International Trade and Corruption: The Influence of Trading Partners

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INTERNATIONAL TRADE AND CORRUPTION:
THE INFLUENCE OF TRADING PARTNERS

by

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Master’s Thesis
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INTERNATIONAL TRADE AND CORRUPTION: THE INFLUENCE OF TRADING PARTNERS

by

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ABSTRACT

In today’s era of globalization, increased international trade intensifies the interaction among individuals from different countries. Business relationships are one of the most important channels through which such exchange takes place, as international trade links require that businesspeople travel frequently between countries. This study argues that one result of such increased interaction among businesspeople and other individuals is the imitation of corrupt behavior. Corruption levels in different countries are thus influenced by this imitation effect.

The study constitutes a quantitative analysis by identifying a new variable that captures the phenomenon accurately through inclusion of trade quantities and corruption levels of trading partners in its calculation. The significance of the new measure, which is termed “exposure to corruption,” is tested through various cross-country analyses and regressions, while controlling for the most important variables which have been identified as significant in the previous literature on the causes of corruption. The findings reveal a significant relationship between the exposure measure and corruption, indicating that countries that are exposed to corruption to a high degree tend to have higher levels of corruption themselves. The results also hold after introducing various robustness checks. Such findings have important implications for future conduct of companies and businesspeople operating internationally.
ACKNOWLEDGMENTS

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CHAPTER ONE

INTRODUCTION

The analysis of the causes and consequences of corruption from a cross-country perspective has, in recent years, enjoyed unprecedented attention from academia and policymakers in international institutions. One reason is that the phenomenon is said to have grown considerably in recent years, while higher awareness of the problem is also attributed to significant global changes in the political, economic, and sociological environment after the end of the Cold War (Tanzi 1998, 4-6). Additionally, it was recognized that corruption has extremely negative effects on economic development, the successful emergence of democratic systems, and the effectiveness of the market economy. Thus, decades of apathy, or perhaps ignorance of this problematic phenomenon were suddenly replaced by a meaningful engagement of international organizations to deal with corruption. Consequently, the International Monetary Fund (IMF) and the World Bank have assumed a leadership role in this area, pushing for various international agreements aimed at containing corruption (Brademans and Heimann 1998, 17-18). Also, the inclusion of a tenth principle in the United Nations (UN) Global Compact in 2004 is the most recent in a chain of actions taken by international organizations to address the problem at multiple levels (Shaxson 2004).

Despite this constant ignorance of the phenomenon on part of international policymakers, corruption has been subject to some scholarly analysis even before the mid 1990s. Anne Krueger (1974), for example, discussed the issue of economic rent seeking with its political and economic implications already in 1974, and encouraged further research on the topic. However, empirical work aimed at quantifying corruption and calculating the actual economic losses in terms of dollar values is a very new field of inquiry (Mauro 1997, 1). The reason why the quantitative research on corruption has been neglected for such a long time was, in addition to general disinterest in the topic, the non-existence of sufficient data that would
make it possible to compare corruption across countries. Thus, most studies prior to the 1990s focused on case studies of individual countries (Sandholtz and Koetzle 2000, 33). The primary disadvantage of the case study approach was, however, the inability to make general conclusions about what causes corruption from a cross-country perspective, making it impossible to devise a comprehensive or all-encompassing theory. The notion that different countries have different levels of corruption made it possible to analyze whether aspects of local culture or specific political, social, and economic circumstances are the source of higher corruption levels in some countries. Recent increases in the availability of numerical data have made quantitative approaches to the issue easier to pursue.

A cross-country analysis of corruption usually refers to one simple question: Why do countries have different degrees of corruption? A reliable and accurate answer to this question would produce some valuable policy options as to how corruption can be reduced. Many recent studies have explained the value of reducing corruption for societies around the world, particularly because high corruption levels affect economic prosperity and development very negatively. While corruption reduces bureaucratic efficiency, it also diminishes incentives for investment and thus functions as an impediment to economic growth in many countries (Mauro 1995, 705). The consequences for human welfare and poverty levels are severe, especially in developing countries. It is even argued that the losses to the entire society resulting from corruption and the subsequent misdirection of resources surpass the additional income obtained through bribing (Shleifer and Vishny 1993, 614).

Therefore, a better understanding of the causes of corruption from an international perspective can contribute highly to policies aimed at supporting economic development and poverty reduction in developing countries. Nevertheless, corruption should not remain an issue to be dealt with only in the Global South or by transition economies. Even for developed countries, corruption should be an issue to be seriously addressed for moral and ethical
reasons and with the objective of raising overall fairness and equity. As the phenomenon is persistent in every country, it must be addressed at a global level by all stakeholders involved.

Previous cross-country studies on corruption have found that there are many factors which explain why corruption is more prevalent in some countries than in others. However, there have been differences in scholarly explanations of what raises and lowers corruption levels, revealing some inconsistency with regard to the significance of individual factors. As of yet, there is a lack of consensus as to what variables must be included into any quantitative analyses of corruption (Knack and Azfar 2003, 16). Scholars are still permanently addressing the issue from new perspectives, thereby constantly suggesting new factors that are supposed to provide an improved explanation as to why levels of corruption are not equal in every country. Major debate among scholars is thus still prevalent in this field of inquiry.

The purpose of this study is to introduce yet another factor, and to determine whether it functions as an additional, important explanatory variable for differences in corruption levels among countries. The proposed variable is based on the idea that countries which are more open to international trade have lower levels of corruption (Krueger 1974, The International Bank for Reconstruction and Development 2002, 107). This paper, however, will give deeper and more detailed insight on the influences of international trade on corruption. The concept proposed here is that it not only matters whether or not a country is generally open to international trade, but that the effect on corruption levels is determined by the characteristics of the countries with which trade is done. The purpose is to analyze whether trade with more corrupt countries influences levels of corruption in the trading country negatively due to exposure to these corrupt partners, which is supposed to occur through intensive exchange in business and other areas related to international trade. On the opposite side, this would also mean that trade with less corrupt countries could lead to improvements of corruption levels.

In other words, this analysis attempts to explore whether international trade promotes the

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1 In making this statement, the World Bank refers to various analyses conducted by scholars in the field who have reached that conclusion. But the Bank also acknowledges at the same time that there are opposite views.
imitation of corrupt behavior among countries. Due to current increases of international trade on account of globalization and the emergence of global free trade, it is increasingly important to address this issue in contemporary research endeavors.

The analysis will be discussed within four major sections. The first section will introduce the new variable, and give an overview of relevant literature in this field of inquiry in order to explain what this study will add to previous research. Section two will introduce the variables and data used in this study and explain the methodology and procedural characteristics of the data analysis. In the third part, the empirical findings will be discussed, including explanations of the results. Section four will serve as the conclusion.
CHAPTER TWO
THEORETICAL CONSIDERATIONS

This section will serve as an introduction into the theoretical aspects which are of importance for this study. It will propose a working definition for corruption, and discuss factors that are important in influencing levels of corruption across countries, including the new variable.

2.1 Definition of Corruption

In order to establish clarity regarding the context under which corruption will be analyzed within this paper, it is necessary to propose a relatively concise working definition of the phenomenon for the purpose of usage within the following discussion. Previous scholarly work has defined corruption in various ways, sometimes evoking major debate. Also, none of these definitions accounted for all aspects of this complex phenomenon (Tanzi 1998).

Furthermore, the application of a specific definition across different societies constitutes a further difficulty. In different cultural settings, the degree to which certain actions are perceived as corrupt may vary, possibly endangering or distorting the cross-country analysis. In most previous cross-country studies, Western definitions and standards of corruption have been applied universally. However, there need not be too much concern about this problem. Arguing that colonial heritage and increased interdependence today have created similar understandings of the phenomenon in developing countries, Sandholtz and Koetzle (2000, 34-35) see the distortion effects resulting from the usage of a Western-oriented definition in non-Western countries as negligible. Therefore, for the usage within this study, a Western-style definition of the word will be adopted.

\[2\] Sandholtz and Koetzle argue that in most developing countries, there exists a certain familiarity with the Western idea of corruption, and in fact it becomes increasingly adopted. The Western colonial heritage of some countries makes the distortion of the idea of what corruption means even more insignificant, especially when
The international institutions that concentrate some of their work on combating corruption have suggested a few useful definitions. One common and simple definition, proposed by the World Bank, is “the abuse of public power for private benefit” (Tanzi 1998, 8). Transparency International, probably the most renowned organization that focuses its work on anti-corruption efforts worldwide, suggests a similar definition. Without making a difference between administrative and political corruption, the institution defines the word most broadly as “the abuse of public office for private gain” (Transparency International 2002, 6). As this study will use data on corruption provided by Transparency International, it will be necessary to accept this definition as a standard for the following analysis. Nevertheless, one minor concern remains. As this paper will put much emphasis on corruption in international trade, corrupt behavior at a business-to-business level might also be relevant. This can happen, for example, when a contract is awarded by one company to another on the basis of nepotism or bribe taking instead of a firm’s overall cost efficiency. The fact that such occasions are not clearly included in the above definition of corruption should not be a source of major concern for two reasons. First, it can be assumed that corruption levels in the private and public sectors will be similar in every country due to regular interaction between both. Frequent exchange will definitely result in behavioral spill-over effects between actors in both sectors. Thus, large differences in corruption levels between the private and public sectors cannot be expected. Second, Transparency International created its data on corruption based on perceptions of business people and risk analysts in different countries (Transparency International 2002, 4). Thus, because people operating companies are involved in the development of the data, their reports on the level of corruption that they perceive within one country will be somewhat distorted in terms of providing a clear distinction between private and public sector corruption.

taking into consideration that many of these previous colonies adopted legal systems from their former colonizers.
2.2 Exposure to Corruption

The purpose of this paper is to introduce an additional possible variable that has potential in explaining different degrees of corruption in different countries. The rationale for developing this new variable is based on the realization that the argument of international trade affecting corruption has not yet been fully explored.

Observing the persistence of corruption in many countries over a time span of decades, Ali and Isse (2003, 451) conclude that “corruption breeds corruption.” This paper will further develop this notion. It suggests that instead of through time, corruption can be spread through trade links. As this study will constitute a cross-country analysis, it will be argued that international trade is an important channel through which corrupt behavior can be transferred from country to country. Because of today’s globalization and the simultaneous increase in cross-country interdependence, international trade has become one of the most important channels through which countries influence each other, a fact that adds plausibility to the above argument. Through international trade, companies and their employees of one country become exposed to business practices of other countries due to increased interaction in the process of making business deals, transferring money, transporting goods, and providing services. An intensification of trade between countries also raises the frequency of travel and thus the amount of personal contacts. As practices through which business is conducted differ between countries because of variations in national culture as well as differences in existing political, economic, legal, and social environments, some mutual adjustment between countries that engage in trade with each other can be expected to occur, even if unconsciously.

The relationship between globalization and corruption has recently been subject to intensive discussion. There have been increased warnings that countries which are less corrupt might be influenced negatively by corrupt countries due to trade links. Tanzi (1998, 5) acknowledges that “globalization has brought into frequent contacts individuals from countries with little corruption with those from countries where corruption is endemic.” In
this context, Glynn, Kobarin, and Naim provide a more in-depth discussion of the problem.

They point to three considerable changes that have their origin in globalization:

First, broadening and deepening of global economic integration increases the probability that the effects of corruption will spill over and resonate throughout the world economy. The increasing permeability of national borders limits the reach of national territorial jurisdiction and makes it impossible to wall off national economies or policies, to separate the domestic from the international.

Second, the emergence of an electronically networked international financial system markedly enhances opportunities for corruption, the difficulty of controlling it, and the potential damage it can inflict.

Third, there has been a dramatic increase in the number of cooperative strategic alliances, both within countries and across borders. In many strategic sectors, the emerging global economy resembles a complex worldwide network of interfirm agreements. The relational nature of alliances makes control much more difficult for both managers and public policymakers.

(Glynn, Kobarin, and Naim 1997, 12-13).

The above description thus points toward two possible future scenarios. On one hand, an overall rise of worldwide corruption levels could be expected, a tendency which must be stopped by all means. On the other hand, the causation could run both ways, implying that less corrupt countries might also have some positive effect on states with high levels of red tape. Though definitely existent to some extent, the latter scenario seems less plausible. The reason is that foreign companies are expected to adjust to corruption levels very fast due to the necessity to remain competitive with the local enterprises that traditionally engage in corrupt behavior. Moreover, legal requirements in the home countries of these companies can only be a limited impediment to such behavioral changes. On the contrary, it is less likely that an originally corrupt company suddenly becomes less corrupt in a foreign country as incentives for such behavioral changes are relatively low. Naturally, legal requirements in the host country might constitute such an incentive, but respective regulations have to be existent and enforced. To prove this point, Shaxson (2004) demonstrates how corruption in developing countries can infiltrate and negatively affect Western democracies that are supposed to have lower levels of corruption. He argues that “the Elf trial in Paris revealed oil-rich Gabon’s role in creating an African slush fund for French political parties.” In another statement, he maintains the following:
Some large companies from emerging markets – the sort of groups that used to be cited as competitive threats because they benefited from lax home-country rules on transparency – have already sought, or are now seeking, listings on Western stock exchanges (Shaxson 2004, 21).

From a more practical point of view, the day to day procedures in contemporary businesses give an even more detailed insight into the interrelationship between international business practices and corruption. A foreign businessperson who visits another country with trade objectives will have to deal with the bureaucracy within that host country in order to obtain permits and licenses which might be required to import or export goods. The degree of corruption prevalent within the bureaucracy of the host country might thus affect the behavior of the businessperson accordingly. Similarly, the host country managers of the companies with which the businessperson intends to trade are themselves strongly influenced by the corrupt activities of their governmental bureaucracies. This happens as companies interact frequently with the government for various reasons, such as tax payments or other legal requirements. Corruption within the governmental bureaucracy might then reduce the incentives of the host country managers to act according to legal regulations, inducing a subsequent rise in their own corrupt activities. This kind of behavior may then influence the foreign businessperson who is pursuing business with these managers.

The above discussion provides only a few examples for channels through which one country can be exposed to corruption that prevails in another country. Regardless of which channel is the most important and influential, there exists a general rationale why one could expect corruption to evoke an imitation effect between countries. It is common knowledge that there exists a psychological characteristic of human beings to copy habits from each other. Moreover, it must be possible to project this idea of “learned behavior” to the state level, particularly when reviewing interstate relationships that result from international trade. The reasoning behind this is that trade mainly consists of interactions among human beings, as described above. Additionally, no state is alone and isolated, as countries are constantly in contact with others, like their neighbors or those with which exchange is frequent for certain
reasons. Thus, it makes sense to conduct some further inquiry into the possibility of such imitation effects among states, especially in the context of a possible spill-over of bad habits in one country on others due to international trade.

This imitation phenomenon has previously been ignored in cross-country analyses of corruption, a gap which this study is supposed to fill. In order to include such imitation into the analysis, a new variable must be developed. In addition to the overall importance of international trade for a country, the new variable has to take into consideration what the trading partners of each individual country are. Within this paper, the term “trading partner” is referred to as another country, rather than companies or individuals. It will be necessary to include the level of corruption of each trading partner and the amount of trade a country has with it, and somehow capture the effect on domestic corruption levels.

To summarize, the previous discussion generates the following expectation regarding the results of this analysis: A country that has much trade with less corrupt countries is expected to reveal lower levels of corruption, while a country which trades many goods with mostly corrupt states is expected to be more corrupt itself. In other words, the issue to be investigated here is whether the degree of corruption in a country is a function of the degree of corruption of its trading partners. From this line of reasoning, the following hypothesis is derived:

*Hypothesis: The larger the exposure of a country to corruption due to international trade, the more corrupt the country becomes.*

As mentioned, in order to test whether this hypothesis is valid or not, a variable will be developed to measure the level of such exposure to corruption. The application of such a variable in an analysis of the causes and consequences of corruption is new. By now, there are no indications that any studies have been published which use this kind of variable to explain different levels of corruption among countries.
2.3 Corruption in the Literature

In order to develop this analysis further, it will first be necessary to briefly review previous studies on the causes of corruption and their findings. Many studies have examined various factors that influence the level of corruption prevalent within a country. The purpose of this section is to give an overview on these variables. As of today, some factors have been empirically established as significant in their influence on corruption levels, while others have been proposed by some scholars but were subsequently declined by others.

The following variables were identified as most relevant: trade openness, economic development or national income, the degree of Protestantism, colonial history, ethno-linguistic fractionalization, press freedom, and regional dummies. Each of these variables will be discussed individually below.

One of the factors most commonly claimed as having significance in influencing corruption levels is the degree of international trade, which is often termed as a country’s openness to trade. It is argued that countries which, according to this definition, are more open to international trade, tend to perform better in terms of domestic corruption levels. Wei (2000, 2) provides a theoretical explanation for this by arguing that more openness to trade furthers competition, which subsequently causes a reduction in corrupt activities. Moreover, bureaucrats who seek to engage in corrupt activities have the incentive to establish trade barriers that create an opportunity to extract bribes, the results being observable in a reduction of a country’s openness. The most common way in measuring such openness is by using a country’s sum of imports and exports divided by Gross Domestic Product (GDP), as has been done, for example, by Islam and Montenegro (2002, 9). The higher the ratio of imports and exports to GDP, the more important international trade becomes for the domestic economy, consequently raising a country’s openness. Among others, the studies by Wei (2000, 18), and Islam and Montenegro (2002, 14-15) confirm empirically that openness plays an important role in reducing corruption levels.
Similarly significant in relation to corruption is economic development, alternatively referred to as national income or wealth of a country. Studies usually maintain that countries which are economically better off have a lower degree of corruption. One theoretical explanation is that people who are less wealthy or, in extreme cases, do not even earn sufficient salaries to care for themselves and their families, tend to search for alternative, sometimes even illegal methods to raise their income. Particularly if salaries are low in the public sector, officials might be inclined to pursue corrupt activities in order to generate some additional income that might be desperately needed under poor circumstances (Park 2003, 31-32). For instance, a cross-country analysis by Treisman (2000, 429-430) reveals a particularly strong relationship between corruption and economic development, while Wei (2000, 15), Sandholtz and Koetzle (2000, 41 and 44), and many others, provide similar findings without emphasizing this factor to the same degree. The economic development variable is usually measured by using a country’s GDP per capita.

A problem mentioned a few times in the context of the relationship between income and corruption is possible endogeneity. As has been acknowledged by Treisman (2000, 408), it is not clear whether certain variables actually cause corruption, or whether corruption might actually cause changes in these respective variables. La Porta et al. (1999, 244) particularly emphasize this problem with reference to the income variable, suggesting its exclusion from certain analyses. Moreover, Mauro’s (1995, 704-705) tentative findings suggest that corruption reduces growth and not vice versa. Ali and Isse (2003, 455-458) also confirm this finding. Therefore, because of this severe uncertainty regarding the direction of causation, the economic development variable has to be treated with extreme caution. A variety of solutions has been introduced by different scholars, depending on their own individual analysis, but there does not seem to be a general way in which this issue is addressed.

In addition to these two economic variables, most other factors that are common in cross-country analysis on corruption are sociological, cultural, or political in nature. They are also
less subject to change, and can thus be assumed to be more exogenous in their relation to corruption. Religion has been identified by La Porta et al. (1999, 262-263), Treisman (2000, 427 and 439), and Sandholtz and Koetzle (2000, 44) as an important factor. All three studies find that countries with a high percentage of Protestantism among the population have lower perceived levels of corruption. La Porta et al. further identify predominantly Catholic and Muslim societies as having relatively high levels of corruption. There exist a few theoretical explanations for this tendency. One, which is upheld by Treisman (2000), argues that Protestantism has more egalitarian and individualistic characteristics, which reduces the opportunities for corrupt behavior due to higher possibilities of monitoring. Other aspects, such as the historical relationship between church and state, or the role of loyalty to one’s family, which can subsequently impact the degree of nepotism, might also be relevant. An alternative explanation could even be found in the fact that Protestants have “a more intense and unforgiving moralism” (Treisman 2000, 439).

The colonial history of a country has also been identified as a significant variable. For instance, empirical findings by Treisman (2000) suggest that British colonies tend to have lower levels of perceived corruption. This might be attributed to legal heritage through the British common law tradition, together with its procedural fairness and tendency to ignore hierarchical structures. A subsequent positive effect on institution-building in these countries might explain today’s lower levels of perceived corruption. Accordingly, a study by Islam and Montenegro (2002, 13) revealed a respective negative impact of French legal origin on corruption.

The degree of ethnic diversity within a country also has an important influence on perceived corruption levels. A frequently used indicator for ethnic diversity is the index of ethno-linguistic fractionalization, which “measures the probability that two randomly selected persons from a given country will not belong to the same ethnolinguistic group” (Mauro 1995, 692). A specific formula is used for the calculation of this index, which was initially
introduced by Taylor and Hudson (1972, 271-274). There are various reasons to assume that ethno-linguistic fractionalization is a factor inducing higher levels of corruption. Many instances show that political instability is a result of ethnic conflicts within a society. Moreover, officials in diverse societies may engage in ethnic nepotism, favoring members of the same group while creating disadvantages for people from other ethnic populations, which will have a clear negative impact on country-wide corruption levels (Mauro 1995, 693). In accordance with this theoretical reasoning, Ali and Issa (2003, 454), Mauro (1995, 693), La Porta et al. (1999, 245), and Treisman (2000, 529) provide some empirical evidence of a respective correlation between ethno-linguistic fractionalization within a country and perceived levels of corruption. However, its significance as a factor remains ambiguous, since many other empirical studies reveal opposing results. Nevertheless, ethno-linguistic fractionalization deserves recognition as a variable due to its frequent inclusion in cross-country analyses of corruption.

A newer factor that is included more often in recent studies on corruption is the degree of press freedom. For example, a very new analysis by Chowdhury (2003, 95) provides evidence that press freedom is a factor in reducing corruption levels. The theoretical reasoning by Brunetti and Weder (2003, 1805) is that a free press functions as a control mechanism against corruption, because the press provides a channel through which complaints can be voiced. The fear that corrupt activities might become public, and the negative personal consequences such publicity might imply, is thus an incentive for people to engage less in corrupt behavior. Brunetti and Weder (2003, 1810) as well as Islam and Montenegro (2002, 14) also justify

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4 The concept of “ethnic nepotism” is discussed by Vanhanen (1999), who maintains that interests are channeled in line with the ethnic division of a country. Vanhanen proves that such ethnic nepotism is a universal factor in inducing ethnic conflict.
5 For example, see Islam and Montenegro (2002, 13) and Wei (2000, 15-16).
empirically that press freedom has a positive impact on perceived corruption levels. Press freedom is measured by using an index provided by Freedom House.\textsuperscript{6}

Finally, many studies also include regional characteristics by controlling for certain geographic regions.\textsuperscript{7} The purpose is to determine whether countries located in specific regions of the world tend to be perceived as more corrupt. Accordingly, while results seem to vary from study to study, findings often confirm the existence of such differences. For instance, Treisman (2000, 436) includes regional variables in his analyses and concludes that “Africa, Eastern Europe, Asia, Latin America, and the Middle East are all perceived to be more corrupt than Western Europe and North America.”

Overall, even though theoretical considerations as well as a majority of findings have confirmed that these factors are relevant to some extent, they are still subject to considerable debate. Many researchers in this field have also confirmed that some of the variables introduced above are irrelevant in their effects on corruption. Yet, as they are frequently included by many researchers who study the causes and consequences of corruption from a cross-country perspective, and seem to have some relevance, they will be added as control variables in the discussion below. Moreover, the studies on which the above description is based are those currently most valued in scholarly work on cross-country analysis of corruption, and they are regularly used as reference material by scholars in this field.

A variety of other variables have previously been tested regarding their impact on corruption levels. These include democracy,\textsuperscript{8} federalism\textsuperscript{9} or (fiscal) decentralization,\textsuperscript{10} population,\textsuperscript{11} foreign aid,\textsuperscript{12} exports of primary goods such as fuels, minerals, and metals in

\textsuperscript{6} For example, Brunetti and Weder (2003, 1806) and Chowdhury (2004, 96) both use this index in their analyses of press freedom and corruption.
\textsuperscript{7} For instance, see Chowdhury (2004, 95).
\textsuperscript{8} Better democracy is supposed to reduce corruption. For instance, see Chowdhury (2004, 95).
\textsuperscript{9} Federal states are said to be more corrupt. For instance, see Treisman, (2000, 430).
\textsuperscript{10} Countries with more decentralized government expenditure have lower corruption. For instance, see Fisman and Gatti (2002, 332).
\textsuperscript{11} The idea that population might effect corruption is pointed out, but subsequently rejected by Knack and Azfar (2004, 4).
\textsuperscript{12} Foreign aid reduces corruption. See Tavares (2003, 103).
relation to total exports, the efficiency of antitrust laws, the trade distance from the world's major centers, economic freedom, and education. Some very new analyses have even tried to include cultural dimensions which are commonly used in intercultural communication. Park (2003, 43) recently provided empirical findings of a relationship between corruption and power distance on the one side and a masculinity-femininity index on the other.

However, these variables will not be included in the data set of this study for various reasons. First, the enormous amount of existing variables makes some limitation of controls unavoidable. The fact that there is currently a strong scholarly dispute about which factors are relevant makes a selection of the seemingly most important ones justifiable. Second, the results of previous studies have differed in some cases. And third, some variables have been introduced only recently and have thus not yet received adequate confirmation by peers. Currently, scholars are still in the process of finding further variables that might be relevant, an endeavor that will also be undertaken within this paper.

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13 A high amount of exports of primary goods raises corruption. For example, see Ades and Di Tella (1999, 988).
14 Countries with better antitrust laws have lower corruption, and countries that are more distant from the major economic centers, thus having higher transport costs, are more corrupt. See Ades and Di Tella (1999, 988-990).
15 Low economic freedom and low levels of education increase corruption. See Ali and Isee (2003, 460).
16 Such dimensions and respective indices have been developed by Geert Hofstede (1996), and Charles Hampden-Turner and Fons Trompenaars (1997).
CHAPTER THREE
DATA AND METHOD OF ANALYSIS

Before the analysis on the effects of the new corruption exposure factor on corruption levels in countries can be completed, it is necessary to develop this variable in such a way that it adequately and accurately captures the phenomenon that is subject to inquiry. This section will thus address the issue of measuring this new variable. It will also discuss measurement and data sources of all the other variables that are included in this study. Finally, an explanation regarding the exact procedure of data usage and analysis will follow.

3.1 Determination and Calculation of the Exposure Variables: Quantity and Quality of Exposure

The determination of an accurate measure for the independent variable, termed “corruption exposure” or “exposure to corruption,” is a complex task. In order for it to capture the alleged phenomenon adequately, two components are required for its calculation. First, an index is needed to indicate the levels of corruption of all countries’ trading partners, i.e. the quality of exposure. A reliable source of such data is the Corruption Perceptions Index (CPI), which is developed and published annually by Transparency International, a non-governmental organization that is based in Germany, but pursues activities at a global level. The CPI measures levels of perceived corruption in different countries on a scale from 0 to 10, with a larger number indicating a lower degree of corruption. For the purpose of this analysis, the CPI 2003 is used, which provides data for 133 countries (Transparency International 2004, 282-287). 17

As a second component, the percentage of trade each country has with every single trading partner must be included for the purpose of determining each trading partner’s

17 In two additional cases, Burkina Faso and Mongolia, data was only available from previous years.
importance to a specific country in relation to the other trading partners, or in other words, to include the quantity of exposure. Thereby, it is assumed that the larger the percentage of trade a country has with an individual trading partner, the more exposed it will become to that trading partner’s corruption levels. Data on imports and exports between all countries is provided by the UN Statistics Division’s UN Commodity Trade Statistics Database (UN Comtrade). For this analysis, the data on commodity imports and exports are used from the year 2000, given in U.S. dollars and converted at respective exchange rates.\textsuperscript{18} For all countries in the sample, the necessary information was available. The data will thus cover the mutual trade of the 133 countries. This equals almost the entire amount of world trade, as the countries excluded from this analysis are in general small and lesser developed states which do not engage in international trade to a large extent. Due to this high coverage, the data is an accurate measure for the purpose of this study.\textsuperscript{19}

To account further for this problem, the trade data will be shown in percentages, where the amount of trade between one country and all other countries in the sample will be assumed as 100 percent, even though it might be a little less in reality. Mathematically, this problem is dealt with by additionally dividing the imports or exports a country has with every single trading partner by their sum. The percentage $P_i$ for a country’s trade with one trading partner is thus calculated as

\begin{equation}
P_i = \frac{IM_i}{\sum_{i=1}^{n} IM_i} \quad \text{or} \quad P_i = \frac{EX_i}{\sum_{i=1}^{n} EX_i}
\end{equation}

\textsuperscript{18} For further information on this variable, see http://unstats.un.org/unsd/comtrade/help/FirstTimeUser.aspx; accessed 5 December 2004; Internet.
\textsuperscript{19} A mathematical comparison between each country’s trade coverage provided by the sample and the entire trade the state has with the rest of the world confirmed this assumption. The coverage was either full 100 percent or in the upper 90 percent area.
for imports and exports, respectively, where $IM_i$ is the total imports from the $i$th trading partner, $EX_i$ is the total exports to the $i$th trading partner, and $n$ is the number of trading partners each country has.

At this point, one short remark needs to be made. In order to introduce a time lag between the independent and dependent variables, the exposure to corruption variable is supposed to resemble the situation in the year 2000. Thus, the trade data for that year is used. However, Transparency International’s CPI index for that year does not include a sufficient amount of countries. Thus, the CPI 2003 was still used as an alternative. While some distortion effect might occur due to this procedure, the problem is minimal because even though corruption levels do change from year to year, the shifts are not that considerable.\(^{20}\)

The next step in determining the exposure to corruption variable is the combination of the CPI and trade data by merging them into one single index. Initially, the variable will be calculated for imports and exports separately. For this purpose, the exposure to corruption variable $Exp_{IM/EX}$ shall be determined using the formula

$$\sum_{i=1}^{n} (CPI)_{i} P_i$$

(2) $Exp_{IM/EX} = \frac{\sum_{i=1}^{n} (CPI)_{i} P_i}{\sum_{i=1}^{n} P_i}$

The basic concept behind this formula is that, by multiplying each trading partner’s CPI with the percentage of trade a country has with that partner, one can capture the degree of influence corruption in the partner country can have domestically through international trade: Quantity and quality of influence will thus be taken account of. To get a result that includes the entire trade of a country, it is necessary to determine the sum of this product for all trading partners as a second step. Finally, the product is divided by the sum of trade percentages a country has.

\(^{20}\) A comparison of CPIs of different years confirmed this assumption.
with all trading partners so that the index provides a relative value which can be used easier for comparisons with other indices.

Essentially, two new indices have been calculated this way, i.e. "import exposure to corruption" and "export exposure to corruption." A separate analysis of these two will be included in the cross-country study conducted below. Nevertheless, for the bulk of the study, a total measure for exposure will be needed. This requires an additional calculation. To fulfill this need, the "total exposure to corruption" variable $\text{Exp}_\text{TOT}$ is determined through

$$\text{(3)} \quad \text{Exp}_\text{TOT} = \frac{\left(\text{Exp}_\text{im} \times \sum IM_i\right) + \left(\text{Exp}_\text{ex} \times \sum EX_i\right)}{\sum IM_i + \sum EX_i}.$$ 

The purpose of using this formula is to weight the exposure variables by the amount of total trade (sum of all imports and exports) a country has. By using this method, more importance is assigned to the direction of trade which the country pursues more intensively. For example, if a country imports more than it exports, imports are valued more through this calculation. This is a necessary feature based on the assumption that a country's import exposure to the other country will also be larger as a result. Naturally, if a country exports more than it imports, the effect will be the opposite.

The resulting exposure to corruption index ranges from 0 to 10, with a low score indicating strong exposure to very corrupt countries, and a high score showing much exposure to less corrupt countries. As the scores of both the exposure variable and the CPI have the same numerical values between 0 and 10, they are easily comparable. Thus, in order to gain some deeper understanding of the characteristics of the new exposure variable, such a brief comparison shall be made here.
3.2 Characteristics of the Exposure to Corruption Indicator

Table 1 reports some basic characteristics of the new variable, i.e. the mean, median, and standard deviation together with minimum and maximum values, and shows them next to the equivalent statistics for the corruption variable. An initial finding shows that the exposure values for the mean and median take higher numbers than the corruption values. In fact, the mean and median values for exposure are approximately 2 points above those for corruption (about 6 for exposure, but approximately 4 for corruption). From this, it can be concluded that countries engaging in international trade are on average more exposed to less corrupt trading partners. There exists a simple explanation for this observation. Currently, the majority of world trade is conducted by the same few industrialized countries, (e.g. the U.S., Germany, Japan, the United Kingdom, France, and Italy, to mention a few), and these industrialized countries tend to have lower domestic levels of corruption.

<table>
<thead>
<tr>
<th></th>
<th>Corruption</th>
<th>Import Exposure</th>
<th>Export Exposure</th>
<th>Total Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>4.20</td>
<td>5.89</td>
<td>6.17</td>
<td>6.01</td>
</tr>
<tr>
<td>Median</td>
<td>3.40</td>
<td>5.94</td>
<td>6.24</td>
<td>6.05</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>2.27</td>
<td>0.86</td>
<td>1.00</td>
<td>0.86</td>
</tr>
<tr>
<td>Minimum</td>
<td>1.30</td>
<td>3.20</td>
<td>3.59</td>
<td>3.42</td>
</tr>
<tr>
<td>Maximum</td>
<td>9.70</td>
<td>7.82</td>
<td>8.09</td>
<td>7.99</td>
</tr>
</tbody>
</table>

Moreover, the difference between corruption and exposure in terms of their mean and median values is smaller for the exposure to imports variable (mean difference at 1.69 and median difference at 2.54) when comparing it with exposure to exports (1.97 and 2.86). This creates the impression that corruption is possibly learnt more by importing than through exports. On the other hand, it might only show that industrialized and less corrupt countries
export more goods and import less, at least in terms of their financial value. Finally, the results for standard deviation, the minimum, and the maximum indicate a tendency towards the middle when comparing corruption with the exposure variables. This may be explained by the fact that all countries are, at the same time, exposed to very corrupt trading partners as well as those that are not corrupt. Because this influence comes simultaneously from both directions, exposure cannot be found at the extremes of the range between 0 and 10. Overall, from these initial observations, the argument can be made that increased trade with industrialized countries has a positive impact on developing countries in terms of corruption.21

3.3 Other Key Variables and Sources Used for Their Measurement

As the new independent variable, exposure to corruption, is supposed to serve as an explanatory factor for corruption, the dependent variable will naturally be corruption itself. The CPI 2003 will be used again as a source of data.22 The CPI is determined through aggregate data on the perceptions of individuals living and working within the evaluated countries. The most remarkable aspect of the CPI, which also makes it an extremely reliable tool of measurement, is that it constitutes a composite index, combining various data collected by different institutions into one measure. For instance, at least data from three of these sources out of seventeen must have been available for a country in order to make it eligible for inclusion in the CPI 2003 (Transparency International 2003).23 As mentioned, the CPI is

21 A regional breakdown of mean values for corruption and exposure can be found in the appendix Table A. 2. The results show that developing countries are influenced positively in terms of corruption due to their intensive trade with industrialized countries. Industrialized countries, on the contrary, are more subject to dispersed patterns of behavior, because they trade both with industrialized and developing countries alike.
22 In two cases (Burkina Faso and Mongolia), again the most recent available alternative is used. Additionally, Serbia and Montenegro were excluded due to insufficient data in the control variables.
measured on a scale from 0 to 10. Finally, one aspect of the CPI needs additional consideration. As the CPI measures levels of corruption as perceived by people, and not actual levels of corruption, it is highly subjective. Reports of individuals on corruption levels within a country can, for example, be influenced by news reports of one single but well-known case of corruption. Therefore, some caution is needed when interpreting results of studies which use this factor. Nevertheless, it is necessary to rely on this kind of index, due to the non-existence of possibilities to measure corruption directly. Even though some caution is needed regarding the interpretation of results from analyses that include this index, there is one reassuring aspect: The fact that the CPI and other corruption indices are highly correlated confirms their relevance and accuracy (Tanzi 1998, 21-22). Finally, it is worth mentioning that the individuals who evaluated degrees of corruption in the respective countries were, among others, businesspeople. Thus, as the argument created in this study is that international business contacts have some influence on corruption, the CPI should be a measurement that fits relatively well.²⁴

In addition to the dependent and independent variable, some controls have to be included for the purpose of running a reliable cross-country regression. Thus, the most important variables that influence corruption levels, identified within the literature discussion above, shall be included as controls in this analysis. As the objective of this study is merely to prove whether the exposure to corruption variable is a valid factor in explaining differences in corruption levels, it should be sufficient to include only the most important and commonly used controls. The following are the “other” explanatory variables:

²⁴ For information on the type of individual questioned, refer to Transparency International (2002, 6).
Economic Variables:

As economic variables, openness and economic development will be included. The variable that measures trade openness will be calculated in the way that has been most common in regressions used to determine the causes of corruption. The basic formula is

\[ \text{Openness} = \frac{\sum IM_i + \sum EX_i}{\text{GDP}}. \]

Data for total imports and exports are again taken from the UN Comtrade database from the year 2000. It is thus the same data as has been used for the calculation of corruption exposure. The data source for total GDP is taken from the World Bank’s World Development Indicators (WDI) for the year 2000, respectively (The International Bank for Reconstruction and Development 2002).\(^{25}\) Total GDP is measured in current U.S. dollars. Another economic variable, GDP per capita as a measurement of economic development or income, will also be included in this analysis, again using the year 2000 WDI from the World Bank (2002). It is measured in constant 1995 U.S. dollars.\(^{26}\)

Social and Cultural Variables:

One group of non-economic variables consisting of Protestantism, British colonial history, and ethno-linguistic fractionalization, will also be included. In order to determine the degree of Protestantism within a country, a valuable source was found in the World Christian Encyclopedia 2001 (Barrett, Kurian, and Johnson 2001). The respective data provides the percentage of Protestant residents within a country in the year 2000.\(^{27}\) To indicate whether a country is a former British colony or not, a dummy variable will be included. Three different sources were used to determine this historical dimension for every country. Initially, Treisman

\(^{25}\) For Bahrain and the United Arab Emirates, the most recent available data were used. For Myanmar, Iraq, and Cuba, data were taken from the CIA World Factbook of the year 2002. (Central Intelligence Agency 2002).

\(^{26}\) For Bahrain, Oman, and the United Arab Emirates, no data for 2000 was available. Thus, the most recent available data was taken.

\(^{27}\) For Hong Kong, no data was found. Thus, as Hong Kong supposedly has only very few Protestant inhabitants, the number given to Hong Kong in this category was 0.
(2000, 449-451) was taken as a source for those countries which were included in his dataset. As a supplemental source, Grier (1997, 59) then offered some information on additional countries, and an electronic source provided the remaining data that was still missing.  

The Ethno-Linguistic Fractionalization (ELF) index was already calculated and provided in previous studies, such as by Mauro (1995, 708-710). Supplemental data on missing countries was taken from the World Christian Encyclopedia 2001 and subsequently calculated using the respective formula provided by Taylor and Hudson (1972), as well as Mauro, determined as

\[ ELF = 1 - \sum_{i=1}^{I} \left( \frac{n_i}{N} \right)^2, \quad i = 1, \ldots, I, \]

where \( n_i \) is the number of people in the \( i \)th group, \( N \) is total population, and \( I \) is the number of ethno-linguistic groups in the country (Mauro 1995, 692). The ethno-linguistic composition of a country does not rapidly change over time. Thus, any difference in time regarding when the ethno-linguistic composition was determined by the authors of these two sources should not be a concern. Data on ethno-linguistic fractionalization is reported on a scale from 0 to 100, with higher ratings indicating a greater degree of fractionalization.

Two more categories of variables shall be added to the dataset. First, press freedom will be included as a variable related to domestic politics. The degree of press freedom in a country shall be measured through an index provided by Freedom House (2000, 10-36). Again, the data of the year 2000 is used. Freedom House rates countries on a scale from 0 to 100, with lower ratings meaning more press freedom. The origin of the organization’s data is

---

29 Mostly post-Soviet states and former Yugoslavia.
30 Vanhanen (1999) recently established another index that measures ethnic diversity in different countries. It includes three dimensions and uses data from the 1990s, which is why it most likely captures the phenomenon more accurately than the ELF. Nevertheless, the ELF is applied within this study because it has been used mostly in previous studies on the causes of corruption. The purpose of this study is not to introduce better indices, but to establish a new variable and control for other ones using the same data as has been common in previous studies in this field of inquiry.
diverse, ranging from the perceptions of various individuals to concrete reports in publications. In the process of developing the index, a subdivision in legal, political, and economic aspects takes place, to which actual information on violations against press freedom is added quantitatively (Freedom House 2000, 9).

**Geographical Variables:**

Finally, similar to previous datasets, six regional dummies will be added. The division into regions will be undertaken according to the categorization suggested by the World Bank (2004). The regions are East Asia and the Pacific, (Eastern) Europe and Central Asia, Latin America and the Caribbean, Middle East and North Africa, Sub-Saharan Africa, and South Asia. Table A. 1 in the appendix provides a summary table of all the variables and sources used.

### 3.4 Data Analysis

The data analysis will be conducted by taking two major steps. First, some preliminary analyses will be done, such as simple correlations between the variables and a few other associations. The second and more important part of the study constitutes of a series of cross-country regressions to determine the partial effects of different explanatory variables on the level of corruption. In light of the variables introduced above, the following basic specification will be used:

\[
\text{Corruption} = f(\text{Exposure, Openness, Income, Protestant, FormerBritishColony, EthnolinguisticFractionalization, PressFreedom, Region})
\]

Using this specification, it shall be determined whether the exposure variables are in fact significant factors in affecting levels of corruption in different countries.

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31 Additionally, Cuba was assigned to Latin America and the Caribbean, and Libya was added to Middle East and North Africa.
First, an Ordinary Least Squares (OLS) regression shall reveal the general findings. A step by step approach will be taken, as the exposure variable is to be included in the first model, while the control variables will be added to the regression in subsequent models. Then, to assure that the findings are reliable, three robustness checks will be undertaken. They include Weighted Least Squares (WLS) regressions, tests with alternative data, and the utilization of logarithms towards the exposure and corruption variables.

This study will focus on cross-section analysis. Brunetti and Weder (2003, 1819) have found that

by and large the corruption data varies more across countries than over time, which is probably due to the fact that changes in corruption levels within a country are difficult to detect and may take a long time. The within country variation is only 13% of the total variation. Therefore, much of the research on determinants of corruption has focused on the cross-section.

Even though Brunetti and Weder do not use the CPI, it can be assumed that this argument holds for most indices of corruption.\footnote{Brunetti and Weder use the ICRG index of corruption, which is tested here as part of a robustness check.} A theoretical underpinning to this assumption could be that even if corruption levels shift relatively quickly within a country (which is hardly expected) perceptions of people do not change rapidly.

Before reporting the results, a comment on the sample size seems necessary. Knack and Azfar (2003) challenged many of the studies currently conducted on cross-country comparisons of corruption, citing sample selection bias. They argue that the data sets of the criticized studies do not include a sufficient amount of countries, and that those countries that are included tend to have commonalities in their characteristics (e.g. high population). Indeed, many previous studies included sample sizes of between 30 and 100 countries, i.e. for states with larger availability of economic, political, and social data. Knack and Azfar (2003, 1-17) prove that by using larger samples with as much as 140 countries, the relationships explained by many researchers become less significant or even disappear, as smaller and poorer countries are increasingly added to the samples. On the basis of their conclusions, they request more caution from scholars regarding future studies in this area of inquiry.
The sample used for this study includes up to 133 countries. In some cases, when several controls are integrated, the sample size might be diminished to approximately 127 or 119. However, it is still significantly larger in comparison with many previous studies, and includes practically all countries that are frequently and intensively engaged in international trade. Thus, problems of sample selection bias as reported by Knack and Azfar can be ruled out in this case.
CHAPTER FOUR

EMPIRICAL RESULTS

The objective within this section is to report the empirical results obtained from the analysis, including robustness checks and explanations of the findings. The general expectation is that there is a positive and significant relationship between corruption and exposure to corruption.

4.1 Preliminary Analysis: Associations, Quartiles, and Two by Twos

The preliminary analysis will constitute associations, a comparison of the most versus the least corrupt quartiles, and "two by two’s."

Associations:

The first step taken was to review the correlations between the different variables. Table 2 reports the results. The most important finding indicates that there is a statistically significant correlation between the exposure variables and the CPI. The correlation is positive, according to the expectation that exposure to less corrupt countries reduces corruption. To this extent, the initial proposition that the exposure variable is an important factor in influencing corruption levels is not rejected, but obviously it will be necessary to conduct further analysis to confirm this finding.

Another important observation is that import exposure is more highly correlated with corruption compared to exposure through exports, with a correlation of 0.53 for import exposure compared to 0.40 for exports. This might imply that individuals become more influenced by the behavior within other states when engaging in business related to imports. A possible explanation would be that in the process of buying things from another country, the necessity to deal with local authorities and businessmen in order to obtain the product or service is larger. For example, the country with which one is dealing might have many
State Owned Enterprises (SOE) or government-owned monopolies. If these firms and the
government are corrupt, a foreign individual dealing with them will naturally be highly
exposed to their unfair business practices. On the opposite side, the process of selling goods
to another country is simpler. The seller will not be affected that much from the negative
behavior of the buyer, who is predominantly interested in obtaining the good from the seller
and thus has limited influence over the latter.

Table 2. Correlation Coefficients Matrix

<table>
<thead>
<tr>
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<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CPI</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Exp_IM</td>
<td>.53**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exp_EX</td>
<td>.40**</td>
<td>.68**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exp_TOT</td>
<td>.50**</td>
<td>.91**</td>
<td>.90**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open</td>
<td>.30**</td>
<td>.14</td>
<td>.10</td>
<td>.14</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP</td>
<td>.87**</td>
<td>.53**</td>
<td>.38**</td>
<td>.51**</td>
<td>.17**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prot.</td>
<td>.43**</td>
<td>.40**</td>
<td>.41**</td>
<td>.43**</td>
<td>-.03</td>
<td>.43**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brit.</td>
<td>.10</td>
<td>.12</td>
<td>.12</td>
<td>.15</td>
<td>.06</td>
<td>-.02</td>
<td>-.01</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELF</td>
<td>-.32**</td>
<td>-.19*</td>
<td>-.16</td>
<td>-.20*</td>
<td>.01</td>
<td>-.35**</td>
<td>-.09</td>
<td>.26**</td>
<td>1.00</td>
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<td>Press</td>
<td>-.61**</td>
<td>-.45**</td>
<td>-.47**</td>
<td>-.48**</td>
<td>-.09</td>
<td>-.58**</td>
<td>-.41**</td>
<td>.03</td>
<td>.20**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**Correlation significant at .01 level, *Correlation significant at .05 level (2-tailed).

The correlations matrix further reveals that one problematic aspect might be the high
correlations of GDP per capita, Protestantism, press freedom, and to some extent ethno-
linguistic fractionalization with the other variables. Of particular concern is the strong
correlation between GDP per capita and the CPI, with a coefficient of 0.87 and high
significance. Similarly, but relatively less striking, is the high correlation between press
freedom and corruption (-0.61), which is also very significant. This could result in problems related to endogeneity biases. Also, it is possible that both corruption and these two variables are influenced by the same set of variables. Problems like these could lead to potential difficulties in interpreting regression results. Openness and the variable for former British colonies show almost no correlations with other variables, except for a significant correlation of openness with CPI. In almost all cases, the variables have the expected sign.33

The most versus the least corrupt quartiles:

A second preliminary analysis further confirmed the possible existence of a relationship between the dependent and independent variable. For both corruption and exposure, the 25% of countries which performed best in terms of corruption levels were compared with the quarter of countries that performed worst. Figure 1 reports the results.34

The corruption values of the upper quarter are much higher than those of the lowest 25%. The difference is extremely high, more than 4.5 points, which is not unexpected. The interesting aspect of this kind of analysis concerns the exposure variable. Here, a similar observation can be made, but it is much less strong because of the tendency toward the middle which has been explained before. The comparison between the upper and lower 25% again show that more corrupt countries are also more exposed to corruption. The difference, however, is approximately one point. Nevertheless, this confirms that there seems to be a relationship between corruption and exposure. Additionally, the same analyses were conducted for other control variables, revealing, as should be expected, similar findings. As an example, the statistical appendix Figure A. 1 shows these findings for the per capita GDP variable.

33 The regional dummies were not included in the table. Most of them are not significantly correlated with the other explanatory variables.
34 T-test results showed that the differences for both corruption and exposure are statistically significant. By conducting a two-sample t-test assuming unequal variances, there was significance at 2.02 level for corruption and 1.99 level for exposure.
Figure 1. Comparison of Highest and Lowest 25% of the Corruption and Exposure Variables

For corruption (left), the numbers indicate the CPI level. For Total exposure (right), the numbers show exposure values.

Two by Twos:

Another comparison of similar kind brings the relationships between the explanatory variables into a clearer picture. Exposure and openness are selected and analyzed for their interaction effect on corruption. First, the data is sorted by total exposure. The lower and upper halves are then sorted separately by openness. In this way, four categories emerge, as shown in Figure 2. Countries which perform badly in terms of both factors are overall most corrupt, while states which perform well with regard to both variables have in sum the lowest levels of corruption. Moreover, exposure seems to matter more than openness, as the differences between countries performing well to those performing badly are higher in terms of exposure.

Finally, the same kind of analysis was tried comparing the import and export exposure variables, as shown in Figure 3. First, it again confirms the general assumption that exposure
has an effect on corruption. Being exposed negatively through imports and exports is the worst scenario, while being exposed positively through both is the best. Second, the differences again show that exposure to imports matters more. An increase in the value for export exposure does not induce a very large change in corruption levels. On the other hand, such an increase in import exposure leads to much lower corruption levels. This is underlined by the fact that the value for bad import exposure and good export exposure (3.32) is below that of good import exposure and bad export exposure (4.28).

Figure 2. The Interaction Between Exposure and Openness and its Effect on Corruption

4.2 Regression Analysis: Major Findings and Their Implications

The OLS regressions reported in Table 3 reveal the major findings of this study. In total, nine different models were run, with corruption serving as the dependent variable. First, model 1 runs import and export exposure only. Both have a positive sign, which is consistent
with the expectations made in the hypothesis. However, import exposure is significant while export exposure is not. This confirms previous findings that import exposure to corruption is more important than export exposure in influencing corruption levels. The coefficient for import exposure shows that an improvement in exposure by one leads to a reduction in corruption levels by 1.29. The t-statistic for import exposure is 4.84, indicating high significance of the variable. The $R^2$ shows that approximately 25% of the relationship can be explained by this regression.\textsuperscript{35}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure3.png}
\caption{The Interaction Between Import and Export Exposure and its Effect on Corruption}
\end{figure}

\textsuperscript{35} Further regressions were run adding other control variables. The results were constantly better for the import exposure variable.
<table>
<thead>
<tr>
<th>Dependent Variable: Corruption</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure Imports</td>
<td>1.286**</td>
<td>(4.836)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure Exports</td>
<td>0.146</td>
<td>(0.631)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Exposure (weighted)</td>
<td>1.363**</td>
<td>(6.829)</td>
<td>1.279**</td>
<td>(6.571)</td>
<td>0.271**</td>
<td>(2.082)</td>
<td>0.734**</td>
<td>(3.588)</td>
<td>0.117</td>
</tr>
<tr>
<td>Openness</td>
<td>1.283**</td>
<td>(3.207)</td>
<td>0.741**</td>
<td>(3.128)</td>
<td>1.466**</td>
<td>(4.017)</td>
<td>0.819**</td>
<td>(3.524)</td>
<td></td>
</tr>
<tr>
<td>GDP/Capita</td>
<td>0.000151**</td>
<td>(15.864)</td>
<td>0.000142**</td>
<td>(14.162)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Percentage Protestant</td>
<td>0.036**</td>
<td>(4.108)</td>
<td>0.012**</td>
<td>(2.065)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.021**</td>
</tr>
<tr>
<td>Former British Colony</td>
<td>0.601*</td>
<td>(1.669)</td>
<td>0.600**</td>
<td>(2.670)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.631**</td>
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<td>Ethnolinguistic Fractionalization</td>
<td>-0.022**</td>
<td>(-3.843)</td>
<td>-0.008**</td>
<td>(-1.989)</td>
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<td>3.436**</td>
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<td>(-9.048)</td>
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<td>-3.128**</td>
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<td>(-10.103)</td>
<td>-4.404**</td>
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<td>South Asia</td>
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<td>-5.230**</td>
<td>(-10.675)</td>
<td>-4.586**</td>
<td>(-6.502)</td>
<td></td>
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<tr>
<td>Constant</td>
<td>-4.260**</td>
<td>(-3.495)</td>
<td>-3.986**</td>
<td>(-3.285)</td>
<td>-4.332**</td>
<td>(-3.680)</td>
<td>0.918</td>
<td>(1.202)</td>
<td>-0.875</td>
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<td>No. of Observations</td>
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<td>133</td>
<td>133</td>
<td>128</td>
<td>133</td>
<td>133</td>
<td>128</td>
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<td>133</td>
</tr>
<tr>
<td>Adjusted- R²</td>
<td>0.274</td>
<td>0.257</td>
<td>0.306</td>
<td>0.771</td>
<td>0.429</td>
<td>0.785</td>
<td>0.616</td>
<td>0.728</td>
<td>0.818</td>
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Table shows unstandardized coefficients. T-statistics are in parentheses. **Indicates significance at .05 level, *indicates significance at .10 level.
Second, model 2 is run with only total exposure, i.e. the weighted sum of import and export exposure. The result is a positive coefficient which is highly significant, consistent with previous expectations. Moreover, the effect is stronger than with import exposure only: While the coefficient for total exposure, taking the value of 1.36, is only slightly above the results for import exposure in model 1, the variable is a lot more significant, with a t-statistic of 6.83. An improvement in exposure by 1 point will influence corruption levels positively by 1.36 points. Moreover, exposure again explains about 25% of the corruption phenomenon, as can be derived from the adjusted $R^2$.

Next, the openness and GDP per capita controls were added in models 3 and 4, respectively. When openness is added only, the results hold, with similar coefficients and t-statistics for exposure as in model 2. Openness is also positive and significant, according to overall expectations. The coefficients of exposure and openness are approximately the same, but the significance of openness is about half that of exposure. Adding openness does not lead to a major increase in $R^2$, which remains at 0.31. The situation changes when GDP is included. The $R^2$ value jumps to 0.77, with the entire regression thus explaining approximately 77% of the phenomenon. All variables are positive and significant, in line with initial expectations. However, the values for the coefficient and t-statistics of the exposure variable declined sharply to 0.27 and 2.98, respectively.

In model 5, per capita GDP was taken out and replaced by the supposedly exogenous non-economic variables: percentage Protestant, former British colony, and ethno-linguistic fractionalization. All variables are also significant and show the expected signs. The values of total exposure are again more significant (3.59) and the coefficient is a little larger (0.73) than in model 4. This is also the case for openness. Percentage Protestant and ethno-linguistic fractionalization are also significant, while the former British colony variable only shows significance at the 0.10 level. The $R^2$ indicates that the regression explains about 43% of the phenomenon. When GDP per capita is included with this group in model 6, however, all
variables remain significant at the 0.05 level with the exception of the exposure variable, which is not significant at all. Also, the GDP per capita variable is again extremely significant with a small coefficient, and the $R^2$ value is very high.

Finally, the regional dummies are included in the regressions. Model 7 runs only the exposure variable with the regional dummies. Exposure to corruption is again significant, and so are the dummy variables, which all have a negative sign because they are developing countries or transition economies. This is consistent with the aforementioned findings by Treisman (2000). However, when the other variables are included again as in models 8 and 9, exposure again becomes insignificant, while most controls maintain their significance.\textsuperscript{36}

The observations indicate that the most problematic factor in this analysis is the GDP per capita. When GDP per capita is added to the regressions, the t-statistics for exposure decline sharply. Nevertheless, there are a few arguments which show that the results for exposure still hold. Most importantly, the correlation matrix has revealed that GDP per capita is correlated with almost all the other explanatory variables which are not regional dummies. As a result, it could be inferred that both exposure and income might be outcomes and that the other variables explain them, i.e. both could be the function of the same determinants. In this regard, it might also be possible to explain exposure within the GDP per capita variable. Also, both variables might separately be affected by time, while many of the other explanatory variables are not. The inclusion of GDP per capita in regressions which are supposed to explain corruption might thus lead to distortion effects that reduce the significance of the exposure variable.

In other words, it is possible that there is multicollinearity. A few signs indicate that this is the case. First, there is the high $R^2$ that occurs when per capita GDP is included, which is

\textsuperscript{36} The regressions were rerun including indicators for uninterrupted democracy between 1950 and 1995 as well as federalism, both as dummy variables. The findings were similar: Exposure to corruption remained significant as long as not too many variables were added to the regression. Information for the democracy and federalism variables was taken from Treisman (2006, 449-541), Alvarez et al. (1996, 23-30), The Europa World Year Book 2004, and The Central Intelligence Agency (2004).
above 0.80. Second, as mentioned, there exist high correlations between the explanatory variables, in the case of GDP per capita and corruption even above 0.80. Gujarati (1992, 299-307) points out that when these kinds of observations can be made, multicollinearity is likely to be present. To solve this problem, Gujarati recommends excluding variables from the regression as a possible option. The exclusion of income has, then, shown better results for the exposure variable.

Another reasoning that confirms the importance of the exposure variable is that other researchers in this field have encountered the same problems with the GDP per capita indicator. The difficulties many scholars face with the endogeneity bias have been examined previously in this paper. Moreover, La Porta et al. (1999, 244) recommend running the regressions with and without GDP per capita as a variable. For instance, referring to their own study, La Porta et al. argue that “including income in the regressions together with other determinants of performance would then spuriously reduce our estimates of the impact of these determinants on the quality of government.” Similar to the procedure of La Porta et al., this study thus includes the income variable in some regressions and compares the results with regressions in which GDP per capita has been left out.

Finally, many of the other studies on corruption include less explanatory variables in their regressions and derive conclusions from them. Accordingly, this study also shows clear findings when only a few factors are integrated. Nevertheless, to further confirm the findings, a few robustness checks were made, which are reported below.

4.3 Robustness Checks

In total, three robustness checks were undertaken in order to confirm the findings made from the simple OLS regressions. First, there seems to be a problem of heteroscedasticity. To account for this, the same regressions were rerun as Weighted Least Squares (WLS), weighted by the inverse of country population. The respective data was taken from the World
Bank WDI 2002. The idea behind such an approach is that the size effects should be captured. Greene (2000, 499) creates a similar argument by using the example of differences between small and large firms, stating that one expects “to observe greater variation in the profits of large firms than in those of small ones.” Similarly, it is assumed that the model used for this study explains less of what happens in big countries with high populations. There are many reasons to expect this. For example, in big countries it is most likely that a lower percentage of people were questioned regarding corruption levels. Also, distortion effects in measurement might in general be higher in highly populated countries, as measurement becomes more difficult.\footnote{WLS regressions in a cross-country analysis of corruption have been tried previously by Treisman (2000, 415-416).}

Table 4 shows the findings for the WLS regressions. The result of model 1 reports corruption exposure to be statistically significant, but not as significant as in the respective OLS regression, with a t-statistic of 2.87. Additionally, the coefficient is also smaller, taking a value of 0.82. When openness, GDP per capita, percentage of Protestants, former British colony, and ethno-linguistic fractionalization were added to the regression in models 2, 3, and 4, their results were not significant, with the exception of percentage Protestant, which was significant at the 0.10 level, and GDP per capita, which was highly significant as usual. However, exposure becomes more significant when these variables are added, though the value for the coefficient declines to some extent.

Adding regional dummies does not change the picture that much. Income and the regional dummies are highly significant in model 5, while exposure is also significant at the 0.10 level. Additionally, by including press freedom as another explanatory variable, it is shown that press freedom is significant in a regression together with exposure (model 6).\footnote{Press freedom has been left out of the OLS regressions because multicollinearity was suspected due to the high correlation with corruption.} However, it loses this significance in combination with all the other variables (model 7 and 8), while
Table 4, WLS Regression, Weighted by County Population

<table>
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<tr>
<th></th>
<th>Weighted R²</th>
<th>0.822</th>
<th>0.456</th>
<th>0.798</th>
<th>0.815</th>
<th>0.769</th>
<th>0.808</th>
<th>0.799</th>
<th>0.925</th>
<th>0.639</th>
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<th>1.352</th>
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<td>0.925</td>
<td>1.017</td>
<td>1.352</td>
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<td>0.808</td>
<td>0.799</td>
<td>0.815</td>
<td>0.798</td>
<td>0.456</td>
<td>0.822</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>0.815</td>
<td>0.798</td>
<td>0.456</td>
<td>0.822</td>
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<tr>
<td></td>
<td></td>
<td>0.769</td>
<td>0.799</td>
<td>0.456</td>
<td>0.822</td>
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<tr>
<td></td>
<td></td>
<td>0.808</td>
<td>0.815</td>
<td>0.798</td>
<td>0.456</td>
<td>0.822</td>
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<td>0.798</td>
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<td></td>
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<td>0.799</td>
<td>0.456</td>
<td>0.822</td>
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<td></td>
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<td>0.798</td>
<td>0.456</td>
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<td>0.798</td>
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<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Note:** Entries are significant at the 0.05 level, indicating significance at the 10 level.
differences in corruption levels across countries.

For the second robustness check, data on corruption levels in countries was taken from a source other than Transparency International. The exposure variable was re-calculated using this corruption data. For this purpose, the International Country Risk Guide (ICRG) for March 2004 was chosen. It reports corruption levels on a scale between 0 and 6, where 6 signifies least corrupt (The PRC Group Inc 2004).\(^{39}\) By using the same calculation, exposure to corruption is automatically rescaled to a range between 0 and 6. The ICRG is a valid measure considered to be a good alternative to the CPI. For example, both Brunetti and Weder (2003, 1807), and Tavares (2003, 101) use the ICRG measure for their regressions.

Table A. 3 in the appendix reports the findings. In general, they are similar to those of the OLS regressions run using the CPI, but are less strong. The higher importance of import exposure in comparison with export exposure has again been confirmed in model 1. Import exposure has a coefficient of 1.02 and t-statistic of 4.03, while export exposure unexpectedly has a negative sign and is insignificant.\(^{40}\) When run alone with the corruption variable, total exposure in model 2 again is significant (4.02) and has a positive coefficient (0.81). However, as was observed when using the CPI data, exposure becomes insignificant when too many other variables are included. While the regression with openness still shows strong results for the exposure variable (model 3), adding the exogenous variables already reduces the significance of exposure to the 0.10 level (model 5). Furthermore, the problem with the income variable persists: exposure to corruption becomes insignificant particularly when GDP per capita is included in the regressions (models 4 and 6). Eventually, when all controls are included, exposure to corruption also receives the wrong sign and is slightly negative. A

\(^{39}\) See pages S-19 to S-22 of the ICRG March 2004.

\(^{40}\) Attention is necessary here in interpreting the coefficients, as direct comparison of ICRG and CPI has to take differences in measurement into account.
wrong sign, however, is another indicator for multicollinearity (Gujarati 1992, 297). In summary, this second robustness check confirms the findings that exposure to corruption is a significant factor.

One final test was made by using the natural logarithms of the corruption and exposure variables instead of their ordinary values. This was done for two reasons: First, there is no apriori expectation regarding the functional form of the relationship between the variables. Second, even though this is not important for the purpose of a robustness check, a logarithmic analysis converts the absolute values for the coefficients into percentages, making it possible to read the data from a different perspective. Table A. 4 reports the results. Overall, the results are very similar to the original OLS regressions indicating that the changes induced by using logarithms are relatively low. Exposure to corruption is again positive and significant in OLS regressions as long as income is not included. In WLS regressions weighted by population, exposure continues to maintain its significance even when the other variables are added. Moreover, the openness variable is significant in all OLS, but not in the WLS regressions. GDP per capita is again significant in all cases, but with relatively low t-statistics compared to previous regressions and the usual small coefficient. Some of the three social and cultural variables show significance in OLS regressions, but none of them is significant in the WLS regressions. Overall, this is consistent with the previous findings.
CHAPTER FIVE
CONCLUSION

This paper acknowledges the importance of conducting further inquiry into the causes and consequences of corruption, as it provides an important basis for pursuing policies that have the objective to reduce corruption levels globally. There are many reasons why corruption has a highly negative effect on human development. For example, corruption weakens citizens’ credibility in the state and its institutions, impedes economic development, jeopardizes political stability, and undermines the provision of services and security to the people (Doig and Marquette 2005, 200). Also, high corruption might diminish the amount of foreign direct investment flows into a country, reducing overall welfare and stability even further (Wei and Shleifer 2000, 337-339). Thus, the World Bank and other organizations maintain a rising interest in combating the menace, with the ultimate goal of improving human welfare.

The objective of this study was to add further knowledge to the present inquiry on the causes and consequences of corruption. Previous scholars have emphasized various factors as being important indicators in influencing corruption levels in different countries. The predominant factors seem to be openness to trade, per capita GDP, the percentage of Protestants, the fact that a country was a former British colony or not, ethno-linguistic fractionalization, and a few more. As this field of research is relatively new due to recent availability of adequate and reliable data, scholars have not yet agreed what factors belong in regression analyses on the causes of corruption.

This study added another variable to the existing factors that are supposed to explain differences in corruption across countries. Based on the notion that states influence each other when they engage in mutual trade, for instance through various business channels, it is argued that they become mutually exposed to each other’s corruption practices. Thus, it is proposed
within this paper that the corruption level in one country could, in part, be a function of the corruption levels of the country's trading partners.

For the purpose of proving empirically that this is the case, a new measure was introduced that captured this phenomenon, which was termed "exposure to corruption." It was calculated as the sum of the percentages of a country's trade with its trading partners, where each percentage was multiplied by the trading partner's corruption level. Using this method, quantity and quality of exposure were taken into account. The resulting measure of exposure is easily comparable to corruption as both variables have values ranging from 0 to 10. The calculated numbers for exposure proved to be, on average, above those given for corruption. There exists a simple explanation for this finding: Most trade takes place with the same small group of industrialized countries, which have on average relatively low perceived corruption levels.

Some preliminary analyses, such as simple correlations as well as comparisons of the characteristics of the main variables, revealed initial findings that pointed to a possible relationship between the dependent and independent variables. This was mostly confirmed by the OLS and WLS regressions. Interestingly, exposure to corruption through imports proved to be more important than exposure through exports. The total exposure variable remained significant as long as not too many variables were included in the regressions. In this regard, a problematic aspect was seen in the inclusion of GDP per capita, which highly diminished the significance of the exposure variable. However, various explanations for this phenomenon were made which led to the conclusion that the results for exposure do hold. This was confirmed through various robustness checks.

Thus, there seems to be clear evidence that individuals influence each other in a positive or negative way when they engage in international trade, at least in terms of corrupt behavior. From a global perspective, it means that corrupt behavior can spill over from one country into another. This has some important implications for future conduct. First, businesspeople
should be aware of this phenomenon and make an attempt not to become influenced by such negative behavior. Individuals traveling into countries that are known to have higher levels of corruption should make sure as much as possible that they do not become subject to such bad habits. Second, countries with low corruption levels should be a good example for others. This can be done by further cracking down on corruption there and emphasizing the positive effects such good performance has on economic welfare. In this context, the countries with low corruption should also establish more laws and regulations that limit corrupt behavior of their own companies abroad. Such attempts have been made previously, such as through the Convention on Combating Bribery of Foreign Public Officials, which was established by the Organization for Economic Cooperation and Development (OECD) (Bradesas and Heiman 1998, 17). More efforts, however, seem necessary, as it is of primary importance that the industrialized countries become engaged. This study confirmed that the developed world has a major responsibility because much trade is done with it, and it thus has some influential power over trading partners, which can be used to combat corruption. In particular, as the results of this study also imply that companies from very corrupt countries imitate positive behavior from companies in less corrupt states, firms from industrialized countries should pay special attention to the way they deal internally with corruption and undertake necessary improvements. And finally, countries with a bad record regarding corruption should make an effort to improve their domestic systems and institutions. But this is hard to enforce from the outside, and thus local governments would have to be convinced of the benefits of cracking down on corruption.

Since the issue investigated here, namely that corruption can be imitated from country to country, is very new, more thoughts and considerations on its relevance and policy implications seem necessary. Furthermore, as a possible basis for future research, the sociological and psychological dimensions of this phenomenon could be explored in further
detail. What is the status quo of research on such “learned behavior” in the realm of sociology or psychology? A further discussion of this aspect will be left for future scholarly work.
REFERENCES


# APPENDIX 1: DATA APPENDIX

<table>
<thead>
<tr>
<th>Variable</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imports</td>
<td>Commodity imports to individual countries for the year 2000 (in U.S. dollars.). <em>Source: UN Comtrade Database.</em></td>
</tr>
<tr>
<td>Exports</td>
<td>Commodity exports from individual countries for the year 2000 (in U.S. dollars.). <em>Source: UN Comtrade Database.</em></td>
</tr>
<tr>
<td>Ethno-linguistic Fractionalization</td>
<td>Likeliness that two people are members of the same ethno-linguistic group in the years prior to 2000. <em>Sources: Mauro, 1995, “Corruption and growth;” and supplemented with data from the World Christian Encyclopedia 2001.</em></td>
</tr>
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</table>
APPENDIX 2: STATISTICAL APPENDIX

Table A. 2. Mean Values of the Corruption and Exposure Variables from a Regional Perspective

<table>
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<tr>
<th>Region</th>
<th>Corruption</th>
<th>Total Exposure</th>
<th>Total Exposure Minus Corruption</th>
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<td>Total</td>
<td>4.20</td>
<td>6.01</td>
<td>1.81</td>
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<tr>
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<td>4.26</td>
<td>6.29</td>
<td>2.03</td>
</tr>
<tr>
<td>(Eastern) Europe and Central Asia</td>
<td>3.21</td>
<td>5.37</td>
<td>2.16</td>
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<td>Latin America and Caribbean</td>
<td>3.47</td>
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<tr>
<td>Middle East and North Africa</td>
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<td>1.88</td>
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<td>Sub-Saharan Africa</td>
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<td>South Asia</td>
<td>2.50</td>
<td>6.36</td>
<td>3.86</td>
</tr>
<tr>
<td>Rest: (Western) Europe, North America, and Oceania</td>
<td>7.97</td>
<td>6.94</td>
<td>-1.03</td>
</tr>
</tbody>
</table>

Figure A. 1. The GDP Per Capita in the Most Corrupt (Highest 25%) Versus the Least Corrupt (Lowest 25%) Countries
Table A.3. OLS Regression Results: Using ICRG Data for Corruption and Exposure

<table>
<thead>
<tr>
<th>Dependent Variable: Corruption</th>
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<th>(2)</th>
<th>(3)</th>
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<th>(5)</th>
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<tr>
<td>Exposure Exports</td>
<td>-0.103</td>
<td>(-0.487)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Total Exposure (weighted)</td>
<td>0.806**</td>
<td>(4.021)</td>
<td>0.771**</td>
<td>(3.855)</td>
<td>0.056</td>
<td>0.333*</td>
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<tr>
<td>Openness</td>
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<td>GDP/Capita</td>
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<td>0.000045**</td>
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<tr>
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<td>(4.866)</td>
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<tr>
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<td>(-2.724)</td>
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<td>1.724**</td>
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<td>1.074</td>
<td>(1.522)</td>
<td>3.021**</td>
<td>(4.627)</td>
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<td>0.652</td>
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Table shows unstandardized coefficients. T-statistics are in parentheses.

**Indicates significance at .05 level, *indicates significance at .10 level.
<table>
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<th>Dependent Variable: Ln Corruption</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
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<td>OLS</td>
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<td>(Population)</td>
<td>(Population)</td>
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<td>0.962**</td>
<td>0.331</td>
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<tr>
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<td>(3.561)</td>
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<td>0.194**</td>
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<td>(3.966)</td>
<td>(3.010)</td>
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<tr>
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<td>0.000029**</td>
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<td>-0.002**</td>
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<td>0.368</td>
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</tr>
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</table>

Table shows unstandardized coefficients. T-statistics are in parentheses. **Indicates significance at .05 level, *indicates significance at .10 level.