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Two sides of the same coin or two different coins? Exploring the duality of corruption in Latin America

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Two sides of the same coin or two different
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America

Working Paper No. 2021-26

Two sides of the same coin or two different coins?

Exploring the duality of corruption in Latin America

Ella Hugo^{1,2}, David A. Savage², Friedrich Schneider³ and Benno Torgler⁴

Abstract

The ambiguous phenomenon of corruption has long been the cause of great theoretical debate in economics. By using Structural Equation Modelling, with the two types of corruption as a latent variable, this paper employs causal and indicative variables specific to the Latin American region to test for rent seeking and systemic corruption in the period between 1980-2018. The findings provide evidence for two types of corruption, one generated by greed, and the other a solution to market failures. Such results support the view that corruption encompasses a complex set of social behaviours.

JEL Codes: D73; H3; K42; O17; O5

Keywords: Rent Seeking Corruption; Systemic Corruption; Shadow Economy; Latin America

1. Introduction

In his seminal book, “Other People’s Money” Justice Louis D. Brandeis (1914, p. 92) famously stated: “Publicity is justly commended as a remedy for social and industrial diseases. Sunlight is the best of disinfectants; electric light the most efficient policeman.” He was of course alluding to the idea that corruption flourishes in the dark and would wither and die when brought into the light and subjected to public scrutiny. This reinforced the popular viewpoint that corruption was an insidious plague that crippled economic growth and allowed abuses of power for private gain. Stamping out this plague became the focus of successive governments and international agencies over the last 30 years (Rose-Ackerman, 1999a; Shen & Williamson, 2005; World Bank, 2018). However, evidence surrounding the true impact of corruption has remained unclear, leading to highly contentious debates and a significant divide within the

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corruption literature. While many would assume that the contention stems from measurement issues, one of the greatest controversies in the economic literature begins with the definition of corruption – well before we even arrive at the effect it has on the economy. A major part of the definitional problem stems from the lack of consensus on the differences between appropriation of public goods for personal gain and privatization, or governmental distortion of the market and regulation, or even the difference between a bribe and a gift (Muir & Gupta, 2018; Smart, 1993). While such debates are generally welcomed within academia, they do create major problems when trying to compare study results with different baseline definitions of what is and what is not included in measurements of corruption (Muir & Gupta, 2018). For example, Transparency International (TI) defines corruption simply as the abuse of entrusted power for private gain; however, the definition of corruption has a much broader definition in anthropology (Muir & Gupta, 2018), not limited to the abuse of power caused by greed. The anthropological definition of corruption describes clandestine transactions outside officially recognised channels, or a set of hidden alliances and social norms that lead to illicit or cryptic relations which blur the boundaries between the public and the private and calls forth efforts to redefine social relations (Feldman, 2018; Muir & Gupta, 2018). The primary element of the anthropological definition is that corruption should not be constricted to just greed and the abuse of power but needs to encompass a much more complex and nuanced set of social behaviours. Torsello and Venard (2016) point out that:

anthropologists favor a nuanced approach by analyzing corruption from the point of view of the people concerned... anthropologists have no moral valuation of corruption concerning the system in which it takes places, the consequences of corruption, the act of corruption, or the social actors involved in the corruption. Thus, anthropologists reject the moral dualism of corruption, according to which the decision to engage in corruption is bad and the refusal to do so is good. This does not mean that anthropology justifies corruption, but that anthropological perspectives of what can count as moral standards in relation to the resorting to bribery or similar practices are attentive to analyzing the different, often conflicting, moral concerns that inform actors' decision making (pp. 38-39).

In general, economics emphasizes that markets are the most efficient method of allocating resources; but when poor government policy, bureaucratic inefficiencies, or inequitable access create market failures, it may be more efficient to sidestep the official markets or to accept corrupt behaviours to meet market demands. Hernando de Soto (1989, 2000) documented the considerable challenges involved in creating a new and legal small business in Lima, the Philippines, Egypt or Haiti. For example, when setting up a small garment

factory in Lima, they were asked on ten occasions for a bribe to speed up the process, and twice a bribe needed to be given to continue setting up the factory (de Soto 1989). Rather than being driven by greed and self-interest, this behaviour could be an active effort to promote social change within a system of inefficient governance. At the very least, it may be an attempt to circumnavigate the market failures – or, as de Soto argues – to fill the gaps in the legal economy. The notion that corruption could be used to promote efficiency within an incompetent bureaucratic system is not new; numerous studies have demonstrated that it is an effective ‘grease’ when presented with bureaucratic red tape (Leff, 1964; Lui, 1985). In this way, corruption should not be defined as a single ubiquitous and destructive activity but rather as two: one that hinders economic growth, and one that promotes growth in the face of bureaucratic inefficiency and “red tape” (Lui, 1985). While Mauro (1995) proposed that corruption could either ‘grease or throw sand in the wheels’ of economic development, this concept has still limited the definition of corruption to that of a single activity with two outcomes, rather than two separate activities with two different effects.

We propose that two forms of corruption do in fact simultaneously exist: one being the rent seeking (self-interest and greed), and the other being systemic (a solution to market failures) corruption, as inspired by Mauro’s (1995) hypothesis. Therefore, we have theoretically conceptualised corruption as two discrete behaviours that in sum are the complex phenomenon of corruption (Muir & Gupta, 2018), but can in fact work in opposite directions to help or hinder economic growth. Thus, the aim of this paper is to explore the dichotomy by providing a theoretical framework and employing Structural Equation Models (SEM) to offer sound empirical evidence that both Rent Seeking (RS) and Structural Corruption (SC) co-exist. To our knowledge, this is the first time such an investigation has been made. In Section 2 we present a new definition of corruption, followed by Section 3’s background on the historical factors thought to affect corruption. Sections 4 and 5 will present the model, methodology, and data used to provide evidence of rent seeking and systemic corruption, while Section 6 will offer an explanation of results. The final sections present our conclusions and discuss the policy ramifications of our findings.

2. An Extended Definition of Corruption

Humans may engage in controlling or scrutinizing behaviour in order to achieve greater payoffs (monetary or power). This is traditionally linked to rent seeking corruption, where

individuals seek greater economic returns than would be normally available to them. In economics it is defined as “a special means by which private parties may seek to pursue their interests in the competition for preferential treatment” (Lambsdorff, 2002 p. 104). This type of corruption acts in the same way as economic rent seeking – it uses money or power to influence policies to one’s own advantage and escape the invisible hand of the market (Lambsdorff, 2002). Unfortunately, rent seeking behaviour exists in both the normal legal economies and the illegal shadow economies around the world. This is evident in the numerous forms of embezzlement experienced by corporations and governments, the violent lobbying of triads and drug cartels, and the so called ‘gentleman’s agreements’ that underlie the world’s political discourse.

The other type of corruption is not driven by rent seeking, but rather by individuals trying to solve inefficiency problems in ill-functioning bureaucracies and weak government systems (Cooray & Schneider, 2018). This type of ‘street level’ corruption is decisively different from rent seeking corruption and represents the “grease in the wheels” argument from Mauro’s (1995). This corruption differs in the sense that the bribes are associated with access to regular services rather than the special treatment associated with grand corruption (Justesen & Bjørnskov, 2014). Governments that experience high levels of bureaucratic ‘red tape’ have empirically been shown to slow down economic growth (Leff, 1964) and limit the opportunity for entrepreneurial innovation (Cooray & Schneider, 2018). These inefficient government or market systems create a type of “systemic” corruption, through which the public are trying to find solutions and speed up economic activity where ineffective policy is present (Aidt, 2009; Cooray & Schneider, 2018; Meon & Sekkat, 2005). By working around a flawed bureaucracy, business may be able to ‘grease the wheels’ of the economy, but at the same time, they may unintentionally create the foundations for the emergence of rent seeking corruption. However, systemic corruption may be the lesser of two evils in an ill-functioning bureaucracy, as it provides insurance that if the government moves in the wrong direction then systemic corruption may be able to redirect its movement to benefit society as a whole (Cooray & Schneider, 2018; Leff, 1964).

3 Core Factors of Corruption

Since the birth of public power, corruption has been present within society (Chen, Schneider & Sun 2018). To truly assess an extended definition of corruption, the adoption of a much

broader view of corruption is beneficial – one that is guided by insights from various areas such as public choice, institutional economics or economic anthropology. As a consequence, it is important to not only assess economic factors but also the cultural, social, and political factors emphasized within the literature when estimating a country's susceptibility to corruption (Dreher, Kotsogiannis, & McCorriston, 2007; La Porta, Lopez-De-Silanes, & Shleifer, 2008; Treisman, 2000). While the susceptibility towards corruption is thought to lie within the pursuit of morality and transformation of human nature, cultural anthropology also aims to assess whether self-interest and desire for power are naturally given or socially created (Malik, 2014). For example, Dimant (2013) has shown that historically, corruption is firmly embedded within societal development and is seen to influence education, gender, religion, urbanisation, and ethnicity. To assess culture, one requires the best possible assessment of the common system that has been shaped by the context of physical and social constructs.

3.1 Political Factors

Political factors capture the democratic environment of a country, the effectiveness of its government and judicial systems, and its legal origins – portraying the level of illocutionary force experienced within the country (Dreher et al., 2007; Engelke, 2017). While the past may not do very well at predicting the future, it does provide the framework for the legal, social, and cultural factors that shape a country; therefore, political factors cannot be assessed thoroughly without also looking at instances from the past. Historical factors are hard to separate from a country's political, legal, and social origins, particularly as colonial history plays a major role in predicting the current level of perceived corruption (Treisman, 2000). The colonising force not only set up the country's legal system, but also provided the foundations of governance and religion (Treisman, 2000). Research has shown that countries colonised by the British adopted a common law system, which provided sound framework for an effective judicial system (La Porta et al., 2008). When compared to their civil law counterparts, common law colonies have historically been shown to have traditions that reduce the level of perceived corruption faced by the modern judicial system today (Treisman, 2000).

It is widely believed that corruption is responsible for the deficiencies witnessed in modern government systems (Rose-Ackerman, 1999a; Treisman, 2000). Democracy is thought to combat these deficiencies through the promotion of political competition and increasing transparency and accountability within the system (Rose-Ackerman, 1999a). While the true cause of corruption is still relatively unknown, scholars have identified a range of political characteristics that may explain the varying degrees of corruption found within countries.

These features include the strength and efficiency of electoral rules and the judicial system, and the degree of political decentralisation. The judicial system, but more specifically the rule of law, have recently been featured in studies on the quality of governance and its consequences on economic development (La Porta et al., 2008). Strong legal foundations provide efficient legal systems, well-specified civil liberties, protection of free market activity, and a stable framework for economic activity (Dreher et al., 2007). The absence of these foundations may disincentivise agents from participating in productive activities, thus reducing investment within the region.

3.2 Social and Cultural Factors

Social and cultural factors play a large role in the acceptance of corruption. What traditionally may have been seen as gift giving to one culture may be viewed as corruption to another (Gupta, Davoodi, & Alonso-Terme, 2002). Religion plays a large role not only in the perception and acceptability of corruption, but also in the quality of governance – and by extension the legal systems – while also shaping the morals and societal values of the country. Dimant (2013) demonstrated that the roots of corruption are found in social aspects of culture such as education, gender, religion, and urbanization, and further studies have shown that regions with a higher population of Protestants have a lower level of perceived corruption than their Catholic and Muslim counterparts (Treisman, 2000). For example, regions with a high population of Catholics and Muslims also tend to have a reduced quality of governance, which may promote the presence of corruption (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1999).

3.3 Economic Factors

The economic determinants of corruption are focused on three main factors: the degree of openness, the level of natural resources, and the size of the public sector (Dreher et al., 2007). Countries that restrict trade and impose control on capital flows create rents which enhance the incentive to engage in corrupt activities for profit (Dreher et al., 2007). Economic growth is also dependent on a country's openness and natural resource endowments. Countries with large concentrations of natural resources have an excellent opportunity for exports, but it also provides a lucrative opportunity for rent seeking corruption. Those in control of the natural resource trade not only have the rights to exploit the distribution, but also have the opportunity to exploit government policy to gain access to further resources (Ades & DiTella, 1999). Regions that traditionally have a higher level of natural resources have been found to have a

higher level of perceived corruption (Treisman, 2000). While Treisman (2000) found inconclusive evidence on how the size of the public sector influences the size of corruption within countries, Van Rijckeghem and Weder (2001) have shown that governments with relatively low public servant wages have a statistically significant effect on the level of perceived corruption. Low public servant wages can result in high levels of rent seeking and systemic corruption, as they are more susceptible to bribes.

4. Model and Methodology

To model systemic corruption and rent seeking corruption as two distinct latent variables, we employ a type of Structural Equation Modelling (SEM) known as the Multiple Indicators Multiple Causes model (MIMIC). SEM is a technique that can provide useful information when assessing a theoretical model that hypothesizes how sets of variables define latent variables (constructs) and how these constructs are related to each other (Frey & Weck-Hannemann, 1984; Joreskog & Sorbom, 1996; Shen & Williamson, 2005). The MIMIC model was introduced to econometrics by Goldberger (1972) and successfully pioneered by Dreher et al. (2007). In our study, it is used to construct a measure of corruption for over 100 countries using indicative and causal variables. This model estimates the unknown coefficients separately through a set of structural equations with the use of observed indicator (endogenous) variables to capture the effect of the unobserved variables indirectly (Dreher et al., 2007). Through the use of causal (exogenous) and indicative (endogenous) variables, this method confirms the role of causal factors as determinants of rent seeking and systemic corruption (Buehn & Schneider, 2012; Dreher et al., 2007). This paper draws on Dreher et al. (2007) and extends his model to actually provide estimates of different types of corruption effects, rather than providing a ranked corruption index.

In our analysis of systemic corruption and rent seeking corruption, we use a MIMIC model consisting of two parts: the structural equation and the measurement model. The measurement model specifies how the observed endogenous (indicator) variables are determined by the unobserved latent variable, and the structural equation model identifies the relationship between the latent variable and its exogenous variables (Dreher et al., 2007; Joreskog & Goldberger, 1975). The following equations specify the MIMIC model as presented by Gertler (1988):

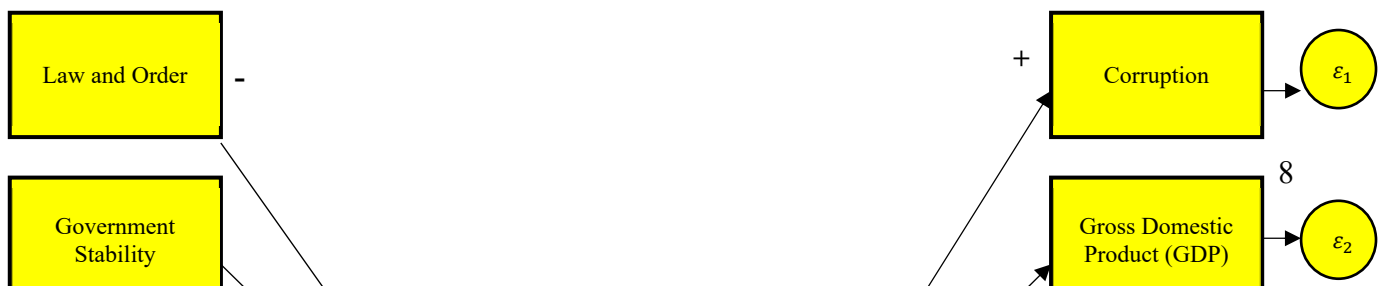
$$y_{i,j} = \beta_j \xi_i + v_i \quad [1]$$

$$\xi_i = \lambda_k x_{i,k} + \zeta_i \quad [2]$$

where $y_{i,j}$ is an observation on a systemic or rent seeking corruption indicator j for country i , $x_{i,k}$ is an observation for a potential systemic or rent seeking cause k for country i ; ξ_i is a latent variable representing the effect of systemic or rent seeking corruption in country i ; β and λ are vectors of the coefficients, and v and ζ are error terms. The measurement model, equation [1], links j indicators (denoted by y) to the unobservable measure of systemic and rent seeking corruption, whereas equation [2] models the determination of rent seeking and systemic corruption as a function of k causes (denoted by x) (Rose & Spiegel, 2012). To derive a model that is no longer a function of the latent variable ξ_i , we substitute equation [2] into [1], therefore making the MIMIC model a system of J equations with the right hand sides restricted to be proportional to each other (Gertler, 1988; Rose & Spiegel, 2012). Imposing proportionality restricts the model as it is constrained to be a one factor model of the latent variable; with the addition of normalisation, they achieve the identification of parameters in [1] and [2].

For the purpose of this study, we estimate our latent variables – rent seeking and systemic corruption – with two individual MIMIC models using Maximum Likelihood Missing Variables (MLMV) through STATA. To ensure robustness, the model will also be estimated through maximum likelihood estimation (MLE). MLE requires full sets of data and uses listwise deletion when there is missing data present, unlike MLMV which estimates the models taking into account missing data. Both of these models assume that the data is normally distributed. Systemic corruption will be estimated using 6 indicative variables and 6 causal variables. Rent Seeking corruption will be estimated with 7 indicative variables and 7 causal variables. Two of these variables within each model can be used as both causal and indicative so they will be treated as both to ensure robustness. These variables are embedded within the corruption literature and are discussed in further detail in the section below. A graphical representation of each system of simultaneous equations is represented by Figures 1 and 2.

Figure 1: Path Diagram for Systemic Corruption



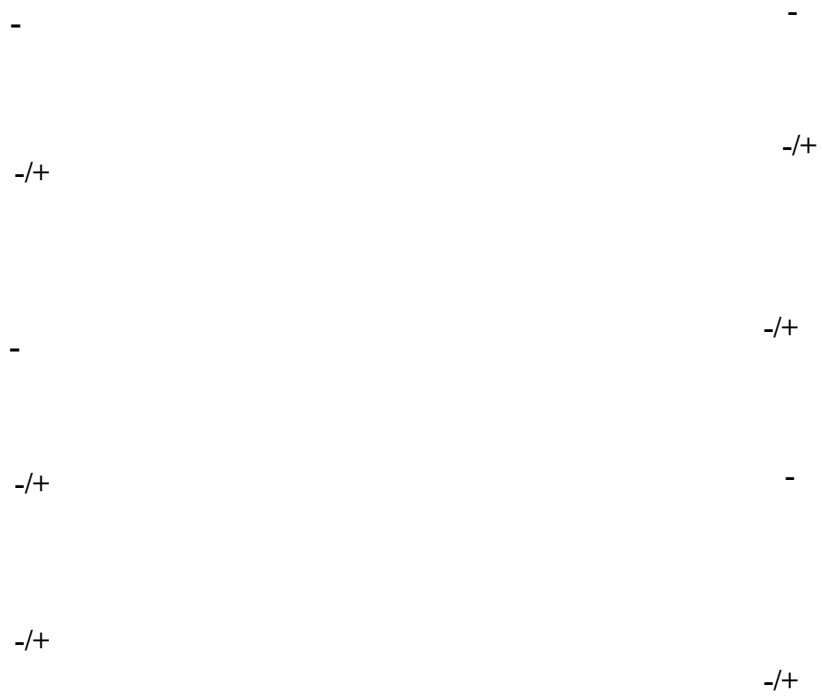


Figure 2: Path Diagram for Rent Seeking Corruption



-	+
	-/+
+	
	-/+
-	
	+
+	
-/+	-/+
	-/+

5. Data

The data represent a panel on 24 Latin American countries covering the period of 1980-2018. Tax havens and countries without complete sets of data were removed from the study. Latin America as a coherent cultural region (Inglehart and Barballo (1997) was chosen due to the similar cultural heritage⁵ of these countries (although there are identity differences and difference with respect to their colonisation histories⁶) as well as the diverse mix of developing and developed countries within the region⁷. There is a concern that excluding countries from the study will introduce bias from missing data points; however, as the model requires near complete data sets, removing countries is consistent within the literature (Shen & Williamson, 2005). We use a number of other causal and indicative variables within the empirical analysis

⁵⁵ Inglehart and Barballo (1997) refer to its Hispanic cultural heritage, the Roman Catholic religious heritage that shaped societies of Latin America, and the influence by indigenous American cultures (in particular in Mexico and Peru). Using World Values Survey data, Inglehart and Barballo also show that the Latin American countries in the 1990 dataset (Mexico, Argentina, Chile, and Brazil) had similar value systems

⁶ Some countries such as Argentina were less influenced by indigenous American cultures and more by large amounts of recent European immigration (Inglehart and Barballo 1997).

⁷ For an exploration on social norms of compliance differences see Torgler (2005)

to estimate the effect/size of each type of corruption. The variables used within this analysis are based on previous findings of relevant theoretical and empirical literature but are also grounded within public choice and economic anthropology literature which assesses the historical, political, social, cultural and economic factors discussed in previous sections. Where the literature is indecisive as to whether variables are causal or indicative, they will be flipped to confirm robustness and to ensure that endogeneity and causality issues are addressed (Dreher et al., 2007). The following section will summarise the variables in each model as either an indicator or cause of systemic or rent seeking corruption.

5.1 Indicative Variables

5.1.1 *Corruption Perceptions*

The corruption variable used in this model is an indicative variable for the perception of corruption within a region. Due to these measures being based on personal perceptions, there are likely errors and uncertainties regarding the validity of corruption data. To ensure robustness of all results, the models will be estimated using Transparency International's Corruption Perception Index (CPI) and Political Risk Services International Country Risk Guide (ICRG). These are the most commonly used datasets within the literature (see Campos, Dimova, & Saleh, 2010 for a full list of corruption data). While the Transparency International data is the most commonly used perceptions-based index, it is not without its faults. The methodology changes regularly, so to ensure consistency within the data, the values have been transformed to stay up to date with current methodology. Transparency International estimates corruption from 0-10 ("totally corrupt" to "not corrupt"). The ICRG ranks countries from 0-6 (totally corrupt to not corrupt) and provides an annual corruption rating by country-based experts. This dataset measures corruption within the political system and is concerned with excessive patronage, nepotism, job reservations, secret party funding, and suspiciously close ties between business and government (Howell, 2011). The CPI represents the perceptions of country-based analysts, businesspeople, and experts. Country rankings can change from year to year within the dataset due to changes in governance quality perceptions reported by individuals, changes in methodology, new countries entering the index, and changes in underlying sources used to construct the governance indicators (Cooray & Schneider, 2018; Fan, Lin, & Treisman, 2009).

5.1.2 Gross Domestic Product

The impact of corruption on Gross Domestic Product is quite inconclusive; studies at both the macro and micro economic levels are yet to find the true effect of these two variables on one another (Cotte Poveda & Martinez Carvajal, 2019; Huang, 2016; Mauro, 1995; Meon & Sekkat, 2005; Nur-tegin & Jakee, 2019). In this study, GDP will act as a proxy for economic growth within the systemic model. Developing countries that experience low levels of economic growth tend to have insufficient public services, which may result in citizens bribing officials to gain access to general services (Transparency International, 2020). This measure of GDP – more specifically GDP per capita – is taken from the World Bank and measured in USD. It is a weighted average of the current levels of gross domestic product divided by the midyear population (World Bank, 2020b). As SEM models and MLMV need the data to be normally distributed, GDP per capita has been transformed via logarithms, which is common practice within the literature.

5.1.3 Inflation

Corruption has been shown to cause high inflation in countries experiencing insufficient tax rents (Al-Marhubi, 2000). Governments wishing to have optimal taxation create inflation as a source of income when they experience significant tax evasion (Ali & Sassi, 2016). This can also be caused by corrupt officials lowering the amount of public funds available to finance expenditures, thus resulting in government reliance on more seigniorage (Blackburn & Powell, 2011). Therefore, it could be theorised that countries experiencing high levels of rent seeking and systemic corruption will generally have higher monetary growth inflation. As tax evasion includes shadow economy activities that are not captured, inflation will be used as an indicative variable in both models. Inflation data is taken from the World Bank's inflation, GDP deflator. This measurement shows the annual rate of price change in the economy as a whole (World Bank, 2020c). It is the ratio of GDP in current local currency to GDP in constant local currency (World Bank, 2020c).

5.1.4 Foreign Direct Investment

Transition economies that experience high levels of corruption have higher levels of Foreign Direct Investment (FDI), as corruption enables the replication of the financial market mechanisms that are absent due to excessive and poorly designed regulation (Cuervo-Cazurra,

2008; Huntington, 1968; Leff, 1964). In countries experiencing systemic corruption, firms that value efficiency and access to goods more highly than others are more likely to pay bribes to officials to guarantee admittance, which results in corruption ‘greasing’ the wheels of foreign investment in transition economies (Cuervo-Cazurra, 2008; Leff, 1964). On the other hand, rent seeking corruption on the other hand is thought to deter FDI; firms are less likely to invest in a country where corruption yields increased costs and uncertainty in the economy (Cuervo-Cazurra, 2008). For the purposes of this study, FDI will be used as an indicative variable: high levels of FDI are thought to represent the presence of systemic corruption and low levels of FDI represent the presence of rent seeking corruption. FDI is measured as the direct investment equity flows in the reporting economy, which refers to the sum of equity capital, reinvestment of earnings, and other forms of capital present (World Bank, 2020a). Data for FDI will be taken from the World Bank which sources its data from the International Monetary Fund’s Balance of Payments Database.

5.1.5 Education

Individuals in underdeveloped countries with low school enrolments throughout the education system have little understanding of government operations; therefore, it is not clear what they should expect from a legitimate government (Buehn & Schneider, 2012; Rose-Ackerman, 1999a). On the other hand, better educated individuals may have a more accurate perception of corruption (Arnold, 2012). As education is the driver of moral perspectives and actions, a lack of education can result in an acceptance of ‘corruption culture’ (Fisman & Miguel, 2008); whereas the presence of education has been shown to reduce such ‘corruption culture’ in certain regions (Truex, 2011). Gross enrolments taken from the World Bank will be used as an indicative education variable within both models, as higher levels of education can lead to a reduction in both systemic and rent seeking corruption. The data taken from the World Bank Gender Parity Index of Education consists of pre-primary, primary, secondary, and tertiary enrolments as a gross enrolment ratio. This ratio is the proportion of total enrolment (regardless of age) to the population of the age group that corresponds to the level of education (World Bank, 2020e). The variable has been constructed as an additive index which has also been transformed through logarithms to keep the data normalised.

5.1.6 Intentional Homicides per Capita

Countries with high levels of crime have generally been characterised by a high level of corruption and a low level of efficiency within the criminal justice system (Neapolitan, 1999). It has been theorised that these high levels of corruption caused the erosion of social rules that may lead to abnormal levels of violence and political uncertainty (Poveda, Carvajal, & Pulido, 2019). In line with these theories, intentional homicides per capita serves as the indicative variable for rent seeking corruption, as it acts as a proxy for the level of corruption within a country, but can also demonstrate the quality of the criminal justice system and additionally the quality of governance. The data was sourced from the United Nations Office on Drugs and Crime (UNODC), which estimates intentional homicide as unlawful homicide purposely inflicted as a result of domestic disputes, interpersonal violence, violent conflicts over land resources, intergang violence, and predatory killing by armed groups (World Bank, 2020d). Intentional homicide does not include intentional killing which is usually committed by larger groups in conflict.

5.1.7 Democratic Accountability

Transparency and political accountability can help control political corruption. Better citizen monitoring of public officials can deter them from engaging in corruption and has been shown to lead to stricter monitoring of subordinates (Arnold, 2012). The ICRG measures democratic accountability as whether there are free and fair elections within a state and how responsive the government is to its people; the less accountable and responsive a government is, the more likely they are to fall (Howell, 2011). Points are awarded by the ICRG based on the type of governance experienced by the citizens of the nation in question. Governance is categorised by alternating democracy, dominated democracy, de facto one-party state, de jure one-party state, and autarchy (Howell, 2011). A high rating represents low risk, as the country has a sufficient level of democratic accountability, whereas a low rating represents a high risk and lack of democratic accountability.

5.1.8 Cement Imports and Exports

Cement imports can act as a proxy for corruption, and related scandals have attracted public attention to the level of cement imports as a way of measuring corruption within a region. Large construction projects provide a lucrative opportunity for corruption and money laundering as the exact value of the project is hard to monitor (Dreher et al., 2007). This study will use cement imports and exports as an indicator for rent seeking corruption within a region.

Rose-Ackerman (1999a, p. 30-31) provides a sound justification for corruption as a proxy variable, noting that “In Nigeria in 1975, the military government ordered cement that totalled two-thirds of the estimated needs of all of Africa and which exceeded the productive capacity of Western Europe and the Soviet Union”. The data will be taken from the Observatory of Economic Complexity by Alexander Simoes. The data contains Standard International Trade Classifications (SITC) for cement imports and exports from 1962-2017, gathered from the United Nations Statistical Division (CommTrade) and the Centre for International Data by Robert Feenstra (Simoes, 2020). As some countries within the study are producers of cement, we have taken the difference between imports and exports to narrow down consumption. The variable has also been logged to normalise the data for the model.

5.1.9 Unemployment

In regions where shadow economy activities (i.e. corruption) are more profitable than traditional labour, it can be argued that the decline in labour force participation and a high unemployment rate can be indicative of rent seeking corruption (Dell’Anno & Solomon, 2008). Unemployment is defined as significant levels of underemployment or employment in the informal economy. For the purposes of this study, the unemployment rate will be used as an indicative variable for rent seeking corruption.

5.2 Causal Variables

5.2.1 Foreign Pressure

The global anti-corruption agenda emerged during the mid 1990’s out of the US government’s perception that foreign corruption was a security threat (Ivanov, 2007). This international campaign has placed political conditionality and anti-corruption policy at the centre of good governance programs implemented by international financial institutions (Bracking, 2007). While the global anti-corruption campaign has aimed for a multipronged tailored approach to combating corruption, these international foreign pressures have proven to be counterproductive, especially in post-communist and developing countries (Ivanov, 2007). The ICRG defines foreign pressures as the actual or potential risk posed by pressures on the government from one or more foreign states in forcing policy change. This pressure can be in the form of diplomatic demands, suspension of aid, and trade sanctions upon the country

(Howell, 2011). Foreign pressure will be used as a causal variable within the rent seeking model.

5.2.2 Law and Order

Traditionally, law and order are assumed to sufficiently restrict the activities of politicians and bureaucrats by deterring the arrangement of corrupt deals, but excessive regulation can impede the function of market forces and promote corruption (Lambsdorff, 2003). If judicial decisions can be purchased, then countries cannot develop a strong tradition of law and order, therefore promoting both systemic and rent seeking corruption (Lambsdorff, 2003). Law and order are measures of two factors of political risk. The law component assesses the strength and impartiality of the judicial system, and the order sub-component assesses popular observance of the law through the rate of crime (Howell, 2011). Each element is scored from zero to three, with zero representing high risk. It is possible for a country to enjoy a high rating in terms of its legal system but have a low order rating if it suffers from high crime rates (Howell, 2011).

5.2.3 Internal Conflict

Cartels use anti state violence to influence government policy through violent corruption and lobbying (Lessing, 2012). Cartels expend resources to influence legislation through bribes but will turn to violent forms of lobbying when traditional bribes are no longer effective. This is evident in drug lord Pablo Escobar's famous phrase "*plato o plomo?*" (*money or bullet*) (Lessing, 2012). Internal conflict measures the level of political violence within a state and its actual potential impact on governance (Howell, 2011). The variable is a sum of three sub components from the ICRG: civil war/coup threat, terrorism/political violence, and civil disorder; a high score (4) represents little to no risk and a low score (0) represents very high risk (Howell, 2011).

5.2.4 Repatriation

The World Bank estimates that corrupt leaders in undeveloped nations launder as much as \$40 billion each year and hide stolen assets in offshore financial centres (Mugarura, 2017). Countries with developed financial sectors have strong legal instruments to prevent the

movement of illicit financial transactions at an international level (Mugarura, 2017). Repatriation is a measure of the extent to which profits can be transferred out of the host country. This can be inhibited by exchange controls, excessive bureaucracy, and undeveloped financial sectors (Howell, 2011). This variable will act as a proxy for rent seeking corruption to demonstrate the ease of fund movement within a country.

5.2.5 Government Stability and Government Cohesion

Failure to curb corruption can directly threaten the legitimacy and stability of political regimes (Dix, Hussmann, & Walton, 2012). An unstable political landscape threatens economic growth through the deterrence of investment and undermines governmental policy (Brunetti, Kisunko, & Weder, 1998). In deeply divided societies, government stability may be based on the exchange of political favours, resulting in systemic corruption (Rose-Ackerman, 1999b). Government stability is the extent of the state's ability to carry out its declared program and retain office. It is measured through the sum of government unity, legislative strength, and popular support. The higher the rating, the lower the risk of instability within the government. This variable will be implemented as a causal variable within the systemic corruption model, as low government stability tends to suggest the presence of political favours within the country. Government cohesion, like government stability, is the measure of the extent to which the executive is united around the government's general policy goals. This variable will be used as a causal variable in both systemic and rent seeking models.

5.2.6 Bureaucratic Quality

When the government system is inefficient and easily corrupted, corruption can be used to compensate various aspects of an ill-functioning bureaucracy. Agents may pay bribes to gain access to public services and resolve bureaucratic slowness or 'red tape', bypass tariffs or gain special or extra-legal treatment (Justesen & Bjørnskov, 2014; Lui, 1985). Poor bureaucratic quality often leads to high levels of systemic corruption as the public is attempting to bypass a system of inefficiency. This variable is a measure of institutional strength and quality of the bureaucracy in terms of political pressures and will be used as a causal variable for systemic corruption (Howell, 2011). The ICRG awards points based on the country's ability to absorb governmental shocks – a high score of 4 indicates a low risk of the government being derailed by shocks.

5.2.7 Legislative Strength

Control of the legislature is the most lucrative political asset in question, as it confers influence over the legislative process and allows businesses to influence political outcomes (Kaufmann & Vicente, 2011; Yadav, 2012). In modern times, cartels access the legislative process through bribery and violent lobbying to move policy in their favour (Lessing, 2012). The ICRG measures legislative strength as the ability of the government to realise its policy agenda through the state's policy arm (Howell, 2011). Weak governments are subject to numerous forms of illegal and legal political tactics when interest groups lobby for policy change (Yadav, 2012). This measure assigns each country a score of 1-4, with a higher score representing a strong legislature that can execute its policy goals. Legislative strength will be used as a causal variable within the systemic corruption model to proxy effectiveness of the government in reaching policy goals.

5.2.8 Socioeconomic Conditions

Socioeconomic conditions and corruption do not have a clear-cut relationship – hence, there are numerous trains of thought surrounding the phenomena. For the purpose of this paper, socioeconomic conditions will be used as a causal and indicative variable in both the rent seeking and systemic model. Low quality socioeconomic conditions can cause high levels of rent seeking and systemic corruption; firstly, because the poor tend to pay more bribes to access public services normally not available to them, and secondly, they turn to rent seeking corruption to increase their economic status when traditional labour is seen to pay a pittance (Justesen & Bjørnskov, 2014). On the other side of the coin, poverty and low socioeconomic conditions may also be indicative of high levels of rent seeking and systemic corruption. Traditional rent seeking corruption diverts funds away from government programs, creating income inequality, limiting economic growth, and therefore limiting poverty reduction (Gupta et al., 2002). This variable will be taken from the ICRG, which provides a measure of the socioeconomic pressures present within society that restrict government action or create social dissatisfaction. This variable is made up of individual measures of poverty, consumer confidence, and unemployment (Howell, 2011).

Table 1: Descriptive Statistics

VARIABLES	(1) N	(2) Mean	(3) SD	(4) Min	(5) Max
Bureaucratic Quality	767	1.761	0.916	0	3
ICRG Corruption	767	2.564	0.994	0	5
Cross Border Conflict	360	3.243	0.502	2	4
Democratic Accountability	767	3.864	1.331	0	6
Foreign Pressures	360	2.846	0.708	0	4
Government Cohesion	360	3.050	0.577	1.500	4
Government Stability	767	7.010	1.979	1.083	11
Internal Conflict	767	8.378	2.276	0	12
Law & Order	767	2.760	1.101	1	5
Legislative Strength	360	2.532	0.647	1	4
Poverty	360	1.128	0.801	0	2.500
Repatriation	360	2.562	0.910	0.500	4
Socioeconomic Conditions	767	5.002	1.636	0	8.500
Unemployment	360	1.958	0.884	0	4
TI Corruption Index	419	35.59	13.96	14	75
Inflation	887	2.330	1.478	-2.216	9.519
GDP	930	7.922	0.958	5.488	10.37
Homicides per capita	414	2.844	0.824	0.919	4.935
Education	416	5.541	0.257	4.705	6.046
Cement	562	15.09	2.049	8.152	19.08
FDI	826	19.85	2.302	11.00	25.35

6. Results

The estimation results of the structural equation model for systemic and rent seeking corruption are presented in Table 2, reported as standardized coefficients of causes and indicators. Table 2 presents the estimates obtained through Maximum Likelihood Missing variables, and Table 3 presents estimates obtained through Maximum Likelihood Estimation to ensure robustness. Models (1-6) of Tables 2 and 3 show the estimations for rent seeking and systemic corruption with socioeconomic conditions as a cause of corruption, and models (7-12) present estimations with socioeconomic conditions as an indicator of corruption. Tables 4 and 5 present estimations for rent seeking and systemic corruption through MLMV and ML without any socioeconomic conditions considered.⁸ The goodness of fit shows an acceptable fit for most of the specifications. If the model fits the data perfectly and the parameter values are known, the sample covariance matrix equals the covariance implied by the model (Buehn & Schneider, 2012). The root mean squared errors of approximation (RMSEA) indicate a good fit as they are close to 0.08 in most specifications. A measure of 0.08 is considered to be a good fit and a measure of 0.05 represents an extremely good fit.

With respect to Table 1, we show that neither the RS nor the S models include all variables in all models; initially, models were created using all of the variables generally associated with corruption. However, those all-inclusive models were unable to converge to provide any estimates of corruption – thus when considering the theoretical aspects of the two types of corruption we took into account the social, cultural, and historical constructs of the region. As such, not all variables were included in the rent seeking and systemic models as some of the variables were inappropriate for the type of corruption in question; thus, to limit the number of variables used in each model, we looked to our definition of the two opposing types of corruption. Variables that were related to or could cause market failures and inefficient government systems were allocated to the Systemic (S) model, while variables that would lead to private gain, greed, or larger company profits were allocated to the Rent Seeking (RS) model. It is important to note the cultural conditions present in many of the regions in South America; for example, the illegal drug trade accounts for 59% of all world-wide cocaine seizures and the high rate of homicides is an unfortunate externality of this lucrative but corruption-inducing business (United Nations Office on Drugs and Crime, 2010).

⁸ A full correlation matrix is presented in Table 6 of the Appendix.

In Table 2 we report the estimates obtained when running both Systemic and Rent-Seeking corruption side-by-side to make the differences clearer. In the first (1-6) specifications we have included *Socioeconomic Conditions* as a causal variable, but for the later (7-12) specifications we have included it as an indicator variable. A pattern is immediately evident and repeats across most of the analysis; specifically, a directional duality of corruption between our Rent Seeking (RS) and Systemic (S) models. We observe a fairly robust significantly positive effect of the variable on *Systemic Corruption*, but a significantly negative effect on *Rent Seeking Corruption*. This duality is observed in *Law and Order*, *Government Cohesion*, *Inflation*, *FDI*, and *Education*, and also appears for both versions of *socioeconomic conditions* (causes and indicator). The results provide strong supporting evidence for our hypothesis that corruption is not a singular amorphous entity – rather it can be broken down into two distinctly separate acts with significantly different outcomes. We observe the converse with the *Government Cohesion* variable, which has a significantly positive impact on *Systemic Corruption* in specifications (1-12), however – while negative – it does not have significant impact on *Rent Seeking Corruption* in the same specifications. A similar relationship of dualities can be observed across a number of other variables, such as *Inflation*, *FDI* and *Education* – this supports the conflicting results in the literature, where variable impacts are reported in one study but not another. When *socioeconomic conditions* are added to the regression (as a cause and an indicator) we can again see the duality relationship, as it has a negative impact on *Rent Seeking* but a positive impact on *Systemic*, which could indicate that as socioeconomic factors improve, a shift from rent seeking towards systemic corruption is observed. As the population becomes more affluent, they no longer need to conduct rent seeking activities, but if government efficiency does not improve, citizens may need to engage in systemic corruption to get around those inefficient services.

Table 3 presents the results for the model using Maximum Likelihood (ML) estimates. The ML models would not converge with *Socioeconomic Conditions* as a causal variable (13-18) but did so when included as an indicator variable (19-23). Additionally, as the ML models require no missing variables and will systematically remove incomplete rows from their estimations, the number of observations drops from 936 in Table 2 down to an average of 128 in Table 3. It is therefore likely that there will be some significant changes in results due to the differences in included variables. However, we do observe similar patterns emerging in the ML specifications across *Government Cohesion* and *Legislative Strength*, but we now note that *Inflation* has a robust and significantly negative impact on both *Rent Seeking* and *Systemic*

Corruption. This further supports our hypothesis that corruption is made up of different activities and that the data being used to estimate these effects can have significant impacts on results, which may further suggest some instability within the corruption models or variables used. Thus, Table 3 highlights the importance of the data used in analysing corruption: while one could argue that Maximum Likelihood estimators are statistically superior, the necessity for complete data has effectively removed up to 85% of the observations and fundamentally altered the outcomes of the corruption regressions.

Tables 4 and 5 present the re-estimated MLMV and ML models, in this case with *Socioeconomic Conditions* completely removed from the models for robustness. In both tables, we observe very similar results to those reported in Table 2 and 3. While *Law and Order*, *Government Cohesion*, *Education*, *FDI*, and *Inflation* exhibit a statistically significant impact on corruption, they may have either positive or negative directional effects depending on the type (or definition) of corruption. As law and order increases, we start to see a reduction in *Rent Seeking Corruption* and a rise in *Systemic*. This finding is in line with general corruption literature, as it suggests that in order to curb rent seeking corruption, a country needs to strengthen its legal systems. While the strengthening of legal systems does seem to reduce rent seeking corruption, it also results in a slight increase of systemic corruption, which may suggest that by focusing on an area of anti-corruption policy, the government may actually be creating higher levels of systemic corruption: resources that have been traditionally used for other funding activities (e.g., socioeconomic activities) are diverted away (e.g., some people need to find alternative ways to help themselves). *Legislative Strength* is highly significant in reducing systemic corruption; this is yet again confirmed by the literature. Countries with a strong legislative arm have the ability to efficiently pass public policy; as such, the public no longer need to bribe for access to public services. *Government Cohesion* is shown to be statistically significant throughout the systemic models but is only significant for rent seeking corruption when using *Socioeconomic* conditions as an indicative variable within the ML models. In line with the theory, we can see that as *Government Cohesion* increases and starts to align with party goals, we not only have a reduction in *Rent Seeking Corruption* but also *Systemic*.

Inflation was found to be statistically significant in all models estimated – reducing *Systemic* and *Rent Seeking Corruption* – a theoretically expected result in Latin America as the government may use inflation as a way to control corrupt rents and stop money laundering within the region. It has also been shown that inflation rises as corruption rises, which could be due to governments needing to borrow more money due to tax evasion or public funds being

misused. We also find that as *FDI* rises, systemic corruption also rises within Latin America, which is confirmed through current literature finding that government failings will encourage the use of bribes by firms attempting to win contracts, as they attempt to curb bureaucratic slowness. We see *FDI* reduce within all rent seeking models, as it has been hypothesised that higher illegal activity deters *FDI*. It could also be hypothesised that violent lobbying by cartels deters investment. *Education* exhibits a statistically significant impact in all models; throughout the MLMV specifications, we see *Education* increasing the effect of *Systemic Corruption* and decreasing the effect of *Rent Seeking Corruption*. While a decrease in rent seeking corruption is not surprising – the literature has shown that as the education level of the population rises, corruption generally reduces – we see *Systemic Corruption* rise as education rises within Latin America. This finding could suggest that as the population becomes more educated, they discover more efficient ways to bypass government failings when accessing services such as healthcare, welfare, and housing. This is also confirmed within Table 7 of our robustness check, where education is also seen to have the positive effect on corruption. This duality in education may suggest that there is a certain level of acceptable corruption within Latin America’s cultural background.

Table 2: Estimates of Systemic (S) and Rent Seeking (RS) Corruption with MLMV

Latent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
MLMV	S	RS	S	RS	S	RS	S	RS	S	RS	S	RS
Causes												
Foreign Pressure		0.40*** (0.07)		0.49*** (0.06)		0.41*** (0.06)		-0.15** (0.06)		-0.06 (0.06)		-0.16** (0.06)
Law and Order	0.05 (0.04)	-0.09** (0.04)	0.07** (0.04)	-0.11*** (0.04)	0.009 (0.03)	-0.06 (0.04)	0.18*** (0.04)	-0.31*** (0.05)	0.18*** (0.03)	-0.29*** (0.04)	0.12*** (0.03)	-0.22*** (0.05)
Government Stability	0.70*** (0.13)		0.63*** (0.13)		0.66*** (0.13)		0.45*** (0.12)		0.40*** (0.12)		0.44*** (0.12)	
Bureaucratic Quality	0.52*** (0.04)		0.49*** (0.03)		0.47*** (0.04)		0.65*** (0.03)		0.60*** (0.03)		0.61*** (0.03)	
Government Cohesion	-0.42*** (0.09)	0.06 (0.05)	-0.38*** (0.10)	0.08 (0.05)	-0.39*** (0.09)	0.07 (0.05)	-0.25*** (0.08)	-0.008 (0.05)	-0.23** (0.09)	0.02 (0.05)	-0.26*** (0.09)	-0.007 (0.05)
Legislative Strength	-0.12 (0.09)		-0.07 (0.09)		-0.09 (0.09)		-0.05 (0.08)		-0.004 (0.08)		-0.01 (0.08)	
Repatriation		0.41*** (0.07)		0.27*** (0.07)		0.43*** (0.07)		-0.06 (0.05)		-0.14** (0.06)		-0.05 (0.06)
Internal Conflict		-0.24*** (0.06)		-0.33*** (0.06)		-0.24*** (0.06)		-0.34*** (0.06)		-0.42*** (0.05)		-0.38*** (0.05)
Socioeconomic Conditions	0.25*** (0.03)	-0.73*** (0.04)	0.25*** (0.03)	-0.70*** (0.04)	0.26*** (0.03)	-0.74*** (0.04)						
Indicators												
ICRG Corruption	0.29*** (0.04)	-0.21*** (0.04)					0.34*** (0.03)	-0.30*** (0.04)				
TI Corruption			0.77*** (0.03)	-0.71*** (0.04)					0.79*** (0.03)	-0.77*** (0.04)		
Inflation	-0.30*** (0.03)	0.35*** (0.04)	-0.35*** (0.04)	0.38*** (0.04)	-0.34*** (0.04)	0.38*** (0.04)	-0.27*** (0.04)	0.34*** (0.04)	-0.33*** (0.04)	0.39*** (0.04)	-0.32*** (0.04)	0.40*** (0.04)
FDI	0.73*** (0.03)	-0.72*** (0.03)	0.70*** (0.02)	-0.70*** (0.03)	0.77*** (0.02)	-0.73*** (0.02)	0.69*** (0.03)	-0.64*** (0.03)	0.67*** (0.04)	-0.63*** (0.03)	0.73*** (0.02)	-0.67*** (0.03)
Education	0.83*** (0.03)	-0.81*** (0.03)	0.86*** (0.01)	-0.80*** (0.03)	0.84*** (0.02)	-0.81*** (0.03)	0.81*** (0.02)	-0.74*** (0.03)	0.84*** (0.02)	-0.77*** (0.03)	0.84*** (0.02)	-0.75*** (0.03)
Homicides		0.68*** (0.04)		0.71*** (0.04)		0.67*** (0.04)		0.57*** (0.05)		0.64*** (0.04)		0.56*** (0.05)
Cement		-0.59*** (0.04)		-0.59*** (0.04)		-0.61*** (0.04)		-0.51*** (0.04)		-0.52*** (0.04)		-0.56*** (0.04)
Unemployment		-0.81***		-0.78***		-0.81***		-0.88***		-0.77***		-0.91***

	(0.03)		(0.03)		(0.03)		(0.02)		(0.03)		(0.02)	
GDP	0.86***		0.89***		0.92***		0.83***		0.86***		0.90***	
	(0.03)		(0.02)		(0.02)		(0.02)		(0.01)		(0.03)	
Democratic	0.57***		0.54***		0.52***		0.59***		0.55***		0.54***	
Accountability	(0.03)		(0.03)		(0.03)		(0.03)		(0.03)		(0.03)	
Socioeconomic							0.55***	-0.62***	0.55***	-0.59***	0.53***	-0.58***
Conditions							(0.03)	(0.04)	(0.03)	(0.04)	(0.03)	(0.03)
Observation	936	936	936	936	936	936	936	936	936	936	936	936
Chi-square	657.45	910.15	504.76	819.65	360.00	603.63	731.56	1086.24	577.63	1003.71	454.00	801.05
R ²	0.67	0.87	0.65	0.86	0.58	0.86	0.68	0.46	0.62	0.50	0.57	0.42
RMSEA	0.136	0.139	0.118	0.131	0.117	0.128	0.134	0.144	0.118	0.139	0.121	0.139

Note: S = Systemic Corruption RS = Rent Seeking Corruption; OIM Standard Errors in parentheses; *, **, *** denote 10%, 5% and 1% level of significance respectively.

Table 3: Estimates of Systemic and Rent Seeking Corruption with ML

Latent variables	(13)	(14)	(15)	(16)
ML	S	RS	S	RS
Causes				
Foreign Pressure		-0.30*** (0.09)		-0.24*** (0.09)
Law and Order	0.48*** (0.07)	0.48*** (0.12)	0.53*** (0.07)	0.44*** (0.12)
Government Stability	0.15 (0.16)		0.04 (0.16)	
Bureaucratic Quality	0.41*** (0.07)		0.35*** (0.07)	
Government Cohesion	-0.09 (0.14)	-0.21** (0.08)	-0.003 (0.13)	-0.24*** (0.08)
Legislative Strength	-0.03 (0.10)		0.04 (0.10)	
Repatriation		0.06 (0.11)		0.15 (0.11)
Internal Conflict		0.25*** (0.09)		0.28*** (0.09)
Socioeconomic Conditions				
Indicators				
ICRG Corruption	0.59*** (0.06)	0.80*** (0.04)		
TI Corruption			0.70*** (0.05)	0.87*** (0.04)
Inflation	-0.11 (0.09)	-0.06 (0.12)	-0.13 (0.10)	-0.05 (0.13)
FDI	0.66*** (0.06)	0.80*** (0.05)	0.62*** (0.06)	-0.81*** (0.05)
Education	0.72*** (0.05)	0.70*** (0.05)	0.68*** (0.06)	0.79*** (0.05)
Homicides		-0.67*** (0.07)		-0.67*** (0.07)
Cement		0.54*** (0.09)		0.51*** (0.09)
Unemployment		0.64*** (0.07)		0.60*** (0.08)
GDP	0.78*** (0.04)		0.77*** (0.04)	
Democratic Accountability	0.54*** (0.07)		0.53*** (0.07)	
Socioeconomic Conditions	0.84*** (0.04)		0.88*** (0.03)	
Observation	148	71	145	68
Chi-square	255.00	308.42	261.52	300.87
R ²	0.48	0.64	0.49	0.64
RMSEA	0.188	0.257	0.193	0.258

Note: S = Systemic Corruption RS = Rent Seeking Corruption; OIM Standard Errors in parentheses; *, **, *** denote 10%, 5% and 1% level of significance respectively.

Table 4: Estimates of Systemic and Rent Seeking Corruption with MLMV

Latent variables MLMV	(1) S	(2) RS	(3) S	(4) RS	(5) S	(6) RS
Causes						
Foreign Pressure		-0.07 (0.08)		0.06 (0.08)		-0.08 (0.09)
Law and Order	0.13*** (0.04)	-0.19*** (0.05)	0.15*** (0.03)	-0.20*** (0.05)	0.09*** (0.03)	-0.13*** (0.04)
Government Stability	0.55*** (0.13)		0.47*** (0.13)		0.50*** (0.12)	
Bureaucratic Quality	0.63*** (0.03)		0.59*** (0.03)		0.59*** (0.03)	
Government Cohesion	-0.31*** (0.09)	0.02 (0.06)	-0.27*** (0.09)	0.05 (0.07)	-0.29 (0.10)	0.03 (0.07)
Legislative Strength	-0.06 (0.08)		-0.005 (0.09)		-0.03 (0.08)	
Repatriation		-0.03 (0.07)		-0.13** (0.07)		-0.03 (0.07)
Internal Conflict		-0.45*** (0.06)		-0.52*** (0.05)		-0.47*** (0.06)
Indicators						
ICRG Corruption	0.31*** (0.04)	-0.22*** (0.04)				
TI Corruption			0.80*** (0.03)	-0.79*** (0.04)		
Inflation	-0.30*** (0.04)	0.41*** (0.04)	-0.36*** (0.04)	0.44*** (0.04)	-0.34*** (0.04)	0.44*** (0.04)
FDI	0.72*** (0.03)	-0.72*** (0.03)	0.69*** (0.02)	-0.68*** (0.03)	0.76*** (0.02)	-0.73*** (0.03)
Education	0.83*** (0.02)	-0.82*** (0.03)	0.87*** (0.02)	-0.82*** (0.03)	0.85*** (0.02)	-0.80*** (0.03)
Homicides		0.66*** (0.05)		0.71*** (0.04)		0.63*** (0.05)
Cement		-0.61*** (0.04)		-0.60*** (0.04)		-0.64*** (0.04)
Unemployment		-0.84*** (0.04)		-0.74*** (0.04)		-0.86 (0.03)
GDP	0.83*** (0.04)		0.87*** (0.02)		0.90*** (0.02)	
Democratic Accountability	0.58*** (0.03)		0.54*** (0.03)		0.54*** (0.03)	
Observation	936	936	936	936	936	936
Chi-square	603.60	715.67	446.47	544.44	314.00	394.08
R ²	0.65	0.38	0.61	0.43	0.55	0.36
RMSEA	0.141	0.131	0.121	0.114	0.119	0.110

Note: S = Systemic Corruption RS = Rent Seeking Corruption; OIM Standard Errors in parentheses; *, **, *** denote 10%, 5% and 1% level of significance respectively.

Table 5: Estimates of Systemic and Rent Seeking Corruption with ML

Latent variables	Specification					
ML	(7)	(8)	(9)	(10)	(11)	(12)
	S	RS	S	RS	S	RS
Causes						
Foreign Pressure		-0.41*** (0.07)		-0.35*** (0.08)		-0.43*** (0.09)
Law and Order	0.30*** (0.09)	0.61*** (0.11)	0.36*** (0.08)	0.51*** (0.11)	0.25*** (0.08)	0.37*** (0.14)
Government Stability	0.28** (0.17)		0.23 (0.17)		0.22 (0.17)	
Bureaucratic Quality	0.47*** (0.07)		0.43*** (0.07)		0.46*** (0.07)	
Government Cohesion	-0.33** (0.13)	-0.19** (0.08)	-0.29** (0.14)	-0.26*** (0.08)	-0.31** (0.14)	-0.24** (0.10)
Legislative Strength	0.05 (0.11)		0.10 (0.10)		0.07 (0.11)	
Repatriation		-0.92 (0.10)		0.07 (0.10)		-0.01 (0.13)
Internal Conflict		0.19** (0.08)		0.23*** (0.09)		0.22** (0.11)
Indicators						
ICRG Corruption	0.60*** (0.06)	0.87*** (0.04)				
TI Corruption			0.66*** (0.06)	0.89*** (0.03)		
Inflation	0.14 (0.09)	-0.08 (0.12)	0.11 (0.10)	-0.03 (0.13)	0.19** (0.09)	0.007 (0.03)
FDI	0.61*** (0.06)	0.70*** (0.07)	0.59*** (0.06)	0.73*** (0.05)	0.62*** (0.07)	0.82*** (0.05)
Education	0.91*** (0.04)	0.75*** (0.06)	0.87*** (0.04)	0.79*** (0.05)	0.91*** (0.05)	0.81*** (0.05)
Homicides		-0.70*** (0.06)		-0.71*** (0.06)		-0.64*** (0.09)
Cement		0.49*** (0.10)		0.48*** (0.10)		0.61*** (0.08)
Unemployment		0.70*** (0.07)		0.57*** (0.09)		0.64*** (0.08)
GDP	0.78*** (0.04)		0.80*** (0.03)		0.80*** (0.05)	
Democratic Accountability	0.38*** (0.08)		0.39*** (0.08)		0.35*** (0.09)	
Goodness of Fit Stats						
Observation	148	71	148	71	148	71
Chi-square	180.59	204.62	196.7	214.00	119.34	-
R ²	0.41	0.79	0.43	0.74	0.36	0.60
RMEA	0.181	0.228	0.193	0.240	0.173	-

Note: S = Systemic Corruption RS = Rent Seeking Corruption; OIM Standard Errors in parentheses; *, **, *** denote 10%, 5% and 1% level of significance respectively.

7. Conclusions

The current theoretical approaches to corruption offer differing results on how corruption affects a region, and recent literature has shown that there are issues within the interpretation of corruption and its policy implications. For the first time this paper has provided insights into the factors that shape those two types of corruption, and explores the duality of corruption through structural equation modelling with a single latent variable. Our findings have revealed that there is evidence of two types of corruption, one linked to greed and private gain, and another linked to government failings and inefficient public services within Latin America.

The theoretical framework developed in this paper opens the door for future research to investigate corruption not as a singular monolithic edifice, but as a set of behaviours (actions) that can be in opposition to each other, which suggests there are benefits in also seeing corruption from a cultural and economic anthropological perspective. Based on our findings in Latin America, future studies could empirically test the possibility of duality within different regions such as Africa or Eastern Europe (e.g., during the transition period). For further studies to be successful in proving potential insights on duality, and for further studies on corruption in general, scholars could consider the processes and causes that could lead to corruption within the individual nations in question rather than taking a broad approach to measuring corruption within a panel. As suggested by Hirschman, whenever one is describing opportunities for economic development, local knowledge can provide important insights in the micro-foundation of corruption. Understanding abilities that are hidden, scattered, or badly utilized – Hirschman advises looking for “pressures” and “inducement mechanisms” – may help to better harness the creative components of activity and entrepreneurship that often find their way into the informal sector. Latin America has a strong history steeped in violence, corruption, and instability, resulting in failing governments and strong holds on society from the cartels. This has led to an increase not only in rent seeking activities to survive, but also systemic activities as government failures have forced citizens to resort to bribes when they need to access services. Data seem to be an inherent issue when assessing corruption; thus, to really assess the true impact of corruption, one needs to look at the phenomena from a local, regional, or less aggregated level, similar to the approach Hernando de Soto took in his studies.

This study has several limitations with respect to the model, the data, and the region assessed. The MIMIC model is an expectational tool to hypothesise the effect of an unobserved latent variable that cannot be measured using standard econometric methods. Corruption itself is an unmeasurable construct, so the model’s predictive power provides a new avenue of

econometric analysis that has been successfully used within the literature (Frey & Weck-Hannemann, 1984; Chen et al., 2018, Cooray & Schneider 2018, Dreher et al., 2007). These papers have previously successfully used MIMIC to assess different aspects of corruption and the shadow economy through the use of latent variables where data have become unreliable. MLMV is a more stable method when assessing missing data, but the assumption of normally distributed data may lead to errors within the estimation. The data used within this model also have limits; while every best effort was made to ensure data were taken from reputable sources, errors in recording and bias within the perceptions is common. In addition, most South American countries frequently do not report all their economic data which has resulted in periods without any data. Moreover, data manipulation happens more frequently in countries with lower governance quality (Chan et al., 2019).

It is also important to consider not just a public choice but also an economic anthropological approach when assessing corruption, not only in regard to the variables to be analysed but also by analysing corruption from the point of view of the people concerned (Torsello & Venard, 2016), as we found evidence for different types of corruption. While the World Bank considers corruption to be a major challenge to combating extreme poverty and a hindrance to development, their current policy position focuses on a relatively singular view of corruption which may affect the success of an anti-corruption agenda. Our findings suggest the need to think about the dual nature of corruption when designing anti-corruption policy. As shown by our results, depending on the variable assessed, it may have a positive or negative effect on corruption. Increasing the quality of education and socioeconomic conditions within a country is related to a reduction in rent seeking corruption, but may also lead to an increase in systemic corruption if government services are not increased in the same ratio. The evolution of the anti-corruption agenda has led to a stagnation in the eradication of corruption since the early 1990's when it became part of the World Bank's economic development initiative. As part of the Sustainable Development Goals, Non-Government Organisations need to carefully assess how much they are concerned with reducing rent seeking activities associated with corruption – that in the long run do hinder economic development – or whether they should focus more on the low-level systemic corruption that allows citizens to access services otherwise smothered in red tape and inefficiency.

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Appendix
Table 6: Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Bureaucratic	1.000																	
ICRG Corruption	0.392	1.000																
Democratic Acc.	0.503	0.264	1.000															
Foreign Pressure	-0.215	-0.311	0.129	1.000														
Government Stability	0.073	-0.048	0.305	0.036	1.000													
Internal Conflict	-0.063	0.136	0.277	0.136	0.798	1.000												
Law & Order	0.154	0.142	0.427	0.419	0.142	0.145	1.000											
Legislative Strength	0.240	0.596	0.255	-0.007	-0.075	0.035	0.437	1.000										
Repatriation	-0.169	0.122	0.123	0.319	0.317	0.6512	0.140	0.121	1.000									
Socioeconomics	0.280	0.256	0.134	0.014	0.021	-0.026	0.033	0.456	0.056	1.000								
Unemployment	0.507	0.424	0.562	0.023	-0.030	-0.028	0.033	0.577	0.038	0.530	1.000							
TI Corruption	0.531	0.208	0.483	0.023	-0.018	-0.112	0.228	0.301	-0.195	0.281	0.767	1.000						
Cement	0.531	0.792	0.290	-0.111	-0.063	0.030	0.455	0.680	0.183	0.300	0.574	0.223	1.000					
Inflation	0.040	0.290	-0.085	0.154	-0.109	-0.102	0.341	0.348	-0.057	0.097	0.190	0.049	0.374	1.000				
GDP	-0.126	-0.138	-0.317	-0.115	-0.226	-0.172	-0.200	-0.160	0.055	-0.208	-0.146	-0.191	-0.108	-0.110	1.000			
Homicide	0.340	0.423	0.420	-0.204	-0.178	-0.069	0.203	0.387	0.047	0.289	0.761	0.489	0.552	0.145	0.018	1.000		
Education	-0.345	-0.483	-0.260	0.061	0.060	0.052	-0.345	-0.734	-0.126	-0.472	-0.619	-0.262	-0.671	-0.248	-0.017	-0.562	1.000	
FDI	0.391	0.606	0.341	-0.277	-0.079	0.067	0.150	0.374	0.153	0.046	0.593	0.326	0.677	0.188	0.106	0.777	-0.587	1.000

Table 7: Democratic Accountability as a Indicator for Robustness

Latent variables MLMV	(1) S	(2) S	(3) S	(4) S	(5) S	(6) S
Causes						
Law and Order	0.0173 (0.04)	0.1073*** (0.03)	0.0375 (0.03)	0.1265*** (0.03)	0.0034 (0.04)	0.0903*** (0.03)
Government Stability	0.4943*** (0.14)	0.2787** (0.12)	0.4851*** (0.14)	0.2709** (0.13)	0.4809*** (0.14)	0.2718** (0.13)
Bureaucratic Quality	0.4211*** (0.04)	0.5197*** (0.03)	0.4122*** (0.04)	0.5110*** (0.04)	0.4129*** (0.04)	0.5124*** (0.04)
Government Cohesion	-0.3564*** (0.10)	-0.2284** (0.09)	-0.3475*** (0.10)	-0.2218** (0.10)	-0.3490*** (0.10)	-0.2274** (0.09)
Legislative Strength	0.0373 (0.09)	0.1203 (0.08)	0.0371 (0.09)	0.1219 (0.08)	0.0373 (0.09)	0.1214 (0.08)
Socioeconomic Conditions	0.2541*** (0.03)		0.2588*** (0.03)		0.2591*** (0.03)	
Democratic Accountability	0.1294*** (0.03)	0.1520*** (0.04)	0.1252*** (0.03)	0.1479*** (0.04)	0.1302*** (0.04)	0.1529*** (0.04)
Indicators						
ICRG Corruption	0.2254*** (0.04)	0.2429*** (0.04)				
TI Corruption			0.7509*** (0.03)	0.7608*** (0.03)		
Inflation	-0.3397*** (0.03)	-0.3352*** (0.03)	-0.3545*** (0.03)	-0.3510*** (0.03)	-0.3436*** (0.03)	-0.3407*** (0.03)
FDI	0.7126*** (0.02)	0.7106*** (0.02)	0.6991*** (0.02)	0.6965*** (0.02)	0.7060*** (0.02)	0.7054*** (0.02)
Education	0.8735*** (0.01)	0.8732*** (0.02)	0.8758*** (0.02)	0.8747*** (0.01)	0.8723*** (0.02)	0.8733*** (0.02)
GDP	0.9114*** (0.01)	0.9045*** (0.01)	0.9139*** (0.01)	0.9068*** (0.01)	0.9245*** (0.01)	0.9191*** (0.01)
Socioeconomic Conditions		0.5291*** (0.03)		0.5361*** (0.03)		0.5220*** (0.03)
Observation	936	936	936	936	936	936
Chi-square	540.84	630.07	378.69	463.48	235.39	329.72
R ²	.5990	.5666	.6010	.5659	.5758	.5390
RMSEA	0.128	0.127	0.106	0.108	0.09	0.105

Note: S = Systemic Corruption RS = Rent Seeking Corruption; OIM Standard Errors in parentheses; *, **, *** denote 10%, 5% and 1% level of significance respectively.

Table 8: Africa Robustness

Latent variables	Specification											
MLMV	(1)		(2)		(3)		(4)		(5)		(6)	
	S	RS	S	RS	S	RS	S	RS	S	RS	S	RS
Causes												
Foreign Pressure				-0.0707 (0.06)		-0.1794** (0.09)		0.5595*** (0.05)		0.0822 (0.08)		0.4016*** (0.06)
Law and Order	-0.0915*** (0.03)		0.1460*** (0.03)	0.1288*** (0.04)	0.0915*** (0.03)	-0.1407*** (0.05)	0.1479*** (0.04)	0.2856*** (0.04)	0.1775*** (0.03)	0.0078 (0.04)	0.0844*** (0.03)	0.1912*** (0.04)
Government Stability	-0.6118*** (0.25)		0.9876*** (0.25)		0.6118*** (0.25)		0.7908*** (0.21)		0.9453*** (0.19)		0.6454*** (0.22)	
Bureaucratic Quality	-0.4679*** (0.04)		0.4821*** (0.03)		0.4679*** (0.03)		0.5606*** (0.04)		0.5406*** (0.03)		0.4781*** (0.03)	
Government Cohesion	-0.1062 (0.16)		-0.0501 (0.16)	-0.4032*** (0.06)	0.1610 (0.16)	0.1510** (0.08)	0.1425 (0.13)	0.1009* (0.06)	0.0532 (0.12)	-0.3012*** (0.10)	0.1917 (0.15)	0.0923 (0.06)
Legislative Strength	0.2545 (0.17)		-0.4809*** (0.16)		-0.2545 (0.17)		-0.5353*** (0.14)		-0.5937*** (0.11)		-0.3951*** (0.14)	
Repatriation				0.1380*** (0.06)		-0.1360 (0.09)		0.1779*** (0.06)		0.2589*** (0.07)		0.3146*** (0.05)
Internal Conflict				0.6959*** (0.04)		-0.3846*** (0.08)		-0.3443*** (0.05)		0.1813** (0.09)		-0.3027*** (0.05)
Socioeconomic Conditions	0.1278*** (0.04)		-0.0746** (0.04)	0.2144*** (0.05)	-0.1278*** (0.04)	0.2573*** (0.05)						
Indicators												
ICRG Corruption	0.00004 (0.00)						0.2693*** (0.04)	0.9147*** (0.03)				
TI Corruption			0.7706*** (0.03)	0.9583*** (0.02)					0.8039*** (0.03)	0.7080*** (0.04)		
Inflation	0.2806*** (0.03)		-0.3153*** (0.03)	-0.3363*** (0.03)		0.2644*** (0.03)	-0.2988*** (0.03)	-0.1159*** (0.04)	-0.3246*** (0.03)	-0.1244*** (0.03)	-0.2932*** (0.03)	-0.0997*** (0.03)
FDI	-0.6888*** (0.02)		0.6405*** (0.02)	0.5356*** (0.03)	0.6888*** (0.02)	-0.7506*** (0.03)	0.5680*** (0.04)	-0.1379*** (0.04)	0.5613*** (0.02)	-0.1008*** (0.03)	0.6382*** (0.02)	-0.1333*** (0.03)
Education	-0.9147*** (0.02)		0.8561*** (0.02)	0.6985*** (0.04)	0.9148*** (0.02)	-0.8124*** (0.03)	0.8347*** (0.04)	-0.0445 (0.08)	0.7978*** (0.03)	0.0384 (0.07)	0.9039*** (0.02)	0.0206 (0.06)
Homicides				0.5679***		-0.1711		0.2174***		0.2419***		0.2377***

			(0.06)		(0.03)		(0.07)		(0.07)		(0.06)
Cement			0.5538***		-0.7440***		-0.0316		-0.0283		-0.0287
			(0.04)		(0.03)		(0.04)		(0.04)		(0.04)
Unemployment			0.4581***		-0.0689		0.6915***		0.6918***		0.653***
			(0.05)		(0.08)		(0.03)		(0.05)		(0.03)
GDP	-0.7370***	0.6915***		0.7370***		0.6943***		0.6688***		0.7592***	
	(0.02)	(0.02)		(0.02)		(0.04)		(0.02)		(0.02)	
Democratic	-0.4896***	0.5385***		0.4897***		0.5332***		0.5428***		0.4917***	
Accountability	(0.03)	(0.03)		(0.03)		(0.03)		(0.02)		(0.03)	
Socioeconomic						0.3866***	0.9147***	0.3833***	1.00***	0.2856***	1.00***
Conditions						(0.04)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Goodness of Fit											
Statistics											
Observation	1400	1400	1394	1400	1393	1400	1393	1400	1394	1400	1393
Chi-square	-	665.14	887.73	435.93	573.20	1296.88	1154.99	1009.34	1391.88	843.14	1008.27
R ²	.4724	.5724	.6063	0.4724	.3042	.6451	.4826	.6659	.1233	.5228	.3867
RMSEA	-	0.107	0.11	0.10	0.099	0.143	0.12	0.125	0.132	0.13	0.125

Note: S = Systemic Corruption RS = Rent Seeking Corruption; OIM Standard Errors in parentheses; *, **, *** denote 10%, 5% and 1% level of significance respectively.