and the correlation between high levels of corruption and potential for rent seeking is strong. However, this leads to the importance of economic freedom (Paldam, 2002). The higher the level of economic freedom, the more the opportunities for rent seeking decreases, thus a reduce of corruption levels (MacDonald and Majeed, 2011). Low economic freedom is statistically significant as a determinant of corruption (Ata and Arvas, 2011), which the previous relationship mentioned between high levels of corruption and potential for rent seeking also points out. When the economic freedom index increases with one point, the corruption index increases with approximately 1,3416 points (Ata and Arvas, 2011). Higher points in economic freedom index means less economic freedom and higher points in corruption index means higher degree of corruption (Ata and Arvas, 2011; Paldam, 2002).

Researchers have been studying on the extent to which corruption can be explained by low level of competition between private firms (Ades and Tella, 1999; Paldam, 2002). The explanation between this link is that when the competition is low and too restricted, the companies' profits increase. However, the low competition is a result of biased government policy which profits specific companies. This turn gives politicians profits back in form of for example bribes or shares in the company (Ades and Tella, 1999). There is a tendency for lower wages when the

competition is low, since it becomes less attractive to elicit integrity. Thus, the low wages also avert corruption since the profits to corrupt officeholders fall with competition. However, results show that there is a significant relation between economic freedom and clean government (Ades and Tella, 1999), which other studies also confirms in similar ways (Gerring and Thacker, 2005; Sandholtz and Koetzle, 2000).

*Hypothesis 2: The higher the level of economic freedom, the lower the level of corruption.*

### *Income distribution*

The corruption level is often higher when there is a skewed income distribution (Paldam, 2002). When the income distribution is more equal in a society, there will be a larger middle class. The middle class can act to hold for example officeholders responsible for their actions, which in turn prevents high levels of corruption (Ata and Arvas, 2011). This in contrast to a society in which the income distribution is highly inequal. When the income distribution is highly unequal, there will be a small group of very wealthy people who will have greater motivation and opportunity to use bribery and fraud. The use of bribery and fraud helps them maintain but also advance their status (Ata and Arvas, 2011). Also, the high inequality of income entails poverty which can lead to an increased inducement for illegal gains, thus corruption (Ata and Arvas, 2011; Paldam, 2002). When people in poverty tries to sustain their lives, they might gain illegal income which in turn sustains the corruption (Ata and Arvas, 2011).

Paldam's (2002) theory is that a skewed income distribution should result in a high level of corruption, although his study does not show strong empirical evidence. There is a connection between a skewed income distribution and high corruption, but his study does not give robust results. Therefore, further research should be done in this matter (Paldam, 2002). However, other empirical results ascertain that one point increase in the income distribution decreases the corruption index by 0,1080 point, meaning that corruption increases when the income distribution does (Ata and Arvas, 2011). This shows the causal relationship where income distribution affects the level of corruption (Ata and Arvas, 2011). However, income distribution does not always appear statistically significant, but should not be excluded as potential correlation in future research (Paldam, 2002; Treisman, 2007). For example, Paldam (2002)

believes that that a skewed income distribution should result in a high level of corruption, although his study does not show strong empirical evidence. There is a connection between skewed income distribution and high corruption, but the study does not give robust results (Paldam, 2002). Therefore, further research should be done in this relation (Paldam, 2002; Treisman, 2007). For instance, by adding more countries to the dataset and representing a complete global selection, income distribution shows up statistically significant (Ahmed et al., 2004).

*Hypothesis 3: The higher the level of equality in distribution income, the lower the level of corruption.*

### Other determinants of corruption

Other determinants of corruption that are going to be included in my analysis are democracy, education and also fractionalization such as religion and ethnic. These are alternative explanatories to corruption.

Democracy often turns out as a statistically significant determinant of the luck of corruption, but it is important to note that democratic elections alone do not always cure corruption (Rose-Ackerman, 1999). Special interests sometimes play a major roll, but some specific electoral systems are more sensitive to it than others. Some groups practice legal behaviour, while other practice corruption when narrow groups maintains the power. In this decision, the character of the political system plays a crucial role. However, having a democratic electoral system which is competitive, helps to restrict corruption since opposition candidates have motivation for exposing their corrupt opponent leaders. But after all, democratic election systems have their negative effect on corruption as well. When campaigning for elections, some choose to use illegal accessions and bribe politicians. This is a way of undermining the democracy and add negative effects to it (Rose-Ackerman, 1999).

Higher educated people are more likely to be put in a position to bribe. High income and education have significant positive effects on the tendency of being prompted to bribe in

developing countries. However, this is only applicable in developing countries. In already developed countries the impact of high income and education is statistically insignificant. The reason why this group of people are more targeted is because higher education and incomes brings them closer to the government (Mocan, 2008; Rose-Ackerman, 1996).

Between ethnic fractionalization and institutional efficiency, a negative and significant correlation is found. In an ethnically fractionalized society conflict could appear and thereby cause political instability, even worse cases like war. Having many different ethnical groups in a society is also scientifically correlated to high levels corruption. The reason for the correlation is that bureaucrats might benefit their ethnic group (Mauro, 1995). However, religious fractionalization shows statically significance as a determinant of corruption, but it turns out that a country with a great religious diversity has less corruption than a country with only one dominant religion (Paldam, 1999) Although, the same argument as for ethnic fractionalization has been used when talking about religious fractionalization. At the same time as religious diversity is claimed as a great favour for a country, religious diversity might also lead to political and social instability in a society. And just like ethnicity, it could lead to worse conflicts such as civil war (Paldam, 1999). Despite that argument, Paldam (1999) claims that in terms of corruption, religious diversity is an obvious favour.

# Method and material

## Method

I have chosen to perform a quantitative study by using cross-section data from the Quality of Government Institute (QoG) 2019 (Teorell et al., 2019). Since the aim of my study is to investigate in the relationship between corruption and selected economic determinants, I am going to perform a cross-sectional regression analysis. The analysis will test what impact my independent variables have on my dependent variable, controlling for a set of indicators representing alternative explanations for corruption.

I will begin with bivariate regressions for each of the independent variables acting as economic determinants of corruption, followed by a multivariate regression with all of the independent variables included. The reason why I choose to do both bivariate and multivariate regressions is because the multiple regression analysis is sensitive to certain types of relationships between variables. I have to be fully aware that multicollinearity could appear. If some predictors turn out to be collinear, the result could be disordered and then I will not include the multivariate regression in my study. In any case, I will start with the bivariate regressions on each variable and that will give me a broader view of the relationships between the dependent variable and each independent variable separately. Because of the sensitivity to certain types of relationships between variables in multiple regression, I will make sure to perform both the bivariate and multivariate regressions once again, but under control of other variables. The control variables are also recognized determinants of corruption, but not economic. This second round of regressions enables me to analyse the relationships once again and also observe if the impact changes under control of other variables recognized as determinants of corruption. With this method I hope for a result that can show more empirical perception for economic determinants of corruption.

I had to choose between time-series and cross-section data. I decided to do a time-series analysis, since it was optimal for my primary idea. I wanted to test the relationship of my variables between 2010 and 2015, unfortunately it would have been too challenging considering

I have not gotten the opportunity learning the method yet. My time would not be enough within the framework of a bachelor thesis (Esaiasson et al., 2017). By doing a cross-section analysis I will still be able to test the relationship of my variables near the same time period. Data from 2015 is prioritized in the cross-section data set and thereby a maximum of plus/minus three years (Teorell et al., 2019).

## Material

### Selection

All of the variables that will be used in this study are retrieved from the Quality of Government Standard Dataset (QoG) 2019 (Teorell et al., 2019). As described in my method, I have chosen to use the QoG cross-section dataset where data from around 2015 is included. The 2015 data is prioritized, yet if data from 2015 does not exist for a country, data from 2016 will be included instead. If neither the 2015 nor 2016 data exist for a country, then data from 2014 will be included instead. Consequently, the maximum goes upon three years plus or minus from 2015 (Teorell et al., 2019). This study has a focus on European countries; and data for the set of variables of interest for 42 European countries included into the analysis (see Annex 1). The more countries included, the more generalized and comprehensive overall results.

### Dependent variable

For my dependent variable representing corruption, I am going to use the Bayesian Corruption Index (BCI) downloaded from the Quality of Government Standard Dataset (QoG) 2019 (Teorell et al., 2019). The index values lay between 0-100, where an increase is corresponding to a rise in the level of corruption (Teorell et al., 2019). The Bayesian Corruption Index is a compounded index of the apprehended overall level of corruption (Standaert, 2015). Within the framework of The Bayesian Corruption Index, corruption is mentioned as '*misuse of public power for private benefit'* (Lambsdorff, 2005b, p.4). Considering the hidden character of corruption, direct measures are hard to archive. Therefore, the apprehended corruption is compounded by opinions on corruption levels from inhabitants of the country, operative

companies, non-governmental organisations and office holders from both governmental and supranational organizations. The index is an composition of 17 different surveys and 110 different survey questions that comprehends the perceived level of corruption (Standaert, 2015).

### Independent variables

My first independent variable represents economic development. The measure I will use is Real Gross Domestic Product per Capita (GDP), which originally is from Madison Project Database (MPD) 2018 (Bolt et al., 2018) and transferred to the Quality of Government Standard Dataset (QoG) 2019 (Teorell et al., 2019). Madison Project Database 2018 provides information on comparative economic growth and income levels over a very long time. The version of 2018 that will be used in this study covers 169 countries until 2016. The Real GDP per Capita is measured in 2011 US dollars with multiple benchmarks (Bolt et al., 2018; Teorell et al., 2019).

My second independent variable represents economic freedom. The measure I will use is Economic Freedom of the World Index (EFI) produced by Fraser Institute in Economic Freedom of the World Dataset 2016 (Gwartney et al., 2016). The dataset was later transferred to the Quality of Government Standard Dataset (QoG) 2019 (Teorell et al., 2019). The Economic Freedom of the World Index is based on objective components reflecting the presence of economic freedom. The index includes 21 components created to recognize the consistency of institutional arrangements and economic freedom policies in five different fields. These includes size of government, legal structure and security of property rights, access to sound money, freedom to trade internationally and lastly regulation of credit, labour and business. The index is scaled from 0-10 where it starts from less economic freedom to more economic freedom.

My third and last independent variable serves for income distribution. It will be measured by a GINI Index (GINI) retrieved from The World Bank 2016 collection of development indicators (Bank, 2016). The collection is transferred to the Quality of Government Standard Dataset (QoG) 2019 (Teorell et al., 2019). The GINI Index shows to which extent the distribution of

income between individuals or households in an economy diverge from a perfect equal distribution. The cumulative percentage of the total income towards the cumulative number of receivers is plotted by a Lorenz curve. It begins with the poorest individual or household. The GINI Index then measures the field between the Lorenz curve and a hypothetic line of absolute equality. The indication shows in percentage of the upper limit in the field under the line of absolute equality. This means that 0 represents perfect equality, while 100 serve as perfect inequality (Teorell et al., 2019).

### Control variables

The control variables will allow me test wheatear the status of the explanatory variables remain unchanged, significant or not significant, regardless of adding other variables that potentially affects corruption levels.

My first control variable stands for democracy. I am going to use an Electoral democracy index (EDI) from the Varieties of Democracy Dataset version 8 (V-Dem) 2018 (Coppedge et al., 2018). The Varieties of Democracy is an updated and innovative approach for measuring and conceptualizing democracy. The V-dem Dataset version 8 that I am going to use is transferred into the Quality of Government Standard Dataset (QoG) 2019 (Teorell et al., 2019). The variable standing for democracy is based on the question: *'To what extent is the ideal of electoral democracy in its fullest sense achieved?'* (Teorell et al., 2019).

My second control variable is a Human Capital Index (HCI) which measures education based on years of schooling and assumed returns. The index is originally from the database Penn World Table version 9.0 which provides information on relative levels of income, output, inputs and productivity. The dataset includes cases from 1950 to 2014 on 182 countries (Feenstra, 2015). The Human Capital Index from Penn World Table is transferred to the Quality of Government Standard Dataset (QoG) 2019 (Teorell et al., 2019) where I have retrieved it from.

I am going to use two fractionalization variables as controls. The first one is ethnic fractionalization that represents my third control variable. The variable measures ethnicity within the frame of racial and linguistical attributes combined (Alesina et al., 2003). This variable is found in the Quality of Government Standard Dataset (QoG) 2019 (Teorell et al., 2019). The second fractionalization variable is religion which stands for my last control variable. Religious fractionalization is measured by the likelihood that two haphazardly selected people from a certain country will not belong to the same religious group. A fractionalized society will have a high number of combinations with people not belonging to the same religious group (Alesina et al., 2003). This variable is also found in the Quality of Government Standard Dataset (QoG) 2019 (Teorell et al., 2019).

# Results

*Table 1- Summary statistics of variables*

| Variables | Obs. | Min | Max | Mean | Std. Dev. |
|---|---|---|---|---|---|
| Corruption | 42 | 8.62 | 63.76 | 35.83 | 17.14 |
| Economic development | 40 | 5569 | 76305 | 30705 | 16289 |
| Economic freedom | 39 | 5.38 | 8.42 | 7.39 | 0.57 |
| Income distribution | 38 | 25.4 | 37.7 | 31.41 | 3.82 |
| Democracy | 39 | 0.26 | 0.91 | 0.75 | 0.19 |
| Education | 35 | 2.43 | 3.73 | 3.29 | 0.27 |
| Ethnic fractionalization | 42 | 0.04 | 0.71 | 0.30 | 0.20 |
| Religious fractionalization | 42 | 0.09 | 0.72 | 0.41 | 0.19 |

Table 1 is a summary of all variables that are going to be utilized in the regression analysis. The number of observations show how many countries will be included when variables are utilized. This means that the most possible countries included to the regression will be 42, and least possible countries included will be 35. This indicates that the number of countries will be different from model to model, for example when adding controls.

*Table 2 – Frequency analysis on corruption index 0-100 per country*

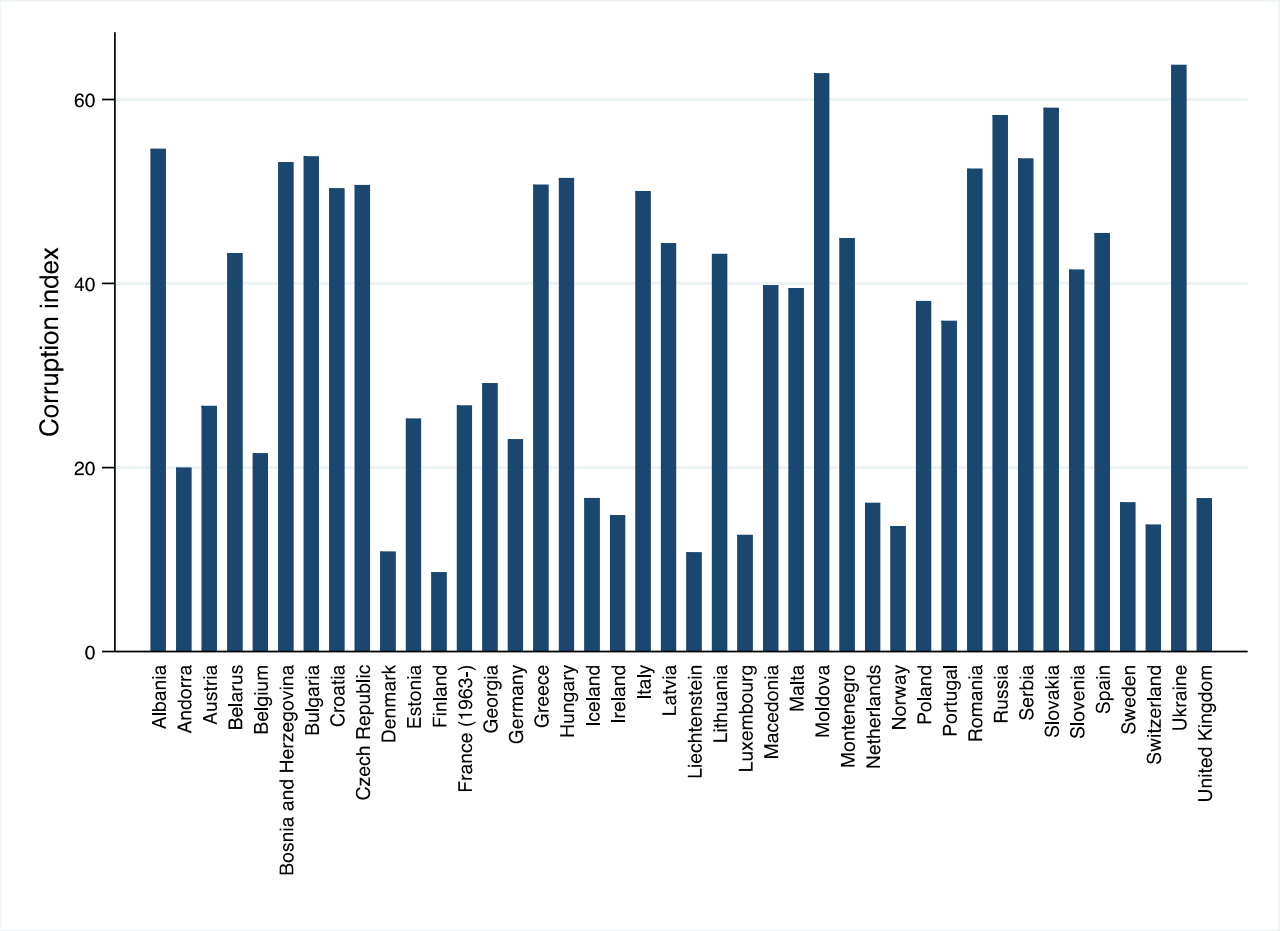


Table 2 shows the levels of corruption according to the Bayesian Corruption Index for each country included in the analysis. The index is scaled from 0-100 where 100 is the highest possible level of corruption and 0 is the lowest possible level of corruption. This table indicates that Ukraine has the highest score of corruption index among all the European countries included, while Finland has the lowest score. The table also shows that the corruption levels varies a lot among the different European countries.

*Table 3 – Regression analysis*

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Constant | 62.20***<br>(3.4962) | 179.95***<br>(21.0209) | 17.37<br>(25.008) | 117.47***<br>(20. 6516) |
| Economic development (GDP) | -.0008 ***<br>(.0001) | | | -.0006***<br>(.0001) |
| Economic freedom (EFI) | | -19.38***<br>(2.8914) | | -10.50***<br>(3.1007) |
| Income distribution (GINI) | | | .6051<br>(.7559) | .5094<br>(.5117) |
| N | 40 | 39 | 38 | 37 |
| $R^2$ | 0.6341 | 0.4196 | 0.0182 | 0.7065 |

p <0,1, *: p <0,05, **: p <0,01, ***: p <0,001

Model 1 shows that when the economic development (GDP) level is at 0, the corruption (BCI) is at about 62. When the GDP increase by 1 unit, the BCI will decrease with approximately 0.0008 units of measurement. The result show that the relationship between GDP and BCI in model 1 is statistically negatively significant at $\alpha = 0{,}001$, which means that at a bivariate level GDP has a significant negative effect on BCI. The result for model 1 supports my H1: The higher the level of economic development, the lower the level of corruption. Model 2 shows that when the economic freedom (EFI) level is at 0, the BCI is at approximately 180. When the EFI increases with 1 unit, the BCI will decrease with about -19.4 units of measurement. The result show that the relationship between EFI and BCI in in model 2 is statistically negatively significant at $\alpha = 0{,}001$, which means that at a bivariate level EFI has a significant negative effect on BCI. Note that this says that a country with no economic freedom at all would have a BCI level of 180, but the index has a maximum level of 100. The result appears like this because there is no observation on a case with no economic freedom at all, therefore the computing software is making its own approximation about which level of the index a country with no economic freedom at all would be. The result for model 2 supports my H2: The higher the level

of economic freedom, the lower the level of corruption. The result in model 3 shows that when the income distribution (GINI) is 0, the BCI level is at 17.37. When the GINI increases with 1, the BCI level will increase with 0.61. The relationship between GINI and BCI in model 3 is not statistically significant. Model 3 does not support my H3: The higher the level of equality in distribution income, the lower the level of corruption.

The next step in my analysis is to do a multivariate regression. I am doing the multivariate regression due to be able to control several variables at the same time. The multivariate regression enables me to investigate how a change of one variable can affect the corruption level while other variables are held constant. I have chosen to not look at any interaction effects, but it is important to point out that the multivariate regression would allow me to do that as well. However, by adding multiple variables into the regression I have a broader field to explain what affects corruption. It means that I am building my models larger which results in better explaining models. A multivariate regression could result in some variables falling out, meaning that a variable that might have seemed to be significant in the bivariate regression may not be significant in the multivariate regression. The reason why this could happen is because at least two of the explanatory variables might define the same things in the corruption level. Therefore, one will be excluded and fall out.

This leads us to model 4, where the constant 117.5 equals the corruption index level in a country with no GDP, economic freedom or income distribution, meaning that all of the explanatories are at level 0. If GDPpc increases by 1 unit then the corruption index BCI will decrease by 0.00062 units of measurement, if the level of economic freedom increases by 1 unit then BCI decreases by 10.5 units of measurement and if the GINI increases by 1 unit then BCI increases by 0.51 units of measurement. Both the variables for economic development and economic freedom are in this model statistically negatively significant at the $\alpha = 0.001$ level. However, the variable for income distribution is not significant at all and therefore I cannot say anything about the effect it has on the BCI level. The result in model 4 supports my H1: The higher the level of economic development, the lower the level of corruption, and H2: The higher the level

of economic freedom, the lower the level of corruption, but not my H3: The higher the level of equality in distribution income, the lower the level of corruption.

*Table 4 – Cont. regression analysis*

| | 5 | 6 | 7 | 8 |
|---|---|---|---|---|
| Constant | 86.20***<br>(25.7838) | 193.15***<br>(37.8618) | 126.88***<br>(35.5130) | 93.69**<br>(41.2049) |
| Economic development (GDP) | -.0007***<br>(.0001) | | | -.0006***<br>(.00018) |
| Economic freedom (EFI) | | -12.12**<br>(5.5674) | | -8.66**<br>(3.4470) |
| Income distribution (GINI) | | | .1301<br>(.6769) | .8299*<br>(.4622) |
| Democracy (EDI) | -29.68***<br>(10.3807) | -31.88*<br>(15.7733) | -62.40***<br>(12.9747) | -12.02<br>(11.6606) |
| Education (HCI) | -1.71<br>(7.9899) | -17.00**<br>(6.9273) | -17.99**<br>(8.3440) | 2.09<br>(8.2998) |
| Ethnic fractionalization (EF) | 6.83<br>(8.8200) | 12.28<br>(12.0386) | 13.45<br>(12.8659) | 5.61<br>(8.1655) |
| Religious fractionalization (RF) | 3.72<br>(9.8768) | 26.98<br>(16.2529) | 24.86<br>(17.2114) | 8.51<br>(10.9669) |
| N | 33 | 33 | 32 | 32 |
| $R^2$ | 0.7437 | 0.6072 | 0.5440 | 0.7838 |

p <0,1, *: p <0,05, **: p <0,01, ***: p <0,001

In table 4 I add the control variables to the models analysed in table 3. The reason for this is to control if the variables still are significant or not when adding other variables potentially affecting corruption levels. In model 5 we can see that by adding the control variables the negative significance of economic development does not change and the value of the variable

only changes by approximately 0.0001. The result in model 5 means that my H1 is still supported. Model 6 shows that the negative significance for economic freedom has lowered from $\alpha = 0.001$ to $\alpha = 0.01$ and the variable value has changed with approximately 7. However, model 6 still supports my H2 although the significance level lowered. Model 7 shows no change in significance level for income distribution which means that my H3 is still not supported.

However, when looking at model 8, I can see some interesting results. Economic development is still negatively significant at $\alpha = 0.001$ and the negative significance of economic freedom is lowered to $\alpha = 0.01$. But the significance for income distribution has gone from insignificant to positively significant at the $\alpha = 0.1$ level. So even when adding the control variables, it does not change my explanatory variables effects or significance that much, except in model 8 where income distribution becomes positively significant. This is interesting since GINI was not significant in neither the bivariate regression, nor the multivariate regression without controls. Model 8 continues to support my H1 and H2, and this time also my H3.

Continuing with looking at the $R^2$ values to determine which of the regressions represents the best model. The highest $R^2$ is given in model 8 with an $R^2$ of 0.7838, however, all of the control variables in this model are insignificant. An interesting thing to note is that the $R^2$ value of model 1 which is the economic development bivariate regression has an $R^2$ of 0.63. This is quite high for just a bivariate regression and shows that on its own economic development has quite a big impact on BCI when speaking about explanatory effects and not direct effects like in the value of the variable where economic freedom has the biggest effect. Furthermore, model 2 with economic freedom also has quite a high $R^2$ for being a bivariate with $R^2 = 0.6072$, it also has the highest value of all the variables in model 4 and 8.

# Conclusions

My aim with this study was to examine the relationship between corruption and economic determinants such as economic development, economic freedom and income distribution. I also aimed to investigate the relationship focusing mainly on the effects that economic determinants have on corruption, rather than the effects of corruption. Further, I found it of great importance to study this topic focusing on the European countries for two main reasons. First, it is interesting how corruption occurs in even some of the cleanest economies. Second, not much research has been done focusing on Europe. Since some determinants of corruption is continual, it is also of importance to continue contributing to the field of research to see if the theories still are up to date.

Firstly, at a bivariate level my study shows a significant negative relationship between economic development and corruption, as well as between economic freedom and corruption. However, the relationship between income distribution and corruption does not have any statistical significance at a bivariate level. At a multivariate level, economic development and economic freedom are still statistically negatively significant. However, the variable for income distribution is not significant at all and therefore I cannot say anything about the effect it has on the corruption level. These results supports my H1: The higher the level of economic development, the lower the level of corruption, and H2: The higher the level of economic freedom, the lower the level of corruption, but not my H3: The higher the level of equality in distribution income, the lower the level of corruption. These results confirm the causal relationship between corruption and economic development, as well as corruption and economic freedom which is consistent to previous research. However, the results do not confirm any causal relationship between corruption and income distribution which is partly consistent to previous research.

Secondly, when added control variables into the regressions some relationships remained the same and some changed. At a bivariate level, the relationship between economic development and corruption remained the same (negatively significant at $\alpha = 0.001$). The relationship

between economic freedom and corruption still remains negatively significant, but the level of significance lowered (from $\alpha = 0.001$ to $\alpha = 0.01$). The variable for income distribution does still not show any significance at a bivariate level. Consequently, adding controls into the bivariate regression did not change my results much. They still support my H1: The higher the level of economic development, the lower the level of corruption, and H2: The higher the level of economic freedom, the lower the level of corruption, but not my H3: The higher the level of equality in distribution income, the lower the level of corruption. However, when running a multivariate regression including the controls, interesting results appear. The variables for economic development and economic freedom remains the same as at a bivariate level, but the variable for income distribution goes from insignificant to positively significant at $\alpha = 0.1$. There is no obvious answer to why the relationship between income distribution and corruption becomes significant when adding controls to the multivariate regression, but it can be discussed.

The relationship between income distribution and corruption was not significant in neither the bivariate regression, nor the multivariate regression without controls. The positive significance in the multivariate regression with controls might infer that the true relationship between income distribution and corruption cannot be shown until adding more variables to the model. However, this also highlights the fact that it is quite hard to determine what affects corruption when some variables, such as income distribution in this case, will not show any significance without adding other variables. Furthermore, this highlights the importance of a good theoretical background before beginning hypothesis testing.

Concluding my main findings, the relationship between economic development and corruption is strong, meaning that economic development on its own has quite a big impact on corruption when speaking about explanatory effects. However, when speaking about direct effects economic freedom has the biggest effect on corruption. Unfortunately, the results for income distribution in relation to corruption cannot be explained. There is no strong empirical evidence for the income distribution as an explanatory of corruption. The results in this study mostly agrees with previous research. There is a strong evidence for both economic development and economic freedom, both in previous research and in this study. One can also assume that these

relationships are continual since many years of research indicates similar results. Especially interesting is the relationship between income distribution and corruption. Previous research indicates mixed results on this relationship, which makes it hard to draw any conclusions. However, this study indicates a certain relationship between income distribution and corruption, but I think that it is important to further test the relationship for two reasons. First because it gave interesting results when adding controls to the multivariate regression in my study. Second because previous research also shows mixed results for this relationship. For this study, it important to highlight that my theory based on previous research also applies on Europe, despite that the corruption levels in European countries are low in general. Presumably, the variety with countries that have quite high corruption levels, makes the theory possible to apply on Europe. Overall, this study shows that some economic determinants have an effect on corruption in Europe, where economic development has an explanatory effect, and economic freedom has a direct effect on corruption.

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# Appendix

*Annex 1: Countries included in the analysis*

| | | |
|---|---|---|
| Albania | Germany | Netherlands |
| Andorra | Greece | Norway |
| Austria | Hungary | Poland |
| Belarus | Iceland | Portugal |
| Belgium | Ireland | Romania |
| Bosnia and Herzegovina | Italy | Russia |
| Bulgaria | Latvia | Serbia |
| Croatia | Liechtenstein | Slovakia |
| Czech Republic | Lithuania | Slovenia |
| Denmark | Luxembourg | Spain |
| Estonia | Macedonia | Sweden |
| Finland | Malta | Switzerland |
| France | Moldova | Ukraine |
| Georgia | Montenegro | United Kingdom |