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Political Accountability and Determinants of Governance under Principal-Agent Theory

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by

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ABSTRACT

POLITICAL ACCOUNTABILITY AND DETERMINANTS OF GOVERNANCE UNDER PRINCIPAL-AGENT THEORY

by Matthew C. Bluem

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This study examines the theory that quality of governance is largely dependent upon political accountability, and that the effect of political accountability on governance varies based on three main determinants: level of democracy, level of information available to the public, and diversification of the economy (Adserà *et al.* 2003). With quality of governance, represented by the World Bank's World Governance Indicators (WGI), as the dependent variable, this study considers how these three independent variables, and several control variables, affect governance quality. Incorporating data from 2010 – 2015 for 143 countries in both cross-sectional OLS and fixed effects panel regression analysis, this study finds that level of democracy has a direct relationship with voice and accountability and regularity quality, and an inverse relationship with governance effectiveness and rule of law. Information available to the public has a direct relationship with governance effectiveness, while diversification of the economy has a direct relationship with governance effectiveness and regularity quality, and an inverse relationship with rule of law and control of corruption.

This research also demonstrates that several other factors affect governance quality. Level of economic development, openness to trade, level of education, size of population, freedom of the press, cell phone penetration rate, and state fragility all play a role in determining at least some aspects of governance quality. While these variables

are all shown to have a significant relationship with governance, they are still only part of the equation. Future research should endeavor to enhance the current findings and strive to identify the other factors that may contribute to governance quality.

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DEDICATION

I dedicate this work to my loving family. My wonderful wife Jacqueline who has been a great encouragement and support to me during my graduate studies. I couldn't have completed this dissertation without her. To my two beautiful daughters, Lia and Sophie, who provide me great joy and deep inspiration to be the best father I can. To my sister Jennifer who set a great example and encouraged me to pursue higher education. Finally, to my loving mother Betty who is always there for me, and to the memory of my dear father Dale, who was the best father a man could have.

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LIST OF ABBREVIATIONS

AMV	Averaged missing values
CEL	Cellphone penetration
COR	Control of corruption
DEM	Democracy
DIV	Diversification of the economy
ECO	Economic development
EDU	Education
FRA	State fragility
FRE	Freedom of the press
GOV	Government effectiveness
INF	Information available to the public
OLS	Ordinary least square
OPE	Economic openness
POL	Political stability and absence of violence
POP	Population
REG	Regularity quality
RMV	Regressed missing values
RUL	Rule of law
VOI	Voice and accountability
WGI	Word Governance Indicators

CHAPTER I - INTRODUCTION

This research examines why some countries exhibit better governance than others and identifies which variables play the greatest role in determining governance quality, with governance defined as the capacity of a government to design, formulate, and implement policies (World Bank 1994, 14). The literature on determinants of governance has focused on a variety of potential economic, social, and political variables. While there is a consensus that the level of economic development affects governance (La Porta *et al.* 1999, Islam and Montenegro 2002, Adserà *et al.* 2003, Al-Marhubi 2004, Lee and Whitford 2009, Garcia-Sanchez *et al.* 2013, Adkisson and McFerrin 2014, Rontos *et al.* 2015), the role of other variables has not clearly been identified. This research examines the theory that quality of governance is largely dependent upon political accountability, defined as the public's ability to hold government officials accountable (Adserà *et al.* 2003). As political accountability increases, governance quality should improve (Barro 1973, Ferejohn 1986, Adserà *et al.* 2003). However, it is theorized that the effect of political accountability on governance varies based on three main determinants: level of democracy, level of information available to the public, and diversification of the economy (Adserà *et al.* 2003). With quality of governance as the dependent variable, this study considers how these three independent variables affect governance quality.

The quality of governance is represented by the Worldwide Governance Indicators (WGI) produced by the World Bank (2015). The WGI reports governance quality indicators for 215 countries along six dimensions: voice and accountability, political stability and absence of violence, government effectiveness, regularity quality, rule of law, and control of corruption.

Level of democracy is represented by data from the Polity IV Project by Marshall *et al.* (2016) which measures level of democracy on a scale of 0-10 for 167 countries. Level of information available to the public is represented by data from the International Telecommunications Union (2016a) on the percentage of individuals using the internet for over 200 countries. Diversification of the economy is represented by the number of unique harmonized system (HS) product codes exported by over 200 countries available from the World Bank (2017).

Statement of Problem

This study examines why some countries exhibit better governance than others and identifies whether governance performance is affected by level of democracy, level of information available to the public, and diversification of the economy. For the purpose of this study, countries are considered to exhibit better governance when they receive a score one standard deviation above the mean in the six Worldwide Governance Indicators (2015). One standard deviation above the mean is used to represent better governance as any fixed score would be arbitrary. With this definition of better governance, the countries that receive the top scores in the Worldwide Governance Indicators will set the norm for what other countries should be striving to achieve in terms of governance quality.

Research Questions

1. How does level of democracy affect quality of governance?
2. How does the degree of information available to the public affect quality of governance?
3. How does diversification of the economy affect quality of governance?

Hypotheses

1. H_1: Quality of governance has a direct relationship with the level of democracy.
2. H_2: Quality of governance has a direct relationship with the information available to the public.
3. H_3: Quality of governance has a direct relationship with the diversification of the economy.

Purpose Statement

The purpose of this study is to contribute to the literature on determinants of governance by testing the effect that level of democracy, degree of information available to the public, and diversification of the economy have on quality of governance, with governance quality as the dependent variable and level of democracy, degree of information available to the public, and diversification of the economy as the independent variables being tested.

Significance of Study

The existing literature on determinants of governance has focused on three main strands as explanatory variables: economic, political, and cultural (La Porta *et al.* 1999, Adserà *et al.* 2003, Al-Marhubi 2004, and Rontos *et al.* 2015). The results of these studies have largely shown that level of economic development plays a significant role in governance quality, but wide-spread agreement has not been reached regarding the role of other factors and to what extent they matter. To build on these analyses, this study considers updated data on three additional determinants: level of democracy, level of information available to the public, and diversification of the economy.

The remaining chapters of this dissertation are organized as follows. Chapter two includes a description of the concept of governance and governance quality, a summary of the main empirical studies pertaining to governance quality, and an overview of the study's principal-agent theoretical framework. Chapter three describes the methodology used in this study and the dependent and independent variables under analysis. Chapter four presents the results of the analysis described in the methodology section. Finally, chapter five includes a discussion of the results of this study, a description of the contributions and limitations of this research, and an overview of possible considerations for future studies.

CHAPTER II – LITERATURE REVIEW

This section provides an overview of the concept of governance and governance quality. It explains how governance is interpreted and studied from a quantitative perspective and provides a review of the main literature on the topic. It then provides a description of the main theoretical framework of this study.

Overview of Governance and Governance Quality

Governance is often associated with concepts such as institutional quality, rule of law and corruption, and how power is exercised in society (Al Marhubi 2004). A growing body of literature has emerged which indicates that these factors may affect economic growth and poverty reduction. For example, Scully (1988) finds that the economies of "politically open" countries which respect rule of law and property rights grow three times faster than countries that do not (652). Mauro (1995) indicates that corruption is associated with lower economic growth. Barro (1997) finds that property rights are correlated with higher economic growth. Keefer and Knack (1997) and Chong and Calderon (2000) indicate that poor institutions result in lower economic growth. Furthermore, the World Bank (2000) maintains, "Poorly functioning public sector institutions and weak governance are major constraints to growth and equitable development in many developing countries" (1).

Consequently, interest in the topic of governance has grown and has become widespread throughout the social science literature (Scully 1988, Mauro 1995, Barro 1997, Knack and Keefer 1997, Kaufmann *et al.* 1999, Chong and Calderon 2000, Bora 2014). Concepts of governance can now be found in studies of public administration, political science, international relations, development studies, and environmental

management, among others (Chhotray and Stoker 2009). In these studies, notions of governance range from narrow perceptions of public sector management (Kaufmann *et al.* 2010), to broad views of entire international social systems (Rosenau 1995). Due to these different interpretations, the concept of governance has been critiqued by some as a "fuzzy" concept which lacks practical clarity (Rosenau 1995, Al Marhubi 2004, Chhotray and Stoker 2009, Kaufmann *et al.* (2010).

Indeed, a review of the literature reveals a variety of definitions. Chhotray and Stoker (2009) state, "Governance is about the rules of collective decision-making in settings where there are a plurality of actors or organizations and where no formal control system can dictate the terms of the relationship between these actors and organizations" (3). Kaufmann *et al.* (2010) define governance as "the traditions and institutions by which authority in a country is exercised. This includes (a) the process by which governments are selected, monitored and replaced; (b) the capacity of the government to effectively formulate and implement sound policies; and (c) the respect of citizens and the state for the institutions that govern economic and social interactions among them" (4).

Al-Marhubi (2004), argues that governance "includes the norms defining political action, the institutional framework in which the policy-making process takes place, and the mechanisms and processes by which public policies are designed, implemented, and sustained" (395). Rosenau (1995), sees governance as "the command mechanism of a social system," maintaining that governance, "encompasses the activities of governments, but it also includes the many other channels through which 'commands' flow in the form of goals framed, directives issued, and policies pursued" (Rosenau, 14). To lend clarity

to this ambiguity, this study adopts the World Bank's (1994) narrow definition of governance as the capacity of government to design, formulate, and implement policies (14).

If governance is difficult to define, it is perhaps even more challenging to quantify and model. Isham *et al.* (1997) note, "Governance, like religion, is a broad topic that inspires strong beliefs and is difficult to measure reliably" (219). Empirical studies have used a variety of proxy measures for governance, including efficiency in taxation, quality of infrastructure, measurements of corruption, protection of property rights, rule of law, and a variety of public health and education data (La Porta *et al.* 1999, Islam and Montenegro 2002, Adserà *et al.* 2003, Al-Marhubi 2004, Lee and Whitford 2009, Méndez-Picazo *et al.* 2012, Garcia-Sanchez *et al.* 2013, Adkisson and McFerrin 2014, Rontos *et al.* 2015). An increasing number of researchers have also begun to incorporate the World Bank's (2015) Worldwide Governance Indicators (WGI) into their studies which pulls together many of these proxy measurements into one index (Islam and Montenegro 2002, Adserà *et al.* 2003, Al-Marhubi 2004, Lee and Whitford 2009, Méndez-Picazo *et al.* 2012, Garcia-Sanchez *et al.* 2013, Adkisson and McFerrin 2014, Rontos *et al.* 2015).

First developed by Kaufmann *et al.* (1999) in a working paper for the World Bank, the WGI is regularly updated and has grown to include governance quality indicators for the years 1996 – 2015 for 215 countries along six dimensions: voice and accountability, political stability and absence of violence, government effectiveness, regularity quality, rule of law, and control of corruption (World Bank 2015). The data used to construct the Worldwide Governance Indicators (WGI) come from two subjective

sources: country ratings largely developed by commercial risk rating agencies, and surveys of residents conducted by various international and nongovernmental organizations (Kaufmann *et al.* 1999).

The WGI condenses over 300 related measurements of governance into its six aggregate indicators (Kaufmann *et al.* 1999). The first dimension, voice and accountability, speaks to perceptions regarding freedoms of expression and association, freedom of the media, and the ability of citizens to choose their own government. The second indicator, political stability and absence of violence, represents perceptions of political instability, and the likelihood of politically-motivated violence and terrorism. Government effectiveness is the third category and includes perceptions of quality in areas such as public services, civil services, public policy formation and implementation, and the extent to which citizens believe the government is committed to these policies. The fourth dimension is regulatory quality, which measures perceptions of the presence of market-friendly government policies and regulations. The fifth category, rule of law, represents perceptions around how well the rules of society are obeyed, including the enforcement of contracts, confidence in the courts and police, and expectations of crime and violence. The sixth and final dimension, control of corruption, speaks to perceptions regarding the degree to which public power is used to advance private interests through both petty and grand forms of corruption, and the influence that private parties have over state functions (World Bank 2015).

Empirical Studies

While there is an emerging consensus that governance plays an important role in development, there are still many questions related to what factors affect governance.

This gap in the empirical literature has been attributed to the conceptual and definitional problems addressed previously, and to the lack of a clear empirical path to follow (Al-Marhubi 2004). The literature on the topic which has emerged shows a variety of results depending on the measurements and the data used.

The studies investigating determinants of governance from an econometric perspective use the terms government and governance interchangeably and largely focus on three main sets of explanatory variables: economic, political, and social/cultural (La Porta *et al.* 1999, Islam and Montenegro 2002, Adserà *et al.* 2003, Al-Marhubi 2004, Garcia-Sanchez *et al.* 2013, Adkisson and McFerrin 2014, Rontos *et al.* 2015). Many of these studies use very similar dependent and independent variables, yet come to different conclusions regarding which factors may affect quality of governance.

In a seminal study by La Porta *et al.* (1999), the authors establish an empirical framework for testing determinants of government which has subsequently been adopted by a number of authors. For the dependent variable, representing quality of government, La Porta *et al.* (1999) use a combination of datasets measuring government performance, such as property rights, business regulation, public goods, and political freedom. For independent variables, the authors use a host of economic, political and social/cultural country characteristics. For economic indicators, per capita income is used as well as latitude, based on the argument that temperate climates should have better agriculture and health patterns, and should therefore be wealthier. For political and social/cultural dimensions, the authors use national ethnic heterogeneity, legal system origin, and religion (La Porta *et al.* 1999).

After regression analysis, La Porta *et al.* (1999) come to a number of conclusions. For the economic variables, both per capita income and latitude are shown to have a strong direct effect on government performance, indicating that the richer the country the higher the quality of government. Although, the authors admit there could be endogeneity issues with per capita income since there is evidence that the direction of influence could run both ways between government quality and level of economic development. For political variables, the authors find that ethnolinguistic fractionalization inversely impacts government performance. The more fractionalization within the society the poorer the government performs in areas such as efficiency, provision of public goods, and political freedom. In regard to legal origin, the authors find that both socialist and civil law countries, and to a lesser degree German and Scandinavian law countries, have a much more interventionist government performance than common law countries. Finally, for cultural theories, the authors find that Catholic and Muslim majority countries are associated with poorer government performance relative to Protestant majority countries. However, when per capita income and latitude are controlled for, the influence of religion decreases greatly. For these reasons, La Porta *et al.* (1999) state that the political variables of ethnolinguistic fractionalization and legal origin have the largest impact on quality of government, but the economic variables of per capita income, latitude, and the cultural variable of religion, cannot be discounted either.

Subsequent studies have built on La Porta *et al.*'s (1999) framework, testing updated variables or different proxies. Most of these studies have examined the extent to which various economic, political and social/cultural variables affect quality of

government or quality of governance. As noted earlier, government and governance have largely been used interchangeably in this strand of literature. It has also become increasingly common in many studies to use the World Bank's World Governance Indicators (1999, 2015) to represent government or governance quality.

Islam and Montenegro (2002) assess the determinants of governance by examining the relationship between two different measurements of governance and several explanatory variables. For the first measurement of governance, the authors use an average of five different indicators of political and economic risk, including corruption, rule of law, quality of bureaucracy, repudiation of contracts, and risk of expropriation. For the second indicator of governance, the authors use the World Bank's World Governance Indicators (1999). For independent variables, Islam and Montenegro (2002) use several economic, political and social/cultural variables. For economic variables, the authors use gross domestic product (GDP) per capita, income inequality, degree of economic openness, and proportion of commodity exports. For political variables, the authors use legal system origin; English, French, Scandinavian, German, or Socialist, percent state ownership of the press, and a measurement of freedom of the press, an index of governmental checks and balances, and an index showing openness to rent-seeking opportunities. For social/cultural, the authors use ethnic heterogeneity and income inequality.

In analysis of their data, Islam and Montenegro (2002) provide a number of conclusions. The authors find that openness to trade, openness to rent-seeking, ratio of primary exports to total exports, checks and balances in government, level of national income, freedom of the press, and French legal origin all affect quality of governance.

On the other hand, Islam and Montenegro (2002) find that level of income inequality, ethnolinguistic fractionalization, state ownership of the press, and English, Scandinavian, German, and Socialist legal system origin do not appear to affect quality of governance.

In their study on political accountability, Adserà *et al.* (2003) examine which variables affect quality of government, with the dependent variable alternately as four different measurements of political and economic risk: corruption, bureaucratic quality, rule of law, and risk of expropriation of property. The main independent variables the authors test are level of democracy and free circulation of independent newspapers. For control variables, the authors use a host of economic, political, and social/cultural data. Economic variables include per capita income, percentage of fuel exports compared to total exports, an index of product concentration, and a measurement of economic openness. For political variables, the authors use type of legal code, constitutional framework, and size of government expenditures. For social/cultural variables, the authors use religion and ethnic fractionalization (Adserà *et al.* 2003).

In analysis, Adserà *et al.* (2003) conclude that the factors which appear to have the biggest effect on government quality are free circulation of independent newspapers, level of democracy, percent of fuel exports, and level of export concentration. As newspaper readership, democracy, and export concentration increase, government quality across the board improves. Vice versa, government quality declines in all categories as the proportion of the economy focused on fuel exports expands. The authors note that while diversification of the economy plays a role, their results indicate mainly that "the presence of a well-informed electorate in a democratic setting explains between one-half

and two-thirds of the variance in the levels of government performance and corruption" (Adserà *et al.* 2003, 479).

For control variables, Adserà *et al.* (2003) report that the evidence is more mixed. Per capita income, English common law and French civil code are all associated with lower levels of corruption. Federalist constitutions result in lower levels of corruption and improved bureaucracy. Level of government expenditures relates to less corruption and increased bureaucratic quality. Religion and ethnic fractionization, in general, do not play a role in corruption or rule of law, but Protestantism is positively associated with quality of bureaucracy while Catholicism and Islam have a negative effect. Finally, trade openness does not have any statistically significant effect on any measurements of government quality assessed.

Al-Marhubi (2004) examines the determinants of governance quality, rather than government quality. To represent governance as the dependent variable, Al-Marhubi utilizes an average of the World Bank's Worldwide Governance Indicators (WGI) data (Kaufmann *et al.* 1999, 2002). For independent variables, Al-Marhubi uses many of the same political, cultural, and economic factors used in earlier studies, such as ethnolinguistic fractionalization, legal tradition, distance from equator, religious affiliation, and per capita income; however, Al-Marhubi also includes openness to international trade and natural resource abundance in the equation.

Al-Marhubi (2004) finds that strength of Western European influence, English common law legal origin, religious affiliation, represented by proportion of the population that is Protestant, openness to trade, and per capita income are all found to have a strong positive effect on quality of governance, while ethnolinguistic

fractionalization is found to have a negative effect, and abundance of natural resources is found to have no detectable effect. In conclusion, Al-Marhubi (2004) finds that level of economic development, openness to trade, strength of Western European influence, legal system origin, and potentially religious affiliation, all have a measurable impact on quality of governance. However, ethnolinguistic fractionalization and natural resource abundance appear to not. Therefore, based on the strong correlations between economic development, openness and governance, and the weak correlations between religious affiliation and ethnolinguistic fractionalization, Al-Marhubi maintains that the results of his study show that countries are not necessarily destined to have poor governance based on cultural or historical reasons. Instead, there is evidence to believe that countries can "grow their way out of bad governance" (404) through greater integration with the global economy (Al-Marhubi 2004, 404).

In a second study, Al-Marhubi (2005) further examines the relationship between quality of governance and economic openness. According to Al-Marhubi (2005), integration with the global economy may lead countries to create better institutions of government to support the integration process and to help manage risk, resulting in improved governance quality. The increased access to information and new ideas that come along with greater openness may also help to create a citizenry that is more demanding of its government (Al-Marhubi 2005).

To investigate the potential relationship between governance and economic openness, Al-Marhubi (2005) conducts cross-country regressions with an average of the World Bank's Worldwide Governance Indicators (WGI) as the dependent variable and level of economic openness, level of economic development, dummy variables for

developing countries and countries with British common law origins, percentage of citizens from the Protestant faith, ethnolinguistic fractionalization, strength of western European influence, and share of primary exports in GDP as the independent variables.

In analysis of the results of several variations of the model, Al-Marhubi (2005) finds a positive and statistically significant relationship between economic openness and governance quality in all regressions, accounting for more than 12% of the variation in governance between countries. For control variables, Al-Marhubi (2005) reports that level of economic development, British common law origin, and strength of western European influence all appear to be positive and statistically significant with governance while developing country status and ethnolinguistic fractionalization are statistically significant yet negative. However, as Al-Marhubi (2005) notes, ethnolinguistic fractionalization loses significance when level of economic development is included. Finally, share of primary exports in GDP and percentage of citizens from the Protestant faith are reported to have no statistically significant relationship with governance (Al-Marhubi 2005).

Brunetti and Weder (1999) also investigate the connection between economic openness and government performance. Similar to Al-Marhubi (2005), the authors expect a positive relationship between these factors based on the argument that open economies allow citizens greater access to information and alternative ideas about governance from around the world, potentially leading them to demand better performance from their own governments (Brunetti and Weder 1999).

To analyze the relationship between economic openness and quality of government, Brunetti and Weder (1999) conduct several regressions with four different

indicators of government quality, including measurements of rule of law, bureaucratic quality, security of property, and judiciary predictability alternately as the dependent variables, and level of economic openness, level of economic development, degree of democratic rights, ethnolinguistic fractionalization, percent of population of Protestant faith, and French legal origin as the independent variables. In analysis of their results, Brunetti and Weder (1999) find that degree of democratic rights is significant in some models, but when all variables are included together, level of economic openness and level of economic development are the only variables that appear to have a statistically significant relationship with government quality.

Lee and Whitford (2009) take a similar approach and examine how eight broad categories of independent variables affect government effectiveness. With the World Bank's government effectiveness indicator as the dependent variable, Lee and Whitford (2009) consider the role of legal origin, level of economic development, three measures of constitutional design (presidential versus parliamentary system, federal versus unitary systems, and type of electoral systems), the presence or absence of electoral fraud, military versus non-military leadership, and the land area of the country. It's not clear what theoretical basis the authors used to select these variables; however, in analysis, Lee and Whitford (2009) find that level of economic development is the only variable that has a statistically valid effect on government effectiveness, indicating that nearly 80 percent of the variance in government effectiveness is based on a country's level of economic development.

To advance the literature on determinants of governance, Rontos *et al.* (2015) include data from a larger group of countries and incorporate slightly different proxies

than their predecessors. To represent quality of governance as the dependent variable, Rontos *et al.* (2015), use the Worldwide Governance Indicators from the World Bank (2015). On the other side of the equation, Rontos *et al.* (2015) include four independent variables. To determine the importance of economic institutions, Rontos *et al.* (2015) use gross national income per capita in purchasing power parity, an index of political rights, an index of civil liberties, and an index of human development. They conclude gross national income per capita (ppp) is directly associated with all six dimensions of the World Governance Indicators. Therefore, Rontos *et al.* (2015) conclude that higher levels of economic development are associated with higher quality of governance.

For the political dimension, Rontos *et al.* (2015) find that both the civil liberties and political rights indices are inversely associated with governance quality. Given that decreasing values in both these indices represent increasing political development, the inverse association indicates that civil governance rises as civil liberties and political rights improve (Rontos *et al.* 2015). Finally, for the social dimension, Rontos *et al.* (2015) report that there is a strong correlation between the human development index and two of the six World Governance Indicators; government effectiveness and regularity quality. However, there was not a statistically significant relationship between the human development index and the other four World Governance Indicators. Therefore, in conclusion, Rontos *et al.* (2015) find that levels of economic development, scales of political rights and civil liberties, and scope of human development all have an impact on at least some dimensions of governance quality.

In a related study, Adkisson and McFerrin (2014) explore the relationship between governance and two specific explanatory factors: level of economic

development and culture. While not incorporating the three-part institutional framework in many of the studies above, Adkisson and McFerrin, also use the six dimensions of governance from the Worldwide Governance Indicators as the dependent variables and two unique proxies to represent the determinants being tested. To represent level of economic development, Adkisson and McFerrin include real per capita gross domestic product (GDP) rather than per capita income, and to represent culture, they use two broad dimensions of culture condensed from the World Values Survey (WVS). The results of their regression analysis show that both culture and level of economic development affect governance. While economic development is shown to have a greater impact, culture plays a role as well. The less traditional and "survival-oriented," the better governed the country should be (Adkisson and McFerrin 2014, 447).

Garcia-Sanchez *et al.* (2013) explore determinants of government effectiveness from a public administration perspective. According to Garcia-Sanchez *et al.*, the demand for government effectiveness is based upon the organizational environment in which it operates. Specifically, Garcia-Sanchez *et al.* (2013) test how organizational environment and certain organizational and political characteristics affect government effectiveness. With the World Bank government effectiveness indicator as the dependent variable, the independent variables are grouped into three separate categories. Level of economic development and educational status are used to represent organizational environment, population density and proportion of women in national parliament are used to represent organizational characteristics, and an index measuring the level of constraints on policy change is used for political characteristics (Garcia-Sanchez *et al.* 2013).

After analysis, the authors maintain that all three categories of independent variables have a statistically significant effect on government effectiveness (Garcia-Sanchez *et al.* 2013). However, the degree of impact varies depending on level of economic development. In lower-income countries, political constraints on policy change have the greatest effect on government effectiveness. In middle-income countries, population density has the greatest effect on government effectiveness. In higher-income countries, level of educational status and proportion of women in national parliament have the greatest impact on government effectiveness. Therefore, Garcia-Sanchez *et al.* (2013) maintain that organizational characteristics do play a role in government effectiveness.

Democracy has also been argued to affect governance. Brewer *et al.* (2007) use the World Governance Indicators (WGI) to examine how democracy affects government performance in Asian countries. Examining three of the six WGIs specifically, the authors find that level of democracy affects only one aspect of government performance: voice and accountability. Brewer *et al.* (2007) do not find a significant relationship between democracy and control of corruption, or democracy and government effectiveness. On the other hand, the authors do report that level of economic development appears to have a direct and significant effect on all three measurements of government performance (Brewer *et al.* 2007).

Charron and Lapuente (2009) also explore the role of democracy in promoting quality of government. To represent quality of government as their dependent variable, the authors combine measurements of bureaucratic quality and level of perceived corruption into one index for 140 countries (Charron and Lapuente 2009). The authors'

main independent variables include level of democracy, level of economic development, level of trade openness, freedom of the press, ethnic fractionalization, and level of education (Charron and Lapuente 2009).

Upon analysis, Charron and Lapuente (2009) find that democracy does indeed affect quality of government; however, the effect is conditional based on level of economic development. According to the authors, the wealthier the country the greater is the impact that democracy has on quality of government (Charron and Lapuente 2009). While in poor countries there is little demand for investments in bureaucratic capacity, and hence quality of government, as countries become wealthier the demand for government quality increases and the importance of democracy in channeling this demand also increases (Charron and Lapuente 2009). The authors note that while freedom of the press also appears to affect quality of government, trade openness, ethnic fractionalization, and level of education do not (Charron and Lapuente 2009).

Looking at the role of democracy as well, Nur-tegin and Czap (2012) find that one factor of governance, level of corruption, is higher in stable dictatorships than in unstable democracies. While the authors note there is significant evidence in the literature showing stable democracies have lower levels of corruption than dictatorships, the performance of newly-democratized states is not as clear and is often assumed to be worse than in stable dictatorships (Nur-tegin and Czap 2012). However, according to Nur-tegin and Czap (2012), the findings of their study show that countries are still better off as unstable democracies than as stable dictatorships in terms of corruption.

Information available to the public appears to play a role in governance quality as well. Toka (2008) examines the role of information on quality of governance and finds

that an electorate which is fully informed on political issues has a positive effect on at least some aspects of governance, specifically control of corruption, over multiple election cycles. Toka (2008) notes, the effect of increased information available to the public may affect control of corruption more than other aspects of governance because those involved in corruption scandals are often forced out of office in result.

Norris (2006) also examines how information available to the public affects governance. Norris (2006) includes five measurements of governance alternately as the dependent variables: political stability, rule of law, government efficiency, regulatory quality, and least corruption. For independent variables, Norris (2006) includes freedom of the press, level of economic development, colonial legacy, ethnic fictionalization, and size of population. In analysis of her results, Norris (2006) reports that freedom of the press has a significant and positive relationship with all five governance variables. Furthermore, Norris (2006) notes that level of economic development is shown to be significant and positive and ethnic fractionalization is shown to be significant and negatively related to governance. However, Norris (2006) notes that population size and colonial legacy do not appear to be significant in any of the regressions. In conclusion, Norris (2006) argues that her study supports the assertion that a free press plays a vital role in promoting good governance.

Related to freedom of the press, access to information may also play a role in governance quality. Garcia-Murillo (2010) examines the effect of internet access on corruption and finds that while the number of internet users does affect levels of corruption, the strength of the relationship is not as strong as was expected. With level of corruption as the dependent variable, the author investigates a host of economic and

political factors for independent variables. In analysis of the regression results, Garcia-Murillo (2010) finds that countries with larger populations tend to have higher levels of corruption, while countries with higher levels of income, greater freedom of the press, larger bureaucracies, better governance scores, and increased time spent by upper-level management in complying with government regulation, all equate with lower levels of corruption. Garcia-Murillo (2010) maintains that as internet-based resources and tools develop, the impact of internet access on corruption is expected to increase. Additionally, it is worth noting that Garcia-Murillo's (2010) data on internet access is from 2004 and updated data may generate different results.

Khazaeli and Stockemer (2013) also examine the relationship between internet access and governance, with an expectation that increased internet access will result in greater access to information and improved governance. The authors perform a pooled time-series analysis of 170 countries with governance, represented by an average of the six Word Governance Indicators (WGI), as the dependent variable, and internet access, level of economic development, degree of armed conflict in the country, federalism, and region as the independent variables (Khazaeli and Stockemer 2013).

In analysis of their results, Khazaeli and Stockemer (2013) report that, as expected, level of internet access does indeed appear to have a significant and positive relationship with quality of governance. The authors note that this relationship appears to be similar across all types of governments (Khazaeli and Stockemer 2013). Level of economic development, population size, and region are also reported to have a significant and positive relationship with governance (Khazaeli and Stockemer 2013). On the other hand, Khazaeli and Stockemer (2013) state that degree of armed conflict and federalism

do not appear to play a role in governance quality. Looking at the results of their study, Khazaeli and Stockemer (2013) claim that their study contributes to the literature indicating that increased internet access has a positive effect on governance performance.

Summary of Literature

In analysis of the literature on determinants of government or governance quality, three main conclusions can be drawn. First, there is a consensus across the literature that level of economic development appears to play a leading role in determining quality of governance (La Porta *et al.* 1999, Islam and Montenegro 2002, Adserà *et al.* 2003, Al-Marhubi 2004, Lee and Whitford 2009, Garcia-Sanchez e*t al.* 2013, Adkisson and McFerrin 2014, Rontos *et al.* 2015). It stands to reason that quality of governance should improve as more resources to govern become available. However, as some authors point out, there could be issues of endogeneity with this variable as the direction of influence between governance and national income most likely runs in both directions. Income level may affect governance, but governance most likely also affects level of income (La Porta *et al.* 1999 Al-Marhubi 2004).

Second, extent of democratization also appears to play a significant role in quality of governance. Again, this stands up to reason. As citizens' ability to hold their leaders accountable increases, so too should the quality of governance.

Third, information available to the public is also reported to influence governance quality. The more information the public has on government official performance, the easier it is to hold the government officials accountable.

Other factors which might affect quality of governance are not as clear in the literature. Variables such as type of political system, degree of economic openness,

commodity export mix, and colonial legacy may also play a role. Some studies have found conclusive evidence that these variables affect at least some aspects of governance, while others have not. This may be due to the type of data and methodology used. Social dimensions such as ethnic diversity and national religion may also have an influence, yet these factors are difficult to quantify. Discounting the social/cultural variables due to normative nature of the variables and difficulties in their measurement, the determinants of governance which most frequently appear in the literature are level of national income, level of democracy, type of legal system, degree of economic openness, and export commodity mix. This study advances the literature on determinants of governance quality by enhancing its theoretical foundations and incorporating new and updated variables for many of the determinants listed above.

Theoretical Framework and Contributions to the Literature

This study builds on a developing strand of literature where governance is described in terms of a principal–agent model. In this view the principal, represented by the public, grants the agent, represented by the government official, specific powers to advance certain goals on the public's behalf (Adserà *et al.* 2003). In the perfect situation, the government official's interests align directly with those of the public's. However, in reality the interests of these two parties often diverge. Once in office government officials may decide to focus on their own political agenda, they may represent the interests of only a narrow segment of the public, or they might try to enrich themselves by taking advantage of the trappings of office rather than working on the public's behalf (Adserà *et al.* 2003). Consequently, the delegation of power from principal to agent often results in a suboptimal outcome for the public in terms of governance quality.

To address this delegation of power issue, a number of authors have shown that under certain conditions regular elections can serve as an effective control mechanism (Barro 1973, Ferejohn 1986, Adserà *et al.* 2003). According to this theory, if the public acts retrospectively by basing their votes on the incumbent's past performance, the fear of losing office should keep government officials focused on the public's interests and governance quality should improve (Adserà *et al.* 2003).

Another well-known supposition, public choice theory, supports this assertion as well. Known as "the economic study of nonmarket decision-making," public choice theory advances the argument that "man is an egoistic, rational, utility maximizer" (Mueller 1976, 395). In so, government officials will put their own interest before those of the public good (Brennan and Buchanan 1985). Therefore, the type of government policies chosen and the extent of public sector expenditures enacted can be traced more directly to the government officials' efforts to win votes rather than what is necessarily in the best interest of the population they represent (Wright 1974, Nordhaus 1975, Mueller 1976).

Modeling this concept, Persson and Tabellini (2000) show that incumbent politicians have an incentive to reduce rent-seeking behavior and focus on promoting economic performance, as voters usually reward economic performance with reappointment. According to Sawyer and Sprinkle (2006), "rent-seeking is the act of obtaining special treatment by the government at the expense of society as a whole" (180). In this context, rent-seeking is understood as an activity that benefits only a small group in society, yet the whole society incurs a cost (Sawyer and Sprinkle 2006). For example, when a government official agrees to raise tariffs on a particular product in

exchange for voter support, the domestic industries that produce that product will benefit from protection from imports, and the government official will benefit from additional voter support in the next election, yet the whole of society will incur higher prices on the product due to the higher tariffs (Sawyer and Sprinkle 2006).

However, the effectiveness of regular elections, that is, elections that occur on a consistent schedule, as an accountability control mechanism is not guaranteed and indeed may vary based on a number of variables. According to Adserà *et al.* (2003), there are three main determinants which play the largest role in this dynamic: level of democracy, the level of information among the public, and diversity of the economy. First, due to the difficulties of overthrowing an authoritarian regime compared to ousting incumbents through elections, rent-seeking behavior should be higher in dictatorships than in democracies (Adserà *et al.* 2003). As the level of democracy increases, government official accountability should increase and rent-seeking should decrease (Adserà *et al.* 2003). Second, the extent of information available to the public regarding government officials' activities corresponds with levels of public corruption and mismanagement. As the level of information available to the public increases, opportunities for rent-seeking behavior, or "the act of obtaining special treatment by the government at the expense of society as a whole,"(Sawyer and Sprinkle 2006, 180) decrease (Adserà *et al.* 2003).

Finally, diversification of the economy should also play a role in accountability. According to the "rentier effect," three main outcomes may occur when economies are dependent upon a narrow export base, such as oil, which the government can control and extract revenue from easily (Isham *et al.* 2005, 147). First, when the government is able to obtain revenue easily from a narrow export base, there is less need to tax the citizens,

and therefore less need to develop the institutions of government to do so (Isham *et al.* 2005). In addition, with less taxation, the citizens are less concerned about developing the systems of government oversite and accountability to help promote institutional quality (Isham *et al.* 2005). Second, the government is able to use the revenue gained from control of the narrow export base to ease dissent by paying off government critics or providing extra benefits to keep citizens content (Isham *et al.* 2005). Third, the government also has additional resources to put into violent repression of government critics, reducing pressures for government reform (Isham *et al.* 2005). Therefore, in countries with a narrow export base government accountability and oversite should be lower than in countries with a more diversified export base.

CHAPTER III - METHODOLOGY

This chapter discusses the methodology incorporated in this study, including the research questions, hypotheses, dependent and independent variables, data, descriptive and inferential statistics, and the limitations of the methodology.

Research Questions

1. How does level of democracy affect quality of governance?
2. How does the degree of information available to the public affect quality of governance?
3. How does diversification of the economy affect quality of governance?

Hypotheses

H1: Quality of governance has a direct relationship with the level of democracy.

Due to the difficulties of overthrowing an authoritarian regime compared to ousting incumbents through elections, rent-seeking behavior should be higher in dictatorships than in democracies (Adserà *et al.* 2003). As the level of democracy increases, rent-seeking should decrease, government official accountability should increase, and in result, quality of governance should also increase (Adserà *et al.* 2003).

H2: Quality of governance has a direct relationship with the information available to the public.

As the level of information available to the public increases, opportunities for rent-seeking behavior, or "the act of obtaining special treatment by the government at the expense of society as a whole" (Sawyer and Sprinkle 2006, 180) should decrease (Adserà *et al.* 2003), and quality of governance should increase.

H3: Quality of governance has a direct relationship with the diversification of the economy.

As predicted by the "rentier effect," quality of governance should improve as an economy become more diversified (Isham *et al.* 2005). When the government can control and extract revenue from few major exports items, there are some basic outcomes which can be expected (Isham *et al.* 2005). First, with the increased revenue obtained from the small export base, the government may tax citizens less, and therefore, the government institutions to do so may not develop as a result (Isham *et al.* 2005). When citizens are taxed less, they may also be less concerned about government oversite and accountability (Isham *et al.* 2005). Second, with the additional income obtained from control of the small number of exports, government officials may have more resources to provide extra benefits to keep citizens content and to bribe critics (Isham *et al.* 2005). Third, with low variety of exports, government leaders may also have surplus resources to put toward violent repression of opposition (Isham *et al.* 2005). Consequently, countries that receive revenue from and control a small variation in exports should have lower government accountability and oversite than countries that receive revenue from a greater diversity of exports.

Methods

To examine the factors that contribute to the quality of governance, this study utilizes a fixed effects panel analysis. According to Wooldridge (2009), panel data methodology is used when data on the same units (such as states) are gathered over time. As Wooldridge (2009) notes, it cannot be assumed that these observations over time are independently distributed. To account for any unobserved factors that might be correlated

with explanatory variables, it is necessary to perform a procedure to remove these unobserved effects (Wooldridge 2009). The fixed effects transformation is an effective approach when the idiosyncratic errors are serially uncorrelated and no assumptions are being made about any correlation between the unobserved effect and the explanatory variables (Wooldridge 2009). Through the fixed effects transformation, the panel data model is transformed to remove any unobserved, time-constant factors that might affect the dependent variable. In this process, each of the variables in the model is time-demeaned; meaning, that for each cross-sectional unit, the average of the time period the average over time is subtracted from each individual time period (Wooldridge 2009). Six linear regressions are created, each with a separate dimension of the WGI as the dependent variable, and level of democracy, level of internet access, and diversification of the economy as the independent variables. The model for each linear regression follows the general form below:

$$y_{it} = \beta_1 x1 + \beta_2 x2 + \beta_3 x3 + \beta_4 x4 + u_{it} \quad \text{Equation 1}$$

Where y is quality of governance for country i at time t, alternately represented by each of the six WGIs, x1 is level of democracy, x2 is level of internet access, and x3 is a measurement of the diversification of the economy, and x4 is a set of control variables.

Dependent Variables

The WGI Worldwide Governance Indicators (WGI) produced by the World Bank (2015) represents quality of governance. The WGI reports governance quality indicators for 215 countries for the years 1996-2016 along six dimensions: voice and accountability, political stability and absence of violence, government effectiveness, regularity quality, rule of law, and control of corruption. For the purposes of this study, data from 143

countries for the years 2010 – 2015 are used Scores for each of the indicators range from -2.5 to 2.5 with higher scores representing higher quality of governance.

Independent Variables

Level of democracy is represented by data from the Polity IV Project by Marshall *et al.* (2016) which measures level of democracy on a scale of 0-10 for 167 countries from 1800-2015 with higher values indicating higher levels of democracy. Level of democracy should have a direct impact on the quality of governance dependent variable. Due to the difficulties of overthrowing authoritarian regimes compared to removing government officials through elections, rent-seeking behavior should be higher and quality of governance should be lower in dictatorships than in democracies (Adserà *et al.* 2003). As the level of democracy increases, government official accountability should increase, rent-seeking behavior should decrease, and quality of governance should improve (Adserà *et al.* 2003). Data for 143 countries for the years 2010 – 2015 are included.

Level of information available to the public is represented by data from the International Telecommunications Union (2016a) on the percentage of individuals using the internet for over 200 countries from 2000 – 2015. For the purposes of this study, data from 143 countries for the years 2010 – 2015 are used. The level of information available to the public should have a direct impact on the governance quality dependent variable. The extent of information available to the public regarding the activities of government officials is directly related to levels of public corruption and mismanagement. As the level of information available to the public increases, opportunities for rent-seeking

behavior by government officials should decrease, and quality of governance should improve (Adserà *et al.* 2003).

Diversification of the economy is represented by the number of unique harmonized system (HS) product codes exported by country available from the World Bank (2017). Data on 143 countries for the years 2010 - 2015 is included. Due to the "rentier effect," countries that control and receive revenue from a few sources of exports should have lower government accountability and oversite than countries that receive revenue from a more diversified export base.

Control Variables

Level of economic development is included based on the argument that as incomes increase, citizens become less focused on day-to-day survival and are increasingly able to participate in collective action to place pressure on the State to improve governance (Welzel and Inglehart 2008, Charron and Lapuente 2009). A number of studies have tested the relationship between economic development and governance and establish a strong correlation between these two variables (La Porta *et al.* 1999, Al-Marhubi 2004, Lee and Whitford 2009, Garcia-Sanchez *et al.* 2013, Adkisson and McFerrin 2014, Rontos *et al.* 2015). However, a number of authors (La Porta *et al.* 1999, Al-Marhubi 2004, Lee and Whitford 2009) call for caution in interpreting the impact of economic development on governance due to the apparent mutually-dependent relationship between the two variables, which could exhibit a simultaneity bias. Data from the World Bank (2016b) on per capita income is included for the years 2010 – 2015 for 143 countries.

However, it should also be considered that as incomes increase, citizens might be satisfied just to enjoy their higher incomes and may become less interested in upsetting the status quo. This is a potential explanation as to how authoritarian rulers maintain their power. As long as conditions in the country remain stable, citizens might indeed be less interested in governance reform. To investigate the possibility that political stability matters more in promoting governance quality than income, data from the Fragile States Index by the Fund for Peace (2017) is included for the years 2010 – 2015 for 143 countries.

Openness to international trade is included to assess the argument that high-quality domestic institutions should evolve more quickly in open economies (Islam and Montenegro 2002, Al-Marhubi 2004). This is the case because economic agents have an incentive to improve their government institutions to manage risk and to help compete more effectively with foreign agents (Islam and Montenegro 2002). The exchange of information and learning opportunities between agents in open economies should help to bring about better institutions as well (Islam and Montenegro 2002).

South Korea of the 1960s and 1970s may be an exception to this argument. During this time, South Korea was ruled by a military dictatorship and the country's leadership was interested in autocratically opening the economy and improving state functions. While domestic institutions did improve as the economy opened, it remained under autocratic rule until at least 1986 when the constitution was modified to allow for presidential elections (BBC 2017). Therefore, it could be debated as to whether or not the country was developing high-quality domestic institutions as the economy opened if the country was being ruled by a dictatorship. Regardless, the theory that institutions should

improve as economies open is still a strong argument due to the need to have strong institutions in place to manage budding relationships with trade partners. To represent economic openness, data is included from the World Bank (2016d) on percent of GDP attributed to trade for the years 2010 – 2015 for 143 countries.

Level of education is included based on the argument that more educated populations usually demand a higher level of accountability from government officials, which should result in improved governance (Tolbert *et al.* 2008). Level of education is represented by the education index from the United Nations Human Development Programme (2016) which is a combination of the mean years of schooling and expected years of schooling by country. Data for 143 countries are available for the years 2010 – 2015.

Total population is included to represent government resources and public services. Larger countries generally have larger public-sector budgets, better-trained staff, and more refined bureaucracies (Garcia-Sanchez *et al.* 2013). Data on total population is taken from the World Bank (2016c) for the years 2010 – 2015 for 143 countries.

A measurement representing freedom of the press is included, as a free press should help to promote the exchange of information in society and provide the public with the information it needs to help hold government officials accountable (Djankov *et al.* 2001). While indices on freedom of the press are available from both Freedom House and Reporters Without Borders, the data for this study is taken from Freedom House (2016a) as data for all 143 countries is available for the years 2010 – 2015 with lower scores corresponding with greater levels of freedom. Additionally, Freedom House has

used a consistent methodology in its index during this time while Reporters Without Borders (2016) has not.

A measurement of cell phone penetration is included as the governments of many countries may restrict access to the internet. To get around this, cell phone communications applications are increasingly offering citizens another way to share and access information with less governmental oversite (Freedom House 2016b). Data on cell phone penetration is taken from the International Telecommunications Union (2016b) for 143 countries for the years 2010 – 2015.

Limitations of Methodology

According to Wooldridge (2009), since panel data analysis includes data gathered on the same units over time, it can be more difficult to obtain full panel data sets than cross-sectional data which is data gathered during just one time period. In addition, as noted by Allison (2009), fixed effects regression cannot be used with time-invariant variables. Finally, while fixed effects regression is effective when no assumptions are being made about any correlation between the unobserved effect and the explanatory variables, it is not effective when the unobserved effect is assumed to be uncorrelated with all explanatory variables (Wooldridge 2009).

CHAPTER IV – RESULTS

To examine the factors which contribute to the quality of governance, this study utilizes two different types of statistical analysis. First, a fixed effects panel analysis is conducted where six linear regressions are created, each with a separate dimension of the WGI as the dependent variable, and information available to the public and diversification of the economy as the independent variables along with seven control variables. The second statistical analysis in this study is OLS cross-sectional regression. For the majority of countries included in this study, the measurement of the democracy variable reflects very little change during the period of analysis. Since fixed effects panel regression is only effective with time variant variables (Allison 2009), the democracy variable is not included in the fixed effects regressions. Instead, to assess democracy's effect on governance, individual cross-sectional OLS regressions are reported for each of the six years in the period of analysis with all independent variables, including democracy. The results of these individual regressions are reported in tables 1.5-1.10 below.

Due to restrictions on data availability, 143 countries are included in this study, each with at least two years of data available for each of the independent variables during the 2010 – 2015 period of analysis. See the appendix for a listing of all countries included and excluded. To account for missing data points under certain independent variables, two different approaches are used. The first technique consists of averaging the two recent data points available for each country for each variable missing data, referred to as the AMV model here forward. The second technique consists of regressing the available

data against a sequence of years and using the slope and intercept of this regression to estimate the missing values, referred to as the RMV model here forward. Note: the RMV results are used in the 2010-2015 cross-sectional regressions for democracy. The results of the two approaches to estimating missing data are included in the tables 1.3 and 1.4 below.

The linear regression equation for the fixed effects analysis is as follows:

$$y_{it} = \beta_1 INF + \beta_2 DIV + \beta_3 ECO + \beta_4 OPE + \beta_5 EDU + \beta_6 POP + \beta_7 FRE + \beta_8 CEL + \beta_9 FRA + u_{it} \quad \text{Equation 2}$$

Where y is quality of governance for country i at time t, alternately represented by each of the six WGIs, INF is level of information available to the public in the form of internet access, DIV is a measurement of the diversification of the economy, ECO is level of economic development, OPE is economic openness, EDU is level of education, POP is population, FRE is freedom of the press, CEL is cellphone penetration, FRA is state fragility, and u is the stochastic error term.

The linear regression equation for the cross-sectional OLS analysis is as follows:

$$y_i = \beta_{0+} \beta_1 DEM + \beta_2 INF + \beta_3 DIV + \beta_4 ECO + \beta_5 OPE + \beta_6 EDU + \beta_7 POP + \beta_8 FRE + \beta_9 CEL + \beta_{10} FRA + u_i \quad \text{Equation 3}$$

Where Y is quality of governance for country i, alternately represented by each of the six WGIs, DEM is level of democracy, and the other variables are as indicated in the fixed effects equation above.

Expected signs of the regression outputs are as follows:

\+ + + + + + - + -

$$Y_{it} = F(INF, DIV, ECO, OPE, EDU, POP, FRE, CEL, FRA) \quad \text{Equation 4}$$

+ + + + + + + - + -

$Y_i = F$ (DEM, INF, DIV, ECO, OPE, EDU, POP, FRE, CEL, FRA) Equation 5

Democracy is expected to have a direct relationship due to the difficulties of overthrowing corrupt authoritarian regimes compared to removing poor governments through elections. Information available to the public is expected to have a direct relationship because an informed public reduces the opportunities for rent-seeking among government officials. Diversification of the economy is expected to have a direct relationship since countries that control and receive revenue from a low number of exports have more resources to pay off critics and less need to develop institutions to tax citizens.

For control variables, level of economic development should have a direct relationship as citizens in more affluent societies are less focused on day-to-day survival and are increasingly able to participate in collective action to place pressure on the State to improve governance. Economic openness is expected to have a direct relationship since domestic institutions should evolve more quickly in open economies in order to manage risk and to help compete more effectively with foreign agents. Level of education should have a direct relationship as educated populations usually demand a higher level of accountability from government officials, resulting in improved governance. Population is expected to have a direct relationship as larger countries generally have larger public-sector budgets, better-trained staff, and more refined bureaucracies. Freedom of the press is expected to be inverse as higher values of this variable indicate less freedom and a free press should help to promote the exchange of information in society and provide the public with the information it needs to help hold

government officials accountable. Cell phone penetration rate should have a direct relationship because cell phone applications are increasingly offering citizens another way to share and access information with less governmental oversite. Finally, state fragility is expected to be negative as higher values of this variable indicate higher fragility and quality of governance should decline as political instability increases.

Descriptive and summary statistics for each of the hypotheses are listed below.

Table 1

Descriptive Statistics for Dependent and Independent Variables

Variable	Obs.	Mean	Stand. Dev.	Min.	Max.
VOI	858	-0.026	0.107	-1.178	0.709
POL	858	-0.152	0.196	-1.353	1.417
GOV	858	0.035	0.101	-0.310	0.399
REG	858	0.072	0.101	-0.310	0.399
RUL	858	-0.027	0.090	-0.355	0.332
RULD1	715	0.010	0.071	-0.261	0.240
COR	858	-0.039	0.104	-0.536	0.338
CORD1	715	0.003	0.086	-0.348	0.375
DEM	…	…	…	…	…
INF	858	0.041	0.006	0.013	0.060
DIV	858	2.47	0.247	-0.402	4.345
ECO	858	1.460	0.205	-0.492	2.348
OPE	858	0.089	0.008	0.043	0.154
EDU	858	0.637	0.011	0.582	0.669
POP	858	0.471	0.027	0.076	0.857
FRE	858	0.479	0.030	0.361	0.761
CEL	858	0.104	0.012	0.048	0.154
FRA	858	0.068	0.001	0.055	0.082

Due to differences in measurement scales, the independent variables are rescaled as follows to ease interpretation of results: DEM and EDU are unchanged, FRE and FRA are per 100 units, INF, DIV, OPE, CEL are per 1,000 units, ECO is per 10,000 units, and POP is per 100,000,000 units.

Table 2

Correlation Matrix for all Variables

	VOI	POL	GOV	REG	RULD1	CORD1	INF	DIV	ECO	OPE	EDU	POP	FRE	CEL	FRA
VOL	1.0000														
POL	0.6749	1.0000													
GOV	0.7613	0.7253	1.0000												
REG	0.7760	0.6929	0.9384	1.0000											
RULD1	-0.0125	0.0534	0.0068	0.0047	1.0000										
CORD 1	-0.0544	-0.0173	-0.0348	-0.0504	0.2835	1.0000									
INF	0.5971	0.6001	0.8484	0.8041	-0.0533	-0.0521	1.0000								
DIV	0.5868	0.4293	0.7334	0.7231	-0.0251	-0.0456	0.7011	1.0000							
ECO	0.5694	0.5820	0.7818	0.7358	-0.0270	-0.0782	0.7613	0.4914	1.0000						
OPE	0.1771	0.3944	0.3349	0.3372	0.0190	-0.0057	0.3166	0.1482	0.3467	1.0000					
EDU	0.6264	0.6088	0.7738	0.7430	-0.0087	-0.0189	0.8676	0.7229	0.6251	0.2877	1.0000				
POP	-0.0820	-0.1567	0.0029	-0.0590	-0.0185	0.0488	-0.0510	0.2355	-0.0573	-0.2065	-0.0486	1.0000			
FRE	-0.9441	-0.6035	-0.6498	-0.6711	0.0238	0.0511	-0.4747	-0.4302	-0.5047	-0.1604	-0.4981	0.0959	1.0000		
CEL	0.2816	0.4142	0.4850	0.4758	-0.0800	-0.0278	0.6196	0.4478	0.3824	0.3484	0.6201	-0.1101	-0.1941	1.0000	
FRA	-0.7893	-0.8093	-0.8879	-0.8621	0.0743	0.0833	-0.8491	-0.6794	-0.7796	-0.3454	-0.8208	0.0703	0.6948	-0.5457	1.0000

Democracy is not included due to the secondary cross-sectional regression analysis of this variable.

Diagnostics on Averaged and Regressed Fixed Effects Models

The following diagnostics are conducted on both the AMV and RMV fixed effects models. First, a Fisher-Type Phillips-Peron unit root test is conducted on all dependent and independent variables to check for stationarity. All variables are stationary except the Rule of Law and Control of Corruption independent variables. To address this non-stationarity, both variables are first differenced once (Torres-Reyna, n.d.).

Second, the tests below are conducted individually on each of the six AMV and each of the six RMV fixed effects models. The diagnostic results for both models are the same and are reported as follows.

Voice and Accountability. A Pesaran test for cross-sectional independence, a Wooldridge test for autocorrelation, and a modified Wald test for groupwise heteroscedasticity indicate that cross-sectional dependence, autocorrelation, and groupwise heteroscedasticity are all present, respectively. To account for this, Driskoll-Kraay standard errors are incorporated. According to Hoechle (2007), Driskoll-Kraay standard errors are effective in the presence of cross-sectional independence, autocorrelation, and heteroscedasticity. A Hausman test for fixed or random effects is conducted and indicates that a fixed effects approach is appropriate rather than random effects. Finally, a post-estimation test on joint restrictions on the parameters indicates that it is necessary to control for time fixed effects.

Political Stability and the Absence of Violence. A Pesaran test for cross-sectional independence indicates that cross-sectional dependence is not present. However, the

Wooldridge test for autocorrelation and the modified Wald test for groupwise heteroscedasticity indicates that cross-autocorrelation and groupwise heteroscedasticity are both present, respectively. To account for this, Rogers' standard errors are used. According to Hoechle (2007), Rogers standard errors should be used in the presence of autocorrelation and heteroscedasticity without cross-sectional dependence. A Hausman test for fixed or random effects is conducted and indicates that a fixed effects approach is appropriate rather than random effects. Finally, a post-estimation test on joint restrictions on the parameters indicates that controlling for time fixed effects is not necessary.

Government Effectiveness. A Pesaran test for cross-sectional independence, a Wooldridge test for autocorrelation, and a modified Wald test for groupwise heteroscedasticity indicate that cross-sectional dependence, autocorrelation, and groupwise heteroscedasticity are all present, respectively. To account for this, Driskoll-Kraay standard errors are incorporated into this regression. According to Hoechle (2007), Driskoll-Kraay standard errors are effective are effective in the presence of cross-sectional independence, autocorrelation, and heteroscedasticity. A Hausman test for fixed or random effects is conducted and indicates that a fixed effects approach is appropriate rather than random effects. Finally, a post-estimation test on joint restrictions on the parameters indicates that controlling for time fixed effects is necessary.

Regularity Quality. A Pesaran test for cross-sectional independence, a Wooldridge test for autocorrelation, and a modified Wald test for groupwise heteroscedasticity indicate that cross-sectional dependence, autocorrelation, and groupwise heteroscedasticity are all present, respectively. To account for this, Driskoll-

Kraay standard errors are incorporated into this regression. According to Hoechle (2007), Driskoll-Kraay standard errors are effective are effective in the presence of cross-sectional independence, autocorrelation, and heteroscedasticity. A Hausman test for fixed or random effects is conducted and indicates that a fixed effects approach is appropriate rather than random effects. Finally, a post-estimation test on joint restrictions on the parameters indicates that controlling for time fixed effects is necessary.

Rule of Law. The Fisher-Type Phillips-Peron unit root test indicates that the rule of law variable should be first differenced to address non-stationarity. A Pesaran test for cross-sectional independence, a Wooldridge test for autocorrelation, and a modified Wald test for groupwise heteroscedasticity indicate that cross-sectional dependence, autocorrelation, and groupwise heteroscedasticity are all present, respectively. To account for this, Driskoll-Kraay standard errors are incorporated into this regression. According to Hoechle (2007), Driskoll-Kraay standard errors are effective are effective in the presence of cross-sectional independence, autocorrelation, and heteroscedasticity. A Hausman test for fixed or random effects is conducted and indicates that a fixed effects approach is appropriate rather than random effects. Finally, a post-estimation test on joint restrictions on the parameters indicates that controlling for time fixed effects is necessary.

Control of Corruption. The Fisher-Type Phillips-Peron unit root test indicates that the control of corruption variable should be first differenced to address non-stationarity. The Pesaran test for cross-sectional independence indicates that there is no cross-sectional dependence present, and the Wooldridge test for autocorrelation indicates that

there is no autocorrelation. However, the Modified Wald test for groupwise heteroscedasticity does indicate heteroscedasticity. According to Hoechle (2007), incorporating White standard errors is preferred when controlling for just heteroscedasticity. Finally, a post-estimation test on joint restrictions on the parameters indicates that controlling for time fixed effects is not necessary.

Table 3

Fixed Effects Regression with Averaged Missing Values (AMV)

Indep. Var.	VOI	POL	GOV	REG	RUL	COR
DEM	…	…	…	…	…	…
INF	-0.126 (0.450) [0.791]	-4.17 (3.61) [0.249]	4.877 (0.588) [0.000]***	-0.108 (0.402) [0.798]	-1.191 (1.129) [0.351]	-1.079 (0.833) [0.198]
DIV	-0.018 (0.007) [0.064]*	0.023 (0.033) [0.491]	0.051 (0.177) [0.033]**	0.076 (0.024) [0.027]**	-0.022 (0.005) [0.018]**	-0.048 (0.013) [0.000]***
ECO	0.032 (0.011) [0.036]**	0.095 (0.027) [0.001]***	0.027 (0.012) [0.086]*	0.075 (0.018) [0.011]**	0.024 (0.011) [0.109]	-0.024 (0.017) [0.178]
OPE	-0.903 (0.250) [0.015]**	-3.43 (0.965) [0.001]***	0.265 (0.232) [0.306]	0.035 (0.131) [0.801]	-0.600 (0.160) [0.020]**	-0.765 (0.420) [0.071]*
EDU	0.362 (0.194) [0.122]	2.144 (1.287) [0.098]*	1.832 (0.325) [0.002]**	1.251 (0.142) [0.000]***	0.460 (0.338) [0.245]	0.831 (0.625) [0.186]
POP	0.021 (0.014) [0.196]	0.267 (0.216) [0.220]	-0.038 (0.164) [0.823]	-0.224 (0.049) [0.006]**	0.133 (0.035) [0.020]**	0.160 (0.088) [0.072]*
FRE	-2.47 [0.155) [0.000]***	-0.312 (0.648) [0.631]	-0.222 (0.107) [0.095]*	-0.452 (0.117) [0.012]**	-0.470 (0.091) [0.007]**	-0.158 (0.133) [0.239]
CEL	0.072 (0.194) [0.724]	-0.857 (1.251) [0.494]	-0.192 (0.096) [0.101]	1.235 (0.131) [0.000]***	-0.783 (0.125) [0.003]**	0.175 (0.377) [0.642]

Table 3 (continued)

FRA	4.02 (3.81) [0.34]	-3.108 (0.847) [0.000]***	-1.166 (0.118) [0.000]***	-1.362 (0.184) [0.001]***	0.736 (0.118) [0.003]**	0.091 (0.188) [0.628]
_cons	0.684 (0.225) [0.029]**	1.008 (0.937) [0.284]	-0.511 (0.274) [0.121]	0.156 (0.234) [0.534]	…[1]	-0.338 (0.395) [0.394]
Obs.	858	858	858	858	715	715
Countries	143	143	143	143	143	143
Prob>F	0.000	0.000	0.000	0.000	0.001	0.000
Within R-squared	0.517	0.138	0.144	0.168	0.212	0.031

Standard errors are in parenthesis and p-values are in brackets.

*p<0.10, **p<0.05, ***p<0.01

[1] Constant term omitted due to first differencing of the dependent variable.

Table 4

Fixed Effects Regression with Regressed Missing Values (RMV)

Indep. Var.	VOI	POL	GOV	REG	RUL	COR
DEM	…	…	…	…	…	…
INF	-0.133 (0.437) [0.773]	-4.171 (3.577) [0.246]	4.886 (0.586) [0.000]***	-0.157 (0.416) [0.721]	-1.137 (1.101) [0.360]	-1.066 (0.848) [0.211]
DIV	-0.014 (0.007) [0.121]	0.017 (0.032) [0.592]	0.047 (0.016) [0.034]**	0.077 (0.023) [0.021]**	-0.020 (0.005) [0.025]**	-0.048 (0.013) [0.000]***
ECO	0.030 (0.011) [0.051]*	0.105 (0.032) [0.002]**	0.028 (0.012) [0.072]*	0.080 (0.019) [0.009]***	0.027 (0.012) [0.091]*	-0.023 (0.017) [0.191]
OPE	-0.793 (0.259) [0.028]**	-3.560 (0.966) [0.000]***	0.347 (0.239) [0.207]	0.214 (0.127) [0.153]	-0.502 (0.136) [0.021]**	-0.719 (0.413) [0.084]*
EDU	0.357 (0.193) [0.124]	2.152 (1.290) [0.097]	1.825 (0.321) [0.002]**	1.248 (0.142) [0.000]***	0.453 (0.345) [0.259]	0.828 (0.624) [0.187]
POP	0.026 (0.015) [0.139]	0.258 (0.219) [0.241]	-0.039 (0.162) [0.820]	-0.221 (0.048) [0.006]***	0.134 (0.035) [0.018]**	0.162 (0.088) [0.069]*

Table 4 (continued)

FRE	-2.474 (0.156) [0.000]***	-0.321 (0.646) [0.620]	-0.222 (0.104) [0.087]*	-0.458 (0.110) [0.009]***	-0.469 (0.091) [0.007]**	-0.164 (0.133) [0.221]
CEL	0.064 (0.195) [0.755]	-0.849 1.241 [0.495]	-0.192 (0.100) [0.112]	1.212 (0.120) [0.000]***	-0.796 (0.122) [0.003]**	0.178 (0.373) [0.633]
FRA	4.184 (3.790) [0.320]	-3.082 (0.812) [0.000]***	-1.165 (0.117) [0.000]***	-1.339 (0.187) [0.001]***	0.749 (0.120) [0.003]**	0.088 (0.192) [0.644]
_cons	0.660 (0.218) [0.029]**	1.004 (0.928) [0.281]	-0.506 (0.269) [0.118]	0.122 (0.228) [0.615]	…[1]	-0.338 (0.398) [0.397]
Obs.	858	858	858	858	715	715
Countries	143	143	143	143	143	143
Prob>F	0.000	0.000	0.000	0.000	0.010	0.000
Within R-squared	0.514	0.142	0.143	0.173	0.211	0.031

Standard errors are in parenthesis and p-values are in brackets

*p<0.10, **p<0.05, ***p<0.01

[1] Constant term omitted due to first differencing of the dependent variable.

For both the AMV and RMV models, the reported F-statistics are significant in all regressions and the within R-squared values are nearly identical. There are 143 countries included in all models, with 858 observations for voice and accountability, political stability and absence of violence, government effectiveness, and regularity quality. Both rule of law and control of corruption include 715 observations each due to the first differencing of the dependent variables to account for their non-stationarity.

While there is a slight difference in the within R-squared results between the AMV and RMV models, when rounded to the nearest percent they are identical. The within R-squared results indicate that both models explain approximately 51% of the variation in voice and accountability, 14% of the variation in political stability and absence of violence, 14% of the variation in government effectiveness, 16% of the

variation in regularity quality, 21% of the variation in rule of law, and 3% of the variation in the control of corruption. The within R-squared results indicate that other factors should be identified and included in the model. The inherent (random) variation in the respective dependent variables could be large causing a lower R-squared.

Diagnostics on Cross-Sectional Regressions

A test of multicollinearity and the Breusch-Pagan test for heteroscedasticity indicate that neither multicollinearity nor heteroscedasticity is present in any of the models.

Table 5

Cross-Section OLS Regression of Voice and Accountability Dependent Variable

Indep. Var.	2010	2011	2012	2013	2014	2015
DEM	0.069 (0.008) [0.000]***	0.076 (0.008) [0.000]***	0.064 (0.079) [0.000]***	0.067 (0.007) [0.000]***	0.060 (0.007) [0.000]***	0.065 (0.007) [0.000]***
INF	1.189 (1.540) [0.441]	2.566 (1.607) [0.113]	-0.730 (1.548) [0.638]	-0.764 (1.450) [0.599]	-2.258 (1.443) [0.120]	-0.464 (1.430) [0.746]
DIV	0.078 (0.017) [0.000]***	0.076 (0.018) [0.000]***	0.082 (0.018) [0.000]***	0.081 (0.017) [0.000]***	0.080 (0.016) [0.000]***	0.071 (0.017) [0.000]***
ECO	0.013 (0.015) [0.405]	0.009 (0.013) [0.511]	0.024 (0.013) [0.072]*	0.020 (0.012) [0.011]**	0.010 (0.012) [0.417]	0.007 (0.014) [0.595]
OPE	-0.197 (0.354) [0.578]	0.031 (0.354) [0.930]	-0.198 (0.348) [0.569]	-0.189 (0.337) [0.576]	-0.091 (0.329) [0.782]	-0.119 (0.324) [0.713]
EDU	-0.112 (0.187) [0.550]	-0.190 (0.204) [0.353]	0.053 (0.204) [0.795]	-0.091 (0.200) [0.647]	0.184 (0.203) [0.364]	0.162 (0.200) [0.418]
POP	-0.025 (0.011) [0.019]**	-0.022 (0.011) [0.045]**	-0.024 (0.011) [0.031]**	-0.021 (0.010) [0.045]**	-0.021 (0.010) [0.036]**	-0.018 (0.010) [0.073]*

Table 5 (continued)

FRE	-2.247 (0.145) [0.000]***	-2.130 (0.152) [0.000]***	-2.252 (0.153) [0.000]***	-2.226 (0.144) [0.000]***	-2.464 (0.146) [0.000]***	-2.516 (0.148) [0.000]***
CEL	-1.121 (0.583) [0.057]*	-1.655 (0.620) [0.009]*	-0.692 (0.624) [0.269]	-0.815 (0.554) [0.144]	-0.383 (0.561) [0.496]	-0.728 (0.578) [0.210]
FRA	-0.712 (0.161) [0.000]***	-0.718 (0.183) [0.000]***	-0.809 (0.188) [0.000]***	-0.891 (0.178) [0.000]***	-0.658 (0.181) [0.000]***	-0.490 (0.175) [0.006]***
_cons	1.050 (0.188) [0.000]***	0.989 (0.205) [0.000]***	1.055 (0.214) [0.000]***	1.195 (0.210) [0.000]***	1.095 (0.217) [0.000]***	0.980 (0.213) [0.000]***
Obs.	143	143	143	143	143	143
Countries	143	143	143	143	143	143
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000
R-squared	0.967	0.963	0.962	0.965	0.966	0.967

Table 6

Cross-Section OLS Regression of Political Stability Dependent Variable

Indep. Var.	2010	2011	2012	2013	2014	2015
DEM	-0.019 (0.023) [0.417]	0.008 (0.022) [0.696]	-0.009 (0.022) [0.665]	0.012 (0.021) [0.554]	0.027 (0.023) [0.245]	0.020 (0.022) [0.369]
INF	-7.21 (4.509) [0.112]	-9.992 (4.365) [0.024]**	-12.17 (4.395) [0.006]***	-7.349 (4.176) [0.081]*	-5.017 (4.308) [0.246]	-5.335 (4.272) [0.214]
DIV	-0.114 (0.050) [0.025]**	-0.087 (0.050) [0.083]*	-0.042 (0.052) [0.418]	-0.096 (0.050) [0.059]*	-0.134 (0.048) [0.007]**	-0.101 (0.050) [0.048]**
ECO	-0.069 (0.044) [0.125]	-0.025 (0.037) [0.500]	-0.017 (0.038) [0.648]	-0.036 (0.037) [0.328]	-0.044 (0.038) [0.246]	-0.088 (0.043) [0.042]**

Table 6 (continued)

OPE	2.866 (1.035) [0.006]**	2.781 (0.963) [0.005]**	2.520 (0.987) [0.012]**	2.505 (0.972) [0.011]**	2.562 (0.982) [0.010]**	2.555 (0.968) [0.009]**
EDU	0.564 (0.548) [0.305]	0.449 (0.556) [0.421]	0.674 (0.580) [0.248]	0.146 (0.576) [0.800]	-0.045 (0.605) [0.940]	-0.590 (0.597) [0.325]
POP	-0.017 (0.031) [0.571]	-0.027 (0.030) [0.377]	-0.034 (0.031) [0.270]	-0.019 (0.030) [0.518]	-0.004 (0.030) [0.889]	-0.013 (0.030) [0.649]
FRE	-0.429 (0.425) [0.315]	-0.101 (0.413) [0.806]	-0.153 (0.435) [0.726]	0.111 (0.416) [0.790]	0.195 (0.437) [0.656]	0.277 (0.444) [0.534]
CEL	-0.646 (1.706) [0.705]	-1.366 (1.684) [0.419]	-1.149 (1.770) [0.517]	-0.278 (1.596) [0.862]	0.015 (1.676) [0.993]	-0.286 (1.727) [0.868]
FRA	-4.332 (0.470) [0.000]***	-4.435 (0.497) [0.000]***	-4.460 (0.534) [0.000]***	-4.422 (0.514) [0.000]***	-4.357 (0.542) [0.000]***	-4.772 (0.525) [0.000]***
_cons	3.254 (0.549) [0.000]***	3.127 (0.559) [0.000]***	3.126 (0.607) [0.000]***	3.049 (0.606) [0.000]***	2.997 (0.648) [0.000]***	3.660 (0.637) [0.000]***
Obs.	143	143	143	143	143	143
Countries	143	143	143	143	143	143
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000
R-squared	0.728	0.734	0.715	0.730	0.711	0.713

Table 7

Cross-Section OLS Regression of Government Effectiveness Dependent Variable

Indep. Var.	2010	2011	2012	2013	2014	2015
DEM	-0.019 (0.017) [0.270]	0.000 (0.016) [0.989]	-0.008 (0.015) [0.597]	0.002 (0.015) [0.861]	-0.026 (0.015) [0.091]*	-0.030 (0.014) [0.038]**

Table 7 (continued)

INF	12.662 (3.310) [0.000]*** *	14.338 (3.353) [0.000]*** *	9.401 (3.079) [0.003]**	10.259 (2.963) [0.001]**	8.988 (2.946) [0.003]**	9.617 (2.758) [0.001]**
DIV	0.115 (0.037) [0.002]**	0.102 (0.038) [0.009]**	0.150 (0.036) [0.000]*** *	0.143 (0.035) [0.000]*** *	0.168 (0.033) [0.000]*** *	0.180 (0.032) [0.000]*** *
ECO	0.063 (0.032) [0.055]*	0.060 (0.028) [0.037]**	0.079 (0.027) [0.004]**	0.073 (0.026) [0.006]**	0.065 (0.026) [0.013]**	0.083 (0.028) [0.003]**
OPE	1.215 (0.760) [0.112]	1.274 (0.740) [0.088]*	1.104 (0.691) [0.113]	0.848 (0.690) [0.221]	0.881 (0.672) [0.192]	0.590 (0.625) [0.347]
EDU	-0.328 (0.402) [0.416]	-0.470 (0.427) [0.273]	-0.374 (0.406) [0.358]	-0.488 (0.408) [0.234]	-0.121 (0.414) [0.770]	-0.418 (0.385) [0.280]
POP	0.020 (0.023) [0.374]	0.019 (0.023) [0.402]	-0.000 (0.022) [0.995]	0.001 (0.021) [0.956]	0.004 (0.020) [0.816]	0.018 (0.019) [0.340]
FRE	-0.871 (0.312) [0.006]**	-0.765 (0.317) [0.017]**	-0.870 (0.304) [0.005]**	-0.740 (0.295) [0.014]**	-0.816 (0.299) [0.007]**	-1.057 (0.286) [0.000]*** *
CEL	-0.084 (1.252) [0.947]	-1.165 (1.294) [0.370]	-0.818 (1.240) [0.510]	-1.025 (1.132) [0.368]	-0.913 (1.146) [0.427]	0.171 (1.115) [0.878]
FRA	-1.188 (0.345) [0.001]**	-1.076 (0.382) [0.006]**	-1.244 (0.374) [0.001]**	-1.253 (0.365) [0.001]**	-1.351 (0.370) [0.000]*** *	-1.168 (0.339) [0.001]**
_cons	0.687 (0.403) [0.091]	0.548 (0.429) [0.204]	0.701 (0.425) [0.102]	0.662 (0.430) [0.126]	0.702 (0.443) [0.116]	0.705 (0.411) [0.089]*
Obs.	143	143	143	143	143	143
Countries	143	143	143	143	143	143
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000
R-squared	0.860	0.851	0.865	0.868	0.874	0.882

Table 8

Cross-Section OLS Regression of Regularity Quality Dependent Variable

Indep. Var.	2010	2011	2012	2013	2014	2015
DEM	0.009 (0.018) [0.585]	0.028 (0.016) [0.090]*	0.024 (0.016) [0.145]	0.016 (0.016) [0.313]	-0.000 (0.019) [0.975]	-0.000 (0.017) [0.968]
INF	10.823 (3.456) [0.002]**	12.904 (3.359) [0.000]***	8.010 (3.283) [0.016]**	8.115 (3.191) [0.012]**	8.437 (3.540) [0.019]**	6.720 (3.345) [0.047]**
DIV	0.157 (0.038) [0.000]***	0.152 (0.038) [0.000]***	0.179 (0.039) [0.000]***	0.185 (0.038) [0.000]***	0.192 (0.040) [0.000]***	0.212 (0.039) [0.024]**
ECO	0.036 (0.034) [0.296]	0.049 (0.028) [0.089]*	0.066 (0.028) [0.022]**	0.062 (0.028) [0.031]**	0.052 (0.031) [0.099]*	0.077 (0.033) [0.024]**
OPE	1.005 (0.793) [0.207]	1.020 (0.742) [0.171]	1.183 (0.737) [0.111]	1.174 (0.7430 [0.116]	1.574 (0.807) [0.053]*	1.044 (0.758) [0.171]
EDU	-0.470 (0.420) [0.265]	-0.694 (0.428) [0.107]	-0.820 (0.433) [0.061]*	-0.789 (0.440) [0.075]*	-0.519 (0.497) [0.299]	-0.671 (0.467) [0.154]
POP	-0.026 (0.024) [0.265]	-0.025 (0.023) [0.281]	-0.037 (0.023) [0.112]	-0.038 (0.023) [0.100]	-0.037 (0.024) [0.140]	-0.039 (0.023) [0.098]*
FRE	-0.780 (0.326) [0.018]**	-0.603 (0.318) [0.060]*	-0.593 (0.325) [0.070]*	-0.732 (0.318) [0.100]	-0.896 (0.359) [0.014]**	-0.874 (0.347) [0.013]**
CEL	1.347 (1.307) [0.305]	0.559 (1.296) [0.667]	0.595 (1.322) [0.653]	-0.376 (1.220) [0.758]	-0.980 (1.377) [0.478]	0.429 (1.352) [0.751]
FRA	-0.871 (0.360) [0.017]**	-0.709 (0.383) [0.066]*	-1.104 (0.453) [0.302]	-1.108 (0.393) [0.006]**	-1.103 (0.445) [0.015]**	-1.120 (0.411) [0.007]**
_cons	0.285 (0.420) [0.499]	0.047 (0.430) [0.911]	0.470 (0.453) [0.302]	0.631 (0.463) [0.175]	0.637 (0.533) [0.234]	0.603 (0.499) [0.229]
Obs.	143	143	143	143	143	143

Table 8 (continued)

Countries	143	143	143	143	143	143
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000
R-squared	0.833	0.838	0.831	0.833	0.812	0.829

Table 9

Cross-Section OLS Regression of Rule of Law Dependent Variable

Indep. Var.	2010	2011	2012	2013	2014	2015
DEM	-0.029 (0.016) [0.082]*	-0.013 (0.015) [0.402]	-0.024 (0.015) [0.118]	-0.022 (0.016) [0.169]	-0.030 (0.017) [0.084]*	-0.032 (0.016) [0.058]*
INF	8.458 3.202 [0.009]**	8.361 (3.169) [0.009]**	4.029 (3.089) [0.194]	4.726 3.091 [0.129]	5.512 (3.237) [0.091]*	5.642 (3.182) [0.079]*
DIV	0.092 (0.035) [0.011]**	0.092 (0.036) [0.012]**	0.116 (0.036) [0.002]**	0.107 (0.037) [0.005]**	0.124 (0.036) [0.001]**	0.133 (0.037) [0.001]**
ECO	0.069 (0.031) [0.031]**	0.068 (0.027) [0.013]**	0.097 (0.027) [0.000]***	0.093 (0.027) [0.001]**	0.098 (0.028) [0.001]**	0.115 (0.032) [0.000]***
OPE	0.733 (0.735) [0.321]	0.849 (0.699) [0.227]	0.581 (0.693) [0.404]	0.470 (0.720) [0.515]	0.605 (0.738) [0.414]	0.172 (0.721) [0.812]
EDU	-0.521 (0.389) [0.183]	-0.690 (0.404) [0.090]*	-0.511 (0.407) [0.212]	-0.610 (0.426) [0.155]	-0.610 (0.455) [0.182]	-0.860 (0.4450 [0.055]*
POP	0.004 (0.022) [0.855]	-0.000 (0.022) [0.997]	-0.010 (0.022) [0.652]	-0.004 (0.022) [0.831]	-0.006 (0.022) [0.766]	-0.006 (0.022) [0.780]
FRE	-1.108 (0.302) [0.000]***	-1.012 (0.300) [0.001]**	-1.188 (0.305) [0.000]***	-1.182 (0.308) [0.000]***	-1.423 (0.329) [0.000]***	-1.499 (0.330) [0.000]***
CEL	-1.642 (1.211) [0.178]	-1.848 (1.223) [0.133]	-1.264 (1.243) [0.311]	-1.355 (1.182) [0.254]	-1.307 (1.260) [0.301]	-0.107 (1.286) [0.934]

Table 9 (continued)

FRA	-2.025 (0.333) [0.000]***	-2.036 (0.361) [0.000]***	-2.026 (0.375) [0.000]***	-1.964 (0.381) [0.000]***	-1.423 (0.329) [0.000]***	-1.604 (0.391) [0.000]***
_cons	1.874 (0.389) [0.000]***	1.819 (0.406) [0.000]***	1.873 (0.426) [0.000]***	1.887 (0.449) [0.000]***	1.834 (0.487) [0.000]***	1.816 (0.474) [0.000]***
Obs.	143	143	143	143	143	143
Countries	143	143	143	143	143	143
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000
R-squared	0.872	0.870	0.856	0.859	0.853	0.854

Table 10

Cross-Section OLS Regression of Control of Corruption Dependent Variable

Indep. Var.	2010	2011	2012	2013	2014	2015
DEM	-0.022 (0.019) [0.246]	-0.013 (0.018) [0.481]	-0.022 (0.019) [0.243]	-0.018 (0.019) [0.342]	-0.028 (0.021) [0.183]	-0.031 (0.019) [0.107]
INF	6.120 (3.703) [0.101]	5.568 (3.661) [0.131]	2.573 (3.826) [0.502]	4.170 (3.765) [0.270]	4.396 (4.024) [0.277]	5.319 (3.682) [0.151]
DIV	0.053 (0.041) [0.199]	0.060 (0.042) [0.152]	0.081 (0.045) [0.077]*	0.062 (0.045) [0.173]	0.052 (0.045) [0.255]	0.056 (0.043) [0.200]
ECO	0.136 (0.036) [0.000]***	0.120 (0.031) [0.000]***	0.152 (0.033) [0.000]***	0.144 (0.033) [0.000]***	0.135 (0.035) [0.000]***	0.162 (0.037) [0.000]***
OPE	1.015 (0.850) [0.235]	0.928 (0.808) [0.253]	0.544 (0.859) [0.528]	0.467 (0.876) [0.595]	0.545 (0.918) [0.553]	-0.083 (0.835) [0.920]
EDU	-0.500 (0.450) [0.269]	-0.631 (0.4660 [0.179]	-0.332 (0.505) [0.511]	-0.637 (0.519) [0.222]	-0.635 (0.566) [0.263]	-1.073 (0.514) [0.039]**

Table 10 (continued)

POP	-0.017 (0.025) [0.511]	-0.019 (0.025) [0.444]	-0.019 (0.027) [0.469]	-0.011 (0.027) [0.663]	-0.005 (0.028) [0.857]	0.000 (0.025) [0.977]
FRE	-1.001 (0.349) [0.005]***	-0.929 (0.347) [0.008]***	-1.047 (0.378) [0.007]***	-1.016 (0.376) [0.008]***	-1.296 (0.409) [0.002]***	-1.444 (0.382) [0.000]***
CEL	-3.147 (1.401) [0.026]**	-3.450 (1.412) [0.016]**	-2.507 (1.541) [0.106]	-2.092 (1.439) [0.148]	-1.016 (1.566) [0.517]	0.387 (1.488) [0.795]
FRA	-2.111 (0.385) [0.000]***	-2.219 (0.417) [0.000]***	-2.015 (0.465) [0.000]***	-1.962 (0.464) [0.000]***	-1.825 (0.506) [0.000]***	-1.779 (0.452) [0.000]***
_cons	2.039 (0.450) [0.000]***	2.132 (0.469) [0.000]***	1.878 (0.528) [0.001]**	1.946 (0.547) [0.001]**	1.957 (0.605) [0.002]**	2.119 (0.549) [0.000]***
Obs.	143	143	143	143	143	143
Countries	143	143	143	143	143	143
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000
R-squared	0.838	0.836	0.811	0.806	0.783	0.812

Table 11

Effect on Dependent Variable by Increasing Independent Variable One SD

Indep. Var.	VOI	POL	GOV	REG	RUL	COR
DEM	2.282***	0.130	-0.487**[1]	0.469*[2]	-1.283*[3]	-0.932
INF	-0.007	-0.128	0.290***	-0.009	-0.096	-0.074
DIV	-0.032	0.021	0.115**	0.188**	-0.070**	-0.138***
ECO	0.057*	0.110**	0.057*	0.162***	0.078*	-0.055
OPE	-0.059**	-0.145***	0.027	0.017	-0.057**	-0.067*
EDU	0.037	0.121	0.199**	0.136**	0.070	0.106
POP	0.007	0.036	-0.010	-0.059***	0.051**	0.051*
FRE	-0.694***	-0.049	-0.066*	-0.136***	-0.198**	-0.057
CEL	0.007	-0.052	-0.023	0.144***	-0.135**	0.025
FRA	0.039	-0.016***	-0.012***	-0.013***	0.011**	0.001

*p<0.10, **p<0.05, ***p<0.01

[1]Only significant in years 2014 and 2015 at a 0.01 and 0.05 p-value, respectively

[2]Only significant in 2011 at a 0.10 p-value

[3]Only significant in years 2010, 2014 and 2015 all at a 0.01 p-value

Hypotheses

The hypotheses are listed below for reference and analyses.

H_1: Quality of governance has a direct relationship with the level of democracy.

Based on the results in tables 5-10 above, level of democracy has a statistically significant relationship with four of the six indicators of government quality. Democracy's most significant relationship is with the voice and accountability WGI. In all years of the cross-sectional analysis, 2010 – 2015, democracy is significant at the 0.001 p-value, and as expected, the sign of the slope is positive. As noted in table 11, a one standard deviation increase in level of democracy results in an increase of 2.282 standard deviations in voice and accountability.

While not as significant, level of democracy also has a significant relationship with government effectiveness, regularity quality, and rule of law. For government effectiveness, level of democracy is significant at a 0.10 p-value in 2014 and at a 0.05 p-value in 2015. Democracy is expected to have a direct relationship with each of these WGIs. While the sign of the slope is positive regarding regularity quality, it is negative on government effectiveness and rule of law. As noted in table 11, a one standard deviation increase in level of democracy results in a decrease of 0.487 standard deviations in government effectiveness. The regressions for years 2010 – 2013 are not significant. For regularity quality, level of democracy is significant at the 0.10 p-value for just one year, 2011. No other years during the period of analysis are significant. As

noted in table 11, a one standard deviation increase in level of democracy results in an increase of 0.469 standard deviations of regularity quality. Finally, for rule of law, level of democracy is significant at the 0.10 p-value for the years 2010, 2014 and 2015 and not significant in years 2011 – 2013. As noted in table 11, a one standard deviation increase in level of democracy results in a decrease of 1.283 standard deviations in rule of law.

H_2: Quality of governance has a direct relationship with the information available to the public.

As shown in tables 3 and 4, information available to the public has a statistically significant relationship with just one WGI, government effectiveness. In both AMV and RMV models, information available to the public is significant with government effectiveness at a 0.001 p-value. The expected slope of information to the public is positive and the results do show a direct relationship with government effectiveness. As indicated in table 11, a one standard deviation increase in information available to the public results in an increase of 0.290 standard deviations of government effectiveness. Information available to the public does not appear to have a significant relationship with any of the other WGI variables.

H_3: Quality of governance has a direct relationship with the diversification of the economy.

As shown in tables 3 and 4, diversification of the economy has a statistically significant relationship with five of the six WGIs. Political stability and absence of violence is the only WGI that is not significant with diversification of the economy. Political stability and violence is statistically significant with voice and accountability

(only in the AMV model), government effectiveness, regularity quality, rule of law and control of corruption at 0.10, 0.05, 0.05 0.05 and 0.01 p-values, respectively. Diversification of the economy is expected to have a positive slope with all WGIs, and it does indeed have a direct relationship with government effectiveness and regularity quality, yet it appears to have a negative effect on rule of law and control of corruption. As indicated in table 11, a one standard deviation increase in diversification of the economy results in a decrease of 0.032 standard deviations of voice and accountability, an increase 0.115 standard deviations of government effectiveness, an increase of 0.188 standard deviations of regularity quality, a decrease of 0.070 standard deviations of rule of law, and a decrease of 0.138 standard deviations of control of corruption.

Control Variables

In addition to the three test variables, this study also examines the relationship between the six WGIs and seven control variables: economic development, economic openness, education, population, freedom of the press, cellphone penetration, and state fragility. The results for these control variables are shown in tables 3 and 4.

Economic development is statistically significant with four of the six WGIs in the AMV model and five of the six WGIs in the RMV model. For the AVM model, economic development is significant with voice and accountability, political stability and the absence of violence, government effectiveness, and regularity quality at 0.05, 0.01, 0.10, and 0.05 p-values, respectively. For the RMV model, economic development is significant with voice and accountability, political stability and the absence of violence, government effectiveness, regularity quality, and rule of law at 0.01, 0.05, 0.10, 0.05, and

0.10 p-values, respectively. Economic development has the expected direct relationship with all five WGIs. As indicated in table 11, a one standard deviation increase in economic development results in an increase of 0.057 standard deviations in voice and accountability, an increase 0.110 standard deviations of political stability and absence of violence, an increase of 0.057 standard deviations of government effectiveness, an increase of 0.162 standard deviations of regularity quality, and an increase of 0.078 standard deviations of rule of law.

Economic openness is statistically significant in both the AMV and RMV models with voice and accountability, political stability and the absence of violence, rule of law, and control of corruption at 0.05, 0.01, 0.05, and 0.10 p-values respectively. Economic openness is expected to have a direct relationship with all variables, yet the regressions indicate an inverse relationship. As indicated in table 11, a one standard deviation increase in economic openness results in a decrease of 0.059 standard deviations in voice and accountability, a decrease of 0.145 standard deviations of political stability and absence of violence, a decrease of 0.057 standard deviations of rule of law, and a decrease of 0.067 standard deviations of control of corruption.

Education is statistically significant in the AMV model with political stability and absence of violence at a 0.10 p-value, and with government effectiveness and regularity quality in both the AMV and RMV models at a 0.05 and 0.01 p-value respectively. Education is expected to have a direct relationship with all variables and does indeed with all three WGIs. As indicated in table 11, a one standard deviation increase in education results in an increase of 0.121 standard deviations in political stability and absence of

violence, an increase of 0.199 standard deviations in government effectiveness, and an increase of 0.136 standard deviations of regularity quality.

Population is statistically significant in both the AMV and RMV models with regularity quality, rule of law, and control of corruption at the 0.01, 0.05, and 0.10 p-values respectively. The slope of this variable is expected to be positive, and is positive with rule of law and control of corruption, but is negative on regularity quality. As indicated in table 11, a one standard deviation increase in population results in a decrease of 0.059 standard deviations in regularity quality, an increase of 0.051 standard deviations in rule of law, and an increase of 0.051 standard deviations in control of corruption.

Freedom of the press is statistically significant in both the AMV and RMV models with voice and accountability, government effectiveness, regularity quality, and rule of law at 0.01, 0.10, 0.01 (0.05 for the AVM model), and 0.05 p-values respectively. As lower values of the FRE variable indicate increased freedom of the press, the slope of this variable is expected to be negative and is indeed negative in all models. Table 11 shows that a one standard deviation decrease in freedom of the press results in an increase of 0.694 standard deviations in voice and accountability, 0.066 standard deviations of government effectiveness, 0.136 standard deviations of regularity quality, and 0.198 standard deviations of rule of law.

Cellphone penetration is statistically significant in both the AMV and RMV models with just two WGIs, regularity quality and rule of law, at 0.01 and 0.05 p-values respectively. As expected, the slope on regularity quality is positive, but is negative on

rule of law, which was not expected. Shown in table 11, an increase of one standard deviation in cellphone penetration results in an increase of 0.144 standard deviations in regularity quality and a decrease of 0.135 standard deviations in rule of law.

Finally, state fragility is statistically significant in both the AMV and RMV models with four of the six WGIs: political stability and the absence of violence, government effectiveness, regularity quality, and rule of law, each at the 0.01 p-value except rule of law which is significant at 0.05. As expected, the slope is negative with political stability and the absence of violence, government effectiveness, regularity quality. A one standard deviation increase in state fragility results in a decrease in 0.016 standard deviations in political stability and the absence of violence, a decrease in 0.012 standard deviations in government effectiveness, and a decrease of 0.013 standard deviations in regularity quality. However, the relationship with rule of law is the opposite of expected. A one standard deviation increase in state fragility results in an increase of 0.011 standard deviations in rule of law.

CHAPTER V – CONCLUSIONS

This research examines why some countries exhibit better governance than others and identifies which variables play the greatest role in determining governance quality. While there appears to be a consensus in the literature that level of economic development plays a significant role in determining governance quality (La Porta *et al.* 1999, Islam and Montenegro 2002, Adserà *et al.* 2003, Al-Marhubi 2004, Lee and Whitford 2009, Garcia-Sanchez *et al.* 2013, Adkisson and McFerrin 2014, Rontos *et al.* 2015), the role of other variables has not clearly been identified. This research contributes to the discussion by examining the theory that quality of governance is largely dependent upon political accountability, defined as the public's ability to hold government officials accountable (Adserà *et al.* 2003), and that the effect of political accountability on governance varies based on three main determinants: level of democracy, level of information available to the public, and diversification of the economy (Adserà *et al.* 2003). As political accountability increases, governance quality should improve (Barro 1973, Ferejohn 1986, Adserà *et al.* 2003). With quality of governance as the dependent variable, this study considers how these three independent variables, plus seven control variables, affect governance quality.

The results of this study demonstrate that level of democracy, level of information available to the public, and diversification of the economy do indeed affect governance quality; however, it depends upon which aspects of governance are being considered. For the purposes of this research, governance is defined as the capacity of a government to design, formulate, and implement policies (World Bank 1994, 14), and is represented by the World Bank's (2015) six Worldwide Governance Indicators (WGI): voice and

accountability, political stability and absence of violence, government effectiveness, regularity quality, rule of law, and control of corruption.

While level of democracy has a significant and direct relationship with a country's voice and accountability and regularity quality, it doesn't appear to have a significant relationship with political stability and absence of violence, or control of corruption. Opposite of what is expected, level of democracy appears to have a significant and inverse relationship with government effectiveness and rule of law. The only significant relationship that level of information available to the public has with any of the WGIs, is with government effectiveness. Finally, diversification of the economy shows a significant and direct relationship with government effectiveness and regularity quality, but not with voice and accountability or political stability and absence of violence. Surprisingly, diversification of the economy appears to have a significant and inverse relationship with rule of law and control of corruption.

Research Questions and Hypotheses

Research Question #1

How does level of democracy affect quality of governance?

H_1: Quality of governance has a direct relationship with the level of democracy.

Due to the difficulties of overthrowing an authoritarian regime compared to ousting incumbents through elections, rent-seeking behavior is expected to be higher in dictatorships than in democracies (Adserà *et al.* 2003). As the level of democracy increases, rent-seeking should decrease, government official accountability should increase, and in result, quality of governance is expected to increase (Adserà *et al.* 2003).

The results of this study indicate that level of democracy does appear to have a significant and direct relationship with voice and accountability and regularity quality. This outcome is in line with the theoretical expectations of this study. Higher levels of democracy should result in greater accountability of government officials, less rent-seeking activity, and improved governance. Unexpectedly, democracy doesn't appear to have a significant relationship with political stability and absence of violence, or control of corruption, and has an inverse relationship with government effectiveness and rule of law.

Research Question #2

How does the degree of information available to the public affect quality of governance?

H_2: Quality of governance has a direct relationship with the information available to the public.

As the level of information available to the public increases, opportunities for rent-seeking behavior, or "the act of obtaining special treatment by the government at the expense of society as a whole," (Sawyer and Sprinkle 2006, 180) should decrease (Adserà *et al.* 2003), and quality of governance should increase.

The results of this study show that the level of information available to the public does appear to play a role in governance quality, but in just one regard, government effectiveness. As information available to the public increases, in the form of internet access, the effectiveness of government is shown to improve. While information available to the public was anticipated to affect a broader segment of the WGIs, it could also be argued that the government effectiveness indicator, which represents a country's public services, civil services, and policy formation and implementation, is the WGI

which most accurately matches this study's definition of governance quality, and is, therefore, the dependent variable which is most relevant to the model.

Research Question #3

How does diversification of the economy affect quality of governance?

H_3: Quality of governance has a direct relationship with the diversification of the economy.

As anticipated by the "rentier effect," quality of governance should improve as economies become more diversified (Isham *et al.* 2005). When countries have few major export items, usually primary products like oil or coal, the government can control and extract revenue from these exports easily. Consequently, a number of outcomes can occur (Isham *et al.* 2005). With the additional revenue obtained from the small export base, the government has less need to tax citizens and therefore less need to develop the institutions of government to do so (Isham *et al.* 2005). In result, with less taxation, citizens are less concerned about government oversite and accountability (Isham *et al.* 2005). Additionally, with the revenue obtained from the few exports, government officials have more income to pay off critics and to put down opposition, and to provide extra benefits to keep citizens content (Isham *et al.* 2005). Therefore, when countries have a lower diversity of exports, they should also have less government accountability and oversite than countries with a greater diversity of exports.

The results of this study show that diversification of the economy has a significant and direct relationship with two aspects of governance quality: government effectiveness and regularity quality. An increasingly diversified export base is associated with improved government effectiveness and regularity quality. This outcome supports the

theoretical expectations of the study. However, diversification of the economy does not appear to have a statistical relationship with voice and accountability or political stability and absence of violence. Furthermore, unexpectedly, diversification of the economy appears to have a significant and inverse relationship with rule of law and control of corruption. This indicates that as countries diversify their exports, they may have a more difficult time maintaining rule of law and control of corruption.

Control Variables

Level of economic development is included in this study because as incomes increase, citizens should become less focused on day-to-day survival and should increasingly be able to participate in collective action to place pressure on the State to improve governance (Welzel and Inglehart 2008, Charron and Lapuente 2009). As many other studies have found (La Porta *et al.* 1999, Al-Marhubi 2004, Lee and Whitford 2009, Garcia-Sanchez *et al.* 2013, Adkisson and McFerrin 2014, Rontos *et al.* 2015), the results of this study also appear to show that there is indeed a relationship between the level of a country's economic development and its quality of governance. Level of economic development displays a significant and direct relationship with five of the six WGIs. Control of corruption is the only WGI that is not significantly related to economic development. However, as some have pointed out (La Porta *et al.* 1999, Al-Marhubi 2004, Lee and Whitford 2009), there may be a mutually-dependent relationship between these two variables, so caution should be used in interpreting these results. While economic development may increase quality of governance, quality of governance may also increase level of economic development.

While economic development does appear to promote quality of governance, there is also a possibility that as incomes increase, citizens may become less interested in upsetting the status quo because they are satisfied with their higher incomes, assuming conditions in the country remain stable. Therefore, citizens might be less interested in governance reform as incomes increase. To investigate this possibility, a measurement of state fragility is included. The results of this study show that state fragility has a significant and inverse relationship with three of the six WGIs. As state fragility increases, quality of governance declines in terms of political stability and absence of violence, government effectiveness, and regularity quality. This is not surprising because state fragility speaks directly to the strength and capacity of the state. As state fragility increases, it stands to reason that governance quality should decline. On the other hand, the results also indicate that rule of law may increase as state fragility declines. The mechanism for this is unclear, but perhaps as state institutions decline, there is a greater focus on rule of law in anticipation of increased crime and violence. State fragility does not appear to have a significant relationship with control of corruption.

Openness to international trade is included in this study because high-quality domestic institutions may evolve more quickly in open economies (Islam and Montenegro 2002, Al-Marhubi 2004). This is the case because economic agents have an incentive to improve their government institutions to manage risk and to help compete more effectively with foreign agents (Islam and Montenegro 2002). The exchange of information and learning opportunities between agents in open economies should help to bring about better institutions as well (Islam and Montenegro 2002). The results of this study show that while economic openness does have a significant relationship with four

of the six WGIs, surprisingly, the relationship appears to be inverse. This means that as a country opens its economy, its quality of governance may actually decline in terms of voice and accountability, political stability and absence of violence, rule of law, and control of corruption. This is opposite of the theoretical expectations and with some other studies which find that economic openness is associated with improved governance (Brunetti and Weder 1999, Al-Marhubi 2005). Economic openness does not appear to have a significant relationship with government effectiveness or regularity quality.

Level of education is included in this study as more educated populations usually demand a higher level of accountability from government officials, which should result in improved governance (Tolbert *et al.* 2008). The results of this study show that education only seems to affect government effectiveness and regularity quality. Both are significant and the slopes are positive. As educational attainment increases in a country, government effectiveness and regularity quality improves, which is in line with theoretical expectations. Education does not appear to have a direct relationship with voice and accountability, political stability and absence of violence, rule of law, or control of corruption.

Total population is included in this study to represent government resources and public services. Larger countries generally have larger public-sector budgets, better-trained staff, and more refined bureaucracies (Garcia-Sanchez *et al.* 2013). The results of this study show that population has a significant, yet inverse relationship with regularity quality, and a significant and direct relationship with rule of law and control of corruption. There does not appear to be a significant relationship with voice and accountability, political stability and absence of violence, or government effectiveness.

As populations increase, rule of law and control of corruption also improve, but regularity quality declines. In terms of population, larger countries do not necessarily have improved voice and accountability, political stability and absence of violence, or government effectiveness.

A measurement representing freedom of the press is included in this study as a free press should help to promote the exchange of information in society and provide the public with the information it needs to help hold government officials accountable (Djankov *et al.* 2001). While it is expected that a freer press should equate with improved governance quality, since higher scores for this variable indicate lower levels of freedom, and lower scores indicate higher levels of freedom, the statistical relationship between the free press variable and the government effectiveness variable should be inverse. The results of this study support this expectation. Freedom of the press is significantly associated with voice and accountability, government effectiveness, regularity quality, and rule of law. As freedom of the press increases, voice and accountability, government effectiveness, regularity quality, and rule of law all improve. Freedom of the press does not have a significant relationship with political stability and absence of violence or control of corruption.

A measurement of cell phone penetration rate is included in this study as the governments of many countries may restrict access to the internet, and cell phone communications applications are increasingly offering citizens another way to share and access information with less governmental oversite (Freedom House 2016b). The results of this study show that cell phone penetration rate has a significant and direct relationship with regularity quality and rule of law, but is not significantly related to any of the other

governance indicators. As the number of cell phones increase in a country, regularity quality and rule of law also increase. However, there is no evidence that prevalence of cell phones has any relationship with voice and accountability, political stability and absence of violence, government effectiveness, or control of corruption.

Contributions of Research

This study contributes to the research on the factors that affect governance quality. The results of this study show that level of democracy, degree of information available to the public, and diversification of the economy all affect at least some aspects of governance quality. Furthermore, this research also demonstrates that level of economic development, openness to trade, level of education, size of population, freedom of the press, cell phone penetration rate, and state fragility all play a role in determining quality of governance, depending on which aspect of governance is being assessed.

Voice and accountability has a direct relationship with level of democracy, level of economic development, and freedom of the press, and an inverse relationship with openness to trade. Political stability and absence of violence has a direct relationship with level of economic development, and an inverse relationship with openness to trade and state fragility. Governance effectiveness has a direct relationship with information available to the public, diversification of the economy, level of economic development, level of education, freedom of the press, and an inverse relationship with democracy and state fragility. Regularity quality has a direct relationship with democracy, diversification of the economy, level of economic development, level of education, freedom of the press, cell phone penetration rate, and an inverse relationship with population and state fragility. Rule of law has a direct relationship with population and

state fragility, and an inverse relationship with diversification of the economy, level of economic development, openness to trade, freedom of the press, and cell phone penetration rate. Finally, control of corruption has a direct relationship with population, and an inverse relationship with diversification of the economy and openness to trade.

Limitations of Research

There are three main limitations to this study: limited data availability, methodology adjustments for the democracy independent variable, and imperfect proxies. For the first limitation, while data on the governance quality dependent variables is available for over 200 countries for a period of 20 years, due to restrictions on data availability for the independent variables, the analysis in this study is restricted to 143 countries for a six-year time frame. In addition, some independent variables had a significant number of values missing. To account for this, two different techniques, averaged missing values (AMV) and regressed missing values (RMV), are incorporated into the study. Second, measurements of the democracy variable are static for most countries during the period of analysis. As fixed effects regression analysis is ineffective with time-invariant variables, individual cross-sectional regressions are completed for each year of the period of analysis, rather than including the democracy variable in the fixed effects regressions. Finally, while all attempts are made to use proxies which best represent the factors being assessed in this study, it could be argued that these proxies are imperfect representations of the variables of interest.

Implications for Future Research

This study raises three main issues that future research should attempt to address. First, while the results of this study are informative, they also show that the variables

included predict only a small amount of the variation of the governance quality indicators. This means that there are other factors which must affect governance quality that are not included in the model. Future research should strive to identify these factors. Second, as new information becomes available, future research should attempt to use proxies which more accurately represent the variables under analysis. Finally, as information gathering techniques improve, future research should strive to include a greater number of countries over a longer period of time to enhance the statistical validity of the research.

Policy Implications

The results of this study have a number of implications in terms of governance policy. While correlation doesn't necessarily imply causation, this study shows that all six dimensions of governance quality analyzed may be influenced by at least some aspects under the control of policymakers. To improve citizen's voice in government and to improve government accountability, this study indicates that it may be helpful to increase levels of democracy, increase level of economic development, and to expand freedom of the press. All these indicators are shown to have a significant and direct relationship with voice and accountability. However, it should also be noted that greater economic openness may result in reduced voice and accountability.

To improve political stability and help reduce violence in society, this study shows that increasing economic development may be helpful. Both indicators have a significant and direct relationship with political stability and absence of violence. However, policymakers should also be aware that political stability may decline and violence may worsen as economic openness and state fragility increase.

To enhance government effectiveness, this study shows that increasing information available to the public, increasing diversification of the economy, increasing level of economic development, increasing level of education, and expanding freedom of the press may be helpful. Although, it is important to note that government effectiveness may also be reduced through increased democracy and increased state fragility.

To increase regularity quality, this study indicates that increased democracy, increased diversification of the economy, increased economic development, increased educational attainment, increased freedom of the press, and increased cell phone penetration may be helpful. On the other hand, increased population and increased state fragility may also reduce regularity quality.

Rule of law may be improved through increased economic development, increased population, increased freedom of the press, and increased cell phone penetration. This study shows that these variables all have a significant and direct relationship with rule of law. However, policymakers should also note that rule of law may decline with increased democracy, increased diversification of the economy, increased economic openness, and increased state fragility.

Finally, control of corruption is shown to be difficult to address through the mechanisms studied. While diversification of the economy and increased economic openness may help to improve corruption, control of corruption may also decline as populations increase. The other variables in the study do not appear to play a significant role in control of corruption.

APPENDIX A – Country Data Set

Following is the list of 143 countries appearing in this data set.

Afghanistan	Bulgaria	Czech Republic
Albania	Burkina Faso	Denmark
Algeria	Burundi	Dominican Repubic
Angola	Cambodia	Ecuador
Argentina	Cameroon	Egypt, Arab Rep.
Armenia	Canada	El Salvador
Australia	Cape Verde	Estonia
Austria	Central African	Ethiopia
Azerbaijan	Republic	Fiji
Bahrain	Chile	Finland
Bangladesh	China	France
Belarus	Colombia	Gabon
Belgium	Comoros	Gambia, The
Benin	Congo, Rep.	Georgia
Bhutan	Costa Rica	Germany
Bolivia	Côte d'Ivoire	Ghana
Botswana	Croatia	Greece
Brazil	Cyprus	Guatemala

Guinea	Lesotho	New Zealand
Guyana	Libya	Nicaragua
Honduras	Lithuania	Niger
Hungary	Luxembourg	Nigeria
India	Madagascar	Norway
Indonesia	Malawi	Oman
Ireland	Malaysia	Pakistan
Israel	Mali	Panama
Italy	Mauritania	Paraguay
Jamaica	Mauritius	Peru
Japan	Mexico	Philippines
Jordan	Moldova	Poland
Kazakhstan	Mongolia	Portugal
Kenya	Montenegro	Qatar
Korea, Rep.	Morocco	Romania
Kuwait	Mozambique	Russian Federation
Kyrgyz Republic	Myanmar	Rwanda
Lao PDR	Namibia	Saudi Arabia
Latvia	Nepal	Senegal
Lebanon	Netherlands	Serbia

Sierra Leone	Sweden	Ukraine
Singapore	Switzerland	United Arab Emirates
Slovak Republic	Tanzania	United Kingdom
Slovenia	Thailand	United States
Solomon Islands	Timor-Leste	Uruguay
South Africa	Togo	Venezuela, RB
Spain	Trinidad and Tobago	Vietnam
Sri Lanka	Tunisia	Yemen, Rep.
Sudan	Turkey	Zambia
Suriname	Uganda	Zimbabwe

APPENDIX B - Countries Not Used in Data Set

Following is the list of 46 countries not used in this study.

American Samoa	Gabon	Nauru
Andorra	Grenada	Netherlands Antilles
Anguilla	Greenland	(former)
Aruba	French Guiana	Niue
Antigua and Barbuda	Guam	Palau
Bermuda	Equatorial Guinea	Papua New Guinea
Bahamas, The	Guinea-Bissau	Réunion
Barbados	Haiti	San Marino
Brunei Darussalam	Jersey, Channel Islands	São Tomé and Principe
Cayman Islands	Liechtenstein	Syrian Arab Republic
Chad	Kosovo	Taiwan, China
Congo, Dem. Rep.	Macedonia, FYR	South Sudan
Cook Islands	Marshall Islands	Tuvalu
Djibouti	Martinique	West Bank and Gaza
Dominica	Micronesia, Fed. Sts.	Virgin Islands (U.S.)
Eritrea	Monaco	

APPENDIX C – Dissertation Data Sources and Descriptions

Table A1.

Variable Name, Type, Description, and Source

Name	Type	Description	Source
Worldwide Governance Indicators (WGI)			
VOI	DV	Voice and accountability. Perceptions regarding freedom of expression, freedom of association, freedom of the media, and the ability of citizens to choose their own government.	World Bank (2015)
POL	DV	Political stability and absence of violence. Perceptions of political instability, including politically-motivated violence and terrorism.	World Bank (2015)
GOV	DV	Government effectiveness. Perceptions of quality in areas such as public services, civil services, policy formation and implementation, and the credibility of the government's commitment to these policies.	World Bank (2015)
REG	DV	Regularity quality. Perceptions of the presence of market-friendly government policies and regulations.	World Bank (2015)
RUL	DV	Rule of law. Perceptions around how well the rules of society are obeyed, including the enforcement of contracts, confidence in the courts and police, and expectations of crime and violence.	World Bank (2015)
COR	DV	Control of corruption. Perceptions regarding the degree to which public power is used to advance private interests through both petty and grand forms of corruption and state capture	World Bank (2015)
DEM	IV	Level of democracy is represented by data from the Polity IV Project which assesses institutionalized democracy in each country.	Marshall *et al.* (2016)
INF	IV	Level of information available to the public is represented by data on the percentage of individuals using the internet.	International Telecommunications Union (2016b)
DIV	IV	Diversification of the economy is represented by the number of unique harmonized system (HS) product codes exported by country.	World Bank (2017).

ECO	IV	Level of economic development is represented by GDP per capita.	World Bank (2016b)
OPE	IV	Economic openness is represented by percent of GDP attributed to trade.	World Bank (2016d)
EDU	IV	Level of education is represented by a combination of the mean years of schooling and expected years of schooling by country.	United Nations Human Development Programme (2016)
POP	IV	Total population by country.	World Bank (2016c)
FRE	IV	Freedom of the press which represents the degree of freedom in each country in terms of print, broadcast and digital media.	Freedom House (2016)
CEL	IV	Cell phone penetration which reports the number of cell phone subscriptions per capita.	International Telecommunications Union (2016a)
FRA	IV	State fragility is represented by the Fragile States Index which assesses state failure risk along 12 different indicators, such as corruption and criminal behavior, inability to collect taxes, and severe demographic pressures.	Fund for Peace (2017)

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