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wien

# DIPLOMARBEIT

Titel der Diplomarbeit

„Measuring Corruption – Socio-economic  
determinants of corruption perception and the role  
of corruption experience“

Verfasser

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angestrebter akademischer Grad

Magister der Soziologie (Mag.rer.soc.oec.)

Wien, 2010

Studienkennzahl lt.  
Studienblatt:

A 121

Studienrichtung lt.  
Studienblatt:

Diplomstudium Soziologie (rechts-, sozial-  
und wirtschaftswissenschaftliche  
Studienrichtung)

Betreuerin / Betreuer:

Univ.-Prof. Dr. Roland Verwiebe



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## Acknowledgements

First of all, I would like to thank my adviser Univ.-Prof. Dr. Roland Verwiebe who gave me valuable advice and encouraged me to eventually finish the thesis at some point.

I am greatly indebted to Dr. Florian Pichler, PhD who explained me patiently several “last questions” and was extremely helpful from the very beginning.

I would like to thank em. Univ.-Prof. Dr. Henrik Kreutz for his captivating lectures that inspired me to work on the subject of corruption.

Thanks go also to Mag. Bernhard Riederer, Bakk. and my other colleagues from the master thesis seminar for their critical remarks, as well as to the lecturers Dr. Rossalina Latcheva, Mag. Eva Rossbacher, and Mag. Tina Olteanu for some very important hints during my research.

I would also like to say thank you to my fellow students Katrin Baumgartner, Margit Kenzian, and Stefanie Smoliner for their team spirit during the final phase of our studies.

Special thanks go to Domenica Hofmann and Lukas Achathaler who have been a wonderful team in corruption research and the organisation of corruption symposia.

Finally, I would like to thank Anita Reiter for the careful proofreading of my thesis.

Naturally, all mistakes that remained in the thesis are mine.



There are things known and there are things unknown,  
and in between are the doors of perception.

Aldous Huxley

By far the best proof is experience.

Sir Francis Bacon

## **1. Introduction: Understanding Corruption Perception**

Corruption has become one of the major issues in current political debate in Europe and corruption affairs dominate the media coverage in almost any European country. In the wake of the economical crisis, corruption has been discussed as one of the causes for the huge financial disasters in companies and national economies. It is evident that the study of corruption has never been more compelling than now.

In recent years, the interest in corruption has increased and the literature on corruption has experienced a veritable boom. The negative consequences of corruption have been carefully examined and illustrated and the research on the causes and mechanisms has brought ground-breaking insight (see chapter two for details). The criminal nature of the phenomenon and the fact that corruption is a crime without an immediate victim has made its study a rather difficult task from the very beginning. It seemed that researchers solved this problem with the innovative use of commercial country assessments (e.g. Mauro 1995, Lambsdorff 1998). Using aggregated country data and macro analysis, international corruption research celebrated sensational results and caused a stir in the social scientific community in the past two decades. During this time, less attention was paid to the fact that all the indicators that were used to study corruption were based on individuals' subjective

perceptions and not on the observation of actual behaviour or other objective measures.

Only recently, data has become available to critically examine the value of corruption perception as an indicator. Social sciences widely discuss the formation of perceptions on various issues. “While few people would be daring enough to equate subjective perceptions of inequality with objective inequality in society” writes Michael Smith (2008: 2) in his study on corruption perception, “many scholars of corruption seem to have little problem with equating measures of *corruption perceptions* with the actual incidence of *corruption*”. In order to undertake research in this question, it is necessary to use individual level data that includes both corruption perception and victimization questions. So far, only a few studies existed where subjective and objective corruption indicators were included in order to examine the interaction between them. Those available will be discussed in detail in chapter three.

All studies on the problem of corruption show that corruption perception strongly correlates with various phenomena we deem socially and politically undesirable, like low economic development, weak democratic institutions, and an oppressed media. Therefore, there is not any question that corruption perception acts as an indicator for certain conditions in society that are hindering economic development and the functioning of a liberal and democratic society. But this does not mean that the indicator stands for the phenomenon of corruption. More and more studies show reasonable doubt that corruption perception acts as an apt indicator for corruption. The impressive results of macro studies on corruption are by no means proof that they are really measuring corruption. It cannot be denied that they show the influence of some sort of social phenomenon, but this phenomenon does not have to be necessarily corruption. In some countries, the figures for experience and perception are closer than in others. Many important questions, for instance the targeting and funding of anti-corruption strategies or the role of a critical media, are closely linked to the need for valid corruption measurements. Therefore, it is necessary to undertake more research on the gap between corruption perception and corruption experience or victimization.

This study focuses on socio-structural determinants of corruption perception and the relation between corruption perception and experience. The author will examine a dataset from the European Commission that includes 27 European countries, i.e. all member states of the European Union (see chapter six). So far, there has not been any study that included as many European countries since international comparisons included merely a handful of them. This work contributes to the existing literature in several ways. The used data include questions about corruption perception and an indicator for corruption experience. Therefore, the influence of corruption experience on corruption perception can be analysed. Furthermore, a number of socio-economic background variables allow to gain better insight of how the formation of corruption perception is influenced by the social structure of a society. In this way, research is coming closer to Durkheim's paramount rule for the social sciences that social phenomena should be explained through nothing else but social phenomena.

To pay full attention to the fact that the citizens that were interviewed in the study are subject to the influences of very different contexts depending on the country they live in, a multilevel regression modelling was chosen as method of analysis. This technique meets best the requirements of the specific data structure of cross-country studies containing individual level data. Besides individual level factors country level parameters were included in the analysis, too.

This paper finds demonstrative and significant results that help to understand how corruption perception is formed and how corruption perception and corruption experience should be understood when studying corruption. It points out the influence of socio-structural determinants and the difference between opinion and behaviour. Also practical lessons can be learned from these results. Without reliable data on corruption, it is rather difficult to evaluate the efficiency of anti-corruption activities (e.g. Seligson 2006). Data on corruption perception can be even delusive in this regard. Wide discrepancies between perception and experience distort the picture of the real situation and make realistic assessments of a country's situation difficult. More corruption perception can even lead to more real corruption. Such questions will be treated broader in the conclusion in chapter eight.

The remainder of the paper is organised as follows: chapter two gives an overview about the phenomenon of corruption in general, its definitions, theories, consequences and causes. The next chapter (three) will go more into detail about the problematic issue of corruption perception and will discuss the existing literature on corruption measurement. In chapter four, the hypotheses of this study will be presented. Chapter five describes the data and the operationalization of it, particularly the construction of an index of corruption perception. In chapter six, a multilevel regression analysis is performed and several models are tested. The results are presented in chapter seven. The results and their practical consequences for anti-corruption agencies and policy makers will be discussed in the conclusion in chapter eight, as well as an outlook for future empirical work in the field of corruption research.

## **2. Corruption: Definitions, Theories, Consequences, Causes**

This chapter gives an overview about the theoretical framework of corruption in order to put this study in a broader context in the field of corruption studies. A short introduction will familiarize the reader with the lengthy debate on how to define corruption. Then theoretical approaches towards corruption will be summarized. After this follows an overview about studies that shows the consequences of corruption in order to underline the general importance of corruption studies. In the remaining section of the chapter, the latest findings in the social sciences about the probable causes of corruption will be introduced.

### **2.1 Corruption Definitions**

The debate on how to define corruption is very broad (see Johnston 2005 as well as Sandholtz and Koetzle 2000) and cannot be fully summarized here. An exact definition that serves the interests of all scholars is yet to be found, however, everyone, scholar or not, has a feeling of what is corrupt and what is not. Therefore,

all of the definitions rotate around what can be considered as a core definition: corruption as the abuse of entrusted power for private gain.

Some scholars suggest that definitional problems are much graver than all other problems of corruption measurement (Philp 2006: 50). Since any measurement demands for variation, it also needs a constant against which the variation is measured. In corruption research this constant is not always rock solid. However, a certain progress has been made in bringing some kind of organisation into the problem of defining corruption.

Heidenheimer's (1989: 8) distinction between *public opinion*-, *public office*-, and *public interest*-definitions has been called ground-breaking (Kurer 2005: 222) and is amongst the most cited categorizations of definitions. Since then, there has hardly been any development. New definitions can always be located within the sphere of one of these three groups. Public opinion-definitions would call an action corrupt, if the public opinion deems it as corrupt. This definition has been originally introduced by Scott (1972: 3), but has been quickly rejected as unsatisfactory since there will not be any final agreement in the public on what exactly is a corrupt action and what is not. However, this definition should not be prematurely rejected. First of all, in many countries laws may not be a legitimate point of reference or are in fact made by corrupt administrators in order to support their corrupt endeavours (Johnston 2005: 69). Secondly, all of today's popular corruption rankings are based on subjective perceptions by the public or certain parts of a population and are ultimately deduced from this type of definitions (Kurer 2005: 224). Certain scientist obviously conclude that there is substantive understanding among the general public about what is to be considered as corruption. The German corruption researcher Allemann (2005: 14) even goes as far as calling corruption a "perception crime": it is not only the real existing corruption that matters, but also acts and practices that are perceived as corrupt. For practical research, this is where the problems of operationalization start since it is almost impossible to find a measurable agreement on what is corrupt. This study illustrates this dilemma with impressive figures: 78,1 % of the European population believe that corruption is a major problem in their

country, but only 9,4 % have actually experienced corruption, when defined as the demand for a bribe or the actual payment of a bribe.

Now, public office-definitions can be considered as more objective. The definition proposed by Nye (1967: 419) has found wide prevalence in academic literature: “Corruption is behaviour which deviates from the formal duties of a public role because of private-regarding (personal, close family, private clique) pecuniary or status gains: or violates rules against the exercise of certain types of private-regarding influence”. This definition underlines that corruption implies the breaking of rules. Its operationalization is easier in a theoretical way: the breaking of rules can be observed, as well as the consequences of the rule-breaking in terms of legal activities.

Rose-Ackerman (1978: 6) uses a definition of corruption that also includes payments not conflicting with formal law. She points out that the principal-agent model does not necessarily mean that “the principal’s goals have been subverted”, which is still a widespread assumption. “Indeed, the payment may even increase the principal’s satisfaction with the agent’s performance”. The tip to a waiter, for instance, may increase the quality of his or her service, as well as the bribe to a low-ranking officer may speed up the processing of applications, which would not be the case with colleagues who work on their regular salary. She even includes contributions for legal lobbying because she finds that they are having very similar effects on the economic behaviour of agents. In fact in her model, a poorly informed public causes less corruption, but more influence by lobbyists since it is not necessary to hide support (Rose-Ackerman 1978: 55). Her definition includes “all payments to agents that are not passed onto superiors” (Rose-Ackerman 1978: 7).

The advantage of the public office approach – the fact that it is based on legal rules – is also its disadvantage. Johnston (2005: 68) asks about the definition of abuse in the behaviour-focused public office-definitions. Those definitions referring to formal rules, like the law, have the advantage of being relatively precise and remain broadly applicable. But over time, laws change and are subject to the interpretation of lawyers and judges. If an act is not explicitly illegal, it still might be

adverse to public interest, for instance causing serious loss of public property, or simply be considered as illegitimate. For example, giving consultants heavily overpriced consultancy or project development contracts in the process of privatization of state enterprises has been a common practice in many countries. Another example is the OECD (1997) convention against bribing foreign public officials, which turned a formerly completely legal act (payments were even tax-deductible) into an illegal practice in its member states. At this stage, the public opinion-definition comes into play again, which defines corruption as what is considered to be corrupt.

An attempt to solve the dilemma was to focus on the damage of public interest. In this approach, the above example of overpriced consultancy contracts could be categorized as being against public interest, as well as many forms of lobbying. Obviously, defining and balancing public interest in the right way is hardly possible. Therefore, this road has been left again.

Smith and Mateju (2009: 3) suggest an innovative and promising compromise in the emotional discussion on the definition of corruption. They argue that Wittgenstein's concept of "family resemblances" outlined in his *Philosophical Investigations* (Wittgenstein 1999) could be helpful for solving this problem. Wittgenstein argues that many concepts in philosophy and science cannot be thoroughly defined. But still, through overlapping resemblances or features, a meaningful communication process is possible, even if researchers do not have final definitions of the terms they use. The same is true for corruption. Everyone has an idea what it is and researchers have found enough common working definitions and a shared vocabulary to continue with their work, no matter if the ultimate set of well-defined terms has not been found yet.

For this work, the decision on how to define corruption has already been made. The questions in the study set the framework. Those parts of the questionnaire measuring corruption perception use a public opinion approach: the question of defining corruption and what to include in the concept is left to the respondent. In

the other part of the questions, where the experience of a case of corruption is asked, corruption has been reduced to the demand for a bribe.

Definitions should always be a mean to work with and not an end in itself. Still, this problem has to be kept in mind, when putting the results into a broader context. Societies, where bribery is not demanded before an act, but ex post gift giving is practised as a procedure of exchange, are clearly in disadvantage when measuring corruption through bribery. Putting other measurement problems aside, it should also be noted that this definition will leave a lot of corruption deals aside, especially, where the demands for bribery are not directly formulated, but more elaborate constructions are used for exchanging power, goods, and money.

## **2.2 Corruption Theories**

The question of corruption theory is just as heavily debated as the question of its definition. It is not in the focus of this paper since the discussion will later shift to the problems of measuring corruption. For the sake of completeness a short summary about the various fields of theory is given. It mainly follows the overviews of Allemann (2005) and Maravić (2006).

They (Allemann 2005: 27, Maravić 2006: 101) distinguish four fields of corruption theory: 1) corruption from a system theoretical point of view, 2) corruption as deviant behaviour, 3) an economic theory of corruption, and 4) a neo-institutional approach towards corrupt behaviour.

Following Luhmann, the system theoretical approach sees corruption as the exchange of information beyond the borders of two different communication systems and their respective functional logic. Communication within the communication system “economy” follows the paradigm of efficiency versus inefficiency. Communication within the system called “politics” follows the paradigm of powerful versus powerless. Typically, corruption is the exchange of money (mean of exchange in the economic system) against power (mean of exchange in the political system). Following this logic, corruption is the misuse of

one mean of exchange for a different logic (Hiller 2005: 61). A corrupt democracy does not follow democratic principles, a corrupt legal system does not follow the paradigm legal/illegal, and a corrupt economic system does not observe the market mechanism.

The theory of corruption as deviant behaviour stems from Merton's theory of deviance. Corruption is seen as behaviour which does not follow existing norms and values. It does not mean, however, that the individual deliberately seeks to violate those rules, but rather that it finds itself in a conflict of benefit versus value (Max Weber's *Zweckrationalität* versus *Wertrationalität*). Deviant behaviour, therefore, acts as an indicator of societal dysfunctionality since the individual is not any longer able to satisfy the expectations towards his roles. Conceived in general terms, corruption serves as a societal indicator of structural dysfunctionalities. In the theories of transitional societies, this approach has been promoted in the sixties and seventies by the likes of Samuel Huntington (1968). His theory that corruption was enabling change towards democracy and market economy in transition countries was disproved later on by both social scientists and economists (e.g. Mauro 1995, Rose-Ackerman 1999).

The most popular theory of corruption is the economical approach called *economics of corruption*. One of the most important works in this field was the one of Susan Rose-Ackerman (1978). The boom of corruption studies is build on the use of the theory of economics of corruption. It follows widely the rational choice theory. The theory of economics of corruption studies how a person decides in certain situations in favour of corruption. The focus point of this analysis is the individual actin corrupt if the gains outweigh the costs. Klitgaard (1988: 75) puts this concept in a simple equation: corruption = monopoly + discretion – accountability. Further elements of this theoretical sphere are the rent seeking theory and the transaction cost theory, which treat both asymmetric relations of actors in economic transactions.

The neo-institutional approach (March and Olsen 1989) developed from organization studies. According to the neo-institutional approach, institutions give

the individual a sense of meaning and demonstrate the right pattern of behaviour. Through structuring the interpretation of reality, institutions reduce the uncertainty of actors in given situations of decision. Institutions are so powerful since the individual does not perceive any alternative ways of action. According to the theory, people do not follow their daily working routine, because they are told so or because they mean to gain the highest profits by it, but simply because they cannot perceive any alternative behaviour. The right behaviour passes on through imitation. In this way, corruption is passed on from higher ranking officials or managers onto the lower ranks of an institution.

A new and interesting way of fusioning paradigms can be found in the combination of institutionalism and the rational choice theory (Maravić 2006). It tries to show that the individual is acting within an institution, restricted by its rules and values, but in an actual situation, it has to decide in consideration of his gains or losses. The aim is to identify neuralgic positions in an institution, where corrupt behaviour might accumulate rather than trying to find “bad apples”, i.e. assumably potentially corrupt employees, in order to remove them. Already, Rose-Ackerman (1978) could show that it is not necessarily the person, but rather the situation which creates corruption. She shows how different economical models can predict the risk of corruption in a given bureaucratic environment due to certain organizational structures.

## **2.3 Consequences of Corruption**

The harmful consequences of corruption are well documented by now. Since this study is dealing with the question of measuring corruption, it has to be noted, however, that the majority of the research quoted here has used corruption perception as indicator for corruption. This indicator has some shortcomings, which will be discussed later. Therefore, one has to assess the following results with care or consider them as preliminary as long as better ways of measuring corruption have not been applied.

Mauro (1995) was the first to show a negative connection between corruption and growth empirically, as well as between investment rates, using data from an index of the business consultant company Business International. His study included 67 countries. Mauro (1995: 683) calculated that if Bangladesh would lower its level of corruption to Uruguay's, its investment rate would increase by approximately five percent of its GDP. Several other authors get similar findings confirming the negative impact of corruption on the ratio of investment to GDP: Brunetti, Kisunko, and Weder (1998) are able to show this with an index by the World Bank and the University of Basel in a dataset of 41 countries. Mauro (1997) comes to similar conclusions with data from the Political Risk Service's International Country Risk Guide and a sample of 94 countries, as well as Gymiah-Brempong (2002) with African data. Shleifer and Vishny (1993: 616) were able to show that due to its secret nature, corruption diverts money to potentially valueless fields of investment, if procurement in this field is specifically secret. This feature is particularly true for the defence sector and major infrastructure projects. Areas which are more valuable on the long run, like education or health, become discriminated. Seligson (2002: 410) shows empirical evidence that corruption is disadvantageous for the economy and society: bribe leads to the loss of tax money. Those who can pay bribes get public services others will not get, therefore leading to even more inequality. Corruption weakens the rule of law: legal and commercial standards are disregarded, subsequently lowering the quality of products and leading to the neglect of ecological guidelines.

In social sciences and the studies of development, there has been a tradition of positively assessing corruption. This thinking is closely linked to the name of Samuel Huntington (1968), who claimed corruption would create more efficiency and would hold unstable political systems together. Rose-Ackerman (1999), among many others, ended these myths about the desirable effects of corruption. Her research showed that corruption leads to the formation of cartels and monopolies, to a distortion of competition, and hinders the development and welfare of a country.

The following paragraphs, as well as the paragraphs in the next section, mostly refer to studies compiled in an article by Johann Graf von Lambsdorff (2005a)

giving an extensive overview about several dozen empirical findings on the consequences of corruption.<sup>1</sup> Many of these studies use the Corruption Perception Index (CPI) from the anti-corruption NGO Transparency International (TI), which has been developed by Lambsdorff.<sup>2</sup> Besides the indices already mentioned, this has become the most popular index measuring corruption perception. The launch of the index in 1995 has literally fuelled cross-country research. Since then, also a lot of critical research has focused on the index (e.g. Thompson and Shah 2005), as well as the problems of measuring corruption through perception in general (see chapter three).

Several studies confirm that corruption reduces foreign direct investment (FDI) and local investment even stronger (Rose-Ackerman 1999: 2, see Lambsdorff 2005a: 4 for several studies). Other capital inflow than FDI is also very likely to be reduced by corruption (Lambsdorff 2005a: 6). Wei (2000) finds that an increase in corruption from the low level of Singapore to the high level of Mexico is equivalent to raising the tax rate by over 20 percentage points (of course without gaining tax revenues for state investment). Lambsdorff (2005b) shows, however, that grand corruption does not deter foreign investors as strongly as petty corruption does.

Many studies, some of them represented in Lambsdorff (2005a: 7) are testing the correlation between corruption and GDP (per capita), but have difficulties to show a direct connection between those two. Despite extensive research this causality is contested by many. Similarly, there are many hints that the growth of GDP is negatively affected by corruption. Due to measurement problems (for instance with high multicollinearity in the predictors) iron-clad evidence is still missing.

The influence of corruption on income inequality could have been shown more clearly. Gupta, Davoodi, and Alonso-Terme (2002) find in a study of 37 countries a positive impact of corruption on inequality measured by the Gini coefficient. Gymiah-Brempong (2002) confirms this connection with an African sample. Others

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1 For other summaries see Treisman 2007, Svensson 2005, or Andvig/Fjeldstad 2001.

2 For a current version and the methodology of the index see [http://www.transparency.org/policy\\_research/surveys\\_indices/cpi/2010](http://www.transparency.org/policy_research/surveys_indices/cpi/2010) (16.11.2010).

contest the direction of the causality between corruption and inequality (see Lambsdorff 2005a: 9). Some sort of interplay forming a vicious circle is rather probable. High levels of corruption are further found to be correlated with inefficient government services, lower government expenditure on education (since it is not as profitable for corruption as other fields), higher spending on military expenditure, lower tax revenues, environmental pollution, and crime (Lambsdorff 2005a: 13).

After declaring corruption illegal, it is the mere fact of illegality that produces economic inefficiencies. Transactions have to be kept secret and anti-corruption measures have to be enforced. “Moreover, a corrupt system of government services has the distributional disadvantage of benefiting unscrupulous people at the expense of law-abiding citizens who would be willing to purchase the service legally” (Rose-Ackerman 1978: 8). From the viewpoint of political science, corruption shows that political competition does not always lead to the suggested balance of interests. What economists know as “market failure” can be shown with corruption for the political sphere.

## **2.4 Causes of Corruption**

Finding a robust causal relationship between corruption and its causes is almost impossible. Many consequences of corruption may often be its very reasons. Higher barriers to market entry, policy intervention, and the vagueness of the application of government regulations have been found to positively impact corruption (Lambsdorff 2005a: 16). But the causality is still uncertain since all these measures could have just as well been implemented by corrupt officials in order to get money out of bureaucratic processes. Generally speaking, market competition has been found to have an adverse impact on corruption. The studies of Sachs and Warner (1995), Treisman (2000), and Leite and Weidmann (1999) have indicated this, using as indicator the number of years a country has been open to trade. Using as another indicator of openness the number of international organizations a country has an affiliation with and the period of time a country has been member of the United Nations, GATT/WTO, and the IMF, Sandholtz and Gray (2003) come to the same conclusion.

Opposite to popular belief, the level of salaries does not have any impact on corruption. Swamy et al. (2001), Treisman (2000), and Manow (2005) cannot find clear results, which would support this argument. The fact that government salaries are higher in poor countries relative to GDP is an argument against wages being a reason for corruption.

Arguments in favour of press freedom reducing corruption are strong. Several studies measuring press freedom through the indices of the NGO Freedom House or the number of newspapers point in this direction (Lambsdorff 2005a: 19).

The influence of democracy is more complicated. The simple fact of having a democratic regime does not reduce corruption. It is the length of time a democracy has been in place (Treisman 2000, Gerring and Thacker 2004, 2005), as well as its quality that count. Authoritarian regimes have slightly less corruption than medium-democratic regimes, but good democracies have the lowest level of corruption (Manow 2005). Several studies (Gerring and Thacker 2004, for others see Lambsdorff 2005a: 23) find presidential democracies more corruption-prone than parliamentary democracies. No empirical arguments have been found to establish a conclusive connection between government expenses or government size and corruption. The size of population, another popular argument, is not such a clear case either, as well as the extent of centralization versus federalism (Lambsdorff 2005a: 15).

Several studies use data from the World Value Survey to examine a connection between trust in a society and its level of corruption. They come to the conclusion that a higher level of trust reduces corruption (La Porta et al. 1997, Adsera, Boix, and Payne 2000) and some are even able to confirm the causality in this direction (Uslaner 2004). A mentality favourable to hierarchies is increasing corruption according to Husted (1999).

Studies by Swamy et al. (2001) show female gender as a reducing factor of corruption, but others contest this fact by saying that other variables like the rule of

law, freedom, and democracy reduce the initial influence (see Lambsdorff 2005a: 26).

When looking at religion, Protestantism is widely seen as a factor reducing corruption. Even when controlling for GDP and democracy, Treisman (2000: 427) finds that Protestantism reduces corruption significantly. In a conservative estimation, Ireland would have one point less on the CPI 10-point scale, if its share of Protestants was as high as that of Denmark and it would rise in the ranking to about the level of Denmark. Other studies confirm his findings (Gerring and Thacker 2005: 245-246, for others see Lambsdorff 2005a: 24), but have a reduced significance when adding openness as a factor.

Four hypotheses on the influence of Protestantism are presented by Treisman (2000: 427): Firstly, Protestantism has a culture that shows “greater tolerance for challenges to authority” and for “individual dissent” (Treisman 2000: 427). Thus, it favours the discovery and punishment of official abuse. Secondly, Protestants believe, roughly speaking, that individuals are personally responsible for avoiding sins, unlike other Christian denominations emphasizing human weakness and the need for the church to forgive (Lipset and Lenz 2006). Thirdly, Protestantism focuses more on the individual compared to other religions. In cultures where Protestantism is absent this leads subsequently to familism and nepotism. Fourthly in Protestant countries, greater emphasis is put on the separation of church and state. This fact leads to a civil society that enjoys greater independence and is, therefore, better equipped to control the state.

Critical studies contest the view that Protestants are less corrupt. Rose and Mishler (2008: 21) found that although a high share of Protestantism in a country correlates negatively with the aggregated level of perceived corruption and Protestants perceive less corruption on an individual level, they are personally more involved in acts of corruption than members of other denominations. According to their study, this is due to the fact that they have more contacts and, therefore, have more occasions for corruption than others.

Dreher and Schneider (2009) find signs, that the shadow economy increases corruption in low income countries, but does not have an influence or even reduces the amount of corruption in high income countries since corruption has a substitutional role in high income countries and a complementary role in low income countries.

At the end of this chapter, it has to be emphasized again that the majority of the above mentioned studies have used corruption perception as an indicator for corruption. This procedure can be questioned. To discuss this question more deeply, the next chapter fully deals with the problem of measuring corruption through perception. It will also introduce alternative measurements.

### **3. Measuring Corruption Through Perception? New Critical Studies**

Already a number of studies suggests that there are several factors that bias corruption perception and render it a questionable indicator for a real level of corruption. Contrary to most corruption studies, which analyse aggregated country scores, these studies use individual level data. Until recently, Micro level data has not been used in the field of corruption studies. With new datasets available, more and more researcher have now concentrated on the individual level, giving new insights into the phenomenon of corruption, which have not been available with country level studies alone. All studies relevant to the question of measuring corruption through perception have only been released within the last five years. Up to the author's knowledge, there has not been any detailed account of these studies so far, a fact that has hopefully changed with the completion of the following section. There, the current state of research will be discussed in more detail and conclusions will be drawn for the subsequent analysis of European data.

Olken (2006) started the recent discussion with a very innovative attempt to measure corruption. He invented an objective measure of corruption in order to compare it to corruption perceptions. In his study, which was conducted in the

context of a governmental road-building programme in rural Indonesia in 477 villages, he is able to show significant biases between reported corruption and corruption measured by his alternative measure. For this objective indicator, engineers analysed the roads constructed in the project and looked whether the originally indicated amount of material was actually used or not. In this way, they constructed a variable for missing expenditure. In a parallel household survey, villagers were asked about corruption in the project, in their village, and in Indonesia in general. Controlling for village effects and the objective level of corruption, the level of corruption perception could be predicted through education and gender: higher educated respondents and male respondents reported more corruption (Olken 2006: 22). The results are not only significant, but have a strong effect as well: each year of education a respondent had acquired raised the likeliness of reporting corruption by 0,7 to 0,9 percentage points.

Furthermore, he found that higher ethnic heterogeneity created a higher perceived level of corruption. Higher levels of participation in social activities produced lower levels of perceived corruption. Both results are in line with the literature. Mauro (1995) and La Porta et al. (1999) show the association between ethnic heterogeneity and corruption and Putnam (1993) shows that more participation in social activities is connected with less corruption. Olken, however, examines the association between the actual level of corruption (indicated through the missing expenditure variable) and ethnic heterogeneity and social participation. He finds that ethnically heterogeneous villages have higher perceived corruption levels, but lower actual levels of missing expenditures. Social participation does not have any association with the missing expenditures variable at all. Olken (2006: 3) explains the results with effects on the level of interpersonal trust in the villages.

Olken (2006: 22) also presents a number of other biases: controlling for the level of corruption, less corruption was reported by those, who were involved in discussions that were likely to touch the issue of the road building project, those that lived close to the project, and those that were related with the project manager.

Donchev and Ujhelyi (2008) have been among the first researchers to use a cross-country micro level dataset to examine corruption perceptions. They compare 58 countries at the aggregate and at the individual level. The data come from the International Crime and Victimization Survey (ICVS) by the United Nations. The datasets are from 1996/97 and 2000/01. Donchev/Ujhelyi (2008: 3) find that education, age, income, and state of employment have effects on corruption perception while controlled for experience. They show that corruption experience does not have a significant effect on corruption perception.

On the aggregate level factors like GDP, percentage of Protestants, a British legal tradition (common law), federalism, a long tradition of democracy, and a natural resource endowment have stronger effects on corruption perception. This leads them to the conclusion that “the perception index is systematically biased away from experience” (Donchev/Ujhelyi 2008: 12). On the individual level better educated respondents and students report more corruption when controlled for experience. Age has a non-linear effect on corruption perception with positive influence for young people declining with increasing age, becoming negative at the age of 50 (Donchev/Ujhelyi 2008: 21). Being in the top 25 % income bracket and being employed has a significant positive influence on corruption perception, while living in a large city has a negative one (Donchev/Ujhelyi 2008: 21). They found another surprising result: not only that corruption perception is influenced by several socio-economic factors, corruption experience has also a weaker effect on corruption perception than age, education, income, and state of employment (Donchev/Ujhelyi 2008: 3).

A similar analysis of the 2000 dataset of the ICVS was done by Bonvin (2008). The major outcome was the description of large discrepancies between levels of corruption perception and corruption experience. The finding of Donchev/Ujhelyi (2008: 21) that people from a higher income strata perceive more corruption was confirmed (Bonvin 2008: 31), but their results for age are contradictory with Bonvin’s finding that younger respondents perceive less corruption.

In another cross-country study, Michael Smith (2008) used data from the International Social Survey Programme (ISSP). With micro level data from the Role of Government IV survey from 2006, he compared 15 countries. Compared to similar surveys, the ISSP provides much more background variables. In this way, Smith (2008: 4) is able to show a strong effect of social status, trust, number of contacts, and political attitude on corruption perception. With income, education, and the self-assessed social status, he created a socio-economic status variable.

His key finding is the observation that “the strength and direction of the effects of social status are different in different countries” (Smith 2008: 4). That means that in countries with a low level of perceived corruption, being poor and little educated results in higher corruption perception than the average, while in countries with a high level of perceived corruption respondents with the same features perceive less corruption than the average. With raising corruption, social differences become unimportant since more and more people perceive corruption. In countries with a high level of perceived corruption, only people with higher social status are able to perceive the real scale of corruption and assess the negative influence on society (Smith 2008: 12). Smith’s assumption is that social status affects people in countries with a low level of perceived corruption by giving them a resentment towards society and politics and a feeling of exclusion. Furthermore gender, age, and community are other influential factors in his study.

Rose/Mishler (2008) use individual level data from another corruption study by TI, the Global Corruption Barometer (GCB). Contrary to the CPI, the GCB surveys the general public and includes also a question on corruption experience. Rose/Mishler (2008) analyse 60 countries from the 2006 dataset and find disparities between corruption perception and corruption experience. They show that perceptions of corruption in specific institutions are only weakly influenced by experiences with those institutions, but are much more influenced by perceived corruption in other institutions in a circular way, which they call echo chamber effect (Rose/Mishler 2008: 2). This problem “arises when perceptions of national corruption in a country are shaped by historical stereotypes or media reports and

then recorded by CPI or CCI<sup>3</sup> as ‘fact’. These data then feedback, reinforcing elite and mass perceptions of corruption and creating a vicious cycle creating the appearance of reliability (i.e., high inter-indicator correlations) without ensuring validity” (Rose/Mishler 2008: 10). They suggest to further rely on corruption experience measures. However, perceptions are not only less likely to be influenced by actual experiences. On the contrary, they also bias the recall of corruption experiences.

Through a multilevel model Rose/Mishler (2008: 5) are able to show that perceptions are heavily influenced by media reports and that corruption experience is more a result of individual opportunities and motivations. Rose/Mishler (2008: 9) find the reliability of public reports of street level corruption problematic without controlling for the contacts citizens actually have with officials.<sup>4</sup> “These criticisms challenge the assumption that individual perceptions are shaped primarily by experience and suggests, instead, that the ‘experience’ of corruption may reflect both normative and empirical expectations or perceptions” (Rose/Mishler 2008: 11).

They also point out some general considerations about the work with corruption perception measurement: “The incompatibility of corruption perception with the experience of corruption at the aggregate level is troubling from a measurement theory perspective. If perceptions and experience are valid measures of the same underlying phenomenon, they should be highly correlated and respond to many of the same causal influences” (Rose/Mishler 2008: 11). But on the individual level corruption perception and corruption experience are even more weakly correlated than at the aggregate level (Rose/Mishler 2008: 5).

Another particularly interesting result is their finding on the influence of Protestantism: in line with previous studies, Protestants are much less likely to perceive political institutions as corrupt and moderately less likely to perceive street-level institutions (police, school officials, doctors) as corrupt. But Rose/Mishler

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3 Note by the author: Control of Corruption Index by the World Bank

4 Whether the respondent actually were in contact with the institution or not, has been subsequently included in the GCB.

(2008: 23) find Protestants slightly more likely to pay bribes on the street-level. This finding about cultural implications of corruption perception and corruption practice might spur future discussion about this issue.

Abramo (2005:2) analysed individual data from the GCB 2004 and come to similar conclusions as Rose/Mishler (2008). Comparing 60 countries, he finds experience is not a good predictor of corruption perception.<sup>5</sup> However, he finds a strong correlation between opinions about corruption and opinions about human rights.

Čábelková and Hanousek (2004) look on the interplay of corruption perceptions and the level of corruption in a representative survey of 2 600 Ukrainians. There, the size of the population of the respondent's community played a role (Čábelková/Hanousek 2004: 390), although with inconsistent results. Respondents in towns with a population of 200 000 to 500 000 citizens saw governmental organisations as more corrupt, while people from smaller or bigger communities perceived less corruption. In a number of political institutions, people without employment perceived more corruption than the employed (Čábelková/Hanousek 2004: 391). The influence of gender and age was not clear. The main result was that stronger corruption perception leads to a greater willingness to pay bribes.

Seligson (2006) is another researcher who questions the link between perception and experience. With data from the Vanderbilt University Latin American Public Opinion Project, he is able to show that the impact of experience on perception is very small. The case of El Salvador is spectacular. There, those who experienced the most cases of corruption, perceived even slightly less corruption than those who experienced only one case of corruption (Seligson 2006: 389). He underlines that in countries in which a major effort to reduce corruption has been successful, it may well be that the anti-corruption campaign heightens awareness of corrupt practices and, therefore, might produce an increase in the perception of corruption precisely at the time when actual corruption is declining (Seligson 2006: 390). In a similar vein,

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<sup>5</sup> In the 2004 edition of the GCB the question for corruption experience asked for corruption in general. In later editions corruption experience was asked separately for various groups.

it is problematic to use aggregate data of a country in order to measure the effectiveness of anti-corruption programmes, especially, when they aim on certain demographic, social, or occupational groups (Seligson 2006: 386). There is evident danger of stepping into the trap of an ecological fallacy.

More evidence that corruption experience does not effect corruption perception can be found in the extensive study on corruption in Eastern Europe by Miller, Grodeland, and Koshechkina (2001: 91). They studied corruption perception and experience with focus groups in the Ukraine, Bulgaria, Slovakia, and the Czech Republic. Although, public perceptions of officials were extremely negative, the actual experiences were far less negative indicating a gap between perception and experience.

Duncan (2006) gives a detailed overview of non-perception measurements of corruption where he also underlines the advantages of victimization or experience measurements. He reminds us, however, that such studies are mostly limited to petty corruption.

In a critical discussion of the CPI Thompson and Shah (2005: 17) point out a general argument about problems of corruption perception measurement. Average citizens, on the one hand, will always have problems assessing the level of corruption in their country since they cannot have full knowledge of the various situations in all participating countries. Also, they might judge corruption relative to other problems in their own country, like the crime rate or education issues. It also has to be considered that different respondents might compare corruption problems with different ethical standards. What one respondent deems as acceptable, another would declare as corrupt. The framework for this assessment might be a question of cultural background. A high level of corruption could simply be the result of high ethical standards. This problem should be kept in mind when looking at the analysis of the data in this study.

Experts, on the other hand, are mostly expatriate professionals. Assessing the situation in a country adequately is difficult since their native cultural view

unknowingly influences their analysis (Thompson/Shah 2005: 17). Others criticize that expert opinions are often likely to be second-hand reports or hearsay and that the expert's knowledge only covers a certain economic sector. Furthermore, experts will not have as much knowledge about street corruption (police, school officials, doctors) as normal citizens, but will focus their analysis more on medium- or high-level corruption. In this way, the corruption picture becomes blurred.

TI argues that they responded to such critique with the development of different indices highlighting different issues. The CPI contributes expert views in order to allow cross-country comparison. The assumption is that they are close to actual incidences of corruption or to reliable sources and that they can assess the value of their information (Lambsdorff 1998: 89). The cultural over-representation by outside expert opinions is eliminated through the inclusion of resident expert assessments. Some of the data these analysts produce is sold to investors in order to enable them to assess country risks for their investments. Therefore, these data can be regarded as the market's choice of a worthwhile indicator of corruption (see also Ades and Di Tella 1996 and Mauro 1995: 684). Thus, many researchers consider these assessments as valid indicators of actual levels of corruption. The high correlations of the various sources constituting the meta index of the CPI are taken as another indicator that the CPI is measuring the actual level of corruption.

With the GCB, the average citizen's view is analysed in order to shed light on petty corruption and the general public's view. The high correlation between the CPI (expert survey) and the GCB (public opinion poll) is taken as a sign of just assessments by TI. This leads them to the assumption that "the perception of what is regarded as corruption is more global than many thought it might be" (Lambsdorff 1998: 89). As third tool, TI invented the Bribe Payer's Index (BPI) to pay attention to the side of the bribe givers. The BPI's aim is to measure the likelihood of firms from the world's industrialised countries to bribe abroad. All three indices together – the CPI, the GCB, and the BPI – should constitute a balanced picture of corruption in the world.

It became clear that corruption perception is influenced by various factors and should be seen very critically. Many scholars even regard it as unfit for corruption research. However, it shows that the ongoing research finds various results, which are not always consistent. Whether corruption perception is only an aggregated measure of opinions or whether it also includes experiences of corruption by the respondent itself, has not been fully clarified so far. As a next step, hypotheses will be formulated from some of the findings, as well as from those questions that research has not answered yet.

## 4. Hypotheses

In this chapter the hypotheses of this study will be presented. The hypotheses derive from the literature on the measurement of corruption discussed in the previous chapter. It has to be noted that a full-fledged theory of corruption perception or corruption measurement does not exist so far. In fact, there are several theoretical approaches criticising methodological issues and explaining sociological problems of the measurement of corruption. The working hypotheses, which are proposed here, are taken rather from the findings of empirical research than from a well-developed theory.

A recurrent theme in this discussion is the proposed correlation between social status and corruption perception (Donchev/Ujhelyi 2008, Bonvin 2008, Smith 2008), as well as between education and corruption perception (e.g. Olken 2006, Donchev/Ujhelyi 2008, Smith 2008). Those correlations are seen as more important for the formation of corruption perception than the actual experience of corruption.

Smith (2008) generally attests a negative correlation between social status and corruption perception. But, after analysing the data in more detail, he found out that the socio-economic status has a different influence depending on the general level of perceived corruption in a country. If the corruption level seems low, like for instance in Finland, people with a lower social status see more corruption than the average. He proposes the thesis that they feel excluded from society. Their motto could be

summarized as: “Those at the top, they are all corrupt!” In countries with high levels of perceived corruption, the idea is that people with a higher social status have more information, which enables them to assess the actual influence of corruption in a more realistic way and also to understand the harmful nature of corruption more deeply. Therefore, they estimate more corruption than the average.

The results on the influence on corruption perception caused by education are contradictory. On the one hand, Olken (2006: 22) and Donchev/Ujhelyi (2008: 21) find that higher educated people tend to report more corruption. On the other hand, the findings from Smith (2008) could point in a different direction. The social status in his analysis is negatively correlated with corruption perception. In the social status variable that he constructs education is included as one of three components. The finding that social status has a different effect on corruption perception according to the general level of corruption perception in a country could, therefore, explain the differing results for education, because Olken (2006) uses data from Indonesia, a country with a high corruption perception level ranking on place 111 out of 180 on the 2009 CPI. Therefore, Indonesia is a country where social status would in fact have a positive correlation with corruption perception. The same could, subsequently, be true for education. It might turn out that education has a similar effect as social status: a different influence depends on the general level of corruption perception in a country.

European countries generally have a low level of corruption. Therefore, education should have a generally negative influence on corruption perception. Those at the bottom of the European ranking could be considered as mid-level countries when compared world-wide. This means that the negative effect of education on corruption perception should turn towards zero. In the worst effected European countries, it might even turn positive with higher educated people perceiving more corruption than the average.

Since this part of the debate around corruption perceptions seems fruitful, this analysis will concentrate mainly on socio-economic status, education, and their link to perceived corruption. The dataset unfortunately does not include a question on

income. Therefore, a crucial component of social status is missing in the analysis. But the data include a question about the respondent's occupation. So, it is possible to construct a social class variable following the class schema from Erikson, Goldthorpe, and Portocarero (EGP) (cf. Erikson/Goldthorpe 1993). The questionnaire furthermore includes a subjective indicator of social status. This is a question about the self-assessment of one's social standing measured on a 10-point scale. Finally, the education variable can also be interpreted as a proxy for the level of social status, although it should be mainly seen as an indicator in its own right.

All hypotheses regard corruption perception when *controlled* for corruption experience. It means that these are the effects remaining influential when corruption experience is considered as equal among the respondents.

The first general hypothesis is

H1 Social status determines corruption perceptions.

It has to be tested whether social status, measured through the EGP class schema and the subjective social status of the respondent, plays a significant role in corruption perception. Donchev/Ujhelyi (2008: 21) and Bonvin (2008: 31) find that people from a higher income strata perceive more corruption. Smith (2008: 10) reports for his international dataset that "a significant negative relationship exists between social status and corruption perceptions, with higher social status leading to less widespread perceptions of corruption". An income variable does not exist in the dataset of this study. Therefore, the social status indicators resemble more the approach of Smith (2008). This results in the hypothesis

H2 Higher social status leads to less corruption perception.

The next hypothesis points into a similar direction. Donchev/Ujhelyi (2008: 21) and Olken (2006: 22) find that on the individual level better educated respondents reported more corruption. But the social status variable in Smith (2008), which also contains education, had a negative correlation with corruption perception. As

discussed before, this influence can turn around when the general level of corruption perception in a country rises. Since European states are rather countries with a low level of corruption perception, the correlation should be in general negative when compared world-wide. Therefore, the following hypothesis will be formulated:

H3 More education leads to less corruption perception.

As a next step in the analysis, the focus will shift on the changing influence of education, which depends on the general level of corruption perception in a country. Following the suggestions from the literature on social status (especially Smith 2008) analogically, these three options will be tested:

H4.1 Education has a negative correlation with corruption perception in countries with a low level of general corruption perception.

H4.2 Education has zero correlation with corruption perception in countries with a medium level of general corruption perception.

H4.3 Education has a positive correlation with corruption perception in countries with a high level of general corruption perception.

A hypothesis treated in several studies (Smith 2008, Rose/Mishler 2008) is the idea that the use of contacts and networks leads on average to more corruption. If one does not use contacts, business contacts, family members, friends, for one's forthcoming, one is less likely to encounter corruption since such situations will be limited to the few contacts that are absolutely necessary. Those who work have naturally more contacts and, subsequently, the probability of encountering situations of potential corruption will rise. To test this, all respondents that are working will be compared to those that are either unemployed, at home, retired or studying.

H5 People who are working perceive more corruption.

The next hypothesis treats the question, if the unemployed are generally more unsatisfied with the institutions of a state or society and if this attitude leads them to perceive more or less corruption. Donchev/Ujhelyi (2008: 21) find the employed to perceive more corruption, but Čábelková/Hanousek (2004: 391) find the opposite. This contradicts the previous hypothesis. If it is true that people who work perceive more corruption, then they should see also more corruption than the group of the unemployed. The same is true vice versa. Therefore, only one of the two hypotheses can be true. The result will indicate whether corruption perception is the outcome of the real experience of corruption (more contacts would then lead to more corruption perception) or if it is the outcome of a feeling of dissatisfaction.

H6 People who are unemployed perceive more corruption.

Several other socio-economic factors, like age and gender, have been so far tested in the literature. Since they are usually available in standard questionnaires, they get always tested, despite the lack of any theoretical reasoning. For the sake of completeness they will be tested here as well. Donchev/Ujhelyi (2008: 21) claim for their survey that age has a non-linear effect on corruption perception with positive influence for young people that declines with increasing age becoming negative at the age of 50. Bonvin (2008) finds in the same dataset that younger respondents perceive less corruption. Smith (2008: 16) finds a strong negative effect of age. From these contradictory results the following hypothesis will be chosen:

H7 A higher age leads to less corruption perception.

For gender there are contradictory findings in the literature as well. In Olken's study (2006: 22) male respondents reported more corruption. Smith (2008: 17) found female respondents reporting more corruption. In Čábelková/Hanousek (2004: 391) the results were inconclusive. Swamy et al. (2001) show female gender as a reducing factor of corruption, a view that is much contested by others (cf. Lambsdorff 2005a: 26). Here it will be tested whether

H8 Men perceive more corruption.

Living in a large city has a negative influence on corruption perception according to Donchev/Ujhelyi (2008: 21), but a positive according to Smith (2008: 17). Čábelková/Hanousek (2004: 390) found that people in middle sized towns see less corruption than people from villages or large towns. The understanding of what is to be considered as a city differed between the studies.

H9 A bigger size of the community leads to less corruption perception.

The main assumption of any corruption measurement is the idea that it reflects the real level of corruption in society. The expert assessments constituting the basis for various corruption indices, population surveys, and finally the whole wave of ever growing corruption research since the 1990s are build upon the thesis that corruption perceptions are an apt indicator for corruption in a given country. At least, it is considered to be the best measure available. Now that micro level studies with victimization data, i.e. corruption experience questions, are available, this very thesis is under criticism. There is not any longer an agreement among researchers whether actual corruption does have any real impact on corruption perception at all. Some find that there is not any impact (Donchev/Ujhelyi 2008), some find that it is less than those of other variables (Seligson 2006), others can detect an influence from corruption experience on corruption perception. Rose/Mishler (2008: 3) conclude even more critically, with stating that experience of corruption is less likely to influence perceptions of corruption, than perceptions are to bias the recall of corruption experiences. Using data from the GCB, Rose/Mishler (2008: 14) find a weak correlation between corruption perception and corruption experience on the individual level. Smith (2008) and Smith/Mateju (2009) expect and find a significant positive correlation between corruption experience and corruption perception.

Since the whole concept of measuring corruption is based on the very idea that perception depicts an approximate level of real corruption, here, the hypothesis will be tested whether corruption experience does have in fact an influence on corruption perception:

H10 Corruption experience has a positive impact on corruption perception.

The critical approach of this study would, however, do not make sense, if the author would not suspect an influential role of the above mentioned socio-economic factors and their strong influence on corruption perception. Therefore, it will also be analysed whether corruption experience is the most influential factor which has an impact on corruption perception or whether other factors are more influential. Donchev/Ujhelyi (2008: 2) stated that other variables than corruption experience significantly bias away corruption perception from corruption experience.

National level factors influencing corruption are abundant in the literature. In fact, most corruption studies in the past have been conducted using aggregated data. Since the seminal article from Mauro (1995), dozens of papers have been published on the consequences and causes of corruption on country level. The recent literature on questions of corruption measurement has also made use of country level variables. Some of them are used in this study as well. There are only two variables having so far been directly linked to the problem of measuring corruption through perception. These are media prevalence and ethnic division.

Olken (2006: 22, 3) found in his study that higher ethnic heterogeneity created a higher level of perceived corruption, but was associated with lower levels of missing expenditure, i.e. his objective measure for corruption. Therefore, a hypothesis for this study is the following:

H11 Higher ethnic division leads to more corruption perception.

To test it, an updated version of the ethnolinguistic fractionalization index will be used, which includes all European countries. Generally speaking, the index counts the number of ethnic groups in a country. A detailed description can be found in chapter five.

Rose/Mishler (2008: 26) discuss the influential role of the media. Cross-level interaction effects between corruption perception and newspaper circulation show that the influence of different types of corruption on each other are mediated through newspaper consumption. They call this phenomenon “echo chamber effect of the

media”. This analysis includes their proxy for media effects, the average circulation of daily newspapers in a country, in order to test for similar effects. It has to be mentioned here, that the indicator can be put in question. The simple number of printed newspapers per country seems to be only a crude proxy for media effects. Nonetheless, the following hypothesis will be included in this study:

H12 Higher media prevalence leads to more corruption perception.

Many other country level variables are available for testing, as for instance democracy or economic growth, etc. There has not been any specific theoretical background why these variables should influence corruption perception holding corruption experience constant. That is the reason why they have not been included into this paper. GDP per capita, however, will be included as control variable for economic development. It is included in almost every cross-country study available and, therefore, it will serve as a point of reference in this one as well. As research about corruption perception and corruption experiences has developed and more theoretical insights have been gained, it will certainly become worthwhile in the future to look at more country level variables in upcoming studies.

In the next chapter the operationalization of the hypotheses will be described and the data which were used to test them.

## **5. Data and Operationalization**

The chapter starts with a general overview of the data. All variables will be described in detail, individual level as well as group level variables. In order to put corruption perception under stern examination, actual corruption experience will be included as control variable. An index of corruption perception will be constructed as dependent variable. Both, the index of corruption perception and the corruption experience question will be discussed more broadly and descriptive analyses will be presented for both.

To test the hypotheses, microlevel data from the Eurobarometer (EB) series was used. The EB is a social survey series conducted by the European Commission, which asks Europeans about their opinion and their behaviour on various topics. This study used the EB 72.2 from 2009 (European Commission 2009a), a poll that was conducted in all 27 European Union member countries.<sup>6</sup> This survey asked respondents – besides various other topics – about their perceptions of corruption and their actual experiences with corruption.

The questions on corruption in the EB 72.2 include two question sets on corruption perception and a question on corruption experience, as well as three question sets on the fight and the prevention of corruption. The countries included in the study are, in alphabetical order, Austria, Belgium, Bulgaria, the Republic of Cyprus,<sup>7</sup> the Czech Republic, Denmark, Estonia, Finland, France, Germany (with separate data for Eastern Germany), Great Britain (with separate data for Northern Ireland), Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, and Sweden.

In the analysis, East Germany and Northern Ireland will be treated as separate entities. There is theoretical justification for this approach, as well as a statistical reason. For East Germany it is well known that there has been, on the one hand, an economical adaption process, which has led to a different social structure of the region, and, on the other hand, an ongoing differentiation in values and opinions. Looking at the phenomenon of corruption, the difference between the two parts of Germany has even prompted a study fully dedicated to the comparison of corruption in East and West Germany (Clemens 2000). The situation with Northern Ireland is not as clear-cut, but it is still worthwhile looking at the region separately.

Statistically, it is favourable for the multilevel regression analysis to have around 30 objects on the group level. When including East Germany and Northern Ireland as separate analytical entities the analysis contains altogether 29 countries and

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<sup>6</sup> The data is publicly available through the website of the Leibniz Institute for Social Sciences at <http://www.gesis.org/eurobarometer> (16.11.2010).

<sup>7</sup> The northern Turkish community of Cyprus is not included.

regions. Then the ideal aim is closer than in many other comparable multilevel analysis.

The EB data is representative for the population of all 27 countries, thus for the population of the entire European Union above the age of 15. The samples constituting the EB 72.2 were drawn according to a multi-stage random (probability) design. Sampling points were drawn for the respective administrative regions proportional to population size and type of region (metropolitan, urban, and rural). Then, random starting addresses were drawn from these regions and, subsequently, further addresses were selected by random route procedure. In each household, the respondent was randomly selected by using the closest birthday rule. The interviews were conducted face-to-face in the households in the appropriate national language. CAPI was used in those countries, where this technique was available.<sup>8</sup> At least 1 000 respondents were questioned in each country, except for Ireland (976), the Republic of Cyprus (505), Luxembourg (500), Malta (500), East Germany (515), and Northern Ireland (306). In total 26 663 respondents are within the sample.

The operationalization of the concept of corruption perception follows three questions on corruption included in the EB. The questions were computed into an index of corruption perception. Explanatory factor analysis was used to analyse initially five questions on corruption perception. Out of them, three questions were chosen due to statistical and theoretical considerations. Subsequently, a confirmatory factor analysis was carried out to prove the consistency of the index across all 29 countries and regions in the dataset.

In order to control for real corruption experience, a variable indicating whether the respondent has actually experienced corruption is used. The question in the survey asks whether the respondent has been asked or expected to pay a bribe within the previous year.

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<sup>8</sup> With population data from Eurostat or national statistical institutes the data was weighted for gender, age, region and size of locality using marginal and intercellular weighting procedures.

The EB provides a number of background variables allowing an analysis of various hypotheses. Most other studies do not contain enough background variables to make a similar analysis. In the GCB, for instance, gender, age, education, income, employment, and religion are included, but mostly in a strongly categorized manner: age has four categories (“Under 30”, “30-50”, “51-65”, and “65+”), education three categories (“No or basic Education”, “Secondary Education”, and “Post-Secondary/College”), income three categories (“Low/Med Low”, “Med/Med Hi”, and “High”), and employment four categories (“working full or part time”, “unemployed”, “not working”, and “retired”). In the EB, age and education are measured on a metric scale. Employment is measured through the occupational status of the respondent. This variable leaves various different analyses open to the researcher.

## **5.1 Independent Variables**

The variables which were used to test the hypotheses are presented in detail in the following paragraphs.

### **5.1.2 Individual Level**

The following individual level variables were produced from the EB dataset: gender, age, education, social class, whether the respondent works, employment status, subjective social status, type of community (urban/rural), the difficulty to pay the monthly bills, and corruption experience. Besides explaining how the variables were constructed or recoded, a short overview about their distributions will be given when necessary.

#### **Gender**

Throughout the whole sample, the respondents are 54,7 % female and 45,3 % male. In some countries the distribution is rather skew, for instance in Malta (63,8 % female, 36,2 % male) and Hungary (61,2 % female, 38,8 % male). Obviously, the face-to-face method bears problems related to sampling. In Eastern Europe, women are apparently much easier to be reached than men. The probable reason is that they are more likely to be reached at home at the time the interviews were conducted. In

Sweden, on the other hand, the distribution is the reverse, with 45,2 % female and 54,8 % male.

### **Age**

Respondents were surveyed beginning at the age of 15. The distribution of age varies from country to country. However, there are not any noteworthy characteristics that would be relevant to this analysis.

### **Education**

The EB does not measure the number of education years, or the last completed level of education, but the age of the respondent when completing education. Since it does not ask for education certificates, there is not any exact information about the real education level. On the one hand, it can be difficult for cross-country studies – like this one – comparing the level of education when comparing education certificates since they are often very different, but, on the other hand, there are elaborated classification schemes of education levels in order to make education across Europe more comparable. Since the age of children, when they start schooling, differs across European countries, certain problems with comparability remain with this method, too.

However, in most European countries finishing education with 15 years means to have basic education since compulsory education ends at this age. In earlier EB studies the coding ended with the category “22 years or older“ indicating tertiary education. For various reasons it is thinkable, however, that people faced delays and finish secondary schooling only at this age. Therefore with the current data, one can only guess the exact level of education the respondent actually has.

Values between zero and four are treated as missing (156 cases) since usually education does not end at this age – when it has not even begun for most of the people. It is not clear whether some coding errors happened here. Even if the coding was right, misunderstandings or cases of misinformation could have happened.

## Social Status

The respondent's social standing was measured with a modified version of the Erikson-Goldthorpe-Portocarero class schema (Erikson/Goldthorpe 1993: 38), which is the classical way of operationalization of social class or status in empirical social science. The original version, which is most widely used, consists of a seven class scheme. Knutsen (2006: 19) constructed an adapted version using the occupational status (table one) from the EB. Through the occupational status of the respondent, six social classes are differentiated (table two): Employers, higher-level nonmanual employees, medium-level nonmanual employees, lower-level nonmanual employees, employers in the primary industries, and workers. The concept basically follows the differentiation between those who are working in a service relation between employer and employee and those who have a labour contract and do manual work. People, who are not working (those responsible for the household, students, the unemployed, and the retired) are kept within the analysis at this stage. The variable is constructed as dummy variable.

**Table 1** Occupation categories in the Eurobarometer

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No.    Occupation

### Self-employed

- 1    Farmers
- 2    Fishermen
- 3    Professionals (lawyer, medical practitioner, accountant, architect, etc.)
- 4    Owners of a shop, craftsmen, other self-employed person
- 5    Business proprietors, owner (full or partner) of a company

### Employed

- 6    Employed professionals (employed doctor, lawyer, accountant, architect)
  - 7    General management, directors or top management  
(management director, director general, other director)
  - 8    Middle Management, other management  
(department head, junior manager, teacher, technician)
  - 9    Employed position (working mainly at a desk)
  - 10   Employed position, not at desk but traveling (salesman, driver, etc.)
  - 11   Employed position, not at a desk, but in a service job  
(hospital restaurant, police, fireman, etc.)
  - 12   Supervisors
  - 13   Skilled manual workers
  - 14   Other (unskilled) manual workers, servants
- 

Eurobarometer (European Commission 2009a)

The distribution of the social classes is as following: Those, who do not work account for more than half (51,8 %) of the European population. The biggest group of those following an occupation are the lower-level nonmanual employees (18,2 %), followed by workers (13,2 %), medium-level nonmanual employees (6,2 %), employers (5,7 %), higher-level nonmanual employees (3,5 %), and employers in the primary industries (1,3 %). With more than 50 %, a large portion of the sample are missing values. From here on, those who are not working are also treated as missing values.

**Table 2** Construction of the social class variable

Social Class	Number of occupation (Table x)
Employers	3, 4, 5
Higher-level nonmanual employees (H nm.)	6, 7
Medium-level nonmanual employees (M nm.)	8
Lower-level nonmanual employees (L nm.)	9, 10, 11
Self-employed in the primary sector (Self. Prim)	1, 2
Workers/working class (Work.)	12, 13, 14

Eurobarometer (European Commission 2009a); Knutsen (2006: 19)

The following two variables “working” and “unemployment” derived from the occupation variable as well.

### **Working – Not Working**

This variable has two categories: those, who are in gainful employment, are put into the category “working”, those, who are not in gainful employment, i.e. those in the categories “responsible for ordinary shopping and looking after the home, or without any current occupation, not working”, “students”, “unemployed or temporarily not working”, and “retired or unable to work through illness”, are put into the group “not working”.

Europe-wide 51,8 % are working and 48,2 % are not working. The highest share of people, who are not working has Malta with 65,6 %, followed by Hungary with 63,1 %. On the other side of the scale, there are Austria with only 35,8 % of the people not working and Slovakia with 40,8 %.

### **Employed – Unemployed**

At this point, it has to be emphasized again that the data does not reflect official data, but the answers of the respondents. Therefore, if someone states he or she is unemployed when asked for the current occupation, the person is categorized as unemployed regardless of his or her official status.

According to this sample, Europe-wide 7,0 % are unemployed. The highest share is in Latvia with 13,8 %, followed by Spain with 13,2 %. On the other side of the scale, there are Cyprus with 2,8 % and Austria with 2,0 %.

### **Subjective Social Status: Self-placement in Society**

The latest waves of the EB include a question about the respondent's self-assessment of his or her social standing. The respondents had to put themselves on a 10-point scale answering the question: "On the following scale step '1' corresponds to 'the lowest level in society', step '10' corresponds to 'the highest level in society'. Could you tell me on which step you would place yourself?" This question is included in the analysis in order to detect biases stemming from self-perceived social status.

Overall in Europe, 50 % regard themselves as belonging to the lower 50 % of society. In Bulgaria 80,9 % regard themselves to be on the levels 1 to 5 and in Hungary 75,8 %. On the other side of the scale, there are the Netherlands where only 17,1 % put themselves between 1 to 5 and 40 % on level 7.

### **Difficulty to Pay Bills**

This question gives another general indication of the respondent's social standing. On the one hand, problems with paying bills are mainly an issue for lower income groups. On the other hand, it is also possible that people with a high income may face difficulties to pay their bills from time to time. The question runs: "During the last twelve months, would you say you had difficulties to pay your bills at the end of

the month...?” with the possible answers “most of the time”, “from time to time”, and “almost never/never”.<sup>9</sup>

10,1 % answered that they had difficulties to pay their bills most of the time, 28,4 % from time to time, and 59,2 % almost never or never. The highest share of those, who faced such problems most of the time had Bulgaria with 33,5 % and Malta with 21,0 %. The highest share of those, who (almost) never face this problem had Sweden with 91,7 % and Denmark with 89,4 %. Since the question, whether one can pay his bills, is also a rough indicator for one’s social standing, it will be included in the analysis.

### **Type of Community: Urban – Rural**

Two variables about the size of the respondent’s community are available in the dataset. One codes communities after the country’s municipal areas. It varies strongly between the countries since sizes between municipal areas differ largely within and between countries. The other question asks about the type of community the respondent lives in: a rural area or village, a small or middle sized town, or a large town. The question is subjective and open to interpretation by the respondent, but eventually depicts the relative size within a country in a better way. Furthermore, it is not dependent from administrative classifications that could, for instance, qualify rather rural, suburban areas as cities despite having rural characteristics and vice versa.

Europe-wide 35,6 % report to live in rural areas or in a village, 35,7 % live in a small or middle sized town, and 28,6 % live in a large town. Malta has the biggest share of people living in rural areas or a village with 56,6 %, followed by Austria with 50,2 %. Italy is the country where the middle category has the biggest share, with 59,0 % of the Italians saying that they live in a small or middle sized town, followed by Germany West with 54,2 %. Interestingly, Greece is the country with the biggest share of people stating that they live in a large town with 55,9 %,

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<sup>9</sup> It was probably added to the EB 72.2 version as response to the inexistent income variable in previous studies. Information on why certain variables are added and certain discarded is scarce. The EB information bureau, unfortunately, is not very informative either in this point.

followed by Bulgaria with 48,6 %. However, it is necessary to keep in mind that the data does not only reflect the real distribution of the population within a country, but much more the sampling procedure of the data, which is often concentrated to urban areas. This was probably the case in Greece and Bulgaria.

### **Corruption Experience**

In order to test the value of measuring corruption perception, the index is controlled with an objective measure of corruption: corruption experience or corruption victimization.<sup>10</sup> In contrast to expert opinion studies or popular corruption rankings, but in line with other population surveys like the ICVS, the GCB, or the ISSP, the EB contains a question about actual corruption experience. The question asks whether the respondent has experienced an incidence of bribery. It runs as follows: “Over the last 12 months, has anyone in (our country) asked you, or expected you, to pay a bribe for his or her services?” Then the respondent is once again asked for twelve different professional groups whether they have asked him to pay a bribe or not. These are the police service, the judicial service, the customs service, politicians at local, regional or national level, officials awarding public tenders, officials issuing building or business permits, people working in the public health or education sector, and inspectors (health, construction, food quality, sanitary control, and licensing). The respondent answers for each group with “yes” or “no”.

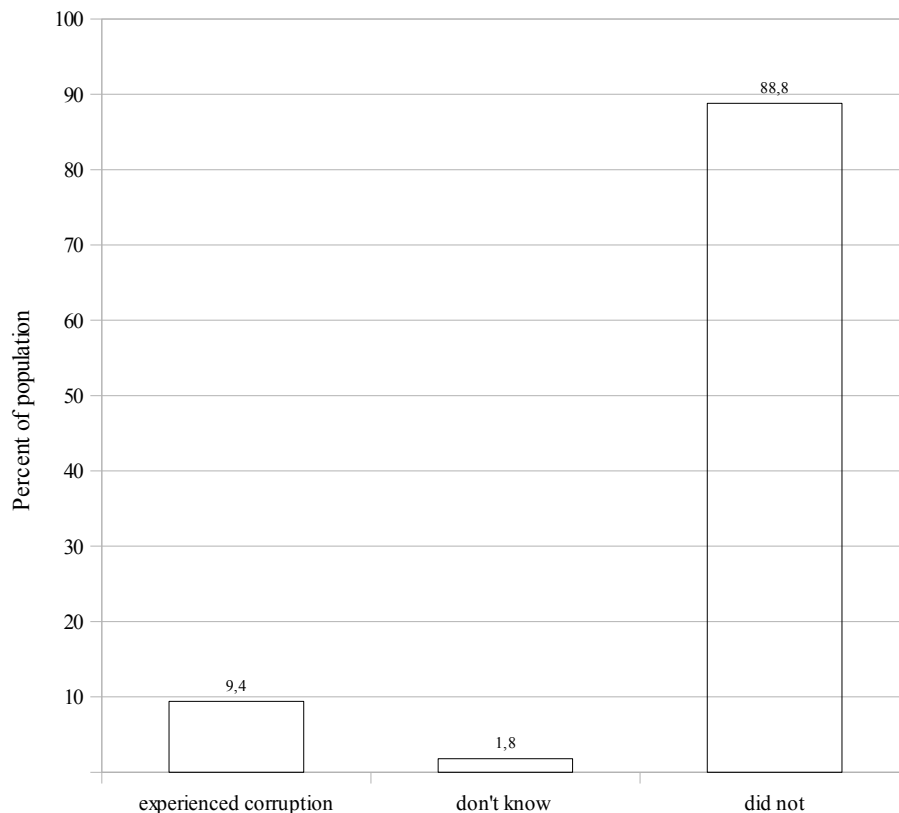
Evidently, the question asks only whether the respondent has been *asked* for a bribe. Due to the illegality of corruption no one would answer whether he or her *offered* someone a bribe. Naturally in corruption relations, this can be the case as well. It would be naïve to think that the initiative for bribery always comes from government officials (cf. Galtung 2006: 104). Corruption can also be and often is a complicit act where none of the actors reveal the common secret. This shows that the question cannot capture the whole level of corruption. We do not know how many did follow the demand for a bribe and how many did not. It is also not known how

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<sup>10</sup> Depending on the source either the term “corruption experience” or “corruption victimization” is used. The word “victimization” is mostly used in the area of criminology, where victimization studies are carried out for various types of crimes.

many people have offered to pay a bribe without being asked and how many officials have finally acceded to the offer or refused it.

**Figure 1** Percent of population in EU-27 that reports an experience of corruption in 2009



Question: “Over the last 12 months, has anyone in (respondent’s country) asked you, or expected you, to pay a bribe for his or her services?”

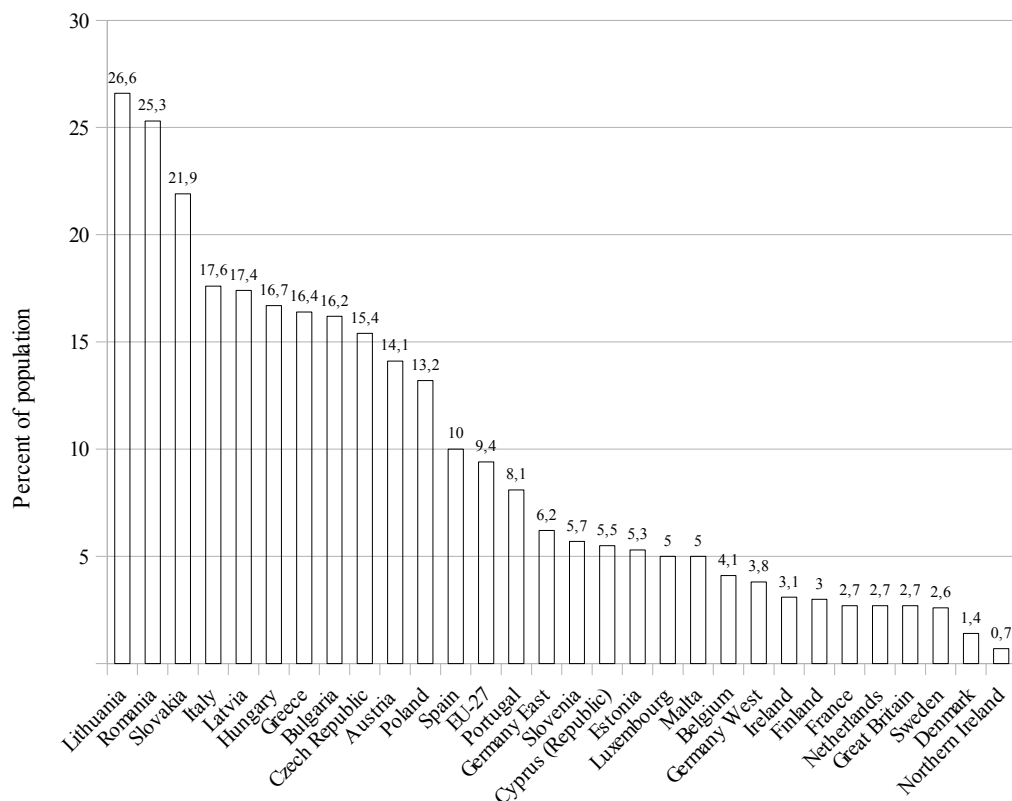
N = 26663. Weighted for country size (W22).

Eurobarometer 72.2 (European Commission 2009a).

Also, it has to be noted that the indicator does not directly reflect actual behaviour, but in fact self-reported behaviour. Whether the respondent reported correctly or whether the respondent completely remembered his or her behaviour, are problems that have been treated in classical studies about the interview. In spite of that, behaviour should be always favoured when possible. Or as Labaw (1982: 103) put it: “Behavior tells a complete story. Respondent testimony provides an incomplete story.”

The Europe-wide level of corruption is 9,4 % (figure 1). The measurement was the actual experience of corruption 12 months prior to the questioning (weighted for country size). It means that approximately every tenth European has been asked to pay a bribe or has actually paid a bribe within the year 2009.<sup>11</sup>

**Figure 2** Percent of population per country that reports an experience of corruption in 2009<sup>12</sup>



Question: "Over the last 12 months, has anyone in (respondent's country) asked you, or expected you, to pay a bribe for his or her services?"

N = 26663. For EU-27 mean countries weighted for size (W22).

Eurobarometer 72.2 (European Commission 2009a).

When looking at specific countries (figure 2), Lithuania shows the highest rate of corruption with 26,6 % of the citizens having experienced corruption, followed by Romania with 25,3 % and Slovakia with 21,9 %. The lowest rate of corruption has

<sup>11</sup> Fieldwork has been carried out in September and October 2009.

<sup>12</sup> The values in figure 2 differ slightly from the distribution charts in the *Special Eurobarometer 325 Report on Eurobarometer 72.2* (European Commission 2009a). There, weighting was used for country size. In this figure, weighting is only used for the European score.

Northern Ireland with 0,7 %.<sup>13</sup> Besides Northern Ireland, the lowest rate of corruption has Denmark with 1,4 %, followed by Sweden with 2,6 %, and Great Britain with 2,7 %. Out of the top ten countries with the highest level of corruption, eight are Eastern European countries, with the exceptions of Italy at rank four and Austria at rank ten. All ten countries with the lowest level of corruption are Western European countries.

**Table 3** Total cases of bribery attempts per professional group

Group	Frequency
Police	566
Customs	287
Judicial Services	277
Politicians national	226
Politicians regional	207
Politicians local	224
Official awarding public tenders	236
Official issuing building permits	274
Official issuing business permits	176
Public health sector	950
Public education sector	162
Inspector	224
(health, construction, food quality, sanitary control, licensing)	
Someone Else	459
<b>Total cases</b>	<b>4.268</b>

“Over the last 12 months, has anyone in (our country) asked you, or expected you, to pay a bribe for his or her services?” Card with rotated items, multiple answers possible.  
Eurobarometer 72.2 (European Commission 2009a)

For the question of bribery in different professional groups, a detailed descriptive analysis was performed (table three). In this distribution, members from the public health sector are reported the most to have asked for a bribe with 950 mentions (multiple answers were allowed). They are followed by the police with 566 reported cases. The third biggest group is the one without any specific specification. Then comes a large middle group with approximately 300 to 200 reported cases including customs, judicial services, officials issuing building permits or awarding public

<sup>13</sup> In fact, only two out of 304 people in the sample report to have experienced corruption.

tenders, politicians, and inspectors. The least offers have been reported from officials issuing business permits and people from the public education sector.

Since there is only such a small number of cases in total, further investigation differentiates only between those who have been offered a bribe by at least one of the previous professional groups and between those who have not been offered a bribe at all. Thus, the variable divides between those who had an actual experience with corruption 12 months before the questioning and between those who did not have any such experience at all.

It should not be very hard to remember whether one has had any corruption experience or not. Only 514 respondents chose to answer with “Don’t Know”. This can be interpreted as a sign that there are not any major fears to mention an attempt or incidence of corruption. If all “Don’t Knows” would be corruption incidences which have not been reported out of mistrust against the study, the corruption rate among the EU-27 would gain 1,8 % and rise up to 11,2 %. However, it could also be true that some answer straight away that they did not experience corruption, although they actually did in order not to get into troubles.

There are also other reasons why reporting actual corruption experience can be still problematic. First of all, memories are imperfect and a selection of it is unconsciously made according to the personal situation of the respondents, as well as national context (Nisbet/Wilson, 1977). Furthermore, Rose/Mishler (2008: 9) remind us that, on the one hand, respondents may forget events of corruption where there is a lot of corruption, hence underestimating the situation, but, on the other hand, might report instances that are more than 12 months ago and overestimate the occurrence of corruption.

### **5.1.3 Country Level**

Besides individual determinants, there are also parameters on the aggregate level which potentially influence corruption perception, as discussed in chapter four where the hypotheses were introduced. The multilevel regression model allows not

only to analyse the data with regard to the group, i.e. national context, but also to include variables at the country level. Here, country variables are introduced to control for influences on the country level, as well as to test hypotheses from the literature concerning the influences of aggregated data. Only those factors are included in the analysis which have a theoretical background about their influence on both corruption perception and corruption experience. Therefore, some country level variables, which are common to conventional corruption analyses, are put aside here. GDP per capita is included as control variable. Detailed coding is appended as an annex to this paper.

### **Newspapers**

The prevalence of the media is measured through the number of daily newspapers per 1 000 people. Daily newspapers refer to those published at least four times a week and calculated as average circulation or copies printed per 1 000 people. The data comes from the Institute for Statistics at the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and depicts the year 2004.<sup>14</sup> Other ways of measuring media prevalence are possible, e.g. the number of titles in a country.

The procedure of this study has been used before in the literature (Rose/Mishler 2008) and can therefore be compared with existing results. However, the indicator is rather crude and becomes probably more and more outdated since other types of media like the internet gain importance.

### **Ethnic Plurality**

Ethnic plurality or ethnic division is measured through ethnolinguistic fracternalization. It has been included in several classical corruption studies (e.g. Mauro 1995, Treisman 2000). The original ethnolinguistic fracternalization index (ELF) uses data from the Atlas Narodov Mira (Bruk/Apenchenko 1964), which were compiled in Taylor and Hudson (1972: 271-274). Here, a version was used which has been updated and enlarged (Roeder 2001).<sup>15</sup> For countries of recent formation,

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<sup>14</sup> Data available under <http://stats.uis.unesco.org> (16.11.2010).

<sup>15</sup> Index data available under <http://weber.ucsd.edu/~proeder/elf.htm> (16.11.2010).

estimations were calculated for today's respective territory with national census data from the year 1985.<sup>16</sup> The index measures the probability that two randomly selected people from a given country will not belong to the same ethnolinguistic group.

### **GDP Per Capita**

As another country level factor, the standard control variable GDP per capita is included.<sup>17</sup> There is not any certain theoretical reasoning behind the decision to include it in this study, but to include it as a simple control variable. The impact of GDP on corruption has been studied extensively without any clear-cut results (see Lambsdorff 2005a: 7). It is included in many other studies as control factor. Data are in current U.S. Dollars and comes from the World Bank national accounts data and OECD National Accounts data files from 2008.<sup>18</sup>

## **5.2 The Dependent Variable: Corruption Perception**

In the analysis, the dependent variable is corruption perception. Several questions on corruption perception are included in the questionnaire of the EB. The aim of the dependent variable is to reflect the general level of corruption perception in a given country. Therefore, a combination of several questions constructing an index seems the best procedure.

In this study, five questions concern corruption perception: 1) "Corruption is a major problem in (our country)", 2) "There is corruption in local institutions in (our country)", 3) "There is corruption in regional institutions in (our country)", 4) "There is corruption in national institutions in (our country)". All of them have four choices as answer: "Totally agree", "Tend to agree", "Tend to disagree", "Totally disagree".<sup>19</sup> The next question asks for corruption in specific groups: 5) "In (our country), do you think that the giving and taking of bribes, and the abuse of

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<sup>16</sup> Information by Roeder through personal correspondence.

<sup>17</sup> GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. GDP per capita is the gross domestic product divided by midyear population.

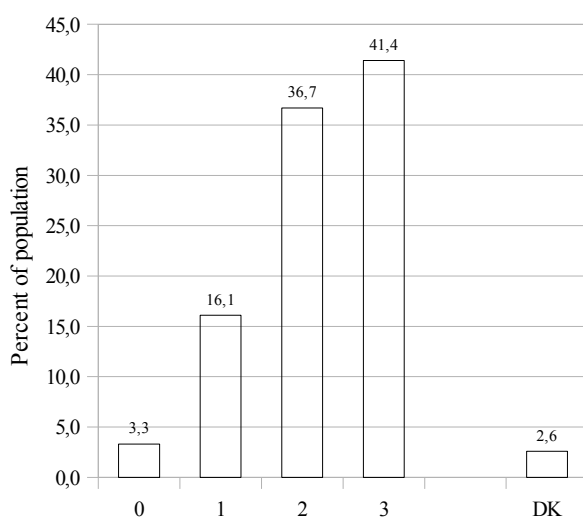
<sup>18</sup> Data available under <http://data.worldbank.org/indicator> (16.11.2010).

<sup>19</sup> The wording of the English version of the bilingual questionnaire is used here.

positions of power for personal gain, are widespread among any of the following?”. The options for “yes”/”no” answers are the twelve following groups: police service, judicial service, customs service, politicians at local, regional or national level, officials awarding public tenders, buildings or business permits, people working in the public health or education sector and inspectors (health, construction, food quality, sanitary control, and licensing).

78,1 % of the European population strongly agree or agree that corruption is a major problem in their country. Europe-wide, 81,1 % agree that corruption exists in institutions on local level, 80,9 % agree that it exists in institutions on regional level, and 82,9 % agree that it exists in institutions on national level. In the following figures, detailed distributions are presented of corruption perception answers for the whole sample.

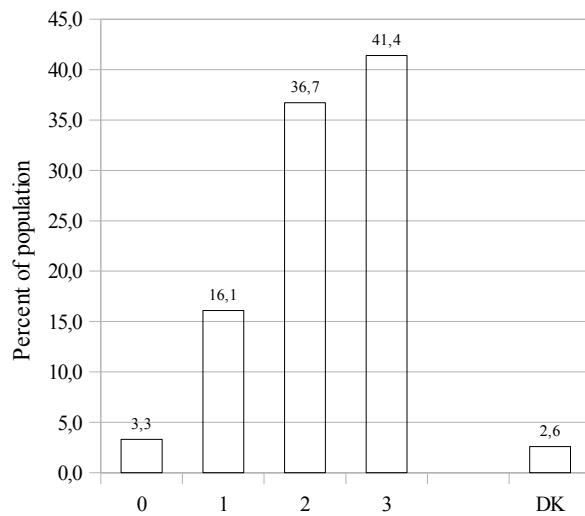
**Figure 3** European average of the answers to the question  
“Corruption is a major problem in respondent’s country”



N = 26663. Weighted for country size (W22).  
Eurobarometer 72.2 (European Commission 2009a).

**Figure 4** European average of the answers to the question

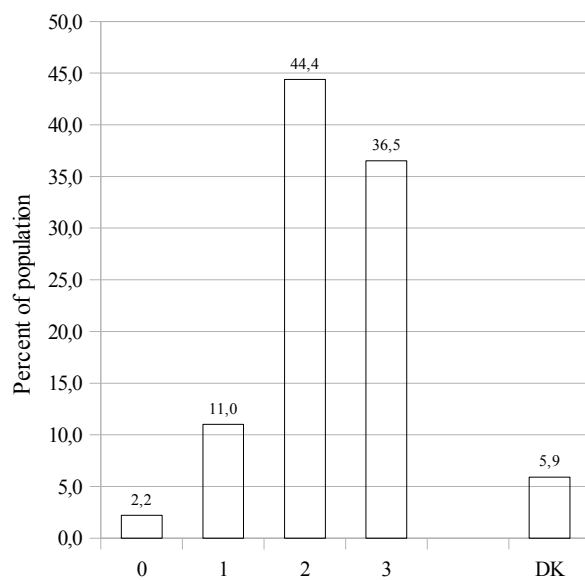
“There is corruption in local institutions in respondent’s country”



N = 26663. Weighted for country size (W22).  
Eurobarometer 72.2 (European Commission 2009a).

**Figure 5** European average of the answers to the question

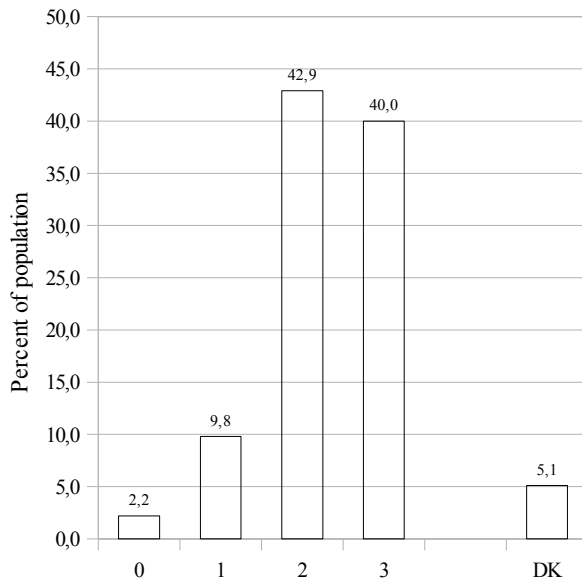
“There is corruption in regional institutions in respondent’s country”



N = 26663. Weighted for country size (W22).  
Eurobarometer 72.2 (European Commission 2009a).

**Figure 6** European average of the answers to the question

“There is corruption in national institutions in respondent’s country”



N = 26663. Weighted for country size (W22).

Eurobarometer 72.2 (European Commission 2009a).

The construction of an index of corruption perception from these questions is the next step in the analysis. This index reflects the level of corruption perception for each country. To build the index, those questions have to be identified which correlate best with the concept of “corruption perception”. In order to achieve this, a factor analysis has to be performed.

### 5.2.1 Factor Analysis

The following factor analysis includes the five questions, which already have been described: four questions on general corruption perception and one question about corruption in various professional groups. The variables of the four general questions are called *corrproblem*, *corrlocal*, *corrregional*, and *corrnational*. The variable for the question about corruption in professional groups is called *corrgroups*.

In order to integrate the question *corrgroups* into the factor analysis, every “yes” answer for each of the 12 professional groups was counted resulting in an additive index from 0 to 13. Someone, who did not see any of the 12 groups as corrupt had a value of 0 and someone, who saw all of the 12 groups as corrupt and additionally mentioned that he or she also saw “other” groups as corrupt received the maximum value of 13.

Then, an exploratory factor analysis (EFA) was performed with the five items *corrproblem*, *corrlocal*, *corrregional*, *corrnational*, and *corrgroups*. The EFA shows that all five corruption perception questions load on a single factor.<sup>20</sup> There is not any second factor, which is not surprising, since the questions are very close thematically. The Kaiser-Meyer-Olkin measure of sampling adequacy for the whole factor analysis is 0,861 indicating a “meritorious” result (Kaiser/Rice 1974: 111 in Backhaus, Erichson, Plinke, and Weiber 2008: 336).<sup>21</sup>

The Bartlett-test of sphericity is significant at the 0,001-level (chi-square 88 283,48) showing the sample stems from a population where the variables are correlated as well. The first (and only) factor (Eigenvalue 3,592) explains 71,84 % of the variance of the items. Factor loadings range from 0,490 to 0,932 (see table 4).

The questions one to four in the factor analysis (*corrproblem*, *corrlocal*, *corrregional*, *corrnational*) have the best loadings on the common factor “corruption perception”. Question number five has the weakest loadings to the common factor.

Assumably, the respondents lack the knowledge about corruption in specific fields in order to answer the fifth question on corruption perception in various professional groups. In the structure of the answers, the resulting inconsistency could be the reason for the weak loadings. Therefore, it will be excluded from further analysis and will not be used in the index for corruption perception.

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20 Principal axis factoring was performed. No factor rotation was computed since only one factor was extracted.

21 A value above 0,8 is desirable in order to continue with a factor analysis (Kaiser 1970: 405 in Backhaus, Erichson, Plinke, and Weiber 2008: 336).

**Table 4** Factor loadings on the factor “corruption perception”

<b>Factor Matrix</b>	
Variable	Factor
corrproblem	0,793
corrlocal	0,901
corrregional	0,932
cornnational	0,880
corrgroups	0,490

Extraction Method:

Principal Axis Factoring.

5 iterations required.

For the remaining four questions, the loading of the item *corrproblem* is weaker than the loadings of the three questions about the existence of corruption on local, regional or national level. The question behind item *corrproblem* asks whether corruption is a “major problem” in the country. The wording “major problem” has a rather subjective notion. The respondent might try to estimate the dimension of the problem of corruption in reference to other pressing issues in his or her life or simply other issues in the country. These different interpretations of the question could lead to different dimensions, which get included in the answers. Also, it can be difficult to estimate the exact scale of what is to be considered as “major”. The dimensions of the interpretations of the word “major” must lead to differences in the interpretation. Finally, it has to be added that the wording of the question is almost formulated like a suggestive question. With the suggestion that corruption is a “problem” at all, the respondent already gets half the answer. Every introduction to empirical social research emphasizes that suggestive questions are to be avoided.

The other three questions have a comparatively analytical notion. They simply try to estimate the level of corruption. The question, whether corruption is a “problem”, has a certain subjective undertone, which might produce differing results that eventually lead to the weaker loading. Therefore, it will not enter the index as well. The items *corrlocal*, *corrregional*, and *cornnational* all act as a more direct assessment of the corruption situation in one’s country compared to the questions

before. Furthermore, they are all very close in their loadings and are therefore chosen for constructing an index of corruption perception.

Next, the comparability of the factor loadings across all countries will be tested. To compare the index of corruption perception between the countries and to use it consistently as dependent variable, an equal measurement should be guaranteed. A confirmatory factor analysis (CFA) tests the consistency of the three items and the comparability of the factor loadings. The question, which level of measurement can be assumed will be answered as well.

The CFA starts with a measurement weights model comparing the loadings of the items *corrlocal*, *corrregional*, and *corrnational* on the factor “corruption perception” for all 29 countries and regions. As the measure of fit, the measurement model produces a CMIN<sup>22</sup> of 528,4 at 56 degrees of freedom resulting in a CMIN/DF-ratio of 9,44 (p-value: 0,000). This ratio is usually not satisfactory (Arbuckle 2008: 587), but the chi-square and thus, the CMIN/DF-ratio are highly vulnerable to sample size. Their respective values can shoot up quickly, which seems to be the case with a population of 26 663. The values of other typical measures of fit as the comparative fit index (CFI) (0,990) and the Tucker-Lewis index (TLI) (0,984) indicate a very good fit (Arbuckle 2008: 597). The less rigorous root mean square error of approximation (RMSEA) also shows a very close model fit with a value of 0,020 (Pclose=1<sup>23</sup>) (Arbuckle 2008: 590).

The results of the test for scalar equivalence are weaker with model fits of CMIN 1 167,8 at 112 degrees of freedom. This causes an even higher CMIN/DF-ratio of 10,43 (p-value: 0,000), although the CFI (0,977) and the TLI (0,983) still indicate a very good fit. Also, the RMSEA of 0,021 (Pclose=1) still indicates a close model fit.

The CFA shows that the measurements can be compared and that the equivalence of measurement is on a metric level. Hence, metric invariance for all 29 countries and regions can be assumed. It means that the measurement units of the factor scores

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<sup>22</sup> Minimum discrepancy of C.

<sup>23</sup> Pclose is a “p value” for testing the null hypothesis that the population RMSEA is not greater than 0,05.

can be compared across countries. An increase by one unit in the latent variable has the same meaning in all investigated countries. In other words, all three questions on corruption perception touch the same topic and measure the same phenomenon throughout the countries. Due to the lack of scalar equivalence, it is, however, statistically problematic to compare the means of the index of corruption perception across nations. According to this result, test measurement characteristics appear to vary between countries.

Scalar equivalence is a rather rigorous pre-condition and the result does not restrict this study to carry on with using the index of corruption perception. The results only indicate that one has to be very cautious when comparing an average corruption perception level across nations. That does not come as a surprise since the 27 EU-countries have quite heterogeneous characteristics. In the field of corruption, differences between countries become even more apparent since there are sometimes huge economic, political and cultural differences in what to perceive as corruption. This test result signifies that already on a measurement level, far from interpretations, corruption perceptions are not comparable easily. It should be noted that there are no reasons why this finding should not apply to other corruption perception measurements as well.

To further test the index, it was checked for scale reliability. The scale turns out to be highly reliable with a Cronbach's alpha value of 0,933 across countries ranging from 0,837 in Greece to 0,947 in Denmark, as shown in table 5. Once again, the result underlines the fact that these items are also very close to each other in a theoretical way.

**Table 5** Reliability test of the items of the index of corruption perception

Country	Cronbach's Alpha	Country	Cronbach's Alpha
Belgium	0,909	Great Britain	0,925
Denmark	0,947	Northern Ireland	0,934
Germany West	0,926	Cyprus (Rep.)	0,935
Germany East	0,891	Czech Rep.	0,862
Greece	0,837	Estonia	0,855
Spain	0,905	Hungary	0,867
Finland	0,906	Latvia	0,859
France	0,896	Lithuania	0,924
Ireland	0,927	Malta	0,909
Italy	0,904	Poland	0,910
Luxembourg	0,914	Slovakia	0,922
Netherlands	0,942	Slovenia	0,908
Austria	0,906	Bulgaria	0,894
Portugal	0,936	Romania	0,909
Sweden	0,929	EU-27	0,933

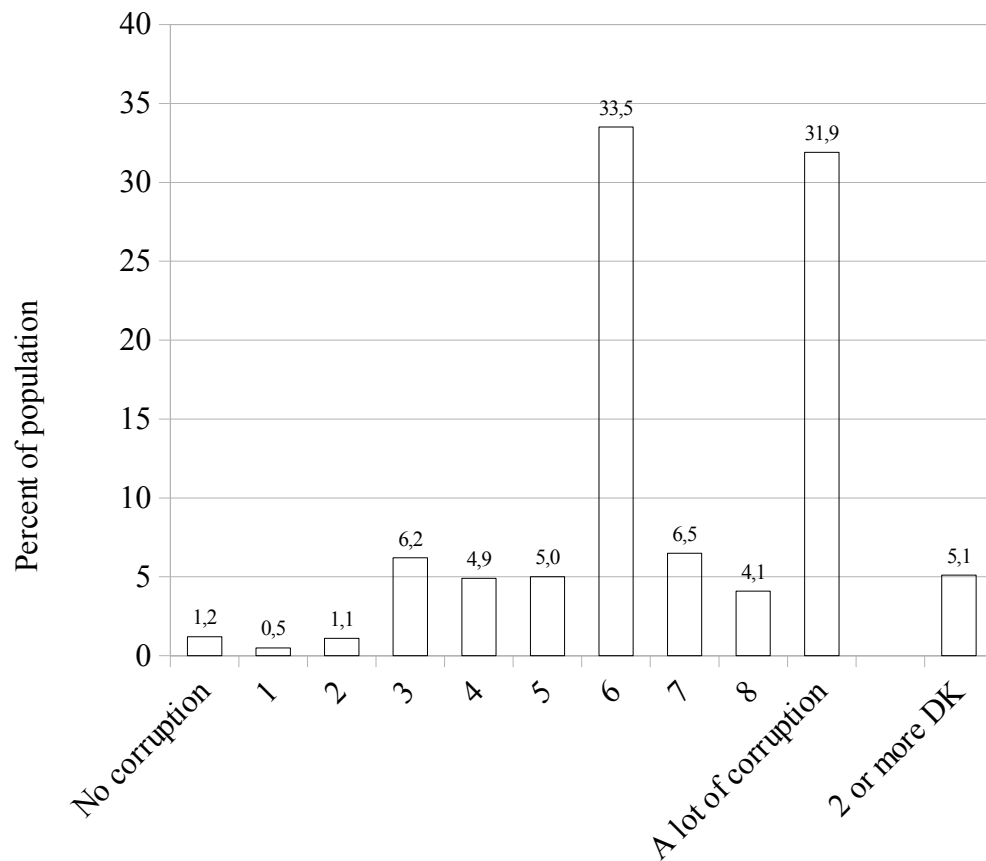
### 5.2.2 Index of Corruption Perception

Factor analysis, as well as, the reliability check gave strong reasons to assume that these three questions measure a common factor and therefore can be computed into an index. The three questions form an additive index with a scale from zero to nine. Every question has a range from zero to three, with zero meaning total disagreement and three total agreement. An index value of zero indicates that the respondent totally disagrees with all three statements (corruption exists in local, regional, and national institutions) and nine means that the respondent totally agrees with all three statements. The respondent does not perceive any corruption at all when his answers result in a value of zero and perceives rampant corruption when his questions result in a value of nine.

Looking at the results of the descriptive analysis of this index, the average value for Europe is 6,7 points (figure 7) on the 9-point-scale with a standard deviation of 2,1 points. 1,2 % of the European population answer all questions negative. Only one in a hundred does not see corruption as a problem at all or thinks that it does not exist on any of the administrative levels in his or her country. 31,9 % answer all

questions with total agreement. For them, corruption is a major problem in their country and they totally agree that it exists in local, regional, and national institutions in their country. 55,2 % get a cumulative score of at least 6 points, which means they have answered at least 2 out of 3 questions agreeing that corruption is a problem or exists in their country. Those, who had two or more refusals, were not included in the calculation. It shows that only very few, approximately 5 % of the Europeans, do not feel able to say anything at all about the level of corruption.

**Figure 7** Index of corruption perception in EU-27 in 2009



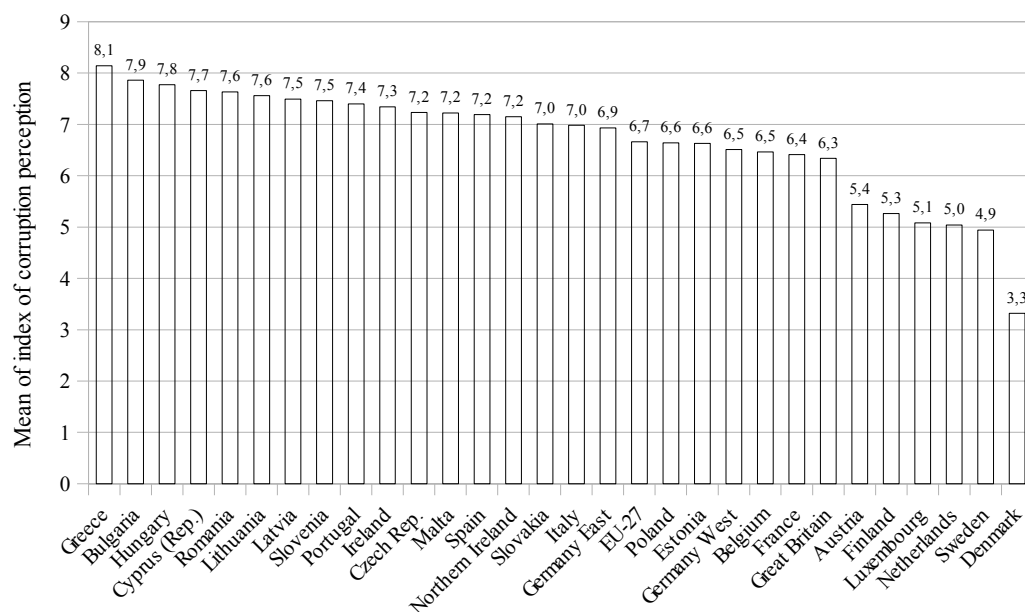
Index score of three questions: “There is corruption in local/regional/national institutions in respondent’s country”. Four values for answers: Totally agree (3), Tend to agree (2), Tend to disagree (1), Totally disagree (0). N = 26663. Weighted for country size (W22). Eurobarometer 72.2 (European Commission 2009a).

In order to compare the countries among each other, the means of the index were calculated for each country.<sup>24</sup> Figure eight shows the ranking of the countries

<sup>24</sup> It should be kept in mind that the results of the CFA showed that the means should be compared with some

according to each country's mean.<sup>25</sup> Greece has the highest mean with 8,1 points, closely followed by Bulgaria with 7,9 points, and Hungary with 7,8 points. On the other end of the ranking, there are Denmark with 3,3 points, Sweden with 4,9 points, and the Netherlands with 5,0 points. The European mean is 6,7 points. Out of the top ten countries with the highest corruption perception, six are eastern European countries and three countries from Southern Europe. The ten countries with the lowest corruption perception are all Western European countries. Interestingly, the standard deviation rises with a downward position in the ranking. The differing variability points towards the fact that there are country differences and that influences are not only on the individual level. This is especially considered in the choice for a multilevel regression model.

**Figure 8** Means of the index of corruption perception in EU-27 in 2009



Index score of three questions: "There is corruption in local/regional/national institutions in respondent's country". Four values for answers: Totally agree (3), Tend to agree (2), Tend to disagree (1), Totally disagree (0). N = 26663. For the EU-27 mean countries weighted for country size (W22). Eurobarometer 72.2 (European Commission 2009a).

In order to take a look at the similarity of corruption perception and corruption experience, the two different lists were put next to each other. The comparison

precaution.

<sup>25</sup> Table with standard deviations in appendix (table II).

between the ranking of corruption experience with the ranking of corruption perception (table six) shows some notable differences. The differences can be categorized in two groups. There are those countries having a position in the corruption perception ranking which is higher than their position in the corruption experience ranking. Then, there are those countries, whose position in the corruption experience ranking is higher than in the corruption perception ranking. In terms of corruption perception, some countries are overrated and some are underrated.

The group of the overrated countries is led by Greece, the leader of the corruption perception ranking. Being number one concerning corruption perception, it is only on seventh position in the corruption experience ranking. The case of Bulgaria shows the same difference being at the second position in the corruption perception ranking and at the eighth position in the corruption experience ranking. Hungary (number three) is on number six regarding the experience. Cyprus, at position 4 in the corruption perception ranking, is equally overrated in terms of the actual corruption perception level, holding position 17 in the corruption experience ranking. Slovenia, at rank 8, is only number 16 in the corruption experience ranking, Portugal drops from 9 to 14, Ireland from 10 to 23, Malta from 12 to 19, and Northern Ireland from 14 to 30.

In contrast, some countries have a lower rank in the corruption perception ranking compared to the corruption experience ranking. Lithuania holds number six in the perception ranking, but number one when regarding experience. Romania, fifth regarding perception, is second in terms of experience. Slovakia is only on place number 15 in the corruption perception ranking, but holds position number 3 in the corruption experience ranking, similar to Italy having positions 16 and 4 respectively. Poland raises from 19 to 11, Austria from 25 to 10, and Luxembourg from 27 to 20.

**Table 6** Ranking of EU-27 in corruption perception and corruption experience

Corruption Perception			Corruption Experience	
Rank	Country	Index mean	Country	% of pop.
1	Greece	8,1	Lithuania	26,6
2	Bulgaria	7,9	Romania	25,3
3	Hungary	7,8	Slovakia	21,9
4	Cyprus (Rep.)	7,7	Italy	17,6
5	Romania	7,6	Latvia	17,4
6	Lithuania	7,6	Hungary	16,7
7	Latvia	7,5	Greece	16,4
8	Slovenia	7,5	Bulgaria	16,2
9	Portugal	7,4	Czech Republic	15,4
10	Ireland	7,3	Austria	14,1
11	Czech Rep.	7,2	Poland	13,2
12	Malta	7,2	Spain	10,0
13	Spain	7,2	EU-27	9,4
14	Northern Ireland	7,2	Portugal	8,1
15	Slovakia	7,0	Germany East	6,2
16	Italy	7,0	Slovenia	5,7
17	Germany East	6,9	Cyprus (Republic)	5,5
18	EU-27	6,7	Estonia	5,3
19	Poland	6,6	Malta	5,0
20	Estonia	6,6	Luxembourg	5,0
21	Germany West	6,5	Belgium	4,1
22	Belgium	6,5	Germany West	3,8
23	France	6,4	Ireland	3,1
24	Great Britain	6,3	Finland	3,0
25	Austria	5,4	France	2,7
26	Finland	5,3	Netherlands	2,7
27	Luxembourg	5,1	Great Britain	2,7
28	Netherlands	5,0	Sweden	2,6
29	Sweden	4,9	Denmark	1,4
30	Denmark	3,3	Northern Ireland	,7

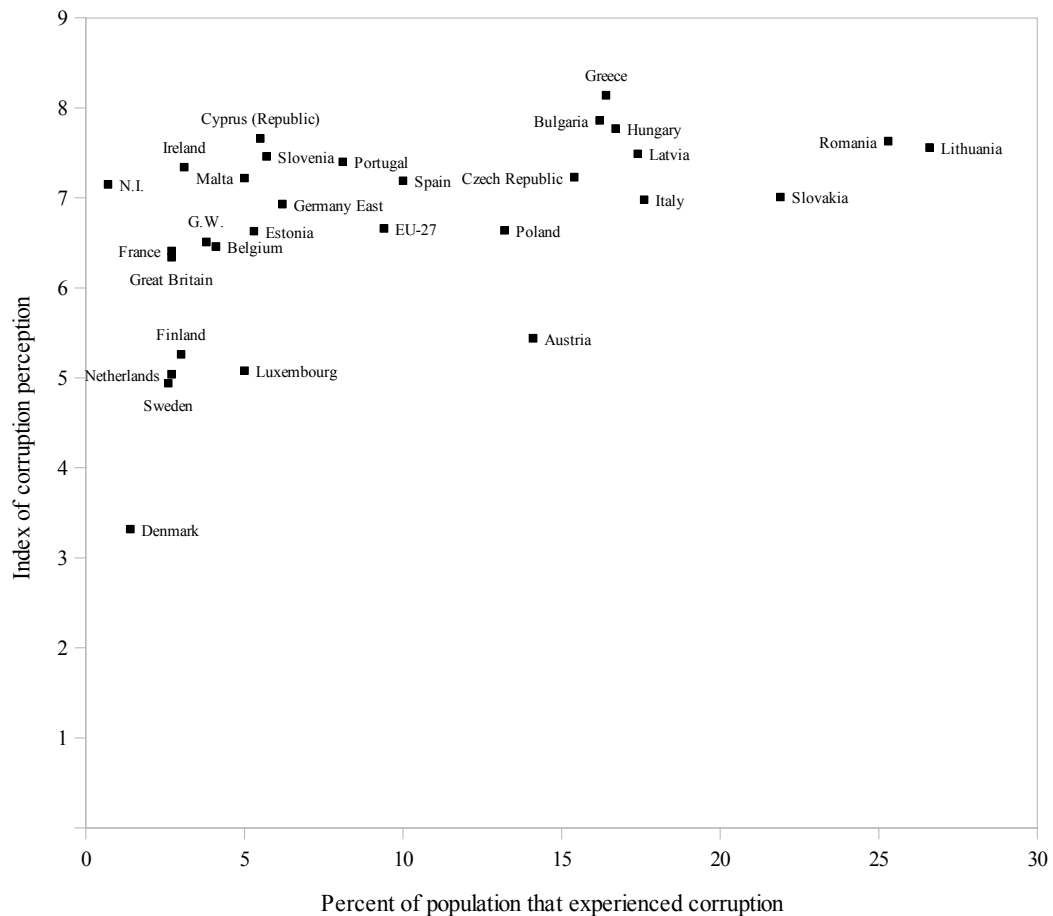
N = 26663. EU-27 means weighted for country size.

Eurobarometer 72.2 (European Commission 2009a)

Figure nine shows the relation between the differing measures of corruption very well. Obviously, there is a relation between the two measures, but it is not very strong. The  $R^2$  between the two measurements is 0,24. Therefore, 24 % of the variation of one of the factors are explained through the other. This is not high

considering the fact that the two rankings should stand for the same phenomenon.<sup>26</sup> Furthermore, this is only the correlation for the figures on the aggregate level. The correlation on individual level is much smaller as will be shown later.

**Figure 9** Correlation between corruption perception and corruption experience



N.I. = Northern Ireland, G.W. = Germany West  
 N = 26663. Mean for EU-27 weighted for country size.  
 Eurobarometer 72.2 (European Commission 2009a).

## 6. Analysis of the Data: Multilevel Regression Model

Opinions, perceptions, and behaviour always constitute themselves within a social context. In macro level cross-country analysis, only (aggregated) country level data is considered. This study focuses on the analysis of individual level data in

<sup>26</sup> The Spearman's rank coefficient between the two rankings is 0.61.

order to develop a deeper understanding of how corruption perception constitutes itself and how corruption experience comes into play. In order to fully exhaust the potential of the data, macro level determinants have to be considered as well. A method of analysis considering both, individual features and context, is multilevel regression modelling (cf. Hox 2002, Raudenbush and Bryk 2002, Snijders and Bosker 1999).

The assumption of this method is that individual data is structured in groups according to certain group characteristics, in this case the affiliation of individuals with their countries. This happens because various communication processes evolve mainly at a national level, as for instance public debates in the national media, information campaigns by NGOs, new policies from the administration, or the specific implementation of laws. Values, norms, and rules, either as informal rules or as formal laws, differ largely between countries.

The variables on individual level are gender, age, education, social status, whether one is working or not, employment status, the difficulty to pay monthly bills, and the size of the respondent's community. The variables on both levels derive from the literature and the hypotheses previously formulated. The variables on the country level are ethnic division and media prevalence.<sup>27</sup> To control corruption perception for real experienced corruption, the variable, whether the respondent has experienced corruption within the past 12 months, is inserted on the individual level.

With 27 countries taking part and two regions being included as separate entities (Eastern Germany and Northern Ireland), the total number of objects on the group level is 29. Therefore, it meets the more rigorous statistical demand of 30 identities much better than many other studies. In comparison to a lot of other research using multilevel modelling, this is a major advantage of the present model .

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<sup>27</sup> On country level, many more variables exist and are used for testing the effects of corruption, but those are the only variables where theoretical justification exists that they influence the perception of corruption when controlling for actually existing corruption (see chapter four). Furthermore, adding more variables on the aggregate level could be problematic since the number of observations on the aggregate level is not very high.

## 6.1 Variance on Individual and Country Level – Empty Model

The first model is the empty model, which does not include any independent variables. The outcome is the average score on the index of corruption perception across all countries.

The equations will be presented using the systems of equation style.

$$\begin{array}{ll} \text{Individual level:} & Y_{ij} = \beta_{0j} + r_{ij} \\ \text{Country level:} & \beta_{0j} = \gamma_{00} + u_{0j} \end{array} \quad \text{Equation 1}$$

In this model, the constant regression coefficient  $\beta_0$  is only modelled as a function of the total (grand) mean of corruption perception  $\gamma_{00}$  and the error  $u_{0j}$ . The variance of  $u_{0j}$  is the variance of the dependent variable corruption perception on the country level. The total variance of  $Y$  corresponds to the sum of the variances on individual level and on country level. Therefore, the empty model indicates how the variance is divided between the two levels of analysis.

$Y_{ij}$  – corruption perception of individual  $i$  in country  $j$

$\beta_{0j}$  – mean corruption perception value of country  $j$

$\gamma_{00}$  – total (grand) mean

$r_{ij}$  – unique effect associated with person  $i$  in country  $j$ .<sup>28</sup> Sum of the squared variance of the individual values from the total mean  $\gamma_{00}$  (level one variance between persons)

$u_{0j}$  – unique effect of country  $j$ . Sum of the squared variance of the country means from the total mean (level two variance between countries).

The modelling starts with the calculation of the intercept-only model with the dependent variable *corrperception*. It is the basic model calculating the overall (grand) mean, i.e. the overall corruption perception score on the 9-point scale of the index, for all countries and acts as a reference point for further comparison. The

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<sup>28</sup> The assumption is that  $r_{ij}$  is normally distributed with a mean of zero and a variance of  $\sigma^2$ , that is,  $r_{ij} \sim N(0, \sigma^2)$ .

intercept in the empty model (model 0 in table 7), corresponding to the term  $\gamma_{00}$  in equation 1, therefore is 6,69 points. This value is the average value of the index of corruption perception for all European countries.<sup>29</sup> The value is in the upper part of the index. The separate means for each country, which can be interpreted as some sort of corruption perception ranking of Europe, have already been displayed in figure eight. The covariance parameters are 3,83 on the individual level and 1,2 on the country level.<sup>30</sup> This results in a variance partition coefficient (VPC) of 0,24. The VPC reflects the intraclass correlation. This is the proportion of group level variance compared to the total variance.<sup>31</sup>

The equation is the following:

$$\text{VPC} = \rho = \sigma_{uo}^2 / (\sigma_{uo}^2 + \sigma_e^2) \quad \text{Equation 2}$$

$\rho$  – intraclass correlation

$\sigma_{uo}^2$  – variance of the group level residuals  $u_{oj}$  (variance between countries)

$\sigma_e^2$  – variance of the individual level residuals  $e_{ij}$  (variance between individuals).

With the empirical data of the model the equation would be:

$$\text{VPC} = 1,22 / (1,22 + 3,83) = 0,24 \quad \text{Equation 3}$$

It says that 24 % of the variance of the index of corruption perception is on the country level. This means that almost a quarter of the variance in corruption perception is due to differences between countries and not due to differences between individuals. This is a considerable amount and therefore again is a strong empirical confirmation for the theoretical assumption that a part of the variance is

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29 This is close, but not identical, to the raw mean 6,7 presented in table 6. The reason for this difference is that the estimation of the empty model implies a weighting done by SPSS that is not taken into account in the calculation of the raw mean. For further information see Snijders/Bosker 1999: 47.

30 Both values are significant on a 0,001-level. They reflect the squared variance of the individual values  $r_{ij}$  and the squared variance of the country means  $u_{oj}$  from the total mean.

31 The intraclass correlation is an estimate of the proportion of explained variance in the population and not in the sample – that is given by the correlation ratio  $\eta^2$  that is not treated here (cf. Hox 2002: 15).

explained on the country level. It clearly demands for a hierarchical treatment of the data.

Finally, it should be noted that the deviance (-2 log-likelihood) measuring the model misfit has a value of 106 668,3. When explanatory variables will be added in the following models, the deviance is expected to go down indicating a better fit to the empirical data.

## 6.2 Individual Level Effects – Random Intercept Model

In the next step, predictors will be added to the model. First, the focus rests on variables on the individual level, i.e. on features and attitudes of persons. In this model individual variables  $X_{ij}$  are included as predictors of corruption perception. The modelling on level two – the country level – corresponds again to the unconditioned model.<sup>32</sup>

$$\text{Individual level:} \quad Y_{ij} = \beta_{0j} + \beta_{1j}X_{ij} + r_{ij} \quad \text{Equation 4}$$

$\beta_{1j}$  – expected change in the index of corruption perception with a unit increase in individual level socio-economic factors.

$X_{ij}$  – independent variable.

With the variable labels instead of algebraic symbols, this equation reads:

$$\text{corruption perception}_{ij} = \text{total mean} + \beta_{11} \text{education} + \beta_{12} \text{social status} + \beta_{1j} \text{etc.} + r_{ij}$$

The existence of differences in the intercept ( $Y_{ij}$ ) between countries is the assumption in this case, but the effects of the explanatory variables ( $X_{ij}$ ) do not vary across countries. The model is similar to a simple OLS-regression.

Education was centred at 15,5 years since most European countries have compulsory education until the age of 15 or 16.<sup>33</sup> Age was centred at 15 years since

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<sup>32</sup> Country level (2):  $\beta_{0j} = \gamma_{00} + u_{0j}$

<sup>33</sup> Age at the end of compulsory education: Austria 15, Belgium 18, Cyprus 15, Denmark 16, Finland 16, France 16, Germany 18, Greece 15 Ireland 15, Italy 15, Luxembourg 15, Malta 16, Netherlands 17, Portugal 16, Spain 16, Sweden 16, United Kingdom 16 (Unesco 2003)

there were no younger respondents included in the survey. Self-placement was centred around the grand mean, i.e. the mean across all countries.

The effects of social class, unemployment, and the group of the working are tested in three different models since all three variables derived from the occupational status of the respondent. Therefore due to multicollinearity, a multiple use of this data in the same model is not possible. The variable on self-placement in society and the variable, whether one has difficulties in paying bills, will be added in further models since their content is also close to the social class variables and similar problems as with the occupational variables would result.

The results of the random intercept models (table 7) with different individual level effects show that several variables significantly influence corruption perception. Actual corruption experience was always included as a control variable. The results of model one to five show that the following variables have a significant negative correlation with corruption perception, i.e. they lead to less corruption perception: education, whether one is working, and self-placement in society. Gender (men) only has in one out of five models a slight negative influence. Age does not have any effect at all. Variables having a significantly positive correlation with corruption perception are the social class of employers, low-level nonmanual employees, and workers (all three in comparison to higher-level nonmanual employees), unemployment, the difficulty to pay bills, and corruption experience. The effect of living in a small town in comparison to villages was positive, but with a very small effect.

Education has a negative effect in all random intercept models ranging from -0,02 index points per year to -0,03 index points. The strength of the effect is larger than it seems on first sight since it has to be counted for each year of additional education. Ten years of education – that would be approximately the difference between someone with compulsory education and someone with an academic degree – would result in an effect of 0,2 to 0,3 points depending on the model.

Out of the social class variables (model 1), employers, lower-level nonmanual employees and workers all had a significant positive effect. Employers saw 0,22 points more corruption than higher-level nonmanual employees, lower-level employees saw 0,25 points more, and workers 0,28 points more compared to higher-level employees (all coefficients were significant, 0,001-significance level). Several combinations were tested with different comparison groups and the higher-level employees proved to display the most illustrative contrast. Medium-level employees seem to answer in a similar pattern as higher-level employees. The variable of the employers of the primary industries did not turn out with any consistent result. It is peculiar that both workers and lower-level employees, on the one hand, and employers, on the other hand, perceive more corruption than higher-level employees (and medium-level employees). Subsequently, a collapsed two class variable was tested. However, it did not prove to be illustrative for the data. Corruption experience has comparatively less influence (0,15 points, 0,01-significance level) in the social class model than the variables for employers, lower-level employees, and workers.

The unemployed perceive more corruption than the employed (model two). With 0,15 points (0,01-significance level), the effect has the same size as the effect of actual corruption experience (0,15 points, 0,01-significance level). The working see less corruption (-0,10 points, 0,001-significance level) than those who do not work, which is complementary to the previous result (model 3).

The difficulty to pay bills (model 4) has a rather large impact on corruption perception with 0,36 points more on the index of corruption perception (0,001-significance level). Those who have most of the time problems with paying their bills at the end of the month see significantly more corruption. The variable with those having problems paying their bills only sometimes did not turn out significant. The effect of corruption experience sank considerably in this model (0,08 points) and lost its significance.

**Table 7** Multilevel regression models: empty model and fixed effects models with individual level socio-economic variables

Model	Index of corruption perception: from 0 (no corruption) to 9 (a lot of corruption)											
	M0: Intercept-only		M1: Social class		M2: Unemployed		M3: Working		M4: Difficulty to pay bills		M5: Subjective social status	
	coefficient	std err	coefficient	std err	coefficient	std err	coefficient	std err	coefficient	std err	coefficient	std err
Fixed Part												
Predictor												
Intercept	6,69 ***	0,21	7,53 ***	0,38	7,04 ***	0,23	6,93 ***	0,21	7,22 ***	0,21	6,92 ***	0,21
eduys <sup>a</sup>			-0,02 ***	0,01	-0,03 ***	0,00	-0,02 ***	0,00	-0,02 ***	0,00	-0,02 ***	0,00
class_employers <sup>b</sup>			0,22 **	0,08								
class_mednonman <sup>b</sup>			0,02	0,08								
class_lownonman <sup>b</sup>			0,25 ***	0,07								
class_employersprimary <sup>b</sup>			0,12	0,13								
class_workers <sup>b</sup>			0,28 ***	0,08								
unemployed					0,15 **	0,05						
working							-0,10 ***	0,03				
difficultpay_most									0,36 ***	0,05		
difficultpay_some									0,02	0,03		
societyp <sup>c</sup>											-0,04 ***	0,01
gender (men)			-0,04	0,04	-0,03	0,03	-0,04	0,03	-0,04	0,03	-0,05 *	0,03
age <sup>d</sup>			0,00 *	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
smalltown <sup>e</sup>			0,05	0,04	0,05	0,04	0,06 *	0,03	0,06 *	0,03	0,07 *	0,03
largetown <sup>e</sup>			0,01	0,04	0,02	0,04	0,04	0,03	0,04	0,03	0,04	0,03
correxperience			0,15 **	0,06	0,15 **	0,05	0,09 *	0,04	0,08	0,04	0,10 *	0,04
Random Part												
Variance residual (individual)	3,83 ***	0,03	3,70 ***	0,05	3,70 ***	0,04	3,80 ***	0,04	3,79 ***	0,04	3,79 ***	0,04
Variance intercept (country)	1,22 ***	0,33	1,31 **	0,35	1,26 ***	0,34	1,14 ***	0,31	1,11 ***	0,30	1,13 ***	0,30
Deviance (-2 Log Likelihood)	106668,3		50771,9		57977,8		95663,1		95615,7		93314,4	
N respondents	26663		26663		26663		26663		26663		26663	
N countries <sup>f</sup>	29		29		29		29		29		29	
VPC <sup>g</sup>	0,24		0,26		0,25		0,23		0,23		0,23	

\*\*\* p ≤ 0,001, \*\* p ≤ 0,01, \* p ≤ 0,05, Unstructured variance, REML

<sup>a</sup> centered at compulsory education (9,5 years, for details see footnote on page x), <sup>b</sup> class\_highnonman as reference, <sup>c</sup> centered at grand mean, <sup>d</sup> centered at 15 years, <sup>e</sup> village and rural areas as reference,

<sup>f</sup> Northern Ireland and East Germany included as separate entities, <sup>g</sup> VPC = country-level variance / (country-level variance + individual level variance)

Eurobarometer 72.2 2009

The subjective social status, measured through self-placement in society on a 10-point scale had a negative correlation with corruption perception (model 5). The effect of 0,04 points is significant (0,001-significance level) and relatively strong, when considering it stands for a one unit change on a 10-point scale. It means that a difference between someone who places him- or herself on level one (lowest level) and someone who places him- or herself on level ten (highest level) is 0,4 points.

Gender only showed a very small effect in a single model (model 5), with men perceiving slightly less corruption (-0,04 points, 0,001-significance level). The effect of age was zero throughout all models. To live in a small town resulted in slight positive correlations (0,06 to 0,07 points, 0,05-significance level) with corruption perception in three models (model 3, model 4, model 5), but to live in a large town did not have any significant effects at all.

The effect of corruption experience ranged from 0,08 to 0,15 points with varying significance levels (not significant to 0,01-significance level). It was always weaker than the socio-economic variables, which were in focus in the particular model.

The implications of these findings will be discussed in more detail in the next chapter where they will be treated in the light of the hypotheses from chapter four.

A look at the deviance (that displays the model misfit) indicates that the first fixed effects model (model 1), with the social class variables as predictors, reduces the model misfit of the empty model about 50 % (from 106 668,3 to 50 771,9). The social class model has the best fit to the empirical data in comparison with the other fixed effect models. A lot of the data structure seems to be explained through the social class variables.

The VPC had a value between 0,23 to 0,26, thus, not much differing from the value of the empty model (0,24). It can be seen that the variance on the country level is still high. This confirms that country level determinants should be added to the model.

### More Subjective Indicators Increase Corruption Perception – an Alternative Index

Factor analysis has shown that the different questions in the EB concerning corruption perception loaded with various strength on the common factor “corruption perception”. The questions whether corruption existed on local, regional, or national level had the strongest loadings. The question whether corruption was a “major problem” in the country showed a slightly weaker loading. Besides other problems, it was discussed that the question had a subjective notion. The simplistic wording might have led to differing interpretations of the question, subsequently leading to the weaker loading. These considerations eventually led to the decision to chose only those three questions for the construction of the index concerning the existence of corruption on the three administrative levels.

In order to gain more detailed results on how corruption perceptions form, the interest in the inclusion of an even more subjective question on corruption perception rose. The assumption that this question might respond even stronger to social factors, like education and social class, lead to the decision to construct another index that includes the question whether corruption is a “major problem”. Up to a certain point, all corruption perception indicators reflect subjective perceptions. But this question adds an even more subjective indicator to the index. This new index consists of four questions resulting in an additive index from 0 (meaning any perceived corruption at all) to 12 (meaning that the respondent perceived rampant corruption).

The result of the new models was that the effect on corruption perception caused by education and social class rose and that the effect of actual corruption experience sank even lower. It shows that when a question, which already assumes that corruption is a “problem” is taken into the index, experience becomes less important. Instead, feelings of distrust in institutions, dissatisfaction and disenchantment with politics become more important.

**Table 8** Multilevel regression model with an alternative index of corruption perception and individual level socio-economic variables

Model	Alternative index of corruption perception			
	M0: Intercept-only		M1: Social class	
Fixed Part				
Predictor	coefficient	std err	coefficient	std err
Intercept	8,93 ***	0,29	8,39 ***	0,50
eduys <sup>a</sup>			-0,05 ***	0,01
class_highnonman <sup>b</sup>			-0,25	0,15
class_mednonman <sup>b</sup>			-0,22 *	0,09
class_lownonman <sup>b</sup>			0,06	0,07
class_employersprimary <sup>b</sup>			0,06	0,16
class_workers <sup>b</sup>			0,17 *	0,08
gender (men)			0,15 **	0,05
age <sup>d</sup>			0,01 ***	0,00
smalltown <sup>c</sup>			0,03	0,06
largetown <sup>c</sup>			0,17 **	0,06
correxperience			0,24 **	0,08
Random Part				
Variance residual (individual)	6,32 ***	0,70	6,13 ***	0,08
Variance intercept (country)	2,43 ***	0,06	2,64 **	0,90
Deviance (-2 Log Likelihood)	119245,2		54493,8	
N respondents	26663		26663	
N countries <sup>f</sup>	29		29	
VPC <sup>g</sup>	0,28		0,30	

\*\*\* p ≤ 0,001, \*\* p ≤ 0,01, \* p ≤ 0,05, Unstructured variance, REML

<sup>a</sup> centered at compulsory education (9,5 years, for details see footnote on page x),

<sup>b</sup> class\_employers as reference, <sup>c</sup> centered at grand mean, <sup>d</sup> centered at 15 years,

<sup>e</sup> village and rural areas as reference, <sup>f</sup> Northern Ireland and East Germany included as separate

entities, <sup>g</sup> VPC = country-level variance / ( country-level variance + individual level variance)

Eurobarometer 72.2 (European Commission 2009a)

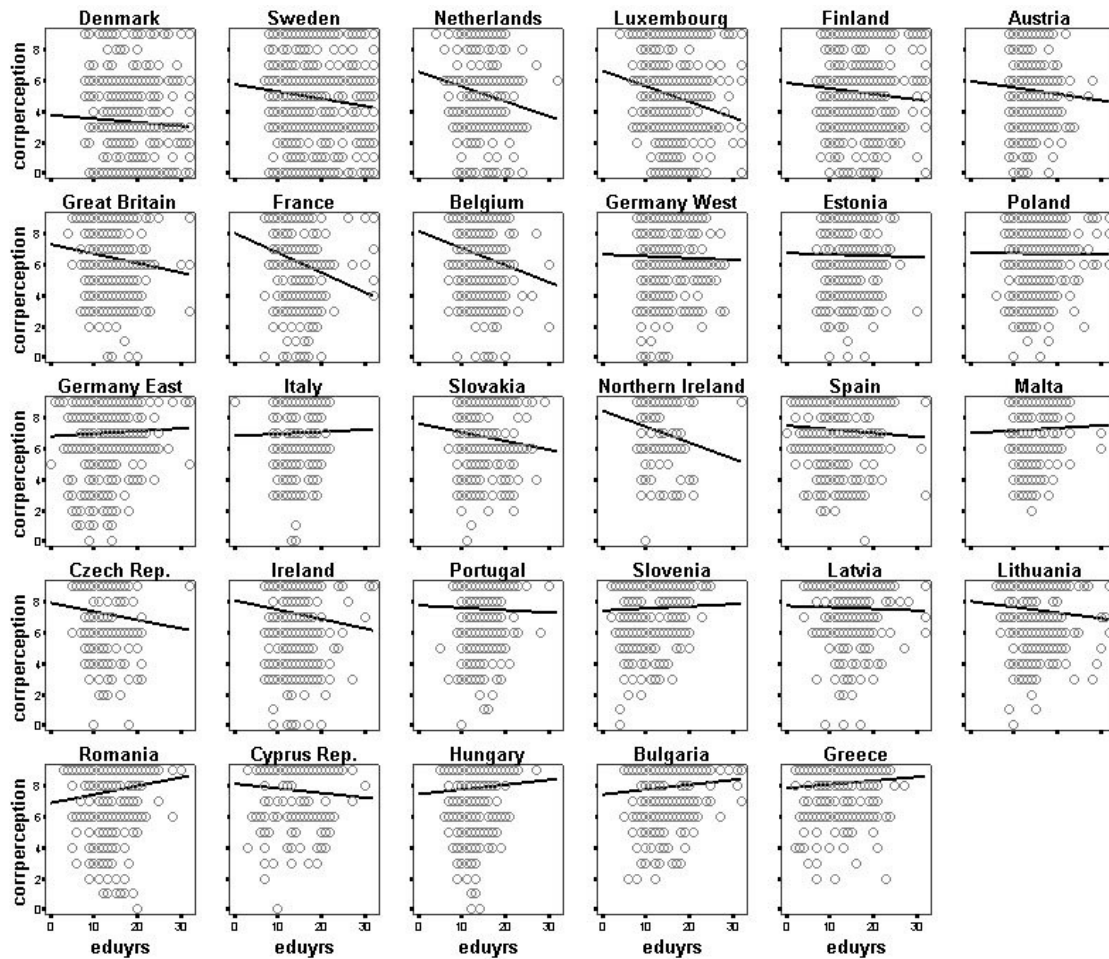
### 6.3 Effect of Education Across Countries – Random Slope Model

Besides social status and its various indicators, education was the variable having the most notable effect on corruption perception considering its change of -0,02 to -0,03 points for each year of education. Already in other studies on corruption perception, this variable proved to be important. However, the results were contradictory with Donchev/Ujhelyi (2008: 21) and Olken (2006: 22) claiming that education had a positive correlation with corruption perception and Smith (2008) showing a negative correlation between his social status index, where education was included, and corruption perception.

Analogically to the pattern of varying influence found by Smith (2008) for social status, it was proposed that the effect of education could play a similar role. The hypothesis that education changes its influence from negative to positive, when the general level of corruption perception in a country goes up, was formulated. Now, This pattern has to be tested with the data at hand. If education really has a different effect in different countries, it must show in a random slope model.

A bivariate regression scatterplot of education and corruption perception should give a first impression whether the proposed pattern can be found in this data (table ten). For a first visual analysis, scatterplots are computed for each country. The scatterplots are depicted according to their ranking on the index of corruption perception already presented in figure eight. As mentioned earlier, this ranking of the countries should rather be seen as a general indicator than an exact ranking, where single country differences can be interpreted. Looking at the row of country scatterplots, it can be seen that by trend the regression slopes turn from a negative towards a zero correlation in the upper two-thirds of the ranking. Towards the end, some countries depict even a positive correlation. There are some exceptions having results contrary to the trend, but generally the connection is visible.

**Figure 10** Bivariate regression of education and corruption perception listed according to the corruption perception ranking from Eurobarometer

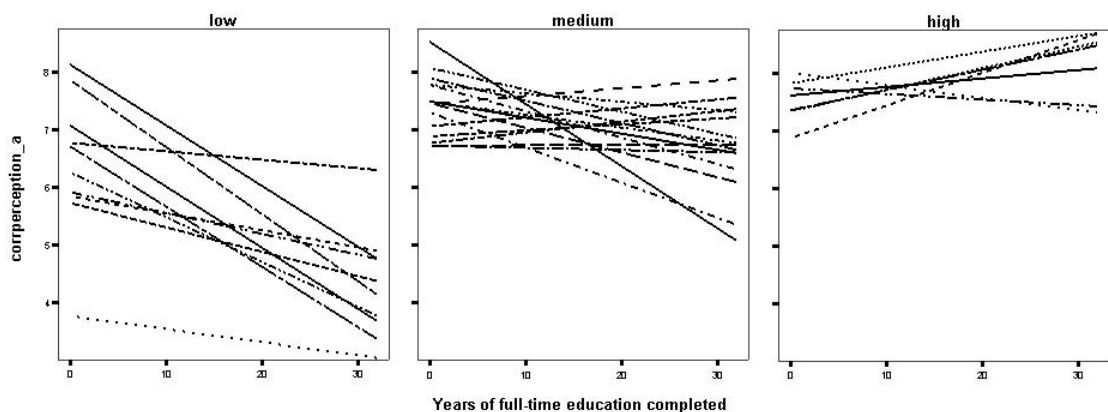


In order to summarize this result and present it graphically in a more precise way, the data is aggregated into three groups. The groups are formed accordingly to the level of corruption perception in the respective countries. Those with a mean of 6,5 points or below are considered as countries with a low corruption perception (Denmark, Sweden, Netherlands, Luxembourg, Finland, Austria, Great Britain, France, Belgium, Germany West), those between 6,6 and 7,5 are considered as countries with a medium level of corruption perception (Estonia, Poland, Germany East, Italy, Slovakia, Northern Ireland, Spain, Malta, Czech Republic, Ireland, Portugal, Slovenia, Latvia), and those with a mean of 7,6 points or above are considered as countries with high corruption perception (Lithuania, Romania, Cyprus Rep., Hungary, Bulgaria, Greece).

Again, this is just an improvised categorization in order to analyse the results and make interpretation easier. On a world-wide level, European countries are among those countries having relatively low levels of corruption. Therefore, countries at the end of the European scale are still in the middle category of corruption perception in a world-wide ranking.

When put together in three groups – low, medium, and high corruption perception –, it shows (table eleven) that all those countries with a low corruption perception level have a negative correlation between education and corruption perception. The tendency in the medium group goes towards a zero correlation, but there are still quite a few countries with a negative correlation as well and other countries which have positive correlations. In the last group, with those countries having a high level of corruption perception, four out of six countries show a positive correlation between education and corruption perception. This means that people with a higher level of education see more corruption in their country. In this group, only Lithuania and Cyprus (Rep.) are exceptions. Both fall into the group with high corruption perception, but have a negative correlation between education and corruption perception.

**Figure 11** Within country regression lines of education and corruption perception categorized in three groups



In order to test whether these differences of the effect of education show a significant effect in a multilevel regression, education has to be tested as a random

effect in the model. Equation five shows that the slope of education, which is the change of the index score of corruption perception for a one unit change in education, has two parameters:  $\gamma_{10}$  stands for the slope over all countries (as in the random intercept model), while  $u_{1j}$  stands for the unique slope effect of a single country alone. This effect is not explained through any variable.

$$\begin{array}{ll} \text{Individual level:} & Y_{ij} = \beta_{0j} + \beta_{1j}X_{ij} + r_{ij} \\ \text{Country level:} & \beta_{1j} = \gamma_{10} + u_{1j} \end{array} \quad \text{Equation 5}$$

$\gamma_{10}$  – slope over all countries

$u_{1j}$  – unique slope effect of country  $j$ .

The result of the random slope analysis of education shows a variance of zero (table nine). Obviously, the variance is not important. Also, all other coefficients show the same pattern as in the models before: workers perceive more corruption, men see slightly more corruption, age has only a very weak effect on corruption perception, people in large towns perceive more corruption, and corruption experience has a small positive effect.

The model misfit goes down to 50 737,5, which is only slightly better than the best model without random the random slope effect (model 1 with a deviance of 50 771,9). The VPC (0,23) remains very close to the value of the intercept-only model (0,24).

Contrary to expectation, the random slope effect of education did not turn out to be significant. Therefore, it will be dropped from the model for further calculations. The next step is to include country features in the model to further explore how country effects influence corruption perception.

**Table 9** Multilevel regression model with education as random slope effect

	Index of corruption perception	
Model	M6: Education as random slope effect	
Fixed Part		
Predictor	coefficient	std err
Intercept	7,68 ***	0,37
eduyrs <sup>a</sup>	-0,02 *	0,01
class_employers <sup>b</sup>	0,24 **	0,08
class_mednonman <sup>b</sup>	0,04	0,08
class_lownonman <sup>b</sup>	0,27 ***	0,07
class_employersprimary <sup>b</sup>	0,22	0,13
class_workers <sup>b</sup>	0,31 ***	0,08
gender (men)	-0,05	0,04
age <sup>c</sup>	0,00 *	0,00
smalltown <sup>d</sup>	0,05	0,04
largetown <sup>d</sup>	0,00	0,05
correxperience	0,14 **	0,06
Random Part		
Variance residual (individual)	3,68 ***	0,05
Variance intercept (country)	1,12 ***	0,31
Variance slope (eduyrs)	0,00 *	0,00
Deviance (-2 Log Likelihood)	50737,5	
N respondents	26663	
N countries <sup>f</sup>	29	
VPC <sup>g</sup>	0,23	

\*\*\*  $p \leq 0,001$ , \*\*  $p \leq 0,01$ , \*  $p \leq 0,05$ , Unstructured variance, REML

Index of corruption perception: from 0, no corruption, to 9, a lot of corruption

<sup>a</sup> centered at compulsory education (9,5 years, for details see footnote on page x),

<sup>b</sup> class\_highnonman as reference, <sup>c</sup> centered at 15 years, <sup>d</sup> village and rural areas as reference

<sup>e</sup> centered at grand mean, <sup>f</sup> Northern Ireland and East Germany included as separate entities,

<sup>g</sup> VPC = country-level variance / ( country-level variance + individual level variance)

Eurobarometer 72.2 (European Commission 2009a)

## 6.4 Country Level Effects – Full Model

In this model, country level variables are added to the predictors. On the individual level the socio-economic factors remain in the model, except the random slope effect of education. Together, these parameters form the final model:

$$\begin{aligned} \text{Individual level:} \quad Y_{ij} &= \beta_{0j} + \beta_{1j}X_{ij} + r_{ij} & \text{Equation 6} \\ \text{Country level:} \quad \beta_{0j} &= \gamma_{00} + \gamma_{01}W_j + u_{0j} \\ \beta_{1j} &= \gamma_{10} + u_{1j} \end{aligned}$$

Using the names of the variables the final model reads:

$$\begin{aligned} \text{Individual level:} \quad Y_{ij} &= \beta_{0j} + \beta_{11}education_{ij} & \text{Equation 7} \\ &+ \beta_{12}social\ status_{ij} \\ &+ \beta_{13}age_{ij} \\ &+ \beta_{14}sex_{ij} \\ &+ \beta_{15}type\ of\ community_{ij} \\ &+ \beta_{16}corruption\ experience_{ij} + r_{ij} \\ \text{Country level:} \quad \beta_{0j} &= \gamma_{00} + \gamma_{01}ELF_j + \gamma_{02}news_j + \gamma_{03}GDP_j + u_{0j} \end{aligned}$$

Various contextual effects have been discussed in the literature. However for two effects, the discussion showed a peculiarity. They have been identified as having a specific influence on the perception of corruption with theoretical reasoning that they influence it when actual corruption experience is controlled. Therefore, this analysis will concentrate on those two factors. The first is the prevalence of the media (Rose/Mishler 2008) and the second is ethnic division (Olken 2006). The indicators for these two phenomena have already been used in previous studies: the number of newspapers as proxy for media prevalence (Rose/Mishler 2008) and the ethnolinguistic fracternalization index as indicator for ethnic diversity (e.g. Mauro 1995 and Treisman 2000). GDP per capita is included as control variable for economic development.

**Table 10** Multilevel regression model with country level variables

Index of corruption perception		
Model	M7: Country factors	
Fixed Part		
Predictor	coefficient	std err
Intercept	7,37 ***	0,37
eduyrs <sup>a</sup>	-0,03 *	0,01
class_employers <sup>b</sup>	0,20 *	0,09
class_mednonman <sup>b</sup>	0,00	0,09
class_lownonman <sup>b</sup>	0,22 **	0,08
class_employersprimary <sup>b</sup>	0,16	0,15
class_workers <sup>b</sup>	0,28 ***	0,08
gender (men)	-0,06	0,04
age <sup>c</sup>	0,00 **	0,00
smalltown <sup>d</sup>	0,05	0,05
largetown <sup>d</sup>	0,02	0,05
correxperience	0,19 **	0,06
elf <sup>e</sup>	-0,11	0,84
newspapers <sup>e</sup>	-0,01 ***	0,00
GDP <sup>e</sup>	-1,74 *	7,72
Random Part		
Variance residual (individual)	3,86 ***	0,05
Variance intercept (country)	0,46 **	0,15
Deviance (-2 Log Likelihood)		43986,2
N respondents		26663
N countries <sup>f</sup>		29
VPC <sup>g</sup>		0,11

\*\*\* p ≤ 0,001, \*\* p ≤ 0,01, \* p ≤ 0,05, Unstructured variance, REML

Index of corruption perception: from 0, no corruption, to 9, a lot of corruption

<sup>a</sup> centered at compulsory education (9,5 years, for details see footnote on page x),

<sup>b</sup> class\_highnonman as reference, <sup>c</sup> centered at 15 years, <sup>d</sup> village and rural areas as referenc

<sup>e</sup> centered at grand mean, <sup>f</sup> Northern Ireland and East Germany included as separate entities,

<sup>g</sup> VPC = country-level variance / ( country-level variance + individual level variance)

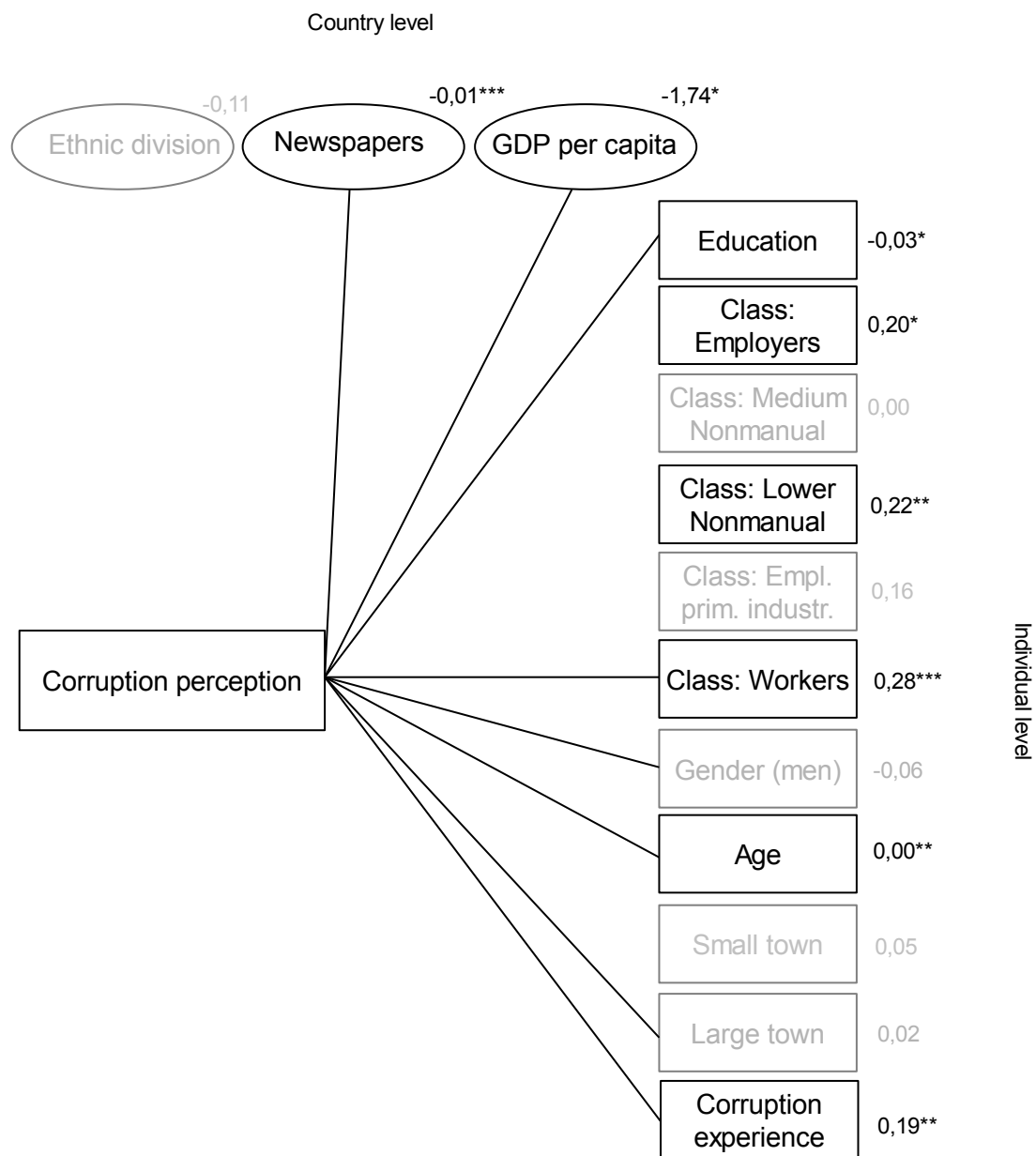
Eurobarometer 72.2 (European Commission 2009a), UNESCO 2004 (<http://stats.uis.unesco.o>

Roeder 2001, Worldbank 2008 (<http://data.worldbank.org/indicator>)

The variable for ethnic division, the ELF-index, did not turn out to be significant. Furthermore, the standard error of the coefficient is bigger than the coefficient itself.

The indicator for media prevalence, the number of newspapers, had a slight negative effect (-0,01) on the level of corruption perception and turned out significant at the 0,001-level. GDP per capita had the strongest influence among all indicators with a coefficient of -1,74 (0,05-significance level). However, its standard error is also bigger than its coefficient calling for precaution when interpreting the indicator.

**Figure 12** Final model: individual and country level effects



The individual level variables remained in the pattern of the previous models. Although, the effect sizes of the country level variables are small, a big share of the variance is explained on group level. This is demonstrated through the VPC going down by more than 50 % from 0,24 in the intercept-only model to 0,11 in the present model. Thus, more than half of the country level variance is explained through the insertion of these three country level variables. The remaining 11 % of the variance is explained through random variation between the countries, which could not be explained through any of the country variables.

In the next chapter, the results will be discussed in more detail.

## 7. Results

The analysis of the models already showed the significant factors in this study and gave various hints about the direction of the results. In this chapter, the hypotheses, which were formulated in chapter four, will be evaluated systematically according to the outcomes of the respective models in the previous chapter.

Gender did not produce any significant results except for one model (model five). The influence was negative signifying that men perceive slightly less corruption. But since in all other models the variable did not prove to be relevant, the conclusion for this dataset can only be that gender does not have any notable influence on corruption perception. The hypotheses that male respondents (H8) perceive more corruption cannot be fully rejected with the data. The result in this study rather reflects the inconsistency of previous research. Olken (2006) found men perceiving more corruption, but Smith (2008) found them to perceive less. Swamy et al. (2001) showed female gender as a reducing factor of corruption, but this was criticized by others (cf. Lambsdorff 2005a: 26). The findings of this study further point in the direction that in fact genders does not have a high relevance in itself for corruption perception. When other factors, like employment or education, are included, possible effects of gender become insignificant.

The size of the community the respondent lives in was not very relevant either in this study (H9). Similar to gender, the size of community has produced contradictory findings so far. Living in a large town had a negative influence on corruption perception according to Donchev/Ujhelyi (2008: 21) and a positive according to Smith (2008: 17). In the EB dataset, the effect of living in small towns resulted in slightly more corruption perception than that of living in villages (significant in the models three, four, and five). But living in a large town did not prove significant in any of the models. The hypotheses that a bigger size of the community lead to less corruption perception can therefore neither be accepted nor rejected with this data.

Age was the third factor on which previous research was contradictory with a non-linear correlation in Donchev/Ujhelyi (2006) and a negative correlation in Smith (2008). The data of this study does not show any effect at all. Bivariate regression scatterplots for all countries show that the correlation is in some countries positive, in some negative, and in some zero without any obvious pattern.<sup>34</sup> Therefore, the hypothesis that age leads to less corruption perception (H7) can neither be falsified nor verified with this data.

Without any theory and rather inconsistent results the influence of gender, size of town, and age on corruption perception remains unclear.

The effects of the questions, whether the respondent works or whether he or she is unemployed, were tested in the multilevel regression models two and three (table seven). There were two hypotheses: On the one hand, that people who work perceive more corruption (H5) since they have more contacts with other people than those who do not work (Smith 2008, Rose/Mishler 2008) and therefore, they have more possibilities for corruption. On the other hand, there is theoretical reasoning that people who are unemployed perceive more corruption (H6) since they mistrust society (Čábelková/Hanousek 2004). In fact, the two hypotheses act like two opposites. If those who are working see more corruption than the rest, they also see more than the unemployed since the unemployed are also included in the

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<sup>34</sup> Table III in appendix.

comparison group of those “not working”. If the unemployed see more corruption, working people should see less due to the same reason.

The result shows that those who work perceive less corruption (H5). They have a score which is 0,1 points lower (0,001-significance level) on the index of corruption perception than those who are not working (i.e. studying, unemployed, at home, or retired). This result is against hypothesis five. Those who are unemployed, on the contrary, see more corruption in society. They score 0,15 points higher (0,01-significance level) on the index of corruption perception than those who are employed.<sup>35</sup> The conclusion is that the result rather points in the direction of the theory of corruption perception reflecting the feeling of being excluded from society or of distrust towards the institutions of a state than in the direction that corruption perception is a valid and precise indicator of corruption.

On the aggregate level, it was tested whether higher ethnic heterogeneity created a higher level of perceived corruption as proposed by Olken (2006: 22). The hypothesis (H11) was tested with the ELF index and the result was not significant. The influence of ethnic division cannot be shown for the European population.

The influence of media prevalence on corruption perception was hypothesised (H12) to be positive according to the research by Rose/Mishler (2008). They suggested an echo chamber effect creating higher levels of corruption perception through cross-level interaction between corruption perception and newspaper circulation. This dataset showed a different effect. Media prevalence, proxied through the number of printed newspapers per country, produced a slight negative effect on corruption perception which was significant (-0,01 points, 0,001-significance level). Therefore, the number of newspapers lowers corruption perception.

Now, let us turn to the more influential variables in the multilevel regression model. The first hypothesis was that social status determines corruption perception

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<sup>35</sup> Students, those at home, and the retired were excluded as missing values.

(H1). The results of the analysis show that all factors, which determine the social standing of an individual, are significant. From the variables for social class, three out of five turned out to be significant. The social status group of medium-level nonmanual employees showed an answering pattern very similar to the one of the higher-level nonmanual employees. Therefore, it did not turn out significant. Subjective social standing, measured through self-placement in society, is significant as well. Education, a variable in its own right, but also another indicator for social status, was significant as well. The importance of those determinants is further underlined by the size of their effects. They are always the most influential factors in the models. Therefore, all evidence points in the direction that social status is a very important determinant of corruption perception.

Hypothesis two suggested that a higher social status leads to less corruption perception. The social class variables provide a more complex picture. Higher-level nonmanual employees were chosen as comparison group since this comparison showed the strongest contrast to the other class groups.<sup>36</sup> Lower-level nonmanual employees and workers perceive considerably more corruption: 0,25 points more for lower-level employees and 0,31 points for workers (both significant at the 0,001-level). Surprisingly, employers also perceive more corruption than higher-level employees (0,22 points, 0,01-significance level). Medium-level employees not producing a significant result has already been explained and is due to the similarity of their answering pattern with the higher-level employees. Employers from the primary industries did not show a significant result either. This could be due to the fact that structural changes in society have altered class patterns and that the class model of Erikson, Goldthorpe, and Portocarero (cf. Erikson/Golthorpe 1993) does not reflect current structures anymore.

In general, this result shows that workers and employees in low-level positions perceive more corruption than employees in medium or high ranks. But the highest social status group, the employers, also see more corruption than medium- or high-level employees. On the one hand, this could be due to country effects that have not

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36 Several combinations with different dummy variables were tested.

been tested here, as for instance different class compositions. Another ad-hoc interpretation could be that in contrast to lower-level employees and workers, employers do not answer in protest, but out of knowledge of the real corruption level. An interpretation could be that in contrast to medium- and high-level employees, who apparently see less corruption than all other groups, employers might know the real extent of corruption and therefore also report to perceive more corruption. At this point, the current analysis comes to its end. It shows that more research is needed in order to understand the interconnections between social class and corruption perception.

The variable of subjective social status, measured through the self-assessment of one's social status, pointed in a similar direction as the previous results with social class. People with higher self-assessment perceived less corruption. One step on the 10-point scale leads to a drop of 0,04 points (0,001-significance level) on the index of corruption perception. Between a person putting itself in the lowest position and a person who puts itself in the highest position is a difference of 0,4 points.

Finally, that leads to the hypothesis that more education reduces corruption perception (H3). In fact in model 1, education causes a drop of 0,02 points on the 9-point index of corruption perception for each year of education. This means that the difference between someone who finished education at the age of 15 – the common end of compulsory education in Europe – and someone who finished education at the age of 25 – usually someone with an academic degree – is 0,2 points on the index. This result is consistent with the hypothesis that higher education leads to less corruption perception. The reason why the influence is not stronger becomes clearer with the next result.

In the hypotheses 4.1, 4.2, and 4.3, it was suggested that education has a different effect in each country depending on the general level of corruption perception. A similar effect has already been found by Smith (2008) with data from the ISSP for the impact of socio-economic status. The effect that education has a negative correlation with corruption perception in countries with a low level of general corruption perception, a zero correlation in countries with a medium level of general

corruption perception, and a positive correlation in countries with a high level of general corruption perception generally could be observed in the graphic presentation of the data. Bivariate scatterplots of education and corruption perception showed education having a varying effect in different countries. The multilevel regression analysis, however, could not confirm the significance of this effect. Therefore, this finding can only serve as a preliminary guide for future research.

The last hypothesis to address is the effect of corruption experience on corruption perception (H10). The assumption that corruption experience has a positive influence on corruption perception is the basic idea of corruption measurement. This study provides data indicating that corruption experience has a significant influence on corruption perception. In most models, corruption experience caused a significant rise of 0,09 to 0,19 points in corruption perception between someone who has not experienced corruption and someone who has encountered a bribery demand. In one model – the model where the difficulty to pay monthly bills was used as social status predictor –, corruption experience was not significant. It shows that corruption perception measurement has some correlation to the actual appearance of corruption. But it becomes clear that the size of the effect is less than the effects of some other influential factors like social status or education. Socio-economic factors can even become so influential that corruption experience loses its effect at all, as it could be seen in model four.

Some studies (e.g. Smith 2008) suggest that corruption perception should be rather interpreted as an indicator for trust in institutions, politics, or society than an indicator for corruption. Empirical results from this analysis show that social status indicators are stronger predictors of corruption perception than the actual experience of corruption. This finding supports the thesis corruption perception might reflect something else than corruption. In order to test the hypothesis that corruption perception is an indicator for trust, two trust variables were tested in further multilevel models.

### Confirmation of the Results With Data From 2005 and 2007

After having examined in detail the most recent data from 2009, the major findings were compared with data from 2005 and 2007. Separate multilevel regression models for each year were examined for differences and similarities.

The main trend shows that the corruption perception level sank from 2005 to 2007 and rose again in 2009. This can be seen in the intercept-only models for each year. The mean score of the index of corruption perception went down from 6,37 points (2005) to 6,27 points (2007) and up again to 6,69 points (2009). Detailed rankings with means of the index of corruption perception are available in the appendix in table IV.

The social class model was chosen for comparing socio-economic effects across time. The results of the three models are presented in table eleven. All effect models have approximately the same model misfit with a deviance around 100 000 in the empty model and around 50 000 in the effect model. In all 3 years, the social status model reduces the model misfit about 50 %.

All major coefficients point in the same direction and have similar strength in all three years. Gender and age do not show noteworthy results. Living in a large town results in more perceived corruption in 2005, but the effect vanishes in the following years. Education has a negative influence on corruption perception with an effect of 0,2 to 0,3 points per year of education. Employers, lower-level nonmanual employees and workers perceive more corruption than higher-level nonmanual employees. The coefficients lose strength in 2007 and 2009, but they still remain the most influential predictors of corruption perception.

**Table 11** Multilevel regression models of corruption perception in the years 2005, 2007, 2009

Model	2005				2007				2009			
	Intercept-only		Social class		Intercept-only		Social class		Intercept-only		Social class	
Fixed Part												
Predictor	coefficient	std err	coefficient	std err	coefficient	std err	coefficient	std err	coefficient	std err	coefficient	std err
Intercept	6,37 ***	0,22	7,72 ***	0,40	6,27 ***	0,23	7,33 ***	0,39	6,69 ***	0,21	7,53 ***	0,38
eduyrs <sup>a</sup>			-0,03 ***	0,01			-0,03 ***	0,01			-0,02 ***	0,01
class_employers <sup>b</sup>			0,38 ***	0,09			0,29 ***	0,09			0,22 **	0,08
class_mednonman <sup>b</sup>			0,13	0,09			0,09	0,08			0,02	0,08
class_lownonman <sup>b</sup>			0,32 ***	0,08			0,29 ***	0,07			0,25 ***	0,07
class_employprimary <sup>b</sup>			0,08	0,14			0,02	0,13			0,12	0,13
class_workers <sup>b</sup>			0,37 ***	0,08			0,34 ***	0,08			0,28 ***	0,08
gender (male)			0,01	0,04			-0,08 *	0,04			-0,04	0,04
age <sup>c</sup>			0,00 *	0,00			0,00	0,00			0,00 *	0,00
smalltown <sup>d</sup>			0,01	0,05			0,00	0,04			0,05	0,04
largetown <sup>d</sup>			0,12 *	0,05			-0,02	0,05			0,01	0,04
correxperience			0,47 ***	0,06			0,24 ***	0,06			0,15 **	0,06
Random Part												
Variance residual (individual)	4,22 ***	0,04	4,05 ***	0,05	4,02 ***	0,04	3,89 ***	0,05	3,83 ***	0,03	3,70 ***	0,05
Variance intercept (country)	1,30 ***	0,36	1,36 ***	0,38	1,54 ***	0,41	1,60 ***	0,43	1,22 ***	0,33	1,31 **	0,35
Deviance (Log Likelihood)	97031,7		48069,4		104745,0		52091,5		106668,3		50771,9	
N respondents	26643		26643		26730		26730		26663		26663	
N countries <sup>e</sup>	27		27		29		29		29		29	
VPC <sup>f</sup>	0,24		0,25		0,28		0,29		0,24		0,26	

\*\*\* p ≤ 0,001, \*\* p ≤ 0,01, \* p ≤ 0,05, Unstructured variance, REML

<sup>a</sup> centered at compulsory education (9,5 years, for details see footnote on page x), <sup>b</sup> class\_highnonman as reference, <sup>c</sup> centered at 15 years, <sup>d</sup> village as reference,

<sup>e</sup> Northern Ireland and East Germany included as separate entities, <sup>f</sup> VPC = country-level variance / ( country-level variance + individual level variance)

Eurobarometer 72.2 (European Commission 2009a), Eurobarometer 68.2 (2007), Eurobarometer 64.3 (2005)

Corruption experience is significant in all three years. In 2005, it had the largest coefficient in the model with 0,47 points more on the index of corruption perception. The effect size sank in 2007 to 0,24 points and went below the effect sizes of the social class variables. It sank again in 2009 down to 0,15 points. However, all coefficients lose effect size considerably in the year 2009. The rising level of corruption perception could be an explanation. This result can be read as another evidence that corruption perception reacts much stronger to dissatisfaction with society or political institutions than to real experienced corruption.

Since there are no questions on trust included in the EB 72.2, a direct correlation on individual level cannot be shown. Therefore, two different trust indicators were included as aggregated country level variables with figures from the World Value Survey (WVS) (result in appendix, table V). Trust questions were included in two separate waves of the WVS. In a study wave from 1990 to 1999, the question was included whether to trust other people in one's country or not. To compute a trust figure, the two answer possibilities "trust completely" and "trust a little" were aggregated. The percent of people in a country saying that they trusted other people completely or a little was taken as country variable. This indicator did not prove significant.

Another question on trust was included in the wave from 2005 to 2007.<sup>37</sup> The question was whether most people can be trusted. Here, the percentage of "yes" answers was taken as country variable. This indicator turned out significantly with a slightly negative influence (-0,02 points). In both models, the VPC did not go down. This indicates that the country level effect of trust did not explain any considerable amount of country variance. Aggregated data obviously does not lead far in this context. Further research with individual level data on trust is certainly needed to develop more understanding of the relationship between trust and corruption perception.

Before turning to the final chapter where conclusions from this study will be discussed, some remarks should be made on the limitations of this analysis. Depending on the rigour of one's statistical standards, one could question the assumptions leading to a multilevel regression analysis. As mentioned, there are several views in literature about how many entities have to be included on the aggregate or group level. In this study, 29 entities were included on the group level – 27 countries and two major regions. Some researchers call for 30 or more groups. However, empirical research often operates with much less groups.

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<sup>37</sup> Data is only available for 13 European countries.

The structure of the data is another argument to maintain the assumption that in this case a multilevel regression analysis is advisable. As could be seen in the scatterplots of education and corruption perception the data is clearly structured by groups. The impact of country level effects also was shown by the sinking value of the VPC when country variables were introduced into the model.

A common criticism of cross-country studies is the fact that they take such a broad look on a phenomenon that they are unable to explain particular country features and reasons for country specific developments. It was not the aim of this study to explain in detail country characteristics or dwell on certain peculiarities that distinguish one country from another. Certainly, this would be a very valuable approach and in fact corruption studies need much more future research towards this direction. Here, the aim was showing the way corruption perceptions are formed by socio-structural determinants. This can be shown best with quantitative cross-country analysis.

The question, whether corruption experience is a good indicator of corruption at all, is a completely different issue. If people experience corruption, they mostly have experiences with street corruption. One could argue that in order to measure grand corruption a measurement through perception is necessary. Optimists could say that the gap between experienced street corruption and the overall corruption perception level is grand corruption, which we cannot measure directly. The theory would then be that the public can “feel” the extent of grand corruption. To argue in this way would not only be unscientific, but it can also be proven as empirically untrue with the mere fact that corruption perceptions quickly respond to publicised scandals. If a political corruption case comes to light the perceptions go up, as it could be shown for several European countries in 2009 (European Commission 2009b). There will be examples of this in the conclusion in the last chapter. But it has been already discussed here that the publicity of a scandal does not say much about the actual level of corruption. Corruption scandals becoming public mostly concern cases which happened several years ago. Therefore, the perception level should have risen at the time when the case happened. But then, obviously no one knew about it and, therefore, could not include it in his or her perception of the corruption level.

Certainly, it is necessary to do more research on corruption experience and corruption victimization in the future. This study can only show how socio-economic factors and corruption experience form corruption perceptions. To discuss implications of this analysis let us turn to the last chapter.

## 8. Conclusion

Corruption causes serious problems for individuals and societies. Many studies have illustrated that corruption is indeed an important issue deserving all possible attention by social scientist. In the ever growing literature on corruption, more and more scientists raise questions about the problem of the measurement of corruption. The challenge of measuring it is essential to the whole research. When working with corruption, researchers are dealing with an issue, which faces social and legal disapproval with the consequence that corrupt behaviour is kept in secrecy. Getting straight answers from respondents about corrupt behaviour is difficult. The same is true for the observation of corruption. Subsequently, the most common approach is to ask either experts or the general public how much corruption they perceive in their country. It is believed that the perception of corruption acts as a feasible indicator for the real level of corruption. Now, this assumption that subjective assessment correlates closely with actual behaviour can be challenged.

Several studies, which have been discussed in detail in this paper (for instance Olken 2006, Donchev/Ujhelyi 2008, Rose/Mishler 2008, Smith 2008), brought empirical evidence that there is in fact a difference between the mere perception of corruption and the actual occurrence of the phenomenon. Most of these studies included victimization or experience as indicator. This means that the respondents are asked about the actual experience of corruption or attempts of corrupt behaviour. Methodologically, this is a much better indicator for corruption since researchers are dealing with reports about behaviour and not with perceptions or mere opinions.<sup>38</sup>

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<sup>38</sup> It has to be noted that the respondents are not asked about their own behaviour, but about the behaviour of someone else, who is the corruptee. The question in the EB asks whether they have been approached with demands for undue money. It does not ask whether the respondent offered it him- or herself. Of course, this is the only way to get any information at all since offering corruption mostly is illegal. It would be very difficult to motivate respondents to report their own illegal activity.

The literature shows differences between corruption perception and corruption experience and that sometimes the correlation between the two is not even very strong. These studies also make it clear that corruption perception is influenced by socio-economic determinants. The conclusion is that corruption perception seems to be much more of an indicator for social or political trust, dissatisfaction with politics, the society, or the respondent's social situation. Here, this thesis was tested with a new dataset covering more European countries than in any other study before.

In this paper, a 2009 dataset of 27 European countries was analysed. The data came from the EB surveys and includes both questions about corruption perception and corruption experience. In order to give full consideration to country effects, the data was analysed with a multilevel regression analysis. Variables from the individual level and from the country level were analysed. The variables on the individual level were the socio-economic characteristics of the respondents as well as their opinions and reports about their behaviour. On the country level, the variables were ethnic heterogeneity, media prevalence within the countries, and as control variable GDP. In total, 26 663 individuals from 27 countries were included in the dataset. The findings of this analysis have been confirmed with data from 2005 and 2007 as well.

The main result is that corruption perceptions are strongly determined by socio-economic factors. Corruption perception closely correlates with the social status, measured either through social class or subjective social status. It also correlates with educational status, with unemployment, with the question whether one is working, and with the difficulty to pay monthly bills. In terms of social class and subjective social status, respondents with a lower social status report to perceive more corruption than higher-level and medium-level employees. However, also employers perceive more corruption than these two groups. Respondents with a lower educational level perceive more corruption. Unemployment is the third major factor leading to more corruption perception. The fact, the inability of the respondent to pay the bills at the end of the month highly correlates with more corruption perception. This summarizes the previous effects of social status. Those who have a lower educational status, a lower social status, or those who do not have

employment are often those who also have difficulties to pay their bills. Therefore, corruption perception seems to contain a considerable amount of social disappointment, social exclusion, disenchantment with politics, or the feeling of being unfairly treated. Other researchers came to similar conclusions (cf. Smith 2008, Smith/Matejku 2009). As already mentioned earlier, the motto of those who perceive a lot of corruption can be summarized as “Those at the top, they are all corrupt!” An analysis with an alternative index additionally containing the question whether corruption was a “major problem” in the country brought further evidence for this argument. The question is considered as even more subjective in terms of perceiving the spread of corruption since it leaves it to the respondent to assess the urgency of the problem in comparison to other problems in the respondent’s life or country. It turned out that socio-economic background variables had an even stronger influence on this new index. It is hypothesized that feelings of distrust in institutions, dissatisfaction and disenchantment with politics became even more important in the answer to this question underlining the subjectiveness of corruption perception in general.

In the light of this result, corruption perception should be understood differently and taken with some scepticism when used as an indicator of actual corruption. In the wide literature on corruption, this point usually is not considered. Dozens of empirical studies on corruption use corruption perception as indicator for corruption. All these results may be interpreted differently with this new knowledge kept in mind.

However, this does not mean that there is no correlation at all between actual corruption and corruption perception. Corruption experience has a positive influence on corruption perception. Those, who have personally faced a demand of corrupt money, perceive – all other things being equal – more corruption than those who have not. Compared to other factors, corruption experience is a weak predictor of corruption perception. In all models, other factors than corruption experience had stronger correlations with corruption perception. There is a share of real corruption included in corruption perception measurements. However, other factors – mainly social status and education – bias it away from actual corruption.

The conclusion of this analysis serves as the right moment to ask again why it is so important to work with an unbiased measurement of corruption after all. First of all, researchers want to measure what they aim to measure. It is a question of the mere validity of corruption measurements. In the end, it is also a question of standards of scientific quality. Secondly, there are several actors in politics, administration, and the business world who's work relies on the information of such measurements. Governments, anti-corruption agencies, police forces, aid organizations, political parties, and business companies arrange their work or parts of it accordingly to corruption standards. To give just one example out of many: the eligibility of US aid under the Millennium Challenge Account is directly linked to corruption perception (Treisman 2007: 222).

Andersson/Heywood (2008) give an impressive overview of how corruption perception measurements have directly influenced policies and politicians all over the world. Donors have stopped their aid commitment after their target country dropped in a ranking of corruption perception. Prime, interior, and justices ministers of several countries directly referred to corruption perception measurements in their political statements and strategies. Entire countries have based their anti-corruption policies on how they performed in corruption perception rankings like the CPI. It becomes very clear it is crucial to the corruption debate that policy makers are able to rely on the measurements. If corruption is measured through perception, many other dimensions than corruption find their way into the outcome of the measurement and blur the view on the actual phenomenon.

Thirdly, anti-corruption agencies want to know whether their work bears fruit. The impact of anti-corruption efforts is very hard to measure. The tools currently available fully rely on corruption perception. But after a anti-corruption campaign, the level of perception goes up. Higher attention by the media and the public let corruption perceptions rise, although the real level might go down if the effort was successful (cf. Seligson 2006: 390). Anti-corruption practitioners from various international agencies raise this point themselves and call for measures to evaluate their efforts (see Hetzer 2010: 26, Langseth 2006: 25).

It is a well documented fact that public corruption scandals lead to more corruption perception. The latest report by the European Commission on the results of the EB 72.2 (European Commission 2009b: 11) lists recent corruption scandals in Europe. A corruption and party financing scandal among politicians in Finland lead to an increase from 25 % to 51 % of the proportion of the population believing corruption is a major problem in Finland in the year 2009. In Austria, well publicised corruption scandals involving politicians led to an increase from 47 % to 61 %. In Malta and Great Britain, other scandals led to an increase in the percentage of the population thinking their country has a big problem with corruption from 84 % to 95 % in Malta and from 65 % to 74 % in Great Britain. But has corruption itself increased exactly in this period? Probably not, since corruption scandals, which become public mostly treat cases several years back. Even if it had increased, it is doubtable that it has increased with the same magnitude.

More perception of any phenomenon can slowly lead to its acceptance. That is also true for corruption. If everyone pays a bribe, the social norms initially sanctioning this behaviour can gradually become undermined. Čábelková/Hanousek (2004) even found evidence that higher corruption perceptions lead to a greater willingness to pay bribes.

This study underlines the need for more research on how corruption perceptions form. The simple calculation that corruption perception equals corruption does not hold any longer. Although, this finding becomes more and more established in academic research, it is still unknown beyond the scientific community.

Especially in population surveys, corruption experience or victimization serves as a better indicator. The average citizen cannot have insight into corruption in major business transactions or in procurement processes of the administration. Corruption perceptions in the general public are furthermore influenced by socio-economic factors outbalancing corruption experience. Expert surveys are made with the assumption that the experts have a deeper insight in their field of expertise or in their (business) sector they report on. The results of this analysis suggest to study the

formation of corruption perception for business experts and analysts as well. In the meantime, their perceptions should be used with precaution.

The above mentioned difference between the views of citizens and experts call attention to the issue of street corruption and grand corruption. Thoroughly analysing this question would have gone beyond the scope of this paper. Nonetheless, the problem should be outlined here. When general corruption levels are surveyed or when the question is asked, whether corruption poses a problem to a certain country, these two different kinds of corruption get mixed. Street corruption is the type where police officers, judges, ordinary officials, or doctors demand a comparatively low amount of money in order to provide a service. Grand corruption, on the contrary, deals with much higher sums and is often structured in systematic corruption schemes. When in population surveys people are asked about general corruption levels, they have to judge about a problem, which they can at best assess only partially. A clearer distinction between street and grand corruption would make corruption studies more effective in the future.

It is also important to explore other objective indicators of corruption. There are still many possibilities to improve research on corruption through alternative ways to measure corruption. Daniel Kaufmann published a long list in 1998 (148) which is still relevant today. In this paper, he proposes that in the future, researchers should analyse procurement data, public investment and expenditure reviews, balance of payments (BOP) data, custom data, tax collection data, jurimetric data to measure processing times, and data about the unofficial economy among others. Most of suchlike analyses have not been performed yet.

Even with new objective indicators coming up, corruption perception will continue to play an important role since it is not irrelevant whether people believe that certain parts of society are corrupt. Even if, in a distant future, corruption had seized from society, but still people thought the society to be corrupt, it would be important to know. Keeping the limitations of corruption perception as an indicator of corruption in mind, it will be important to combine corruption perception and corruption experience as measures for corruption. Therefore, more research on

corruption perception and corruption experience is needed. This analysis emphasized that socio-economic indicators influence how people perceive corruption. This should serve as background for further studies.

## 9. Zusammenfassung Deutsch

### **„Das Messen von Korruption – Sozio-ökonomische Determinanten der Korruptionswahrnehmung und die Rolle tatsächlichen Erlebens von Korruption“**

Die problematischen Auswirkungen von Korruption und die Verbreitung von Korruption in der Gesellschaft erfuhren in den letzten Jahren erhöhte Aufmerksamkeit durch Politik, Wirtschaft, Medien und Zivilgesellschaft. Auch die wissenschaftliche Auseinandersetzung mit dem Thema intensivierte sich (vgl. Lambsdorff 2005a), nicht zuletzt begründet durch die weite Verbreitung von Korruptionsindizes, wie etwa dem Corruption Perception Index von Transparency International, die die Durchführung von Länder vergleichenden Makrostudien begünstigt haben. Neben diesen Indizes, die auf Expertenumfragen basieren, gibt es Bevölkerungsumfragen, die das Korruptionsniveau in der Gesamtbevölkerung einzuschätzen versuchen. Den meisten Messmethoden, sowohl in Experten-, wie auch in Bevölkerungsumfragen, liegt eine Messung über die Wahrnehmung von Korruption zugrunde.

Eine Reihe neuerer Studien (Olken 2006, Donchev/Ujhelyi 2008, Rose/Mishler 2008, Smith 2008) hat sich mit der Validität der Korruptionswahrnehmungsmessung, besonders in Bevölkerungsumfragen, befasst. Diese Mikroanalysen fanden heraus, dass Korruptionswahrnehmung von einer Reihe an sozio-ökonomischen Faktoren beeinflusst wird. Das tatsächliche persönliche Erleben von Korruption korreliert nur schwach mit Korruptionswahrnehmung.

In dieser Arbeit wurde ein Datensatz des Eurobarometer 72.2 von 2009 (European Commission 2009a) mit 26 663 Personen aus 27 Ländern untersucht. Die Umfrage ist repräsentativ für die Europäische Union und umfasst so viele europäische Länder wie keine vergleichbare Studie zuvor. Um kontextualen Einflüssen, die in einem Ländervergleich naturgemäß eine große Rolle spielen, besondere Aufmerksamkeit zu widmen, wurden die Daten mit einem Multilevel-Regressions-Modell analysiert.

Als abhängige Variable diente ein Korruptionswahrnehmungsindex, der aus drei Korruptionswahrnehmungsfragen des Eurobarometers gebildet wurde. Die Fragen, ob Korruption auf lokaler, regionaler bzw. nationaler Ebene im jeweiligen Land existiert, führen zu einem Index von 0 Punkten (keine Korruption) bis 9 Punkten (sehr viel Korruption). Als unabhängige Variablen auf der individuellen Ebene flossen Alter, Geschlecht, Bildung, sozialer Status (gemessen durch soziale Klasse, bzw. Selbsteinschätzung des sozialen Status), die Größe des Wohnortes, die Schwierigkeit monatlich Rechnungen zu bezahlen, und tatsächlich erlebte Korruption in das Modell ein. Durch die Einbeziehung der Variablen erlebte Korruption bzw. Korruptionsviktimisierung konnte für tatsächlich erfahrene Korruption kontrolliert werden. Auf Länderebene flossen drei Indikatoren ein: der Ethnolinguistic-Fractionalization-Index, zur Messung ethnischer Pluralität, die Anzahl an Zeitungen pro 1 000 Einwohner, zur Messung von Medienverbreitung, und das Bruttoinlandsprodukt als Kontrollvariable.

Das Ergebnis der Analyse zeigt, dass sozio-ökonomische Faktoren eine wichtige Rolle bei der Bildung von Korruptionswahrnehmung spielen. Untere Angestellte und Arbeiter nehmen mehr Korruption wahr als höhere und mittlere Angestellte. Allerdings nehmen auch Arbeitgeber (employers) mehr Korruption wahr als höhere und mittlere Angestellte. Bei Bildung zeigte sich generell ein negativer Zusammenhang mit der Korruptionswahrnehmung, der jedoch in Ländern mit höherem Korruptionswahrnehmungsniveau abklingt und zum Teil positiv wird. Tatsächliches Erleben von Korruption hat einen positiven Effekt auf Korruptionswahrnehmung. Dieser Effekt ist jedoch schwächer als jener von sozio-ökonomischer Variablen. Eine hohe Anzahl an Zeitungen führt ebenfalls zu weniger Korruptionswahrnehmung.

In der Literatur (vgl. Smith 2008, Smith/Matejku 2009) wird vermutet, dass Korruptionswahrnehmung eher einen Indikator für soziale Unzufriedenheit darstellt – im Sinne von „die da oben sind alle korrupt“ – als ein Maß für tatsächlich existierende Korruption. Die gilt insbesondere für Bevölkerungsumfragen.

Die praktische Bedeutung dieser Ergebnisse ist nicht zu unterschätzen. Besonders für Anti-Korruptionskampagnen ist es von großer Wichtigkeit ihre Ergebnisse messen zu können. Diese Forderung wird von Praktikern immer wieder betont (Hetzer 2010: 26, Langseth 2006: 25). Ist eine Kampagne bzw. eine rechtliche oder politische Maßnahme erfolgreich, wird die Korruptionswahrnehmung aufgrund erhöhter Kommunikation über das Thema und nicht zuletzt durch mediale Berichterstattung unweigerlich in die Höhe gehen. Das wird auch dann geschehen, wenn die tatsächliche Korruption (aufgrund des Erfolges einer Maßnahme) zurückgeht (Seligson 2006: 390). Um Korruption valide zu messen sollten in der Praxis Wahrnehmungs- und Erlebens- bzw. Viktimisierungsmaße zumindest kombiniert werden. Im Zweifelsfall dürfte Korruptionserleben der validere Indikator sein. Die Herausbildung von Korruptionswahrnehmung muss jedoch noch weiter erforscht werden, um sie vollständig zu verstehen. Die Erkenntnisse dieser Studie zum Einfluss sozio-ökonomischer Faktoren, insbesondere sozialer Status und Bildung, und die Rolle von Korruptionserleben, bieten eine Basis für weitere Untersuchungen.

## 10. Literature

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## 11. Appendix

**Table I** Country level variables

Country	Daily Newspapers per 1 000 people,	Ethnolinguistic Fracternalization
Belgium	164,68	0,59
Denmark	352,77	0,06
Germany West	267,47	0,14
Germany East		0,01
Greece		0,09
Spain	144,48	0,46
Finland	431,07	0,13
France	163,14	0,32
Ireland	182,41	0,03
Italy	137,10	0,11
Luxembourg	254,50	0,43
Netherlands	307,50	0,35
Austria	311,39	0,15
Portugal		0,01
Sweden	480,57	0,14
Great Britain	289,75	0,39
Northern Ireland		
Cyprus		0,33
Czech Republic	182,55	0,11
Estonia	190,60	0,53
Hungary	217,04	0,01
Latvia	154,11	0,61
Lithuania	107,84	0,35
Malta		0,07
Poland	113,60	0,04
Slovakia	125,69	0,24
Slovenia	172,80	0,18
Bulgaria	78,98	0,23
Romania	70,33	0,21
Definition	Daily newspapers refer to those published at least four times a week and calculated as average circulation or copies printed per 1 000 people, Data from 2004,	Probability that two randomly selected people from a given country will not belong to the same ethnolinguistic group as of 1985, For countries of recent formation estimations by Roeder (2001),
Source	UNESCO Institute for Statistics,	Bruck/Apenchenko (1964) updated by Roeder (2001),

**Table II** Means of the index of corruption perception

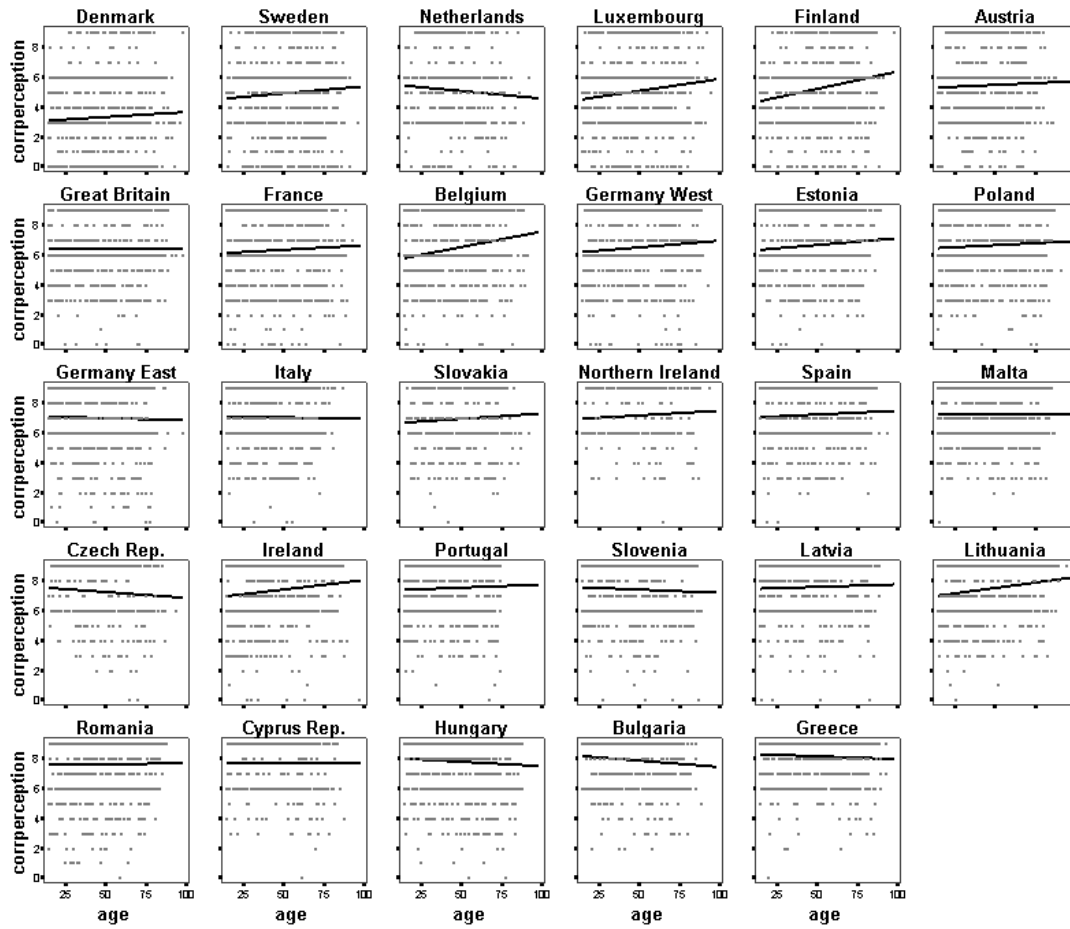
Country	Mean	Std. Dev.
Greece	8,1	1,3
Bulgaria	7,9	1,5
Hungary	7,8	1,8
Cyprus (Rep.)	7,7	1,7
Romania	7,6	1,9
Lithuania	7,6	1,7
Latvia	7,5	1,7
Slovenia	7,5	1,7
Portugal	7,4	1,8
Ireland	7,3	2,0
Czech Rep.	7,2	1,7
Malta	7,2	2,0
Spain	7,2	1,8
Northern Ireland	7,2	1,8
Slovakia	7,0	1,8
Italy	7,0	2,0
Germany East	6,9	1,9
EU-27	6,7	2,1
Poland	6,6	1,9
Estonia	6,6	2,0
Germany West	6,5	2,0
Belgium	6,5	2,0
France	6,4	1,9
Great Britain	6,3	2,2
Austria	5,4	2,1
Finland	5,3	2,3
Luxembourg	5,1	2,4
Netherlands	5,0	2,4
Sweden	4,9	2,5
Denmark	3,3	2,5

Index score of three questions: "There is corruption in local/regional/national institutions in respondent's country".

Four values for answers: Totally agree (3), Tend to agree (2), Tend to disagree (1), Totally disagree (0).

Eurobarometer 72.2 (European Commission 2009), for the EU-27 mean countries weighted for size (W22)

Table III Scatterplot age and corruption perception per country



**Table IV** Means of the index of corruption perception from Eurobarometer

2005			2007			2009		
Rank	Country	Score	Rank	Country	Score	Rank	Country	Score
1	Denmark	3,9	1	Denmark	3,3	1	Denmark	4,2
2	Finland	5,0	2	Finland	4,7	2	Sweden	6,2
3	Austria	6,2	3	The Netherlands	5,8	3	Luxembourg	6,6
4	The Netherlands	6,8	4	Sweden	6,3	4	The Netherlands	6,7
5	Sweden	6,9	5	Austria	6,7	5	Finland	7,0
6	Luxembourg	7,1	6	Luxembourg	7,1	6	Austria	7,2
7	Great Britain	7,9	7	France	7,6	7	France	8,5
8	France	8,2	8	Great Britain	7,9	8	Great Britain	8,5
9	Belgium	8,5	9	Belgium	8,1	9	Belgium	8,6
10	Germany West	8,7	10	Estonia	8,3	10	Germany West	8,7
11	Estonia	8,8	11	Malta	8,4	11	Poland	8,9
12	Spain	8,8	12	Germany West	8,5	12	Estonia	9,0
13	Northern Ireland	8,8	13	Poland	8,8	13	Italy	9,2
14	Italy	8,9	14	Ireland	8,9	14	Slovakia	9,3
15	Ireland	8,9	15	Germany East	9,0	15	Germany East	9,4
16	Malta	9,3	16	Spain	9,0	16	Northern Ireland	9,5
17	Slovenia	9,3	17	Slovakia	9,1	17	Spain	9,6
18	Latvia	9,3	18	Italy	9,2	18	Czech Republic	9,6
19	Germany East	9,4	19	Northern Ireland	9,2	19	Malta	9,9
20	Slovakia	9,5	20	Slovenia	9,2	20	Ireland	9,9
21	Cyprus (Republic)	9,5	21	Latvia	9,3	21	Latvia	9,9
22	Czech Republic	9,7	22	Cyprus (Republic)	9,4	22	Portugal	9,9
23	Lithuania	9,8	23	Czech Republic	9,6	23	Lithuania	10,0
24	Poland	9,9	24	Lithuania	9,8	24	Slovenia	10,1
25	Portugal	10,0	25	Portugal	9,8	25	Romania	10,3
26	Hungary	10,0	26	Hungary	10,2	26	Cyprus (Republic)	10,3
27	Greece	10,5	27	Bulgaria	10,4	27	Hungary	10,5
			28	Romania	10,5	28	Bulgaria	10,7
			29	Greece	10,5	29	Greece	10,9
	EU25	8,6		EU25	8,4		EU25	8,8
				EU27	8,5		EU27	8,9

Eurobarometer 64.3 (European Commission 2005), Eurobarometer 68.2 (European Commission 2007),

Eurobarometer 72.2 (European Commission 2009). For EU25 and EU27 weighted for country size

**Table V** Models with country variable “trust”

	Index of corruption perception		Index of corruption perception	
Model	M8: Country factor: trust1		M9: Country factor: trust2	
Fixed Part				
Predictor	coefficient	std err	coefficient	std err
Intercept	7,61 ***	0,39	7,33 ***	0,40
eduyrs <sup>a</sup>	-0,02 *	0,01	-0,02 *	0,01
class_employers <sup>b</sup>	0,24 **	0,09	0,24 **	0,08
class_mednonman <sup>b</sup>	0,06	0,08	0,04	0,08
class_lownonman <sup>b</sup>	0,26 ***	0,08	0,27 ***	0,07
class_employersprimary <sup>b</sup>	0,25	0,15	0,22	0,13
class_workers <sup>b</sup>	0,32 ***	0,08	0,31 ***	0,08
gender (men)	-0,05	0,04	-0,05	0,04
age <sup>c</sup>	0,00 *	0,00	0,00 *	0,00
smalltown <sup>d</sup>	0,05	0,05	0,05	0,04
largetown <sup>d</sup>	-3,75	0,05	0,00	0,05
correxperience	0,14 *	0,06	0,14 **	0,06
trust <sup>e</sup>	-0,02	0,01	-0,02 *	0,01
Random Part				
Variance residual (individual)	3,79 ***	0,05	3,79 ***	0,05
Variance intercept (country)	1,08 ***	0,32	1,08 ***	0,32
Variance slope (eduyrs)	0,00 *	0,00	0,00 *	0,00
Deviance (-2 Log Likelihood)		47139,6		50740,2
N respondents		26663		26663
N countries <sup>f</sup>		29		29
VPC <sup>g</sup>		0,22		0,22

\*\*\*  $p \leq 0,001$ , \*\*  $p \leq 0,01$ , \*  $p \leq 0,05$ , Unstructured variance, REML

Index of corruption perception: from 0, no corruption, to 9, a lot of corruption

<sup>a</sup> centered at compulsory education (9,5 years, for details see footnote on page x),

<sup>b</sup> class\_highnonman as reference, <sup>c</sup> centered at 15 years, <sup>d</sup> village and rural areas as reference,

<sup>e</sup> centered at grand mean, <sup>f</sup> Northern Ireland and East Germany included as separate entities,

<sup>g</sup> VPC = country-level variance / ( country-level variance + individual level variance)

Eurobarometer 72.2 (European Commission 2009), World Value Survey 1990-1999, 2005-2007 ([www.worldvaluessurvey.org](http://www.worldvaluessurvey.org)),

UNESCO 2004 (<http://stats.uis.unesco.org>)

## Abstract

Corruption perception is widely used as an indicator for real corruption in the scientific literature. This paper further advances the critical debate about the validity of this indicator. In order to explore the formation of corruption perception on individual level, with paying full attention to contextual features at the same time, a multilevel regression analysis was performed. The dataset of the Eurobarometer 72.2 2009 contains more European countries than any other study before. It includes 26 663 citizens from 27 European countries, individual and country level determinants of corruption perception widely used in literature, as well as a question about the actual experience of corruption, thus making it possible to control for real corruption. The results show that corruption perception is particularly influenced by social status and education. Corruption experience has a positive influence on corruption perception, but other determinants are more influential. This study serves as a basis for further research on the concept of corruption perception and objective corruption indicators like actual corruption experience.

**Key Words** Corruption, Perception, Victimization, Measurement, Cross Country Survey, Multilevel Analysis, Social Status, Education, Criminology, Eurobarometer

Korruptionswahrnehmung ist in der wissenschaftlichen Literatur ein weitverbreiteter Indikator für Korruption. Diese Studie liefert einen Beitrag zur kritischen Auseinandersetzung mit der Validität dieses Indikators. Um die Herausbildung von Korruptionswahrnehmung auf Individualebene zu untersuchen und gleichzeitig Kontextmerkmalen vollste Beachtung zu schenken, wurde eine Multilevel-Regressionsanalyse durchgeführt. Der Datensatz aus dem Eurobarometer 72.2. 2009 umfasst mehr europäische Länder als sämtliche bisherige Studien. Er beinhaltet 26 663 befragte Personen aus 27 europäischen Ländern und eine Reihe an Einflussvariablen auf die Korruptionswahrnehmung, sowohl auf Individual- als auch auf Länderebene, die in der Literatur weitverbreitet sind. Außerdem enthält er eine Frage nach Korruptionsviktimisierung, mit der der Einfluss von tatsächlich erlebter

Korruption konstant gehalten wird. Die Ergebnisse zeigen, dass die Korruptionswahrnehmung besonders von sozialem Status und Bildung beeinflusst wird. Die Studie bietet eine Grundlage für weitere Untersuchungen über die Herausbildung von Korruptionswahrnehmung, sowie objektive Korruptionsindikatoren wie tatsächlich erlebte Korruption.

**Key Words** Korruption, Wahrnehmung, Viktimisierung, Messung, Cross Country Survey, Ländervergleich, Multilevel Analysis, Sozialer Status, Bildung, Kriminologie, Eurobarometer

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