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Electoral Democracy and Corruption:
A Cross-National Study

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Abstract

This paper adds to the academic debate on if and how corruption levels vary with changing levels of democracy. I begin by positioning my work among existing academic research, identifying causal mechanisms for the relationship and addressing some of the concerns associated with defining and measuring corruption and democracy. I then propose two hypotheses: (H1) that democracy levels affect perceived corruption levels in the short-term (institutional explanation) and (H2) that democracy levels affect perceived corruption in the long-term (cultural explanation). I control for other variables commonly cited in the literature, such as economic development, levels of Protestantism and colonial heritage. This is the first comparative research paper exploring the relationship between democracy and corruption to utilize the recently published "Varieties of Democracy v6.2" dataset, which contains high-quality data on historical democracy levels for most countries around the world. To test the hypotheses, I build 6 OLS regression models containing data on 173 countries, utilizing 1436 data points. Contrary to much of the academic literature, this study finds that when controlling for economic development, levels of Protestantism and colonial heritage, democracy levels remain a statistically significant predictor of corruption in both the short and long term. The results of this study suggest a need to re-visit previously popular short-term institutional explanations of corruption. The study also notes some interesting observations and identifies gaps in the literature where future research would be needed to develop a more holistic explanation of corruption.

1. Introduction

A long-standing research interest for many academics in various social science disciplines has been identifying and understanding why some countries are more corrupt than others. Initially, much of the research on the subject focused on exploring what factors influence corruption within a country, but more recently, with the introduction of several good quality global indices which measure the perceived levels of corruption within all countries globally, the field has shifted much of the research interest towards cross-national studies. Using different measures of corruption, some studies have found strong correlations between corruption and particular characteristics of countries, such as the level of economic development, the percentage of Protestants within the population and whether the particular country is a former British colony. Other characteristics, such as the level of democracy within a country offer more mixed results, with some of the current literature suggesting that democracy levels simply have an effect on corruption, that democracy levels only have an effect on corruption if sustained over an extended period of time (cultural explanation) or that there is no effect between democracy and corruption. I will address this debate in my research paper.

It is important to empirically examine various aspects of corruption, which I will define as the misuse of public office for private gain (Heidenheimer and Johnston, 2009), because on a cross-national level corruption levels have been found to have significant adverse effects on growth (Blackburn and Forgues-Puccio, 2009), social trust and inequality (Rothstein, 2011). The debate on the effect of democracy on corruption has been converging towards a more holistic explanation in the recent years, but there is by no means academic consensus on the issue. There is also some evidence that more recent measurements of current and historic levels of democracy are more accurate than previously available data. This suggests a need to re-examine the widely agreed upon view by academics to see if the assumptions about the effect of democracy on corruption hold true using the newest available data.

The aim of this study is to test the assumption that democracy is a good predictor for levels of perceived corruption using the newest available data on perceived corruption, as well as a recently published Varieties of Democracy V6.2 data on recent and historical democracy levels for countries. While much of the existing literature on the subject indicates the validity of the hypothesis, observational studies focusing on Southeast Asian, Latin American and ex-Soviet countries are, for the most part, perceived not to strongly correlate high democracy levels with low levels of corruption (White, 1996; Sung, 2004). Previous research also suggests that, for a variety of normative reasons, sustained democracy levels over time generate a more significant impact on

reducing corruption than the immediate process of democratization. This research paper will contribute to the academic debate which, while having recently achieved a degree of widespread agreement among many academics on the correlation between the quality of democracy and corruption levels, could still benefit from further quantitative evidence using the newest available data. Additionally, this study will use some alternative measures for some of the control variables to see if the findings of existing studies remain the same.

There are two main schools of thought for explaining the causes of corruption. The institutional explanation focuses on how individuals modify the corruptness of their behavior based on the incentives they receive from the system in which they operate (Lambsdorff, 2007). Democratization and changing power structures empower investigative journalism to expose corruption, and create means by which citizens and other public officials can act to penalize those who engage in corrupt activities. Since all the associated mechanisms with this theory assume that public officials will act rationally and respond to incentives, one would expect that corruption levels would change relatively soon after democratization takes place. This would not be the case for the other, culturally grounded school of thought on explaining corruption. The cultural explanation proposes that an individual's willingness to engage in corrupt activities is driven by the culture of corruption surrounding that individual. The mechanisms by which culture motivates individuals to engage in corrupt behavior are many and can be best identified through case studies. Research in human development suggests that cultural change is a slow process (Inglehart and Welzel, 2006). Similarly, if a country becomes more democratic, theories of cultural change would postulate that ideas of liberty, freedom and fairness would also lead to a desire to reduce corruption. Therefore, one would expect that if sustained democracy levels (long-term exposure to democracy) leads to a reduction in corruption, that would be more indicative of the cultural explanation of corruption. Finally, there is also some empirical research that suggests that the short-term effect of democratization leads to higher corruption. A few economics papers also identify mechanisms for why adopting democratic practices leads to higher levels of corruption. This research paper will aim to bring clarity to the debate.

I will begin my research by examining existing literature on the causes of corruption and the mechanisms for why higher levels of democracy may lead to reduced corruption levels. I will provide definitions for democracy and corruption and discuss ways of measuring them. In this study, I set out two hypotheses which I will test. The first hypothesis (H1) will test whether in the short-term, democracy has an effect on corruption levels. The second hypothesis (H2) will test whether prolonged exposure to democracy has an effect on corruption levels. For the purposes of this research paper, short-term democracy will be defined as the average democracy level over 10

years and long-term democracy will be the average of the last available 97 years of data. In my methodology section, I will briefly look at issues which may arise from using perception indicators as a method of measuring corruption and what alternative metrics could be used to explain corruption in a less subjective manner. I will also note the sources of the data I use and the techniques I use to test my hypotheses. I will create six regression models to test my hypotheses using two corruption indices. I perform some statistical tests to ensure the validity of the findings and finally, I will put those findings into some context by discussing how they fit in with other studies and existing theoretical literature.

2. Causes of corruption

In this section, I will briefly examine the history of studying cross-national corruption, provide a general overview of the possible explanations of corruption, followed by a discussion of the literature on the effect of democracy on corruption on an individual level, national and cross-national level. I will examine the normative arguments for the relationship and list potential mechanisms for how higher levels of democracy can lead to reduced levels of corruption. I will identify the most plausible explanation for the phenomenon, and by doing so, justify the definitions I will be using to test my hypotheses.

2.1 History

For the most part of the 20th century, corruption has been studied using cases studies of individual countries, regions within countries or around a particular event which has gained public attention (Lancaster and Montinola, 2001). Some studies focused on the sociology of corruption (Heidenheimer and Johnson, 2009; Gould and Amaro-Reyes, 1983) and the implications of corruption on other factors, such as economic development and various metrics of welfare (Alatas, 1968; Banfield, 1975; Klitgaard, 2009; Andvig, 1990), while others analyzed the problem from an economics point of view, looking at incentive-based or game theory explanations for the various parties engaging in corrupt activities (Rose-Ackerman, 1973; Beenstock, 1979; Macrae, 1986; Cadot, 1987).

A significant shift in the discipline happened in the mid-1990's when the first cross-national datasets on corruption became available (Kaufmann, 2007). Prior to that, there were some cross-national studies, but they had a very narrow scope of focus or they only examined a small number of countries, usually in close geographic proximity to each other. This research paper will

mostly build on research done after such datasets became available. According to Treisman (2007), the first serious effort to develop a corruption index for comparing different countries was that of the Transparency International Corruption Perceptions Index, which to this day remains one of the major indices for measuring corruption. The initial aim of developing such an index was to publicly shame corrupt countries, thereby encouraging their leaders to initiate corruption reducing reforms. Soon after, other large-n indices were published, such as the World Bank's Worldwide Governance Indicator Control of Corruption (Kaufmann, Kraay and Mastruzzi, 2009). Using these datasets, many pre-existing comparative hypotheses could be tested, which resulted in significant academic interest being directed to the subject. One long-standing hypothesis was whether corruption had a positive or negative effect on economic growth. Unintuitive as it may sound, several studies (Leff, 1964; Huntington, 2006) argued that some aspects synonymous with corruption can in certain cases lead to economic growth and other positive market-efficient outcomes. This is because corruption, and in particular, bribes do not result in a loss of welfare on an aggregate level because it is simply a transfer of money between people within a geographic area (Ades and Di Tella, 1996). The positive efficiency outcomes originate from bureaucrats needing to deliver better services to justify the kickbacks, while at the same time needing to compete against other corrupt officials. Critics of the theory argued that this theory does not incorporate negative externalities which originate from corruption, such as the tendency for government officials to create bureaucratic hurdles to maximize the revenue they collect from bribes (Nair and Myrdal, 1969; Ertimi and Saeh, 2013). Early research using the newly available cross-national datasets helped to a large extent settle this debate by finding evidence that high levels of corruption lower investment, which then in the medium and long-term leads to a lower level of economic performance (Mauro, 1995). Subsequent studies provided further evidence for linking good governance and low levels of corruption with sustained economic growth and development (Jain, 2001). In addition to providing evidence to existing debates, the new datasets also revitalized interest into understanding the predictors of corruption. Much of the previous research had proposed causal mechanisms for determining corruption (Scott, 1972), but only with the availability of comprehensive cross-national data, could these theories finally be rigorously tested. This research paper will also build on the older normative concepts and theory, while positioning itself among the contemporary, quantitative, empirical studies.

2.2 Explanations of corruption

In this section, I will review the literature providing different explanations of corruption, which I will define as 'the misuse of public office for private gain'. I shall briefly examine some explanations of corruption on an individual level and argue that it is more useful to study corruption on a cross-national aggregate level. I will then investigate the literature about the effect of economic development on reducing corruption. Next, I will then mention some alternative explanations of corruption, such as a country's colonial past and the prevalence of Protestantism. I will examine the various theories of if and how democracy explains corruption in section 2.3.

I will briefly mention some research which has been done on an individual level to predict what may lead someone to be more prone to engage in corrupt activities. A study which examined the corruption behavior of UK students from around the world based on how long they have been living in the UK has demonstrated evidence which suggests that the likelihood of someone choosing corruption is determined by the social norms in their country of origin and how long they have been exposed to an environment less prone to corruption (Barr and Serra, 2010). A particularly significant factor for explaining corruption on an individual level is the culture and environment where one spends a significant part of their lives (Barr and Serra, 2010). It is precisely these cultural factors which may lead to varying levels of corruption. While it would not be unreasonable to suggest that a culture which promotes some of the core values of democracy may also promote more open, transparent and formalized behavior among public officials, the evidence on this is mixed. The cultural explanations of corruption, as studied on the individual level, do not necessarily translate to a cross-national level. Immediate examples of against this theory come to mind. Eastern European countries where democracy levels tend to be high while the dominant political culture is not very democratic and corruption levels are high (Anderson and Tverdova, 2009). I will further explore this cultural explanation argument when discussing the mechanisms by which democracy can affect corruption.

Perhaps the most often cited predictor for corruption is the level of economic development within a country. I will summarize the literature on this issue explicitly excluding theories which incorporate democratization as a fundamental mechanism through which economic development reduces corruption. This tri-variable relationship will be closer examined in section 2.3.

A long-held assumption of economists and scholars has been that malfunctioning government institutions hinder entrepreneurship, innovation and deter foreign investment (Mauro, 2001). One of the most commonly cited mechanisms through which high levels of

corruption negatively affect economic performance is that various government and institutional officials can undermine property right enforcement by exerting their power in an illicit manor in exchange for bribes. Because market players are at risk of losing their assets due to poorly or maliciously enforced laws, there is a significant incentive for asset holders to move their assets abroad and for potential investors not to invest in countries where such practices are common (Svensson, 1998). Widespread corruption often leads to more inefficient bureaucracy (Mauro, 2001) and it has also been theorized that high levels of corruption incentivize the production of nonmarketable goods over tradable goods which lead to poorer economic performance (De Alessi, 1969). However, it has also been suggested that in some cases, it may be optimal to maintain some corruption and not enforce property rights completely (Acemoglu and Verdier, 1998; Svensson, 1998). Another theory hypothesizes that the direction of causality goes in the opposite direction and that richer countries have more high quality, better funded institutions which are less prone to accepting bribes (Hunt, 2005). Mauro (2001) suggests that the 'accelerator mechanism' could also be in play, where economic growth lowers corruption, lower levels of corruption spark further investment in the economy, which attracts even more investment which ultimately lowers corruption.

Whatever the mechanisms or direction of causality may be, cross-national empirical research suggests a significant correlation between high levels of corruption and lower levels of GDP (Mauro, 1998; Tanzi and Davoodi, 1998; Ades and Di Tella, 1999, Campos, Lien and Pradhan, 1999). The only notable study which does not find this relationship significant is that of Bruneti and Weder (2001) where measures of press freedom which are often highly correlated to democracy levels are included in their statistical models. Since there is some contradicting evidence to this hypothesis and because I am particularly interested in examining the effects of democracy on corruption, in my OLS models I will include and control for GDP Per Capita (PPP) as a measure of economic performance.

Another commonly mentioned hypothesis is that corruption levels can be predicted by examining the colonial history of a particular country. Treisman (2000) argues that colonial heritage may determine certain cultural norms and practices which can have a direct effect on corruption levels. With regard to the history of colonization, two theories often emerge. The first theory is that former colonies tend to be more corrupt than non-former colonies. Examining case studies from an institutional perspective generates some support for the hypothesis (Mulinge and Lestedi, 1998). Evidence also suggests that if a country still has significant former colonial institutions, it is much more likely that political elites will adopt a more patrimonial system, which can be more prone to corruption (Englebert 2000). Further empirical evidence has been found of a non-linear

relationship existing between colonization and corruption, especially in places where the colonizers have remained a minority for a significant amount of time (Angeles and Neanidis, 2010).

The second theory states that countries which are former British colonies are less corrupt than non-former British colonies. The most commonly cited explanation for this is that the British have historically been extremely preoccupied with procedures, and because officials pay such attention to procedural correctness, corruption can be more easily exposed (Weiner, 1987; Lipset et al., 1993). Previous studies have further explored this by creating two sub-groups (British legal system and British colonial heritage). In this research paper, I will not include "British legal system" in my model because it correlates highly with British colonial heritage. As for the latter claim, some evidence from empirical studies does suggest that former British colonies are less corrupt than non-former British colonies (Treisman, 2000; Serra, 2006), however the evidence is mixed and some studies also do not find such an effect (Pellegrini and Gerlagh, 2008). Since there is some evidence for both the former colony and the former British colony theories, I will include former "former colony" and "non-British colony" as control variables in my regression models.

It has also been suggested that countries with higher levels of Protestantism are less corrupt because they tend to have less hierarchal structures relative to other religions. Protestant institutions have also traditionally been separated from the state and used as a means to counter corruption within the state (Treisman, 2000; Pallegrini and Reyer, 2008). Many previous empirical studies have found a strong negative correlation between Protestantism and corruption (La Porta et al., 1999; Lambsdorff, 1999; Treisman, 2000; Paldam, 2001; Xin and Rudel, 2004; Serra, 2006; Connelly and Ones, 2008; Pellegrini and Reyer, 2008). Several of the previously mentioned studies use "majority protestant" as a variable, however, to I will use the more detailed measure of "percent protestant" in the regression model when testing my original hypotheses.

There are many more possible determinants for corruption, such as education levels, natural endowments, openness to trade, newspaper circulation levels, political instability and having a majoritarian system, however, I will not examine those predictors as part of this research paper because the evidence on those variables having a statistically significant level is not very strong (Serra, 2006) and including such a multitude of variables would be beyond the scope of this research project.

2.3 Democracy and corruption

In this section, I will thoroughly analyze case studies and cross-national, empirical research which presents evidence to support or contradict my hypotheses. I will discuss the two schools of thought on the subject of democracy and corruption. The first one focuses on a short-term (institutional) explanation for why democratization may lead to lower corruption. The second school of thought argues for a cultural explanation of the phenomenon, where prolonged (long-term) exposure to democracy leads to lower perceived corruption. The two schools of thought vary in both the mechanisms by which corruption affects democracy and one could expect that the evidence for resolving this debate would lie within newly democratized countries which do not yet possess cultural traits of openness and transparency. I will discuss the mechanisms within each of the two theories, and mention a few alternative causal relationship models. Finally, I will examine the cross-national empirical evidence on the subject and discuss the type of effect that each of these studies observe (linear, curvilinear).

"The institutional design of the political system is the ultimate determinant of corruption, because it shapes the incentives facing government officials." (Lederman et al., 2001, p.13). A significant amount of research in corruption falls within this institutional school of thought. Scholars specifically interested in the relationship between democracy and corruption often examine mechanisms through which the former affects the latter. I will now address the most often cited mechanisms by which the design of institutional incentives which are characteristic of democracies affect corruption in a positive or negative way.

The first common mechanism for why democratic systems, as defined by Dahl (2007), may be less prone to corruption is that the electorate can vote politicians out of power who appear to be engaged in corrupt activities (Jain, 2001). Similarly, voters can also deal with corruption that exists on the bureaucrat level by supporting politicians who actively try to reduce such practices. Later empirical research provides some evidence to support the claim by Dahl (2007) and Jain (2001). Accountability of government to the electorate or an independent institutional authority has been found to decrease levels of corruption (Lambsdorff, 1999; Xin and Rudel, 2004). Other research indicates that a free and open media, which is often a requisite of democracy, through investigative journalism, serves as the mechanism by which corruption is exposed and public officials are held accountable (Giglioli, 1996; Brunetti and Weder, 2003; Sung, 2004). This relationship can also be observed through other free media proxies, such as free circulation of daily newspapers (Adsera, et al., 2003).

Another approach for exploring institutional mechanisms by which democracy affects

corruption focuses particularly on case studies and comparative analyses of autocratic systems of governance. Studies have shown that in autocratic societies the police (which can be used as a proxy for other government entities) tends to have more discretionary power over the population it serves and therefore has more incentives to engage in corrupt activities such as accepting bribes, because as a consequence of them having more power, the rewards for being corrupt also increase (Benson, 1988). Similarly, a staple of autocracy is the monopoly power for officials over certain public goods and services and wide discretion over decisions which studies indicate may lead to strong incentives for corrupt behavior (Xin and Rudel, 2004).

Before moving on to discuss cultural explanations of corruption, it is important to mention that some literature suggests counteracting institutional mechanisms for why more democracy could lead to more corruption. One mechanism by which this happens is that in a democratic system, political parties must compete for public support expressed by votes in elections. If a party chooses to devote resources to acquire votes in a corrupt manner such as vote buying and illegal party financing, it is likely to have some impact on whether that particular party wins the election. If instead there is no competition for votes, parties are less incentivized to engage in such illicit activities (Della Porta and Vannucci, 2012). Another mechanism looks at the process of change between authoritarianism and democracy. In autocratic systems, power is typically concentrated in a small number of governing elites. As countries transition into a more democratic system of governance, a larger segment of the population holds power. As the number of power-holding participants increases in the system, they demand more resources through corrupt means (Scott, 1972). If no characteristics of democracy counteract corruption, one would expect corruption to increase as more power is delegated to individuals.

Institutional explanations of corruption are often preferred by economists (Ades and Di Tella, 1996), because, unlike cultural explanations, they assume that government officials, private individuals and corporate entities make rational decisions and respond well to structural incentives. All of the hypotheses for mechanisms whereby corruption is affected by institutional characteristics and the system wherein they operate (democracy or non-democracy) require some flexibility on behalf of the individual parties to change their behavior based on changing incentives. Therefore, one would expect that if democracy levels do affect corruption, there would not be a significant time delay between changing levels of democracy and corruption within a country, but rather changes in the former would lead to corruption levels following soon after. Consequently, one would expect that young and under-institutionalized democracies, in particular, may have higher levels of corruption than well-established older democracies.

Within the institutional school of thought, there is some disagreement of what the effect

of democratic institutions on perceived corruption is. Some research suggests that the relationship between the two may be non-linear, because as countries become significantly more democratic, corruption can see a short-term increase followed by a gradual reduction (Montinola and Jackman, 2002; Treisman, 2000), however, it has been noted that a curvilinear relationship is more significantly observable in simple models and the exact relationship is probably more complex than that (Treisman, 2007). For the purposes of this research paper I will assume that the relationship is linear, but I will address this further in the methodology section.

The second school of thought focuses on cultural explanations of corruption. Most of the mechanisms postulate that a likely explanation for a relationship between corruption and democracy is that gaining influence through exchanging favors is culturally frowned upon in most Western democracies (Klitgaard, 2009), whereas in non-Western democracies this happens to a lesser extent. A significant amount of research has been done into understanding the mechanisms by which distinct cultural traits lead to varying susceptibility to corruption. While institutional explanations often focus on explaining corruption on a national level, cultural explanations focus on the characteristics of individuals who engage in corrupt activities (Connelly and Ones, 2008). In section 2.2 I already briefly mentioned that Protestantism levels within a country may correlate with corruption due to some possible cultural factors. While there are many characteristics of cultural or religious groups and individuals which may lead them to be more or less corrupt, I will only focus on those which plausibly correlate with changing levels of democracy, as experienced by the individual.

In the famous book "Culture of Corruption", Smith (2007) sets out an illustration of how growing up in a corrupt environment encourages one to act in a corrupt way. Academic research provides evidence to the phenomenon of contagion of corruptibility, which is driven by the cultural norms of the people around them. Studies have found that when people move from corrupt societies to less corrupt societies, their likelihood of cheating or engaging in corrupt behavior decreases with prolonged time spent in the less corrupt cultural environment (Gachter and Schulz, 2016). The cultural explanation of corruption can also be observed when looking at survey responses to attitudes towards corruption for different societies. Studies using data from the World Values Surveys have repeatedly shown that cultural acceptance of corrupt practices significantly varies among different cultures (Moreno, 2002) and also appears to significantly correlate with the prevalence of democratic practices within those cultures (Harrison and Huntington, 2006). One of the suggested mechanisms for why this may be is that interpersonal trust, which is the willingness of individuals to accept personal risk based on an expectation that others will react in a mutually desirable manner. Higher levels of interpersonal trust have been

linked to lower levels of corruption normatively (Kretschmer, 1998; Knack and Zac, 2001), using case studies (Morris and Klesner, 2010) and using cross-national data (Moreno, 2002). Equally, the relationship between interpersonal trust and democracy is also well established in the academic literature normatively (Sullivan and Transue, 1999; Meikle-Yaw, 2009), using case studies (Tang, 2004) and cross-nationally (Moreno, 2002), however, studies do identify some notable outliers, for example, Serbia, where permissiveness towards corruption and social trust decrease simultaneously in the late 1990's and early 2000's (Moreno, 2002). While the case of Serbia does not follow this mechanism well, it does give some merit to the cultural explanation of corruption. Between 1999 and 2003 Serbia has undergone rapid democratization (Coppedge, et al., 2015) The gradual decrease of permissiveness towards corruption observed by Moreno (2002) was only observed since 2001, and implies that there is a time delay between democratization and decreased corruption levels, which fits closer with the cultural theory instead of the institutional explanation. Recent research has found evidence that countries with a higher proportion of women serving as legislators and holding ministerial positions have lower levels of perceived corruption (Swamy, et al., 2001). Behavioral studies indicate that this may be due to women being more public-spirited and trust-worthy than men (Dollar, et al., 2001). While some empirical cross-national evidence has been found to support the hypothesis (Treisman, 2007), it is unlikely that female representation serves as a mechanism through which positive cultural characteristics link democracy to lower corruption. Ample evidence exists that both the mechanisms by which democracy empowers women to serve in national parliaments and empirical evidence of the phenomenon are dubious at best (Tremblay, 2006) or non-existent or even negative at worst (Mervis, Eve and Florence, 2013).

I previously discussed how a democratic culture may lead to less corruption, but there are also mechanisms by which widespread corruption undermines the quality of democracy within a country. When individuals are exposed to high levels of corruption, they often become cynical about public speech and deliberation, because they are less confident that decisions are being made based on their democratic input (Warren, 2004).

2.4 Discussion

Before presenting comparative evidence for both the institutional and cultural explanations of democracy, one must first mention some notable distinctions between the two. Since the institutional explanation normally assumes rational actions by actors, it is often preferred by economists. The cultural explanation draws more on sociological observations for explaining

group cultural behavior and psychological motivations for understanding the actions of individuals. As I previously mentioned, when examining comparative findings, a change of democracy that rapidly leads to a linear or curvilinear change in corruption levels would support the institutional hypothesis. Alternatively, because cultural change takes longer to develop, a delayed decrease in corruption levels would be expected after countries undergo democratization. The majority of cross-national empirical studies conducted using often the same corruption and democracy indices have found stronger evidence supporting one or the other hypothesis, however, there are some exceptions with studies finding no effect for either theory. Some research finds more evidence for the cultural, short-term effect hypothesis (Drury, Krieckhaus and Lusztig, 2006; Pellegrini and Gerlagh, 2007), while the majority of studies find the effect of prolonged exposure to democracy to be a more significant predictor of corruption (Treisman, 2000; Chowdhury, 2004; Sung, 2004; Serra, 2006; Arezkia and Gylfasonb, 2013). Finally, some studies have not found evidence of an impact of democracy on corruption in the long or short-term (Besley and Burgess, 2002) while others have found the relationship between democracy and corruption far from conclusive (Rock, 2008).

Out of all the available studies on the subject, the idea that it takes some time for democratization to start affecting corruption levels (Treisman, 2000; Nightingale, 2015) appears to be the most likely. The initially proposed linear relationship (Nightingale, 2015) has later been suggested to be more U-shaped (Fishman and Gati, 2002; Xin and Rudel, 2004; Chowdhury, 2004; Nightingale, 2015), however, research identifying alternative and more complex patterns has presented stronger correlations (Treisman, 2007). Since the sample size of countries in the world is relatively small, the usefulness of overly complex and specific models attempting to incorporate every case to generate higher levels of correlations is probably not too useful. Therefore, this study will focus on investigating whether a linear relationship exists for both the short-term and long-term exposure of countries to democracy.

3. Methodology

In this section I will explain the methodology I use to test the short-term and long-term democracy hypotheses. I will justify my choice for the corruption indicators I will be using, discuss the straights and limitations of the V-Dem democracy dataset and explain methods I use to overcome some of those limitations. I will discuss my chosen control variables, their sources and the methods used to filter the data. I will then provide an overview of my regression models and test for heteroscedasticity to ensure the validity of the statistical models.

3.1 Corruption

In this research paper, I will use the commonly cited definition of corruption as 'the misuse of public office for private gain' (Heidenheimer and Johnston, 2009). I am fully aware of the debate in academia over what constitutes as corruption for whom. I will briefly mention one common normative critique of applying the 'Western' definition of corruption around the world and why such a definition should not immediately be dismissed. It has been argued that 'the misuse of public office for private gain' is subjective because there is no cross-cultural, universally accepted standard for misuse. Studies have explored this further and at least partially addressed this concern, finding that public officials even in non-Western societies apply the word 'corruption' to practices which Western societies would consider corrupt (Bayley, 1966). Evidence also shows that anti-corruption laws similar to those in the Western world (for bribery, misappropriation, etc.) also exist in less developed countries (Scott, 1972). The reasons for why this happens are many, but one common theory is that finance and international commerce companies in these non-Western markets are dominated by companies from OECD countries, which bring along a unified interpretation of what is and is not corrupt behavior (LeVine, 1989). Since I am more interested in exploring corruption on a large-n, cross-national level, I will briefly mention but not explore in depth how different cultural perceptions of corruption would prevent a single definition of corruption to be applied to every country in the world. I do, however, believe there is some merit to this argument and that this is something which could be further explored and integrated into future cross-national studies.

Before it is possible to analyze corruption, it is important to investigate how corruption is measured and address some issues with different ways of measuring corruption. There are two primary ways of measuring corruption, both of which have certain advantages and disadvantages. Ideally research could use objective measures, such as the experience of corruption, however, it is difficult to get direct data on how much corrupt activities have taken place. Anecdotal evidence in the media about corruption scandals is hard to observe, quantify and compare cross-nationally (Dahlström, 2009). Data on corruption convictions could also be used, but countries have a varying range of legal systems, enforcement is not the same everywhere and high levels of governmental corruption tend to also extend to the judicial branch (Buscaglia and Dakolias, 2001). The alternative approach to looking at experiences of corruption is using perception indicators. This is usually done in the form of citizen or expert surveys which ask participants to report on their experiences with corrupt practices, such as whether they have taken/given bribes. It is briefly worth mentioning that there is some confusion in academia about what constitutes as an

experience of corruption. Opinion varies over whether self-reported experiences (e.g. 'how many times have you given a bribe in the last year?') are an objective way of measuring the actual experiences or if those responses are influenced by perception factors. Certain studies and indices would only count noted incidents and not self-reported data as an experience of corruption.

Most definitions of corruption focus almost exclusively on illegal and unethical bribery, which result in the individuals receiving material gain from the transaction. Legal and ethical versions of similar practices are common in Western democracies and are seldom accounted for in cross-national measures of corruption. For example, in the United States, political campaigns are often financed using Political action committees, often referred to as Super PACs (Briffault, 2012). A Supreme Court ruling has allowed corporations and private individuals to spend funds supporting or opposing election candidates. In this system, spending $1million to run advertisements in support of a particular party would be considered legal and not a corrupt activity. Similar actions in Canada would be illegal (Spano, 2006), and therefore constitute a corrupt activity. Similarly, LeVine (1989) identifies a discrepancy between Western and non-Western definitions of corruption. Domestically legal activities in developing countries can still be perceived as being corrupt, while similar actions in many Western countries are far less frowned upon. Nevertheless, a common general definition of corruption needs to be accepted to conduct empirical cross-national studies.

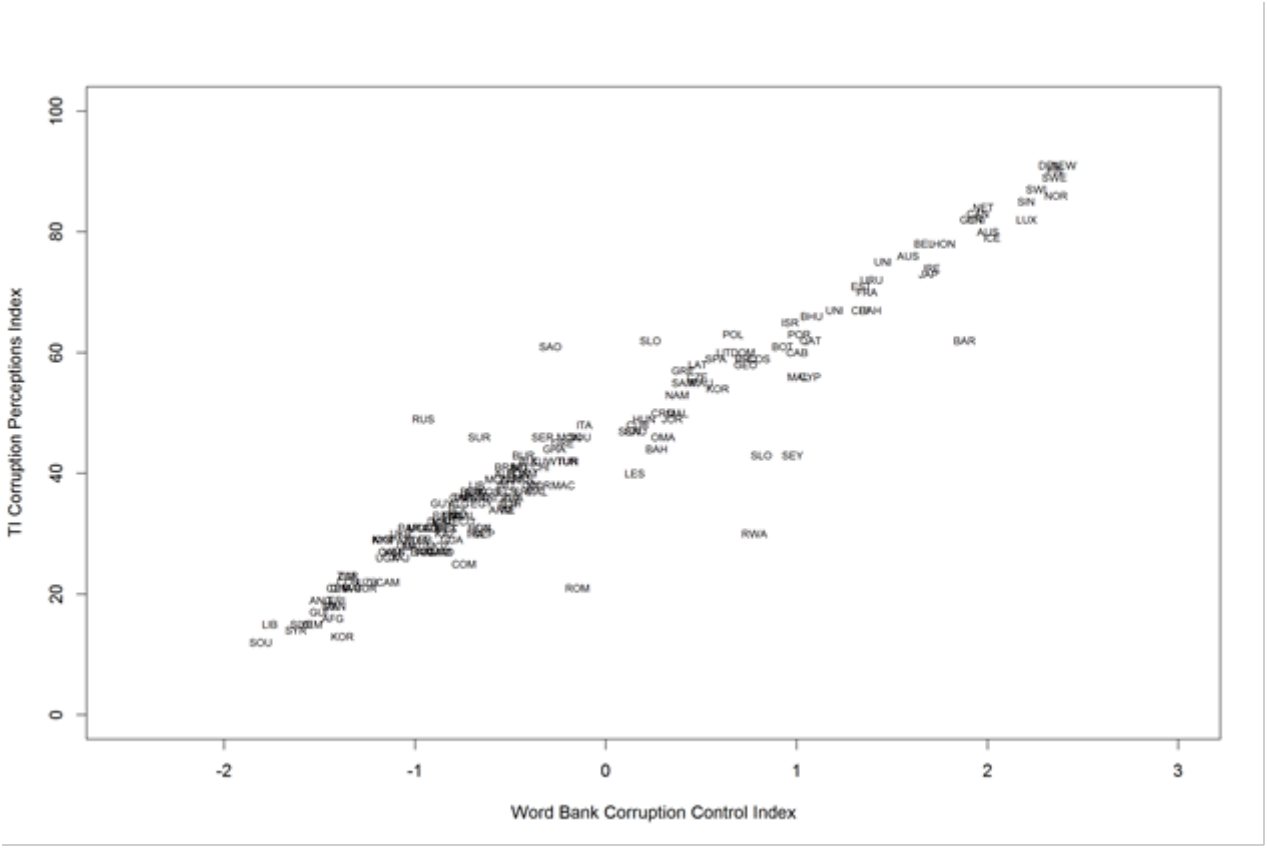
There are two large-scale indices for measuring perceptions of corruption. They are the Transparency International's Corruption Perceptions Index (TI CPI) and the World Bank's Control of Corruption index (Rohwer, 2009). These indices differ and there are certain advantages and drawbacks to each of the indices.

Figure 3.1 Comparative table of corruption indices

	TI Corruption Perceptions Index (CPI)	**World Bank Control of Corruption (WGI)**
Type of corruption measured	Public sector	Public and private sector
Data sources	Composite index (poll of polls) of 13 NGO and business executive surveys and ratings	Composite index of 31 firm and household surveys, commercial business information, NGO and government assessments and ratings
Countries surveyed	176 (2016)	215 (2015)
Methodology	Unobserved Component Model aggregation, using weighted averages to compile the final score	Aggregating standardized scores (since 2012) and taking a simple, unweighted average.
Criticisms	- Reluctance towards methodological changes - Relies on small group of 'elitist' experts - Introduces parameters based on disputable assumptions	- The index is very complex and it is difficult to understand the underlying factors - Low weight is given to household surveys relative to expert surveys - Biased towards assuming that a lower standard of development is associated with higher levels of corruption
	- Respondents may perceive their country to be more corrupt because they are influenced by previously reported perceived corruption data	

Sources: (Lambsdorff, 2007; June, et al. 2008; Data.worldbank.org, 2017; www.transparency.org, 2017)

Figure 3.2 Plotted corruption indices



Despite the differences, both indices correlate fairly strongly [Figure 3.2] with an r value of 0.964. If one assumes the definition of corruption as the 'misuse of public office for private gain', the CPI would be a more tempting measure to use, however, Transparency International has been slow to adopt new methodological approaches and uses cruder statistical methods than the WB Control of Corruption index. Additionally, it compiles data on a smaller number of countries and relies on data originating from a smaller number of experts. Because the World Bank index is considered to be more reliable, when discussing my findings, I will focus on the models that incorporated that index. Nevertheless, I will use both indices for corruption when testing my hypotheses.

3.2 Democracy

Next, I will justify my choice of measure for democracy. There are many different datasets offering insight into democracy levels around the world. Many indices also exist based on the type of democracy one aims to measure. There are several composite indices made up of other indices within a specified democracy type. Democracy indices usually differentiate on a macro-level the type of democracy they aim to measure. One of the most common feature bundles used is

Electoral Democracy. Within that, there is competition among parties or individuals seeking power, the ability for civil society organizations to operate without interference, low levels of election fraud, and perhaps most importantly, elected officials remain responsive to the electorate (Coppedge, et al., 2015). An alternative to Electoral Democracy is Liberal Democracy. Indices aiming to measure that focus on the protection of minorities. Most such indices also include components of electoral democracy measures, however, they also add limits on executive power, such as independent judiciaries and the protection of civil liberties (Bollen, 1993). Participatory Democracy indices place emphasis on the participation of citizens in collective processes. While just as before for Liberal Democracy indices, traditional measures of democracy are usually included, measurements of civil society organization, the power of locally elected bodies and direct democracy efforts are also taken into account (Rodrik, 2000). There are many other ideological interpretations of democracy which can be quantified and expressed with various indices. These include but are not limited to deliberative democracy, egalitarian democracy and market democracy (Coppedge, et al., 2015; Williams, 2005). For the purposes of this research project I will look at measurements of Electoral Democracy because they fit well within Dahl's definition of democracy where citizens can influence the public agenda, all votes are equal, citizens have means to acquire knowledge, deliberate and make informed decisions and all citizens deemed eligible (provided this is legitimate) can have a stake in the political process (Dahl, 2007). It is also important to note that such indices focusing on polyarchy usually do not include factors which promote elections to be more contested, such as an independent judiciary and ample civil liberties (Przeworski and Limongi, 1997). While other definitions of democracy focus on individual aspects also touched by Dahl, and because there is still some debate over the models of democracy, I will focus on the more general, comprehensive and widely agreed upon definition of democracy.

There are several indices which would meet the polyarchy criteria of this study. While democracy indices are often not specifically labeled as such, some of the widely-used ones in studies are Polity IV, Freedom House, Economist Intelligence Unit and democracy-dictatorship index (Coppedge et al., 2015). This study uses the Electoral Democracy Index from the Varieties of Democracy V.6.2 dataset because by focusing on electoral contestation and competition it fairly evenly weighs the different aspects of democracy, is comprehensive, has not been exhaustively studied in relation to corruption and perhaps most importantly, has been recently updated with new data which, as of yet, has not been used to address hypotheses similar to that of this research project. The V-Dem dataset is also more credible because it allows for public scrutiny by releasing information on how experts are selected, the data is collected and aggregated. A high level of transparency, along with strong tests of reliability and validity of the expert provided responses

make this an excellent measure of democracy for this study. Finally, and perhaps most importantly, the V-Dem dataset contains consistent, quality historical data for most countries between 1918 and 2015.

Good as the V-Dem 6.2 index may be, it still has some gaps where data is missing for countries. Most of the time this is because the countries have been part of other countries for a prolonged period of time. More specifically, there is significant missing data (Figure 3.3) for the Baltic States, some former Yugoslavian countries and Slovakia. For these countries, I substituted data from the larger country which they were part of for each year when data was missing. Palestine, Somaliland and Germany proved to be difficult to analyze so I simply excluded them from the dataset used in my regression model.

Figure 3.3 Changes made to democracy dataset

Country	**Action**
Slovakia (1945 - 1993)	Substituted with Czechia (1945 - 1993)
Croatia (1945 – 1991)	Substituted with Serbia (1945 – 1991)
Montenegro (1945 – 1991)	Substituted with Serbia (1945 – 1991)
Latvia (1940 – 1990)	Substituted with Russia (1940 – 1990)
Lithuania (1940 – 1990)	Substituted with Russia (1940 – 1990)
Estonia (1940 – 1990)	Substituted with Russia (1940 – 1990)
Palestine British Mandate/Gaza/West Bank	Removed
Somaliland	Removed
Germany	Removed
German Democratic Rep.	Removed

To test both short-term effect (H1) and long-term effect (H2) hypotheses, simple averages were taken over a 10-year (2005-2015) and 97-year (1918-2015) timescale. Pre-1918 data from the dataset was not used.

3.3 Control variables

The regression model also incorporates four control variables (figure 3.4). Data about colonial history was taken from the ICOW v1.0 dataset (Hensel, 2014). Former non-British colonies were identified by grouping countries into two categories by the type of independence gained. Countries characterized by "Decolonization" were marked as being former colonies and countries labeled as

"Formation", "Secession" and "Partition" were categorized as not being former colonies. From this result, the previously identified British colonies were subtracted. Imperfect as this grouping may be, examining countries on an individual basis to determine whether they are former colonies is beyond the scope of this research project. The above-mentioned data transformation provides generally correct and insightful information which is suitable for the regression model. The percent of protestant inhabitants was taken from the ARDA dataset (Maoz and Henderson, 2013). On a country by country level, no filtering or modifications of the data were made. Finally, the data on per capita GDP (PPP) was taken from the World Bank 2015 dataset. The only modification made to this data was that it was converted to the natural logarithm (Ln).

Figure 3.4 Data sources for control variables used

Variable name	**Dataset variable**	**Source**
Former British colony	ColRuler	ICOW Colonial History Data
Former non-British colony	IndType	ICOW Colonial History Data
% Protestant	CHPRTPCT	ARDA World Religion Dataset
GDP Per Capita (PPP) Current $	NY.GDP.PCAP.PP.CD	World Bank, International Comparison Program database

3.4 Regression models

In order to test my hypotheses (H1 and H2) I set out six OLS models (Figure 3.5). All of the models include the same 3 control variables. While it may be tempting to only use models which include both the long-term and short-term average democracy levels, some issues come up when doing this. Because the two dependent variables highly correlate, there is a significant risk of multicollinearity. I therefore also included models 1, 2, 4, 5 to perform the test using each of the corruption indices against each of the democracy scores individually.

Figure 3.5 Regression models

Model	Dependent variable	Independent Variable(s)
1	Perceptions of Corruption Index - Transparency International 2016	V-Dem Average Recent Democracy Score (v2x_polyarchy 2005-2015)
2	Perceptions of Corruption Index - Transparency International 2016	V-Dem Average Long-term Democracy Score (v2x_polyarchy 1918-2015)
3	Perceptions of Corruption Index - Transparency International 2016	V-Dem Average Long-term Democracy Score (v2x_polyarchy 1918-2015), V-Dem Average Long-term Democracy Score (v2x_polyarchy 1918-2015)
4	WGI: Control of Corruption Estimate (2015)	V-Dem Average Recent Democracy Score (v2x_polyarchy 2005-2015)
5	WGI: Control of Corruption Estimate (2015)	V-Dem Average Long-term Democracy Score (v2x_polyarchy 1918-2015)
6	WGI: Control of Corruption Estimate (2015)	V-Dem Average Long-term Democracy Score (v2x_polyarchy 1918-2015), V-Dem Average Long-term Democracy Score (v2x_polyarchy 1918-2015)

3.5 Heteroscedasticity

An important assumption of linear regression is that there should be no heteroscedasticity of residuals (Abbott, 2016, p.435). To ensure the validity of the models, I conduct residual analysis using the 'lmtest' package in R, which uses the Breuch-Pagan Test. I chose not to use the non-constant variance score test because it does not work as well in multiple regression models.

Figure 3.6 Heteroscedasticity test results

Model	BP	df	p-value
1	*10.34*	*5*	*0.066*
2	*3.16*	*5*	*0.675*
3	*6.34*	*6*	*0.386*
4	*8.08*	*5*	*0.152*
5	*4.14*	*5*	*0.529*
6	*5.64*	*6*	*0.465*

All the models have a p-value >0.05, so I fail to reject the hypothesis that variance of the residuals is constant and by that infer that heteroscedasticity is not present to a significant enough level.

4. Analysis and results

Initially plotting the corruption indices against both the short-term and long-term averages (see figure 4.1) indicates promising results for both of the hypotheses, however, this does not take into effect economic development which is likely to be a driver for lower corruption levels. For that, we must look to the results of the regression models which include control variables. The plot does, however, indicate that while the relationship of the long-term democracy average and corruption is quite observably linear, the short-term democracy average plotted against both corruption indices may result in a curvilinear pattern. This is quite an interesting observation but unfortunately, it is beyond the scope of this research project. Further research would be needed to understand the significance and underlying causes for this effect.

When examining the results of the regression model, the change from one standard deviation below the mean to one standard deviation above the mean of the short-term democracy variable affects the change in corruption by 9.19 (Transparency International Index) and 0.312 (WB WGI Index). Correspondingly, for the long-term democracy variable, the change in corruption is 10.31 (TI) and 0.669 (WGI), which indicates the long-term democracy is a better predictor of corruption than short-term democracy. A full table of the effects for all the statistically significant variables is listed in figure 4.3.

Figure 4.1 Democracy and corruption plots

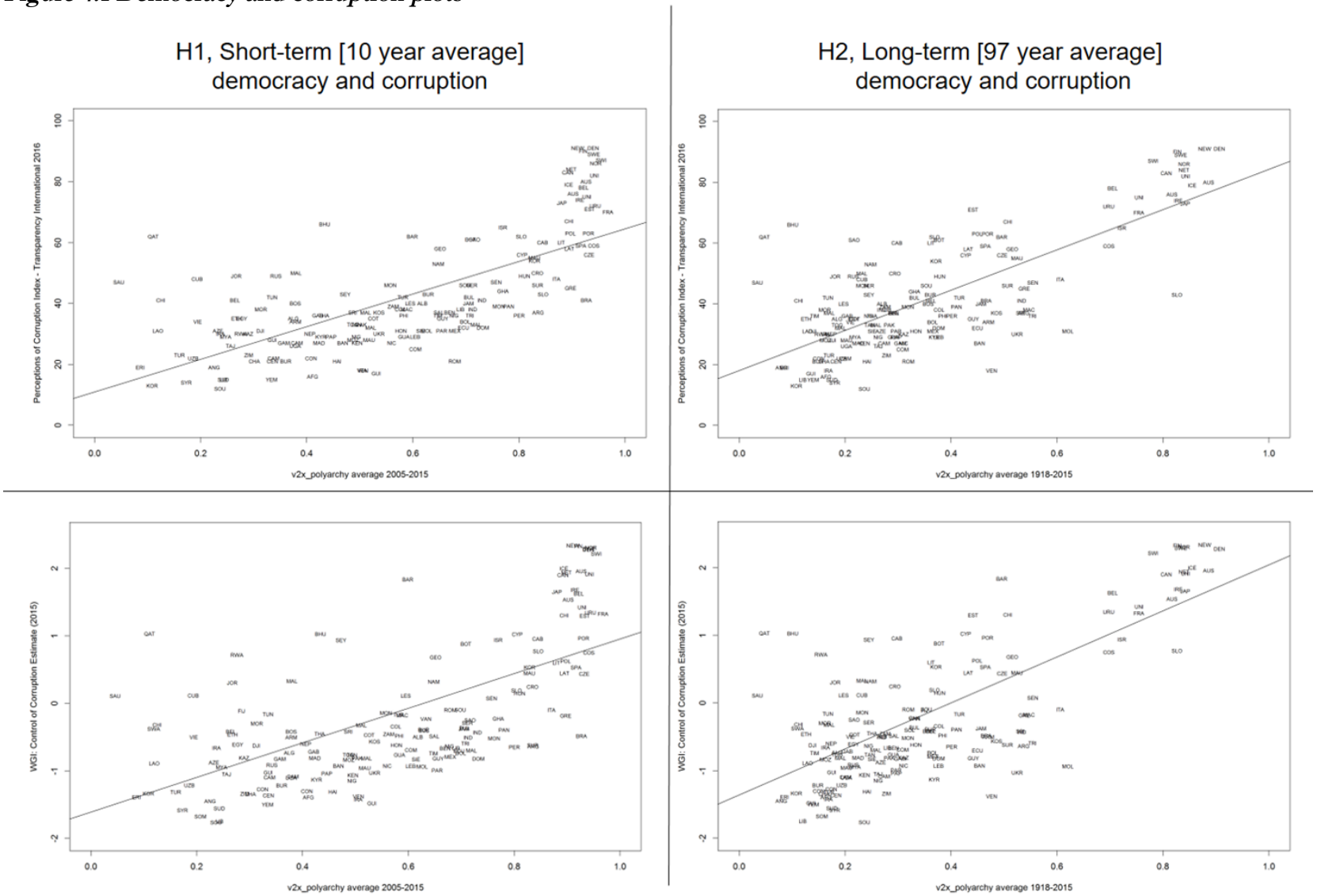


Figure 4.2 Regression models

	Model 1 (TI, short term democracy)	**Model 2 (TI, long term democracy)**	**Model 3 (TI, long and short term democracy)**	**Model 4 (WGI, short term democracy)**	**Model 5 (WGI, long term democracy)**	**Model 6 (WGI, long and short term democracy)**
(Intercept)	-48.26*** (7.85)	-37.17*** (8.29)	-39.51*** (8.05)	-4.85*** (0.43)	-4.17*** (0.44)	-4.27*** (0.43)
Variables of interest						
Electoral Democracy Index (2005-2015)	31.88*** (4.48)		19.15** (5.83)	1.47*** (0.24)		0.65* (0.30)
Electoral Democracy Index (1918-2016)		39.20*** (5.52)	23.43** (7.18)		2.07*** (0.29)	1.52*** (0.39)
Control variables						
Former British colony (ColRuler: 200)	1.52 (2.35)	2.43 (2.36)	2.25 (2.28)	0.16 (0.11)	0.21 (0.12)	0.21 (0.12)
Former non-British colony	-1.88 (2.15)	1.63 (2.16)	-0.05 (2.15)	-0.01 (0.12)	0.08 (0.11)	0.02 (0.12)
% Protestant (ARDA World Religion Dataset)	17.77** (5.33)	15.64** (5.43)	14.29** (5.27)	1.03*** (0.28)	0.82** (0.28)	0.80** (0.28)
Ln GDP Per Capita (PPP)	7.68*** (0.90)	6.83*** (0.96)	6.56*** (0.93)	0.41*** (0.05)	0.34*** (0.05)	0.34*** (0.05)
R-squared	0.69	0.69	0.71	0.65	0.68	0.69
Adj. R-squared	0.68	0.68	0.70	0.64	0.66	0.67

*Significant at $p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

Figure 4.3 Effect of variables on the WGI democracy index

Variable	Estimate	Mean	SD	Mean ± 1SD
Short-term democracy	0.65	0.58	0.24	0.312
Long-term democracy	1.52	0.36	0.22	0.669
% Protestant	0.80	0.13	0.18	0.288
Ln GDP Per Capita PPP	0.34	9.15	1.79	1.217

The regression models show that both short-term and long-term exposure to democracy have a statistically significant effect on corruption levels. This is true for both the TI and WGI corruption indices. The size of the effect of short-term exposure to democracy offers mixed results. Using the TI corruption index, the effect is only slightly smaller than the effect of long-term exposure to democracy. Looking at the more acclaimed WGI index, the long-term exposure effect is much stronger than the short-term effect. Therefore, I find mixed evidence for H1 (short-term effect) and fail to reject H2 (long-term effect) because all my models indicate quite a strong effect for long-term exposure to democracy reducing corruption. Contrary to findings by Tresman (2000) and Nightingale (2015), my research does find some, albeit not very strong evidence indicative to the institutional explanation of corruption, where an immediate improvement in democracy levels leads to lower levels of corruption. Not surprisingly, I find that prolonged exposure to democracy is a much more significant factor for reducing perceived corruption than short-term exposure, in line with Chowdhury (2004), Sung (2004), Xin and Rudel (2004), Serra (2006), Arezkia and Gylfasonb (2013). The 'percent Protestant' variable also proved statistically significant, in line with La Porta et al. (1999), Lambsdorff (1999), Treisman (2000), Paldam (2001), Xin and Rudel (2004), Serra (2006), Connelly and Ones (2008), Pellegrini and Reyer (2008) but it does not explain much of the variance in corruption levels. An even more significant predictor of perceived corruption levels, then long-term exposure to democracy is the per capita wealth of a country. This is to be expected since the finding is in line with almost every major cross-national empirical study. Perhaps unsurprisingly, when examining the significance of the control variables on democracy levels, the differences between the results obtained using Transparency International and World Governance Indicator corruption indices are minor, with both providing similar effect sizes and significance levels for Per Capita GDP

(PPP) and %Protestant. Contrary to Treisman (2000) I do not find that a countries colonial past is a statistically significant predictor of corruption.

5. Conclusion

Studies repeatedly show that as countries adopt practices associated with democratic governance, the civic culture also changes. Patronage is often replaced with more meritocratic systems. As citizens are delegated political power, they also inherit the responsibility to make sure that the best decisions are made. Because citizens have a stake in the system, they more likely to demand transparency from government officials. In a strive towards economic prosperity, people often look to examples of governance structures in Western democracies when influencing their own political systems. Citizens intuitively know that less corruption will lead to more prosperity so when entrusted with political power, they often lead the cultural change towards transparency and accountability. Democratic institutions like a free and open media and independent judiciaries very likely play a role in reducing corruption. Integrating both institutional and cultural factors into explaining corruption allows more mechanisms to be incorporated into a more holistic theory of the determinants corruption.

In the last two decades, much of the disagreement between studies in the field of comparative study of corruption have originated from two main factors. Firstly, statistical techniques differ between studies and have, therefore, produced differing results. Secondly, ever more variables have been incorporated in statistical models, which have led to different findings. Since the mid-1990's, rarely has the theory changed based on new observations of countries undergoing democratization or better data becoming available. While I do not investigate this in this study, I strongly suspect that the reason why I find little evidence for a "British advantage" (Treisman, 2000) is that several non-former British colonies have undergone a wave of democratization, which may not have been observable in older democracy indices. It may also be the case that this may explain why I found some evidence for the short-term democratization hypothesis, but further research would be needed to explain the differences between findings in the discipline.
Building on the notion that institutional change associated with democratization reduces corruption much more quickly than a democratic cultural shift, this study provides evidence that individuals do indeed respond to institutional incentives. The statistical models presented in this study incorporate most of the leading hypotheses for explaining

corruption in the discipline, and add further evidence to previous findings that economic development is by far the best predictor of corruption, and that long-term democracy levels correlate more strongly to corruption than short-term democracy levels.

The field of cross-national research into corruption could greatly benefit from better data on the experiences of corruption. While it is extremely difficult to obtain such data, and harmonizing it into a single index is even harder, corruption perception data may be affected by a 'Western bias'. Developing ever more advanced ways of surveying experiences of corruption may be the answer to this problem, but evidence suggests that such surveys are often no more reliable than expert perception surveys. With the increasing use of mobile payments in the developing world and big data and machine learning analysis techniques, perhaps technology could help us measure the true extent of political corruption within a country.

The curvilinear effect observed for short-term democracy scores in figure 4.1 would warrant further investigation. It would also be useful to validate the findings using time-series analysis. Drawing on the ever-increasing theoretical framework, additional control variables could be added to explain more of the variance of changing corruption levels. Finally, models 1 and 4 are very close to the 0.05 p-value in the heteroscedasticity tests. While I do base my findings mostly on model 6 where the effect is not that strong, further research could utilize more robust standard errors.

Finding some indication of a short-term effect of democracy levels on corruption is quite surprising and runs contrary to much of the generally accepted evidence in the academic community. At a time when behavioral economics and other culture-based explanations of why members of society act in a certain way are gaining popularity, perhaps a re-examination of more traditional institutional incentive explanations are warranted in the academic field of research on corruption. Finding a result that differs from the academic consensus using basic quantitative methods suggests that there might be more to the Tresiman (2000) story of explaining corruption. However, it must be noted that the empirical evidence supporting the theory of a 'culture of corruption' remains strong and the exploration of causal mechanisms continues to yield important insights. Developing and testing a more complex theory on the subject would likely lead to a fruitful outcome, and the most potential for future discovery may lie within the nonlinear relationship of the variables and by more closely tracking developments in each individual country over time.

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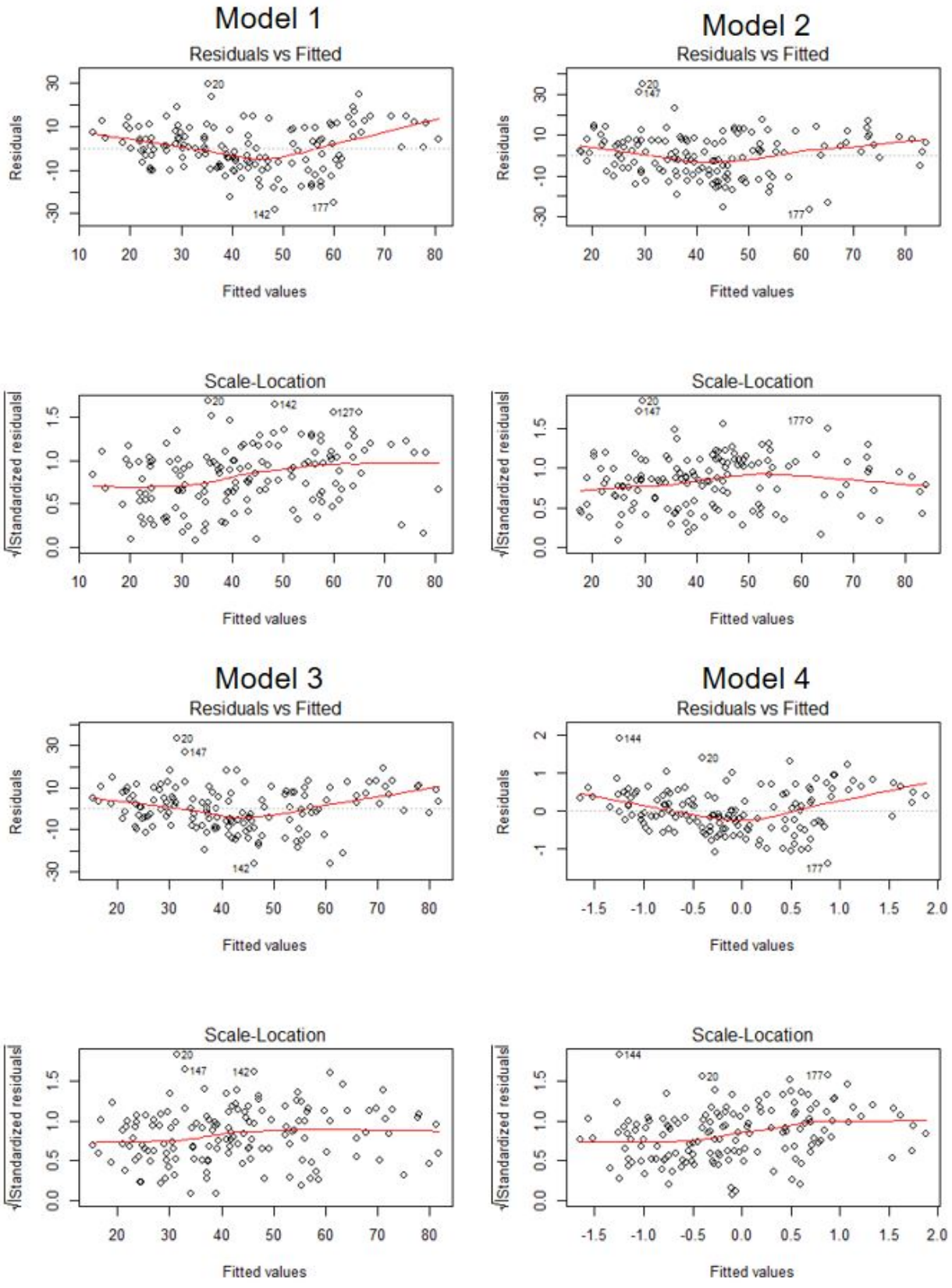
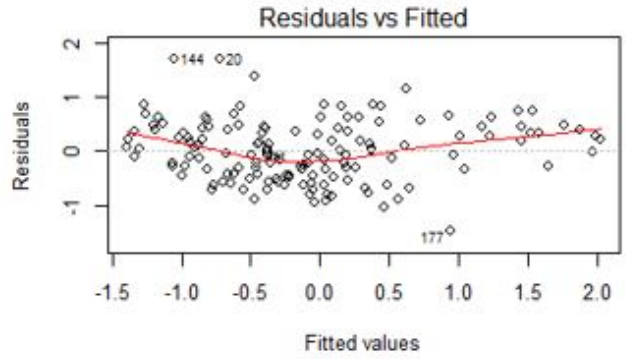
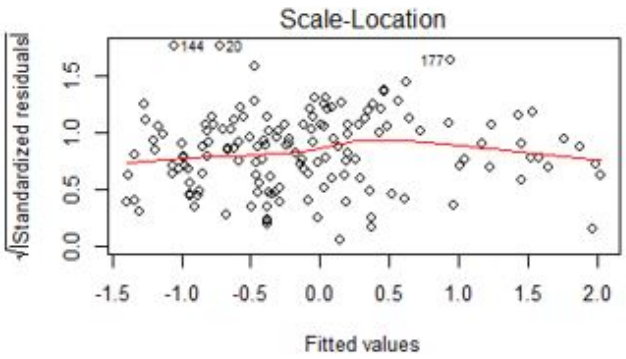
Appendix

Heteroscedasticity test graphs



Model 5





Model 6