MSc thesis
(Thesis Code: DEC- 80433)

Determinants of Corruption of Village Chiefs: Evidence from a Field Experiment in Rural Liberia

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December, 2015

Acknowledgement

First of all, I would like to extend my deepest gratitude to my supervisor Gonne Beekman for her constant, timely and invaluable feedback. I learned a lot from you about research and scientific writing more than I did in the past 2 years. Dear Gonne, thank you for your support and understanding given the later unforeseen developments during the process of writing the thesis. Secondly, I would like to thank my study advisor Sudha Loman for her constant advice and support during the course of my study. I am also grateful for the members and contributors of Anne van den Ban Fonds (ABF) and particularly Mrs Frederique Six for providing the full financial support for my study.

I would also like to thank my family, friends and classmates for their support and encouragement. Last but not least, many thanks for Aziza. You are the best thing I have and thank you for your patience, support and love. And, this is for you and for the would be new member of the family.

Abstract

We investigated the micro-determinants of corruption of village chiefs in Liberia. We hypothesised that corruption of chiefs is determined by their socio-economic characteristics and of their villages. We used data collected from 136 villages and around 2600 households in rural Liberia. We employed an objective measure of corruption by identifying the amount of rice seeds missing after they are kept at the chiefs place. We estimated a tobit (censored) regression model since our dependent variable is censored. We find that chiefs who were born in the same village are corrupt as compared to their counter parts. We also find that chiefs under a (perceived) corrupt district commissioner are corrupt as compared to their counterparts. The results show the influence of leaders on their subordinates. All of the other variables included in our study do not show statistically significant effect on corruption of the chief.

List of Figures and Tables

Table of Contents

Chapter One: Introduction

1.1. Background of the Study

In recent years there is a growing consensus on the notion that bad governance and low quality institutions underlie the poor performance of many economies and condemn many people to languish under the yoke of extreme poverty. A problem closely related to these concepts is corruption. Even though corruption occurs in all countries, it is generally accepted that it is often more widespread and its effects are more detrimental in developing countries (Olken and Pande, 2012). According to the World Bank, estimated bribe payments worldwide amount over one trillion dollars and 25% of the GDP of African countries is lost due to corruption each year (cited in Sequeira, 2012). Transparency International, the largest worldwide anticorruption non-governmental organization, emphasizes the costs of corruption as follows:

> *.....The cost of corruption can be divided into four main categories: political, economic, social and environmental. On the political front, corruption is a major obstacle to democracy and the rule of law. In a democratic system, offices and institutions lose their legitimacy when they're misused for private advantage. ..... Economically, corruption depletes national wealth. Corrupt politicians invest scarce public resources in projects that will line their pockets rather than benefit communities, and prioritise high-profile projects such as dams, power plants, pipelines and refineries over less spectacular but more urgent infrastructure projects such as schools, hospitals and roads. Corruption also hinders the development of fair market structures and distorts competition, which in turn deters investment. Corruption corrodes the social fabric of society. It undermines people's trust in the political system, in its institutions and its leadership. A distrustful or apathetic public can then become yet another hurdle to challenging corruption. Environmental degradation is another consequence of corrupt systems. ..... precious natural resources are carelessly exploited, and entire ecological systems are ravaged. From mining, to logging, to carbon offsets, companies across the globe continue to pay bribes in return for unrestricted destruction* (Transparency International, 2015).

Recognizing these adverse effects of corruption on society, international organizations such as the World Bank, the United Nations and Transparency International etc. have called for widespread reforms in developing countries. These organizations and individual countries have promoted various anticorruption policies by committing large amounts of resources to fight against corruption. In order to be able to design appropriate and effective anticorruption policies, we need to clearly know at least two things related to corruption: the determinants of corrupt behaviour and its consequences on development.

For many years, corruption was considered primarily a political problem to be studied in political science with little or no implication to economic development. Besides, most international financial institutions refrained from working on corruption as it was regarded as violating the principle of non-interference in the political affairs of their members (Soreinde, 2014). Since early 1990s, however, many studies have clearly shown the relation between corruption and governance issues, on the one hand, and economic development, on the other. Moreover, it has become clear that, if done right, governance issues may be addressed without interfering in the political affairs of countries (Ibid.). Partly as a result of these changes, there has been a tremendous increase in the number of theoretical and empirical works on the economics of corruption. A major problem related to studies on corruption is the difficulty of measuring the actual magnitude of corruption. This has in fact for so long limited the ability of economists and political scientists to provide a menu of effective anticorruption policy intervention tools. Because corruption is illegal or at least immoral, corrupt transactions take place secretly and this makes measuring their occurrence very difficult (Serra and Wantchekon, 2012). Until recent years, most of the studies on the determinants and effects of corruption were basically macro studies, focused at national levels. Because of the difficulty of objectively measuring corruption, these studies rely on aggregate data estimating corruption using survey based indices to explain cross-national differences of corruption perceptions (Olken and Pande, 2012). Based on the findings of these studies, most of the anticorruption policies focused on changing or reforming the political institutions and the legal systems and targeted national or regional bureaucrats often with unsatisfactory results in curbing corruption. Measuring the corrupt behaviour of individuals using surveys has disadvantages. One of these disadvantages is the high probability of measurement errors in such measures. Besides, respondents are more likely to hide the truth when asked about their involvement in corrupt practices for fear of legal and social sanctions (Serra and Wantchekon, 2012). Besides, there is evidence that corruption perception may significantly differ from actual corruption (see Sequeira, 2012).

In recent years, microeconomic studies on corruption are growing. Some of these studies have used lab-experiments to identify the micro-determinants of corruption (for a discussion, see Armantier & Boly, 2012). And more recently, the remarkable progress made by economists in using ingenious ways to measure corruption has led to the rise of well-identified, microeconomic studies on corruption (Olken and Pande, 2012). A strand of these studies

focuses on identifying the determinants of corruption and thereby exploring avenues to curb the incidence of corruption via various policy measures. Another strand focuses on the effects of corruption on economic performance (Beekman et al., 2013). Most of the cross-national studies on the determinants of corruption have emphasized the role of the political, economic and social environments in explaining the variation in the levels of (perceptions of) corrupt practices among nations or regions (see Lambsdorff, 2005; Treisman, 2000 & 2007; Soreinde, 2014; Seldadyo and Haan, 2006; Serra, 2006). Accordingly, these studies regarded structural factors such as the overall level of development, religious traditions, political regimes or design of legal systems as important determinants of the level (perceptions) of corruption. But, recent studies show that short-term factors, that can possibly be manipulated by policy interventions, may also influence corrupt behaviour (Beekman et al., 2014).

Early studies on the effects of corruption provided ambiguous results and debated on the effects of corruption on development. Some of these studies indicate that corruption may foster efficiency and hence growth while others argue to the contrary. But, in recent years many studies generally indicate that corruption is a hindrance to growth and development (Beekman et al., 2013). The World Bank states that even though countries with systemic corruption may at the same time show strong economic performance, experience suggests that corruption is bad for development (The World Bank, 2013). Corruption can hinder growth and development through various mechanisms. Many macro studies and more recently, micro-studies have investigated these mechanisms. A sizable number of macro studies show that corruption acts as a distortive tax (reducing the marginal product of investment) and hinders investment and economic growth, decreases foreign direct investment (FDI) and exacerbates income inequality (see Bates, 1981; Campos et al., 1999; Lambsdorff, 2005; Mauro, 1995; Schleifer and Vishny, 1993). Other studies also show that it lowers levels of human capital and thus decreases the flow of FDI and growth by hindering the supply of public services such as education and health care (Lambsdorff, 2005). Studies also show that it may lead to the emergence of inefficient firms or use of low technologies by firms to enhance bargaining (Svensson, 2003). Recently many micro-level studies also confirm most of these findings. These micro studies indicate that corruption reduces incentives to invest, to engage in profitable economic activities, to contribute to public goods and severely affects the ability of governments to provide infrastructures, education and redistribute wealth among their citizens in developing countries (Beekman et al., 2013; Beekman et al., 2014; Olken, 2006, 2007; Reinikka & Svensson, 2004).

In this study, we investigate the micro-determinants of corruption in Liberia. Despite some progress in recent years, corruption is a big problem in Liberia. The country ranked 94 out of 175 countries in the Corruption Perception Index (CPI) in 2014 (Transparency International, 2015). As one of the poorest countries in the world (ranked 175/187 in the HDI in 2014), corruption is regarded as one of the challenges to development in Liberia. Previous micro-level studies indicate that chiefs in rural Liberia engage in 'corrupt' practices (see Beekman et al., 2013; Beekman et al., 2014; Beekman and Bulte, 2015). For example, Beekman et al. (2014) identify two mechanisms by which villages chiefs may engage in corrupt activities: using communal resources for own benefit and appropriating private property of specific community members. This study aims to identify the determinants of corruption of village chiefs in rural Liberia using a micro dataset. We investigate corruption behaviour at local level among village chiefs based on a novel data collected from 132 communities using an objective way of measuring corruption.

1.2. Statement of the Problem

As stated earlier, in order to effectively combat corruption with appropriate policy tools, at least two things should be clearly understood. First, there is a need to understand the underlying incentives and drivers of corrupt behaviour that could explain why some leaders choose to engage in it while others choose not to. Second, the ways and if indeed corruption hinders growth and development should be empirically investigated. There is little doubt that in both of the above issues current economic research is lagging far behind where it needs to be to offer policy makers with the appropriate policy toolkit to effectively combat corruption. While many macro studies based on cross-national comparisons of indices of corruption perceptions have attempted to tackle these two issues, there are only few well identified micro-level studies on corruption that rely on objective measures. This is mainly due to the difficulty of collecting accurate and objective data on (direct) individual corruption decision making. As a result, there are so few hard data sets relating to micro-level corruption which tend to be highly context specific and relate to the "victims" rather than those who commit corruption (Abbink and Serra, 2012). This is a major setback in the efforts to fight corruption. If we are not able to accurately and reliably measure corruption, we cannot properly identify its extent and magnitude. This in turn implies that we cannot meaningfully test theories of 'causes' corruption against the data to help us understand the fundamentals of how and why

corruption occurs, and effective anticorruption strategies cannot be formulated, tested and adapted to different settings (Sequeira, 2012).

Until very recently, most studies on the determinants and consequences of corruption were essentially macro studies based on cross-national comparisons of indices of (perceptions of) corruption. These studies have two basic limitations. First, they are cross-sectional studies and hence do not enable us to tell a convincing causal story. It is difficult to establish causal relationships using observational data that is prone to endogeneity bias (Seldadyo and Haan, 2006). The correlations can go both ways and it is not clear if some of the variables or factors are causes or consequences of corruption. For example, countries with lower (perceptions) of corruption may be expected to grow faster but on the other hand the causality can go in the reverse direction: countries with high income may be expected to have the necessary resources and good quality institutions that will enable them to combat corruption effectively. Moreover, as cross-sectional studies, their results vary depending on the model specifications. Variables that were significant in some studies become insignificant in others when the model specification changes or other relevant variables are included. Besides, by taking countries as study units, these studies mostly emphasize structural causes and ignore the role of the individual decision maker who should be the subject of study when analysing concepts like corruption. Second, they are based on measuring corruption using subjective indices of perceptions of corruption not on the actual occurrence of corruption and actual levels of corruption could vary significantly from perceptions of corruption for many reasons (see Sequeira, 2012). These perception indices are provided by private firms or international organizations based on surveys of country citizens, business analysts, risk analysts and experts and as such these values are far from being objective (Serra, 2006). Besides, they may be measured incorrectly. Effective anticorruption policies cannot be designed based on the empirical findings of these studies (see Abbink and Serra , 2012, pp. 78-79 for a detailed explanation).

In recent years, lab-experiments are being used to investigate the micro-determinants of corruption and thereby probe possible effective ways of curbing corruption. Despite their advantages in enabling the researcher to directly observe individual decision making in engaging in corruption, lab-experiments have low external validity; i.e., they are less likely to represent individual decision making in a real environment (See Armantier and Boly, 2012 for a discussion). In this regard, field experiments offer an alternative to lab-experiments and they are relatively closer to what happens in a real world environment than lab-experiments.

Micro-level investigations of the determinants of corruption based on objective measures are highly needed if we are to make progress in understanding this seemingly familiar but completely complex and multi-faceted concept.

Particularly in Africa, even though bad governance is generally regarded as a hindrance for development, only few studies focus on the role of governance at the local level (Turley et al., 2013). A majority of the population in Africa lives in rural areas, where the national state has limited reach, and hence the quality of local governance may greatly affect development outcomes (Acemoglu et al.,2013).The lowest tier of government in most sub-Saharan African countries is occupied by traditional rulers or chiefs who play many significant roles in the socio-economic activities of their communities. These include, among others, raising taxes, allocating resources (including land) and controlling the judicial system in rural areas. Despite their diverse roles in the socio-economic aspects of African societies, relatively little is known about how chiefs exercise their power and the effects of constraints on their power on economic development (Ibid.). This is rather disappointing because the majority of the population in Africa live in abject poverty in rural areas despite many national and international efforts to alleviate poverty and to reduce income inequality with urban areas. In this regard, it is highly important that we understand the local determinants of corruption (often a symptom of bad governance) of village chiefs in rural areas in Africa.

Recent micro-level studies in rural Liberia indicate the existence of significant corruption among villages and its negative effects on development (Beekman et al., 2013; Beekman et al., 2014; Beekman and Bulte, 2015). In particular, these studies find that members have reduced incentives to engage in productive activities, to invest and to contribute to public goods in villages with corrupt chiefs. Accordingly, these studies also suggest that these negative effects of corrupt chiefs can undermine the performance and success of development projects as such projects often require complementary private investments and public mobilizations (Beekman et al., 2014). To the best of our knowledge, there are no studies that investigated the determinants of the corruption behaviour of the village chiefs in rural Liberia. In this study, we try to provide a simple theoretical framework of modelling the determinants of corruption of village chiefs in rural Liberia using the standard incentives theory of Economics. We will complement our theoretical framework with a sociological perspective, particularly with the social learning theory developed to explain deviant behaviour. This is

important because we would expect that the decision to engage in corrupt practices may also depend on intrinsic motivations and the value framework within a society in addition to the incentives framework and structural factors. We use a more objective way of measuring corruption among village chiefs based on a field experiment done in rural Liberia. Understanding the determinants of corrupt behaviour using basic (economic) concepts may offer significant guidance on how to design effective anticorruption policies(Olken and Pande, 2012). This study seeks to contribute to the growing but still relatively scanty micro-level evidence on the determinants of corruption in rural Africa.

1.3. Objective of the Study and Research Questions

The general objective of this study is to identify the micro-determinants of corruption of village chiefs in rural Liberia. More specifically, the study attempts to address the following two objectives. First, it examines the relation between chiefs' characteristics and their corrupt behaviour. Second, it investigates if the corrupt behaviour of chiefs responds to economic and socio-cultural factors as well as to the presence of monitoring and the threat of punishment.

In line with these objectives, the research is guided by the following research questions:

1. Do characteristics of the chief determine his/her corrupt behaviour?

2. Which socio-economic and cultural factors affect the corruption of the chief?

The study is significant in that it enables us to understand how the opportunities and incentives for corruption take place in development projects and reflect on the lessons this knowledge may offer for policy formulations for combating corruption.

1.4. Organization of the Thesis

The thesis contains five chapters. The remainder of the thesis is organized as follows. The second chapter introduces the theoretical framework and reviews the empirical literature related to the determinants and impacts of corruption. It also provides a brief account of the definition and types of corruption as well as the different types of recently emerging measures of corruption. A brief account of the history of leadership and corruption in Liberia is also

included in this chapter. Chapter 3 presents the data sources, model specification and estimation strategy, description of variables and forwards the hypotheses. Chapter four addresses the results and discussions. The last chapter concludes the study and provides the implications of the results and critical reflections on the study.

Chapter Two: Literature Review and Theoretical Framework

2.1. Definition and Measures of Corruption

2.1.1. Definition of Corruption

Even though corruption is not a new phenomenon, it is hard to give a precise and universally accepted definition (Aidt, 2003). Corruption is influenced by a multitude of factors including economic, social, political, legal, cultural and historical and involves various officials at different hierarchies of leadership. For the purpose of this study, we employ the definition of corruption suggested by Rose-Ackerman (1993, p.1) and is widely used by many international organizations such as the Transparency International as well as by many researchers. The definition states that corruption is "the misuse of public office for private gain." While what constitutes 'misuse' is ambiguous, the definition recognizes that sometimes public office can legitimately provide private benefits to politicians and bureaucrats (Rose-Ackerman, 1993). What is considered 'misuse' will most likely vary in different societies and contexts. But still, we believe that this definition is relevant to our study of corruption in rural Africa due to the wider scope and potential for 'misuse' of power by village chiefs given their many roles in the socio-economic aspects of their communities. Corruption is multidimensional and can take a variety of forms (see Soreinde, 2014 for a glossary of corruption). We will provide the definitions of only three types of corruption for the purpose of our study. "Grand corruption consists of acts committed at a high level of government that distort policies or the central functioning of the state, enabling leaders to benefit at the expense of the public good while petty corruption refers to everyday abuse of entrusted power by low- and mid-level public officials in their interactions with ordinary citizens, who often are trying to access basic goods or services in places like hospitals, schools, police departments and other agencies" (Transparency International, 2015). When corruption is so prevalent that it is part of the everyday structure of society, we have what is called systemic corruption. According to Serra and Wantchekon (2012, P.1) all acts of corruption have two common features: (1) "they all rely on rule breaking on the part of public officials for the achievement of some form of illicit private gain and (2) they all take place behind closed doors." In order to effectively administer public offices, there is a need to delegate power and authority and civil servants must be trusted to make decisions on multiple issues. This discretionary authority may lead to temptations and opportunities to pursue personal interests at the expense of what may be best for society (Soreinde, 2014). When this happens, it is corruption.

2.1.2 Measures of Corruption

As stated earlier, the primary challenge faced by scholars of corruption is the difficulty of measuring (actual) corruption. According to Sequeira (2012), measuring corruption is difficult for a number of reasons. First of all, corrupt officials seek to hide their behaviour for fear of punishment and shame. Corruption can also take many forms and involve many different types of public officials. And as such "identifying the full extent of different types of corruption will often require a deep understanding of the broader institutional, social, political and cultural context in which corrupt behaviour is taking place. The main challenge is to identify objective, replicable and yet adaptive measures of corruption, capable of capturing new developments in corrupt behaviour as they emerge" (Sequeira, 2012, p. 147).

Until very recently, most measures of corruption were based on surveys of perception. While these perception surveys have the advantage of large coverage, they are subjective and may not measure corruption accurately (Olken and Pande, 2012). Perception based measures have several methodological problems, such as unpredictable sampling and reporting bias (see Sequeira, 2012; Triesman, 2007). "At a more practical level, the methodology and degree of completeness of these indices varies both from country to country and from year to year, rendering cross-national and longitudinal studies hard to interpret"(Sequeira, 2012, p. 150). The most commonly used perception indices are the Corruption Perception Index (CPI), a survey of experts and public opinion on corrupt practices in over 150 countries and the Bribe Payers Index (BPI), a survey of businessmen and investors on the likelihood of having to pay a bribe in over 60 countries. Both of these indices are produced annually by the Transparency International. The International Country Risk Guide (ICRG) and the World Bank Governance Indicators (WBGI) also yearly publish indices of the quality of institutions in different countries including perceptions of petty and grant corruption as well as the degree of state capture by elites and private interests (Ibid.).

In recent years, economists have shown a remarkable improvement in their ability to measure corruption (Olken and Pande, 2012). Scholars have employed various direct and indirect techniques of measuring corruption. Among the direct techniques are for example; documented measures of corruption (bribes), observing corruption in the field and transaction-level data of bribe payments. Among the indirect techniques are: forensic economic approach or estimates

from market or statistical inference and minding gaps in the data (see Sequeira, 2012; Olken and Pande, 2012 for an elaborate discussion of these methods). Among these, the method that is increasingly becoming popular to measure corruption in the field is what is commonly called 'minding gaps in the data'. This method uses the difference between two data or measures that suggest 'illicit' behaviour as an indicator of corrupt behaviour(Beekman et al., 2013). The difference might be identified in case of discrepancies between different official data sources; between administrative data and results from an independent household survey (see for example, Olken, 2006, 2007; Reinikka and Svensson, 2004) or between two primary sources of data (see Beekman et al., 2013). Olken and Pande (2012) describe this approach also as 'graft estimation by subtraction' and is regarded as the most commonly used approach for estimating graft (i.e., the theft of government funds).

For the purpose of this study we employ a form of 'minding the gap' measure of corruption following Beekman et al. (2013, 2014) in their first studies of corruption focusing on African smallholder farmers. The researchers partnered with a development project that delivers agricultural inputs to some villages in rural Liberia. These inputs include -rice seeds, vegetable seeds and agricultural tools[1]. Before the inputs were taken to the villages, they were carefully measured (' measure 1'). They then asked the chief to keep these inputs in his house for two days. After two days the inputs were measured again to check if some inputs were missing or 'stolen' by the chief ('measure 2') before they are distributed to beneficiaries in the community. The difference between these two measures is interpreted as an indicator of the chief's tendency to 'misuse' his/her power to appropriate community resources for 'private gain or use' ('corrupt practice' following the definition employed in our study). They then used this difference between the two measures to construct various proxies for corruption. Such a measure has certain advantages: it does not suffer from a bias resulting from incompetent bookkeeping and is not based on survey responses which are more likely to be biased (Beekman et al., 2013). In their study, they find that seeds were diverted in 36% of the communities and diverted inputs were observed in almost half of the communities. This suggests a high prevalence of 'misuse' of power or 'corruption' of village chiefs in rural Liberia. But, Beekman et al. are adamant that alternative explanations may exist for the 'stolen' inputs and their measure may not be a perfect measure of actual corruption (See Beekman et al., 2013, 2014; Beekman and Bulte, 2015). Even if this measure may be noisy and may not

[1] Seeds: 25 kg upland or paddy rice (depending on land type); 3 kg beans and peanuts; 5 kg corn; 20 g pepper seed; 5 g bitterball seed. Tools: cutlasses and regular hoes (4 each); shovels, files and watering cans (2 each).

arguably reproduce exactly a real corruption environment, we believe that it is a more objective and reasonable proxy for corruption given the difficulties of observing actual corruption. In our case, the distributed inputs are only rice seeds which were delivered in 2012 as part of a large scale development project aimed at poverty alleviation in rural Liberia. A 30 Kg bag of rice seeds was kept at each chief's house for 2 days and then was measured again to check if any amount was missing. Then, we used the amount of rice missing as a proxy for the corruption behaviour of the chief. The implicit assumption here is that chiefs who stole the rice seeds in such a situation are also most likely to misuse their power for illegitimate personal benefits through diverting community resources or any other means (Beekman & Bulte, 2015).

2.2. Theoretical Framework and Empirical Literature

2.2.1. The Incentives for Corruption and the Individual Decision Maker: An Economic Perspective

Why do some officials or leaders tend to misuse their public power for personal gains while others do not? Why is corruption more widespread in some regions or countries than others? A commonly used conceptual framework by political economists to analyse the drivers of corruption is the incentives theory. We employ the insights from the theory to guide our analysis in the search for the local or micro-level explanation for the corrupt behaviour of village chiefs in rural Liberia**.** The incentives theory postulates that a behaviour or an action is pursued if its expected benefits are greater than the expected costs for an individual. In line with this, factors that are expected to increase the (perceived) expected benefits and/or reduce the expected costs of an action(behaviour) tend to drive the action(behaviour). In the same manner, factors that are expected to decrease the (perceived) expected benefits and/or increase the expected costs of an action(behaviour) tend to discourage it. Most (economic)studies on the drivers of corruption (at an individual level) posit that individuals engage in corrupt activities when the expected benefits of doing so are high and/or the expected costs of doing so are low. So, the decision to engage in corrupt practices can be analysed using incentives theory that explains corruption as the result of a rational choice. According to the theory of individual utility maximization, an individual will be involved in corruption if the expected benefits of doing so are greater than the expected costs (Soreinde, 2014). The (expected) benefits of a corrupt act possibly are monetary gains as well as positions and power for oneself, family or relatives. The expected costs of a corrupt act can be broadly divided in to psychological, social

and financial costs. More specifically, these costs include the bribe payment, moral "costs" of breaking norms and rules, efforts to hide the crime and money laundering, as well as the perceived risk of detection and the consequences of prosecution and punishment. Indirect costs could also be loss of reputation if the corruption is revealed, including a loss of status and future income or benefits, for example as result of losing work positions or tenders (Ibid.).

Using this conceptual framework, we can categorize the determinants of corruption into two: those factors that are assumed to increase the (perceived) expected benefits of engaging in corrupt activities and those that are assumed to decrease the expected costs of engaging in those activities. The factors that are expected to affect the expected benefits and/or costs of corruption depend on many economic, socio-cultural, institutional and political conditions. For example, using the logic of the incentives theory, Olken and Pande (2012) developed a simple model to look into the incentives bureaucrats face when making decisions to engage in corrupt activities. They assumed the bureaucrat receives a wage *w* from the government and can receive an outside option *v* elsewhere, if fired from the job. The bureaucrat can decide to be corrupt or honest. If he chooses to be corrupt, he is detected with a probability *p*, is fired, and receives the outside option *v*. If his corrupt act is undetected, he receives his wage *w* plus the bribe *b*, but he also incurs a dishonesty cost *d*. In such a situation, Olken and Pande (2012) postulated that in equilibrium, the bureaucrat will be corrupt if and only if $w - v < \frac{1-p}{p}(b - d)$. This implies that the lower the wage (w) of the bureaucrat, the higher the perceived benefit (utility) of engaging in corruption (due to the potential for higher need for additional income) and hence the more likely the bureaucrat will become corrupt. In the same manner, the presence of rents (a higher *b*) tends to increase the expected benefits of engaging in corruption and hence will reinforce corrupt behaviour. This framework suggests the following options for reducing corruption: increasing the returns to staying on the job (*w*), or, equivalently decreasing the outside option (*v*) by increasing punishments or increasing the probability of detection (*P*) (Ibid.).

Olken and Pande (2012) state that there are costs of engaging in corruption even when it is undetected which they referred to as the dishonesty cost(*d*). The dishonesty cost refers to the psychological and social costs of engaging in corruption. This cost depends on individual beliefs and preferences as well as socio-cultural factors which determine the intensity of the sense of guilt & social sanctions faced by the corrupt individual (Ibid.).These may include, for

example, how corruption is defined by the society, how wide spread it is in the society (whether there is systemic corruption) and other cultural factors. In some societies giving bribe is considered just a gift to promote future business deals or an additional compensation in return for receiving some favours or for services rendered (Varese, 2000 as cited in Abbink and Serra, 2012). Some societies regard the graft or embezzlement of public resources by their leaders as mere compensations for the services they provide to the community (also works for nepotism, clientelism where in some societies are accepted norms). So, in such societies the sense of feeling of guilt as well as the social sanctions on corrupt individuals will be minimal or non-existent. If there is systemic corruption, then society will condone corruption and no sanction or action will be taken against those who are engaged in it. All these factors reduce the dishonesty cost of engaging in corrupt activities in any given society and hence drive corrupt behaviour. According to Olken and Pande (2012), if potential bureaucrats (leaders) differ in their dishonesty cost , those who have lower dishonesty cost will self-select to become leaders. "People with a lower dishonesty cost will have a higher utility from becoming bureaucrats than those with high dishonesty cost, as they will be relatively more efficient at corruption." (Olken and Pande, 2012, p. 496). So, according to them, this may make fighting corruption harder because a corrupt system may attract bureaucrats who are more prone to corruption**.**

As stated above, the decision of the bureaucrat to engage in corrupt activities is also influenced by factors that affect the expected costs of engaging in corruption. One of these factors is the probability of being detected *p* (Olken and Pande, 2012). The threat of the probability of being detected depends on the intensity of monitoring and punishment which in turn is influenced by the availability, access to and flow of information (transparency), the quality of institutions and the political will and commitment to fight corruption. This implies that in societies characterized by lower flow of information (lack of communication), lower quality of institutions and lack of political will and commitment; the perceived threat of detection and punishment will be lower. Hence, this will encourage the decision to engage in corrupt activities. Another factor that influences the expected costs of a corrupt act is the probability of being fired or losing one's position upon detection. The bureaucrat may have the chance to receive an outside option *v* if he is detected in corruption and is fired. The probability of being fired when detected in fact depends partly on the nature of the political decision making system and the presence of competition. If the leader has no potential competitors or opponents and is entitled to the position, then the threat of losing the power or position will not exist or at least will not be credible. So, in such a situation there will not be an incentive to behave non-

corruptly to keep ones job or position. This partly explains why authoritarian governments have little responsiveness to public pressure against corruption (at least in the long term). On the other hand, if there is competition for a position, this will create a disciplining incentive for the incumbent to act in a non-corrupt manner so as to be elected in the future. Countries with more political competition have stronger public pressure against corruption- through laws, democratic election and even the independent press and so are likely to use government organizations that reduce rather than maximize the benefits of engaging in corruption (Ibid.).

In a related argument, Schleifer & Vishny (1993) claim that the structure of government institutions and the nature of the political process can be vital determinants of the level of corruption. In particular, weak governments that have less control over their agencies experience very high corruption levels. This often holds true for fragile states which are in post-war transition like Liberia. Countries affected by war and conflict are often recognized as highly prone to widespread corruption: they usually have weak administrative and judicial institutions and low capacity to monitor and enforce rules against corruption. Social divisions as a result of the war may weaken shared conceptions of the public good and social norms that could otherwise hinder corrupt behaviour (Cheng and Zaum, 2011). Many studies indicate that post-war communities are typically characterized by reduced community cohesion and hence lower trust (For example see Richards et al., 2005) and this may lead to more corruption. The outside option a corrupt leader receives (v) when fired also depends on the presence and/or level of punishment (Olken and Pande, 2012). This in turn is determined by the level of monitoring, the power of the monitoring authority to persecute corrupt individuals and the independency of the courts to enforce the punishments. The effectiveness of increased monitoring in reducing corruption in practice depends on the nature of the very individuals tasked with monitoring and enforcing punishments as well as the possibility of getting enough evidence to make the case (which is also related to access to information or transparency and political will). If these individuals are themselves corruptible, increasing monitoring may not help much and may rather simply increase transfers from low-level officials to auditors (Ibid.).

In short, our conceptual framework based on the incentives theory postulates that the propensity to be involved in corruption depends on rational (in the neoclassical sense of the term) assessment of (expected) benefits and (expected) costs. One may question the power of our theoretical model to predict corrupt behaviour since we assumed rational and informed decision makers. It may be argued that the power of our model to explain the determinants of

corrupt behaviour will be limited by variation in individuals' perceptions of costs and benefits associated with engaging in corruption, as well as varying levels of rationality. And, indeed individuals in reality often make irrational decisions due to the many intellectual limitations we have. But according to Soreinde (2014), even if the assumption of rational and informed players seems not reasonable, the concept is more useful than theories that assume more random decision making or decisions steered by framework conditions. Moreover, she states that it is in line with the fundamental role of the rationality assumption in criminal justice systems. Placing blame and sentencing would only make sense if individuals are assumed to steer their own decisions. Besides, recent behavioural research shows that that many irrational choices or behaviours of individuals follow a pattern (for example high rate of time preference, high risk or loss aversion). This implies that theories explaining the incentives to take part in corrupt acts can be adjusted based on irrational decision-making processes and their validity can be quite high despite natural intellectual shortcomings (Ibid.).

2.2.2. A Sociological Perspective on the Drivers of Corruption: The Social Learning Theory

Sociologists and Psychologists often use the so called social learning theory developed by Akers (1979) to explain deviant behaviour(also called 'problem behaviour') of individuals or groups. The social learning theory is based on four interrelated, overlapping and mutually reinforcing concepts that operate to promote or undermine conformity: differential Association, differential reinforcement, definitions and imitation (Tavits, 2005). Differential association refers to interaction and identity with different groups (Akers et al., 1979). It implies that through interaction with others, individuals learn the values, attitudes, techniques and motives for criminal behavior. Differential reinforcement is the implementation of reinforcing only the appropriate response (or the behavior you wish to increase) and applying extinction to all other responses. Extinction is the discontinuing of a reinforcement of a previously reinforced behavior. Problem behaviour is behaviour that is socially defined as a problem, as a source of concern, or as undesirable by the social and/or legal norms of conventional society and its institutions of authority; it is behaviour that usually elicits some form of social control response, such as a statement of disapproval, or even incarceration(Donovan et al., 1991). Definitions generally refer to norms, attitudes and orientations toward certain behaviour while imitation refers to the modelling of others' behaviour (Tavits, 2005). Akers et al. (1979, pp. 637-638) state that:

> *.....Social behaviour is acquired both through direct conditioning and through imitation or modelling of others' behaviour. Behaviour is strengthened through reward (positive reinforcement) and avoidance of punishment (negative reinforcement) or weakened by aversive stimuli (positive punishment) and loss of reward (negative punishment). Whether deviant or conforming behaviour is acquired and persists depends on past and present rewards or punishments for the behaviour and the rewards and punishments attached to alternative behaviour-differential reinforcement. In addition, people learn in interaction with significant groups in their lives, evaluative definitions (norms, attitudes, orientations) of the behaviour as good or bad. .....The more individuals define the behaviour as good (positive definition) or at least justified (neutralizing definition) rather than as undesirable (negative definition), the more likely they are to engage in it.*

Accordingly, social learning theory can offer a possible alternative insight into individual motivation to engage in corrupt behaviour (Tavits, 2005). The basic mechanism of the social learning theory, according to Akers (1998), works as follows: behaviour is acquired and sustained through three mechanisms, adopting definitions favourable to illegal behaviour via differential association with one's peers, imitating such behaviour by peers, and the positive reinforcement provided by rewards for such a behaviour (as cited in Tavits, 2005). As stated above, the more a behaviour is defined as good ("positive" definition) or as justified ("neutralizing" definition) rather than bad ("negative" definition), the more likely individuals are to engage in it (Akers, 1979; Akers, 1998 as cited in Tavits, 2005). Many empirical studies also indicate the existence of strong and consistent relationship between individual's definitions and attitudes toward the behaviour in question and misbehaviour in a variety of contexts such as substance abuse, sexual aggression, white collar crimes, and police misconduct including police corruption (Krohn et al., 1985; Akers 1998 as cited in Tavits, 2005).

Drawing from the social learning theory, Tavits (2005) posits that individual level motivation helps to understand why people are willing to engage in corruption (which can be regarded as a problem or deviant behaviour in many societies). She took the individual level approach in her study and tackled the question of why individuals engage in corrupt practices. She argued and showed that individuals will be more likely to engage in corrupt behaviour when they do not define corruption as morally or situationally wrong, but rather define it positively or neutrally (or consider it an acceptable mode for exchange). Furthermore, people are more likely to engage in corrupt activities if they perceive that corruption is widespread and, thus, approved (Tavits, 2005). Based on these arguments, Tavits (2005) argue that structural reasons emphasized by most economic studies of corruption can only be secondary causes of corruption. For example, if people believe that corrupt behaviour is normal or beneficial, institutional or structural changes will not help that much to curb corruption. In a related

argument, Uslaner (2004) suggested that the corrupt behaviour of individuals may be resistant to large-scale structural reforms making micro-level analysis even more important (as cited in Tavits, 2005). Furthermore, in their study on corruption in Eastern Europe, Miller et al. (2001) argue that values, i.e. condemnation of bribery, increased resistance against corruption(as cited in Tavits, 2005).

Individuals also develop and sustain behaviour through conditioning and imitating or modelling of others' behaviour (Tavits, 2005). If a problem behaviour is perceived to be widespread and approved, then individuals are more likely to engage in such behaviour. Definitions and imitation mutually reinforce each other in their effect on individual's behaviour. By taking others' behaviours as models, a person learns how to define a behaviour as 'good' or 'bad', 'right' or 'wrong'. In short, individuals learn from their own past behaviour and from their association with peers, both of which influence their evaluative definitions and reinforce imitation. Applying these arguments to situations of corruption, Tavits (2005) stated that the theory of social learning would propose that willingness to engage in corrupt behaviour can be expected to increase when one does not define corruption as morally or situationally wrong, but rather considers it a justified and acceptable mode for exchange. Likewise, the theory proposes that individuals willingness to engage in corruption is expected to increase when they have been exposed to corrupt behaviour before or at least perceive that corruption is widespread and, thus, approved. We believe that such a sociological perspective would complement our theoretical framework and provide additional insights into the determinants of corruption since corrupt behaviour is also likely to be influenced by non-economic intrinsic motivations (sense of guilt and shame) in addition to extrinsic economic incentives. In fact, as De Graaf (2007) rightly remarked integrative or interconceptual explanations are the most useful to explain corrupt behaviour.

2.3. The Opportunities for Corruption: A Brief Review of the Empirical Literature on the Determinants of Corruption

The decision to engage in corruption must not only be seen as the result of individuals' incentives and motivations but also be understood to be influenced by context and framework conditions(i.e., the external factors that the individual cannot influence) (Soreinde, 2014). A variety of characteristics of country's economic, political, cultural and social systems that might affect the expected costs, benefits, or both of engaging in corrupt activities have been suggested by economists and political scientists. Some of these include characteristics of a

given country; its political situation, its society, history, norms and institutional qualities etc.. Soreinde (2014) explains some of these factors including: civil servants' authority and how bureaucracies are organized, exclusive access to information, law enforcement and sanctions, absence of reaction against corruption, rationalizing corruption (i.e., society's general opinion on corruption; for example, low wages and lack of state legitimacy may lead to a general tolerance of corruption), loyalty to non-state institutions like ethnicity or tribe and condoning corruption by management.

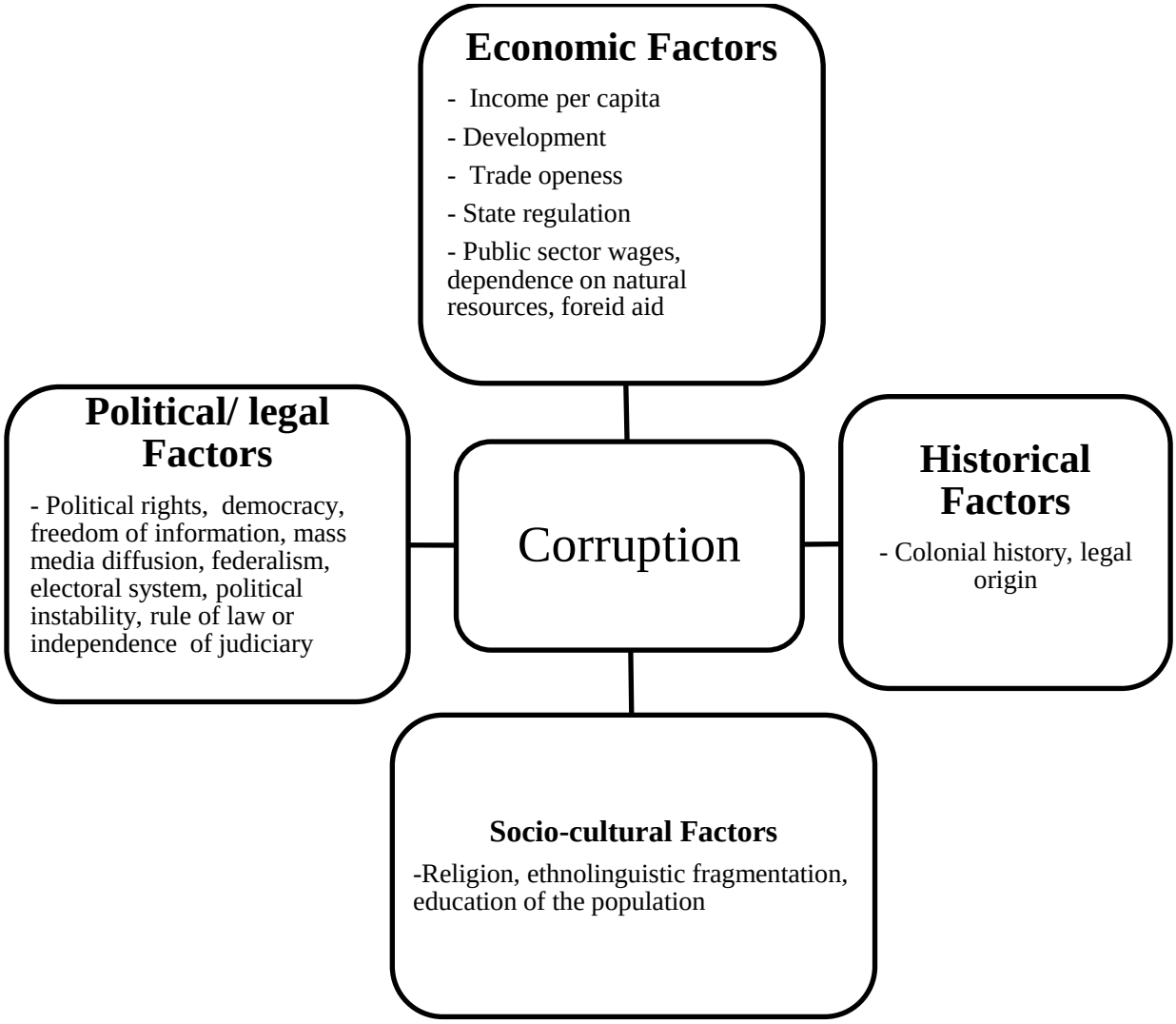

Figure 1. (Macro-level) Determinants of Corruption

Many empirical macro-studies on corruption have searched for the economic and non-economic determinants of corruption (Seldadyo and Haan, 2006). Most of these studies are cross-sectional and rely on specifying regression models with a wide variety of explanatory variables to find the 'true' determinants of corruption. As such, the findings of these studies

vary depending on the model specification. Often, a variable significant in a particular specification of the model loses its significance when the model specification changes (some other variables are incorporated). In other words, claims concerning the determinants of corruption are conditional and the robustness of the findings is questionable. Recognizing this limitation, some studies have used a sensitivity analysis[2] (see Aidt, 2011) to find any truly robust determinants of corruption among the various factors identified by empirical studies as significantly related to corruption. For example, Serra (2006), using a global sensitivity analysis based on the Leamer's Extreme-Bounds analysis[3], tested a total of 16 variables to find robust determinants: four economic variables (economic development, openness to international trade, state intervention in the economy, endowment of natural resources), five socio-cultural variables (British legal system, British colonial heritage, Protestant religion, ethnolinguistic fragmentation, education of the population) and seven political variables (base political rights, uninterrupted democracy, freedom of information, mass media diffusion, federalism, electoral system, political instability). She finds five of these variables to be robustly related to corruption. These are economic development or income, political instability, colonial heritage, protestant religion and uninterrupted democracy.

Treisman (2000), using a cross-national study, found six robust determinants of corruption. Protestant traditions, histories of British rule, more developed economies and (probably) higher imports and long exposure to democracy were robustly related to lower corruption while federal states were perceived more 'corrupt'. Treisman (2007) reviewed the cross-national empirical literature (by political scientists and economists in the late 1990s and early 2000) on the causes of corruption and examined the robustness of the reported findings. Although the causal direction is usually ambiguous, he finds that, instrumenting with income as of 1700, more developed countries are perceived less corrupt. However, when income is controlled, he finds that most factors that predict perceived corruption do not correlate with recently available measures of actual corruption experiences. He also finds that reported corruption experiences correlate with lower development, and possibly with dependence on fuel exports, lower trade openness, and more intrusive regulations. Lambsdorff (2005) reviewed the cross-national studies on the consequences and causes of corruption and concluded (though the direction of

[2] A sensitivity analysis involves a systematic evaluation of all possible linear (regression) models with corruption as the dependent variable and a fixed number of potential determinants (typically 3 to 5) from the target list of up to 75 as the explanatory variables, to establish which of the many potential determinants or causes are robustly correlated with corruption.

[3] (Leamer's) Extreme-Bound analysis report an upper and lower bound for parameter estimates to examine the sensitivity of parameters to model specification (see Seldadyo and Haan, 2006 for a detailed explanation).

causality is controversial) that corruption clearly correlates with a low GDP, inequality of income, inflation, increased crime, policy distortions and lack of competition. With respect to the causes of corruption, he noted that some of the empirical results were not consistent with his expectations. For example, he finds the effect of higher official wages in reducing corrupt behaviour to be rather limited. Also the impact of colonialism on corruption was ambiguous. Press freedom and the (de facto) independence of the judiciary and prosecutors appeared to be vital elements in reducing corruption. Complicated regulation of market entry and tariffs, abundance of natural resources, distance to major trading centres were also found to lead to increased corruption. He also finds that countries with high levels of democracy, or electoral systems with high rates of participation, are able to reduce corruption but that the effect of democracy is also not immediate but takes longer period. Thus, democracy reduces corruption in the long run, but not the lukewarm (medium level) type of democracy. In terms of cultural dimensions, hierarchical religions (the Catholic, Eastern Orthodox and the Muslim religions) were found to increase corruption. As opposed to the findings of the study by Lambsdorff (2005) and many other studies, Abbink et al. (2014) find that more market competition leads to more bribes or corruption by crowding out altruism.

Seldadyo and Haan (2006) examined 70 economic and non-economic determinants of corruption to find robust ones. Using factor analysis technique, they generated five new indexes on the basis of these determinants: regulatory capacity, federalism, inequality, trade and political liberty. Using two tests of Extreme Bounds Analysis, they find that one of these indices, namely 'regulatory capacity' (the capacity of government to regulate and enforce law) is the most robust determinant of corruption. But, using the Sala-i-Martin's test[4](see Aidt, 2011), they find that about 11-14 variables can be considered robust determinants. The other robust determinants of corruption they find are: population density(-), Scandinavian legal origin(-), ethnic tension(+), Socialism legal origin(+), portion of population with no religion(+), ethnic conflict(+), illiteracy rate(-), government wage(+), sound money(area3 of Fraser index)[5](+), latitude(-), fuel export(+), primary school enrolment(+), external debt(-), presidential(-), and portion of female in labour force(-). Table1 below summarizes the variables or factors which were found to be robust determinants of corruption in the four studies

[4] Sala-i-Martin's test for robustness is that 95 percent of the cumulated density associated with the estimated coefficients on the variable of interest (e.g., GDP per capita) across all the models considered should be on one side of zero (also see Seldadyo and Haan, 2006 for a detailed explanation).

[5] Sound money is a currency backed by a tangible commodity such as gold , silver or platinum. The more common term is hard money.

described in this sub-section. For an extensive literature review of the empirical determinants of corruption, see Seldadyo and Haan (2006). We believe that even though the structural causes emphasized by the macro studies; the organizational structure and rules factors (like the role model of leaders and managers) emphasized by meso-studies or the individual motivations emphasized by micro studies provide a group of factors that explain corrupt behaviour, none of these is alone sufficient to explain corruption. Hence, in this study we attempt to combine the insights from these studies in our theoretical framework and test the resulting hypotheses empirically. Accordingly, we will use some of the findings of these macro studies to suggest and test possible micro-level explanatory variables to explain variation in corruption behaviour in our study.

Table 1. Main Empirical Studies on Robust Determinants of Corruption

Author (s) and year	Robust variables or factors[6]	Approach and study design
Lambsdorff (2005)	Press freedom and the independence of judiciary (-), Complicated market regulations and tariff (+), abundance of natural resources (+), distance to major trading centres (+), long and high levels of democracy (-), hierarchical religions (+)	-Cross-sectional study -Reviewed previous studies
Serra (2006)	Economic development or income(-), political instability(+), colonial heritage(+/-), protestant religion(-) and uninterrupted democracy(-)	-Cross-national study of 62 countries -Used a global sensitivity analysis based on the Leamer's Extreme-Bounds analysis
Treisman (2000)	Protestant traditions (-), histories of British rule (-), economic development(-), (probably) higher imports (-), long exposure to democracy (-), federalism(+)	-Cross-national study -Started by running a series of nested regressions beginning with only the most exogenous variables and progressively including groups of variables, to check the robustness of the results, he ran the same set of regressions for four different corruption indices
Treisman (2007)	Economic development(-), (Possibly) dependence on fuel exports (+), trade openness (-), more intrusive regulations (+)	-Cross-national -Reviewed previous studies
Seldadyo and Haan (2006)	'regulatory capacity' (-)	Using two tests of Extreme Bounds Analysis
	Population density(-), Scandinavian legal origin(-), ethnic tension(+), Socialism legal origin(+), portion of population with no religion(+), ethnic conflict(+), illiteracy rate(-), government wage(+), sound money(+), latitude(-), fuel export(+), primary school enrolment(+), external debt(-	Using the Sala-i-Martin's test

[6] +/ - indicate the sign of the effect of the variable on (perceived) corruption.

	), presidential(-), and portion of female in labour force(-)	

In recent years lab-experiments are increasingly used to identify the micro-determinants of corruption (Armantier and Boly, 2012). Such experiments are often done among university students in a controlled environment and have certain advantages and limitations. One of the advantages is that they allow the researcher to directly observe corrupt behaviour. A most commonly cited limitation of lab-experiments is, arguably, their low external validity (See Abbink and Serra, 2012; Armantier and Boly, 2012). Corruption studies based on lab-experiments mostly focus on identifying the role of monetary and nonmonetary incentives in influencing corruption behaviour. As such these studies investigate the effects of gender, age, education level, (higher) wages, monitoring and punishment, whistleblowing and intrinsic motivations (using framing effects) in promoting and/or deterring corruption behaviour (See Armantier and Boly, 2011[7]; Armantier and Boly, 2012; Barr and Serra, 2009; Barr and Serra, 2010; Serra, 2011). For example, Armantier and Boly (2011) find that age, ability and religiosity significantly affect corruption behaviour while they do not find a significant effect of gender. They also find that (some level of) monitoring and punishment can reduce corruption, but may also crowd out intrinsic motivations for honesty when intensified (Armantier and Boly, 2011). Higher bribes were found to encourage corrupt behaviour but the effect of higher wages in reducing corruption was ambiguous (Armantier and Boly, 2011). Barr and Serra (2009), using a simple bribery game, find that when the game was framed as a petty corruption situation and the negative external effects on innocent victims when bribes change hands were high, private individuals were less likely to offer bribes. Higher negative external effects were also found to be correlated with lower bribe acceptance, but they do not find a significant effect of framing on the likelihood of accepting bribes (Barr and Serra, 2009). Barr and Serra (2010), in their study of corruption and culture, find that the values and social norms that exist in the societies where individuals grew up partly influence their tendency to engage in corrupt activities. Serra (2011), using a specifically designed bribery lab-experiment, finds that combining top-down and bottom-up monitoring and accountability system can effectively reduce corruption. So, some of these variables will be used and tested in our study as potential micro-determinants of corruption.

[7] This study combines lab and field experiments.

2.4. A Brief Review of the Empirical Literature on the Consequences of Corruption

Despite the general agreement in recent years on the adverse effects of corruption on development, the exact relationship between corrupt leaders and the development performance of their communities is not yet very clear. Some early studies on corruption indicated that corruption may have beneficial effects on the growth of an economy. The most popular argument in support of the beneficial effects of corruption rests on the so-called "grease the wheels" hypothesis (Meon and Sekkat, 2005). This hypothesis was put forward by Leff (1964), Huntington (1968) and Leys (1965) and states that corruption may have beneficial effects in a second best world where distortions caused by ill-functioning institutions exist(as cited in Meon and Sekkat, 2005).The argument is that an inefficient bureaucracy is an obstacle to investment and that some corruption, acting as a "speed" or "grease" money, may help overcome this obstacle by increasing efficiency. Acemoglu and Verdier (1998), for example; in their study of property rights, corruption and the allocation of talent, considered an economy where contracts are necessary to encourage investments. And they find that allowing some level of corruption and enforcing property rights only partially may be optimal in such an economy. Their reasoning is that; because preventing corruption is costly, partial property right enforcement may be optimal, and preventing all corruption may be costly. As a result, they suggest that it could be optimal for less developed countries, which may have less opportunities for productive investment, to have an intermediate level of property right enforcement and more corruption. More recently, Egger and Winner (2005), using a data set of 73 developed and less developed countries, find that corruption is a stimulus for FDI, which is in line with the position of Leff (1964), that corruption can be beneficial in overcoming regulatory and administrative restrictions. In short, the "grease the wheels" hypothesis states that corruption may help in overcoming bureaucracies, thereby raising efficiency hence investment and, eventually, growth (Meon and Sekkat,2005).

But subsequent (macro) studies on the impacts of corruption have shown the negative impacts of corruption on growth and investment (Bates, 1981; Campos et al., 1999; Mauro, 1995; Schleifer and Vishny, 1993). These studies support what is called "sand the wheels" hypothesis which states that although corruption may have benefits in countries with low quality of governance, it may as well create additional negative effects(Meon and Sekkat, 2005). Aidt (2009) took a critical look at the link between corruption and economic development and

concludes that the evidence supporting the 'greasing the wheels hypothesis' is very weak and shows that there is no correlation between a measure of actual experience with corruption and GDP growth. To the contrary, he finds a strong negative correlation between growth in genuine wealth per capita (a direct measure of sustainable development) and corruption, supporting the "sand the wheels" hypothesis. Many other studies also support this hypothesis (For e.g., Hines, 1995 & Wei, 2000 as cited in Aidt, 2009; Lambsdorff, 2005). Such a position is also reiterated by many international organizations like the World Bank and Transparency International which have stressed that corruption is bad for development.

At the micro level also, the empirical evidence on the impacts of corruption of leaders on development is mixed (though at a lesser extent than the macro studies). On the one hand, a sizeable body of literature finds that corruption hampers development; reduces incentives to invest, to engage in profitable economic activities, to contribute to public goods and greatly reduces the ability of governments to invest in human capital, infrastructures and to redistribute wealth among their citizens in developing countries. For example, Beekman et al. (2014) find that corrupt chiefs strongly undermine incentives to provide local public goods and to invest in private goods by villagers in rural Liberia. In an earlier study in rural Liberia, they also find that members, in communities with corrupt chiefs, have reduced engagement in economically important income generating activities(Beekman et al., 2013). Acemoglu et al. (2013) find that less constrained chiefs (chiefs in villages with fewer 'ruling families'[8]) lead to worse development outcomes- lower rates of education attainment, child health, non-agricultural employment and asset ownership. Their expalnation for this finding is that chiefs, who face less competition for their position, are freer to distort incentives to engage in economically undesirable activities through their control of land, taxation, regulation and the judicial system (even though their study was not conducted to investigate the effects of corruption, it gives some insights into the issue assuming that less constrained chiefs are more likely to be corrupt).

Expenditure-tracking surveys recently undertaken by the World Bank also indicate that corruption is costly to development(See Reinikka and Svensson, 2004; Olken, 2006;2007). For example, Reinikka and Svensson (2004), using panel data from a unique survey of primary schools assessed the extent to which a capitation grant to cover schools' nonwage expenditures actually reached the intended end-user (schools). The survey data reveal that during 1991–1995, the schools, on average, received only 13 percent of the grants. Most schools received

[8] Ruling families are families of high social status who can provide chiefs. Chiefs have to be obtained only from these families (see Acemoglu et al. , 2013; Beekman et al., 2013;2014)

nothing. The largest of the school grant was captured by local officials (and politicians). They also find that schools in better-off communities managed to receive a higher share of part of the grant allocated to them. This implies that actual education spending, in contrast to budget allocations, is regressive suggesting that also increases inequality (Reinikka and Svensson, 2004). Subsequent studies from other countries in east Africa have shown similar results (be it slightly smaller) in terms of substantial misuse of funds (Aidt, 2009). Olken (2006) in his study of corruption in a large transfer programme of subsidized rice in Indonesia finds that, on average, at least 18% of the rice appears to have not reached the intended beneficiaries, suggesting that corruption may hinder developing countries' redistributive efforts, and may help explain the low level of transfer programs in these countries. Olken (2007) went one step further in a related exercise in the case of corruption in rural road projects in Indonesia. He compares the official amount reported to have been spent on the road to what he estimated what actually the road would cost. For his estimate, engineers dug core samples of the roads to estimate quantities of materials used, did price surveys to estimate local prices, and interviewed households to estimate actual wages paid. Importantly, because some amount of materials naturally disappears during construction (for example, some sand may be blown away by the wind while on truck), Olken built several small test roads where he knew there was no corruption so that he could calibrate the metric so it would show zero corruption when, in fact, corruption was zero. He used the "missing expenditures" , the difference between what the village claimed the road cost and what he estimated it actually cost, as a proxy for corruption. Using this technique, he estimated that on average approximately 24% of the total cost of the road was lost to corruption (Olken, 2007).

On the other hand, a (relatively small)body of literature also indicates that corrupt leaders may have more authoritative power and may be better in organizing their communities and resources (may lead to higher social capital) towards achieving certain development outcomes than non-corrupt leaders. For example, Baldwin and Mvukiyehe (2011) in their study in Liberia find that while participatory selection of chiefs increases consultation at the community level and raises levels of participation, it also reduces levels of contributions to local public goods. This suggests that chiefs selected by community members may be less effective at enforcing cooperation as compared to chiefs appointed in traditional ways (possibly because long established traditional leaders have more coercive power). Even if the above study was not conducted in the context of investigating the impacts of corruption of village chiefs, it suggests (assuming appointed chiefs are more likely to be corrupt than chiefs elected by the community)

a plausible explanation as to why corrupt leaders may be more effective in mobilizing their community than non-corrupt leaders. In what might be perhaps more related to our study, Turley et al. (2013) in their study of elite capture and management performance in Sierra Leone, find that local elites are better managers of development projects, provide more (perceived) benefits for the villagers and they find little evidence of elite capture of project resources. Another study by Humphreys et al. (2013) similarly does not support the view of widespread diversion of aid money at the local level in eastern Congo.

2.5. A Historical Overview of Leadership and Corruption in Liberia

Liberia is a small country on the coast of West Africa, bordered by Côte d'Ivoire, Guinea, and Sierra Leone. It is one of the poorest countries in the world (ranked 175 out of 187 countries on the Human Development Index (HDI)) (UNDP, 2014). It had a total population of 4.397 million and a GDP(at current US$) of $2.027 billion in 2014 (World Bank, 2015). The country has a predominantly agrarian economy and it is endowed with natural resources including rubber, diamond, mineral resources and iron ore. Oil was also discovered in the country in 2012. Low human capital, low infrastructure, high unemployment and corruption have hindered the development of the country. It had also experienced the evils of two long civil wars from 1989-1997 and 1999-2003. More recently, it has suffered significantly from the 2014 Ebola virus outbreak in West Africa, which claimed the lives of 4,808 Liberians (The Economist, 2015 August 27). Liberia was established in 1820 by the USA as a home for freed African-American slaves. By the end of the nineteenth century, chiefs from selected leading families of higher social status were appointed by the Americo-Liberian settlers in a system of indirect rule (Beekman and Bulte, 2015). Until 1980, the Americo-Liberian settlers used to lead the country using this indirect rule system. In 1980, Master Sergeant Samuel Doe overthrew the elected government of William R. Tolbert, becoming the first Liberian President of non-Americo-Liberian descent. In December 1989, former government minister Charles Taylor moved into the country from neighboring Côte d'Ivoire to start an uprising to overthrow the Doe government and this started the first civil war.

The lowest tier of leadership in Liberia is held by (town) chiefs (Baldwin & Mvukiyehe, 2011). Historically, the process of selecting chiefs differed in different communities. As Murphy (1980, 1981) states: “among the Mande-speaking people of western Liberia, social structure

was more hierarchical; the position of chief was hereditary, and only members of the chiefdom's founding lineage were eligible to be selected as chief. In contrast, among the Kwa-speaking people of eastern Liberia, the political system was more decentralized, and leadership positions were more fluid" (as cited in Baldwin & Mvukiyehe, 2011). In the mid-1980s, the Samuel Doe government introduced nation-wide elections for chiefs. The 1986 constitution provided that registered voters shall elect paramount, clan and town Chiefs in their respective localities and sets the term of these chiefs to be six years. In the nation-wide elections held in the same year, some communities resisted using elections to select their chiefs (Baldwin & Mvukiyehe, 2011). When the first civil war started in 1989, many chiefs fled or were killed, and in rebel-occupied areas, new clan chiefs were either selected by communities or appointed by rebel-leaders to get greater social control over rural communities (Baldwin & Mvukiyehe, 2011).

After the end of the Liberian civil war, clan chiefs were chosen through different methods such as through participatory processes involving public votes or some other form of elections and appointment by higher level traditional or political leaders (Ibid.). Even though many communities chose using public voting to select their leaders, in practice local leaders are often still selected from among certain local elites (Beekman & Bulte, 2015). Not everybody is qualified as potential chief and chiefs usually have to come from certain families of an upper stratum of society (Richards et al., 2005). Richards et al. (2005) explain the leadership structure in Liberia as follows:

> *Liberia is administratively divided into 15 Counties, in which the main representative of government is the County Superintendent. S/he and her/his officials engage with a set of chiefs, whose positions are a kind of hybrid between civil servant and constitutional monarch. The main figure is the Paramount Chief, a salaried official who mediates between government and people, on behalf of several district chiefdoms, termed clans (though in Liberia this is purely a territorial designation). Each clan is ruled by a district chief. Under the clan chief there are various town chiefs and quarter elders. Most chiefdoms and clans owe something to tribal custom..... Chiefs are "elected", i.e., their appointment is approved by government, after being nominated by elders. The main task of chiefs is to preserve order, hear disputes, collect tax, recruit labour, and maintain paths and access roads, while also conveying orders from County Superintendents and other government officials. The Paramount Chief is advised by a council of district chiefs. The Paramount and District Chiefs are generally quite remote. Villagers generally feel that they are more in touch with Town Chiefs than his/her superiors. Quarter elders hear the lowest level of disputes. Some are designated as Justices of the Peace.*

Liberian society is hierarchical, and studies how that many chiefs misuse their position for private benefit (Reno, 2008; Richards and Bah, 2005 as cited in Beekman et al., 2014). Chiefs have a big place in the local community and have various ways of extracting surplus from

villagers. These may occur through their power to control and allocate communal resources, such as land and state resources channelled down from the central government, and revenues from local enterprises (such as communal plantations). Besides, chiefs may extract surplus from their community members directly by imposing informal taxes and through manipulated court cases, resulting in forced and free labour on the land of powerful men (Beekman et al., 2014).

Corruption is rampant in Liberia and the country consistently scores below 50 in the Corruption Perception Index on a scale of 0 (highly corrupt) to 100 (very clean) (37 in 2014, 38 in 2013 and 41 in 2012) (Transparency International, 2014). Years of conflict had undermined domestic governance structures and the rule of law, leaving the country in a state of economic chaos, destroyed infrastructure, dysfunctional institutions, widespread corruption and unemployment. Since the early days of coming to power, the current president Ellen Johnson-Sirleaf promised a zero tolerance policy for fighting corruption. Acting on her promise, she fired all transitional political appointees in the finance ministry pending an investigation into corruption allegations, and announced that corrupt officials would be prosecuted. 17,000 government workers were dismissed in the first months of her rule and the government then directed its attention to longer term legal and institutional reforms (Boucher et al, 2007; Clark, 2008). The current government has shown strong leadership in the fight against corruption which is exemplified by its commitment to ensuring the independence of the General Auditing Commission, supporting the establishment of the Liberia Anti-Corruption Commission (LACC), promoting transparent financial management, public procurement and budget processes and assuring Liberia's compliance with the Extractive Industries Transparency Initiative (EITI) through the Liberian EITI law.

The Liberia Anti-Corruption Commission was established in 2008 with the task of investigating corruption cases. Evidence is then provided to the Ministry of Justice for Prosecution, which is seen by many as a major drawback. However, the LACC is empowered to prosecute any case that the Ministry of Justice declines to prosecute, even though this has not happened in practice (US Department of State, 2010). Low capacity and shortage of human, material and financial resources are the major obstacles that hinder the commission to effectively fulfil its tasks. In 2009 and 2010, Executive Order 22 was issued aimed at protecting whistle blowers. However, many public servants did not know about the order and it was not fully utilized. And civil

servants who report cases of corruption, graft, abuse of power, or abuse of resources are not sufficiently protected. Some sources indicate that people who report corruption have been fired, marginalized and persecuted. According to Executive Order 38, all government officials are required to disclose their assets. The asset disclosure forms are kept with the Liberia Anti-Corruption Commission (LACC), which has developed a guideline related to disclosure and verification. These efforts have been pro-actively supported by the international community and civil society through the Governance and Economic Management Assistance Program (GEMAP). These combined efforts have led to a remarkable progress in terms of curbing corruption in the country. While Liberia still scores below averages in many aspects of governance as compared to other countries, it has shown positive changes in most indicators of governance since President Johnson-Sirleaf took office in 2006 (Transparency International, 2012).

However, in spite of these positive developments, corruption remains endemic and exists in most sectors of the society. Low public sector salaries, lack of training and capacity, inefficient and cumbersome regulations are considered the drivers of corruption across the public sector. In addition, Liberia is endowed with vast mineral wealth including iron ore, timber, diamonds, gold and rubber, and in spite of progress made in this area too, natural resource management continues to face major corruption and governance challenges (Transparency International, 2012). Citizens interviewed within the framework of the 2008 and 2012 Afro barometer[9] survey also perceive corruption to largely exist in most national institutions. The police and revenue collection were perceived to be the most corrupt institutions in the 2008 survey, with respectively 52 % and 46 % of the respondents believing that all or most of the police and tax officials to be involved in corruption, followed by national government officials (45%) and parliamentarians (44%) (Afrobarometer, 2008). Interestingly, public perception about corruption amongst most or all who are tax officials remains the same, since 2008 (Afrobarometer, 2013). Corruption continues to be a hindrance to the provision of public safety in Liberia. A majority of the respondents in the 2012 survey (55 percent) believes most or all of the police are corrupt. Overtime, strong perception about police corruption remains consistent with three percentage points increase from 52 percent in 2008 to 55 percent in 2012 amongst the respondents who believe that most or all in the police are corrupt. Overtime, negative

[9] The Afrobarometer is an independent, non-partisan research instrument that measures the social, political and economic atmosphere in selected African Countries. It is a comparative series of public opinion surveys that measure public attitudes toward democracy, governance, the economy, leadership, identity, and other related issues. In 2008, the Afrobarometer surveyed a nationally representative sample of 1200 adult Liberians. (Afrobarometer, 2008).

perception about corruption in the presidency decreased by 10 percentage points from 56 percent in 2008 to 46 percent in 2012 amongst those who believe corruption is only amongst some officials in the presidency. However, a sizeable proportion (31 percent) of the population between 2008 and 2012 have consistently perceive that most or all officials in the presidency office are corrupt. A large section of the public perceives elected officials in the legislature to be corrupt. Thirty eight percent perceive most or all members of the legislature to be corrupt in the 2012 survey. The segment of the population that perceive most or all national officials as corrupt increased by six percentage points from 40 percent in 2008 to 46 percent in the 2012 survey. The percentage of respondents who perceive most or all who are judges and magistrates are corrupt increased from 37 percent in 2008 to 43 percent in 2012 (Afrobarometer, 2013). A large portion (32 %) of the respondents in the 2008 survey believes that traditional leaders (which include town chiefs) are corrupt (Afrobarometer, 2008). Unfortunately, popular assessment of corruption among traditional leaders was not included in the 2012 survey and hence we are not able to see the changes in perception overtime regarding the corruption of traditional leaders or chiefs.

Chapter Three: Data, Model specification and Estimation Strategy

In this chapter, we explain the data source, describe the data we used, elaborate the estimation techniques we employed to achieve the objective of the study and set out our hypotheses. First, we provide an overview of the data used and data source. Then, we specify the econometric models and explain the estimation strategy used to answer the research questions. Following that, we define the dependent and independent variables of our models. Finally, we set out our hypotheses and justify our expectations.

3.1. Data Source and Study Context

This study is based on a novel micro dataset collected from 132 randomly selected villages in rural Liberia in 2012 and 2014. The data were collected in the context of a large scale impact evaluation study for the Dutch Ministry of Foreign Affairs under its MFS Programme. MFS II is the grant framework for Dutch NGOs (Co-Financing Agencies, CFAs) with the main aim of directly contributing to poverty reduction in developing countries. The baseline data for the evaluation study were collected during May-August 2012. Additional baseline data were collected in November 2013. The follow up survey was conducted during May-June 2014 (Beekman et al., 2015). The corruption of the chiefs was measured in 2012 before the baseline study. Carefully measured bags containing 30 kgs of rice seeds (intended for beneficiaries of the one of the projects in the villages) were kept at the chief's house for 2 days in each village and then the bags were re-measured to see if any amount was missing. So, the percentage of missing rice seeds ('missing input $\%_j$') is our proxy for the corruption of the chiefs. To check the robustness of our results, we also create a binary variable ('missing seed') indicating whether any rice seed was missing (Beekman et al., 2013). The other demographic and socio-economic data regarding both the village chiefs and households were collected as part of the impact evaluation study using standardized questionnaires administered at the household and community levels.

3.2. Model Specification and Description of Variables

To answer the first research question, we specify a simple censored regression model to be estimated using maximum likelihood technique to explain variation in corruption among village chiefs. We chose a censored regression model because we have a significant number of observations indicating zero missing rice seeds (almost half of the chiefs in our sample did not 'steal' the rice seeds) and hence we have a censored data. Using OLS in this case leads to biased and inconsistent estimates. Our model specifies corruption of the chief as a function of

the chief's characteristics, community characteristics, other socio-economic and cultural factors that can potentially affect corruption. Our model is mathematically specified as:

$$\text{Missing input (\%)}_j = \alpha + \gamma_k + \beta_1 \text{Comm}_j + \beta_2 \text{Chief}_j + \beta_3 Z + \varepsilon_j \quad \text{.....(1)}$$

Where subscript *j* denotes community *j*, subscript *k* denotes district *k*, α= constant, γ_k = district fixed effects to capture unobservable factors that vary at district level, Comm_j = community controls, Chief_j = chief's characteristics and Z_j = other relevant variables expected to influence corruption behaviour. Our main parameters of interest in the model above are β_2 & β_3

The dependent variable ('missing input $\%_j$') in our study is the percentage of rice seed missing (after the seeds have been kept at the chief's place for 2 days and then measured) which is a continuous variable used as a proxy for the corruption of the chief. Our main explanatory variables ('Chief') include the chief's characteristics such as: the age, gender, ethnic origin, education level, economic position, household size, private landholding, term in office and religion. Other covariates (Z) include: average literacy rate in the village, the number of ruling families in the village, ethnic fragmentation of the village, number of households with mobile phones, TV, radio in the village, frequency of visits of the village by officials, villagers perception of the likelihood of corruption of the chief, distance of the village to the nearest major town, frequency of criticisms of the behaviour of the chief by the community during meetings, reaction of the community when the chief misbehaves, whether new chiefs are obtained through election or are appointed, whether corruption is defined positively in the village and the amount of resources that villagers believe the chief can confiscate as tax.

Our community controls (Comm_j) include gender composition in the village (to control for risk preferences), previous NGO presence, the share of young population in the community (to control for risk taking preferences), size of communal rubber plantations (to control for different socio-economic and labour market conditions), village size (number of households in the village), household attacks/ exposure to violence (to control social and risk preferences) and the share of displaced people in the community(to control social/ risk preferences and corruption). Binary variables indicating whether the village has access to the main road (market integration), access to the local market, whether some village members were recruited to war and the availability of off-farm work will also be included (to control for different levels of socio-economic and institutional quality) .

It is important to control gender composition in the village because many studies indicate that women are more risk averse than men. So, communities may vary in terms of their risk preferences due to differences in gender composition and this variation in risk preference may affect the corruption behaviour of the chief, say for example through monitoring. Controlling for NGO presence is relevant as projects may influence both corruption and social or risk preferences. Previous NGO projects might have invested in educating the community and leaders on the adverse effects of corruption and ways of fighting against it. Studies indicate that young men show more risk-taking behaviour than other people, and this may influence social preferences in the community. It is important to control socio-economic and labour market conditions that may affect corruption. This is captured by the size of communal rubber plantations. Village size, exposure to violence and share of displaced people are also controlled as these may affect social risk preferences and corruption. For example, studies indicate that exposure to violence affects trust (though the results on the sign are mixed) among villagers in the post-conflict era (see Richards et al., 2005; Voors et al., 2012) and this may in turn affect corruption. It is also necessary to control for differences in market integration as these may affect corruption say, for example, through the diffusion of information. Differences in socio-economic and institutional quality may be related to corruption. For example, villages with poor institutions may be expected to have more corrupt chiefs. These differences are captured by controlling access to local market, whether some members were recruited to war and availability of off-farm work.

In addition we specify and estimate the following interaction model to answer the second research question:

$$\text{Missing input (\%)}_j = \alpha + \gamma_k + \beta_1 \text{Comm}_j + \beta_2 \text{Chief}_j + \beta_3 Z + \beta_4 \text{Chief}_j * Z + \varepsilon_j \ldots\ldots (2)$$

Where β_4 captures the conditioning effect of the covariate variables on corruption of the chief.

Equations 1 & 2 may suffer from endogeneity bias due to reverse causality (for example, due to the fact that more corrupt chiefs may be monitored more frequently) and/ or due to other factors not included in the model that drive both some of the explanatory variables, say for example, the average literacy rate in the village and corruption of the chief. Hence, it may be difficult to establish strict causal relationships between the explanatory variables and the corruption of the chief. So, our results should interpreted taking this limitation into account. But many studies also show that the causality most likely goes in one direction- from the

characteristics of the chief to the corruption behaviour of the chief, and not the other way round. For example, Richards et al. (2005) explain that villagers in rural Liberia seldom remove misbehaving chiefs from power. We also argue that many of the chief's characteristics (for example, private land holding) are exogenous in the Liberian context (See Richards, 2005; Beekman et al., 2014).

Table 2: Description of Variables

Variable category	**Variable**	**Description**
Dependent Variable	Missing input (%)	Percentage of rice seed missing
	Missing Seed (b)	If any amount of rice seed is missing (1=Yes)
Chief Characteristics ('Chief')	Age	Age in years
	Gender	Gender of chief (1=male)
	Ethnic origin	Ethnicity of chief (1=major tribe)
	Education	Highest grade completed in school (years)
	Economic position	Number of meals per day
	Household size	Number of people eating from the same pot
	Landholding	Acres of land privately owned
	Term	Number of years in office
	Religion (b)	Religious affiliation of the chief (1=Protestant)
	Born (b)	Whether chief was born in the village (1=Yes)
	Off-farm (b)	Whether the chief is engaged in off-farm job (1=Yes)
	Elected (b)	Whether chief is elected (1) or appointed
Other covariates (Z)	Literacy	Share of literate people in the village
	Ruling families	Number of families who can provide chiefs
	Ethnic fragmentation	Herfindahl Index
	Mobile phones	Number of mobile phones in the village
	Visits	Number of Visits by officials
	Perception of corruption	Villagers' perception of chief's corruption
	Distance	Distance to major town in hours
	Criticisms	Frequency of criticisms by villagers
	Reaction (b)	Number of reaction of villagers when chief misbehaves
	Corr-distr (b)	Whether the district commissioner is (perceived) corrupt
	Definition (b)	Whether corruption is defined positively
	Tax entitlement	Amount of resources chief is entitled to confiscate as tax
Community controls (Comm)	Gender comp	Share of women in the village
	NGO (b)	Previous NGO presence (1=Yes)
	Share of Youth	Share of young people in village (12-25 years)
	Village size	Number of households in village
	Rubber plantations	Acres of plantations in village
	Violence (b)	Number of household attacks
	Market (b)	Availability of market in village (1=Yes)

(b) indicates the variable is binary.

3.3. Hypotheses and Expected Signs

Based on our theoretical framework and the findings from previous empirical studies on determinants of corruption, we propose potential determinants of the corrupt behaviour of chiefs to be investigated in our study. Table 3 below provides these potential variables along with their expected signs.

Table 3. Proposed Variables and their expected signs

Variable or factor	Expected sign
Age	+
Male chiefs	+
Ethnic origin	+
Education level of the chief	+/-
Economic position of the chief	-
Household size of the chief	+/-
Size of the private land holding of the chief	+
Chief's term in office	+/-
Protestant Chief	-
Whether the chief is born in the same village	+
Whether the chief has offfarm job	-
Number of ruling families	-
Reaction of the community when the chief misbehaves	-
Distance of the village to the nearest major town	+
Number of mobile phones in village	-
Ethnic heterogeneity/ fragmentation of the village	+
Elected chiefs	-
Chief's entitlement to confiscate a tax	+
Positive definition of Corruption	+
Criticisms by the community	-
Visits by government officials	-
Perception of chief's corruption	+
Perceived corruption of district commissioner (Corr-distr)	+

Below we explain our justifications for the expected signs of the variables or factors we proposed in Table 3.

We would expect older chiefs to be more corrupt than younger chiefs. A possible theoretical explanation might be older chiefs may have more experience in hiding their corrupt activities and have identified credible partners in corruption overtime. Another explanation might be

older chiefs have shorter time horizon and hence their expected costs if caught in corruption might be lower. On other hand, younger chiefs may have longer time horizon and may be less likely to engage in corruption as their expected costs might be higher. It might be argued that younger chiefs may be more risk-taking and may opt to engage in corrupt practices but we believe that this risk preference is likely to be offset by their long-term time horizon.

Many experimental studies indicate that males tend to be more corrupt than females (see Chaudhuri, 2012). In fact, according to Chaudhuri (2012), no studies exist that find men to be less corrupt; either studies show that females are less likely to be corrupt or there are no significant gender differences in relation to corruption. Possible explanations include that females are more pro-social and risk-averse and also less committed to reciprocity. Therefore, we would expect male chiefs to be more corrupt than female chiefs.

We would expect chiefs from the major ethnic group to be more corrupt. For example, Beekman et al. (2014) in their study in rural Liberia find that chiefs belonging to the major ethnic group tend to be more corrupt. Their possible explanations for this include that chiefs from the major ethnic group may be less scrutinized and less likely to be punished by the community and/or may have higher need for stealing to channel resources through ethnic patron-client networks. Chiefs may divert community resources and distribute them among their co-ethnics in order to get support and approval (Beekman and Bulte, 2015). On the other hand, it can be argued that the flow of cheap information through the community and the consequent social sanctions if corruption is discovered can lead to lower corruption if the chief is from the major ethnic group. But rural societies in Africa are mainly characterized by their loyalty to non-state institutions like their ethnicity which implies that such a flow of information puts more pressure on the chief to please co-ethnics even by acting corruptly since this is more expected and favoured than being loyal to one's position.

We would expect more educated chiefs to be more responsible, honest and prosocial leaders due to the expected role of education in raising ones moral standard and understanding of the (long-term) consequences of one's actions. On the other hand, it might be the case that more educated leaders are expected to be able to easily manipulate their community through various means and easily cover their actions from higher officials and villagers. Besides, earlier studies also indicate that more educated people have lower risk aversion and in our specific case more educated chiefs may underestimate the risk of detection and punishment and hence may be

more inclined to engage in corrupt activities. Hence we expect that the relation between the education level of the chief and corruption behaviour can go in either direction.

We would expect chiefs with better economic positions to be less corrupt. Possible explanations might be lower need for additional income (or stealing resources) and higher feeling of shame and guilt or dishonesty cost (if detected) because of already higher social status. A related argument might be if the chief's economic position is worse, his or her corrupt practices might be tolerated by the community and thus reducing the possibility of sanctions and associated costs. Many cross-national comparison studies of determinants of corruption have found that corruption is more common and severe in countries with lower public sector wages and the majority of lab experiments on anticorruption policies find that paying fair salaries to officials decreases corruption (see Abbink and Serra, 2012). We will not be able to test this directly in our study since the position of the chiefs is unpaid in rural Liberia and as a result we do not have data on chief's wages. But still we believe that similar reasoning can be used to test the effect of the economic position of the chief on his/her corruption behaviour. In fact, since the chief is unpaid, some stealing of public resources may considered a compensation for his/her services especially if his/her economic position is worse.

The household size of the chief is expected to affect the chief's corruption behaviour. An increase in the chief's household size (defined as the number of people eating from the same pot) is expected to increase the consumption and other expenditure needs of the household, other things remaining equal. As such, with an increase in the chief's household size, we expect an increase in the need for more income or resources and hence a greater pressure to steal community resources (especially with a larger share of dependent members in the household). On the other hand, if the household consists of more working or income earning members than dependents, it may also be the case that the need for stealing community resources may be lower. It is also possible that household size may be influenced by another factor, say, income that may affect the corruption behaviour of the chief. It may be the case that better off chiefs have a larger household size and have less need to steal and vice-versa.

The size of private land holding of the chief is expected to increase the marginal benefit of the missing inputs by raising their marginal value product and/or lower the expected cost of stealing the inputs by lowering the probability of being detected since it will be easier to hide the use of stolen inputs in a better way on large plots. In either case, large land holdings are expected to derive corrupt behaviour. Beekman et al. (2014) in their study in rural Liberia find

that chiefs with larger private landholdings are more corrupt. On the other hand, chiefs with large holdings may be assumed to have a better economic status and income and hence have lesser need to steal the inputs than chiefs with small land holdings. For our specific case, we would expect a positive relation between the size of private land holdings of the chief and corruption behaviour due to the nature of the item we used to proxy corruption (rice seed). The rice seed is of a specific type which can be easily recognized by villagers as it grows and hence chiefs with large landholdings can relatively easily hide this type of rice from villagers.

The chief's term in office may be expected to be related to the corruption behaviour of the chief. On the one hand, longer term serving chiefs may be expected to identify and develop corrupt partners overtime and/or have more experience in hiding their corrupt activities and hence may be more corrupt. On the other hand, longer term serving chiefs might have to behave properly and be less corrupt to stay in power.

We would expect chiefs belonging to the Protestant religion to be less corrupt. Many empirical studies have shown that countries with protestant traditions are perceived to be less corrupt (Treisman, 2000; Lambsdorff, 2005). Possible explanations for this include: a greater tolerance for challenges to authority and for individual dissent makes Protestant societies more likely to discover and punish official abuses; Protestant cultures are less understanding toward deviations from virtues and press more urgently to institutionalize virtue and eliminate the wicked. In addition, 'a focus on the family rather than the individual in many traditions other than Protestantism leads to 'amoral familism' (favouring the economic interest of the nuclear family over the public interest) and nepotism; and Protestant traditions-in which the separation of church and state is more pronounced than in, say, Catholicism or Islam- lead to a more vibrant, autonomous civil society that monitors the state more effectively' (Treisman, 2000, P. 428).

Chiefs who were born in the village may be expected to have more family and friends network than chiefs who were born elsewhere and hence this may encourage the misuse of power to benefit members of the network. Besides, such chiefs may face less scrutiny and sanctions from villagers as they are considered one of their own and thus face lower expected cost of engaging in corruption. Both these factors may reinforce corrupt behaviour by the chief. Hence, we would expect chiefs who were born in the village to be corrupt as opposed to chiefs who were not.

The number of families who could provide chiefs, or ruling families as they are called, is regarded as an indicator of the presence and degree of competition for the position of the incumbent chief. For example, Acemoglu et al. (2013) in their study of the effect of constraints on chiefs' power in Sierra Leone hypothesize and show that the greater the number of ruling families in a chieftaincy, the greater the extent of political competition. This in turn implies more constraints placed on the power of a ruling chief. 'Even if one family is able to dominate the chieftaincy for many generations, with more ruling families, there will be a greater potential to lose the paramount chieftaincy in an election- creating a powerful threat that will discipline paramount chiefs, forcing them to govern better' (Acemoglu et al, 2013, p. 2). The empirical findings (at macro level) on the relation between democratic competition and corruption is mixed. Many cross-national studies show that (long-term)democratic countries are less corrupt (for example, see Treisman, 2000; Lambsdorff, 2005). This can be explained in terms of the role of access to information, free press and the independence of the legal and electoral systems in a democratic society which will create a disciplining mechanism by increasing the expected costs of engaging in corrupt behaviour. On the other hand, some of these studies have found no effect or a negative effect of (short-term) democracy on corruption suggesting that only high level and long-term democracies are able to curb corruption. For example, Treisman (2000) finds that current level of democracy does not explain corruption while Lambsdorff (2005) finds that medium democracies are related with high corruption (see also Manow, 2005 cited in Lambsdorff, 2005). It might also be theoretically argued that with increased political competition, the threat of losing power may induce the incumbent to try to grab as much and as quickly as possible before potentially losing power and thus leading to more corruption. But we expect that for such a situation to occur, the benefits from the graft should be far greater than the long term benefits of staying in power (behaving properly) as well as the costs (including social and psychological) of losing the paramount chieftaincy upon detection of corrupt behaviour. For our specific case, we think this is less likely to be the case mainly because of the low value and non-durable nature of the resources we used to proxy corruption and hence we would expect a negative relation between the number of ruling families and corruption of the incumbent chief.

The more people criticize a chief, the more visits of village leaders by officials and the more the reaction of the community when the chief misbehaves can be regarded as indicators of the level of monitoring and (social) sanctions. As such, following our theoretical framework, these are expected to reduce corrupt behaviour by increasing the probability of detection and its

expected costs. But, on the other hand, it can also be argued that increased monitoring may crowd out intrinsic motivations for honesty and reduce trust and hence lead to more corrupt behaviour (See Armantier and Boly, 2011; Soreinde, 2014). For our case, we would expect a negative relation of these factors with corrupt behaviour of the chief.

The average literacy rate in a village can be regarded as an indicator of the ability of the village community to obtain and process available information and to differentiate their rights and duties as well as of their leaders. More educated people are expected to have better information regarding the budget allocated to the village and can discipline the chief by strict monitoring. They are also expected to be well-informed about alternative ways of exposing corrupt practices once discovered and hence raising the threat of punishment of engaging in corrupt practices (can easily communicate the media, higher level officials etc.). In addition, they are expected to be able to keep records to hold their leaders accountable and which can be used as evidences in the prosecution of corrupt leaders. Expansion of education makes hiding abuses and crimes difficult (Treisman, 2000). So, we would expect a negative relation between the average literacy rate in a village and corruption of the village chief.

Most studies have documented that perception of corruption is correlated with actual corruption. More (perceived) corruption makes it easier to find a corrupt partner (Adving and Moene, 1990). In addition, a higher estimated level of corruption may reduce an individual's moral costs of committing a crime (may lead to lower dishonesty cost, d following our theoretical framework), if corrupt practices are the norm rather than the exception. As indicated in the social learning theory in our theoretical framework, a willingness to engage in corruption may increase if there is a perception that such a behaviour is widespread and, thus, approved (Tavits, 2005). Another possible explanation might be our perception influences our action and hence people may tolerate actual corruption when their perception of corruption is high. Or, conversely, if there is trust or low perception of the likelihood of corruption, it encourages positive reciprocity and compliance leading to lower corruption (trust leads to social bonds). So, we would expect a positive relation between the villagers' perception of the likelihood of corruption of the chief and the actual corruption behaviour of the chief.

In ethnically divided societies, villagers may provide cheap information about and even put internal sanctions against those who betray their coethnics (Fearon and Latin, 1996). This may foster nepotism and clientelism. Some studies also indicate that people are more likely to engage in corruption if there is quite some distance between them and the ones affected as a

result of the corrupt activities. Beekman et al. (2014) find that chiefs in ethnically heterogeneous communities in rural Liberia are more likely to be corrupt. Beekman and Bulte (2015) refine the results from the earlier study by Beekman et al.(2014) and find that corrupt chiefs target their communities along ethnic lines where the predation or corruption by chiefs negatively affects non-coethnics more than their coethnics. So, we would expect positive relation between ethnic fragmentation in a village and corruption of the chief.

We would expect distance of the village to the nearest major town to be positively related to the corruption of the village chief. This may be due to less communication possibility to gain more information for monitoring and punishment (lower access to media, higher or regional government officials etc. to report corrupt activities) or the inaccessibility of the village for regular monitoring, which will lower the chance of detection by higher officials. In the same manner, we would expect the availability of different communication and media facilities to be related with lower corruption. Accordingly, the larger the number of people with mobile phones, TVs and radios, the lower the corruption of the chief, other things remaining constant. Information access and transmission enhance monitoring and punishment and thus reduce the likelihood of corruption. To quote Winters et al. (2012, p.216),

> *.... corruption is a result of asymmetric information. Agents (either elected or bureaucratic officials) possess information that their principals (either voters or the general public) do not, and it is this lack of information that creates the opportunity for corruption to occur. Agents weigh the benefits that can be gained from corruption against the expected costs of getting caught, which are a function of the availability of information and the likelihood of punishment. Holding the punishment mechanism constant, when information is scarce, the probability that a corrupt act will be discovered is low, and so the expected cost of corruption is low, resulting in more corruption. Similarly, holding information constant, when the punishment is weak, the expected cost of corruption is also low, resulting in more corruption. If there is little information that might reveal corruption or else little punishment when corruption is exposed, then agents will act with impunity.*

In addition, the media and information play a great role in educating the community about their rights and responsibilities thereby enabling them to scrutinize the actions of the chiefs and hold them accountable. So, we would expect a negative relation of corruption of the chief with the number of people having mobile phones.

If a new chief is obtained through election, we would expect the incumbent chief to be less corrupt. Election entails the risk of being removed from power if one misbehaves. So, elected chiefs are expected to be less corrupt and more accountable to the electorate than appointed chiefs due to fear of punishment of being removed from their position in case of inappropriate behaviour. On the other hand, appointed chiefs tend to be more corrupt due to absence of

competition or less fear of being removed from power and are thus expected to show less accountability.

The more corruption is defined favourably or positively, the higher the likelihood of the corruption of the chief. This follows from the social learning theory explained in our theoretical framework and from empirical findings. As stated before, a willingness to engage in corrupt behaviour is expected to increase when one does not define corruption as morally or situationally wrong, but rather considers it an acceptable mode for exchange (Tavits, 2005). In such a situation, there will be lower dishonesty cost (lower guilt feeling or shame) due to the social acceptance of 'corruption'. Moreover, the community will be less willing to monitor and put social sanctions on corrupt practices since corruption is a tolerated norm (for example, bribe giving is considered conforming to social reciprocity in some societies). The same reasoning applies if villagers believe that chief is entitled to confiscate a tax. The more the amount of community resources that the villagers believe the chief can confiscate as tax, the more the corruption of the chief will be tolerated and thus the more the incentive for corrupt behaviour.

Chapter Four: Results and Discussions

In this chapter, we present & discuss the results of our analysis. We first provide the summary statistics of chief & village characteristics. We then present & interpret the results of the econometric estimations we used to test our hypotheses. As stated in the previous chapter, we estimated two equations. The first equation relates the corruption of chief with the chief's characteristics & other covariates of corruption behaviour. The second equation considers the interaction effects of some of the chief & village characteristics on the corruption behaviour of the chief. Starting from the most parsimonious model, we present & discuss our estimations. Finally, we discuss the assumptions & limitations of our analysis & highlight the caveats that should be considered in interpreting our results.

4.1 Summary Statistics of Chief & Village Characteristics

Table 4.1 presents the summary statistics of chief & village characteristics.

Table 4.1 ***Summary statistics of variables***

Variable	Mean	SD	Min	Max	N
Missing input (%)	3.10646	5.253004	0	28.66667	129
Missing	.931938	1.575901	0	8.6	129
Missing seed(b)	.5503876	.499394	0	1	129
Age	48.176	11.3223	27	82	125
Gender(b)	.8629032	.3453448	0	1	124
Ethnic origin(b)	.6870229	.4654852	0	1	131
Education	5.390244	4.144192	0	14	123
Economic position	1.6	.5819877	0	3	125
Household size	11.38889	13.96566	1	68	125
Landholding	81.608	127.0404	0	600	125
Term	6.952	6.738019	0	32	125
Religion(b)	.8396947	.3682974	0	1	131
Born(b)	.6030534	.4911429	0	1	131
Off-farm(b)	.3435115	.4767033	0	1	131
Share of literate	.4118923	.1281945	.0707071	.9826087	130
Ruling families	4.152	2.876647	1	10	125
Ethnic fragmentation	.3645632	.2493513	0	.835	130
Mobile phones	163.0079	276.137	2	1500	127
Visits	1.381108	.1710322	1	2	135
Corruption perception(b)	.3664122	.4836736	0	1	131
Distance	22.00775	16.91638	1	90	129
Criticisms	1.406812	.1526408	1	2	135
Reaction	2.333333	2.603098	0	11	135
Elected(b)	.5877863	.4941228	0	1	131
Positive definition(b)	.0992366	.3001272	0	1	131

Tax Entitlement	2.504923	.6211383	1.44	4.3	130
Corr-distr (b)	.6717557	.4713768	0	1	131
Gender composition	.501364	.0478581	.3731343	.6185567	130
NGO(b)	.6793893	.4685029	0	1	131
Share of youth	.2704263	.0579786	.1392405	.4112903	130
Village size	163.8672	257.5716	12	1944	128
Rubber plantations	212.4264	1107.915	0	12000	129
Violence	7.152672	2.78588	0	15	131
Market(b)	.5511811	.4993434	0	1	127

(b) indicates the variable is binary

From Table 4.1, we can see that, on average, around 3 % (≈0.9 kgs) of the 30 kgs rice seeds distributed were missing. Rice seeds were missing in around 55 percent of the villages on average (in 72 out of 130 villages). This suggests the existence of widespread corruption among village chiefs in rural Africa consistent with the findings of previous studies(assuming that our measure proxies corruption behaviour in a real environment). The average age of the chiefs is around 48 years. The majority (≈86 per cent) of the chiefs are males & around 68 percent of the chiefs belong to the major ethnic group (kpelle). On average, the chiefs have about 5 years of schooling & a household size of 11 people. The chiefs' household on average have two meals per day (used as an indicator of the economic position of the chief's household). In terms of private land holding, the chiefs on average own around 82 acres of land but there is significant variation among the chiefs (SD≈127). This average landholding of the chiefs is much larger than the average land holding for villagers in rural Liberia. This may suggest that the chiefs (mis)use their power to unfairly influence the allocation of resources such as land to their advantage. But, given the nature of land allocation in Liberia which is determined centrally, this is less likely to happen and we argue that landholding of the chief is exogenous to corruption behaviour. The average chief has served the community for about 7 years. The majority of the chiefs (≈84 percent) belong to the Protestant religion & a significant portion of the chiefs (≈60 percent) were born in the same village. Around 34 percent of the chiefs are engaged in off-farm activities. The summary statistics also show that the share of literate people in the villages is on average 41 percent. On average about 4 families could provide chiefs (so called 'ruling families') in the villages. This is a bit higher than what is indicated in previous studies. For example, Beekman & Bulte (2015) indicate that in their studies, on average, 2 families are eligible to provide a chief in a typical village. But, in that study, the number of villages considered is much smaller (44) than in our study (136) and this may explain the difference. The villages are mainly characterized by less

heterogeneity in terms of ethnic composition, the average Herfindhal index for ethnic heterogeneity being around 0.36.

The average number of mobile phones in the villages is 163 with a very wide variation among the villages (with SD of about 276). On average, in about 37 percent of the villages, members perceive that their chiefs are corrupt. It takes on average about 22 minutes from a typical village to reach the nearest town. In a typical village, on average, 2 villagers report to higher officials when the chief misbehaves. A significant number of the chiefs (≈59 percent) took their position through election. Relatively only a small portion of the villages (around 10 per cent) positively define acts of corruption (or consider them acceptable). On average, villagers consider that their chiefs are entitled to take about 2.5 out of 10 resources directed to the village as a tax. In a significant portion of the villages (≈67 percent), villagers perceive that higher district officials are corrupt. This may suggest the prevalence of corruption among higher district officials. On average, females constitute around 50 percent and the youth (aged between 12-25) around 27 percent of the total population in the villages. These indicate a relatively balanced gender composition in the villages and a higher share of villagers belonging to the non-youth category. We included these gender composition and share of youth as controls as studies show that these variables are related to risk preferences. We also included previous NGO presence, village size, rubber plantations, exposure to violence & access to a nearby market as controls. A significant number of the villages (around 68 percent) have benefitted from previous NGO activity. This is also consistent with the results of previous studies. For example, Beekman et al. (2014) report similar findings & explain that this high percentage of NGO presence may be the result of a number of reconstruction efforts in post-war Liberia. The villages are typically of medium size with an average number of households of around 163. Rubber plantations are important in rural Liberia. On average, around 212 acres of rubber plantations are communally owned in a typical village. As indicated in the previous chapters, conflict & violence have been an important feature of Liberian society. On average, around 7 households have been exposed to attacks in a typical village. Around 55 percent of the villages have access to a market that can be reached within one hour on foot .

4.2 Econometric results

In this sub-section, we provide & interpret the results of our econometric estimations starting from the most parsimonious model.

4.2.1 Determinants of Corruption: Main effects

Tables 4.2.1 presents the results of the first category of our estimations. First, we estimated a simple OLS model to identify which chief characteristics determine corruption behaviour. As indicated in the previous chapter, OLS gives biased estimates since our dependent variable is censored. Hence, we present its result (in column 1) for comparison & will not interpret it in detail. Then, in column 2, we estimated a censored regression model to identify which chief characteristics determine corruption behaviour while excluding community controls & district fixed effects. Contrary to our expectation, the results show that only one of the chiefs characteristics significantly determines corruption behaviour. We find a positive and significant effect (at 5 percent) of being born in the same village on the corruption of the chief ('stealing' of rice seeds). In the context of our theoretical framework, this may be explained in two ways. First, chiefs who were born in the same village may face less scrutiny and sanctions for their misbehaviour from villagers as they may be considered one of their own. This will reduce the expected cost of engaging in corruption and hence reinforce corrupt behaviour Second, chiefs who were born in the same village may have more extended family and friends networks and hence face more pressure to divert community resources to satisfy the demands of their networks. This may increase the expected benefit of engaging in corruption and drive corrupt behaviour. In the next step (column 3), we estimated a censored regression model with district fixed effects included to account for unobservable factors that may vary at district level. In this specification also, we find a positive and significant effect (at 10 percent) of being born in the same village on corruption behaviour. We do not find significant effects of the other chief's characteristics on corruption behaviour. In column 4, we tried to identify other factors that may determine corruption behaviour besides the chiefs characteristics. In particular, we examined which village characteristics may explain the variation in the corruption of the chiefs. We included both district fixed effects and community controls in this censored regression specification. Again, being born in the same village positively & significantly (at 10 percent) affects corruption behaviour. So, this variable robustly determines corruption behaviour in various specifications as can be seen in Table 4.2.1. We now also find that the (perceived) corruption of the district commissioner positively & significantly (at 10 percent) affects corruption of the chief. Within the context of our theoretical framework (social learning theory), we label this as imitation where problem behaviour is acquired from peers/ colleagues and /or subordinates. In villages where the district commissioner is perceived to be corrupt, chiefs may imitate such behaviour as they may consider it widespread and thus approved.

Table 4.2.1 *Determinants of Corruption: Main effects*

Variable	Model 1 (OLS)	Model 2 (Tobit)	Model 3 (Tobit)	Model 4 (Tobit)
Age	-0.028	-0.023	0.001	-0.016
	(0.05)	(0.07)	(0.07)	(0.07)
Gender	0.196	0.170	0.244	1.500
	(1.39)	(2.21)	(2.26)	(2.31)
ethorigin	0.328	-0.394	-0.795	0.343
	(1.15)	(1.80)	(1.78)	(1.69)
Education	-0.143	-0.294	-0.277	-0.191
	(0.12)	(0.19)	(0.19)	(0.20)
Eco_position	-1.095	-1.568	-1.850	0.059
	(0.84)	(1.31)	(1.40)	(1.34)
HHsize	-0.050	-0.069	-0.061	-0.065
	(0.03)	(0.06)	(0.06)	(0.06)
Landsize	0.010*	0.011	0.007	0.003
	(0.00)	(0.01)	(0.01)	(0.01)
term	0.021	0.085	0.059	-0.107
	(0.08)	(0.12)	(0.12)	(0.11)
protestant	-0.721	0.440	-0.501	-0.189
	(1.41)	(2.28)	(2.26)	(2.20)
born	3.273**	5.127**	3.973*	3.355*
	(0.99)	(1.59)	(1.62)	(1.54)
offfarm	0.862	1.177	1.889	2.434
	(1.01)	(1.59)	(1.61)	(1.50)
elected	-0.699	-1.827	-1.207	-2.664
	(1.00)	(1.58)	(1.75)	(1.65)
shareliterate				4.148
				(6.67)
rulingfamilies				-0.080
				(0.28)
ethnichetero				-1.484
				(3.59)
mobilephones				0.002
				(0.00)
visits				1.460
				(4.50)
corr_perception				1.403
				(1.63)
Distance				-0.007
				(0.06)
Criticisms				-5.569
				(5.25)
Reaction				0.228
				(0.31)
positivedef				-1.930

				(2.61)
aventitlement				1.457
				(1.11)
Corr-distr				4.718*
				(1.91)
constant	5.019	2.246	1.898	- 1.556
	(3.26)	(5.01)	(5.47)	(17.02)
District FE	No	No	Yes	Yes
Community c.	No	No	No	Yes
sigma				
constant		7.282***	6.992***	5.512***
		(0.67)	(0.64)	(0.52)
R-sqr	0.173			
F-statistics	1.886			
Chi2		19.382	27.158	51.951
PseudoR^2		0.035	0.049	0.103
N	121	121	121	111

*,** & *** represent significance at 10%, 5% & 1% respectively.

Standard errors in parenthesis

4.2.2 Determinants of Corruption: Interaction effects

In our next exercise, we first estimated an interaction model to investigate if there are any interaction effects of some of the chiefs and village characteristics on the corruption of the chief. The results are presented in Table 4.2.2. In column 1, we estimated a censored regression model with four interaction terms included: elected (whether the chief was elected into position) interacted with number of ruling families, elected with frequency of visits by higher officials, elected with reaction of villagers when the chief misbehaves and economic position of the chief interacted with villagers belief regarding the chiefs entitlement to confiscate tax. The rationale for including these interaction effects is as follows. We expect that elected chiefs may face a higher pressure to behave non-corruptly in villages with a higher number of ruling families. The existence of more families who can provide a chief is a credible threat to the chief's power/position in case of misconduct. In a related argument, elected chiefs are expected to be less corrupt if they are more frequently visited by higher officials and/or more villagers react when the chief misbehaves. Within the context of our theoretical framework, these two factors relate to the constraining effect of supervision and monitoring on corruption behaviour by raising its expected cost. We included fixed effects and community controls in this estimation. We again find a positive & significant effect (at 10 percent) of being born in the same village on the corruption of the chief. In addition, we again find that chiefs are corrupt if the district commissioner is perceived to be corrupt (at 5

percent). We still do not find significant effects of the other variables and interaction terms on corruption behaviour. In our last exercise, we changed our proxy for the corruption of the chief & instead used the perception of the villagers regarding the corruption of the chief as our dependent variable. This is indicated in column 2 of Table 4.2.2. We now find significant effects of household size (negative), chief's term in office (positive), protestant religion(negative) and corruption of district commissioner(positive) on the chiefs' corruption behaviour (all at 10 percent). It may be the case that chiefs with a larger household size may have more income earning members and hence may not need to 'steal' community resources. Or, such chiefs may be the richer chiefs who may have less incentive to divert community resources (due to lower marginal benefit of corruption and/or higher marginal cost due to social sanctions).

Table 4.2.2 ***Determinants of Corruption: Interaction effects***

Variable	Model 5 (D.V = Missing input)	Model 6 (D.V= Corruption perception)
Age	-0.046	-0.006
	(0.07)	(0.04)
Gender	2.133	-2.271
	(2.38)	(1.49)
ethorigin	0.355	-0.917
	(1.73)	(1.26)
Education	-0.267	-0.049
	(0.20)	(0.11)
Eco_position	-0.336	-0.248
	(5.13)	(0.75)
HHsize	-0.061	-0.294*
	(0.06)	(0.12)
Landsize	0.001	0.007
	(0.01)	(0.00)
term	-0.098	0.167*
	(0.11)	(0.08)
protestant	0.060	-3.880*
	(2.18)	(1.81)
born	3.935*	1.393
	(1.61)	(0.85)
offfarm	2.659	0.346
	(1.51)	(0.97)
elected	-9.281	-1.775
	(12.49)	(1.01)
shareliterate	5.616	-0.065
	(6.70)	(3.50)

rulingfamilies	0.189	-0.159
	(0.44)	(0.15)
ethnichetero	-1.942	1.376
	(3.54)	(2.08)
mobilephones	0.002	-0.003
	(0.00)	(0.00)
visits	0.149	-3.485
	(5.99)	(2.55)
corr_perception	1.257	
	(1.59)	
Distance	-0.018	-0.065
	(0.06)	(0.04)
Criticisms	-3.965	-5.183
	(5.21)	(3.21)
Reaction	-0.190	0.215
	(0.43)	(0.20)
positivedef	-2.089	0.435
	(2.60)	(1.47)
aventitlement	0.921	0.853
	(3.38)	(0.66)
Corr-distr	5.288**	3.178*
	(1.92)	(1.29)
elerul	-0.476	
	(0.56)	
elecvis	4.405	
	(8.60)	
elecreact	0.789	
	(0.55)	
econptax	0.283	
	(2.09)	
constant	1.186	17.078
	(19.24)	(11.32)
District FE	Yes	Yes
Community controls	Yes	Yes
sigma		
constant	5.385***	
	(0.51)	
Chi2	54.995	68.422
PseudoR^2	0.109	0.484
N	111	111

*,** & *** represent significance at 10%, 5% & 1% respectively.
Standard errors in parenthesis
elerul= elected x rulingfamilies
elecvis= elected x visits
elecreact= elected x reaction
econptax= Eco_position X aventitlement
D.V= dependent variable

Some of our explanatory variables may be endogenous to corruption behaviour. But, as explained in the previous chapter, we argue that the chiefs' characteristics are exogenous and the causation is most likely to go one way. An underlying assumption that we make here is that chiefs who 'steal' the rice seeds are also most likely to (mis) use their position to appropriate community resources for their private benefit.

Chapter Five: Conclusions & Reflections

5.1 Conclusions

In this study we tried to identify the micro-determinants of corruption of village chiefs in rural Liberia. We employed household and community level data collected from 136 villages. We used an objective measure to proxy corruption behaviour of the chiefs. We hypothesized that corruption behaviour of chiefs is influenced by their socio-economic characteristics as well as of their villages. We specified and estimated censored regression models to test our hypotheses. We included district fixed effects to account for unobservable factors that may vary at district level. We also included community controls to account for socio-economic differences between the villages.

We find significant effects of being born in the same village and (perceived)corruption of higher officials on the corruption behaviour of the chiefs. Chiefs who were born in the same village are found to be corrupt as compared to their counter parts**.** Chiefs under a corrupt district official are also found to be corrupt as compared to their counter parts. We explain both of these findings in the context of our theoretical framework. Being born in same village may be expected to reduce the marginal cost of engaging in corruption by reducing social sanctions and supervision. Or, it may be expected to increase the marginal benefit of engaging in corruption by raising the pressure to satisfy the needs a larger social network. To explain our result regarding the effect of the (perceived) corruption of higher officials on the corruption of the chief, we employ the insights from the Social learning theory. The chiefs imitate the behaviour set by the district commissioner as it may be considered normal or approved. This indicates the influence leaders have on their subordinates and suggests the importance of tackling corruption at all levels and setting good leadership models for lower level leaders. We do not find significant effects of the other variables included in our study on corruption behaviour of the chiefs.

5.2 Critical Reflections

Though corruption has been a problem since time immemorial, it is still one of the most difficult concepts to study. This is in part due to the difficulty of objectively measuring its occurrence and the various forms in which it manifests itself. We tried to use a more objective way of measuring corruption by accounting for missing rice seeds stored at chiefs' house.

Even though such a measure may be regarded as objective, we cannot be sure if such a setting replicates corruption environment in a real world. Since corruption is illegal or immoral in most societies, individuals mostly engage in it if the likelihood of detection is zero or at least negligible. But in our case, it seems most likely that the chiefs expect a measure of the rice seeds allocated to the villages would be done before delivery and also expect the seeds to be measured before they are distributed to the villagers. Hence, it may be the case that chiefs anticipate higher likelihood of detection and refrain from 'stealing' the rice seeds. If some of the chiefs still decide to steal part of the rice seeds in such a situation, this may also suggest that such an exercise may be measuring their entitlement to a tax rather that corruption behaviour. Looking at the large average landholding of the chiefs, it may also be possible that we are measuring elite capture. Besides, there is no information on what happened to the missing rice seeds(see Beekman & Bulte, 2015 for plausible alternative explanations). In fact, there is low correlation (r= 0.2157) between our measure of corruption and the perceived corruption of the chief by villagers.

We also believe that the insignificant results of some of the explanatory variables may be related to the way we measured the variables. For example, we used the number of meals the chief's household had as indicator of economic status. But, this is just a crude measure. We do not have data on the income of the chiefs from various sources (even if they do not get salary for their positions). We also do not have data on their assets, characteristics of their house, expenditures and hence are not able to construct their socio-economic status index. In addition, some of our variables may be endogenous to corruption behaviour. For example, higher frequency of visits by higher officials may be expected to reduce corruption. But, on the other hand, more corrupt chiefs may be more frequently visited by higher officials. In such instances, the use of instrumental variables could have given us more insights but we are unable to find suitable instruments in our case. Further research might give more insights on the micro-determinants of corruption in rural Africa and establish causality by tackling these limitations. It may be useful to combine lab-based measures with field experiments to have a better measure corruption behaviour at micro-level and cross check the results of diffrent approaches.

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