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**Research Report**

## Causes and consequences of corruption: An overview of empirical results

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# **Causes and Consequences of Corruption – An Overview of Empirical Results**

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## Executive summary

Corruption is a main threat in many countries around the world. Therefore, the causes and consequences of corruption are analyzed in various empirical studies. Since the results are quite mixed, we have summarized the findings of the central empirical literature from the last two decades for a comprehensive overview. Main causes for corruption are according to the studies (1) the size and structure of governments, (2) the democracy and the political system, (3) the quality of institutions, (4) economic freedom/ openness of economy, (5) salaries of civil service, (6) press freedom and judiciary, (7) cultural determinants, (8) percentage of women in the labor force and in parliament (9) colonial heritage and (10) the endowment of natural resources. Corruption has an impact on (1) investment in general, (2) foreign direct investment and capital inflows, (3) foreign trade and aid, (4) official growth, (5) inequality, (6) government expenditure and services, and (7) shadow economy and crime.

## 1. Introduction

Corruption is a phenomenon no country is immune to and it has been a well-known fact for quite some time that the classical view on corruption to concern only less developed countries, does not hold. Even though developing countries do score systematically worse in corruption ratings, these indices also show that more than two thirds of the countries worldwide suffer significantly from corruption including half the G20, and that there is no nation in the world where corruption is not an issue whatsoever. It therefore does not suffice to address corruption solely as an issue less developed countries have to deal with. Combating corruption rather calls for an international collaboration with all nations understanding their relevance in this process. Especially since corruption is strongly related to inequality and growth.

The importance of a profound understanding of corruption becomes even more clear when looking at the costs: By estimation of the Worldbank, the annual amount of bribes paid is about one trillion US-Dollar, and although not precisely measurable, estimates show the total costs of corruption add up to 2.6 trillion US-Dollar, an amount equal to up to four percent of the global GDP (OECD, 2014b) or the whole GDP of France. The consequences of corruption are broad, ranging from reduced economic growth to a distortion of public expenses, and are an important obstacle in a country's development. That in mind, it's clear that the fight against corruption is not only morally motivated but it crucial to cut these immense losses, which are carried by the society as a whole. Needless to say, that one of the 17 Sustainability Goals of the UN is fighting corruption. Besides the negative effects on the economy, the negative impact of corruption on intrinsic honesty has been shown in a recent, global experiment (Gächter/Schulz, 2016). The success fight against corruption does not only increase wealth but also honesty and morality.

Incidents like the Financial Crisis or Greece's are drastic reminders of where corruption can lead to, but the consequences are not always so clear-cut and corrupt activity happens anytime and anywhere. Measures must therefore not be reactionary, but preventive. However, since corruption is not easy to make out, it is difficult to identify the concrete consequences and causes where politics must set in. The following reports contributes to this process by proving a definition of corruption in chapter 2 and furthermore systemizing the empirical literature on the causes and consequences of corruption (chapter 3 and 4). Based on the findings, important implications are presented, which can be of help to policy makers in the fight against the prevailing problem of corruption.

## 2. Definition and Magnitude of Corruption

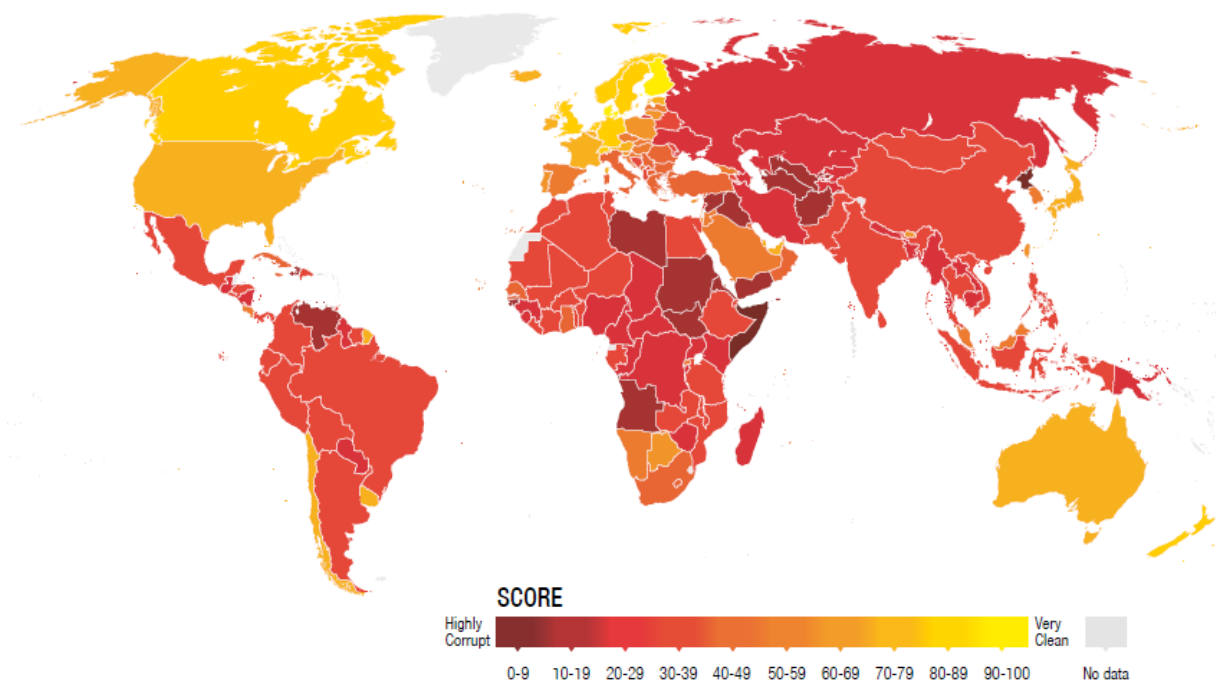
There is no single and clear definition of corruption. This is due to the fact that corruption exists in different forms involving different participants. The best known form is obviously bribes paid by private individuals or companies to public officials. However, when corruption is already institutionalized in a country, it might appear as well within the civil service. There are two variants existing: The “bottom-up”- and the “top-down”-corruption. (Rose-Ackerman, 1999). When low-level officials collect bribes, which they have to share with superiors, it is called “bottom-up”-corruption. Giving a share of their bribes to superiors, they are protected of being fired and getting prosecuted if a complaint arrives. If this system is institutionalized these payments become a condition of employment. The “top-down”-corruption works in the other direction. There are two reasons for this kind of corruption: First, superiors might fear that a subordinate denounces them. Second, if the contracts are decided upon top-level, but the inputs are given by the subordinates, the superiors depend on the cooperation of their subordinates. There are also cases of corporate corruption where corporate officials accepted bribes, for example to betray company secrets to competitors. This essay focuses on the corruption concerning public officials.

Using a popular definition (World Bank, 1997), corruption is defined as the abuse of public office for private gains. This takes into account that corruption exists in all different guises like e.g. bribery, trafficking, embezzlement and as well patronage. This essay deals with general causes and consequences of corruption using bribery as an example. However, the other forms of corruption are substitutes for bribery, therefore the results are applicable to the different kinds of corruption. The World Bank definition implies several basic conditions necessary for the existence of corruption. The corrupt official needs the power to be able to abuse his public office. Due to the state’s monopoly in certain areas – e.g. tax collection – officials are able to gain this power and they often have the discretion necessary for collecting bribes as well. A further difficulty in detecting corruption arises due to differences about the extent of corruption. Every country has passed anti-corruption laws, drawing a line between illegal bribery and acceptable “gifts of good will”. This shows that they have already acknowledged that corruption is a phenomenon they have to deal with, but every country has its own definition of where to draw the line. Some actions which are evaluated as a “gift of good will” in one country are seen as a corrupt act in another one. Although the World Bank definition is already very broad it still omits several aspects of corruption. One weakness of the World Bank’s definition is that it is just dealing with one side of the medal, the recipient of bribes. Actually there are two sides involved in corruption: The receiver of the payment and the donator. Susan Rose-Ackerman (1999; P. 9) defines corruption by focusing on the aspect of donation. She claimed that “[p]ayments are corrupt if they are illegally made to public agents with the goal of obtaining a benefit or avoiding a cost”. This clearly shows that corruption is not just a problem of corrupt officials but as well of companies and of people who are accepting the corrupt demands or are even offering them.

The level of corruption is another field where a distinction has to be made. In general, corruption is divided into two different levels: Small payments to low-level bureaucrats in order to get small favors in return, like issuing a permit, are called “petty corruption”. Because of its small scale this kind of corruption is hard to discover or at least involving high costs to detect. Political or “grand corruption” is usually related to higher level bureaucrats or politicians. In contrast to the “petty corruption” a lot of money is involved and the favors are respectively bigger. Examples of political corruption are payments in order to influence the decision making process concerning major contracts, for guaranteeing a monopoly power in a market or for winning a bid concerning the privatization of a profitable state company. We deal with both levels of corruption in this article.

Since corrupt behavior is usually hidden from the public, it is very hard if not impossible to measure absolute levels. Scholars therefore usually base their analyses on survey data, which captures the perception of corruption. One of the most important indices is the Corruption Perception Index (CPI) published by Transparency International every year. Business people and country experts are interviewed on the perceived corruption in the public sector. This data is aggregated and standardized in order to rank countries on a scale from 0 to 100, with 100 representing the lowest possible corruption level. Figure 1 shows the results from 2015, table 1 lists the ten countries with the highest and the lowest scores.

**Figure 1: Perceived Corruption around the World**



Source: Transparency International, 2016a

**Table 1: Top and Bottom 10 Countries in the Corruption Perception Index 2015**

Top 10 Countries			Bottom 10 Countries		
Rank	Country	CPI	Rank	Country	CPI
1	Denmark	91	158	Guinea-Bissau	17
2	Finland	90	158	Venezuela	17
3	Sweden	89	161	Iraq	16
4	New Zealand	88	161	Libya	16
5	Netherlands	87	163	Angola	15
5	Norway	87	163	South Sudan	15
7	Switzerland	86	165	Sudan	12
8	Singapore	85	166	Afghanistan	11
9	Canada	83	167	North Korea	8
10	Germany	81	167	Somalia	8

Source: Transparency International, 2016a

These numbers illustrate the enormous differences worldwide. In order to understand why some countries score very high while in others corruption seems to dominate the everyday life, it is necessary to investigate the driving forces behind it. The following chapter does so by giving an overview of the most important causes of corruption identified by the empirical literature.

### 3. Causes of Corruption

As stated before, it is very difficult to distinguish between consequences and causes of corruption. With the help of empirical research and the application of instrumental variables it is possible to give evidence, which causality is stronger. However, the correlations found, are very often ambiguous and even with the help of instrumental variables it is hard to give clear statements. It is still important to distinct between causes and consequences of corruption to evaluate which measures are appropriate to fight corruption. Like the case of Germany's struggle with the unofficial economy especially illicit work shows, it is inefficient to fight the consequences (Enste, 2003). Appropriate measures against corruption have to take action against the causes.

While analyzing the data in detail, it is also worth noting that according to Tanzi (1998) an analysis of the causes of corruption by using a cross-country dataset faces not only the causality problem, but as well another problem. Since corruption is not easily measured, indices on corruption are usually based on surveys which capture

the perceived level of corruption in a country, such as Transparency International's Corruption Perception Index (CPI). But this perception, as mentioned before, differs between countries. This is due to cultural differences as well as historical differences between countries. The effect, a change in tax rates or regulations has on the level of corruption, varies therefore between countries. The same regulation introduced in Russia might increase corruption there whereas it has no significant impact on the level of corruption, if introduced in a Scandinavian country. Nevertheless we can draw some conclusions about the causes of corruption out of the empirical results. Several findings are significant and also robust to including control variables like the GDP per capita. Furthermore the authors often used in their sample size countries with a similar cultural background and which are geographically closely located.

Table 2 gives an overview of the main causes of corruption as well as the magnitude of the effect, which is derived from the findings of the empirical literature reviewed in this report.

**Table 2: What are the main causes of corruption?**

Cause	Effect
Size and structure of government	Unclear
Democracy and the political system	Strong when combined with other factors, e.g. duration and quality of institutions
Quality of institutions	Strong
Extend of competition	Strong
Recruitment and salaries	Weak or none at all
Press freedom and the judiciary	Strong
Cultural determinants	Strong effect of trust, religion and power distance
Percentage of women in labour force	Weak or none at all
Former colonies	Strong only for British heritage
Endowment of natural resources	Strong

Source: Own Summary

As can be seen, some factors and their effect on corruption are supported by the majority of studies, while the opinions and evidence on others differ across the literature. Both will be described in detail in the following sub-chapters.

### 3.1 Size and Structure of Government

There are two different perspectives on the relationship of government expenditure and corruption. One is that a larger government leads to more corrupt politicians by increasing the rents from illegal behavior. The other perspective assumes that a large government is more effective in fighting corruption because of a bigger budget for law enforcement. This is supported by the fact that countries with a high share of governmental expenditures usually rank lower in corruption indices (Kotera et al., 2010).

In the empirical data that ambiguity remains. While for example La Porta et al. (1999) find a positive relationship between total government transfers and subsidies relative to GDP, Adsera et al. (2003) report a negative correlation. Lambsdorff (2006) points out the risk of reverse causality when regressing corruption on government expenditure, since countries with high levels of corruption might not be effective in generating financial resources. Other factors might be more relevant and reliable in explaining the connection between government size and corruption.

Elliott (1997) finds a negative correlation between corruption and level of government expenditure in her sample of 83 countries and shows that in the 16 most corrupt countries in the dataset, the average share of government consumption is 11 percent below the average of the total sample. She points out that not the size of the government itself, but the type of government activity determines the level of corruption. Restricting the competition by trade restrictions for example, will lead to higher economic rents and thus higher and possibly more illegal rent-seeking activity. Goel and Nelson (2010) come to a similar conclusion by investigating 100 countries. They show that large public sectors are associated with lower corruption levels. The results also show that some forms of governmental activity, especially those of regulatory nature, have the opposite effect by giving corrupt officials more opportunities for illegal behavior.

Kotera et al. (2010) shed light on the role of democracy in this context. They find proof that in countries with high democracy levels, an increase in government size can decrease the level of corruption, while it will do the opposite, if democracy is weak. These results can be explained by the monitoring of government officials: In countries with functioning democratic institutions, politicians are monitored by the media and by free election, causing them to obtain from corrupt behavior. If these institutions are weak, a higher level of government involvement will cause the opposite, since there are more opportunities for e.g. bribes and few sanctions (Kotera et al., 2010).

The size of the population also seems to have an impact on corruption. Mocan (2008) finds a positive relationship, with an increase in the population by one million leading to an increase in the propensity of being asked for a bribe by 0.01 percentage points. These results are supported by Root (1999), who finds a positive relation in his sample of 60 countries. He hypothesizes that economies of scale are the source of corruption: In larger countries, politicians have more resources they can extract in order to pay for measures that keep them in power. However, as Knack and Azfar (2003) point out, it's just as likely, that small countries have fewer means to employ capable and honest officials and thus suffer more from corruption. They further caution against drawing clear implications from the data because of a possible selection bias. Corruption indices only cover countries, which are of interest for multinational investors. While most of the large nations fulfil that criteria, small nations are only included if well-governed. They support this theory by showing that the positive relationship disappears, when the sample is expanded. So while at first glance, it seems like larger population size leads to higher corruption and thus decentralization is favorable in the fight against it, the empirical results on population size do not draw clear implications.

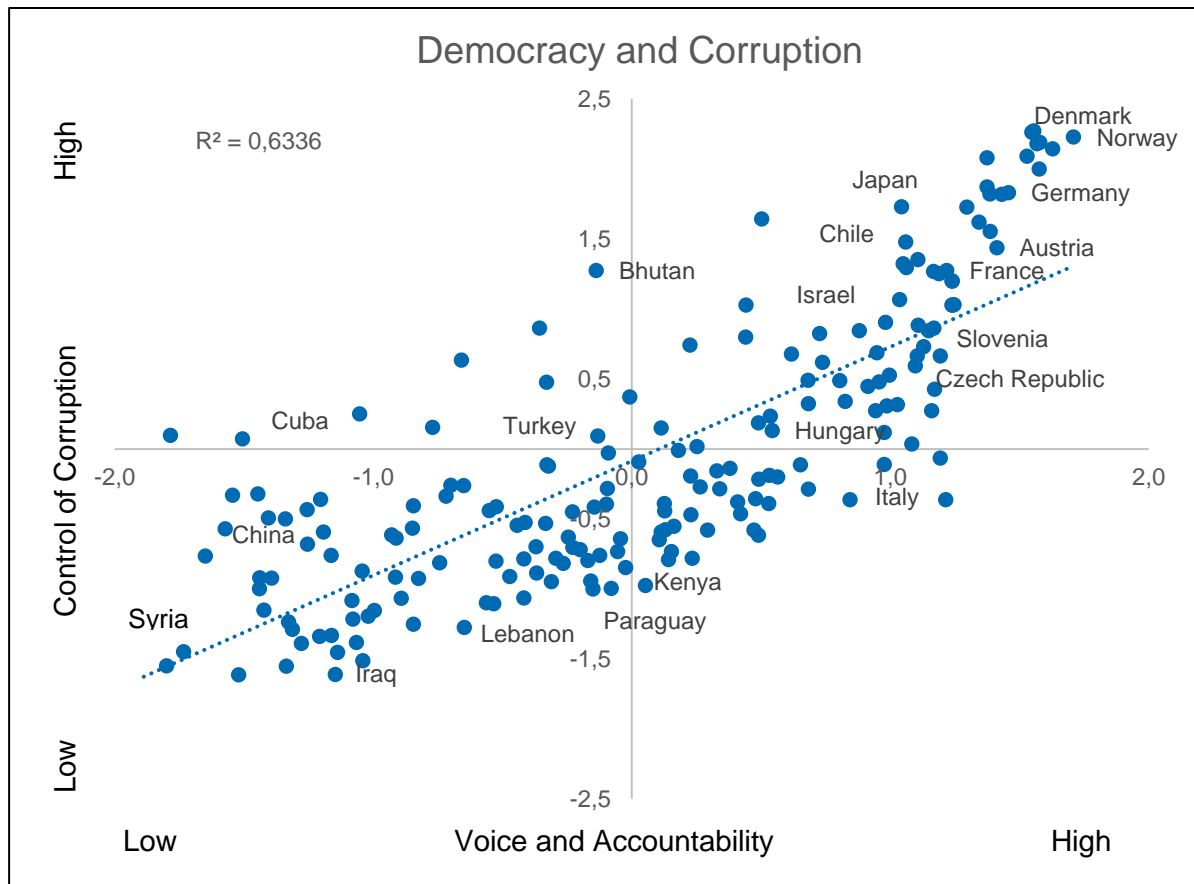
The impact of decentralization is also of interest, for example for Kunicova and Rose-Ackerman (2005), who measure its impact by constructing a dummy distinguishing between centralized and federal states. They find evidence that federalism increases corruption by, which is supported by Gerring and Thacker (2004).

In summary, the available empirical research does not yet give clear evidence on the effects of size and structure of government, making the inclusion of other variables and further research necessary.

### **3.2 Democracy and the Political System**

As pointed out in the previous chapter, democracy and political system are very important in predicting corruption levels. This becomes even clearer when looking at the correlation between the level of voice and accountability and control of corruption in 192 countries in 2014, measured by Kaufman and Kraay (2016) for the Worldbank (Figure 2). The former includes the extent of participation in selection of government while the latter reflects the citizens' perception of corruption. The plot shows a relatively strong correlation and so do several studies which examine the relationship and mostly find evidence for democracy reducing corruption. Some important constraints need to be accounted for though.

**Figure 2: Correlation between Democracy and Corruption**



Source: Own Calculations; Kaufmann/Kraay, 2016;

Some studies in which the impact of current state of democracy on corruption is investigated fail to sustain a robust relationship, including Paldam (2002) and Persson et al. (2003). Other research focuses not on the contemporary democracy, but on the stability and length of exposure to it. Pellegrini (2011) for example examines a dataset including 107 countries and find a mitigating effect of democracy on corruption only when including a variable for its stability. In fact, the data shows, that a minimum of 10, but not more than 45 years of uninterrupted democracy reduce corruption.

These findings are supported by previous research including Treisman (2000), who reports, that democracy only lowers corruption after it has been established for long period of time. Rock (2009) analyses 75-104 countries between 1996 and 2003 and discovers an inverted U pattern between corruption and the durability of new democracies. In a very young democracy, corruption rises at first and declines after a certain point, which is between 4 and 15 years. This idea has been developed theoretically before and explains this relationship on the basis of rents. Mohtadi and Roe (2003) also find support for a U-relationship by transforming and plotting data series from corruption and democracy. They define corruption as rent-seeking practiced by

private sector agents with access to public officials. New democracies do not yet have the means to control this activity, making rent-seeking more attractive at first. But when democracy becomes more stable, free market-entry becomes easier which leads to more competition for rents and thus lowering rents per individual. In addition, institutions to monitor and fight these activities improve over time, increasing the costs of rent-seeking. Facing these two developments, rent-seeking loses its attractiveness and goes down.

Other interesting research focuses on the political system. Kunicova and Rose-Ackerman (2005) for example find that systems with proportional representation (PR) suffer more from corruption compared to plurality systems, because it is harder for voters and opposition to monitor the incumbent politicians. The effect becomes even more severe, when PR systems are combined with presidentialism, which they attribute to fundamental properties like fixed-terms in office.

To conclude, there is evidence that democracy reduces corruption, but only if the institutions are evolved and fully functional. Simply transforming an authoritarian regime into a halfhearted democracy will not suffice in the fight against corruption, as Lambsdorff (2006) states.

### 3.3 Quality of Institutions

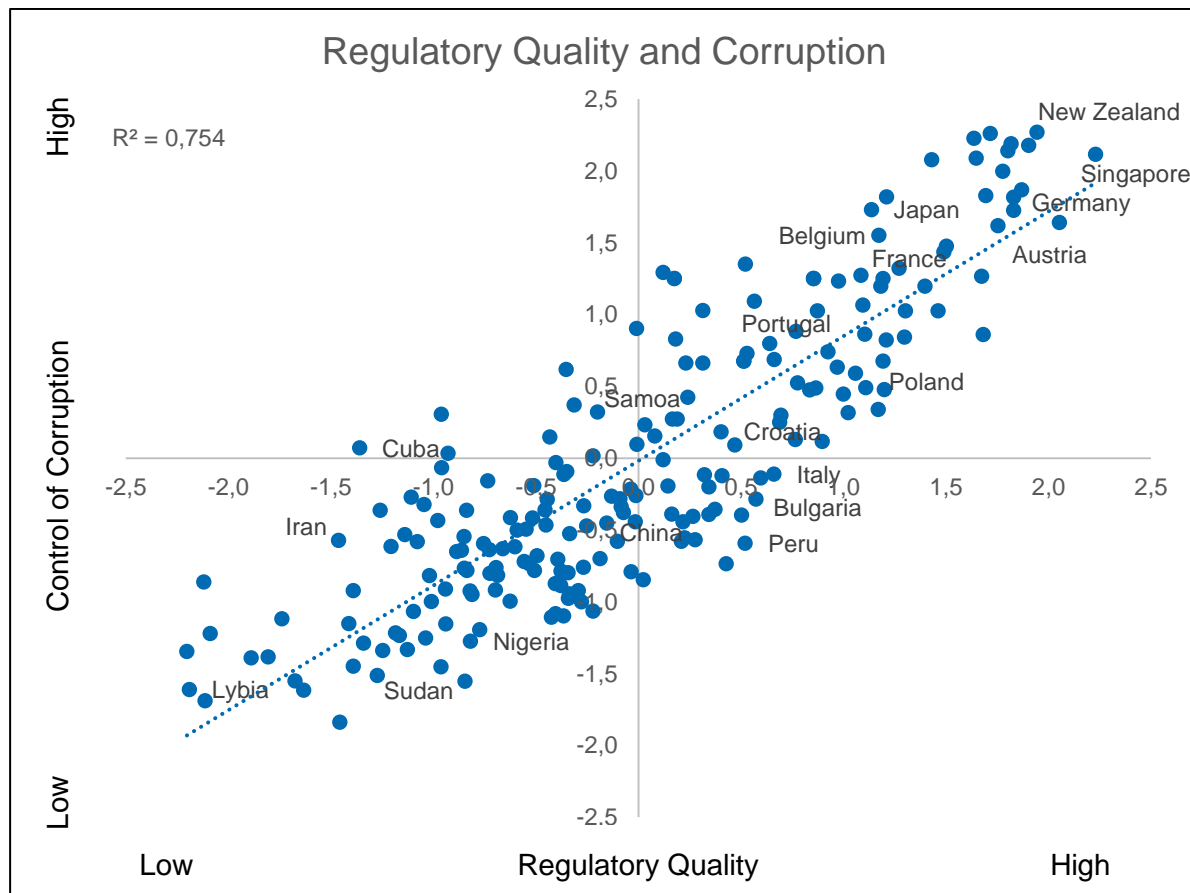
The empirical research on the impact of institutions on corruption draws a relatively clear and obvious picture. Dreher et al. (2009) analyse 18 OECD countries with regard to their institutional quality measured by a rule of law index and an index of government effectiveness and find a mitigating impact on corruption, which is -0.95 meaning that a marginal increase in institutional quality reduces the level of corruption by 0.95. This effect can be divided in a direct effect and an indirect effect which works through lowering the scope of the shadow economy.

The same question is addressed by Mocan (2008), who uses data from the International Crime Victim Survey compiled by the United Nations Inter-regional Crime and Justice Research Institute. Individuals are asked, whether they have been asked by a government official or been expected to pay a bribe for his services. The cumulative answers function as an index for corruption. The quality of institutions is measured by the risk of expropriation. Regressing the data, he finds a significantly negative correlation: If the risk of expropriation lowers by one percentage point, the propensity of being asked for a bribe decreases by 24 percent.

Gatti (1999) analyses the effect of trade tariffs, arguing that uniform trade tariffs reduce corruption since they limit opportunities for public officials to extract bribes from importers. If tariff rates differ strongly amongst goods, custom officials might ask for a bribe in order to classify goods into lower taxed categories, or threaten to grade them up. These assumptions are supported by empirical evidence gathered in 34 countries.

Other researchers like Djankov et al. (2002) focus on the regulation of market entry. They measure regulation by required procedures, costs and time to start a new business and show that stricter barriers to market entry correlate with higher levels of corruption. These results are supported by data from the Worldbank on control of corruption and regulatory quality which reflects the perception of the government's ability to implement sound policies affecting private sector development (Kaufman/Kraay, 2016). As can be seen, in countries where citizens perceive the regulatory action of their government as more effective, the perception of corruption is generally lower (Figure 3).

**Figure 3: Correlation between Market Regulation and Corruption**



Source: Own Calculations; Kaufmann/Kraay, 2016

These results seem economically intuitive because a higher number of different regulations and laws give the officials the discretion they need for extracting bribes and encourages the private sector to pay them in order to facilitate business.

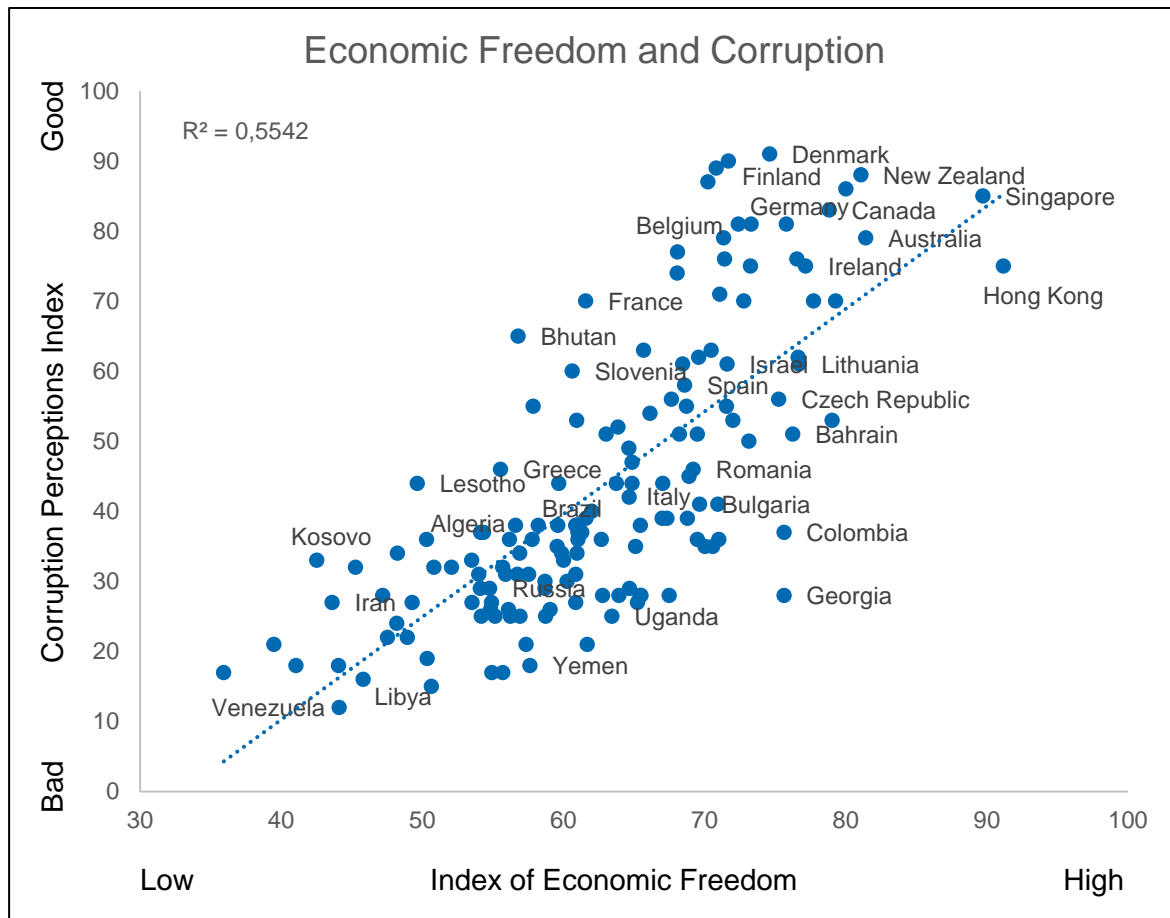
### 3.4. The Extent of Competition

Another factor influencing corruption is competition. Although some empirical analyses struggle with significance most of the findings state a negative correlation between the level of corruption and different proxies for the amount of competition. A frequent approach is the use of indicators of economic freedom, as used by Goldsmith (1999) or Paldam (2002). The use of such indices might be biased though, since they often already include the level of corruption, as Lambsdorff (2006) argues. This can be avoided by excluding the assessment of corruption from indices of economic freedom. Figure 3 provides a scatter plot of the CPI of 2015 and the 2015 Index of Economic Freedom by the Heritage Foundation, which is based on 9 variables including Fiscal Freedom, Business Freedom or Trade Freedom, while excluding the corruption variable. The data draws a clear picture: Lower levels of economic freedom are generally associated with more corruption.

Saha et al. (2009) use the same data for a more detailed analysis and come to a similar conclusion. In their cross-panel analyses of 100 countries, they also find that economic freedom reduces corruption and make an interesting connection to democracy: the higher the level of democracy, the stronger the effect.

Sandholtz and Gray (2003) investigate the connection between ties to international networks and corruption in a sample of 150 countries. They hypothesize, that membership in international organisations reduces corruption in two ways. The first way is through increased costs. A country with strong economic connections to other countries, has to compete with these. Since expected bribes can be seen as a form of tax, which adds to the local producer's costs, a country with widespread corrupt practises won't be able to compete, since the local producer's costs will be systematically higher. The other mode is through norms: Since international organisations are dominated by industrialized countries, which have a long tradition of anticorruption laws and international organisations themselves have taken up such norms, a country that joins such an organisation will most likely adapt these norms.

**Figure 4: Correlation between Economic Freedom and Corruption**



Source: Own Calculations; Heritage Foundation, 2016; Transparency International, 2016a

Other scholars who model the intensity of competition by years open to trade also find a negative correlation (Treisman, 2000 and Leite/Weidemann, 1999), as do scholars, who use ratio of import to GDP as a proxy for a country's openness (Ades/DiTella, 1999a, 1999b, 1997; Sung/Chu, 2003 and Gerring/Thacker, 2005) and Wei (2000a), who looks at natural openness in term of remoteness from world trading centres and size of population.

The conclusion is straight forward. The more competition there is, the harder is it to hide corrupt payments, because competitors might uncover the corrupt activities and therefore the risk of being detected is higher than in a monopoly market. Furthermore a higher involvement in the international trade puts more pressure on a country's government to grant good conditions for foreign companies and to fight corruption.

### 3.5 Recruitment and Salaries

In investigating the causes of corruption, salaries of public officials can also play an important role. According to the model developed by Becker and Stigler (1974), higher wages correspond with less corruption due to the costs of malfeasance. If a bureaucrat decides to accept bribes and gets detected, he will lose his tenure and will have to switch to the private sector. The higher the wages in the public sector compared to the private sector, the higher the expected loss from losing the job and the lower the incentives to engage in corrupt activity- provided that there is a sufficiently high level of monitoring. Other scholars emphasise the moral costs of corruption. Higher wages might seem fairer to the bureaucrats, making it morally harder for them to hurt their employer, the government, by accepting bribes (Van Veldhuizen, 2011).

Even though the theory is compelling, it lacks empirical evidence. Rijkeghem and Weder (2001) examine 31 countries and do indeed find a negative correlation. When the wage in the civil service increases by one point compared to the wages in the manufacturing sectors, the corruption index decreases by 0.5 points. However, their sample is small and only consists of developing countries possibly inducing a reversed causality problem. Poorer countries might pay low salaries to their employees because there is common notion that bureaucrats make enough money off corruption. Also their fiscal policy is in general less efficient compared to developed countries causing another endogeneity problem (Lambsdorff, 2006). Other studies like Treisman's (2000) or Swamy et al. (2001) also suffer from such problems and/or insignificant results.

### 3.6 Press Freedom and the Judiciary

A free press is often considered one of the most important traits of a non-corrupt society. As Transparency International (2013a) puts it, an independent media is "a vital pillar of national integrity and good governance". The reason is straightforward: A high quality and uncensored press sheds light on misuse of power and makes it more difficult to engage in it undetected. This corresponds to Becker's and Stigler's model (1974) described in the previous sub-chapter, where a sufficient level of monitoring is crucial to keep an official from engaging in corrupt behaviour.

Several empirical studies support this view, such as Lederman et al., (2005), who measures press freedom by an index provided by the Freedom House and find a negative impact on the level of corruption. Pellegrini (2011), who captures the access to press in a country by measuring the newspaper circulation, comes to the same conclusion: More access to press reduces corruption.

Freille et al. (2007) point out, that the effect might be overstated since press freedom is only one facet of countries with high quality institutions and wealth and might not itself affect corruption. They also refer to Vaidya (2005) who claims that the media cannot be considered beneficial in general since newspapers might report false information in order to increase the sales. Also journalist may be involved in corruption themselves leading to false or omitted information. In order to avoid such biased results, they conduct an elaborate analysis, checking the robustness of the effect to the use of previously unexplored data on various sub-components of press freedom. In addition, they rule out similarity, collinearity and problems of fit. The results are robust and confirm the theory, that a freer press is connected to lower corruption levels. A one standard deviation increase in the level of press freedom results in a decline in corruption by 0.9 – 1.8 points. Furthermore Freille and his colleagues show, that the causality in fact runs mostly from the freedom of press to lower corruption.

Brunetti and Weder (2003) address the question of reversed causality induced by the possibility, that it is not a free press that lowers corruption levels, but a corrupt government that lowers the freedom of press. However their results persist when different measures for corruption and freedom of press are used. They conclude that it is indeed press freedom lowering corruption to a significant extend.

Not only the detection of corrupt behaviour functions as a deterrent, the threat of punishment is just as important. A high quality judiciary holds the government accountable for any illegal action including corruption. If the law enforcement and constant and predictable, it influences the decision to engage in corrupt behaviour negatively. This has been investigated and is supported by empirical research, including an analysis of 59 industrial and developed countries conducted by the World Bank (1997).

### **3.7 Cultural Determinants**

Ever since Hofstede introduced his model on cultural dimension, culture has become more and more important in explaining economic country differences. But the lack of reliable data on cultural characteristics has made analyses difficult, therefore economists have long refrained from it, as Guiso and his colleagues (2006) explain. In the past few years this has changed due to increasingly diverse and detailed data obtained by surveys like the World Values Survey and now allows for analytical country comparison. Corruption has been one important research topic resulting a broad variety of empirical literature on it.

Several studies have addressed the relationship between trust and corruption and find that countries which score high on the level of trust, have lower corruption. This is explained by the fact that trust facilitates and encourages cooperation between all members of society, improving the government's and the economy's quality and in turn reducing corruption (e.g. La Porta et al., 1997; Uslander, 2004).

But not all scholars support this simple results but have a more differentiated view on trust and its effect on corruption. Most studies only analyse the level of generalized trust which can be measured by asking people, if they think that most people can be trusted (World Values Survey, 2012). Other scholars such as Harris (2007) take a different approach to the concept and use the level of bonding social capital in their regression. Bonding social capital is the level of trust and reciprocity between people that are close, such as family and friends as opposed to bridging social capital, which describes the level of generalized trust and reciprocity between heterogeneous groups and people (Putnam, 2000). When bonding social capital leads to the exclusion of people who are perceived as "out-group", it discourages trust and cooperation with them. Simultaneously, it increases the favouritism inside a group and thus corruption, since it becomes a descriptive norm to help a fellow group member, even when it harms the outside world. Such normative rules of "helping one another" become more and more stable over time, building strong corrupt networks (Harris, 2007). Using data from the World Values Survey and the CPI Index and controlling for other factors that might impact the level of corruption and trust, she can support this hypothesis, finding that a high level of bonding social capital does indeed increase corruption when it discourages cooperation with outsiders. She concludes that policy makers can reduce corruption by fostering generalized trust in the society through civic education and thus opening up strong and possibly corrupt networks.

Lambsdorff (2006) argues the same way, explaining that corrupt transactions cannot be legally enforced and thus a certain level of trust in the partner to return the favour is necessary. He supports that view in earlier research, finding that in countries where corrupt individuals can rely on their partners to reciprocate, corruption levels are higher (Lambsdorff, 2000; Lambsdorff/Cornelius, 2002).

Paldam (2001) investigates the effect of religion in 100 countries by classifying eleven groups of religion and also measures religious diversity: Old Christian, Catholic, Anglican, Protestant, Muslim, Hindu, Buddhism, Oriental, Tribal, Atheists and Residual. Only two groups have a negative impact on corruption: Reform Christian, which includes Protestants and Anglicans, and Tribal religion, but only the former being significant. Paldam also finds that proof that religious diversity negatively influences corruption.

Other scholars have focused on only one religion. In his analysis of 62 developing and developed countries, Serra (2006) measured the relationship between corruption and the percentage of the population belonging to the Protestant religion in 1980. The variable shows a significantly negative impact on corruption. In their empirical research, La Porta et al. (1997) come to a similar conclusion. They distinguish between hierarchical and non-hierarchical religions with Catholicism and Islam belong to the former group and Protestantism to the latter. The authors argue that hierarchical religions discourage the formation of “horizontal networks of cooperation” and civic participation which in turn increases corruption. In line with that argument is Treisman (2000) who explains that less hierarchical religions have a different view on social hierarchy altogether and less acceptance of malfeasance from government officials. Thus hierarchical religions should correspond with higher levels of corruption, which La Porta et al. (1997) support with an analysis of a dataset containing 33 countries and data from the World Values Survey.

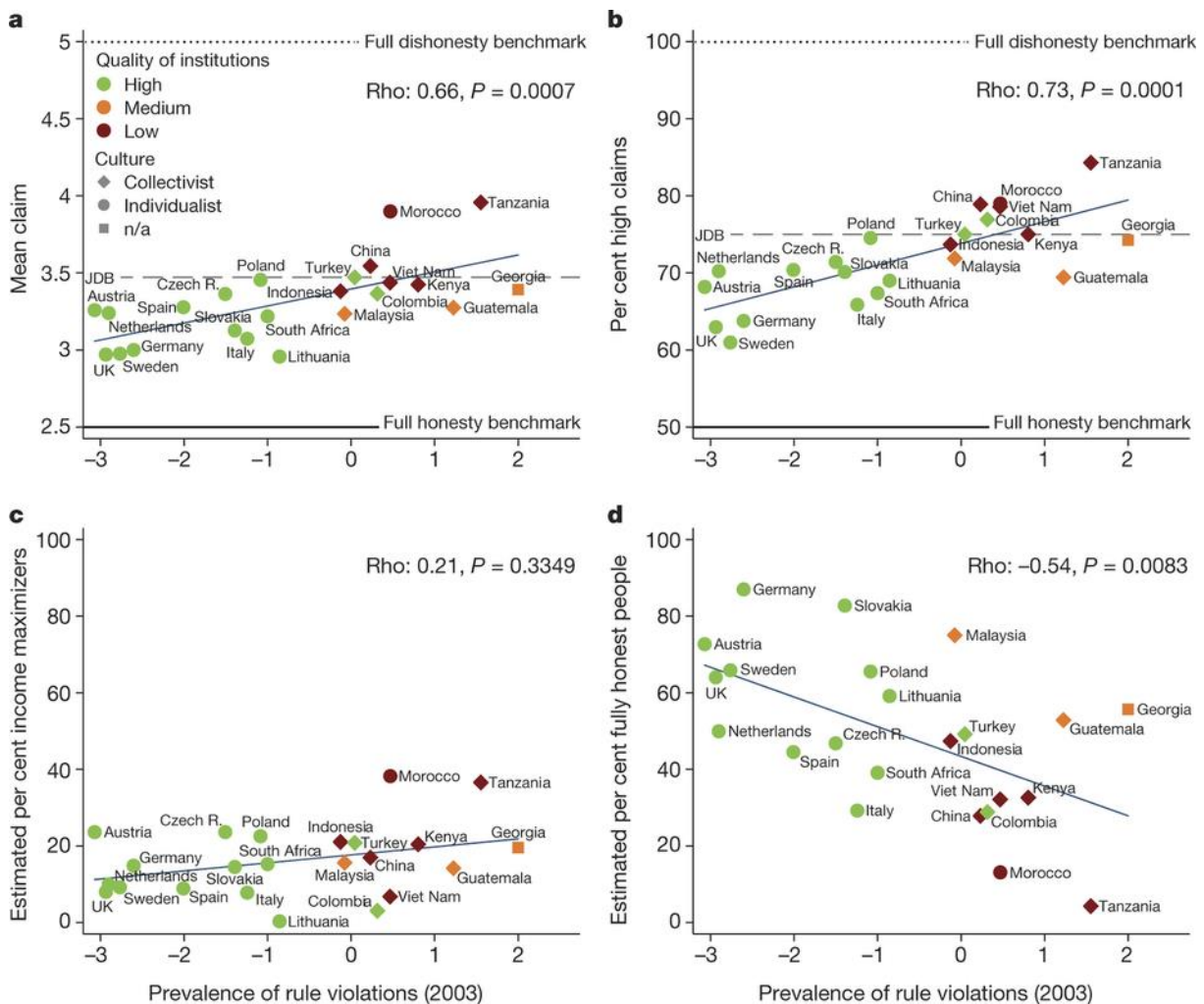
The effect of hierarchical structures apart from religion has been the subject of other empirical research, conducted by Husted (1999) for example. The variable “Power distance” from Hofstede’s model of cultural dimensions is regressed on the level of corruption. Power distance captures the degree to which society accepts inequality which some people having a lot of power and others none. The higher a country scores, the more hierarchical the society (Hofstede Centre, 2016). Looking at 44 countries, Husted (1999) finds that higher power distance corresponds with higher levels of corruption, which corresponds to Treisman’s argument cited above, claiming that less hierarchical societies have lower acceptance for abuse of power.

Gächter/Schulz (2016) show in a large experimental study the strong correlation between intrinsic, individual honesty and the prevalence of rule violations (e.g. corruption and shadow economies). They prove that deception is more likely in a corrupt country with weak institutions. The countries culture therefore also influences cheating behaviour, with the risk to impair individual honesty that is crucial for the smooth functioning of societies. The following figure 5 shows the main correlations between an index of deviant behaviour (PVR) based e.g. on corruption data and data of the size of shadow economies and the intrinsic honesty measured in 23 countries with a simple experiment with dice rolling. In addition the quality of institutions is shown and marked by different colours and culture (see figure 5a).

Figure 5a shows the mean claim in correlation with the general prevalence of rule violations (PVR). Germany, UK and Sweden are closest to the full honesty benchmark, have good institutions and the lowest PVR score. Whereas Morocco and Tanzania are closest to the full dishonesty benchmark, have much higher PVR scores and a low quality of institutions. (5a). Figure 5d shows the percentage of honest people in correlation with the general prevalence of rule violations (PVR). In Germany

around 90 percent of the people were honest in the experiment, whereas only around 5 percent in Tanzania (5d). All analysis together prove the influence of surroundings, institutions and culture on individual honesty and vice versa.

**Figure 5: Correlation between Honesty and Prevalence of Rule Violations**



Source: Gächter/ Schulz, 2016, 498 – further explanations of data can be downloaded: [http://www.nature.com/nature/journal/v531/n7595/fig\\_tab/nature17160\\_ft.html](http://www.nature.com/nature/journal/v531/n7595/fig_tab/nature17160_ft.html)

### 3.8 Percentage of Women in the Labour Force

Several behavioural experiments have addressed gender differences in trustworthiness and selfishness and a lot of them do find that women are more trustworthy and that their reciprocal behaviour in experimental trust games is higher (see Rau, 2011 for a literature review). If these results are transferable to real life settings such as politics, countries with a high share of women in the labour force and in parliament might suffer less from opportunistic behaviour at public expenses.

Swamy et al. (2001) investigate this theory by using micro data from the World Values Survey and macro data for cross country tests. The former dataset shows that women engage less in corruption than men, the latter provides evidence for a negative correlation between the engagement of women in the public sector and corruption: If the women's share of seats in the parliament increases by about 8 percent, the corruption index increases by about one fifth of a standard deviation. However, as Swamy et al. concede, the micro data from the World Values Survey might be biased because it is based on self-disclosure. In addition, the macro data might suffer from a selection bias since there are fewer women in the labour force and parliament and thus in the sample, and these women are "from the 'better' part of the women's distribution" (Swamy et al., 2001).

Sung (2003) points out another potential bias in his analysis of the same question, namely an omitted variable bias. Even though he also finds that female representation in government corresponds to lower levels of corruption, the effect is not significant anymore when controlling for the influence of a liberal constitution, like freedom of press and rule of law. He states that it is not the women lowering corruption, but liberal democracy structures and ideology leading to fairer and more honest behaviour and also supporting women participation in the labour force and parliament. In fact, the data shows that liberal democracy and female engagement are highly correlated, with coefficients varying between 0.145 and 0.515. Furthermore, when female participation is held constant, the diminishing effect on corruption mostly remains.

Closely related to this argument is the research of Branisa et al. (2011) who address the level of discrimination against women in a society, hypothesising that the society's acceptance of gender inequality stems from a poorly functioning political system which also fosters corruption. To test this, the authors use data from the OECD Development Centre's Gender, Institutions and Development Database to measure social institutions connected to gender inequality and regress it on corruption levels. Branisa et al. (2011) show that in societies where women are less able to participate in the social life, corruption is higher. The results remain significant even after controlling for various factors such as democracy and political and economic participa-

tion of women. This leads to the conclusion that reforms which aim at increasing the number of women in the public and private sector are not sufficient to fight corruption. It is rather the social institutions that deprive women from participation that influences the functioning of a society and in that turn influence the level of corruption.

### 3.9 Former Colonies

The impact of a colonial heritage has been of profound interest, since it is “anecdotal evidence” that former colonies suffer from higher corruption levels (Lambsdorff, 2006). However there are only a few studies addressing that relationship, which might be caused by the fact, that no real policy implications can be drawn from the results. In her extensive research on the determinants of corruption, Serra (2006) examines the effect of colonial heritage (British, French, Spanish) and finds that all are significant, with only the British heritage showing a negative impact.

The findings by Treisman (2000) and Swamy et al. (2001) also prove a significant difference in the level of corruption between former British colonies that have an Anglo-Saxon legal and political tradition and countries with a different legal and political tradition. Both studies confirm Serra (2006) in the result that the colonial heritage of other countries do not have that impact on corruption.

### 3.10 Endowment of Natural Recourses

The last cause of corruption to be discussed in this paper are natural resources. In theory, abundance of natural resources should have a positive effect on development, since it encourages trade and investment and in turn living standards. Yet there is also another perspective, often called the “resource-curse”: In the presence of resource abundance, governments become less efficient, since citizens and officials compete for rents and invest less in other forms of capital, such as human capital. This theory finds broad support in the empirical literature.

Ades and DiTella (1999) explain that natural resources produce rents which in turn lead to rent-seeking activity accompanied by corruption. They find support for this theory in a dataset containing 52 countries and their exports of fuels and minerals as a share of GNP. If the exports increase by one standard deviation, corruption increases by 0.37 points. They draw the conclusion that when a country discovers rich supplies of natural resources, strong institutions are necessary to prevent the rise of corruption.

These findings are underlined by Bhattacharyya and Hodler (2010), who argue that an increase in rents from natural resources increases corruption only if democratic institutions are weak. Panel data from 1980-2004 of 124 countries are analysed and support this theory even when controlled for various factor like regional fixed effects and income effects. The author's conclusion is similar to Ades and DiTella (1999): In resource-rich countries, rent-seeking activities encourage corrupt behaviour. If the democratic institutions are strong however, and officials can be held accountable for malfeasance, this trend can be counteracted. In countries that have an abundance of natural resources, democratization can therefore help to reduce corruption.

#### 4. Consequences of Corruption

The economic impact of corruption has been discussed ambivalently in the last decades. Despite of the moral aspect, which unanimously condemns corruption, some economists claim that corruption has economically seen its advantages (e.g. Leff, 1964; Lui, 1985). They view corruption as opportunity to allocate scarce resources towards the companies with the highest willingness to pay and therefore to the most productive ones. Furthermore managers are able to avoid queuing and to pay so called "speed money" in order to cut the time needed for a bureaucratic process. Therefore they look at corruption as a mean to increase efficiency of an economy and to avoid time-consuming bureaucratic processes. In addition they claim that bribes can help to avoid useless regulations or ineffective laws. This view was even fuelled in the Nineties, when the Asian Tiger-States managed to combine high economic growth with a high rate of corruption.

However, we disagree with this argumentation. Despite the unanimously agreed ethical damnability of corruption, we support the theory seeing corruption as "sand in the wheel" rather than the above propagated "grease in the wheel" theory. Although the arguments mentioned above may hold true in some cases, they neglect several facts. In complex bureaucratic processes it is doubted that a single process can be sped up by bribing an official but an official can delay the process. Therefore bribes are paid in order to get the official to do the work he is obliged to do or to delay the same process for competitors. Obviously both alternatives rather slow down the bureaucratic process than speeding it up. In addition corrupt officials seek for more possibilities to receive payments. If they have the power and influence, they will try to create even more discretion and regulations than necessary to extort more money.

This perspective is supported by a majority of the empirical studies. In fact, a positive impact of corruption is rarely observed, while negative effects prevail. Even though

endogeneity and causality can often not be ruled out, it is worth looking at the consequences more closely. Table 3 provides an overview of the variables and the strength of their effect identified by the central literature in the field. The following sub-chapters discuss the findings in further detail.

**Table 3: What are the main consequences of corruption?**

Consequence	Effect of Corruption
Total Investment	Strong
FDI and Capital Inflows	Strong
Foreign Trade and Foreign Aid	None
Gross Domestic Product	Unclear due to problems with endogeneity and choice of variables
Inequality	Unclear direction of causality and impact of other influences
Government Expenditures and Services	Unclear, depends on dataset
Shadow Economy and Crime	Unclear direction of causality

Source: Own Summary

#### 4.1 Total Investment

What are the effects of corruption on total investment? The empirical research shows a very clear result: Corruption reduces total investment. Total investment includes public as well as private investment. Whereas economists agree on the general impact of corruption on private investment, the effects of corruption on public investment are broadly disputed. We discuss the problems involved with public investment later on when we interpret the influence of corruption on government expenditures. The intuition how corruption affects private investment is quite simple. Private investors take into account that they have to bribe several officials in order to get the permits and licenses for their projects. This increases costs of private projects and time involved in it with the consequence of being less attractive. Therefore projects that would have been profitable without paying bribes do not get realised because of the bribes.

First studies dealing with this topic prove a general negative correlation between corruption and the ratio of investment on GDP, e.g. Mauro (1995). If the corruption index increases and thus improves by one-standard-deviation, the investment rate increases by 2.9 percent of the GDP. These results are disputed by several economists claiming that the effects depend on the form of corruption and its institutionalisation. They argue that not the absolute level of corruption affects investment but the predictability of corruption (World Bank, 1997; Campos et al., 1999). However Lambsdorff (2006) claims that it is rather the form of corruption – petty or grand corruption – that influences investor's behaviour. The author explains that grand corruption is preferred to petty corruption for several reasons: It is more efficient, because the investor just deals with one official and one bribe gets him everything he needs. Furthermore the perspective of getting insider information makes the bribe more valuable. Grand corruption is probably more likely to be more predictable because the investor just deals with a single corrupt official or politician who is responsible for the whole procedure. Grand corruption often comes together with top-down corruption within the civil service because the corrupt official probably has to pay for fulfilling the bribe-payer's demands (Rose-Ackerman, 1999). Of course the corrupt official may try to extort more money after receiving the first bribe, but there are two reasons limiting his greed. First of all demanding further bribes would give him a reputation of a questionable reliability which distorts future investors. Second the investor might take reciprocal measurements. This means he will withdraw from the deal and may threaten the corrupt official's position by uncovering the official's illegal activities. Therefore a correlation between the predictability of corruption and investment as a ratio on GDP exists, but Lambsdorff's (2005) regression has stronger explanatory power.

#### **4.2. Foreign Direct Investment (FDI) and Capital Inflows**

After analysing the effects of corruption on private investment in general, it is worthwhile to have a look at capital inflows and Foreign Direct Investments (FDI). Empirical research shows similar results to the effects of corruption on total investment. In their analysis of 20 OECD source and 52 host countries from 1996 to 2003, Barassi and Zhou (2012) for example, find that corruption reduces the likelihood of FDI taking place in a country by about 3 percent, which is both statistically and economically significant. These results are in line with Egger and Winner (2006) who show that corruption deters FDI in their dataset of 21 home and 59 host countries. Interestingly, this effect is especially strong in developed countries, while less developed countries do not suffer as much, which indicates that FDI in non-OECD countries is mostly driven by other factors such as economic growth, as the authors explain.

There are other interesting implications concerning foreign investment. Foreign capital is more mobile and reacts on political changes and insecurities stronger than local investment (Empirical proof: see Habib, Zurawicki, 2001, 2002). Generally investment is directed towards the most profitable alternatives. Foreign investors already have information systems analysing the investment climate in different countries, whereas many local investors do not have these means and lack international experience. Therefore foreign investors are able to redirect their capital faster than local competitors.

Several economists prove that the form of investment in a country changes due to corruption: Foreign investors tend to prefer joint-ventures or short-term investments in countries with a high level of corruption. The preference for joint-ventures is restricted to products with a simple production technology involved. The reasons for these findings are quite intuitive. In joint-ventures the foreign investors rely on the expertise and insider information of local companies in dealing with the corrupt bureaucracy. However this advantage gets lost, if it involves high-tech products, because the investor has to cope with theft of technology and property rights (Smarzyska/Wei, 2000; Uhlenbruck et al., 2006).

Various studies show that a high level of corruption changes the structure of foreign capital inflow. Foreign investors tend to be careful to invest in a country with high corruption, because regular investment projects are inflexible and the investor cannot react quickly to changes. As we mentioned earlier investors tend to evade the risks by preferring short term investment, like bank loans (Rose-Ackerman, 1999). Countries with a high level of corruption tend to have a higher level of political and economic instability. Bank loans are more flexible and can be withdrawn more quickly than regular investment. Instead of financing projects by attracting international investments corrupt countries have to finance their projects with loans. Wei (2000b) and Wei and Wu (2001) proved the theory that FDI is substituted by bank loans in a regression. This explains why corrupt countries tend to be more vulnerable to currency crises. The Asian Tiger states are a good example for the effects of corruption. In the nineties these states seemed to prove everyone wrong claiming that corruption hampers economic growth, because they seemed to combine high levels of corruption with strong economic growth. At the end of the nineties and the beginning of the new century these countries suffered a severe economic crisis accelerated by the fast withdrawal of foreign capital. This led to a destabilization of the whole economic system in Southeast-Asia.

Awareness of a possible correlation between corruption and FDI increased after 1995 resulting in better datasets to analyse the relationship. Therefore empirical findings after 1995 are able to state very clear evidence for a negative correlation of cor-

ruption on FDI. However, corruption does not only affect international economic relationships via FDI and capital inflows. The impact of corruption on foreign trade is described in the next part.

### **4.3 Foreign Trade and Foreign Aid**

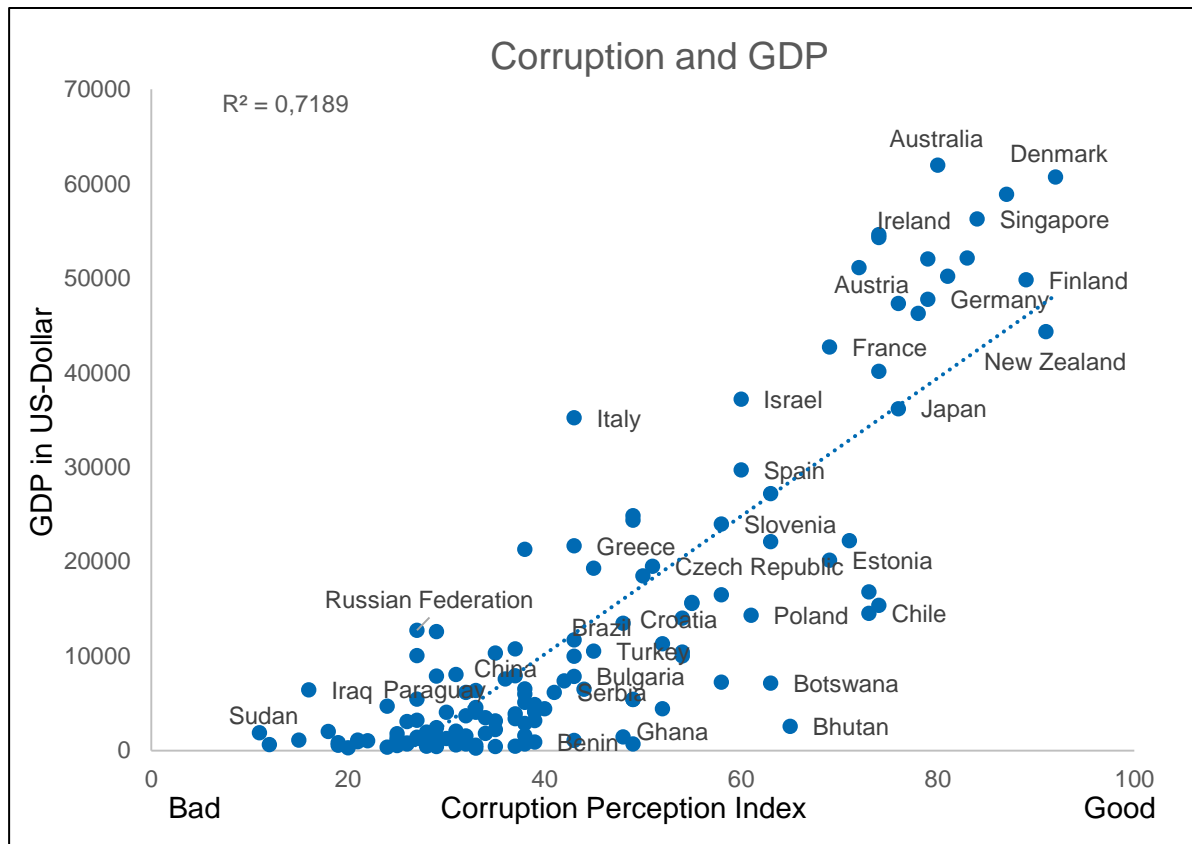
Corruption in international trade is quite common. This is mainly due to two factors: First, the wish of the government to control foreign trade and second the high value of access to new markets for companies. Every country has regulations organising foreign trade. These regulations are controlled by customs agents and include import prohibitions, e.g. drug-trafficking, import restrictions or tariffs for importing goods. It is difficult to control the agent's work, because once the products are in the country it is hard to trace them and depending on the corrupt deal there is no paperwork needed leaving a trace of the deal. When corruption with theft prevails the corrupt official charges a "fee" lower than the official customs duties. In this case both sides profit from the corrupt deal at the state's expense, and no side has an incentive to uncover the deal. The customs agents have much discretionary power supporting corruption. High and less transparent regulations increase their discretionary power providing many possibilities to extort bribes.

Many companies are facing competitive disadvantages in the trade with corrupt countries. Either they have to pay high bribes to get their products into the country, or they refuse to pay bribes and the corrupt official keeps them out of the market. Lambsdorff (1998; 2000) shows that companies originating from Australia, Malaysia or Sweden face a significant competitive disadvantage in bilateral trade with corrupt countries, while Belgium, France, Italy, the Netherlands and South Korea have competitive advantages. This may have cultural and moral reasons, e.g. the society in the specific home country condemns corruption, or it has legal reasons. In Malaysia corruption is severely punished even when a Malayan company bribes foreign officials (Malaysia Anti-Corruption Act 1997 (§§ 11, 55)). There is no study concerning the direct effects of corruption on the level of imports in a corrupt country.

### **4.4 Gross Domestic Product (GDP)**

The analysis of the effects of corruption on total investments already indicated a possible effect of corruption on the GDP. There is a strong correlation between GDP per head and corruption as can be seen in Figure 6: Countries with higher GDP per head score better in the Corruption Perception Index.

**Figure 6: Correlation between Corruption and GDP**



Source: Own Calculations; The World Bank, 2016; Transparency International, 2014

However correlation does not imply causality. It is commonly agreed that we are dealing with simultaneity. There are several reasons indicating that corruption lowers GDP per head, but there are as well many reasons implying that a low GDP per head supports corruption. The effects between corruption and GDP are likely to work both ways. High corruption deters investment and inefficient levels of production. This leads to a low GDP. On the other side a low GDP restricts the abilities of a country to control corruption, which obviously supports corruption. There were several suggestions how the problem could be solved. Hall and Jones (1999) propose to solve the simultaneity problem by using an instrumental variables technique. However it is very hard to find an instrument variable which reflects the correlation with corruption properly but does not have the simultaneity problem. Therefore many researchers started to focus on other variables (Lambsdorff, 2005).

A very popular variable describing the impact of corruption on GDP is growth of GDP, because it does not suffer as much from endogeneity. The results presented by several economists are very ambivalent to this date (see Campos et al., 2010 for a meta-analysis on 41 empirical studies). They vary between proving a negative significant impact and no impact at all, depending on the database indicating the corruption lev-

el and what explanatory variables were further included in the model. Thus an interpretation of the correlation between corruption and the growth of GDP is very difficult.

Aidt et al. (2008) find that corruption only lowers growth of GDP in countries with good political institutions: A one-point decrease in corruption leads to an increase in growth rates by 0.5-0.6 percentage points in the short run and 0.37-0.39 in the long run. In countries where institutions are of low quality, corruption does not impact growth at all. These results seem to provide support for the “grease in the wheel”-hypothesis. But the authors caution against seeing the results as proof for beneficial effects of corruption, since they do not explain why institutions are weak and what role corruption plays in that context. Also they point out possible issues with the dataset that add to the difficulty in interpretation.

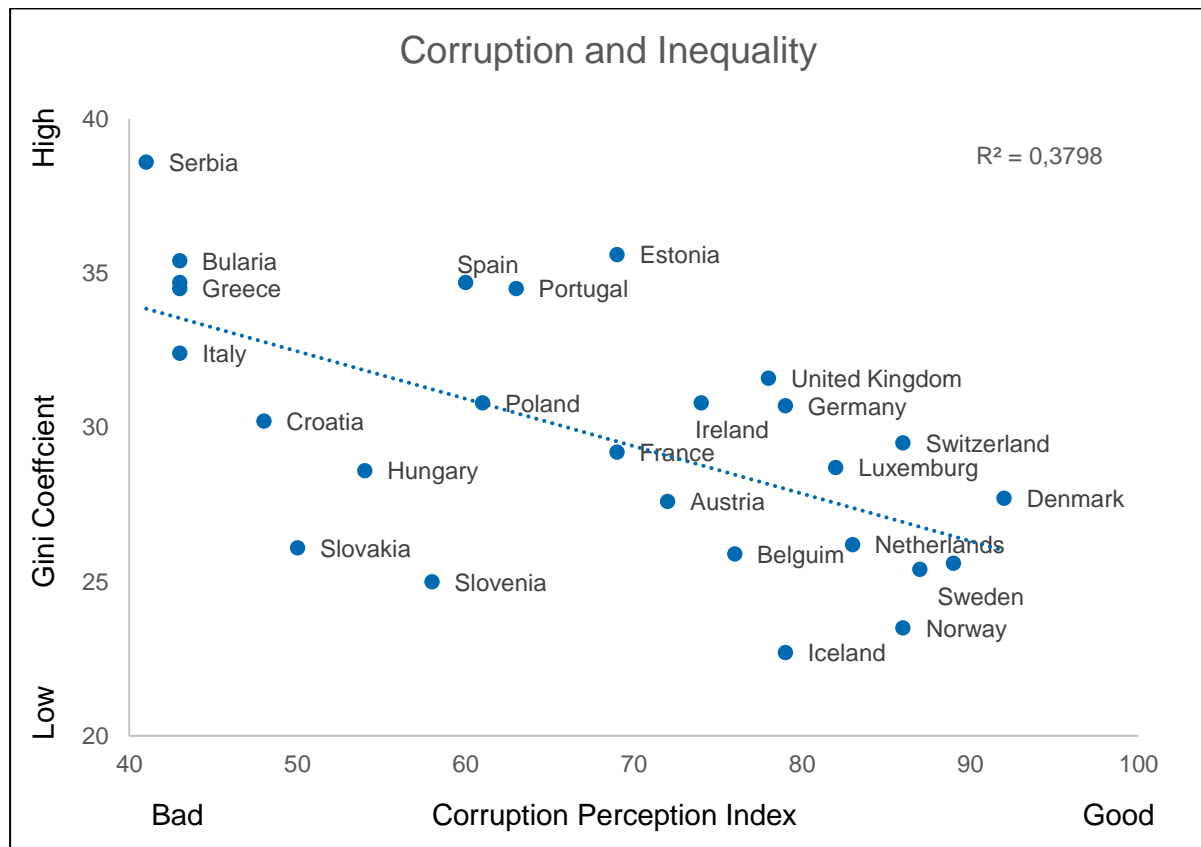
Drury et al. (2006) differentiate between non-democratic and democratic countries. Using data on growth of GDP from 100 countries over 16 years they do in fact get highly significant results. They show that corruption has a negative impact on growth in non-democratic countries, but no impact in democratic countries. This might be caused by electoral mechanisms in democratic countries: When public officials engage in corrupt activities that have a negative impact on aspects which affect society as a whole, such as growth, citizens will most likely sanction them in elections, which lowers the incentives to engage in this kind of behaviour. However, the authors address several caveats in interpreting the results, making it difficult to draw clear policy implications.

Some scholars criticize the use of GDP in this context, for example Aidt (2011) He argues that GDP does not take several key determinants of well-being into account and might therefore underestimate harmful effects of corruption. In addition, he points out the weaknesses of the research on GDP, which were also mentioned above, that call for a different approach. The author therefore analyses the impact on sustainable development, measured by growth of genuine wealth per capita, which has the advantage that it captures a country’s capability of keeping up its citizen’s living standards altogether and is therefore a better concept for defining policy measures. Aidt (2011) analyses a sample of 110 countries from 1996 until 2007 and does find significant proof that corruption has a negative impact on sustainable development. He concludes, that policy measures should aim at reducing corruption especially in areas such as natural resources with high value for society in order to protect and preserve the capital base which is crucial for sustainable development.

## 4.5 Inequality

An interesting aspect of corruption, often discussed in connection with the effects on GDP, is the effect on income distribution. Plotting the GINI-index for several European countries against the level of corruption, the negative correlation becomes visible, but it is not particularly high (Figure 7), making a straightforward explanation difficult.

**Figure 7: Correlation between Corruption and the Gini Coefficient**



Source: Own calculations; Eurostat, 2016; Transparency International, 2016a

Most researchers agree though, that there is a relationship between income inequality and corruption, but it is ambivalent due to a causality problem. Corruption may support income inequality for several reasons. First of all bribes are not paid to the poor people but to the privileged ones because they have the power and the means to give the payer something in return. Therefore their income rises whereas the poor do not profit. Furthermore illegal payments occur very often in sectors where the state offers a public good for free or lower than its market value. The purpose is a provision of certain public goods (e.g. health care) to all social classes. If scarcity occurs though, a corrupt official solves the problem by demanding a bribe equivalent to the price clearing the market. Bribes divert public goods to the people who are able to pay most. We take the example of health care: A physician who is employed by

the state to do medical examination for free might refuse or delay help to the poor not able to pay the illegal commission he is demanding for a treatment. Therefore public goods are diverted from their original purpose and are again just provided for the people who can afford it.

To the bribe-payer there is no difference if he pays a legal payment or a bribe. However, the direction of the money is different. A legal fee increases the government treasury and contributes to the wealth of the community, whereas corruption enriches the civil servants responsible in distributing the public good. These arguments are proved empirically by Gupta, Davoodi and Alonso-Terme (2002). They show that a one-standard-deviation increase in corruption, which is 2.52 points in the corruption index, leads to an increase in the Gini coefficient by 11 percentage points. If the growth rate of corruption increases by one-standard-deviation, the income growth of the poorest citizens, which is 0.6 percent a year on average, is reduced by 4.7 percentage points.

Several economists argue however that the effects are rather the other way round: High income inequality leads to a high level of corruption (Husted, 1999; Swamy et al., 2001). They claim that the rich have enough discretion to extort bribes, because the poor have neither the political power nor the economic possibilities to monitor the rich. You and Khagram (2005) published a study recently supporting this theory. Finally some economists suggest that the correlation observed is not due to causality, but indicates that both factors are driven by the same cultural determinants (Lambsdorff, 2005).

#### **4.6 Government Expenditures and Services**

The empirical results concerning the relationship between corruption and government spending are very contradictory which makes an interpretation difficult. There are strong theoretical arguments for a correlation of corruption on the size and on the quality of public investment, but the empirical research is ambivalent; whether a regression on Public investment is significant or not, depends on the dataset used to determine the level of corruption. Therefore the results are not robust and are difficult to use for an analysis.

The regressions of corruption on the level of the quality of public health care and level of the quality of public education deliver more satisfying, significant results (e.g. Gupta et al., 2001; 2002; Mauro 1998). The interpretation is similar to the theoretical argumentation explaining a correlation between corruption and public investment.

Corrupt officials try to maximize their total income (regular income plus bribes collected). Therefore they have an incentive to divert government spending to areas with the most possibilities to extort money. Following this argumentation Rose-Ackerman (1999) claims that corrupt rulers favour capital intensive public projects over regular government spending and as well public over private investment. The author adds that another source for corrupt payments is the issuing of government concessions. Other rent-seeking opportunities include granting monopolies and privatization. This shows the reason for ambivalent results when focussing on public investment. It is one of several sources for corruption and a regression just on public investment struggles with an omitted variable bias. Examining a correlation between corruption and the levels of public health quality and educational quality approaches the problem from the other side. Money is diverted from these areas because the possibilities of extracting bribes are very limited.

Other researches correlate corruption on military spending with different results. Older studies show insignificant results (Mauro, 1998), but more recent studies prove a significant and robust result claiming that higher corruption leads to higher military spending either in total amount or as a share of GDP. An increase in corruption by one percent results in an increase in military spending as share of GDP by 0.32 Percent (Gupta et al., 2001). This is due to the fact that military equipment is very heterogeneous, because it differs depending on its operational area. Therefore the decision making process is not only influenced by the price but as well by the different features of a product. This implies a large subjective factor in the decision making process. A corrupt official can choose a more expensive product reasoning that it is the best choice for the purpose.

In line with this research is Hessami (2013), who hypothesizes that corruption distorts public spending in the direction of areas that involve public commissions and away from those, which don't, such as social protection and culture. In sectors involving procurement, businesses compete for these rents by paying bribes to politicians in order to influence this process. This theory is supported by the evaluation of empirical data from 29 OECD countries. While it does not support the link between corruption and military spending, it does show that higher levels of corruption lead to higher expenditures in other procurement-based sectors such as health (including medical products and equipment) and environment protection (including waste management) and lower investment in recreation, culture and religion. An increase in the corruption level by one point on the scale from one to ten is associated with an increase in health expenditures by 0.39 percentage points and by 0.07 in environmental protection. In contrast, expenditures on social protection decrease by 0.57. The discrepancy in the results compared to previous research can be explained by the choice of

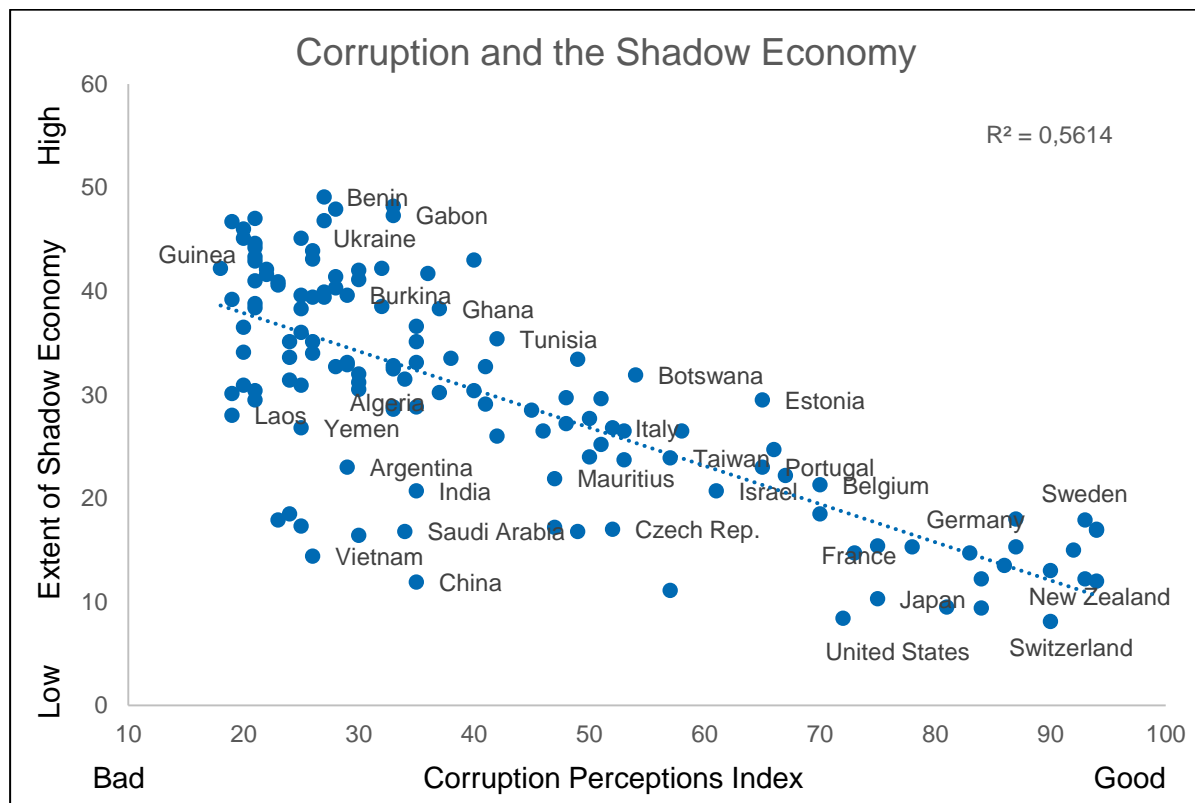
sample, which only covers industrialized and democratic countries, as Hessami (2013) points out and is therefore not to be seen as a rebuttal.

The diversion of government expenditures leads to a further effect of corruption: There is a strong significant decrease in the quality of government service, measured by the time managers have to deal with bureaucracy (Kaufman/Wei, 1999), and the trust in civil servants is significantly lower in countries with a high level of corruption (Anderson/Tverdova, 2003). The lack of trust in the civil service can lead to a destabilization of the country, because the legitimacy of the political authority is challenged.

#### 4.7 Shadow Economy, Crime and Corruption

The relationship between the shadow economy and corruption has been the focus of several empirical studies. The reason for that interest becomes clear when looking at the scatter plot of the size of the shadow economy measured by Schneider (2012) and the perceived corruption level in various countries (Figure 8). Low corruption levels correspond to a lower share of shadow economy in percent of GDP and vice versa.

**Figure 8: Correlation between Corruption and the Shadow Economy**



Source: Own calculations; Schneider, 2012; Transparency International, 2016a

The direction of the causality however is a controversial subject and there are two different perspectives on the relationship. One idea is that a larger unofficial sector reduces public officials' leeway in asking for bribes, making the two substitutes (see for example Choi and Thum, 2005). Other scholars argue that they are complements, since high levels of corruption might cause more businesses to go underground- a theory that is favoured by the empirical data, as Dreher and Schneider (2010) summarize. This in mind, the impact of corruption on the size of the unofficial economy is connected to the effects corruption has on government expenditures and services, because they make the official economy inefficient. This increases the attractiveness of the unofficial economy. However, the empirical data does not give clear evidence on the direction of causality: it might be corruption increasing the amount of underground activity, it might be the other way around or an interaction of the two.

Johnson, Kaufmann and Zoido-Lobaton (1998) state a direct significant correlation between corruption and the shadow economy. Although they do not solve the causality problem within the regression they state significant effects using three different indices of corruption. The results stay significant even when controlled for income level. However their results give strong evidence for a high unofficial economy due to a high level of corruption. Their results do not only show significant effects of corruption on the shadow economy, but a significant correlation between the degree of regulation and the shadow economy as well as measurements of the legal environment and the shadow economy. Both measures are likely to be highly correlated with corruption, but rather cause corruption than being a consequence of corruption.

An effective proxy for measuring the effects of corruption on the shadow economy is the changes in tax revenue. Corruption significantly decreases tax revenues in relation to GDP, as Friedman et al. (2000) for example show. They argue that corruption increases the effective tax burden businesses have to bear, therefore encouraging them to hide their business underground. This in turn lowers the government's tax revenue.

Dreher and Schneider (2010) analyse the relationship between shadow economy and corruption in a cross-section of 98 countries. When using an index for corruption that is based on society's perception, they do not find any correlation which underlines the impact of the choice of variables in such regressions. The authors refer to recent argument, that perceived corruption cannot fully measure corruption levels since respondents in these surveys cannot adequately separate the variable from the perception of the overall institutional environment. The authors then turn to an alternative index, developed by Dreher et al. (2007), which is based on a measurement of the most likely consequences of corruption. This regression does give strongly signif-

icant results: In low-income countries, corruption and the shadow economy go alongside, while in high-income countries, no robust relationship can be found. The authors conclude their analysis by pointing out that clear results in this field of study are seldom, if possible at all, due to the obvious lack of data especially over time since both the shadow economy and corruption are concealed by nature.

Even though there is a lot of empirical support for the theory that corruption and the shadow economy go alongside, the direction of causality remains unclear and clear results are hard to obtain. Still, policy measures against corruption can have a dampening effect on the unofficial economy, because it stabilizes institutions and increases growth rates, which in turn lowers unofficial activities (Schneider/Enste, 2015).

Closely connected to the consequences of corruption on the unofficial economy are the consequences of corruption on crime and especially organised crime. Several studies proved that there is not only causality that crime affects corruption, but also vice versa (e.g. Azfar/Gurgur, 2004; Azfar/Lee, 2003). Corruption provides an environment where especially organized crime can operate without disturbance by state officials. Even more criminal organizations might start legal businesses for money laundering purposes. In a corrupt country they can secure a monopoly power for their businesses by paying officials to keep entrants out (Rose-Ackerman, 1999). Therefore existing corruption creates a good environment for organized crime.

## 5. Policy Implications

After all we can state that corruption causes inefficiencies in many areas. Although some of the consequences mentioned above suffer from causality problems, the negative effects of corruption cannot be neglected: In general it lowers investment and therefore challenges the competitiveness of the country and lowers its GDP. Furthermore it increases inequality in a country which may lead to social tensions and instability. The diversion of government expenditures and the decrease in the quality of public services due to corruption leads to market inefficiencies, inducing companies to enter the unofficial economy. The consequences are lower tax revenues, the political influence to implement regulations is restricted and the government has difficulties to keep up law and order.

The previous chapters have shown the dramatic effects of corruption. Taking into account its causes, it becomes clear, that policy measures need to address the problem at the roots, making a profound understanding of the forces behind it crucial. Unfortunately, as pointed out previously, there are several caveats in analysing the causes and consequences of corruption and inferring policy measures. This is

caused by various factors: Obtaining data on corruption is a difficult task since these actions are concealed from the public and thus hard to measure. Scholars turn to surveys which measure perceived corruption instead, but are not fully capable of capturing the scope of corruption as Dreher and Schneider (2010) point out. Another issue is the inseparability of the causes and consequences of corruption, since the two often magnify each other leading to a vicious circle (Lambsdorff, 2006). Weak institutions for example reinforce corrupt behaviour, but at the same time these actions lower a government's revenue and in turn reduces the institutional quality.

This leads to an ambiguity in the empirical literature, for example in terms of the effect of government size and structure or the salaries of public officials. Other factors find clear support in the data, but leave little room for policy interventions such as abundance of natural resources and culture. But some influences that are identified in the empirical analysis also provide valuable information for policy measures. One aspect that prevails is the quality of institutions, which influences corruption directly and also as a mediating variable through the size of the shadow economy and the effect of democracy. The latter is of special importance, because it shows that the democracy does not mitigate corruption itself, but only when having been established for a medium to long period of time and being accompanied by stable and fully evolved institutions. The extent and type of government intervention is a further essential variable in lowering corruption levels: If intervention leads to a reduction in competition e.g. by hindering market entry, corruption will be fostered. Other important aspects are the integration in international networks and press freedom, which both reduce illegal behaviour from public officials.

Even though these arguments are straightforward, many countries do not have the means and the knowledge to address them adequately. Therefore a unified and international approach is essential in order to lower corruption levels around the world, even more so because it is practised across borders. The United Nations have drawn up the UN Convention against Corruption (UNCAC) in 2003 which has been ratified by 178 countries up until 2015 and is the first internationally binding treaty against corruption. The key purpose of the convention is to facilitate the fight against corruption by strengthening policies and by promoting international cooperation. It includes policy guidelines concerning prevention, law enforcement, cooperation and assistance for developing and transition countries (United Nations, 2003). In order to keep track of the implementation, a monitoring process has been established, where countries assess their progress and are being reviewed by experts from other countries. While it is acknowledged, that a monitoring system is a necessary part of the treaty, Transparency International identifies several weaknesses. First of all, there is no follow-up system to ensure the implementation of recommendations made in the reports. Another issue is the lack of transparency: Only a few country self-assessments

and expert reports have been made public, even though transparency is one of the key aspects in the fight against corruption and in the public's understanding of current issues and solutions therein. The realization of technical assistance for developing and transitory countries is also criticized. Even though it is an important part of the convention, it suffers from lack of consistency, follow up and an exclusion of other parties such as NGOs when discussing and developing the assistance programs. This in turn reduces the means of including all countries, especially those who suffer most from corruption (Transparency International, 2013b).

Another major convention in this topic is the OECD Anti-Bribery Convention, which aims at the "supply side" of bribery, namely companies that are based in OECD-countries and are involved in the bribery of foreign public officials, by formulating standards to criminalise such actions (OECD, 2016). The OECD however does not force its members to implement these standards, and the countries themselves have to do so. This leads to the problem, that even though 41 countries have signed the document, more than half practise only little or no enforcement at all and thus keep on "exporting" corruption via their exports and FDIs. Only four countries practise active enforcement: The US, UK, Germany and Switzerland (Transparency International, 2015). These findings are alarming, because the import of bribery hinders national attempts to reduce corruption levels and is highly conflictive with foreign development aid. Therefore the next step in fighting corruption following an improvement in governmental quality is firms acknowledging their responsibility in the process and applying domestic rules abroad.

In summary it is worth noting that country leaders have understood that corruption cannot only be fought on a domestic level, but asks for an international approach. Still, there are several deficits in the implementation and realization of anti-corruption measures. These need to be addressed in order to succeed in the fight against corruption. Most importantly, the connection between fundamental country characteristics and corruption needs to be in mind permanently, because as shown in this report, their influence is dramatic and should be addressed for example in terms of developing aid. Only if countries are stabilized permanently, corruption levels will go down and stay low. Further recommendations on this aspects provide (Enste/ Wildner, 2014; Enste, 2015).

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