GOVERNANCE, OPENNESS, AND ECONOMIC PERFORMANCE: AN EMPIRICAL STUDY OF ASIA AND SUB-SAHARAN AFRICA

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ABSTRACT

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The relationship between governance, openness, and economic performance of a country has been a topic of significant interest, not only among scholars but also policymakers in all countries around the world. The objectives of this study were: first, to examine the relationship between governance, openness, and economic performance in the context of developing countries; second, to examine how each factor makes a difference in the way in which countries develop; and third, to examine the differences in the relationships among governance, openness, and economic performance in Asia and Sub-Saharan Africa (SSA).

This study utilized a quantitative method, using cross-national data from selected developing countries over the period from 1996-2012. The countries investigated in this study were selected from developing countries in Asia and SSA. The quantitative analysis included descriptive statistics, correlation analysis, and multiple regression analysis. These methods were used to examine the causal relations between the variables proposed in the conceptual framework.

The results from the case of developing countries conclude that government effectiveness, control of corruption, and trade openness can achieve economic growth. In additional, rule of law can reduce income inequality. In the case of Asia, voice and accountability and both of financial openness and trade openness can increase economic growth. Regulatory quality can reduce national poverty rates. In the case of SSA show that voice and accountability, government effectiveness, and trade openness can achieve economic growth. Political stability can reduce national poverty rates and increase income equality. This study, therefore, explored the policy implications of the findings.

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ABBREVIATIONS

Abbreviations	Equivalence
GDP	Gross National Product
GIP	Governance Indicators Project
GNP	Gross National Product
OECD	Organisation for Economic Co-operation and Development
SSA	Sub-Saharan Africa
TFP	Total Factor Productivity
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
VIF	Variance Inflation Factor
WGI	Worldwide Governance Indicators

CHAPTER 1

INTRODUCTION

1.1 Statement of the Problem

According to the new institutional theory, special emphasis has been attached to the importance of political institutions. This has been shown by North (1993: 11-23) "this approach models political institutions "as critical factors in the performance of economies" and "as the source of the diverse performance of economies". With regard to this theory, an increasing number of researches have tried to focus on political institutions, while numerous numbers of studies have focused on governance. In addition to these studies, Kofi Annan, the former U.N. Secretary-General, maintained that "good governance is perhaps the single most important factor in eradicating poverty and promoting development".

The word "governance" is important for economic development, as Kaufmann; Kraay and Zoido-Lobaton (2000) defined it as the traditions and institutions that determine how authority is exercised in a country. Many neo-institutional scholars, such as Douglass North and Mancur Olson, and several cross-national empirical studies, have revealed a positive relationship between the quality of institutions and governance structures and economic growth. In relation to this context, Kaufmann, Kraay and Zoido-Lobaton (2000) have claimed that a broad consensus among growth economists, development experts, and international policy-makers view "good governance" as a pre-requisite to sustained increases in living standards. Although the above-mentioned literature has attempted to uncover the political, institutional, and social determinants of economic growth, the governance-matters approach to development is still problematic. Cross-national studies have pointed out that good governance is a major determinant of economic performance, which can be challenged on the grounds of causality problems (Chong and Calderon, 2000), measurement errors (Glaeser, Porta, Lopez-de-Silane and Shleifer, 2004),

missing-variable considerations (Bardhan, 2005), and conceptual vagueness (Weiss, 2000). Moreover, the new political economic growth is still deficient for the proper understanding of the channels through which institutions affect growth (Helpman, 2004) and of the political sources of good institutions. As stated by the Director of Global Governance and Regional Capacity of the World Bank Institute (WBI), "one of the most difficult issues in the field of governance is the imperfect understanding of how politics shapes governance and development outcomes" (Kaufmann, 2003a). As a result of the remaining problems, it is reasonable to revisit the merits of the proposition that institutions significantly matter for growth. By implication, if developing countries want to promote economic development, their policy prescription should be invested in governance-enhancing reforms. Though institutional factors have been ignored by many researchers in the study of the relationship between governance and economic performance, a few studies have been conducted in this area. Therefore, this study aims to explore the expanding relationship literature on governance and economic performance.

Most empirical studies of the relationship between governance and economic performance were conducted in developed countries (Kaldaru and Parts, 2008; Seputiene, 2009). In these developed countries, the institutions tend to be stable and uniform, while the institutions in developing countries tend to be in a state of flux and across time and space. This issue in the developing countries has given rise to a rich laboratory for learning about the effect of institutional arrangements on economic growth (Lin and Nugent, 1995; Shirley, 2008; Rodrik and Rosenzweig, 2010). Accordingly, this study investigates the relationship between governance and economic performance in developing countries.

One problem is that the relationship between trade and productivity has not been established theoretically, even if some researchers have discovered some evidence that increasing openness has positively impacted productivity. The other problem is that, as Recardian theory has illustrated, it is mainly through the reallocation of resources from less efficient to more efficient plants that manufacturing exporters within the same industry tend to grow faster than non-exporters (Bernard and Jensen, 1999). Lawrence (2000) has also established that trading with developing countries has increased total factor productivity (TFP) growth

in manufacturing industries. United Nations Conference on Trade and Development (2001) has supported this, indicating that the developing countries show a relatively large share of imports. Many economic-related studies have evaluated the effects of international trade on the economic growth of some African countries. Puente and Calvo. (2009) indicated that the use of cross-country data, multiple regression, and other kinds of analysis have utilized the fixed effect model to measure the impact of trade openness on productivity. Miller and Upadhyay (2000) estimated parsimonious production functions and determined the levels of total factor productivity with and without the stock of human capital as an input. This resulted in weak market institutions (Yu and Nin-Pratt, 2011). GDP growth rates in Africa have indicated little or no improvement, but countries which have adopted trade liberalization and export-led growth strategies have shown some improvement (Ahmed, Cheng and Messinis 2008)

In addition, studies have revealed that there is a positive relationship between greater openness and economic performance (Michalopoulcs and Jay, 1972; Tyler, 1981; Feder, 1983; Kavoussi, 1984 and Ram, 1985). The early cross-country work relied on changes in export growth or in export shares as a proxy for changes in openness. Most of these studies employed the aggregate production function framework in order to analyze whether there were differences in export performance that could explain cross-country differences in economic growth after controlling for growth in capital stock and labor. Furthermore, these studies certified the positive openness-performance relationship in the developing countries.

In terms of existing theories, Cooper (2001) concluded that there were no systematically links between trade and sustained growth. That is to say, the impact of new trade on growth may be positively strong in some countries. On the other hand, it is insignificant or even negative in others. Regarding this, growth can be lowered by increased foreign competition or it can also be increased by import protection. As a result, in the endogenous growth literature, the direction of the openness-growth relationship has not been theoretically stated and is an open question for empirical investigation. Thus, this study aims to re-examine the empirical relationship between openness and economic performance using data from selected developing countries.

1.2 Significance of the Research

Previously, many studies were conducted based on the factors affecting economic performance. These studies tended to focus on socio-economic factors such as savings, investment, human capital, and technological progress, which have an effect on economic performance directly. With regard to this, an increasing number of studies have attempted to emphasize institutional factors, political institutions in particular. However, this study will focus on governance, which is the single most important factor in eradicating poverty and promoting development, while a large number of studies have focused only on democracy. Furthermore, the experience of developing countries' institutions provides a rich laboratory for learning about the effect of institutional arrangements on economic performance, whereas the most empirical studies on the effect of institutions are based on developed countries (Kaldaru and Parts, 2008; Seputiene, 2009).

In general, the contrast openness theory has shown that the effect of openness on economic performance. Neoclassical trade theory maintained that the greater the degree of openness in the international trading system, the greater will be the level of aggregate economic income. In relation to this, greater openness exposes the domestic economy to the exigencies of the world market. It can be inferred then that there is a higher level of factor movements than in a closed economy, as domestic production patterns must adjust to changes in international prices. Nevertheless, compensation theory suggests that the more internationalized the economy becomes; the greater are the consequences of exogenous risks. This is due to the fact that the domestic economy highly depends on forces beyond its control. In order to response to this increased risk, governments expand the public economy as an insurance device (Rodrik, 1997; Bates et al., 1991). Growth can be lowered by the increase of foreign competition; otherwise, it can be increased by import protection. Therefore, this study intends to prove the contrast of these theories, which relate to the relationship between the openness and economic performance of developing countries.

How do governance and openness affect economic performance? What are the appropriate structures of governance and policies of openness for economic

development? These are the fundamental and enduring questions for political scientists and economists. These questions have also been of significant interest for policymakers because knowledge of the relationship between governance, openness, and economic performance will enable them to develop governance and open policies that are conductive to their countries' economic growth and development.

1.3 Research Questions

The research questions in this study are as follows:

1) What is the relationship between governance and economic performance?

2) What is the relationship between openness and economic performance?

3) How do governance and openness make a difference in the ways in which countries develop?

4) What are the differences in the relationship between governance, openness, and economic performance in Asia and Sub-Saharan Africa?

1.4 Research Objectives

The study has the following objectives:

1) To examine the relationship between governance and economic performance

2) To examine the relationship between openness and economic performance

3) To examine how each factor makes a difference in the way in which countries develop

4) To examine the differences in the relationship between governance, openness, and economic performance in Asia and Sub-Saharan Africa.

1.5 Scope of the Research

The focus of this research is the relationship between governance, openness, and economic performance in selected developing countries in Asia and Sub-Saharan Africa. This study employs a time-series and cross-country analysis (panel data).

1.6 Definitions

1.6.1 Governance

Several policymakers and scholars have so far attempted to define "governance". In the same vein, various authors and organization have also attempted to define it. However, some of those definitions are still broad. For example, the definition of "rules, enforcement mechanisms, and organizations" offered by the World Bank's 2002 World Development Report is "Building Institutions for Markets". Similarly, World Bank (2002) has proposed the definition which focuses on public sector management issues in terms of "the manner in which power is exercised in the management of a country's economic and social resources for development". In specific areas of governance, such as the rule of law, there are extensive debates among scholars over "thin" versus "thick" definitions, where the former focus specifically on whether existing rules and laws are enforced, while the latter emphasize more the justice of the content of the law.

1.6.2 Openness

In order to measure the importance of international transactions in relation to domestic transactions, the trade-to-GDP ratio is frequently used. This measurement is calculated for each country as the simple average (i.e. the mean) of total trade (i.e. the sum of exports and imports of goods and services) relative to GDP. This ratio is often called the trade openness ratio, although the term "openness" may be somewhat misleading. This is due to the fact that a low ratio does not suggest high tariff or non-tariff barrier to foreign trade (Organisation for Economic Co-operation and Development, 2011: 1).

In this study, however, the definition of openness will not only be defined on trade but also on capital flows which refer to the movement of money for the purpose of investment, trade or business production (Investopedia definition).

1.6.3 Economic Performance

Economic performance can be defined variously based on each level of analysis. As far as the country level is concerned, where much of the debate has occurred, it is regarded as economic growth, labor productivity growth, and consumer welfare. To illustrate these, economic growth is the rate of change in real output, or GDP, and is measured at the country level. Labor productivity growth, or growth in output per worker, is a measure of the efficient use of resources to create value. It "allows the economy to provide lower-cost goods and services relative to the income of domestic consumers and to compete for customers in international markets" (McKinsey Global Institute 2001: 1).

1.7 Expected Benefits of the Research

This research contributes to the existing knowledge concerning the relationship between governance, openness, and economic performance in four ways. First, it estimates the long run relationship between governance, openness, and economic performance. In a similar vein, the study also enhances the knowledge and understanding of how institutional frameworks and open policy impact economic performance. Secondly, the study offers empirical results based on developing countries, which are a great laboratory. Thirdly, this study is one of only few studies which investigate the impact of institutional factors in various measures of economic performance. The last contribution of this study is the adoption of both time-series and cross-country approaches rather than only a cross-country approach.

In addition, the findings of this study will enable developing countries to identify areas regarding their governance and openness that require improvement. In this way, adequate policies and device practical tools assist decision-making and turn national budgets into more effective instruments for pursuing economic objectives. In particular, an understanding of these effects could help to improve policy decisions with respect to these factors.

1.8 Limitations of the Research

1.8.1 Limitations of the Data

This study uses time-series data, which have some limitations, as seen in the series of studies by Fan and others, who used time-series data to estimate the relationship between public expenditure components in rural areas in terms of both rural income growth and poverty reduction. A number of critical issues emerged when looking at these reduced-form regressions. In the first place, the robustness of the results was often sensitive to the empirical strategy employed and the countries and time period covered by the sample. Another important constraint was the lack of reliable data.

1.8.2 Limitations of Methodology

No approach is likely to be perfect in conducting a study because of the range of economic growth. Wilhelm and Fiestas (2005) suggested that economic growth may be considered as a complex chain of linkages as well as in terms of the interdependence of development outcomes. However, country regressions are the most common tools used to establish the links between governance, openness, and economic performance.

CHAPTER 2

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Previously, economic performance has traditionally been attributed to the accumulation of human and physical capital, and the increased productivity arising from technological innovation. The primary driving force of economic growth is the growth of productivity, which is the ratio of economic output to inputs (capital, labor, energy, materials, and business services (CLEMS)). Economists tend to focus on human and physical capital and technological innovation, while some factors, such as, political and economic institutions, are ignored in research.

Presently, it cannot be denied that globalization has played an important role in our countries, such as the role of culture, education, and economy. In terms of the role of economy, it is debated whether "globalization has positive or negative effect on economic performance". Some theories indicate that the greater is the degree of openness in the international trading system, the greater is the level of aggregate economic income. In contrast, other theories maintain that the more internationalized the economy becomes; the greater are the consequences of exogenous risks.

2.1 Theories of Political Institutional

In the first half of the 19th century, institutionalism had a descriptive orientation. In 1950, the institutionalism regarded that the existent institutions had represented imperfect and pragmatic solutions to past conflicts. Regarded this way, institutional history is a process of selecting institutional practices based on a group of alternatives in the process of taking pragmatic decisions that involve in a discovery through a research and a negotiation. This may be the best practice in current circumstances of conflict. Therefore, in order to impose collaboration, the process will be between groups and individuals.

Institutionalists have regarded ‘institutions’ in term of a government’s action in the organization field, agent’ resources, and rational actors necessary for obtaining the achievements of objectives. Furthermore, they have also described institutions in term of administration, which confines the behavior of social actors to norms as well regulations in order to bring up the foreseeable and significant life of people in societies (North, 1990; DiMaggio and Powell, 1991; Scott, 2001). In addition, political sociology and the institutionalism of the political science have conceptually suggested the notion of good government—pushing the setting-up of democratic governability processes and the analysis of policy informalization processes. Likewise, good government, as far as governability is concerned, means public policies as well as formulation processes. It also refers to regulators of institutions, who provide a group of people to collectively administer and govern a country.

2.1.1 Political Institutional Theory

Amenta and Kelly (2010) have maintained that political institutional theory has become the most common theorizing issue among historical institutionalists. Namely, scholars have generally argued in an explanatory way which is in congruent with Tocquevillian’s argument. The scholars’ further argumentation pertains to the construction of other large-scale political institutions, including political party systems (Skocpol, 1985). Moreover, according to some theorists, all of those arguments seem to refer to the longstanding political institutions’ structure and systems which regulate people’s outcomes of interest (Thomas et al., 2005: 103).

Conversely, other theorists have stated that political institutionalism has become more historical and is focused on historical processes. It focuses theoretical attention on the interaction of actors at a medium-systemic, interorganizational, or marco-levels. Thus, these actors are viewed as working within institutional constraints on resources and other means of action that attempt to influence state policy. With regards to this, changes in state policies may influence the interests as well as the strategies of the actors (Kevin and Craig, 2010: 27).

The main theoretical framework is that macro-level political institutions shape politics and political actors, who act under constraints that may influence their impact on states and policies, refashioning political institutions in the process, and so on.

2.1.2 Neo-institutionalism Theory

Neo-institutionalism basically is a combination of historical, sociological, and rational election focuses. At the beginning of the last decade, it emerged as a group of rules that determine the processes of institutional reformation. This reformation begins with the frameworks of incentives and restrictions which are imposed on the behaviors of the different agents and on the economy, and social and politician actors, for the formulation and installation of public policies. The policies finally influence the measurement results of growth and development. With regard to this theory, it can be interpreted that it mainly focuses on isomorphism and legitimating. However, according to recent studies, a significant body has shown a strong and sustained interest in agency and change. In addition, Oliver (1991) stated that in the early period of neo-institutionalism, even though it neglected the human agency, it combined the institutional with the resource dependence theories to develop typologies of strategic answers to the pressures of the environment.

Moreover, neo-institutionalism investigates the features of the economic institutional structures that facilitate the development of people. Burgos Silva (2002) pointed out that neo-institutionalism economic analysis can be defined as artificial institutionalism and economic development. It becomes an instrument of economic development that promotes institutional mechanisms. Neo-institutionalism theory claims that the importance of the normative reference framework and behavior rules, which are to guide, constrain, and create power within the organizations, consist of cognitive structures, activities, and norms and regulations that place emphasis on social behavior. In the same vein, the analyses in political science related to new institutionalism, which begins with a rational election, are regarded as the rules that prescribe, outlaw, and allow behaviors.

Furthermore, neo-institutionalism gives an emphasis on the institutions that define the behavior of the actors in front of their social media. As far as the neo-institutionalism economy is concerned, it analyzes the flaws of the mechanisms of the state and its inefficacies. That is to say, according to the neo-institutional theory of the economy, underdevelopment has been the result of the state's flaws in providing the structures of necessary governance to guarantee the institutions that will bolster the development of the people. Therefore, neo-institutionalism suggests that the state

should be strong while limited in its functions. In other words, the content of the state is to guarantee the possibility to exercise its function without blocking its work as well as protecting it from other people's inherencies (Estefanía, 2002).

2.1.3 New Institutional Theory

New institutional theory, also known as neo institutionalism, varies from the "old" one as it focuses more on the cognitive aspects of institutions (Jepperson, 1991)

The new institutional theory is more likely to focus on economic growth, as this is an attempt to incorporate a theory of institutions into economics. However, contrary to many earlier attempts to overturn or replace neoclassical theory, 'the new institutional economics builds on, modifies, and extends neoclassical theory to permit it to come to grips and deal with an entire range of issues heretofore beyond its ken' (North, 1993).

In relation to this, it has been stated that the objective of new institutional theory is to overcome the important limitations of mainstream neoclassical economics (Nabli and Nugent, 1989). Mainstream neoclassical economics consists of four main types of constraints: individual preferences, technological opportunities, physical and human capital endowments, and market opportunities. In many cases, this theory has been neglected. In the meantime, this leaves the analysis of institutional constraints to non-economists. However, the analyses of non-economists are rich in descriptive detail and contain numerous useful insights, as Nabli and Nugent (1989) pointed out that "they tend to be relatively light in their ability to provide either reliable generalizations or a sound logical basis for policy choices".

As mentioned, the new institutional theory pays attention to the institutions that shape the incentive structure that may either propel or impede productive activity within society (Ali and Crain, 2002). Additionally, North (1990 quoted in Davis, 2009) noted that a great deal of economic performance, across both space and time, can be explained by variations in institutions. The new institutional theory also placed emphasis on political institutions. As pointed out by North (1993), this approach models political institutions as "a critical factors in the performance of economies" and as "the source of the diverse performance of economies". Davis (2009) elaborated that "the influence of the new institutional theory pioneered by North has been

profound. It has not only attracted the attention of a large number of social scientists, but also influenced the amount of attention devoted to questions of institutional design".

2.2 Theories of Openness

2.2.1 Comparative Advantage Theory

David Ricardo has illustrated the concept of free trade between countries. His theory shed light on the fact that any country could benefit from trading with one another as long as specialization takes place. Free trade occurs when there are not any tariffs or taxes on imported or exported goods and services. In relation to this, a country's tax on imported goods typically attempts to keep domestic producers competitive. For example, a Japanese company can produce a DVD player for $25, while an American company can produce a DVD player of similar quality for $45. Given the choice the American consumer will buy the lower-priced one, that is, the Japanese-made one. In the long run, the American company producing DVD players will go out of business. With regard to this, the US government will raise the tax on imported Japanese goods so that the American company can stay in business. Therefore, it can be said that the Japanese production price remains high in the US.

Thus, the theory of comparative advantage allows a country to obtain advantages from free trade. In relation to the comparative advantage, the same can be illustrated that:

> Comparative advantage good requires a comparison of production costs across countries. But one does not need to compare the monetary costs of production, or the labor, or other resource costs of production. Instead one must compare the opportunity costs of producing goods across countries. Every choice has an opportunity cost, measured by the value of next best alternative sacrificed. Thus, A country is said to have a comparative advantage in the production of a good (say cloth) if it can produce cloth at a lower opportunity cost than another country. The opportunity cost of cloth production is defined as the amount of wine

> that must be given up in order to produce one more unit of cloth. Thus England would have the comparative advantage in cloth production relative to Portugal if it must give up less wine to produce another unit of cloth than the amount of wine that Portugal would have to give up to produce another unit of cloth. (Peter, 2005).

2.2.2 Factor Endowment Trade Theory

A factor endowment theory clarifies that every country has different types of resources. In terms of economy, the simplest case for this distribution is the idea that every country will have different ratios of capital to labor. Hence, the factor endowment theory is used to determine comparative advantage. The Hechsher-Olin Theory holds that because of the factor endowment theory, a country will gain comparative advantage. When considering comparative advantage, it is essential to remember that it is the ratios of factors that matter. To illustrate, a country could be heavily endowed with both labor and capital, but it proportionally may have more than another country would have. If a country has a comparative advantage that uses the factor with which it is heavily endowed, it should focus on its production. For this reason, it is heavily endowed with that factor that will be most efficient at producing the good that requires that factor for production. For example, a country with a high ratio of capital to labor will be more efficient at producing computers than it would corn. If that country instead is focused on producing corn, it would have to divert capital which is not meant for corn production into an area where it is inefficiently used.

The factor endowment theory which is used to explain the overarching notions of comparative advantage generally accounts for a small percentage of the world trade. At one time, there were big disparities between labor and capital in the US and East Asia. In connection with this, East Asia began to grow much faster than the US, even though the factor endowment theory would predict that the trade should have lessened. In fact, this suggests that there must be something other than factor endowments motivating international trade. The assumptions that drive the factor endowment theory may be flawed. With regard to this, it can basically be assumed that the factors regarding technologies and borderline play an important role in how

much trade occurs for example in Seattle. That is to say, Seattle conducts more trade with Boston than it does with Vancouver. In addition, branding also plays a vital role in the trade. For instance, France has been very successful in making its product, wine, outstanding compared to other countries. Therefore, regardless of the factor endowments, France will likely continue to specialize in wine and the rest of the world will likely keep buying it from them.

Wilfred J. Ethier attempted to explain the pattern of comparative advantage regarding the factor endowment theory (a.k.a. Heckscher-Ohlin theory, and the Modern Theory of International Trade), which is a "modern" extension of the classical approach.

Can this hypothesized comparative advantage be ultimately influenced by international differences through factor endowments? These differences can be based on 4 reasons:

1) Natural extension of the classical theory which sees international factor immobility as the basis for trade
2) Defining "factor" broadly
3) Seemingly important in practice
4) Very useful theoretically for linking trade to internal income distribution, growth, factor movements, and so on

2.2.3 Neoclassical Trade Theory

Chris Johnson (2012) discusses neoclassical trade theory in the following:

> Neoclassical trade theory is based upon the assumption that states act to maximize their aggregate economic utility. This leads to the conclusion that maximum global welfare and Pareto optimality are achieved under free trade. While particular countries might better their situations through protectionism, economic theory has generally looked askance at such policies... Neoclassical theory recognizes that trade regulations can be used to correct domestic distortions and to promote infant industries, but these are exceptions or temporary departures from policy conclusions that lead logically to the support of free trade.

Historical experience (Morrison, 2011) suggests that an alternative approach to explaining international trading structures is to assume that states seek a broad range of goals. At least four major state interests affected by the structure of international trade can be identified. They are: political power, aggregate national income, economic growth, and social stability. The way in which each of these goals is affected by the degree of openness depends upon the potential economic power of the state as defined by its relative size and level of development.

To begin with, the researcher would like to discuss aggregate national income, as it is the most straightforward issue regarding the openness. Given that, conventional neoclassical theory demonstrates that the greater is the degree of openness in the international trading system, the greater the level of aggregate economic income becomes. This could apply to all states regardless of their size or development. However, the static economic benefits of openness are generally inversely related to size. Trade tends to be beneficial for small states rather than the large ones. Empirically, the small state has higher ratios of trade to national product. They do not have the generous factor endowments or potential for national economies of scale that are produced by the larger particularly continental ones.

Nevertheless, the impact of openness on social stability seems to be in the opposite direction. Namely, greater openness would expose the domestic economy to the exigencies of the world market. This could imply that a higher level of factor movements than in a closed economy as domestic production patterns must adjust to changes in international prices. Since there is friction in the motion factors, particularly labor from one sector to another, social instability is thereby increased. The impact will be stronger in the small states than in the large ones. As a result, the large states are less involved in the international economy, and a smaller percentage of their total factor endowment is affected by the international market at any given level of openness.

2.2.4 Compensation Theory

The domestic consequences of openness are a new theory of compensation (Fernández-Albertos, 2002). The first assumption can be made in order to understand why governments should open their national economies in order to prepare for the

international market. This is simply to turn the traditional compensation hypotheses upside down. In relation to this, Cameron (1978) maintained that several studies related to the comparative political economy has raised some explanations based on the findings that international trade was connected with higher levels of government intervention in the economy. This literature has attempted to give some explanations for such a relationship.

The most common explanation that backs up the link between economic openness and higher public intervention in the economy is the 'risk-avoidance' argument. The logic is quite simple; the more internationalized the economy becomes, the greater are the consequences of exogenous risks. For this reason, the domestic economy highly relies on forces beyond its control. As a response to this increased risk, governments enlarge the public economy as an insurance device (Bates et al., 1991; Rodrik, 1997). Katzenstein (1985) concludes that the very existence of this national-based insurance mechanism makes domestic actors more prone to specialize in their comparative advantage, and this in turns enables them to extract larger gains from international trade. Thus, the risk-avoidance argument is certainly pervasive, but it has to be noted that, it fails to address the distributive struggle that economic openness may bring about. Insurance against risk is seen as a public good that enhances overall welfare. However, if a theory regarding compensation is associated with the asymmetrical distributive consequences of internationalization, insurance of the external risk factor may be needed (Fernández-Albertos, 2002).

In relation to asymmetrical distributional consequences, the basic argument could be made that greater openness not only enhance welfare, but also generates a domestic "winner" as well as "loser." As far as the latter is concerned, the loser may be referred to a politically powerful group of people that support the free trade policies and receive some types of compensation from the policies. These types of the compensation may be given in several forms; the most common one is in the form of redistribution through a larger public sector. This would explain why, for instance, in democratic politics, greater levels of economic internationalization are associated with higher levels of public revenues (Adserà and Boix, 2002).

The compensation hypothesis is readily extensible to the 'endogenous globalization' view: those countries better able to compensate for the potential

negative consequences of international exposure will also be more likely to embrace openness, since compensation will make the pro-liberalization coalition politically powerful. However, is compensation through public transfers always needed? As we will see below in the Latin American case, the recent history of foreign economic liberalization is full of cases in which liberalization is not accompanied by larger state-based income redistribution.

2.2.5 Convergence Theory

The idea of convergence in economy is that the per capita incomes of poorer economies will tend to grow at faster rates than those in richer economies. All economies should eventually converge in terms of per capita income. Therefore, the economies of developing countries possibly tend to grow at a faster rate than those in developed countries because the diminishing returns (in particular, capital) there are not as strong as in capital-rich countries. Additionally, poorer countries can replicate the production methods, technologies, and institutions of developed countries.

Regarding the economic growth literature, there are two kinds of the "convergence" (Rodrik and Rodriguez, 1999). This can be illustrated as follows. The first kind, called "sigma-convergence", refers to a reduction in the dispersion of levels of income across economies. The second one is called "beta-convergence". It refers to when poor economies grow faster than rich ones. In connection with these, some economists have stated that there is another kind of convergence, which is called "conditional beta-convergence". This one refers to an economy's experience which is related to "beta-convergence". Furthermore, they (Rodrik and Rodriguez, 1999) maintained that the "conditional beta-convergence" exists when the growth rate of an economy declines as it approaches its steady state.

As far as the convergence theories are concerned, the neoclassical trade theories predicted that international trade is helpful for generating convergence all around world. According to Sachs and Warner, trade protection plays an integral part in the countries where convergence is absent. As predicted by the neoclassical theories, these countries have made a great effort to save the idea of convergence. However, the theories have limitations, to some extent, which are associated with unrealistic assumptions. Additionally, the reality seems to be different from the theories as well.

Therefore, it can be stated that it is difficult to define the word “convergence” when criteria based on trade openness are changed. Sachs and Warner argued that the more developing countries open their trade, the higher will be the growth rate they see. In relation to this, the developing countries criteria for trade openness are just arbitrary, as they might have been chosen intentionally in order to show the convergence among countries. The trickiest problem in the test of the effect of trade openness on economic growth is that we have a difficult time defining the countries as open or closed. As a consequence, it can be remarked that there are several variables related to trade protection such as tariffs, import quota or duties, and black market premiums even in their model. Thus, it can be concluded that it is almost impossible to create a good index to represent the level of protection, which leads to significant problems in empirical tests. In addition, some recent empirical studies have asserted that there is no basis with which to argue higher growth related to openness (Rodrik and Rodriguez, 1999).

2.2.6 The New Trade Theory

Basically, the theories related to the new trade were aimed to clarify trade patterns in the presence of increasing returns and imperfect competitions, as finding out a theoretical justification is for the increasingly--observed intra-industry trade. Krugman (1980) asserted that numerous firms have tended to agglomerate in order to benefit from scale economies. These firms are always located near to the market so that transport costs are minimized. In support of this statement, the home market effect suggests that exporting countries would be the ones possessing large home markets. In fact, a synthesis of the old and new views of trade was achieved. Consider two sectors: a Chamberlinian one that expands through an increase in the number of firms (greater product variety) and the size of each firm (greater scale economies), and another operating under constant returns to scale and perfect competition. There is both inter-industry trade (a homogeneous good traded against a differentiated good) still governed by factor endowment differences, and intra-industry trade (different countries produce different varieties and trade them).

Another important innovation was the introduction of transport costs in theoretical models. The traditional theory considered them to be either zero or

prohibitive. On the contrary, the "new" theory considers these costs explicitly, under the form suggested by Samuelson (1954): iceberg costs (a part of the product "melts" during transportation). This way of modelling is extremely useful since it avoids the incorporation of an additional transport sector into the model. In addition, it integrates perfectly within the models of monopolistic competition.

2.3 Theories of Economic Performance

In the 1950s, Harrod and Domar developed the theories of economic performance. This development was based on Keynesian's approach. This approach suggests that demand does not seem automatically equal to supply, nor are savings automatically equal to investments. The demand, especially that relating to capital investment, plays a vital role in economic growth. In support of this, basic technological coefficients (for example, the relationship between capital to product and labor to capital) remain unchanged because of the rigidity of prices. The basic technological coefficients are determined by the neutral quality of technological progress. That is to say, technological progress does not influence the effectiveness of production factors. The Keynesian's approach recommends that the rate of accumulation of the economic growth may be the main strategic factor which associated with the basic parameter of regulation of the long-range economic growth. Such growth may be stable when savings are a stable proportion of income and capital is in a stable relationship to output, creating what is known as a guaranteed rate of growth.

Since the late 1950s, problems relating to economic performance occurred. Neoclassical economists, including Hicks and Meade and Solow, and Brown, turned their attention to the problems. Their premises were that demand is automatically equal to supply. The supply and effective utilization of economic resources are important for economic growth. The main point of neoclassical theory related to the growth of an economy focuses on the idea of free competition. This means that the prices of a product should be set up at the original sources in order to ensure that there is a stable economic equilibrium (The Great Soviet Encyclopedia, 1979). Nevertheless, the theories of economic growth are the focuses of this study, including neoclassical growth theory, endogenous growth theory, and new trade theory.

2.3.1 Neoclassical Growth Theory

Neoclassical growth theory places a significant role in technology advancement. Solow and other theorists (Rynn, 2001) relied on the process of diminishing returns to construct their theory, even it does not rest on empirical studies. The various theories of the functioning of the economic system either do not acknowledge the existence of machinery, or try to use an aggregated measure of machinery, although it is not theoretical sense (Rynn, 2001). Therefore, there is no clear sense of what technological progress is, other than as an increase in labor productivity.

North's theory has focused on the reasons for the relative ranking of various countries, but does not investigate the reasons for changes in these rankings. Gilpin mainly clarifies the internal causes of decline (and to some extent rise), but he does not focus on the reasons for the relative ranking of countries. Therefore, the neoclassical theory cannot explain why technological levels are different among countries, or why the technological prowess of countries changes through time. Thus, there is currently no consistent and empirically-based theory of relative rise and decline.

There are grounds, therefore, for constructing a theory of relative rise and fall which is not based on any of the existing, mainstream theories. The theories reviewed here have tried to use various combinations of ideas of property rights and diminishing returns. Therefore, it can be stated that the theories hinted that the more powerful ideas to approach the causes of rise as well as decline are the technological change and the power distribution (Rynn, 2001).

2.3.2 Endogenous Growth Theory

Initially, Lucus (1988) and Romer (1990) proposed the endogenous growth theory. That is to say, Lucus's model (1988) suggested that human capital accumulation is regarded as a factor of production. Also, knowledge is an important factor in accelerating economic growth. Lucus's model can be divided as follows:

1) Human capital accumulation is the "engine" of growth.

2) People divide their time between work and further skill accumulation (research and training). The choices which people in an economy are

going to make depend on the institutional structure and labor market characteristics of that particular economy. In other words, the dynamic features of the economy seem to be the factor where people make a decision in order to take part in enhancing economic growth (Sayantan, n.d.).

Some economists hold that improvements in productivity could give rise to a faster pace of innovation and extra investment in human capital. They stressed the need for government and private sector institutions which successfully nurture innovation and provide the right incentives for individual and businesses to be inventive. With regards to the previously-mentioned theories, the accumulation of knowledge is regarded as a central role and a determinant of growth. For example, the knowledge of industries, which is pertinent to telecommunication, electronics, software or biotechnology, emerges as having an important role in many developed counties.

Individuals who support an endogenous growth theory stated that the utilization of positive externalities is started from the development of a high valued-added knowledge economy. This means that the valued-added knowledge economy is designed to sustain the advantage of competitiveness in the global economic stage.

The main points of the endogenous growth theory are as follows:

1) The rate of technological progress should not be taken as a constant idea in Government policies can permanently raise a country's growth rate if they lead to more intense competition in markets and help to stimulate product and process innovation.

2) Endogenous growth theorists asserted that increasing returns attach importance in economic growth, as they strongly suggested that the increasing returns should play an important role in every industry as well market.

3) Private sector investment in research and development is a key source of technical progress.

4) The protection of private property rights and patents is essential in providing appropriate and effective incentives for business and entrepreneurs to engage in research and development.

5) Investment in human capital is an essential ingredient of long-term growth.

6) The entrepreneurship should be encouraged so that new business could be created, because the new business is considered as an important sources of providing a new job, investment, and innovation.

2.4 Governance

Governance is one of the keys to development. It is now acknowledged that political processes, regulations, and institutions play a major role in economic growth and human development. The fight against poverty is not simply a social, economic or technical objective but is also a political and institutional goal. In the Millennium Declaration, the international community reached an agreement on the importance of good governance for development. This goes hand in hand with the theory that development problems are linked to a failure in governance. The campaigns designed to achieve the recent Millennium Development Goals have not only focused on the commitment of a larger financial needs, but have also paid attention to how the funds are raised as well as spent (FHDED, 2015). So, it can be noted that the previous statement can be associated with the effectiveness and efficiency of governance as well as the public management system. As far as the effectiveness and efficiency of governance and public institutions are concerned, the focus is shifted onto human development. For one thing, if governance and public institutions are not effectively and efficiently managed, human development may be affected. For example, in the case of the Democratic Republic of Congo, its government failed to fulfill its basic functions. As a result, the people of the Democratic Republic of Congo need to take care of themselves.

In relation to democracy, the word “democracy” is directly connected with the concept of governance. This signifies that democracy needs to be designed to meet individual needs. Therefore, the only way to get democratic governance is through elections. The elections will give rise to the word “accountability,” which is considered a very significant part of democratic governance. In this case, some however have argued that only elections may not be enough; there also must be legislature representing the people. The requirements of legislature are: 1) independent judiciary, which is to uphold the rule of law, 2) a professional as well as

neutral security force, 3) accessible media that are free, independent and unbiased, and 4) an active civil society, whose task is to have political participation (Jean-Christophe Charlier, 2005).

2.4.1 Measures of Governance

The World Bank attempted to explain the definition of 'governance' between its broad and narrow definitions. In support of this, the World Bank draws on the following idea: "the traditions and institutions by which authority in a country is exercised. This includes 1) the process by which governments are selected, monitored and replaced; 2) the capacity of the government to effectively formulate and implement sound policies; and 3) the respect of citizens and the state for the institutions that govern economic and social interactions among them." With regards to this definition, there are means of governance measures that correspond to each of these three areas. These will be explained according to six dimensions of governance:

1) The process by which governments are selected, monitored, and replaced:

(1) Voice and Accountability (VA) – capturing perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, and association, and a free media.

(2) Political Stability and Absence of Violence/Terrorism (PV) – there is no possibility that the government will be overthrown unconditional and violent mean.

2) The capacity of the government to effectively formulate and implement sound policies:

(1) Government Effectiveness (GE) – capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.

(2) Regulatory Quality (RQ) – capturing perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

3) The respect of citizens and the state for the institutions that govern economic and social interactions among them:

(1) Rule of Law (RL) – capturing perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.

(2) Control of Corruption (CC) – capturing perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

Drawing on the governance literature and the Universal Declaration of Human Rights, which all countries with one or two exceptions have adopted and ratified, The Overseas Development Institute has identified six principles that appear to be the closest to ‘universal’ values, and these can be clarified as follows:

1) Participation, the degree of ownership and involvement that stakeholders have in the political system;

2) Fairness, the degree to which rules are perceived as applying equally to everyone on society regardless of background;

3) Decency, the degree to which rules are formed and handled without humiliating or harming particular groups of people;

4) Accountability, the extent to which political actors are seen as acting responsibly and responsively in relation to their constituents;

5) Transparency, the extent to which decisions are perceived as being made in a clear and open manner;

6) Efficiency, the extent to which limited human and financial resources are seen as being used prudently.

The last three of these principles refer specifically to how officials behave in public office, while the first three points refer to the way they interact with citizens.

These could give rise to indicators which are intended to measure governance performance. This measurement could be made in six areas, including coherent and comprehensive ways. Furthermore, the indicators connected with academics, officials, and representatives of governments and civil society in the developing countries.

Most importantly, they have been tested in the first phase of this project and found acceptable in 16 countries representing 51% of the world's population. The thirty-six indicators used in this project are included in table 2.1:

Table 2.1 Summary of Indicators Used in the World Governance Assessment

Principle/ Arena	Participation	Fairness	Decency	Accountability	Transparency	Efficiency
Civil society	Freedom of association	Society free from discrimination	Freedom of expression	Respect for governing rules	Freedom of the media	Input in policy making
Political society	Legislature representative of society	Policy reflective of public preferences	Peaceful competition for political power	Legislators accountable to public	Transparency of political parties	Legislative function affecting policy
Government	Intra-governmental consultation	Adequate standard of living for citizens	Personal security of citizens	Security forces subordinated to civilian government	Government provide accurate information	Best use of available resources
Bureaucracy	Higher civil servants part of policymaking	Equal access to public services	Civil servants respectful towards citizens	Civil servants accountable for their actions	Clear decision-making process	Merit-based system for recruitment
Economic society	Consultation with the private sector	Regulations equally applied to all firms	Governments respect for property rights	Regulating private sector in the public interest	Transparency in formulating economic policy	Obtaining licenses free from corruption
Judiciary	Non-formal processes of conflict resolution	Equal access to justice for all citizens	International human rights incorporated in national legal practice	Judicial officers held accountable	Clarity in administering justice	Efficiency of the judicial system

Source: The World Bank, 2002.

In accordance with Table 2.1, the governance assessment is able to measure several dimensions. The first governance assessment that can be made is to make the study of governance performance in relation to global concern. The second governance assessment is to investigate if the governance performance can be high in developing countries and poor in developed countries. Therefore, these two assessments need cooperation from all stakeholders to give information so that the assessment can be conducted.

Thus, the word 'governance' in this study refers to 'a live and dynamic' (Goran, Julius and Kenneth, n.d.). Because of this statement, it paves way to assess performance. Similarly, it could avoid hypothesizing that the countries whose governance is well are those who possess liberal democracy. Publication of the results from the first phase of the project demonstrates that among the top six performers were some countries that would never have made it in other governance indices, e.g. Jordan, Mongolia and Tanzania.

Furthermore, many governance-assessment-related organizations have multilaterally and bilaterally attempted to launch international strategies, which are aimed assessing governance. The main initiatives promoted by multilateral organizations are the World Bank Institute's Worldwide Governance Indicators (WGI), UNDP's Governance Indicators Project (GIP), and OECD's Metagora project (see Table 2 for a summary of their main characteristics). These three initiatives are different. In relation to these, one of the three initiatives, which is mostly advanced, is the WGI. This could be clarified that the WGI is applicable to the widest range of countries, and also issues six systematic dimensions of governance. Additionally, on the one hand, the WGI can be employed to compare cross-country aggregated data. On the other hand, the UNDP and the OECD are likely to focus more on supporting the collection of governance data at the country level (Overseas Development Institute, 2007).

Table 2.2 Initiatives of Multilateral Organizations

	Where	What	How	Why	Who
WGI >	213 countries worldwide	6 dimensions: 1) voice & accountability, 2) Pol. stability, 3) Govt. effectiveness, 4) regulatory quality, 5) rule of law, 6) control of corruption	Rating based on secondary data WGI > Various sources (31 db, 21 org.)	International benchmark	WB Institute
UNDP GIP >	4 countries worldwide	Parliamentary development, electoral systems, human rights, justice, access to info, decentralization and local Govt., administrative reforms	Methodology varies by country; sample survey of citizens	Country analysis	UNDP offices in Mongolia, Philippines, Malawi and Afghanistan
Metagora >	Various; multi-country: 8 francophone Africa plus 5 Latin America	Corruption (perception, experience, distribution and trends); state of law (constitution, control, respect); business environment (free market effectiveness)	Quant. and Qual. assessments; tailored to specific issues/situations; some multi-country work; sample survey of citizens	Define standards on indicators and provide inventory of local sources	OECD with support from Canada, EC, France, Sweden, Switzerland

Therefore, this study will utilize the World Bank Institute's Worldwide Governance Indicators (WGI), which consist of 6 dimensions: voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. These can be referred to as "governance".

2.4.2 Empirical Evidence between Governance and Economic Performance

Several empirical studies have been conducted in the 1990s, which focused on certain dimensions. To illustrate this point, the studies primarily focused on the effects of poor governance (as proxied by political and export instabilities and corruption) on the sources of growth rather than its direct impact on growth. Keefer et al. (1997) pointed out that institutions such as property rights and contract enforcement positively influence economic growth. Meanwhile, Campos and Nugent (1999) also maintained that the institutions of governance improve development performance. Therefore, Kaufmann, et al. (1999a, 1999b) concluded that good governance matters for development.

In a cross-sectional analysis, Chauvet and Collier (2004) revealed that the poor governance of some developing countries, on average, experience less GDP growth per year compared to other developing countries. In connection with this, there are also other recent findings which have suggested a strong causal effect running from better governance to better development outcomes. In spite of such a broad array of support for the positive impact of good governance on economic growth, there are only few studies that show results to the contrary. Sachs et al. (2004) gave a very useful example—that there is an important challenge related to the significance of a good governance for some African countries' economic growth. Furthermore, they demonstrated that the differences in the economic performance among the African countries cannot be explained by differences in the quality of their governance once differences in their levels of development have been accounted for. Thus, it can be concluded that the focus on governance reforms is misguided, and the above findings which appear to contradict each other signify the need for more research in this arena.

Recently, Fosu et al. (2006) have briefly illustrated a study related to institutions, governance, and economic development in Africa. They pointed out that in spite of the fact that while politically-accountable governments can lead to the

improvement of economic outcomes, the governments do not tend to adopt economically-desirable policies unpopular with the populace. The tendency of such governments which increases the risk of political discord may actually stand in the way of a meaningful economic growth path.

2.5 Openness

New growth theories tend to focus more on the relationship between openness and the long-run rate outputs growth than a rise in the level of the outputs. This could mean that the relationship could probably occur through the favorable impact of openness on technological change. For example, Grossman and Helpman (1992) and Romer (1986) stated that the trade openness could increase, as it provides a variety of imported inputs. Krugman (1974) stated that another channel of the favorable impact is that greater openness expands the size of the market facing domestic exporters.

Many distinguished scholars such as Edwards, Frankel and Romer, and Dollar and Kraay laid emphasis on the positive effect of trade liberalization on economic growth and poverty reduction. Dollar and Kraay's studies (2001, 2002) supported the view that trade openness has a positive effect on economic growth and development. In support of this view, foreign trade is likely to increases the domestic income of participating countries. This is due to the fact that the openness in trading could allow domestic entrepreneurs to learn new methods of using or producing quality inputs more quickly at lower cost. Additionally, the openness could also increase the total productivity factor. Therefore, it can be concluded that this is consistent with the findings of Romer, (1992), Barro and Sala-i-Martin (1995) and Obstfeld and Rogolt (1996).

In relation to openness, most empirical studies defined the "openness" of an economy as the ratio of trade to GDP. Jayme (2001) stated: "In order to capture the dynamic effects of trade from demand and supply side, growth rate of exports related to marginal propensity to import is clearly more appropriate. Exports are an important demand side variable" (Jayme, 2001). Yao and Zhang (2003) added that there are external and internal factors that determine economic performance. To illustrate the points, the external factors, which are related to openness, include FDI, export, and

the foreign exchange mechanism. Meanwhile, the internal factors include human capital, infrastructure, location, and institutions (e.g. government policy, legal regulations, etc.). Therefore, this study uses imports, exports, capital inflows, and capital outflows as the indicators of openness.

2.6 Economic Performance

How do we measure performance? Social scientists use a variety of aggregate and disaggregate measures of economic performance to assess how well a society fosters the economic welfare of its citizens. What can be considered the important indicators of success and how would you measure them?

Some criteria on most lists would include: 1) economic growth, 2) poverty or inequality, and 3) income inequality. How would we measure each of these criteria?

2.6.1 Economic Growth as an Indicator of Economic Performance

Cypher and Dietz (2004: 28) stated that economists typically utilise two broad methodologies in order to measure the level of the development of a nation. That is to say, they proposed the first methodology, that it is used to measure the income per person or the economic growth criterion. Moreover, they stated that "income levels are reasonably good approximate measures for comparing the level of development of nation and that income per person can serve as a logical surrogate for gauging over social progress". Another methodology is based on the argument that "development is such a complex, multi-faceted notion that it should be conceived from the outset as considerably broader than income and hence can only be measured by entirely different standards" (Cypher and Dietz, 2004: 29).

2.6.1.1 Measures of Economic Growth

According to Cypher and Dietz (2004), there are two common measures used for international income and output comparisons. Also, gross national product (GNP) and gross domestic product (GDP) are two more tools to measure economic growth. In order to clarify them, it can said that GNP is the total value of all income (= value of final output) accruing to the residents of a country, regardless of the source of that income; that is, irrespective of whether such income is derived from

sources inside or outside the country. GDP is “the total value of all income created in a country, regardless of whether the ultimate recipient of that income resides within or outside the country” (Apurve, 2013: 2).

In matter of fact, GNP and GDP are the same things. In relation to these, the only income that the residents of a country receive would be the incomes that come from new productive activity which takes place within that country alone. However, in a country where there is investment across national borders and where there are financial capital and labor flows between nations, GNP diverging from its GDP can easily be seen.

1) GDP Growth Rate

GDP is the single most useful number when describing the size and growth of a country's economy. An important thing to consider, though, is how GDP is connected with standard of living. After all, for the citizens of a country, the economy itself is less important than the standard of living that it provides. The GDP growth rate is annual percentage growth rate of the GDP at market prices based on constant local currency. The GDP is “the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products” (World Bank, 2002).

Because the GDP is equal to the national income, the value of the GDP per capita is therefore the income of a representative individual. This number is connected directly to standard of living. In general, the higher the GDP per capita in a country is, the higher is the standard of living.

2) Gross Domestic Product (GDP) Per Capita

Because of the difference in population across countries, GDP per capita is considered as a more useful measure than GDP for determining standard of living. On the one hand, if a country has a large GDP as well as a very large population, each person in the country may have a low income and thus may live in poor conditions. On the other hand, a country may have a moderate GDP if there is a very small population; then they have a high individual income. Therefore, it can be concluded that the utilization of the GDP per capita measure to compare the standard of living across countries avoids the problem of the division of the GDP among the population of a country. GDP per capita is the gross domestic product divided by

midyear population. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources (World Bank, 2014).

3) Gross Domestic Product (GDP) Deflator

The implicit price deflator for the GDP or known as GDP deflator is a criterion of all new products, "goods", and "services" prices in an economy. In order to measure deflation and inflation prices, nominal GDP and real GDP are figured out (World Bank, 2014).

To illustrate the previous paragraph's statements, the nominal GDP is considered as the market value of all final goods, usually in a country, where its market value depends on the quantities of goods and services produced and their respective prices. Therefore, if prices change from one period to the next, the nominal GDP would also change even though the output remained constant (World Bank, 2002).

In contrast, the real GDP refers to the price changes that may be due to inflation. In other words, the real GDP is the nominal GDP adjusted for inflation. If prices change from one period to the next, the real GDP would be the same (World Bank, 2002). Therefore, it can be concluded that the real GDP reflects changes in real production. If there is no inflation or deflation, nominal GDP will be the same as the real GDP (World Bank, 2014).

2.6.2 Other Indicators of Economic Performance

2.6.2.1 National Poverty Rates

Judith Thornton (2013) strongly asserted that the main goal of economic growth is to reduce an amount of absolute poverty. However, if there is inequality of income in its process, the improvement of welfare might not be made. As a result, there might be low-income individuals. The World Development Report of the World Bank has given details on both absolute poverty and income inequality. These will be explained below.

Absolute poverty is measured by the percentage of the population living below some benchmark, such as $1 per day or $2 per day, using purchasing power parity (PPP) as the benchmark. For example, in 2000, Russia is estimated to have 2%

of its people living at less than $1 per day and 10.9% living at less than $2 per day, while the corresponding numbers for China in 2000 were 22.2% below $1 and 57.8% below $2 per day (Judith, 2013: 7-8).

To provide a social safety net, People living in poverty are ensured by social insurance mechanism. This can be done through providing them with higher income tax. Nevertheless, even in a country where there is a secured social safety net, unequal opportunities still occur, this is due to inequality. With regard to these, there is an argument that either wealth inequality or income inequality is important to develop a country. To provide more explanation about these, wealth has a greater impact on children's opportunities. In developing countries with weak property rights and weak financial markets, it is often difficult for households to invest and accumulate secure claims to wealth (Judith, 2013: 6).

2.6.2.2 Income Inequality

The term 'income inequality' may refer to "an uneven distribution of wealth within a defined geographic area" (Judith, 2013: 5-6). When the income inequality is high, the result is that the incomes are unequal, people may receive unequally different rate of incomes. Thus, measuring income inequality is extremely important for understanding the impact of various events on both the overall economy and on the individuals that live within that economy. For example, assessing the wealth and income differences that exist in a given area during wartime can provide important data about the future direction of the economy, and how it will affect the residents in various economic brackets. The same is true if new technology is developed that is anticipated to have an impact on the number of jobs available in the area, since this could either increase or decrease the level of income inequality that already exists.

In fact, there are different tools and strategies which can be employed to measure the income inequality, such as the Hoover Index, the Atkinson Index, the Gini Coefficient, and the Theil Index (Judith, 2013: 5-6).

Another tools used to describe the inequality of income is the Lorenz curve.

> A Lorenz curve maps the distribution of a population by income. If we order the population from lowest income to highest, putting the share of the population on the x-axis and the share of the income received on the y-axis, then the deviation of the curve from perfect equality (a straight 45 degree line) shows the degree of the inequality of income. A Gini coefficient, which is the ratio between the area enclosed by the 45-degree line of equality and the Lorenz curve, and the total triangular area under the line of equality, summarizes our measure of inequality. For example, Russia's Gini coefficient in 1996 was 48, China's was 41.5, and in the US it was 40.1, a lower ratio implying greater equality (Judith, 2013: 5-6).

2.7 Conceptual Framework

Table 2.3 Theoretical Sources of the Variables

Dependent Variable	Theory
Annual growth rates of GDP	Economic growth
Annual growth rates of GDP per capita	Economic growth
GDP deflator	Economic growth
National poverty rates	Economic performance
Income inequality	Economic performance
Investment rates	Neoclassical growth theory
Gross national savings	Neoclassical growth theory
Population growth rates	Neoclassical growth theory
Life expectancy at birth	Endogenous growth theory
Combined gross enrollment	Endogenous growth theory
Voice and accountability	New institutional theory
Political stability and absence of violence/terrorism	New institutional theory

Table 2.3 (Continued)

Dependent Variable	Theory
Government effectiveness	New institutional theory
Regulatory quality	New institutional theory
Rule of law	New institutional theory
Control of corruption	New institutional theory
Trade openness	Openness theory
Financial openness	Openness theory

2.7.1 Hypotheses

H1: There is a significant relationship between voice and accountability and economic performance.

H1-1: Voice and accountability have a positive effect on the annual growth rates of the GDP.

H1-2: Voice and accountability have a positive effect on the annual growth rates of the GDP per capita.

H1-3: Voice and accountability have a positive effect on the GDP deflator.

H1-4: Voice and accountability have a negative effect on national poverty rates.

H1-5: Voice and accountability have a negative effect on income inequality.

H2: There is a significant relationship between political stability and absence of violence/terrorism and economic performance.

H2-1: Political stability and the absence of violence/terrorism have a positive effect on the annual growth rates of the GDP.

H2-2: Political stability and absence of violence/terrorism have a positive effect on the annual growth rates of the GDP per capita.

H2-3: Political stability and the absence of violence/terrorism have a positive effect on the GDP deflator.

H2-4: Political stability and absence of violence/terrorism have a negative effect on the GDP national poverty rates.

H2-5: Political stability and absence of violence/terrorism have a negative effect on income inequality.

H3: There is a significant relationship between government effectiveness and economic performance.

H3-1: Government effectiveness has a positive effect on the annual growth rates of the GDP.

H3-2: Government effectiveness has a positive effect on the annual growth rates of the GDP per capita.

H3-3: Government effectiveness has a positive effect on the real GDP deflator.

H3-4: Government effectiveness has a negative effect on national poverty rates.

H3-5: Government effectiveness has a negative effect on income inequality.

H4: There is a significant relationship between regulatory quality and economic performance.

H4-1: Regulatory quality has a positive effect on the annual growth rates of the GDP.

H4-2: Regulatory quality has a positive effect on the annual growth rates of the GDP per capita.

H4-3: Regulatory quality has a positive effect on the GDP deflator.

H4-4: Regulatory quality has a negative effect on national poverty rates.

H4-5: Regulatory quality has a negative effect on income inequality.

H5: There is a significant relationship between rule of law and economic performance.

H5-1: Rule of law has a positive effect on the annual growth rates of the GDP.

H5-2: Rule of law has a positive effect on the annual growth rates of the GDP per capita.

H5-3: Rule of law has a positive effect on the GDP deflator.

H5-4: Rule of law has a negative effect on national poverty rates.

H5-5: Rule of law has a negative effect on income inequality.

H6: There is a significant relationship between control of corruption and economic performance.

H6-1: Control of corruption has a positive effect on the annual growth rates of the GDP.

H6-2: Control of corruption has a positive effect on the annual growth rates of the GDP per capita.

H6-3: Control of corruption has a positive effect on the GDP deflator.

H6-4: Control of corruption has a negative effect on national poverty rates.

H6-5: Control of corruption has a negative effect on income inequality.

H7: There is a significant relationship between trade openness and economic performance.

H7-1: Trade openness has a positive effect on the annual growth rates of the GDP.

H7-2: Trade openness has a positive effect on the annual growth rates of the GDP per capita.

H7-3: Trade openness has a positive effect on the GDP deflator.

H7-4: Trade openness has a negative effect on national poverty rates.

H7-5: Trade openness has a negative effect on income inequality.

H8: There is a significant relationship between financial openness and economic performance.

H8-1: Financial openness has a positive effect on the annual growth rates of the GDP.

H8-2: Financial openness has a positive effect on the annual growth rates of the GDP per capita.

H8-3: Financial openness has a positive effect on the GDP deflator.

H8-4: Financial openness has a negative effect on national poverty rates.

H8-5: Financial openness has a negative effect on income inequality.

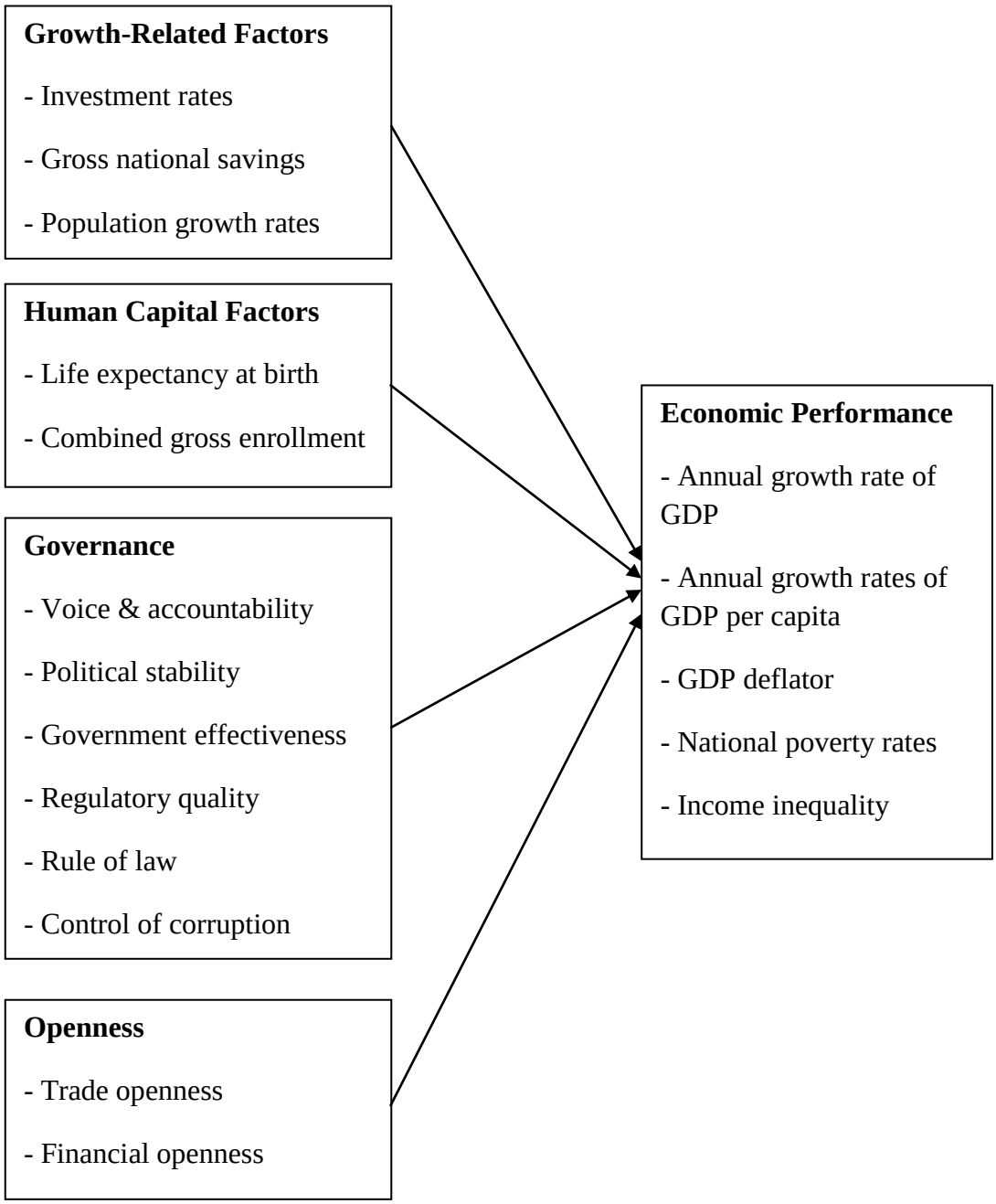

Figure 2.1 Conceptual Framework

Figure 2.1 presents the conceptual framework of this study, which consists of four groups of independent variables: growth-related factors (including investment rates, gross national savings, and population growth rates), the human capital factors (including life expectancy at birth and combined gross enrollment), governance (including voice and accountability, political stability and absence of violence/ terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption), and openness (including trade openness and financial openness). The dependent variable on the other hand is economic performance, including of the annual growth rates of the GDP, the annual growth rates of the GDP per capita, GDP deflator, national poverty rates, and income inequality.

CHAPTER 3

RESEARCH METHODOLOGY

This study utilizes a quantitative method. Using cross-country data from selected developing countries over the period from 1996 to 2012, this research investigated the relationship between governance, openness, and economic performance. The countries investigated in this study were selected from the developing countries in Asia and Sub-Saharan Africa.

Therefore, in this research, the data will be explored in three stages. The first stage was to analyze the overall data on all possible developing countries for improving theories about the effect of governance and openness on economic performance. The second stage was to analyze the data on Asian developing countries and Sub-Saharan African developing countries separately. The results of both countries groups' equation were compared in order to find out how their quantitative effects were different. Lastly, the results for the second stage were described based on each region.

3.1 Sample Selection

For the duration of 1960 to 1990, Asia was considered to be among the strongest economic growth areas in the world. Specifically, the countries in East Asia such as Japan, the Republic of Korea, and China had some of the highest real growth rates of income per capita in the world. During those periods, these countries' economic growth was outstanding, which was generally known as the "East Asian Miracle". In contrast, the African countries experienced a period of a lack of economic growth, which Easterly and Levine (1997) described as "Africa's Growth Tragedy". This contrast was dramatic because the two regions started from similar levels of per capita income, economic structure and, to some extent, human resource development. Therefore it can be said that the gap in the economic growth process

now reflect dramatic differences in per capita GDP, as well as many other socio-economic indicators.

In accordance with a 40-year long period of growth (or lack of growth), the implications are not only divergent in terms of income, but also poverty, inequality, health as well as education.

3.1.1 Some Data about EA and SSA Economic Growth

Regarding the economic growth of East Asia (EA) and Sub-Saharan Africa (SSA) (data from the Penn World Tables (PWT), Heston, Summer and Aten (2002) reported that the two regions grew in different paths in the last 50 years. That is to say, the growth began from a quite small difference in per capita GDP (EA GDP in 1960 was 0.3 times the SSA GDP) and the areas ended up with an amazing difference: the mean East Asian GDP in 2000 was $13,500, while the African GDP was only $2,439. These differences have risen to a factor of 4.6. As a result, the differences reflected the annual rate of economic growth (1950-2000), which was 0.6% in the SSA and 4.4% in the EA (see figure 3.1).

In a broader view, during the periods of 1960 to 2000, the average world's economic growth rate of real per capita GDP was 1.8% per year, varying from a maximum of 6.4% for Taiwan to a minimum of -3.2% for the Democratic Republic of the Congo. The real effect of this dramatic difference in economic growth is that Taiwan has raised its real GDP by a factor of 13 (from $1430 to $18,730 in 2000), while the Congolese GDP lowered its real GDP by a factor of 0.3 (from $980 to $320 in 1995). Of the 16 countries that experienced a negative rate of growth, 14 were SSA countries and, in terms of mean, the continent grew only 0.6% per year (Barro and Sala-i-Martin, 2003).

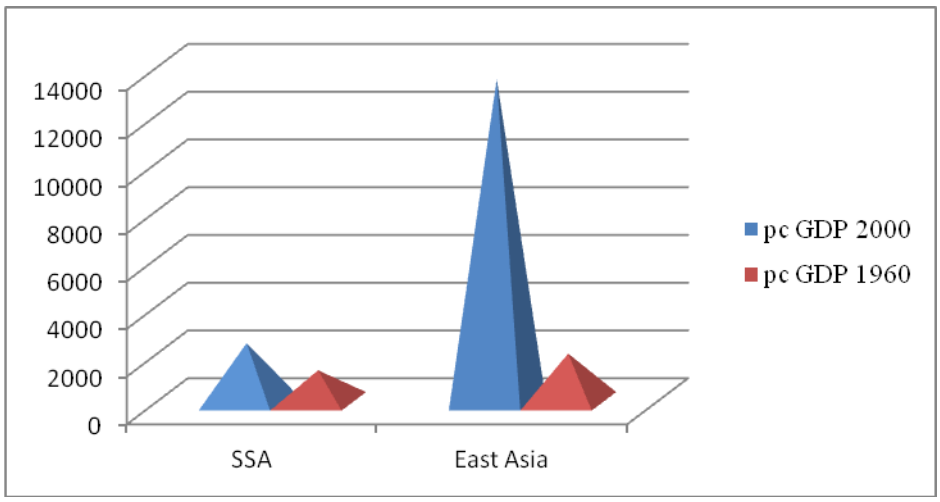

Figure 3.1 Divergence

Source: Heston, Summer and Aten, 2002.

With regards to African's Growth Tragedy and East Asian Miracle, Lawrence and Thirtle (2001b) claimed that the EA as well as the SSA have not shown any convergence trend in the last 40 years. Nonetheless, the gap between the two regions became wider and wider. Particularly, in 1960 the divergence in the economic growth in four EA counties and four SSA counties, which were in similar conditions, showed that there were striking differences during four decades: the "Asian-African divergence (is outlined not only by the differences in per capita GDP, but also by other indicators) especially in manufacturing growth and exports, and in human capital indicators" (Lawrence and Thirtle, 2001b: 3). This amazing gap between East Asia and Sub-Saharan Africa leads directly to the question of what the fundamental factors are that explain such differences, and what should be done to stimulate economic growth.

It is interesting to compare between the history of Asia and SSA economy in terms of the factors that affect economic performance. This includes the governance factor and openness factor, which there is a big difference between two regions, presently, the conditions of the governance and openness in Asia are better than in SSA. Therefore, the two regions are compared to find out how their quantitative effects were different; the results from this study will be useful for each region in terms of the development of their economy. The duration of this study (1996-2012: 17

years) covers the East Asian Miracle event and Africa's Growth Tragedy event. Seventeen years were considered a suitable period for running the regression on a time series.

The sample selected for the study was thirty countries from Asia and forty-two countries from Sub-Saharan Africa (see Table 3.1).

Table 3.1 List of Asian and Sub-Saharan African Countries

Asia	Sub-Saharan Africa
Afghanistan, Armenia, Azerbaijan, Bangladesh, Bhutan, Cambodia, China, Georgia, India, Indonesia, Iran, Iraq, Jordan, Kazakhstan, Kyrgyz Republic, Laos, Lebanon, Malaysia, Maldives, Mongolia, Nepal, Pakistan, the Philippines, Sri Lanka, Syrian Arab Republic, Tadzhikistan, Thailand, Timor-Leste, Uzbekistan, Vietnam, and Republic of Yemen	Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central Africa, Chad, Comoros, Congo Dem. Rep., Congo Rep., Cote d'lvoire, Djibouti, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bisau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Swaziland, Tanzania, Togo, Uganda, and Zambia

3.2 Data Collection

This research relied on secondary data or existing statistics by employing the cross-country data from several sources. The details regarding the measurement and the source of each variable included in this study are shown in Table 3.2.

Table 3.2 Measurements and Sources of the Variables

Variable	Measurement	Source
1. GDP growth rate (annual %)	Annual percentage growth rate of GDP at market prices based on constant local currency. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products.	The World Bank
2. GDP per capita growth rate (annual %)	This variable is based on constant local currency. GDP per capita is gross domestic product divided by midyear population. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.	The World Bank
3. GDP deflator (annual %)	The GDP deflator is a measure of the level of prices of all new, domestically produced, final goods and services in an economy. It is a price index that measures price inflation or deflation, and is calculated using nominal GDP and real GDP.	The World Bank
4. National poverty rates	This variable is measured as the percentage of the population living below the national poverty line. National estimates are based on	The World Bank

Table 3.2 (Continued)

Variable	Measurement	Source
	population-weighted subgroup estimates from household surveys.	
5. Income inequality	In this study, income inequality is measured as the ratio of the income share of the top quintile (20%) to that of the bottom quintile (20%).	The World Bank
6. Investment rates	Investment rates refer to the share of total GDP that is devoted to investment fixed assets.	The World Bank
7. Gross national savings	Gross national savings are the sum of private and public savings. They are calculated as GDP minus final consumption expenditure (total consumption).	The World Bank
8. Population growth rates	Annual population growth rate for year t is the exponential rate of growth of midyear population from year t-1 to t, expressed as a percentage.	The World Bank
9. Life expectancy at birth	This variable indicates the number of years a newborn infant would live if prevailing patterns for mortality at the time of its birth were to stay the same throughout its life.	The World Bank
10. Combined gross enrollment	This variable is the number of students enrolled in primary, secondary, and tertiary levels of education, regardless of age, as a percentage of the population of	The World Bank

Table 3.2 (Continued)

Variable	Measurement	Source
	theoretical school age for three levels.	
11. Voice and accountability	This variable captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. It is measured in units ranging from 0 to 100, with higher values corresponding to better governance outcomes.	The World Bank Development Indicators (WDI)
12. Political stability and absence of violence/terrorism	This variable captures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism. It is measured in units ranging from 0 to 100, with higher values corresponding to better governance outcomes.	The World Bank Development Indicators (WDI)
13. Government effectiveness	This variable captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility	The World Bank Development Indicators (WDI)

Table 3.2 (Continued)

Variable	Measurement	Source
	of the government's commitment to such policies. It is measured in units ranging from 0 to 100, with higher values corresponding to better governance outcomes.	
14. Regulatory quality	This variable captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector develop. It is measured in units ranging from 0 to 100, with higher values corresponding to better governance outcomes.	The World Bank Development Indicators (WDI)
15. Rule of law	This variable captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts. It is measured in units ranging from 0 to 100, with higher values corresponding to better governance outcomes.	The World Bank Development Indicators (WDI)
16. Control of Corruption	This variable captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the	The World Bank Development Indicators (WDI)

Table 3.2 (Continued)

Variable	Measurement	Source
	state by elites and private interests. It is measured in units ranging from 0 to 100, with higher values corresponding to better governance outcomes.	
17. Trade openness	Trade openness consists of imports and exports. Import of goods and services as percentage of GDP. Export of goods and services represent the value of all goods and other market services provided to the rest of the world. Export of goods and services (% of GDP).	The World Bank
18. Financial openness	Financial openness consists of foreign direct investment (FDI) net inflows and FDI net outflows. FDI net inflows are the value of inward direct investment made by non-resident investors in the reporting economy. FDI net outflows are the value of outward direct investment made by the residents of the reporting economy to external economies.	The World Bank

3.3 Validity

The measures used to assess the validity of data collection tools are summarized in Table 3.3.

Table 3.3 Measures for Assessing the Validity of Data Collection Tools

Content validity	Whether a tool appears to others to be measuring what it says it does. Face validity is a simple form of content validity—the researcher asks a few people to check the tool covers all areas. A more rigorous way to assess content validity is to ask recognized experts in the area to give their opinion on the validity of the tool.
Criterion validity	Concurrent or predictive validity are both measures of criterion validity. Concurrent validity uses an already existing and well-accepted measure against which the new measure can be compared—for example, if you were developing a new pain assessment tool you would compare the ratings obtained from the new tools with those obtained using a previously validated tool. Predictive validity measures the extent to which a tool can predict a future event of interest—for example, does a tool developed to measure the risk of pressure sores in children in hospital in fact identify the children at risk? Criterion validity is usually measured using a correlation coefficient—when the correlation is high, the tool can be considered valid.
Construct validity	This tests the link between a measure and the underlying theory. If a test has construct validity, you would expect to see a reasonable correlation with tests measuring related areas. Evidence of construct validity can be provided by comparing the results obtained with the results obtained using other tests, other (related) characteristics of the individual or factors in the individual's environment which would be expected to affect test performance. Construct validity is usually measured using a correlation coefficient—when the correlation is high, the tool can be considered valid.

Source: Knapp, 1998.

The study used a regression formula to produce a number called R-squared, which is a conservative but still powerful coefficient of determination. The interpretation of R-squared generally uses the same strength table as the correlation coefficients. Therefore R-squared can be used to measure criterion and constructed validity as well.

3.4 Data Analysis

After the data collection, a cross-country and time series analysis of the effect of governance and openness on economic performance was employed in the data analysis. Furthermore, this study also utilized a time series data analysis.

The steps of the data analysis were as follows. First, a general overview is given by reporting the mean scores and standard deviation of the indicators of economic performance and the measures of growth-related factors, human capital factors, governance, and openness. Secondly, the bivariate correlation coefficients between economic performance and each set of variables are presented. Finally, several multivariate regression models were tested, in which the effects on economic performance were controlled for contextual factors.

The impact of governance and openness on economic performance were estimated using cross-country regression analysis. The independent variables for the analysis were selected from the measures presented in the conceptual framework. The relationships between economic performance and each set of variables was evaluated using correlation coefficients.

The effects of growth-related factors, human capital factors, governance, and openness on economic performance were estimated with the following equation:

$$Y_i = a + b_1GR_i + b_2HC + b_3GO_i + b_4OP_i,$$

where Y_i is economic growth in country i, GR_i, HC_i, GO_i, and OP_i are growth-related factors, human capital factors, governance, and openness. This research was interested in the size, sign, and significance of the four coefficients b_1, b_2, b_3, and b_4.

Standard multiple regression analysis was performed with the computer program STATA 13. In addition to showing the predictive value of the overall model, standard multiple regression indicated how well each independent variable predicted the dependent variable. The Hausman specification test was used to test for the best model for analysing the relationship between the dependent variable and independent variables.

CHAPTER 4

OVERVIEW OF ASIA AND SUB-SAHARAN AFRICA

Before presenting the empirical results and discussion, it is worthwhile taking a meaningful overview of Asia and Sub-Saharan Africa in their qualitative aspects.

4.1 Overview of Governance

The past decades indicate that Asian countries and Sub-Saharan Africa (SSA) have achieved totally different levels of "governance". On the one hand, even though the Asian counties have encountered economic, social, and political challenges, some of the literature maintains that they have successfully managed and overcome those challenges. This means that their governance is steady and strong, and that they will continue to have economic, social, and political growth and stability in the coming decades. On the other hand, SSA seems to have experienced a very poor hand in relation to governance.

In support of this, Moore (2004) pointed out that there are factors that have caused SSA to fail in successful governance. To illustrate the point, the first factor is that SSA has a high level of domination by small groups that have power in the state. The second factor is the orientation of politics around resources of extrinsic/external origin, notably 1) very large "surpluses" from some natural resources exports (oil, diamonds, minerals), 2) aid, and 3) external political and military support. The last factor is militarization and armed conflict. Therefore, it can be said that these factors have led SSA to have very high levels of political and policy instability, vulnerability to external interventions of various kinds, and private manipulation of public power. In addition, Habtamu's study (n.d.) asserted that SSA's poor economic performance is likely to be attributed to bad governance.

4.2 Overview of Openness

Over the past years, the economic openness has been affected by volatile as well as complex pace of globalization, as these were consequence of uncertainty regarding the downside risk. With regard to this, one of the important elements, which are a major driver of economic transformation, employment creation, technological improvement, and economic growth, is foreign direct investment (FDI). It can be explained that FDI plays a very vital role in economic development, foreign exchange rate, investment, and tax revenue (Smith, 1997; Quazi, 2007).

According to Anyanwu (2006) and Dupasquier and Osakwe (2006), FDI plays a significant role in SSA's economic development agenda. This includes domestic savings, employment creation as well as growth, integration into the global economy, technological transferring, enhancement of efficiency, and raising skills of local manpower. However, SSA continually attracts a low level of FDI. For example, the inflows of FDI in 1980-1989 were 2.6% of the world average, 1.9% in 1990-1999, and 3.2% in 2000-2009. These percentages can be compared to those of Asian countries, and it can be stated that during the same period the Asian countries received 14.2%, 19.1%, and 19.1% respectively of the total world FDI average (Anyanwu, 2011).

As far as the Asian countries are concerned, the Asia Foundation has a long history in supporting the Asian countries' economic development. The foundation, then, has supported the local business community and labor, which are keys to economic openness and competitiveness. Additionally, the foundation has also supported national and regional organizations and initiatives that promote economic reforms and cooperation. Furthermore, the foundation has helped to strengthen the countries' dialogue and engagement in trade and financial sector development by means of investing modest resources on interventions and networking. As a result, the economic development policy of the countries and its implementation effectively support investment and growth. Moreover, the foundation goes on to maintain the relationships with some regional groups and also pursue to find out new means in order to bolster the voice of the private sector in both national and regional policymaking (The Asia Foundation, 2015).

4.3 Overview of Economic Performance

Asia is the fastest-growing economic region and the largest continental economy by gross domestic product (GDP) in the world, as presented in table 4.1. The continent also has been said to have the world's longest economic booms. During the period of 1950-1990, there was the Japanese economic miracle; in 1961-1996 there was the Miracle of the Han River in South Korea; and in 1978-2013 there was an economic boom in China. In the same vein, Asia's largest economies in terms of GDP are China, India, Japan, Russia, South Korea, Indonesia, Turkey, Iran, Saudi Arabia, Taiwan, Thailand, Pakistan, Malaysia and the Philippines. With regards to nominal GDP, the largest economies are China, Japan, India, Russia, South Korea, Indonesia, Turkey, the Philippines, Saudi Arabia, Taiwan, the United Arab Emirates, Thailand, Iran, Malaysia, and Singapore."Wealth (measured by GDP per capita) is mostly concentrated in the East Asian territories of Brunei, Hong Kong, Japan, Macau, Singapore, South Korea, and Taiwan, as well as in oil rich countries in West Asia such as Saudi Arabia, Qatar, the United Arab Emirates, Bahrain, Iran, Kuwait, and Oman. Israel and, to a lesser extent, Turkey, are exceptions: both lie in the territory of Asia despite not often being counted as such" (Asia, 2014: 1). Israel is a developed country, while Turkey is an advanced emerging country. Asia, with the exception of Japan, South Korea, Taiwan, Hong Kong, and Singapore, is currently undergoing rapid growth and industrialization, spearheaded by China and India, the two fastest-growing major economies in the world. Both East Asian and Southeast Asian countries, in general, depend on the growth of manufacturing and trade. However, the economic growth of some Middle East countries rest on more commodities, especially oil. "Over the years, with rapid economic growth and a large trade surplus with the rest of the world, Asia has accumulated over US$4 trillion foreign exchange reserves—more than half of the world's total" (Asia, 2014: 1).

Some of the important economic performance in Asia can be clarified according to year as follows. The Chinese economy boomed under the economic measures undertaken by Deng Xiaoping, in the late 1970s, and continued under Jiang Zemin in the 1990s. After the Indian economic liberalization, both India and China has become the center of economic growth (Wikimedia, 2015). For example, in the

year of 2007, the rate of economic growth of China was surpassing, which exceeded 11%. Similarly, the same could be started that India's economic growth rate also increased to around 9%. One of the factors that make the economy surpassingly grown was numbers of the population (Wikimedia, 2015).

Meanwhile, “South Korea, Taiwan, Hong Kong, and Singapore emerged as the Four Asian Tigers with their GDPs growing well above 7% per year in the 1980s and the 1990s. Their economies were mainly driven by growing exports. The Philippines only began to open up its stagnated economy in the early 1990s. Vietnam's economy began to grow in 1995, shortly after the United States and Vietnam restored economic and political ties” (Wikimedia, 2015).

For the duration of 1990s, many companies from developed countries were allowed to establish their factories in Asian developing countries. This was because of manufacturing ability as well as cheap labor in these countries. Therefore, “Asia became one of the largest sources of automobiles, machinery, audio equipment and other electronics” (Wikimedia, 2015).

However, at the end of 1997 many Southeast Asian countries had experienced economic problems, such as Thailand, as its annual growth rate dramatically fell. Later, “the crisis spread to Indonesia, Malaysia, South Korea, Hong Kong, Singapore and many other Asian economies, resulting in great economic damage on the affected countries (Japan largely escaped the crisis)” (Wikimedia, 2015). This later would be known as the Asian financial crisis (Wikimedia, 2015). By 1999, most of these countries had recovered from the crisis (Wikimedia, 2015).

In 2001, almost all of the Asian and global economies were affected by the September_11 attacks, with Indonesia and Japan hardest hit. However, in 2002/2003, the Asian and global economies began to recover from this event in the United States.

In 2004, some parts of Indonesia as well as South Asia were extremely hit by an earthquake and the tsunami. These big events massively damage the economic growth.

In the same vein, “Japan also suffered its worst post-World War II economic stagnation set in the early 1990s (which coincided with the end of Cold War), which was triggered by the latter event of Asian financial crisis in 1997. It, however, rebounded strongly in early 2000s due to strong growth in exports, although unable to

counteract China in 2005 after China gradually surpassed it as the largest economy in Asia" (Wikimedia, 2015).

In 2008, there was an occurrence global financial crisis that started from the Unite States. This crisis really causes serious economic downturn, mostly in the European countries. In contrary to those countries, the economy in most Asian countries, particularly, Japan, South Korea, and China, temporarily suffered economic slowdown (Wikimedia, 2015).

Since 2011, Syria, Lebanon, and Yemen were among the nations which affected by the Arab Spring. This caused economic regression in the Middle East. At the same time, in the early 2010s, Iraq, Saudi Arabia, the United Arab Emirates, and Kuwait had high GDP growths, these were because of increased oil prices as well as further diversification of exports (Wikimedia, 2015).

In 2013, because China changed the government, the country's economy experienced a significant downturn, GDP in particular. The significant slowdown could be seen from 9-10% annual growth to around 7-8%. This downturn also had an effect on other developing countries' economies, particularly, in Southeast Asian and India, except the Philippines (Wikimedia, 2015).

Meanwhile, the SSA's economic performance improved during the period of 1960s. However, after the first OPEC oil price shock in 1973-1974, SSA's economic performance was unstable. It, later on, experienced a downturn from the late 1970s to the early 1990s. In addition, since 1990, SSA's political landscape experienced significant changes, towards greater pluralism and democracy. Therefore, several years after 1995, SSA has seen a broad tendency towards rapid growth as civil strife has been avoided. These phenomena indicate that "political economy may offer useful perspectives on Africa's growth record over the last several decades" (Ndulu, et al., 1999: 1). Ndulu et al. (1999) asserted that SSA's political reforms of the 1990s have helped to generate economic performance.

Table 4.1 Percentage shares in world GDP

	1980	**1990**	**2000**	**2013**	**2019**
Asia	7.5	10.8	14.5	25.9	30.5
Sub-Saharan Africa	2.7	2.4	2.0	2.6	2.9

4.4 Comparison of the Descriptive Statistics between Asia and Sub-Saharan Africa

This section provides the descriptive statistics and a discussion of the data used to test the hypotheses in this research. The data were arrayed as a time-series cross-section of 31 countries in Asia and 42 countries in SSA for 17 years (1996-2012). A summary of the statistics for the data of Asia and SSA is presented in Table 4.2 and Table 4.3 respectively. According to the statistics, it shows that Asia had better economic performance than SSA. Asia had higher annual GDP growth rates and higher annual GDP growth rates per capita, and lower income inequality and lower national poverty rates.

With regard to political institutions, Asia had higher mean scores than SSA's in all measures, including voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, and rule of law. On the other hand, SSA had a few higher mean scores than Asia's only in control of corruption. In accordance with openness aspect, Asia had a higher mean score than SSA in trade openness. However, Asia had a lower mean score than SSA in financial openness.

Table 4.2 Summary of the Statistics for Asia

Variable	Mean	Standard Deviation	Minimum	Maximum
Annual growth rates of GDP	5.996734	4.473568	-16.7	34.5
Annual growth rates of GDP per capita	4.390955	4.527266	-17.8	33
GDP deflator	15.0892	56.12802	-18.9	1014.3
Income inequality	44.96979	4.50088	37.7	65.7
National poverty rates	24.26392	15.73558	1.7	96
Investment rates	27.50394	9.988578	8	66
Gross national savings	24.98425	15.7256	-3.5	85
Population growth rate	1.572616	.735869	-1.7	3.9
Life expectancy at birth	67.86096	4.465317	57	78
Combined gross enrollment	66.555	18.97564	2	124
Voice and accountability	.439142	.1644959	.01	.81
Political stability and absence of violence/terrorism	.5709763	.2138802	.13	1
Government effectiveness	.450625	.1501101	0	.85
Regulatory quality	.4396154	.1450514	0	.81
Rule of law	.493432	.1466442	.13	.75
Control of corruption	.3575636	.1621348	0	.79
Trade openness	71.19629	35.30512	17.7	192.1
Financial openness	3.995262	6.12773	-4	53.8

Table 4.3 Summary of the Statistics for Sub-Saharan Africa

Variable	Mean	Standard Deviation	Minimum	Maximum
Annual growth rates of GDP	4.612996	6.447143	-32.8	106.3
Annual growth rates of GDP per capita	1.988372	5.861164	-34	91.7
GDP deflator	28.78632	264.7193	-27	5399.5
Income inequality	50.5625	6.602356	39.4	72.5
National poverty rates	48.51375	13.19858	19.3	75.3
Investment rates	19.63248	8.87359	-2	75
Gross national savings	9.031384	18.46368	-88	78
Population growth rate	2.541724	.9776527	-.2	10.3
Life expectancy at birth	53.32285	6.253307	35	74
Combined gross enrollment	55.51502	30.61762	1	412
Voice and accountability	.3607807	.1781497	0	1
Political stability and absence of violence/terrorism	.5695515	.2177581	.13	1
Government effectiveness	.399701	.1412833	.13	.81
Regulatory quality	.4086397	.1542492	.06	.88
Rule of law	.4303488	.1649929	.06	1
Control of corruption	.3583216	.1550159	0	.75
Trade openness	59.46197	41.574	7.8	743.4
Financial openness	4.458678	9.33846	-82.9	91

CHAPTER 5

DESCRIPTIVE STATISTICS AND DATA ANALYSIS: RELATIONSHIP BETWEEN GOVERNANCE, OPENNESS, AND ECONOMIC PERFORMANCE IN DEVELOPING COUNTRIES

5.1 Descriptive Statistics

This section provides the descriptive statistics and a discussion of the data used to test the hypotheses in this research. The data were arrayed as a time-series cross-section of 109 countries for 17 years (1996-2012). The summary statistics for the data on developing countries are presented in Table 5.1.

Table 5.1 Summary Statistics for Developing Countries

Variable	Mean	Standard Deviation	Minimum	Maximum
Annual growth rates of GDP	4.664107	6.285215	-62.1	106.3
Annual growth rates of GDP per	2.954507	6.143086	-62.5	102.8
capita	18.5444	166.1989	-32.8	5399.5
GDP deflator	49.50018	7.722402	33.7	72.2
Income inequality	32.14	16.96883	1.7	96
National poverty rates	22.48114	8.44268	-2	75
Investment rates	13.75511	16.7915	-88	78
Gross national savings	1.660486	1.246309	-2.5	10.3
Population growth rate				
Life expectancy at birth	64.17552	9.656688	35	80
Combined gross enrollment	67.07279	25.1346	1	412

Table 5.1 (Continued)

Variable	Mean	Standard Deviation	Minimum	Maximum
Voice and accountability	.4430263	.1787867	0	.94
Political stability and absence of violence/terrorism	.5861278	.2001859	.13	1
Government effectiveness	.461744	.1547794	.13	.88
Regulatory quality	.4736905	.1638544	.13	.94
Rule of law	.4688534	.150692	.06	.81
Control of corruption	.3879853	.1650212	0	.88
Trade openness	63.58652	35.63881	7.8	743.4
Financial openness	4.287236	6.933888	-82.9	91

5.2 Data Analysis

The researcher specified the symbols of the variables analyzed in this research as follows:

Dependent Variables

Y1 = annual growth rates of GDP

Y2 = annual growth rates of GDP per capita

Y3 = GDP deflator

Y4 = National poverty rates

Y5 = Income inequality

Independent Variables

X1 = Investment rates

X2 = Gross national savings

X3 = Population growth rate

X4 = Life expectancy at birth

X5 = Combined gross enrollment

X6 = Voice and accountability

X7 = Political stability and absence of violence/terrorism

X8 = Government effectiveness

X9 = Regulatory quality

X10=Rule of law

X11=Control of corruption

X12=Trade openness

X13=Financial openness

5.2.1 The Relationship between Governance, Openness, and Annual Growth Rates of GDP

In order to determine the presence of multicollinearity, the statistics needed to be considered. According to Table 5.2, the VIF value for each independent variable was less than 10. Therefore, the multicollinearity assumption was not violated.

Table 5.2 Variance Inflation Factor (VIF) of Predictor Variables

Variable	VIF	1/VIF
Investment rates	1.50	0.664966
Gross national savings	1.29	0.777949
Population growth rates	1.68	0.805210
Life expectancy at birth	1.79	0.557577
Combined gross enrollment	1.21	0.828105
Voice and accountability	3.31	0.301835
Political stability	1.79	0.557239
Government effectiveness	4.13	0.242332
Regulatory quality	4.69	0.213035
Rule of law	3.02	0.331154
Control of corruption	1.74	0.575615
Trade openness	1.28	0.780223
Financial openness	1.31	0.762879
Mean VIF	2.21	

The results in Table 5.3 show the multiple regression analysis of the significant predictor variables and annual growth rates of the GDP. According to the results of the regression coefficient of the predictor variables, it was found that government effectiveness had the greatest positive relationship with GDP growth rates at the significance level of 0.05. The regression coefficient was 7.158. The following variable is control of corruption with a regression coefficient of 4.149, gross national savings with a regression coefficient of .108, investment rates with a regression coefficient of .080, and trade openness with a regression coefficient .49. On the other hand, regulatory quality and life expectancy at birth had a negative relationship with the annual growth rates of the GDP with a regression coefficient of 7.12 and .218 respectively.

However, the relationship between regulatory quality, life expectancy at birth, and annual growth rate of the GDP contradicted the theoretical predictions. The equation which predicted the annual growth rates of the GDP of the developing countries is shown in the form of an equation as follows:

$$Y1 = 11.078 + .080X1 + .108X2 - .218X4 + 7.158X8 – 7.12X9 + 4.149X11 + .049X12$$

The STATA printout regarding the relationship between governance, openness, and economic performance in developing countries is shown in Appendix A.

Table 5.3 Multiple Regression Analysis of the Significant Predictor Variables and Annual Growth Rates of GDP

GDP growth rates	**Coef.**	**Std. Err.**	**t**	**P > $\|t\|$**
Investment rates	.080	.026	2.99	0.003*
Gross national savings	.108	.018	5.93	0.000*
Population growth rates	.537	.279	1.92	0.055
Life expectancy at birth	-.218	.076	-2.87	0.004*
Combined gross enrollment	-.007	.006	-1.15	0.249

Table 5.3 (Continued)

GDP growth rates	Coef.	Std. Err.	t	P > |t|
Voice and accountability	.000	2.131	0.00	1.000
Political stability	2.135	1.520	1.41	0.160
Government effectiveness	7.158	2.869	2.49	0.013*
Regulatory quality	-7.12	2.716	-2.62	0.009*
Rule of law	-4.299	2.638	-1.63	0.104
Control of corruption	4.149	1.817	2.28	0.023*
Trade openness	.049	.010	4.72	0.000*
Financial openness	.046	.028	1.64	0.102
Constant	11.078	4.568	2.43	0.015
F test that all u_i = 0:	F (108,1087) = 3.09		Prob > F = 0.0000	

Note: *P<0.05

5.2.2 The Relationship between Governance, Openness, and Annual Growth Rates of GDP Per Capita

In order to determine the presence of multicollinearity, the statistics needed to be considered. According to Table 5.4, the VIF value for each independent variable was less than 10. Therefore, the multicollinearity assumption was not violated.

Table 5.4 Variance Inflation Factor (VIF) of Predictor Variables

Variable	VIF	1/VIF
Investment rates	1.51	0.663424
Gross national savings	1.28	0.778269
Population growth rates	1.68	0.594465
Life expectancy at birth	1.79	0.558990
Combined gross enrollment	1.21	0.829577
Voice and accountability	3.31	0.301922

Table 5.4 (Continued)

Variable	VIF	1/VIF
Political stability	1.80	0.557068
Government effectiveness	4.14	0.241391
Regulatory quality	4.70	0.212975
Rule of law	3.04	0.329412
Control of corruption	1.74	0.575517
Trade openness	1.28	0.780122
Financial openness	1.31	0.763254
Mean VIF	2.21	

The results in Table 5.5 show the multiple regression analysis of the significant predictor variables and annual growth rates of GDP per capita. According to results of the regression coefficient of the predictor variables, it was found that government effectiveness had the greatest positive relationship with annual growth rates of GDP per capita at the significance level of 0.05. The regression coefficient was 7.472. The following variable is control of corruption with a regression coefficient of 4.191, gross national savings with a regression coefficient of .105, investment rates with a regression coefficient of .078, and trade openness with a regression coefficient of .048. Regulatory quality and life expectancy at birth had a negative relationship with annual growth rates of GDP per capita with a regression coefficient of 7.126 and .220 respectively.

Table 5.5 Multiple Regression Analysis of the Significant Predictor Variables and Annual Growth Rates of GDP per Capita

GDP per Capita	Coef.	Std. Err.	t	P > $\|t\|$
Investment rates	.078	.026	2.95	0.003*
Gross national savings	.105	.017	5.87	0.000*
Population growth rates	-.502	.275	-1.82	0.068

Table 5.5 (Continued)

GDP per Capita	Coef.	Std. Err.	t	P > |t|
Life expectancy at birth	-.220	.075	-2.94	0.003*
Combined gross enrollment	-.007	.006	-1.16	0.248
Voice and accountability	-.047	2.099	-0.02	0.982
Political stability	1.963	1.499	1.31	0.191
Government effectiveness	7.472	2.838	2.63	0.009*
Regulatory quality	-7.126	2.675	-2.66	0.008*
Rule of law	-4.463	2.610	-1.71	0.088
Control of corruption	4.191	1.790	2.34	0.019*
Trade openness	.048	.010	4.71	0.000*
Financial openness	.048	.027	1.74	0.082
Constant	11.342	4.498	2.52	0.012
F test that all u_i = 0:	F (108,1082) = 3.05		Prob > F = 0.0000	

Note: *P<0.05

The equation which predicted the annual growth rates of the GDP per capita of developing countries is shown in the form of an equation as follows:

Y2 = 11.342 + .078X1 + .105X2 - .220X4 + 7.472X8 – 7.126X9 + 4.191X11 + .048X12

5.2.3 The Relationship between Governance, Openness, and GDP Deflator

In order to determine the presence of multicollinearity, the statistics needed to be considered. According to Table 5.6, the VIF value for each independent variable was less than 10. Therefore, the multicollinearity assumption was not violated.

Table 5.6 Variance Inflation Factor (VIF) of Predictor Variables

Variable	VIF	1/VIF
Investment rates	1.50	0.664966
Gross national savings	1.29	0.777949
Population growth rates	1.68	0.594119
Life expectancy at birth	1.79	0.557577
Combined gross enrollment	1.21	0.828105
Voice and accountability	3.31	0.301835
Political stability	1.79	0.557239
Government effectiveness	4.13	0.242332
Regulatory quality	4.69	0.213035
Rule of law	3.02	0.331154
Control of corruption	1.74	0.575615
Trade openness	1.28	0.780223
Financial openness	1.31	0.762879
Mean VIF	2.21	

The results in Table 5.7 show the multiple regression analysis of the significant predictor variables and GDP deflator. According to results of the regression coefficient of the predictor variables, it was found that rule of law had the greatest positive relationship with GDP deflator at the significance level of 0.05. The regression coefficient was 21.496. The following variables were financial openness, with a regression coefficient of .301, gross national savings with a regression coefficient of .199, and trade openness with a regression coefficient of .091. Regulatory quality, political stability, voice and accountability, life expectancy at birth, and combined gross enrollment had negative relationships with GDP deflator with a regression coefficient of 24.021, 19.074, 18.955, .855, and .052 respectively.

Table 5.7 Multiple Regression Analysis of the Significant Predictor Variables and GDP Deflator

GDP Deflator	Coef.	Std. Err.	t	P > |t|
Investment rates	-.171	.104	-1.63	0.104
Gross national savings	.199	.071	2.81	0.005*
Population growth rates	.101	1.088	0.09	0.926
Life expectancy at birth	-.855	.296	-2.88	0.004*
Combined gross enrollment	-.052	.026	-2.00	0.046*
Voice and accountability	-18.955	8.298	-2.28	0.023*
Political stability	-19.074	5.919	-3.22	0.001*
Government effectiveness	8.153	11.175	0.73	0.466
Regulatory quality	-24.021	10.576	-2.27	0.023*
Rule of law	21.496	10.276	2.09	0.037*
Control of corruption	2.458	7.078	0.35	0.728
Trade openness	.091	.040	2.27	0.023*
Financial openness	.301	.110	2.73	0.007*
Constant	79.094	17.789	4.45	0.000
F test that all u_i = 0:	F (108,1087) = 3.49		Prob > F = 0.0000	

Note: *P<0.05

The equation which predicted the annual growth rates of the GDP deflator of developing countries is shown in the form of an equation as follows:

Y3 = 79.094 + .199X2 - .855X4 - .052X5 – 18.955X6 – 19.074X7 – 24.021X9 + 21.496X10 + .091X12 + .301X13

5.2.4 The Relationship between Governance, Openness, and National Poverty Rates

In order to determine the presence of multicollinearity, the statistics needed to be considered. According to Table 5.8, the VIF value for each independent variable was less than 10. Therefore, the multicollinearity assumption was not violated.

Table 5.8 Variance Inflation Factor (VIF) of Predictor Variables

Variable	VIF	1/VIF
Investment rates	1.50	0.668782
Gross national savings	1.33	0.750718
Population growth rates	1.61	0.620407
Life expectancy at birth	1.71	0.583623
Combined gross enrollment	1.32	0.757816
Voice and accountability	3.11	0.321919
Political stability	1.90	0.527064
Government effectiveness	4.22	0.236852
Regulatory quality	4.55	0.219844
Rule of law	3.02	0.331269
Control of corruption	1.83	0.546684
Trade openness	1.32	0.754898
Financial openness	1.32	0.757816
Mean VIF	2.21	

The results in Table 5.9 show the multiple regression analysis of the significant predictor variables and national poverty rate. According to results of the regression coefficient of the predictor variables, it was found that regulatory quality had the greatest negative relationship with national poverty rates at the significance level of 0.05. The regression coefficient was 15.245. The following variables were voice and accountability with a regression coefficient of 13.23, life expectancy at birth with a regression coefficient of 2.912, and investment rates with a regression coefficient of -.554. Government effectiveness and financial openness had a positive relationship

with national poverty rate with a regression coefficient of 20.075 and .313 respectively.

The equation which predicts national poverty rates of developing countries can be shown in the form of an equation as follows:

Y4 = 246.842 - .554X1 – 2.912X4 – 13.23X6 + 20.075X8 – 15.245X9 + .313X13

Table 5.9 Multiple Regression Analysis of the Significant Predictor Variables and National Poverty Rate

National Poverty Rate	**Coef.**	**Std. Err.**	**t**	**P > |t|**
Investment rates	-.554	.092	-5.99	0.000*
Gross national savings	-.011	.083	-0.14	0.890
Population growth rates	.967	1.234	0.78	0.434
Life expectancy at birth	-2.912	.273	-10.65	0.000*
Combined gross enrollment	-.039	.030	-1.30	0.193
Voice and accountability	-13.234	6.537	-2.02	0.044*
Political stability	6.602	4.455	1.48	0.140
Government effectiveness	20.075	8.230	2.44	0.015*
Regulatory quality	-15.245	7.039	-2.17	0.031*
Rule of law	-7.821	7.962	-0.98	0.327
Control of corruption	4.060	5.575	0.73	0.467
Trade openness	.020	.040	0.51	0.610
Financial openness	.313	.138	2.26	0.024*
Constant	246.842	18.218	13.55	0.000
F test that all u_i = 0:	F (91,281) = 17.57		Prob > F = 0.0000	

Note: *P<0.05

5.2.5 The Relationship between Governance, Openness, and Income Inequality

In order to determine the presence of multicollinearity, the statistics needed to be considered. According to Table 5.10, the VIF value for each independent variable was less than 10. Therefore, the multicollinearity assumption was not violated.

Table 5.10 Variance Inflation Factor (VIF) of Predictor Variables

Variable	VIF	1/VIF
Investment rates	1.50	0.668782
Gross national savings	1.33	0.750718
Population growth rates	1.61	0.620407
Life expectancy at birth	1.71	0.583623
Combined gross enrollment	1.32	0.757816
Voice and accountability	3.11	0.321919
Political stability	1.90	0.527064
Government effectiveness	4.22	0.236852
Regulatory quality	4.55	0.219844
Rule of law	3.02	0.331269
Control of corruption	1.83	0.546684
Trade openness	1.32	0.754898
Financial openness	1.32	0.755198
Mean VIF	2.21	

The results in Table 5.11 show the multiple regression analysis of the significant predictor variables and income inequality. According to results of the regression coefficient of the predictor variables, it was found that rule of law had the greatest negative relationship with income inequality at the significance level of 0.05. The regression coefficient was 6.392. The following variables were life expectancy at birth with a regression coefficient of .238, while, government effectiveness, voice and accountability, and gross national savings had a positive relationship with income inequality with a regression coefficient of 6.284, 4.621, and .059 respectively.

Table 5.11 Multiple Regression Analysis of the Significant Predictor Variables and Income Inequality

Income Inequality	**Coef.**	**Std. Err.**	**z**	**P > |z|**
Investment rates	-.061	.034	-1.79	0.073
Gross national savings	.059	.024	2.42	0.016*
Population growth rates	.316	.342	0.93	0.354
Life expectancy at birth	-.238	.064	-3.71	0.000*
Combined gross enrollment	.013	.010	1.27	0.204
Voice and accountability	4.621	2.301	2.01	0.045*
Political stability	-.354	1.710	-0.21	0.836
Government effectiveness	6.284	3.059	2.05	0.040*
Regulatory quality	2.286	2.810	0.81	0.416
Rule of law	-6.392	2.779	-2.30	0.021*
Control of corruption	2.789	2.037	1.37	0.171
Trade openness	-.010	.011	-0.95	0.342
Financial openness	.082	.054	1.50	0.132
Constant	59.775	4.036	14.81	0.000
Corr (u_i, x) = 0 (assumed)	Wald chi2 (13) = 44.05		Prob > chi2 = 0.0000	

Note: *P<0.05

The equation which predicted the income inequality of developing countries is shown in the form of an equation as follows:

$$Y5 = 59.775 + .059X2 - .238X4 + 4.621X6 + 6.284X8 – 6.392X10$$

5.3 Hypothesis Results

The relationship between governance, openness, and economic performance in developing countries are shown in Table 5.12.

Table 5.12 Hypothesis Results between Governance, Openness, and Economic Performance in Developing Countries

Hypothesis	From	To	p-value	Hypothesis Support
H1-1	Voice & accountability	GDP growth rates	1.000	
H1-2		GDP per capita	0.982	
H1-3		GDP deflator	0.023*	No
H1-4		National poverty rates	0.044*	Yes
H1-5		Income inequality	0.045*	Yes
H2-1	Political stability	GDP growth rates	0.160	
H2-2		GDP per capita	0.191	
H2-3		GDP deflator	0.001*	No
H2-4		National poverty rates	0.140	
H2-5		Income inequality	0.836	
H3-1	Government effectiveness	GDP growth rates	0.013*****	Yes
H3-2		GDP per capita	0.009*****	Yes
H3-3		GDP deflator	0.466	
H3-4		National poverty rates	0.015*	No
H3-5		Income inequality	0.040*	No

Table 5.12 (Continued)

Hypothesis	From	To	p-value	Hypothesis Support
H4-1	Regulatory quality	GDP growth rates	0.009*	No
H4-2		GDP per capita	0.008*	No
H4-3		GDP deflator	0.023*	No
H4-4		National poverty rates	0.031****	Yes
H4-5		Income inequality	0.416	
H5-1	Rule of law	GDP growth rates	0.104	
H5-2		GDP per capita	0.088	
H5-3		GDP deflator	0.037*	Yes
H5-4		National poverty rates	0.327	
H5-5		Income inequality	0.021*	Yes
H6-1	Control of corruption	GDP growth rates	0.023****	Yes
H6-2		GDP per capita	0.019****	Yes
H6-3		GDP deflator	0.728	
H6-4		National poverty rates	0.467	
H6-5		Income inequality	0.171	

Table 5.12 (Continued)

Hypothesis	From	To	p-value	Hypothesis Support
H7-1	Trade openness	GDP growth rates	0.000*****	Yes
H7-2		GDP per capita	0.000*****	Yes
H7-3		GDP deflator	0.023*	Yes
H7-4		National poverty rates	0.610	
H7-5		Income inequality	0.342	
H8-1	Financial openness	GDP growth rates	0.102	
H8-2		GDP per capita	0.082	
H8-3		GDP deflator	0.007*	Yes
H8-4		National poverty rates	0.024*****	Yes
H8-5		Income inequality	0.132	

Note: *P<0.05

CHAPTER 6

DATA ANALYSIS: RELATIONSHIP BETWEEN GOVERNANCE, OPENNESS, AND ECONOMIC PERFORMANCE IN ASIA

The researcher specified the symbols of the variables analyzed in this research as follows:

1) Dependent Variables
   - Y1 = Annual growth rates of GDP
   - Y2 = Annual growth rates of GDP per capita
   - Y3 = GDP deflator
   - Y4 = National poverty rates
   - Y5 = Income inequality
2) Independent Variables
   - X1 = Investment rates
   - X2 = Gross national savings
   - X3 = Population growth rate
   - X4 = Life expectancy at birth
   - X5 = Combined gross enrollment
   - X6 = Voice and accountability
   - X7 = Political stability and absence of violence/terrorism
   - X8 = Government effectiveness
   - X9 = Regulatory quality
   - X10 = Rule of law
   - X11 = Control of corruption
   - X12 = Trade openness
   - X13 = Financial openness

6.1 The Relationship between Governance, Openness, and Annual Growth Rates of GDP

In order to determine the presence of multicollinearity, the statistics needed to be considered. According to Table 6.1, the VIF value for each independent variable was less than 10. Therefore, the multicollinearity assumption was not violated.

Table 6.1 Variance Inflation Factor (VIF) of Predictor Variables

Variable	VIF	1/VIF
Investment rates	1.94	0.516156
Gross national savings	1.45	0.690577
Population growth rates	1.24	0.805210
Life expectancy at birth	1.50	0.665442
Combined gross enrollment	1.25	0.803027
Voice and accountability	2.50	0.400165
Political stability	1.83	0.547362
Government effectiveness	2.69	0.371911
Regulatory quality	3.56	0.280979
Rule of law	3.51	0.285222
Control of corruption	2.15	0.464229
Trade openness	1.50	0.666083
Financial openness	1.47	0.680702
Mean VIF	2.04	

The results in Table 6.2 show the multiple regression analysis of the significant predictor variables and annual growth rates of the GDP. According to results of the regression coefficient of the predictor variables, it was found that voice and accountability had the greatest positive relationship with GDP growth rates at the significance level of 0.05. The regression coefficient was 9.365. The following variables were financial openness with a regression coefficient of .156, and gross national savings with a regression coefficient .126.

The equation that predicted the annual growth rates of the GDP of Asia is shown as follows:

Y1 = .126X2 + 9.365X6 + .156X13

The STATA printout regarding the relationship between governance, openness, and economic performance in Asia is shown in Appendix B.

Table 6.2 Multiple Regression Analysis of the Significant Predictor Variables and Annual Growth Rates of GDP

GDP growth rates	**Coef.**	**Std. Err.**	**t**	**P > $\|t\|$**
Investment rates	.029	.053	0.54	.588
Gross national savings	.126	.037	3.38	.001*
Population growth rates	-.385	.679	-.57	.570
Life expectancy at birth	-.049	.170	-.29	.774
Combined gross enrollment	-.025	.019	-1.29	.199
Voice and accountability	9.365	4.608	2.03	.043*
Political stability	-1.741	2.663	-.65	.514
Government effectiveness	5.869	5.935	.99	.324
Regulatory quality	-5.621	5.575	-1.01	.314
Rule of law	-5.308	6.496	-.82	.415
Control of corruption	2.184	3.586	.61	.543
Trade openness	.030	.020	1.44	.151
Financial openness	.156	.063	2.47	.014*
Constant	3.799	11.493	.33	.741
F test that all u_i = 0:	F (23, 225) = 2.69		Prob > F = 0.0001	

Note: *P<0.05

6.2 The Relationship between Governance, Openness and Annual Growth Rates of GDP per Capita

In order to determine the presence of multicollinearity, the statistics needed to be considered. According to Table 6.3, the VIF value for each independent variable was less than 10. Therefore, the multicollinearity assumption was not violated.

Table 6.3 Variance Inflation Factor (VIF) of Predictor Variables

Variable	VIF	1/VIF
Investment rates	1.94	0.516156
Gross national savings	1.45	0.690577
Population growth rates	1.24	0.805210
Life expectancy at birth	1.50	0.665442
Combined gross enrollment	1.25	0.803027
Voice and accountability	2.50	0.400165
Political stability	1.83	0.547362
government effectiveness	2.69	0.371911
Regulatory quality	3.56	0.280979
Rule of law	3.51	0.285222
Control of corruption	2.15	0.464229
Trade openness	1.50	0.666083
Financial openness	1.47	0.680702
Mean VIF	2.04	

The results in Table 6.4 show the multiple regression analysis of the significant predictor variables and annual growth rates of GDP per capita. According to the results of the regression coefficient of the predictor variables, it was found that voice and accountability had the greatest positive relationship with annual growth rates GDP per capita at the significance level of 0.05. The regression coefficient was 9.257. The following variables were financial openness with a regression coefficient of .153, and gross national savings with a regression coefficient of .124, while only population

growth had negative relationship with annual growth rates GDP per capita with a regression coefficient of 1.404.

The equation that predicted the annual growth rates of the GDP per capita of Asia as follows:

$$Y2 = .124X2 – 1.404X3 + 9.257X6 + .153X13$$

Table 6.4 Multiple Regression Analysis of the Significant Predictor Variables and Annual Growth Rates of GDP per Capita

GDP per capita	**Coef.**	**Std. Err.**	**t**	**P > |t|**
Investment rates	.028	.053	0.54	.587
Gross national savings	.124	.036	3.38	.001*
Population growth rates	-1.404	.668	-2.10	.037*
Life expectancy at birth	-.050	.168	-.30	.766
Combined gross enrollment	-.025	.019	-1.30	.195
Voice and accountability	9.257	4.534	2.04	.042*
Political stability	-1.761	2.620	-.67	.502
Government effectiveness	5.837	5.841	1.00	.319
Regulatory quality	-5.610	5.486	-1.02	.308
Rule of law	-5.183	6.392	-.81	.418
Control of corruption	2.206	3.529	.63	.532
Trade openness	.029	.020	1.45	.148
Financial openness	.153	.062	2.48	.014*
Constant	3.902	11.310	.35	.730
F test that all u_i = 0:	F (23, 225) = 2.72		Prob > F = 0.0001	

Note: *P<0.05

6.3 The Relationship between Governance, Openness, and GDP Deflator

In order to determine the presence of multicollinearity, the statistics needed to be considered. According to Table 6.5, the VIF value for each independent variable was less than 10. Therefore, the multicollinearity assumption was not violated.

Table 6.5 Variance Inflation Factor (VIF) of Predictor Variables

Variable	VIF	1/VIF
Investment rates	1.94	0.516156
Gross national savings	1.45	0.690577
Population growth rates	1.24	0.805210
Life expectancy at birth	1.50	0.665442
Combined gross enrollment	1.25	0.803027
Voice and accountability	2.50	0.400165
Political stability	1.83	0.547362
Government effectiveness	2.69	0.371911
Regulatory quality	3.56	0.280979
Rule of law	3.51	0.285222
Control of corruption	2.15	0.464229
Trade openness	1.50	0.666083
Financial openness	1.47	0.680702
Mean VIF	2.04	

The results in Table 6.6 show the multiple regression analysis of the significant predictor variables and GDP deflator. According to results of the regression coefficient of the predictor variables, it was found that gross national savings had the greatest positive relationship with GDP deflator at the significance level of 0.05. The regression coefficient was .199. The following variables were trade openness with a regression coefficient of .108, whereas regulatory quality, voice and accountability, and life expectancy at birth had negative relationship with GDP deflator with a regression coefficient of 23.776, 20.131, and .660 respectively.

The equation that predicted GDP deflator of Asia is shown as follows:

$$Y3 = 62.847 + .199X2 – .660X4 – 20.131X6 – 23.776X9 + .108X12$$

Table 6.6 Multiple Regression Analysis of the Significant Predictor Variables and GDP Deflator

GDP Deflator	Coef.	Std. Err.	Z	P > |z|
Investment rates	-.129	.090	-1.43	.153
Gross national savings	.199	.057	3.45	.001*
Population growth rates	-.705	1.089	-.65	.517
Life expectancy at birth	-.660	.251	-2.63	.009*
Combined gross enrollment	.055	.037	1.46	.144
Voice and accountability	-20.131	6.969	-2.89	.004*
Political stability	-3.885	4.290	-.91	.365
Government effectiveness	-.192	7.905	-.02	.981
Regulatory quality	-23.776	8.964	-2.65	.008*
Rule of law	6.574	9.330	.70	.481
Control of corruption	-1.086	5.730	-.19	.850
Trade openness	.108	.027	3.93	.000*
Financial openness	-.009	.115	-.08	.936
Constant	62.847	16.443	3.82	.000
Corr (u_i, x) = 0 (assumed)	Wald chi2 (13) = 60.37		Prob > chi2 = 0.0000	

Note: *P<0.05

6.4 The Relationship between Governance, Openness, and National Poverty Rates

In order to determine the presence of multicollinearity, the statistics needed to be considered. According to Table 6.7, the VIF value for each independent variable was less than 10. Therefore, the multicollinearity assumption was not violated.

Table 6.7 Variance Inflation Factor (VIF) of Predictor Variables

Variable	VIF	1/VIF
Investment rates	1.68	0.595910
Gross national savings	1.65	0.694988
Population growth rates	1.72	0.580453
Life expectancy at birth	1.94	0.516481
Combined gross enrollment	1.13	0.885811
Voice and accountability	1.74	0.573099
Political stability	2.13	0.470515
Government effectiveness	3.09	0.323930
Regulatory quality	3.58	0.279152
Rule of law	3.28	0.304825
Control of corruption	2.52	0.396590
Trade openness	1.59	0.629418
Financial openness	1.51	0.662680
Mean VIF	2.12	

The result in Table 6.8 show the multiple regression analysis of the significant predictor variables and national poverty rates. According to results of the regression coefficient of the predictor variables, it was found that regulatory quality had the greatest negative relationship with national poverty rates at the significance level of 0.05. The regression coefficient was 47.438. The following variables were population growth rate, life expectancy at birth, and investment rates with a regression coefficient of 6.996, 4.017, and .384 respectively, whereas political stability and trade openness had a positive relationship with national poverty rates with a regression coefficient of 15.745 and .133 respectively.

The equation that predicted the national poverty rates of Asia is shown in the form of an equation as follows:

$$Y4 = 309.553-.384X1– 6.996X3–4.017X4+15.745X7–47.438X9 +.133X12$$

Table 6.8 Multiple Regression Analysis of the Significant Predictor Variables and National Poverty Rates

National poverty rates	Coef.	Std. Err.	z	P > |z|
Investment rates	-.384	.138	-2.77	.006*
Gross national savings	-.174	.113	-1.54	.123
Population growth rates	-6.996	1.855	-3.77	.000*
Life expectancy at birth	-4.017	.474	-8.46	.000*
Combined gross enrollment	.052	.072	.72	.470
Voice and accountability	-.203	11.141	-.02	.985
Political stability	15.745	5.777	2.73	.006*
Government effectiveness	6.230	15.768	.40	.693
Regulatory quality	-47.438	16.237	-2.92	.003*
Rule of law	19.109	15.632	1.22	.222
Control of corruption	8.545	10.038	.85	.395
Trade openness	.133	.047	2.84	.004*
Financial openness	-.022	.199	-.11	.912
Constant	309.553	30.882	10.02	.000
Corr (u_i, x) = 0 (assumed)	Wald chi2 (13) = 152.26		Prob > chi2 = 0.0000	

Note: *P<0.05

6.5 The Relationship between Governance, Openness, and Income Inequality

In order to determine the presence of multicollinearity, the statistics needed to be considered. According to Table 6.9, the VIF value for each independent variable was less than 10. Therefore, the multicollinearity assumption was not violated.

Table 6.9 Variance Inflation Factor (VIF) of Predictor Variables

Variable	VIF	1/VIF
Investment rates	1.68	0.595910
Gross national savings	1.65	0.694988
Population growth rates	1.72	0.580453
Life expectancy at birth	1.94	0.516481
Combined gross enrollment	1.13	0.885811
Voice and accountability	1.74	0.573099
Political stability	2.13	0.470515
Government effectiveness	3.09	0.323930
Regulatory quality	3.58	0.279152
Rule of law	3.28	0.304825
Control of corruption	2.52	0.396590
Trade openness	1.59	0.629418
Financial openness	1.51	0.662680
Mean VIF	2.12	

The results in Table 6.10 show the multiple regression analysis of the significant predictor variables and income inequality. According to results of the regression coefficient of the predictor variables, it was found that control of corruption and population growth rates had a positive relationship with income inequality at the significance level of 0.05. The regression coefficient was 8.518 and 1.675.

The equation that predicted the income inequality of Asia is shown in the form of equation as follows:

$$Y5 = 1.675X3 + 8.518X11$$

Table 6.10 Multiple Regression Analysis of the Significant Predictor Variables and Income Inequality

Income inequality	**Coef.**	**Std. Err.**	**t**	**P > |t|**
Investment rates	-.047	.058	-.81	.424
Gross national savings	.033	.045	.74	.463
Population growth rates	1.675	.798	2.10	.040*
Life expectancy at birth	.257	.158	1.62	.111
Combined gross enrollment	.029	.026	1.14	.259
Voice and accountability	.500	4.246	.12	.907
Political stability	-.787	2.892	-.27	.786
Government effectiveness	-1.272	5.320	-.24	.812
Regulatory quality	7.856	5.702	1.38	.173
Rule of law	4.228	5.230	.81	.422
Control of corruption	8.518	3.789	2.25	.028*
Trade openness	.007	.018	.39	.701
Financial openness	-.246	.167	-1.47	.146
Constant	15.658	11.059	1.42	.162
F test that all u_i = 0:	F (13, 62) = 4.14		Prob > F = 0.0001	

Note: *P<0.05

6.6 Hypotheses Results

The relationship between governance, openness, and economic performance in Asia is shown in Table 6.11

Table 6.11 Hypothesis Results between Governance, Openness, and Economic Performance in Asia

Hypothesis	From	To	p-value	Hypothesis Support
H1-1	Voice & accountability	GDP growth rates	0.043*	Yes
H1-2		GDP per capita	0.042*	Yes
H1-3		GDP deflator	0.004*	No
H1-4		National poverty rates	0.985	
H1-5		Income inequality	0.907	
H2-1	Political stability	GDP growth rates	0.514	
H2-2		GDP per capita	0.502	
H2-3		GDP deflator	0.365	
H2-4		National poverty rates	0.006*	No
H2-5		Income inequality	0.786	
H3-1	Government effectiveness	GDP growth rates	0.324	
H3-2		GDP per capita	0.319	
H3-3		GDP deflator	0.981	
H3-4		National poverty rates	0.693	
H3-5		Income inequality	0.812	

Table 6.11 (Continued)

Hypothesis	From	To	p-value	Hypothesis Support
H4-1	Regulatory quality	GDP growth rates	0.314	
H4-2		GDP per capita	0.308	
H4-3		GDP deflator	0.008*	No
H4-4		National poverty rates	0.003*****	Yes
H4-5		Income inequality	0.173	
H5-1	Rule of law	GDP growth rates	0.415	
H5-2		GDP per capita	0.418	
H5-3		GDP deflator	0.481	
H5-4		National poverty rates	0.222	
H5-5		Income inequality	0.422	
H6-1	Control of corruption	GDP growth rates	0.543	
H6-2		GDP per capita	0.532	
H6-3		GDP deflator	0.850	
H6-4		National poverty rates	0.395	
H6-5		Income inequality	0.028*	No

Table 6.11 (Continued)

Hypothesis	From	To	p-value	Hypothesis Support
H7-1	Trade openness	GDP growth rates	0.151	
H7-2		GDP per capita	0.148	
H7-3		GDP deflator	0.000*	Yes
H7-4		National poverty rates	0.004*	No
H7-5		Income inequality	0.701	
H8-1	Financial openness	GDP growth rates	0.014*	Yes
H8-2		GDP per capita	0.014*	Yes
H8-3		GDP deflator	0.936	
H8-4		National poverty rates	0.912	
H8-5		Income inequality	0.146	

Note: *P<0.05

CHAPTER 7

DATA ANALYSIS: RELATIONSHIP BETWEEN GOVERNANCE, OPENNESS, AND ECONOMIC PERFORMANCE IN SUB-SAHARAN AFRICA

The researcher specified the symbols of the variables analyzed in this research as follows:

1) Dependent Variables
   - Y1 = Annual growth rates of GDP
   - Y2 = Annual growth rates of GDP per capita
   - Y3 = GDP deflator
   - Y4 = National poverty rates
   - Y5 = Income inequality
2) Independent Variables
   - X1 = Investment rates
   - X2 = Gross national savings
   - X3 = Population growth rate
   - X4 = Life expectancy at birth
   - X5 = Combined gross enrollment
   - X6 = Voice and accountability
   - X7 = Political stability and absence of violence/terrorism
   - X8 = Government effectiveness
   - X9 = Regulatory quality
   - X10 = Rule of law
   - X11 = Control of corruption
   - X12 = Trade openness
   - X13 = Financial openness

7.1 The Relationship between Governance, Openness and Annual Growth Rates of GDP

In order to determine the presence of multicollinearity, the statistics needed to be considered. According to Table 7.1, the VIF value for each independent variable was less than 10. Therefore, the multicollinearity assumption was not violated.

Table 7.1 Variance Inflation Factor (VIF) of Predictor Variables

Variable	VIF	1/VIF
Investment rates	1.66	0.602136
Gross national savings	1.31	0.765154
Population growth rates	1.40	0.712143
Life expectancy at birth	1.62	0.616140
Combined gross enrollment	1.14	0.877200
Voice and accountability	4.68	0.213450
Political stability	2.17	0.460772
Government effectiveness	6.58	0.152023
Regulatory quality	5.35	0.186771
Rule of law	4.31	0.232133
Control of corruption	1.89	0.530386
Trade openness	1.54	0.649891
Financial openness	1.45	0.687996
Mean VIF	2.70	

The results in Table 7.2 show the multiple regression analysis of the significant predictor variables and annual growth rates of GDP. According to results of the regression coefficient of the predictor variables, it was found that government effectiveness had the greatest positive relationship with GDP growth rates at the significance level of 0.05. The regression coefficient was 10.163. The following variables were voice and accountability, population growth rates, trade openness, and gross national saving with a regression coefficient of .5.838, 1.591, .029, and .043

respectively, while only regulatory quality had negative relationship with annual growth rates of GDP with a regression coefficient of 8.214.

The equation that predicted the annual growth rates of the GDP of Sub-Saharan Africa is shown as follows:

$$Y1 = .043X2 + 1.591X3 + 5.838X6 + 10.163X8 – 8.214X9 + .029X12$$

The STATA printout regarding the relationship between governance, openness, and economic performance in SSA is shown in Appendix C.

Table 7.2 Multiple Regression Analysis of the Significant Predictor Variables and Annual Growth Rates of GDP

GDP growth rates	**Coef.**	**Std. Err.**	**z**	**P > |z|**
Investment rates	.045	.037	1.23	0.220
Gross national savings	.043	.017	2.55	0.011*
Population growth rates	1.591	.321	4.94	0.000*
Life expectancy at birth	.016	.057	0.29	0.776
Combined gross enrollment	-.014	.007	-1.89	0.059
Voice and accountability	5.838	2.900	2.01	0.044*
Political stability	.391	1.812	0.22	0.829
Government effectiveness	10.163	4.546	2.24	0.025*
Regulatory quality	-8.214	3.956	-2.08	0.038*
Rule of law	-5.499	3.119	-1.76	0.078
Control of corruption	-2.016	2.342	-0.86	0.389
Trade openness	.029	.011	2.68	0.007*
Financial openness	.024	.033	0.72	0.471
Constant	-2.668	3.070	-0.87	0.385
Corr (u_i, x) = 0 (assumed)	Wald chi2 (13) = 67.63 Prob > chi2 = 0.0000			

Note: *P<0.05

7.2 The Relationship between Governance, Openness, and Annual Growth Rates of GDP per Capita

In order to determine the presence of multicollinearity, the statistics needed to be considered. According to Table 7.3, the VIF value for each independent variable was less than 10. Therefore, the multicollinearity assumption was not violated.

Table 7.3 Variance Inflation Factor (VIF) of Predictor Variables

Variable	VIF	1/VIF
Investment rates	1.66	0.602136
Gross national savings	1.31	0.765154
Population growth rates	1.40	0.712143
Life expectancy at birth	1.62	0.616140
Combined gross enrollment	1.14	0.877200
Voice and accountability	4.68	0.213450
Political stability	2.17	0.460772
Government effectiveness	6.58	0.152023
Regulatory quality	5.35	0.186771
Rule of law	4.31	0.232133
Control of corruption	1.89	0.530386
Trade openness	1.54	0.649891
Financial openness	1.45	0.687996
Mean VIF	2.70	

The results in Table 7.4 show the multiple regression analysis of the significant predictor variables and annual growth rates of GDP per capita. According to results of the regression coefficient of the predictor variables, it was found that government effectiveness had the greatest positive relationship with GDP growth rates at the significance level of 0.05. The regression coefficient was 10.173. The following variables were voice and accountability, gross national saving, and trade openness with a regression coefficient of .5.684, .041, and .028 respectively, while only

regulatory quality had negative a relationship with the annual growth rates of the GDP with a regression coefficient of 7.827.

The equation that predicted the annual growth rates of the GDP per capita of Sub-Saharan Africa is shown in the form of an equation as follows:

$$Y2 = .041X2 + 5.684X6 + 10.173X8 – 7.827X9 + .028X12$$

Table 7.4 Multiple Regression Analysis of the Significant Predictor Variables and Annual Growth Rates of GDP per Capita

GDP per capita	**Coef.**	**Std. Err.**	**z**	**P > |z|**
Investment rates	.043	.036	1.20	0.230
Gross national savings	.041	.016	2.48	0.013*
Population growth rates	0.560	.313	1.79	0.074
Life expectancy at birth	.024	.056	0.44	0.663
Combined gross enrollment	-.014	.007	-1.94	0.053
Voice and accountability	5.684	2.821	2.01	0.044*
Political stability	.278	1.764	0.16	0.875
Government effectiveness	10.173	4.424	2.30	0.021*
Regulatory quality	-7.827	3.851	-2.03	0.042*
Rule of law	-5.447	3.036	-1.79	0.073
Control of corruption	-1.950	2.280	-0.86	0.393
Trade openness	.028	0.010	2.68	0.007*
Financial openness	.024	.032	0.75	0.453
Constant	-3.117	2.991	-1.04	0.297
Corr (u_i, x) = 0 (assumed)	Wald chi2 (13) = 47.70		Prob > chi2 = 0.0000	

Note: *P<0.05

7.3 The Relationship between Governance, Openness, and GDP Deflator

In order to determine the presence of multicollinearity, the statistics needed to be considered. According to Table 7.5, the VIF value for each independent variable was less than 10. Therefore, the multicollinearity assumption was not violated.

Table 7.5 Variance Inflation Factor (VIF) of Predictor Variables

Variable	VIF	1/VIF
Investment rates	1.66	0.602136
Gross national savings	1.31	0.765154
Population growth rates	1.40	0.712143
Life expectancy at birth	1.62	0.616140
Combined gross enrollment	1.14	0.877200
Voice and accountability	4.68	0.213450
Political stability	2.17	0.460772
Government effectiveness	6.58	0.152023
Regulatory quality	5.35	0.186771
Rule of law	4.31	0.232133
Control of corruption	1.89	0.530386
Trade openness	1.54	0.649891
Financial openness	1.45	0.687996
Mean VIF	2.70	

The results in Table 7.6 show the multiple regression analysis of the significant predictor variables and GDP deflator. According to results of the regression coefficient of the predictor variables, it was found that rule of law had the greatest positive relationship with GDP growth rates at the significance level of 0.05. The regression coefficient was 30.5. The following variables were gross national saving with a regression coefficient of .232, trade openness with a regression coefficient of .125, whereas political stability, and investment rates had a negative relationship with GDP deflator with a regression coefficient of 28.404 and .398 respectively.

The equation that predicted GDP deflator of Sub-Saharan Africa is shown in the form of an equation as follows:

$$Y3 = -.398X1 + .232X2 – 28.404X7 + 30.5X10 + .125X12$$

Table 7.6 Multiple Regression Analysis of the Significant Predictor Variables and GDP Deflator

GDP Deflator	**Coef.**	**Std. Err.**	**z**	**P > |z|**
Investment rates	-.398	.180	-2.21	0.027*
Gross national savings	.232	.079	2.94	0.003*
Population growth rates	1.359	1.531	0.89	0.375
Life expectancy at birth	-.264	.267	-0.99	0.322
Combined gross enrollment	-.044	.036	-1.99	0.232
Voice and accountability	-18.670	13.888	-1.34	0.179
Political stability	-28.404	8.562	-3.32	0.001*
Government effectiveness	29.054	21.758	1.34	0.182
Regulatory quality	-11.715	18.782	-0.62	0.533
Rule of law	30.500	14.794	2.06	0.039*
Control of corruption	-9.422	11.018	-0.86	0.392
Trade openness	.125	-051	2.45	0.014*
Financial openness	.312	.163	1.91	0.056
Constant	26.964	14.311	1.88	0.060
Corr (u_i, x) = 0 (assumed)	Wald chi2 (13) = 37.60		Prob > chi2 = 0.0003	

Note: *P<0.05

7.4 The Relationship between Governance, Openness, and National Poverty Rates

In order to determine the presence of multicollinearity, the statistics needed to be considered. According to Table 7.7, the VIF value for each independent variable was less than 10. Therefore, the multicollinearity assumption was not violated.

Table 7.7 Variance Inflation Factor (VIF) of Predictor Variables

Variable	VIF	1/VIF
Investment rates	3.45	0.289884
Gross national savings	1.41	0.707805
Population growth rates	1.38	0.724147
Life expectancy at birth	1.62	0.618718
Combined gross enrollment	1.60	0.624001
Voice and accountability	5.64	0.177272
Political stability	2.88	0.347513
Government effectiveness	6.27	0.159367
Regulatory quality	6.51	0.153520
Rule of law	3.62	0.276072
Control of corruption	1.88	0.530616
Trade openness	1.48	0.676952
Financial openness	3.49	0.286137
Mean VIF	3.17	

The results in Table 6.10 show the multiple regression analysis of the significant predictor variables and national poverty rates. According to results of the regression coefficient of the predictor variables, it was found that political stability had the greatest negative relationship with national poverty rates at the significance level of 0.05. The regression coefficient was 28.639. The following variables were life expectancy at birth and investment rates with a regression coefficient of .837 and .624 respectively, whereas rule of law, population growth rate, and financial openness had

a positive relationship with national poverty rates with a regression coefficient of 33.291, 8.733 and .448 respectively.

The equation that predicted the national poverty rates of Sub-Saharan Africa is shown in the form of an equation as follows:

Y4 = 106.663 - .624X1 + 8.733X3 – .837X4 – 28.639X7 + 33.291X10 + .448X13

Table 7.8 Multiple Regression Analysis of the Significant Predictor Variables and National Poverty Rates

National poverty rates	**Coef.**	**Std. Err.**	**t**	**P > $\|t\|$**
Investment rates	-.624	.151	-4.11	0.001*
Gross national savings	.184	.106	1.73	0.108
Population growth rates	8.733	2.876	3.04	0.010*
Life expectancy at birth	-.837	.342	-2.45	0.031*
Combined gross enrollment	.034	.034	0.98	0.349
Voice and accountability	-12.250	14.089	-0.87	0.402
Political stability	-28.639	8.544	-3.35	0.006*
Government effectiveness	-9.321	16.662	-0.56	0.586
Regulatory quality	-21.701	14.664	-1.48	0.165
Rule of law	33.291	13.440	2.48	0.029*
Control of corruption	-12.089	9.546	-1.27	0.229
Trade openness	-.085	.089	-0.96	0.357
Financial openness	.448	.187	2.39	0.034*
Constant	106.663	16.052	6.64	0.000
F test that all u_i = 0:	F (35, 12) = 16.58		Prob > F = 0.0000	

Note: *P<0.05

7.5 The Relationship between Governance, Openness, and Income Inequality

In order to determine the presence of multicollinearity, the statistics needed to be considered. According to Table 7.9, the VIF value for each independent variable was less than 10. Therefore, the multicollinearity assumption was not violated.

Table 7.9 Variance Inflation Factor (VIF) of Predictor Variables

Variable	VIF	1/VIF
Investment rates	3.45	0.289884
Gross national savings	1.41	0.707805
Population growth rates	1.38	0.724147
Life expectancy at birth	1.62	0.618718
Combined gross enrollment	1.60	0.624001
Voice and accountability	5.64	0.177272
Political stability	2.88	0.347513
Government effectiveness	6.27	0.159367
Regulatory quality	6.51	0.153520
Rule of law	3.62	0.276072
Control of corruption	1.88	0.530616
Trade openness	1.48	0.676952
Financial openness	3.49	0.286137
Mean VIF	3.17	

The results in Table 7.10 show the multiple regression analysis of the significant predictor variables and income inequality. According to results of the regression coefficient of the predictor variables, it was found that only political stability had a negative relationship with income inequality at the significance level of 0.05. The regression coefficient was 19.223, while voice and accountability and gross national savings had a positive relationship with regression coefficient 43.92 and .275.

The equation that predicted the income inequality of Sub-Saharan Africa is shown in the form of an equation as follows:

$$Y5 = 57.327 + .275X2 + 43.92X6 – 19.223X7$$

Table 7.10 Multiple Regression Analysis of the Significant Predictor Variables and Income Inequality

Income Inequality	**Coef.**	**Std. Err.**	**t**	**P > |t|**
Investment rates	-.222	.236	0.94	0.360
Gross national savings	.275	.114	2.42	0.027*
Population growth rates	-.207	.898	-0.23	0.820
Life expectancy at birth	-.307	.296	-1.04	0.314
Combined gross enrollment	-.028	.040	-0.70	0.492
Voice and accountability	43.929	18.194	2.41	0.027*
Political stability	-19.223	8.214	-2.34	0.032*
Government effectiveness	-37.569	18.683	-2.01	0.060
Regulatory quality	-20.071	17.058	1.18	0.256
Rule of law	-.106	11.651	-0.01	9.993
Control of corruption	13.881	11.129	1.25	0.229
Trade openness	.023	.072	0.33	0.749
Financial openness	-.012	.326	-0.04	0.969
Constant	57.327	12.502	4.59	0.000
F test that all u_i = 0:	F (34, 17) = 5.02		Prob > F = 0.0004	

Note: *P<0.05

7.6 Hypothesis Results

The relationship between governance, openness, and economic performance in Sub-Saharan Africa is shown in Table 7.11

Table 7.11 Hypothesis Results between Governance, Openness, and Economic Performance in Sub-Saharan Africa

Hypothesis	From	To	p-value	Hypothesis Support
H1-1	Voice & accountability	GDP growth rates	0.044*	Yes
H1-2		GDP per capita	0.044*	Yes
H1-3		GDP deflator	0.179	
H1-4		National poverty rates	0.402	
H1-5		Income inequality	0.027*	No
H2-1	Political stability	GDP growth rates	0.829	
H2-2		GDP per capita	0.875	
H2-3		GDP deflator	0.001*	No
H2-4		National poverty rates	0.006*	Yes
H2-5		Income inequality	0.032*	Yes
H3-1	Government effectiveness	GDP growth rates	0.025*	Yes
H3-2		GDP per capita	0.021*	Yes
H3-3		GDP deflator	0.182	
H3-4		National poverty rates	0.586	
H3-5		Income inequality	0.060	

Table 7.1 (Continued)

Hypothesis	From	To	p-value	Hypothesis Support
H3-1	Government effectiveness	GDP growth rates	0.025*	Yes
H3-2		GDP per capita	0.021*	Yes
H3-3		GDP deflator	0.182	
H3-4		National poverty rates	0.586	
H3-5		Income inequality	0.060	
H4-1	Regulatory quality	GDP growth rates	0.038*	No
H4-2		GDP per capita	0.042*	No
H4-3		GDP deflator	0.533	
H4-4		National poverty rates	0.165	
H4-5		Income inequality	0.256	
H5-1	Rule of law	GDP growth rates	0.078	
H5-2		GDP per capita	0.073	
H5-3		GDP deflator	0.039*	Yes
H5-4		National poverty rates	0.029*	No
H5-5		Income inequality	0.993	

Table 7.11 (Continued)

Hypothesis	From	To	p-value	Hypothesis Support
H6-1	Control of corruption	GDP growth rates	0.389	
H6-2		GDP per capita	0.393	
H6-3		GDP deflator	0.392	
H6-4		National poverty rates	0.229	
H6-5		Income inequality	0.229	
H7-1	Trade openness	GDP growth rates	0.007*	Yes
H7-2		GDP per capita	0.007*****	Yes
H7-3		GDP deflator	0.014*	Yes
H7-4		National poverty rates	0.357	
H7-5		Income inequality	0.749	
H8-1	Financial openness	GDP growth rates	0.471	
H8-2		GDP per capita	0.453	
H8-3		GDP deflator	0.056	
H8-4		National poverty rates	0.034*	No
H8-5		Income inequality	0.969	

Note: *P<0.05

CHAPTER 8

DISCUSSION OF RESULTS

This chapter presents a discussion of the results regarding the relationship between governance openness and economic performance in Asia and Sub-Saharan Africa. Subsequently, the results with regard to the relationship between governance openness and economic performance in Asia and Sub-Saharan Africa are compared and discussed.

8.1 Discussion of the Relationship between Governance Openness and Economic Performance in Asia and Sub-Saharan Africa

8.1.1 The Relationship between Governance, Openness, and Annual Growth Rates of GDP

In the full sample, the variable that had the greatest relationship with the annual growth rates of the GDP was voice and accountability for Asia and government effectiveness for Sub-Saharan Africa. The findings indicated that the higher were the voice and accountability and government effectiveness, the greater were the annual growth rates of the GDP. These findings support the theories and the findings of previous studies.

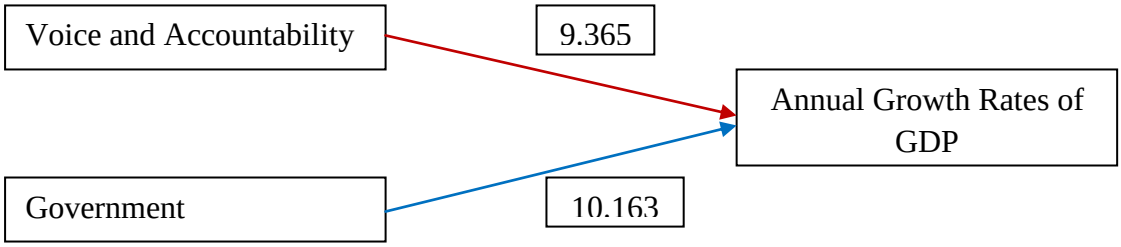

Figure 8.1 The Relationship between Governance, Openness, and Annual Growth Rates of GDP

8.1.2 The Relationship between Governance, Openness, and Annual Growth Rates of GDP per Capita

According to the result, the variable that had the greatest relationship on annual growth rates of GDP per capita was voice and accountability for Asia and government effectiveness for Sub-Saharan Africa. The findings indicated that the higher were the voice and accountability and government effectiveness, the greater were the annual growth rates of the GDP. These findings support the theories and the findings of previous studies.

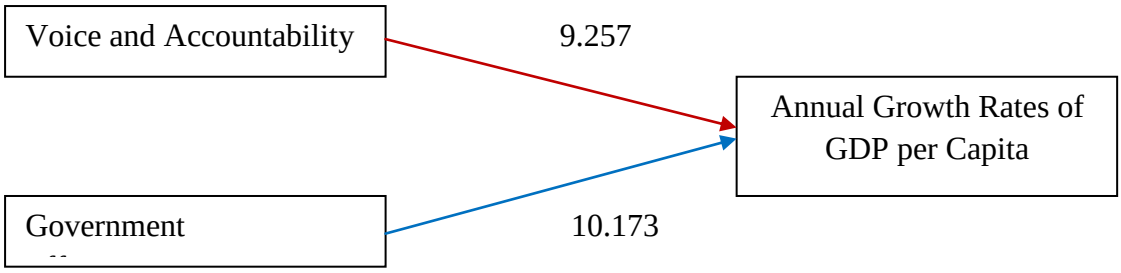

Figure 8.2 The Relationship between Governance, Openness, and Annual Growth Rates of GDP per Capita

8.1.3 The Relationship between Governance, Openness, and GDP Deflator

The findings of this research showed that regulatory quality had a significant and negative relationship with GDP deflator in Asia. The findings indicated that the higher was regulatory quality, the lower was the GDP deflator. This finding contradicts the theories and findings on developed countries. The performance of the new regulatory state remains under researched, especially in the context of developing countries, with their own peculiar economic and social problems and institutional characteristics. World Bank (2002: 152) found that building effective regulatory structures in developing countries is not simply an issue of the technical design of the regulatory instruments; it is also concerned with the quality of supporting regulatory institutions and capacity. That means that the technical design of the regulatory instruments has an impact on economic growth. If the regulatory instruments are suitable for the country's environment, economic growth will increase, while if the regulatory instruments are unsuitable for a country's environment, economic growth

will decrease. Therefore it depends on regulatory instrument. For Sub-Saharan Africa, rule of law had the greatest relationship with the GDP deflator. The finding indicated that the higher was the rule of law, the greater was the GDP deflator. These findings support the theories and findings of previous studies.

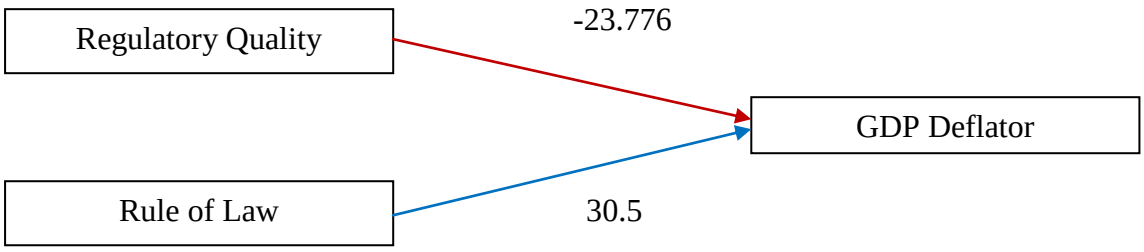

Figure 8.3 The Relationship between Governance, Openness, and GDP Deflator

8.1.4 The Relationship between Governance, Openness, and National Poverty Rates

The findings of this research showed that regulatory quality had a significant and negative relationship with the national poverty rates in Asia; in other words, regulatory quality can reduce poverty. This was consistent with Pananda (2012 quoted in Davis, 2011), who suggested that policies and efforts aimed at improving regulatory quality would have a significant impact on poverty reduction efforts. This is because regulatory quality can create macroeconomic stability and foster economic growth, thus reducing poverty (Birner, 2009). For Sub-Saharan Africa, rule of law had the greatest significant relationship with national poverty rates. However, the relationship was positive. This contradicted the theories and the findings of previous study. Sudarsono (2010) suggested that the “rule of law” depends on whose terms a particular legal ruling is applied, and how that particular law affects different segments of society. Sudarsono (2010) also noted that the political and economic context of the rule of law is critical to understanding what and whose political and economic interests are defended or adversely affected by a particular legal ruling or set of legal regime.

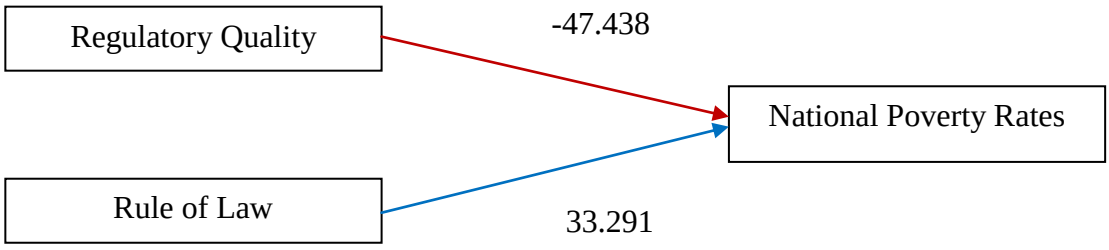

Figure 8.4 The Relationship between Governance, Openness, and National Poverty Rates

8.1.5 The Relationship between Governance, Openness, and Income Inequality

The variables that had the greatest relationship with income inequality were control of corruption in Asia and voice and accountability in Sub-Saharan Africa. However, the relationship as positive; in other words, control of corruption and voice and accountability can increase income inequality. This contradicted the findings on developed countries. Michael (2013: 239) found that having failed to find significant linkages between corruption perceptions and income inequality. Habtamu (n.d.) found that in the case of Sub-Saharan Africa, control over corruption had no relation with growth in the continent. Habtamu (n.d.) also indicated that in the case of Africa, voice and accountability, political instability, and rule of law did not have a relation with aggregate technical efficiency. Habtamu (n.d.) also suggested that the latter governance indicators could affect economic growth through other transmission channels, possibly through accumulation of factors of production.

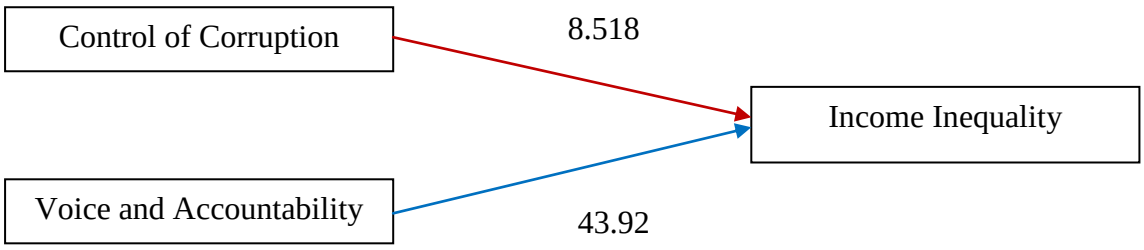

Figure 8.5 The Relationship between Governance, Openness, and Income Inequality

8.2 Comparisons of the Relationship between Governance Openness and Economic Performance in Asia and Sub-Saharan Africa

This part of the dissertation presents a comparison of the relationship between governance openness and economic performance in Asia and Sub-Saharan Africa. The comparisons between the two continents can provide meaningful insight into the differences in the variables related to economic performance across continents. The comparisons of Asia and Sub-Saharan Africa are presented in Table 8.1

Table 8.1 Comparisons of Asia and Sub-Saharan Africa

Continent	Annual Growth Rates of GDP	Annual Growth Rates of GDP per Capita	GDP Deflator	National Poverty Rates	Income Inequality
Asia	- Gross national savings (+) - Voice and accountability (+) - Financial openness (+)	- Gross national savings (+) - Population growth rates (-) - Voice and accountability (+) - Financial openness (+)	- Gross national savings (+) - Life expectancy at birth (-) - Voice and accountability (-) - Regulatory quality (-) - Trade openness (+)	- Investment rates (-) - Population growth rates (-) - Life expectancy at birth (-) - Political stability (+) - Regulatory quality (-) - Trade openness (+)	- Population growth rates (+) - Control of corruption (+)
Sub-Saharan Africa	- Gross national savings (+) - Population growth rates (+) - Voice and accountability (+) - Government effectiveness (+) - Regulatory quality (-) - Trade openness (+)	- Gross national savings (+) - Voice and accountability (+) - Government effectiveness (+) - Regulatory quality (-) - Trade openness (+)	- Investment rates (-) - Gross national savings (+) - Political stability (-) - Rule of law (+) - Trade openness (+)	- Investment rates (-) - Population growth rates (+) - Life expectancy at birth (-) - Political stability (-) - Rule of law (+) - Financial openness (+)	- Gross national savings (+) - Voice and accountability (+) - Political stability (-)

8.2.1 The Relationship between Governance, Openness, and Annual Growth Rates of GDP

The model of Asia is Y1 = 0 + .126X2 + 9.365X6 + .156X13. The variables related to the annual growth rates of the GDP included gross national savings, voice and accountability, and financial openness. When gross national savings rise by 1 percent, the annual growth rates of the GDP will increase by .126 percent. When voice and accountability increase by 1 percent, the annual growth rates of the GDP will grow by 9.365 percent. Moreover, when financial openness increases by 1 percent, the annual growth rates of the GDP will increase by .156 percent. The equation has a cutting point along the Y axis at 0. The relationship between the significant variables and the annual growth rates of the GDP in Asia is shown in Figure 8.6

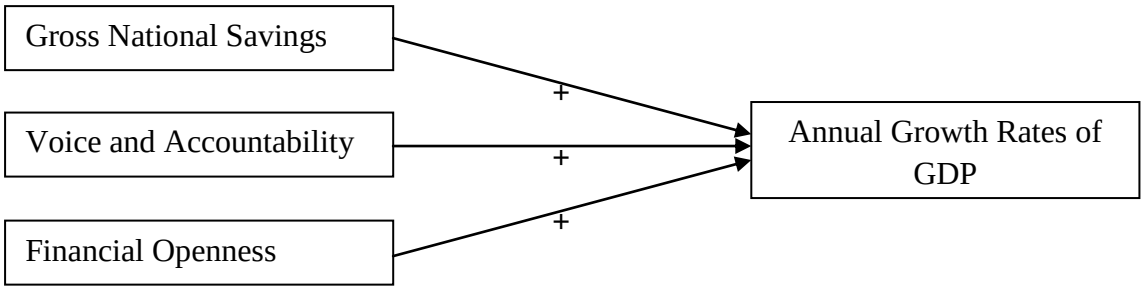

Figure 8.6 The Relationship between the Significant Variables and Annual Growth Rates of GDP in Asia

The model of Sub-Saharan Africa is Y1 = 0 + .043X2 + 1.591X3 + 5.838X6 + 10.163X8 – 8.214X9 + .029X12. The variables related to the annual growth rates of the GDP were gross national savings, population growth rates, voice and accountability, government effectiveness, regulatory quality, and trade openness. When the gross national savings increase by 1 percent, the annual growth rates of the GDP will increase by .043 percent. When the population growth rates grow by 1 percent, the annual growth rates of the GDP will rise by 1.591 percent. When voice and accountability increase by 1 percent, the annual growth rates of the GDP will grow by 5.838 percent. When government effectiveness increases by 1 percent, the annual growth rates of the GDP will increase by 10.163 percent. When regulatory

quality rises by 1 percent, the annual growth rates of the GDP will decrease by 8.214 percent. In addition, when trade openness grows by 1 percent, the annual growth rates of the GDP will increase by .029 percent. The equation has a cutting point along the Y axis at 0. The relationship between the significant variables and annual growth rates of GDP in Sub-Saharan Africa is presented in Figure 8.7

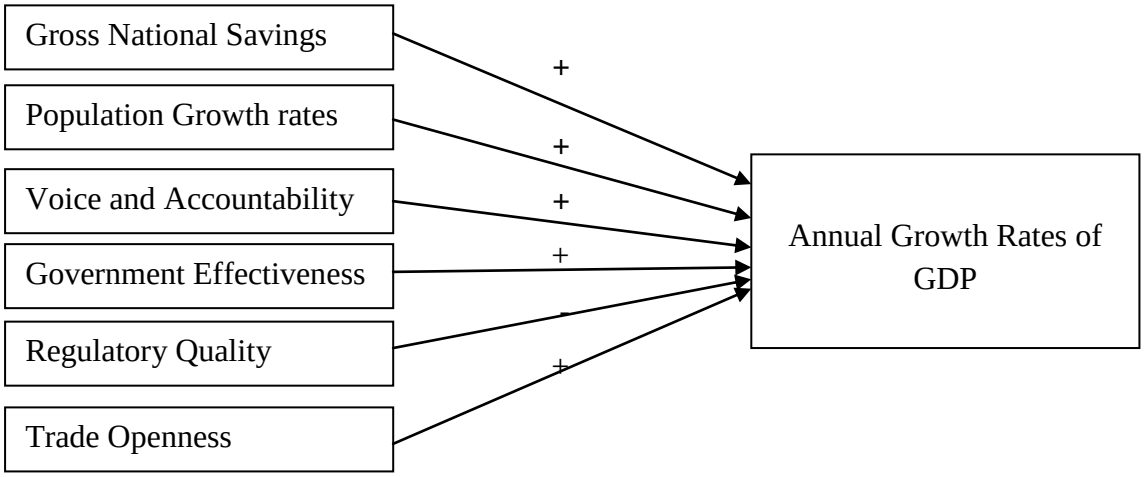

Figure 8.7 The Relationship between the Significant Variables and Annual Growth Rates of GDP in Sub-Saharan Africa

8.2.2 The Relationship between Governance, Openness, and Annual Growth Rates of GDP per capita

The model of Asia is Y2 = 0 + .124X2 – 1.404X3 + 9.257X6 + .153X13. The variables related to the annual growth rates of the GDP per capita were gross national savings, population growth rates, voice and accountability, and financial openness. When gross national savings rise by 1 percent, the annual growth rates of the GDP per capita will increase by .124 percent. When population growth rates grow by 1 percent, the annual growth rates of the GDP per capita will reduce by 1.404 percent. When voice and accountability increase by 1 percent, the annual growth rates of the GDP will grow by 9.257 percent. Moreover, when financial openness increases by 1 percent, the annual growth rates of the GDP will increase by .153 percent. The equation has a cutting point along the Y axis at 0. The relationship between the significant variables and annual growth rates of GDP per capita in Asia is shown in Figure 8.8

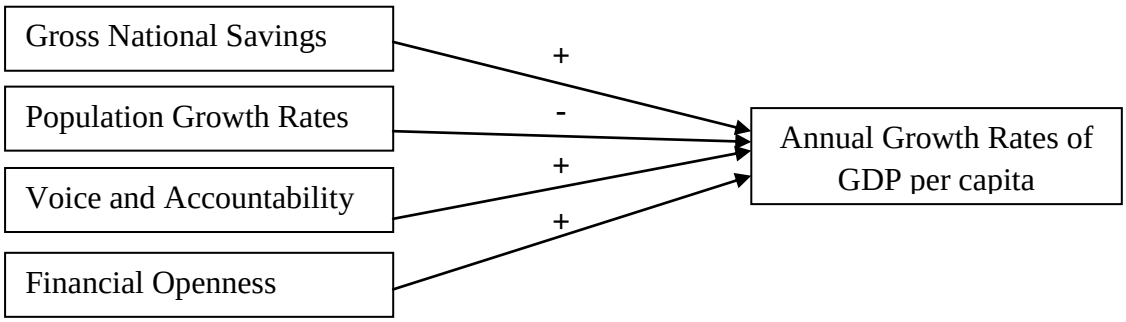

Figure 8.8 The Relationship between the Significant Variables and Annual Growth Rates of GDP per Capita in Asia

The model of Sub-Saharan Africa is Y2 = 0 + .041X2 + 5.684X6 + 10.173X8 – 7.827X9 + .028X12. The variables related to the annual growth rates of the GDP per capita were gross national savings, voice and accountability, government effectiveness, regulatory quality, and trade openness. When gross national savings increase by 1 percent, the annual growth rates of the GDP per capita will increase by .041 percent. When voice and accountability increase by 1 percent, the annual growth rates of the GDP per capita will grow by 5.684 percent. When government effectiveness increases by 1 percent, the annual growth rates of the GDP per capita will increase by 10.173 percent. When regulatory quality rises by 1 percent, the annual growth rates of the GDP per capita will decrease by 7.827 percent. Moreover, when trade openness grows by 1 percent, the annual growth rates of the GDP per capita will increase by .028 percent. The equation has a cutting point along the Y axis at 0.The relationship between the significant variables and annual growth rates of GDP per capita in Sub-Saharan Africa is presented in Figure 8.9.

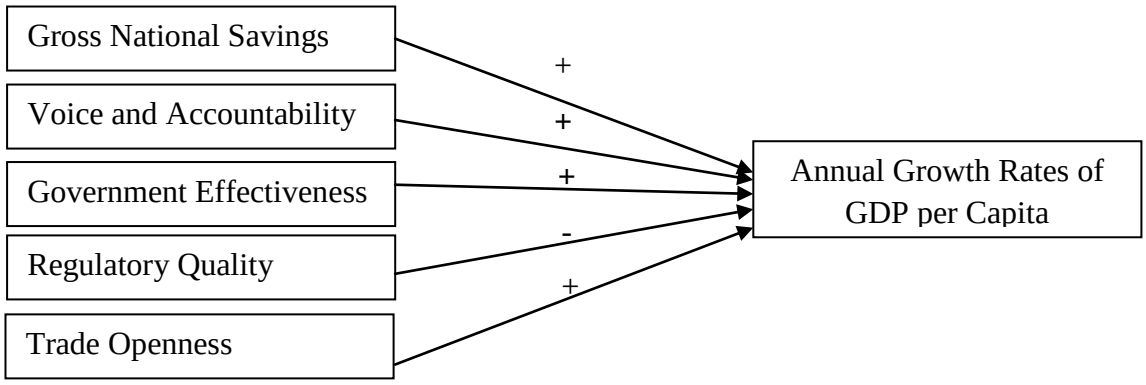

Figure 8.9 The Relationship between the Significant Variables and Annual Growth Rates of GDP per capita in Sub-Saharan Africa

8.2.3 The Relationship between Governance, Openness, and GDP Deflator

The model of Asia is Y3 = 62.847 + .199X2 – .660X4 – 20.131X6 – 23.776X9 + .108X12. The variables related to the GDP deflator were gross national savings, life expectancy at birth, voice and accountability, regulatory quality, and trade openness. When gross national savings rise by 1 percent, the GDP deflator will increase by .199 percent. When life expectancy at birth rises by 1 percent, the GDP deflator will reduce by .660 percent. When voice and accountability increase by 1 percent, the GDP deflator will reduce by 20.131 percent. When regulatory quality rises by 1 percent, the GDP deflator will decrease by 23.776 percent. Moreover, when trade openness increases by 1 percent, the GDP deflator will increase by .108 percent. The equation has a cutting point along the Y axis at 62.847. The relationship between the significant variables and GDP deflator in Asia is shown in Figure 8.10.

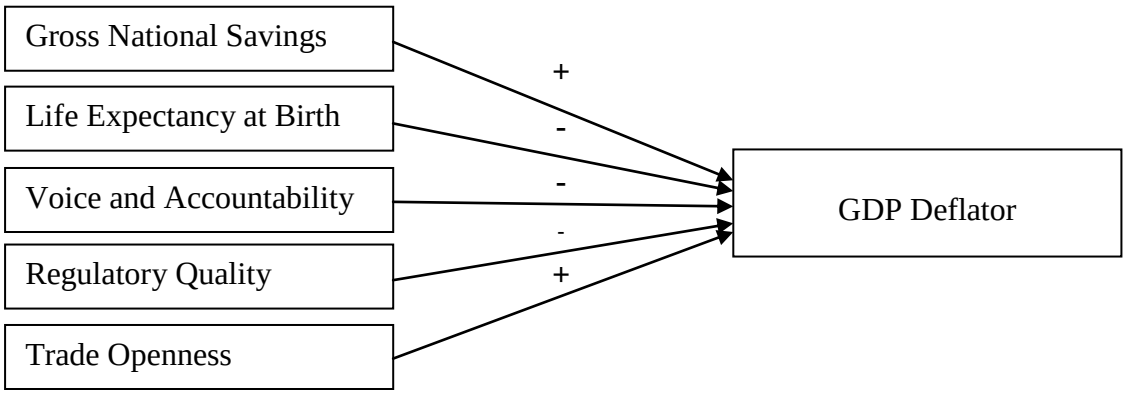

Figure 8.10 The Relationship between the Significant Variables and GDP Deflator in Asia

The model of Sub-Saharan Africa is Y3 = 0 -.398X1 + .232X2 – 28.404X7 + 30.5X10 + .125X12. The variables related to the GDP deflator were investment rates, gross national savings, political stability, rule of law, and trade openness. When investment rates increase by 1 percent, the GDP deflator will decrease by .398 percent. When gross national savings increase by 1 percent, the GDP deflator will increase by .232 percent. When political stability rises by 1 percent, the GDP deflator will reduce by 28.404 percent. When rule of law increases by 1 percent, the GDP deflator will grow by 30.5 percent. Moreover, when trade openness grows by 1 percent, the GDP deflator will increase by .125 percent. The equation has a cutting point along the Y axis at 0. The relationship between the significant variables and GDP deflator in Sub-Saharan Africa is presented in Figure 8.11.

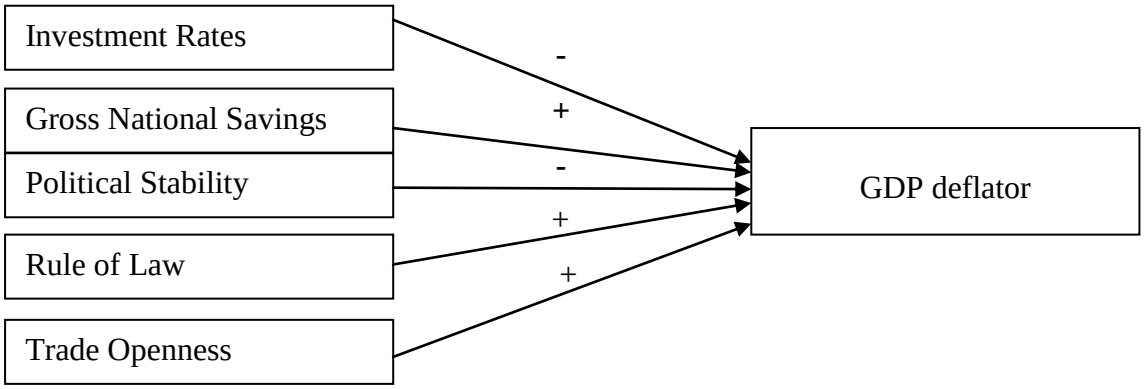

Figure 8.11 The Relationship between the Significant Variables and GDP Deflator in Sub-Saharan Africa

8.2.4 The Relationship between Governance, Openness, and National Poverty Rates

The model of Asia is Y4 = 309.553 - .384X1 – 6.996X3 – 4.017X4 + 15.745X7 – 47.438X9 + .133X12. The variables related to national poverty rates were investment rates, population growth rates, life expectancy at birth, political stability, regulatory quality, and trade openness. When investment rates increase by 1 percent, national poverty rates will decrease by .384 percent. When population growth rates grow by 1 percent, national poverty rates will reduce by 6.996 percent. When life expectancy at birth increases by 1 percent, national poverty rates will reduce by 4.017 percent. When political stability increases by 1 percent, national poverty rates will increase by 15.745 percent. When regulatory quality rises by 1 percent, national poverty rates will decrease by 47.438 percent. Moreover, when trade openness grows by 1 percent, national poverty rates will increase by .133 percent. The equation has a cutting point along the Y axis at 309.553. The relationship between the significant variables and national poverty rates in Asia is presented in Figure 8.12

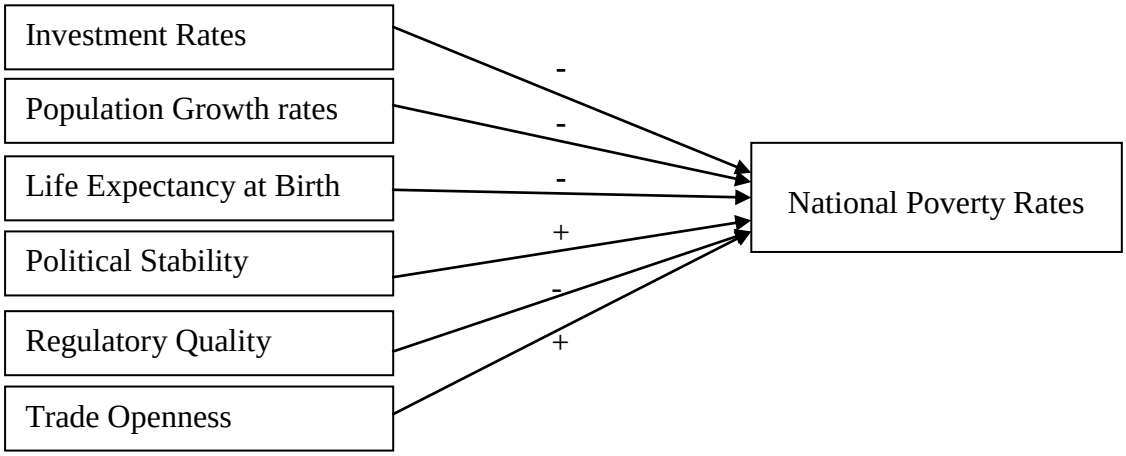

Figure 8.12 The Relationship between the Significant Variables and National Poverty Rates in Asia

The model of Sub-Saharan Africa is Y4 = 106.663 - .624X1 + 8.733X3 – .837X4 – 28.639X7 + 33.291X10 + .448X13. The variables related to the national poverty rates were investment rates, population growth rates, life expectancy at birth, political stability, rule of law, and financial openness. When investment rates increase

by 1 percent, the national poverty rates will decrease by .624 percent. When population growth rates grow by 1 percent, the national poverty rates will rise by 8.733 percent. When life expectancy at birth increases by 1 percent, the national poverty rates will reduce by .837 percent. When political stability increases by 1 percent, the national poverty rates will reduce by 28.639 percent. When rule of law rises by 1 percent, the national poverty rates will increase by 33.291 percent. Moreover, when financial openness grows by 1 percent, the national poverty rates will increase by .448 percent. The equation has a cutting point along the Y axis at 106.663. The relationship between the significant variables and national poverty rates in Sub-Saharan Africa is presented in Figure 8.13.

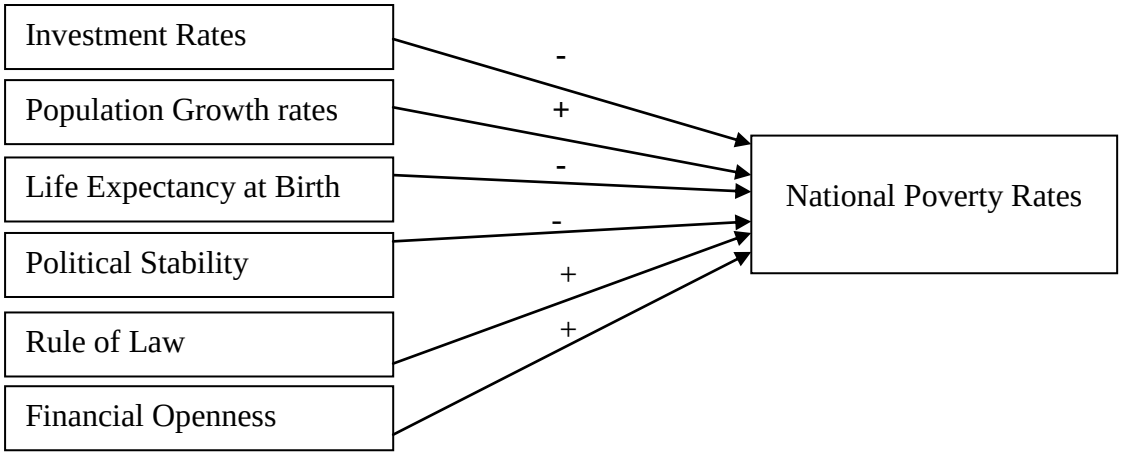

Figure 8.13 The Relationship between the Significant Variables and National Poverty Rates in Sub-Saharan Africa

8.2.5 The Relationship between Governance, Openness, and Income Inequality

The model of Asia is Y5 = 1.675X3 + 8.518X11. The variables related to annual income inequality include population growth rates, and control of corruption. When the population growth rates rise by 1 percent, income inequality will increase by 1.675 percent. When control of corruption grows by 1 percent, income inequality will grow by 8.518 percent. The equation has a cutting point along the Y axis at 0. The relationship between the significant variables and income inequality in Asia is shown in Figure 8.14

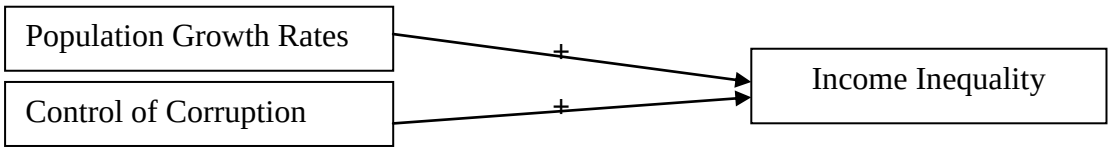

Figure 8.14 The Relationship between the Significant Variables and Income Inequality in Asia

The model of Sub-Saharan Africa is Y5 = 57.327 + .275X2 + 43.92X6 – 19.223X7. The variables related to income inequality were gross national savings, voice and accountability, and political stability. When gross national savings increase by 1 percent, income inequality will increase by .275 percent. When voice and accountability increase by 1 percent, income inequality will grow by 43.92 percent. In addition, when political stability grows by 1 percent, income inequality will reduce by 19.223 percent. The equation has a cutting point along the Y axis at 57.327. The relationship between the significant variables and income inequality in Sub-Saharan Africa is presented in Figure 8.15.

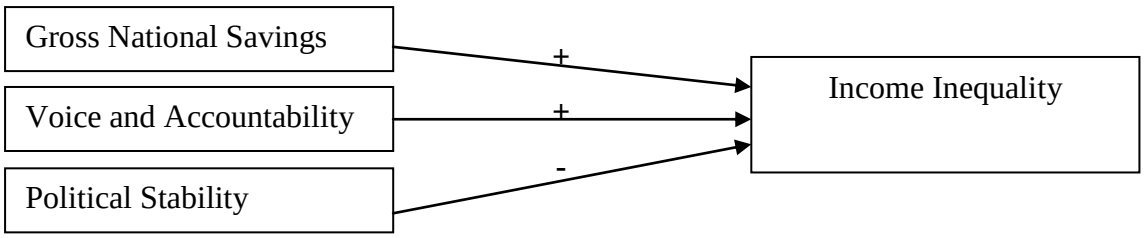

Figure 8.15 The Relationship between the Significant Variables and Income Inequality in Sub-Saharan Africa

In accordance with the models of these two continents, the relationship between governance, openness, and income inequality in both continents was totally different. In Asia, control of corruption had an unexpected relationship with income inequality. Normally, control of corruption should reduce income inequality. You and Khagram (2005) explored the possibility that the correlation between unfairness revenue and degradation are vicious circle by addition fraud protect existent unfairness revenue.

In Sub-Saharan Africa, political stability had an expected relationship with income inequality. Chong and Gradstein (2004) discovered that political stability and rule of law exhibit a negative and significant relation with inequality as measured by the Gini coefficient. In other words, better governance indicators lead to a decrease in inequality. Archives (2014) argued that a higher risk of expropriation and voters' preferences towards re-distributional policies do not encourage investment in an uncertain political environment, by which high income inequality can be created. These two factors have an adverse effect on growth, while voice and accountability has an unexpected relationship with income inequality. Kraay (2004) found that 60 percent to 95 percent of poverty changes are due to growth in average income, while changes in income distribution are relatively more important in the short run. Kraay (2004) also proposed that growth and distributional changes are connected positively with both the rule of law and accountability, while growth and poverty, which make slight reductions in incomes, also have a positive correspondence with openness to international trade. However, this does not apply to the Sub-Saharan Africa case. The findings of this research imply that Asia countries should adopt administration policies in order to enhance political stability as a means of reducing income inequality.

CHAPTER 9

CONCLUSIONS

The objective of this study included four points: to examine the relationship between governance, openness, and economic performance in selected developing countries, Asian countries, and Sub-Saharan African countries over the period of 1996-2012; to examine how well the relationship between each composite index of governance, openness, and economic performance, to assist with decision making and to turn national budgets into more effective instruments for pursuing economic objectives; and to help improve policy decisions with respect to governance and openness in developing countries. This study employed a time series, cross-national analysis, and used panel data.

9.1 Major Findings

In the case of developing countries, the governance factors which had a positive relationship with the annual growth rate of the GDP and annual the growth rate of GDP per capita were government effectiveness and control of corruption. That is, the higher were government effectiveness and control of corruption, the greater were the annual growth rates of GDP and higher the annual growth rates of GDP per capita. Regulatory quality on the other hand had an unexpected relationship with the annual growth rates of the GDP and the annual growth rates of GDP per capita. The openness factor that had a positive relationship with the annual growth rate of the GDP and the annual growth rate of GDP per capita was trade openness. In other words, the higher was the trade openness, the greater was the annual growth rate of the GDP and the greater was the annual growth rate of GDP per capita. The governance factor that has a positive relationship with the GDP deflator was rule of law. That means that the was the higher rule of law, the greater was the GDP deflator, while, the governance factors that had an unexpected relationship with the GDP

deflator were regulatory quality, political stability, and voice and accountability. Both of these openness factors had a positive relationship with the GDP deflator. In other words, a higher openness could increase the GDP deflator. The governance factors that had a negative relationship with national poverty rates were regulatory quality and voice and accountability. That is, regulatory quality and voice and accountability were seen to reduce national poverty rates, while the governance factor that had an unexpected relationship with national poverty rates was government effectiveness. The openness factor financial openness had an unexpected relationship with national poverty rates. That means that the greater the financial openness, the higher were the national poverty rates. Rule of law had an expected relationship with income inequality. In other words, rule of law reduced income inequality. However, government effectiveness and voice and accountability had an unexpected relationship with income inequality, while no openness factor had a significant relationship with income inequality.

In the case of Asia, the governance factor that had a positive relationship with the annual growth rate of the GDP and the annual growth rate of GDP per capita was voice and accountability. That is, the higher were voice and accountability, the greater were the annual growth rates of the GDP and the higher were the annual growth rates of GDP per capita. The openness factor that had a positive relationship with the annual growth rate of the GDP and the annual growth rate of GDP per capita was financial openness. In other words, the higher was financial openness, the greater was the annual growth rate of the GDP and the greater was a the annual growth rate of GDP per capita. The governance factors that had the greatest significant relationship with the GDP deflator were regulatory quality and voice and accountability. However, the relationship was unexpected, meaning that regulatory quality and voice and accountability reduced the GDP deflator. The openness factor trade openness had an expected relationship with the GDP deflator. That means that the greater is the trade openness, the higher is the GDP deflator. The governance factor which had a negative relationship with national poverty rates was regulatory quality. That is, regulatory quality was seen to reduce the national poverty rates, whereas political stability had an unexpected relationship with the national poverty rates. The openness factor trade openness had an unexpected relationship with national poverty rates, meaning that the

greater was trade openness, the higher were the national poverty rates. Control of corruption had an unexpected relationship with income inequality. In other words, control of corruption increased income inequality while no openness factor had a significant relationship with income inequality.

In the case of Sub-Saharan Africa, the governance factors that had a positive relationship with the annual growth rate of the GDP and the annual growth rate of the GDP per capita were government effectiveness and voice and accountability. That is, the higher the government effectiveness and the higher voice and accountability were, the greater were the annual growth rates of the GDP and the higher were the annual growth rates of GDP per capita. On the other hand, regulatory quality had an unexpected relationship with the annual growth rates of the GDP and the annual growth rates of GDP per capita. The openness factor that had a positive relationship with the annual growth rate of the GDP and the annual growth rate of GDP per capita was trade openness. In other words, the higher was trade openness, the greater was the annual growth rate of the GDP and the greater was the annual growth rate of GDP per capita. The governance factor that had a positive relationship with the GDP deflator was rule of law. That means that the higher was the rule of law, the greater was the GDP deflator, while the governance factor that had an unexpected relationship with the GDP deflator was political stability. The openness factor trade openness had an expected relationship with the GDP deflator, meaning that the greater was trade openness, the higher was the GDP deflator. The governance factor that had a negative relationship with national poverty rates was political stability. That is, political stability reduced the national poverty rates, whereas rule of law had an unexpected relationship with the national poverty rates. The openness factor financial openness had an unexpected relationship with the national poverty rates. That means that the greater was the financial openness, the higher were the national poverty rates. Political stability had an expected relationship with income inequality. In other words, political stability reduced income inequality. However, voice and accountability had an unexpected relationship with income inequality while no openness factor had a significant relationship with income inequality.

9.2 Policy Implications

Governance and openness are vital for sustainable economic development, along with other policy factors, for example government policies for allocating resources in order to mitigate poverty and to decrease economic inequality. The results of this research suggest that a broad strategy that includes improvement in governance and openness is essential for sustainable economic development. Policies aimed at enhancing the economic performance of developing countries should pay attention to improving governance and openness first as a per-requisite for sustainable economic development. However, it cannot be known exactly how to transform weak economies into successful ones; however, the findings of this research provide some implications. The following implications can serve as a path to creating policies that could lead to sustainable economic development. These implications should, therefore, be carefully adopted by policymakers and policy implementers in the economic development field (Pananda, 2012).

First, good governance, including voice and accountability, government effectiveness, political stability, rule of law, regulatory quality, and control of corruption and openness, including trade openness and financial openness, have come to be seen as essential for economic development. However, the relationship between governance, openness, and economic performance is different in each region. The results of this research revealed that Asia should pay attention to political stability, control of corruption, and government effectiveness in order to achieve better economic performance. While, Sub-Saharan Africa should improve regulatory quality, rule of law, control of corruption, and financial openness. The aspects of governance and openness that should be improved are different in the two regions, as specified in the previous chapter. Therefore, governance and openness differences are important for understanding cross-national divergence in terms of economic results, and policy makers and policy implementers in developing countries should place strong emphasis on considering how governance and openness in their countries affect economic performance. That will enable them to formulate concrete and effective policies to achieve economic performance, decrease national poverty, and increase income equality.

Secondly, the results of this research illustrate that two of the main reasons behind Sub-Saharan Africa's weak economic record compared with Asia's are their weak enforcement of regulatory quality and poor pursuit of financial openness. World Bank (2002: 152) found that building effective regulatory structures in developing countries is not simply an issue of the technical design of the regulatory instruments; it is also concerned with the quality of supporting regulatory institutions and capacity. Therefore, policy makers should be concerned about and seek regulatory instruments that are suitable and efficient for high regulatory quality. In additional, the governments of the Sub-Saharan countries should focus on capital inflow via setting policy that supports foreign direct investment such as reducing the tariff wall and facilitating investment for investors. Confidence creation is the most important factor for investment, and therefore a confidence policy for investors is the main actor for increasing foreign direct investment. For example, political crisis in Thailand that high negative effect to Thai's economy.

Thirdly, this study found that the degree of trade openness was positively related to economic growth. The implication of this finding is that for countries to attract trade, the policy framework on openness should be geared toward a more open economy in term of policy.

Finally, apart from differences across regions, every country also has its own distinctive historical, religious, and cultural background. Therefore, a blueprint of institutional development that fits all countries does not exist (Pananda, 2012 quoted in Bloch and Tang, 2004). However, we can learn from other regions' experience in order improve governance and to create openness for achieving better economic performance. One of the conclusions from this research is that the two regions can learn from each other's experience and take some great one to use or adapt to each country. Last, policymakers and policy implementers are the key persons for improving a country's economy through recognizing the governance and openness factors according to each country's unique culture and history.

9.3 Theoretical Contributions

This research contributes to the existing knowledge of the relationship between governance, openness, and economic performance in five ways. First, it estimates the long-term relationship between governance and economic performance. This research enhances the knowledge and understanding of how governance impacts economic performance. Moreover, this research investigated the relationship not only of governance and economic performance; it also investigated the relationship between governance, openness, and economic performance in the same model.

Second, this research investigated the impact of governance on economic performance. Most of the results supported the theories and findings from developed countries and previous studies; however, some of the results contradicted the theories, such as regulatory quality and rule of law. Regulatory quality had a negative relationship with the GDP deflator or regulatory quality can reduce the GDP deflator that contradictory with the theories because of the technical design of the regulatory instruments has an impact on economic growth. If the regulatory instruments are suitable for a country's environment, economic growth will increase, while if the regulatory instruments are unsuitable for a country's environment, economic growth will decrease. World Bank (2002: 152) reported that building effective regulatory structures in developing countries is not simply an issue of the technical design of the regulatory instruments; it is also concerned with the quality of supporting regulatory institutions and capacity. Therefore regulatory quality depends on the regulatory instrument and the quality of the supporting regulatory institutions and capacity. For another example, the finding regarding the effect of rule of law on national poverty rates contradicted the theories and findings of previous studies. Sudarsono (2010) indicated that the "rule of law" depends on whose terms a particular legal ruling is applied and how that particular law affects different segments of society. Sudarsono (2010) also noted that the political and economic context of the rule of law is critical for understanding what and whose political and economic interests are defended or adversely affected by a particular legal ruling or set of legal regimes.

Third, this research offers empirical results that were based on the majority of developing countries, which represent a great laboratory, including a comparison of

the Asian region and the Sub-Saharan African region, while most previous research was based on an investigation of developed countries.

Fourth, this research provide both time-series and cross-national approaches rather than only cross-national approach. In other word, this research employs panel analysis approach for more accurate result. In additional, time-series data can show the evolution of the governance, openness, and economic performance in each area.

Regarding the last contribution, this research investigated the impact of governance and openness on various measures of economic performance, including the annual growth rate of the GDP, the annual growth rate of GDP per capita, the GDP deflator, national poverty rates, and income inequality.

9.4 Suggestions for Further Research

Due to the limitations of this research, some suggestions are offered for further research. First was the limitation of being unable to access complete data in some developing countries and in some years. Therefore, further research should collect data from various sources. Secondly, this research employed multiple regression without time-lagged. Further research should use a time-lagged regression analysis for more accurate results.

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APPENDICES

APPENDIX A

STATA OUTPUT FOR THE RELATIONSHIP BETWEEN GOVERNANCE, OPENNESS, AND ECONOMIC PERFORMANCE IN DEVELOPING COUNTRIES

REGRESSION

Y_1 = Annual Growth Rates of GDP

```
Fixed-effects (within) regression               Number of obs      =      1209
Group variable: country                         Number of groups   =       109

R-sq:  within  = 0.1030                         Obs per group: min =         1
       between = 0.0688                                        avg =      11.1
       overall = 0.0508                                        max =        14

                                                F(13,1087)         =      9.60
corr(u_i, Xb)  = -0.6906                        Prob > F           =    0.0000
```

gdpgrowthrates	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
investmentrates	.0805903	.0269525	2.99	0.003	.0277054	.1334752
grossnationalsavings	.1081937	.0182517	5.93	0.000	.0723811	.1440063
populationgrowthrates	.5379859	.2795256	1.92	0.055	-.010485	1.086457
lifeexpectancyatbirth	-.2186944	.0761663	-2.87	0.004	-.3681441	-.0692447
combinedgrossenrollment	-.0078171	.0067806	-1.15	0.249	-.0211216	.0054874
voiceaccountability	.0008411	2.13102	0.00	1.000	-4.180538	4.18222
politicalstability	2.135853	1.520151	1.41	0.160	-.8469084	5.118615
governmenteffectiveness	7.158678	2.869724	2.49	0.013	1.527853	12.7895
regulatoryquality	-7.12	2.71608	-2.62	0.009	-12.44935	-1.790646
ruleoflaw	-4.299674	2.638911	-1.63	0.104	-9.47761	.8782621
controlofcorruption	4.149409	1.817767	2.28	0.023	.5826808	7.716138
tradeopenness	.0490536	.0103922	4.72	0.000	.0286625	.0694447
capitalopenness	.0464554	.028413	1.64	0.102	-.0092953	.102206
_cons	11.07887	4.568358	2.43	0.015	2.115072	20.04267
sigma_u	3.5369058					
sigma_e	3.9279226					
rho	.44776212	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(108, 1087) =     3.09           Prob > F = 0.0000
```

```
Random-effects GLS regression                   Number of obs      =      1209
Group variable: country                         Number of groups   =       109

R-sq:  within  = 0.0728                         Obs per group: min =         1
       between = 0.2664                                        avg =      11.1
       overall = 0.1190                                        max =        14

                                                Wald chi2(13)      =    123.99
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

gdpgrowthrates	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
investmentrates	.0752662	.0212452	3.54	0.000	.0336263	.116906
grossnationalsavings	.059961	.0108086	5.55	0.000	.0387766	.0811453
populationgrowthrates	.3865362	.1708175	2.26	0.024	.05174	.7213324
lifeexpectancyatbirth	-.0090571	.0246314	-0.37	0.713	-.0573338	.0392196
combinedgrossenrollment	-.0095604	.005977	-1.60	0.110	-.0212751	.0021543
voiceaccountability	.5149008	1.560531	0.33	0.741	-2.543684	3.573485
politicalstability	.0020028	1.057902	0.00	0.998	-2.071446	2.075452
governmenteffectiveness	6.204059	2.07003	3.00	0.003	2.146875	10.26124
regulatoryquality	-6.952557	2.030212	-3.42	0.001	-10.9317	-2.973416
ruleoflaw	-1.87026	1.831588	-1.02	0.307	-5.460107	1.719586
controlofcorruption	-1.140077	1.276307	-0.89	0.372	-3.641593	1.361439
tradeopenness	.0170908	.0060256	2.84	0.005	.0052807	.0289008
capitalopenness	.0896764	.0244115	3.67	0.000	.0418307	.1375221
_cons	2.787326	1.696143	1.64	0.100	-.5370545	6.111706
sigma_u	1.499344					
sigma_e	3.9279226					
rho	.12717555	(fraction of variance due to u_i)				

```
. hausman Fixed .
```

	(b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
investment~s	.0805903	.0752662	.0053241	.0165855
grossnatio~s	.1081937	.059961	.0482328	.0147072
population~s	.5379859	.3865362	.1514497	.2212599
lifeexpect~h	-.2186944	-.0090571	-.2096373	.0720736
combinedgr~t	-.0078171	-.0095604	.0017433	.0032018
voiceaccou~y	.0008411	.5149008	-.5140597	1.451203
politicals~y	2.135853	.0020028	2.133851	1.091651
government~s	7.158678	6.204059	.9546187	1.987534
regulatory~y	-7.12	-6.952557	-.1674422	1.804254
ruleoflaw	-4.299674	-1.87026	-2.429414	1.899773
controlofc~n	4.149409	-1.140077	5.289486	1.29434
tradeopenn~s	.0490536	.0170908	.0319629	.008467
capitalope~s	.0464554	.0896764	-.0432211	.0145388

```
                b = consistent under Ho and Ha; obtained from xtreg
    B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                chi2(13) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                         =       87.06
              Prob>chi2 =      0.0000
```

Y_2 = Annual Growth Rates of GDP per Capita

```
Fixed-effects (within) regression               Number of obs      =      1204
Group variable: country                         Number of groups   =       109

R-sq:  within  = 0.1067                         Obs per group: min =         1
       between = 0.0353                                        avg =      11.0
       overall = 0.0438                                        max =        14

                                                F(13,1082)         =      9.94
corr(u_i, Xb)  = -0.6338                        Prob > F           =    0.0000
```

gdppercapita	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
investmentrates	.0783249	.0265704	2.95	0.003	.0261895	.1304603
grossnationalsavings	.1055221	.0179782	5.87	0.000	.0702461	.1407982
populationgrowthrates	-.5023826	.2753145	-1.82	0.068	-1.042593	.0378281
lifeexpectancyatbirth	-.2204947	.0750396	-2.94	0.003	-.3677344	-.073255
combinedgrossenrollment	-.0077134	.0066779	-1.16	0.248	-.0208166	.0053898
voiceaccountability	-.0470449	2.099499	-0.02	0.982	-4.166596	4.072507
politicalstability	1.963744	1.499702	1.31	0.191	-.9789102	4.906399
governmenteffectiveness	7.472603	2.838708	2.63	0.009	1.902608	13.0426
regulatoryquality	-7.126248	2.675401	-2.66	0.008	-12.37581	-1.876686
ruleoflaw	-4.463663	2.610113	-1.71	0.088	-9.585119	.6577934
controlofcorruption	4.19141	1.790389	2.34	0.019	.6783821	7.704438
tradeopenness	.0482214	.0102349	4.71	0.000	.028139	.0683039
capitalopenness	.0486871	.0279917	1.74	0.082	-.0062371	.1036113
_cons	11.34292	4.498037	2.52	0.012	2.517059	20.16879
sigma_u	3.4818943					
sigma_e	3.8682814					
rho	.44757645	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(108, 1082) =     3.05           Prob > F = 0.0000
```

```
Random-effects GLS regression                   Number of obs      =      1204
Group variable: country                         Number of groups   =       109

R-sq:  within  = 0.0755                         Obs per group: min =         1
       between = 0.3025                                        avg =      11.0
       overall = 0.1511                                        max =        14

                                                Wald chi2(13)      =    145.69
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

gdppercapita	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
investmentrates	.0747927	.0208531	3.59	0.000	.0339214	.115664
grossnationalsavings	.0582785	.0105813	5.51	0.000	.0375396	.0790175
populationgrowthrates	-.6575956	.1672312	-3.93	0.000	-.9853627	-.3298285
lifeexpectancyatbirth	-.0099718	.0240753	-0.41	0.679	-.0571585	.037215
combinedgrossenrollment	-.0095766	.0058771	-1.63	0.103	-.0210956	.0019423
voiceaccountability	.4385595	1.530894	0.29	0.775	-2.561938	3.439057
politicalstability	-.0607328	1.037823	-0.06	0.953	-2.094828	1.973362
governmenteffectiveness	6.36584	2.035216	3.13	0.002	2.376889	10.35479
regulatoryquality	-6.88058	1.992189	-3.45	0.001	-10.7852	-2.975961
ruleoflaw	-1.945768	1.801827	-1.08	0.280	-5.477284	1.585748
controlofcorruption	-1.153312	1.25101	-0.92	0.357	-3.605246	1.298623
tradeopenness	.0167663	.0059046	2.84	0.005	.0051936	.028339
capitalopenness	.089613	.0239818	3.74	0.000	.0426096	.1366164
_cons	2.908488	1.658768	1.75	0.080	-.3426371	6.159614
sigma_u	1.4515428					
sigma_e	3.8682814					
rho	.12342737	(fraction of variance due to u_i)				

```
. hausman Fixed .
```

	——— Coefficients ———			
	(b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
investment~s	.0783249	.0747927	.0035322	.0164662
grossnatio~s	.1055221	.0582785	.0472436	.0145345
population~s	-.5023826	-.6575956	.155213	.2187048
lifeexpect~h	-.2204947	-.0099718	-.2105229	.0710727
combinedgr~t	-.0077134	-.0095766	.0018632	.0031709
voiceaccou~y	-.0470449	.4385595	-.4856044	1.436753
politicals~y	1.963744	-.0607328	2.024477	1.082604
government~s	7.472603	6.36584	1.106764	1.978928
regulatory~y	-7.126248	-6.88058	-.2456681	1.785764
ruleoflaw	-4.463663	-1.945768	-2.517894	1.888414
controlofc~n	4.19141	-1.153312	5.344721	1.280807
tradeopenn~s	.0482214	.0167663	.0314551	.00836
capitalope~s	.0486871	.089613	-.0409259	.0144365

```
                b = consistent under Ho and Ha; obtained from xtreg
    B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                chi2(13) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                         =       86.69
              Prob>chi2 =      0.0000

.
```

Y_3 = GDP Deflator

```
Fixed-effects (within) regression               Number of obs      =      1209
Group variable: country                         Number of groups   =       109

R-sq:  within  = 0.0602                         Obs per group: min =         1
       between = 0.0594                                        avg =      11.1
       overall = 0.0354                                        max =        14

                                                F(13,1087)         =      5.35
corr(u_i, Xb)  = -0.6750                        Prob > F           =    0.0000
```

gdpdeflator	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
investmentrates	-.1710078	.1049576	-1.63	0.104	-.3769502	.0349346
grossnationalsavings	.1998165	.0710753	2.81	0.005	.0603562	.3392767
populationgrowthrates	.1013442	1.088519	0.09	0.926	-2.034492	2.23718
lifeexpectancyatbirth	-.8550043	.2966043	-2.88	0.004	-1.436986	-.2730225
combinedgrossenrollment	-.0528393	.0264047	-2.00	0.046	-.1046492	-.0010293
voiceaccountability	-18.95558	8.298544	-2.28	0.023	-35.23856	-2.672602
politicalstability	-19.07474	5.919718	-3.22	0.001	-30.69011	-7.459376
governmenteffectiveness	8.153606	11.17518	0.73	0.466	-13.77376	30.08097
regulatoryquality	-24.02136	10.57686	-2.27	0.023	-44.77474	-3.26798
ruleoflaw	21.49644	10.27636	2.09	0.037	1.332705	41.66018
controlofcorruption	2.458931	7.078683	0.35	0.728	-11.4305	16.34836
tradeopenness	.0919836	.040469	2.27	0.023	.0125774	.1713899
capitalopenness	.3016042	.1106451	2.73	0.007	.0845021	.5187063
_cons	79.09419	17.78994	4.45	0.000	44.18768	114.0007
sigma_u	12.987312					
sigma_e	15.295979					
rho	.41891373	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(108, 1087) =     3.49           Prob > F = 0.0000
```

```
Random-effects GLS regression                   Number of obs      =      1209
Group variable: country                         Number of groups   =       109

R-sq:  within  = 0.0479                         Obs per group: min =         1
       between = 0.1505                                        avg =      11.1
       overall = 0.0735                                        max =        14

                                                Wald chi2(13)      =     70.22
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

gdpdeflator	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
investmentrates	-.240963	.0843457	-2.86	0.004	-.4062775	-.0756484
grossnationalsavings	.1855076	.0440031	4.22	0.000	.0992631	.2717521
populationgrowthrates	-1.407951	.6949776	-2.03	0.043	-2.770082	-.0458205
lifeexpectancyatbirth	-.1648612	.1026362	-1.61	0.108	-.3660244	.0363021
combinedgrossenrollment	-.0309142	.023394	-1.32	0.186	-.0767656	.0149372
voiceaccountability	-14.21064	6.23117	-2.28	0.023	-26.42351	-1.997775
politicalstability	-10.98754	4.24388	-2.59	0.010	-19.30539	-2.669688
governmenteffectiveness	11.08673	8.307042	1.33	0.182	-5.194775	27.36823
regulatoryquality	-20.5619	8.081301	-2.54	0.011	-36.40095	-4.722838
ruleoflaw	12.74946	7.370003	1.73	0.084	-1.695481	27.1944
controlofcorruption	-1.896639	5.127315	-0.37	0.711	-11.94599	8.152714
tradeopenness	.0773131	.024573	3.15	0.002	.0291508	.1254754
capitalopenness	.2183513	.0958787	2.28	0.023	.0304324	.4062701
_cons	34.20001	6.98952	4.89	0.000	20.5008	47.89922
sigma_u	6.8486436					
sigma_e	15.295979					
rho	.16699458	(fraction of variance due to u_i)				

```
. hausman Fixed .
```

	Coefficients (b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
investment~s	-.1710078	-.240963	.0699551	.0624652
grossnatio~s	.1998165	.1855076	.0143089	.055816
population~s	.1013442	-1.407951	1.509296	.8377827
lifeexpect~h	-.8550043	-.1648612	-.6901432	.2782803
combinedgr~t	-.0528393	-.0309142	-.0219251	.0122445
voiceaccou~y	-18.95558	-14.21064	-4.744938	5.480727
politicals~y	-19.07474	-10.98754	-8.087203	4.12705
government~s	8.153606	11.08673	-2.933122	7.475136
regulatory~y	-24.02136	-20.5619	-3.459465	6.823682
ruleoflaw	21.49644	12.74946	8.746984	7.161462
controlofc~n	2.458931	-1.896639	4.35557	4.88041
tradeopenn~s	.0919836	.0773131	.0146705	.0321545
capitalope~s	.3016042	.2183513	.0832529	.0552232

```
                b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                chi2(13) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                         =       30.16
              Prob>chi2 =      0.0045
```

Y_4 = National Poverty Rates

```
Fixed-effects (within) regression               Number of obs      =       386
Group variable: country                         Number of groups   =        92

R-sq:  within  = 0.4595                         Obs per group: min =         1
       between = 0.3950                                        avg =       4.2
       overall = 0.1893                                        max =        13

                                                F(13,281)          =     18.38
corr(u_i, Xb)  = -0.7716                        Prob > F           =    0.0000
```

nationalpovertyrate	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
investmentrates	-.5547013	.0926808	-5.99	0.000	-.7371381	-.3722644
grossnationalsavings	-.0115215	.0833899	-0.14	0.890	-.1756698	.1526267
populationgrowthrates	.9676774	1.234654	0.78	0.434	-1.462668	3.398023
lifeexpectancyatbirth	-2.912778	.2734853	-10.65	0.000	-3.451118	-2.374438
combinedgrossenrollment	-.0391413	.030028	-1.30	0.193	-.0982496	.0199671
voiceaccountability	-13.23446	6.537441	-2.02	0.044	-26.10304	-.3658903
politicalstability	6.602673	4.455718	1.48	0.140	-2.16815	15.3735
governmenteffectiveness	20.07502	8.230834	2.44	0.015	3.873099	36.27694
regulatoryquality	-15.24535	7.039046	-2.17	0.031	-29.10131	-1.3894
ruleoflaw	-7.821675	7.962394	-0.98	0.327	-23.49519	7.851836
controlofcorruption	4.060354	5.575811	0.73	0.467	-6.915307	15.03601
tradeopenness	.0207386	.0405877	0.51	0.610	-.0591558	.1006331
capitalopenness	.3130436	.1382166	2.26	0.024	.0409722	.585115
_cons	246.8421	18.21838	13.55	0.000	210.9803	282.704
sigma_u	24.315843					
sigma_e	5.5089992					
rho	.95117661	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(91, 281) =    17.57            Prob > F = 0.0000
Random-effects GLS regression                   Number of obs      =       386
Group variable: country                         Number of groups   =        92

R-sq:  within  = 0.3786                         Obs per group: min =         1
       between = 0.4762                                        avg =       4.2
       overall = 0.2960                                        max =        13

                                                Wald chi2(13)      =    228.12
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

nationalpovertyrate	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
investmentrates	-.5383422	.088819	-6.06	0.000	-.7124242	-.3642602
grossnationalsavings	-.1244729	.0613485	-2.03	0.042	-.2447138	-.0042321
populationgrowthrates	.7726378	.9206618	0.84	0.401	-1.031826	2.577102
lifeexpectancyatbirth	-1.0535	.1392715	-7.56	0.000	-1.326467	-.780533
combinedgrossenrollment	-.0506153	.028917	-1.75	0.080	-.1072915	.006061
voiceaccountability	-4.920979	6.132943	-0.80	0.422	-16.94133	7.099369
politicalstability	3.984201	4.104198	0.97	0.332	-4.059879	12.02828
governmenteffectiveness	21.94518	7.785513	2.82	0.005	6.685857	37.20451
regulatoryquality	-22.77582	6.871744	-3.31	0.001	-36.24419	-9.307448
ruleoflaw	-10.94842	7.423874	-1.47	0.140	-25.49894	3.602109
controlofcorruption	2.871355	5.209144	0.55	0.581	-7.33838	13.08109
tradeopenness	-.0145798	.0312718	-0.47	0.641	-.0758715	.0467118
capitalopenness	.3831675	.1283657	2.98	0.003	.1315753	.6347596
_cons	123.9238	9.752169	12.71	0.000	104.8099	143.0377
sigma_u	10.518055					
sigma_e	5.5089992					
rho	.78472562	(fraction of variance due to u_i)				

```
. hausman Fixed .
```

	——— Coefficients ———			
	(b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
investment~s	-.5547013	-.5383422	-.0163591	.026475
grossnatio~s	-.0115215	-.1244729	.1129514	.0564823
population~s	.9676774	.7726378	.1950397	.8226501
lifeexpect~h	-2.912778	-1.0535	-1.859278	.2353671
combinedgr~t	-.0391413	-.0506153	.011474	.0080924
voiceaccou~y	-13.23446	-4.920979	-8.313484	2.263876
politicals~y	6.602673	3.984201	2.618472	1.734643
government~s	20.07502	21.94518	-1.870164	2.670658
regulatory~y	-15.24535	-22.77582	7.530465	1.525549
ruleoflaw	-7.821675	-10.94842	3.126741	2.878508
controlofc~n	4.060354	2.871355	1.188998	1.988588
tradeopenn~s	.0207386	-.0145798	.0353184	.0258734
capitalope~s	.3130436	.3831675	-.0701238	.0512453

```
                b = consistent under Ho and Ha; obtained from xtreg
     B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                chi2(13) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                         =       73.87
              Prob>chi2 =      0.0000
              (V_b-V_B is not positive definite)
```

Y_5 = Income Inequality

```
Fixed-effects (within) regression               Number of obs      =       413
Group variable: country                         Number of groups   =        96

R-sq:  within  = 0.1139                         Obs per group: min =         1
       between = 0.0339                                        avg =       4.3
       overall = 0.0031                                        max =        12

                                                F(13,304)          =      3.01
corr(u_i, Xb)  = -0.3367                        Prob > F           =    0.0004
```

incomeinequality	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
investmentrates	-.0237004	.0365796	-0.65	0.518	-.0956816	.0482808
grossnationalsavings	.0678708	.0280195	2.42	0.016	.0127341	.1230074
populationgrowthrates	-.465353	.387051	-1.20	0.230	-1.226991	.2962853
lifeexpectancyatbirth	-.445002	.1047443	-4.25	0.000	-.6511176	-.2388864
combinedgrossenrollment	.009411	.0111311	0.85	0.399	-.0124929	.0313148
voiceaccountability	4.065789	2.368252	1.72	0.087	-.594453	8.726031
politicalstability	.7811247	1.804286	0.43	0.665	-2.769345	4.331594
governmenteffectiveness	4.38492	3.190653	1.37	0.170	-1.893641	10.66348
regulatoryquality	1.047267	2.886411	0.36	0.717	-4.632608	6.727142
ruleoflaw	-4.424604	2.912826	-1.52	0.130	-10.15646	1.307248
controlofcorruption	2.479443	2.107328	1.18	0.240	-1.667352	6.626239
tradeopenness	-.0117129	.0122455	-0.96	0.340	-.0358097	.0123838
capitalopenness	.1300703	.0565637	2.30	0.022	.0187644	.2413763
_cons	74.9904	6.645455	11.28	0.000	61.91349	88.06731
sigma_u	7.3122442					
sigma_e	2.2860051					
rho	.91096613	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(95, 304) =    22.56             Prob > F = 0.0000
```

Random-effects GLS regression — Number of obs = 413
Group variable: country — Number of groups = 96

R-sq: within = 0.0848 — Obs per group: min = 1
between = 0.1337 — avg = 4.3
overall = 0.1262 — max = 12

Wald chi2(13) = 44.05
corr(u_i, X) = 0 (assumed) — Prob > chi2 = 0.0000

incomeinequality	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
investmentrates	-.061851	.034459	-1.79	0.073	-.1293894	.0056875
grossnationalsavings	.0591952	.0244823	2.42	0.016	.0112107	.1071797
populationgrowthrates	.3168943	.3421689	0.93	0.354	-.3537444	.9875331
lifeexpectancyatbirth	-.2389328	.0643797	-3.71	0.000	-.3651147	-.1127509
combinedgrossenrollment	.0137391	.0108186	1.27	0.204	-.0074649	.0349432
voiceaccountability	4.621769	2.301164	2.01	0.045	.1115703	9.131968
politicalstability	-.3547369	1.710807	-0.21	0.836	-3.707857	2.998383
governmenteffectiveness	6.284649	3.059026	2.05	0.040	.2890688	12.28023
regulatoryquality	2.286094	2.810038	0.81	0.416	-3.221479	7.793668
ruleoflaw	-6.392665	2.779351	-2.30	0.021	-11.84009	-.9452378
controlofcorruption	2.789962	2.037934	1.37	0.171	-1.204316	6.78424
tradeopenness	-.010606	.0111674	-0.95	0.342	-.0324936	.0112816
capitalopenness	.0824422	.054789	1.50	0.132	-.0249422	.1898266
_cons	59.77587	4.036004	14.81	0.000	51.86545	67.68629
sigma_u	5.6534586					
sigma_e	2.2860051					
rho	.85947343	(fraction of variance due to u_i)				

Breusch and Pagan Lagrangian multiplier test for random effects

incomeinequality[country,t] = Xb + u[country] + e[country,t]

Estimated results:

	Var	sd = sqrt(Var)
incomei~y	57.54648	7.585939
e	5.225819	2.286005
u	31.96159	5.653459

Test: Var(u) = 0
chibar2(01) = 369.58
Prob > chibar2 = 0.0000

APPENDIX B

STATA OUTPUT FOR THE RELATIONSHIP BETWEEN GOVERNANCE, OPENNESS, AND ECONOMIC PERFORMANCE IN ASIA

REGRESSION

Y_1 = Annual Growth Rates of GDP

```
Fixed-effects (within) regression               Number of obs      =       262
Group variable: country                         Number of groups   =        24

R-sq:  within  = 0.1835                         Obs per group: min =         1
       between = 0.0875                                        avg =      10.9
       overall = 0.0785                                        max =        14

                                                F(13,225)          =      3.89
corr(u_i, Xb)  = -0.6322                        Prob > F           =    0.0000
```

gdpgrowth	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
invest	.0292641	.053901	0.54	0.588	-.0769513	.1354795
gross	.1267067	.0374874	3.38	0.001	.0528354	.2005779
population	-.3859215	.6790681	-0.57	0.570	-1.724068	.9522252
life	-.0491101	.1709834	-0.29	0.774	-.3860437	.2878235
combined	-.0254788	.0197961	-1.29	0.199	-.0644884	.0135307
voice	9.365518	4.608604	2.03	0.043	.283972	18.44706
political	-1.741564	2.663414	-0.65	0.514	-6.98999	3.506861
gov	5.869588	5.935958	0.99	0.324	-5.827592	17.56677
regulatory	-5.621931	5.575147	-1.01	0.314	-16.60811	5.36425
rule	-5.308087	6.49639	-0.82	0.415	-18.10964	7.493462
control	2.184487	3.586491	0.61	0.543	-4.882921	9.251896
tradeopenness	.030101	.0209032	1.44	0.151	-.01109	.071292
capitalopenness	.1561256	.0630911	2.47	0.014	.0318006	.2804506
_cons	3.79984	11.49389	0.33	0.741	-18.84961	26.44929
sigma_u	3.050844					
sigma_e	3.6033255					
rho	.41754058	(fraction of variance due to u_i)				

F test that all u_i=0: F(23, 225) = 2.69 Prob > F = 0.0001

```
Random-effects GLS regression                   Number of obs      =       262
Group variable: country                         Number of groups   =        24

R-sq:  within  = 0.1347                         Obs per group: min =         1
       between = 0.4988                                        avg =      10.9
       overall = 0.2242                                        max =        14

                                                Wald chi2(13)      =     55.25
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

gdpgrowth	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
invest	.0306426	.0380008	0.81	0.420	-.0438377	.1051229
gross	.0756421	.0241827	3.13	0.002	.0282448	.1230394
population	-.1420852	.4619858	-0.31	0.758	-1.047561	.7633903
life	-.0392447	.0997456	-0.39	0.694	-.2347425	.1562532
combined	-.0197117	.0165974	-1.19	0.235	-.0522419	.0128185
voice	-.370764	2.905973	-0.13	0.898	-6.066367	5.324839
political	.1023359	1.787564	0.06	0.954	-3.401226	3.605898
gov	1.669502	3.171573	0.53	0.599	-4.546667	7.885671
regulatory	-4.706596	3.690772	-1.28	0.202	-11.94038	2.527184
rule	-2.031901	3.800904	-0.53	0.593	-9.481537	5.417734
control	-.0638674	2.410059	-0.03	0.979	-4.787495	4.659761
tradeopenness	.0056161	.0109467	0.51	0.608	-.0158391	.0270712
capitalopenness	.2072681	.0503988	4.11	0.000	.1084883	.3060479
_cons	9.209677	6.56337	1.40	0.161	-3.654292	22.07365
sigma_u	1.120341					
sigma_e	3.6033255					
rho	.08814899	(fraction of variance due to u_i)				

```
. hausman Fixed .
```

	(b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
invest	.0292641	.0306426	-.0013785	.0382264
gross	.1267067	.0756421	.0510645	.0286443
population	-.3859215	-.1420852	-.2438364	.4976973
life	-.0491101	-.0392447	-.0098654	.1388745
combined	-.0254788	-.0197117	-.0057671	.0107896
voice	9.365518	-.370764	9.736282	3.576947
political	-1.741564	.1023359	-1.8439	1.974433
gov	5.869588	1.669502	4.200087	5.017641
regulatory	-5.621931	-4.706596	-.9153346	4.178573
rule	-5.308087	-2.031901	-3.276185	5.268416
control	2.184487	-.0638674	2.248355	2.656038
tradeopenn~s	.030101	.0056161	.024485	.0178076
capitalope~s	.1561256	.2072681	-.0511425	.0379533

```
                b = consistent under Ho and Ha; obtained from xtreg
    B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test:  Ho:  difference in coefficients not systematic

              chi2(13) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                       =       31.59
             Prob>chi2 =      0.0028
```

Y_2 = Annual Growth Rates of GDP per Capita

```
Fixed-effects (within) regression               Number of obs      =       262
Group variable: country                         Number of groups   =        24

R-sq:  within  = 0.1956                         Obs per group: min =         1
       between = 0.1693                                        avg =      10.9
       overall = 0.1109                                        max =        14

                                                F(13,225)          =      4.21
corr(u_i, Xb)  = -0.6107                        Prob > F           =    0.0000
```

gdpcap	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
invest	.0288274	.05304	0.54	0.587	-.0756913	.133346
gross	.1245959	.0368885	3.38	0.001	.0519047	.197287
population	-1.404633	.6682202	-2.10	0.037	-2.721403	-.0878623
life	-.050098	.168252	-0.30	0.766	-.3816492	.2814532
combined	-.0253437	.0194799	-1.30	0.195	-.0637301	.0130426
voice	9.257892	4.534983	2.04	0.042	.3214208	18.19436
political	-1.761117	2.620867	-0.67	0.502	-6.925701	3.403466
gov	5.83756	5.841133	1.00	0.319	-5.672762	17.34788
regulatory	-5.610866	5.486086	-1.02	0.308	-16.42155	5.199815
rule	-5.183487	6.392612	-0.81	0.418	-17.78053	7.413561
control	2.206649	3.529198	0.63	0.532	-4.747861	9.161158
tradeopenness	.0298339	.0205692	1.45	0.148	-.010699	.0703669
capitalopenness	.1537302	.0620832	2.48	0.014	.0313912	.2760691
_cons	3.902671	11.31028	0.35	0.730	-18.38496	26.1903
sigma_u	3.0127157					
sigma_e	3.5457636					
rho	.41925723	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(23, 225) =     2.72             Prob > F = 0.0001
Random-effects GLS regression                   Number of obs      =       262
Group variable: country                         Number of groups   =        24

R-sq:  within  = 0.1478                         Obs per group: min =         1
       between = 0.5894                                        avg =      10.9
       overall = 0.2631                                        max =        14

                                                Wald chi2(13)      =     66.71
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

gdpcap	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
invest	.0299384	.0374783	0.80	0.424	-.0435178	.1033946
gross	.0752415	.0238479	3.16	0.002	.0285004	.1219826
population	-1.176024	.4555097	-2.58	0.010	-2.068807	-.2832417
life	-.0380015	.098457	-0.39	0.700	-.2309736	.1549706
combined	-.0196956	.0163572	-1.20	0.229	-.0517551	.0123639
voice	-.361049	2.866068	-0.13	0.900	-5.978438	5.25634
political	.0834909	1.762989	0.05	0.962	-3.371904	3.538886
gov	1.675207	3.129913	0.54	0.592	-4.459309	7.809723
regulatory	-4.677708	3.64126	-1.28	0.199	-11.81445	2.45903
rule	-1.98341	3.750205	-0.53	0.597	-9.333678	5.366857
control	-.0437185	2.376822	-0.02	0.985	-4.702205	4.614768
tradeopenness	.0055264	.0108036	0.51	0.609	-.0156482	.026701
capitalopenness	.2044581	.0496733	4.12	0.000	.1071003	.301816
_cons	9.10467	6.477691	1.41	0.160	-3.591371	21.80071
sigma_u	1.1136632					
sigma_e	3.5457636					
rho	.08979034	(fraction of variance due to u_i)				

```
. hausman Fixed .
```

	Coefficients (b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
invest	.0288274	.0299384	-.001111	.0375315
gross	.1245959	.0752415	.0493544	.0281432
population	-1.404633	-1.176024	-.2286082	.4889061
life	-.050098	-.0380015	-.0120966	.1364366
combined	-.0253437	-.0196956	-.0056481	.0105787
voice	9.257892	-.361049	9.618941	3.514503
political	-1.761117	.0834909	-1.844608	1.939281
gov	5.83756	1.675207	4.162353	4.931782
regulatory	-5.610866	-4.677708	-.9331579	4.103458
rule	-5.183487	-1.98341	-3.200077	5.177012
control	2.206649	-.0437185	2.250367	2.608823
tradeopenn~s	.0298339	.0055264	.0243076	.0175036
capitalope~s	.1537302	.2044581	-.050728	.037241

```
                    b = consistent under Ho and Ha; obtained from xtreg
     B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                chi2(13) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                         =       31.72
              Prob>chi2 =      0.0026
```

Y_3 = GDP Deflator

```
Fixed-effects (within) regression               Number of obs      =       262
Group variable: country                         Number of groups   =        24

R-sq:  within  = 0.1658                         Obs per group: min =         1
       between = 0.1659                                        avg =      10.9
       overall = 0.1153                                        max =        14

                                                F(13,225)          =      3.44
corr(u_i, Xb)  = -0.3695                        Prob > F           =    0.0001
```

gdpdeflator	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
invest	-.1142025	.1173353	-0.97	0.331	-.3454192	.1170142
gross	.2479037	.081605	3.04	0.003	.0870959	.4087114
population	-2.117228	1.47824	-1.43	0.153	-5.030193	.7957368
life	-.8501983	.3722078	-2.28	0.023	-1.583657	-.1167392
combined	.0411031	.0430935	0.95	0.341	-.0438154	.1260217
voice	-13.06665	10.03231	-1.30	0.194	-32.83595	6.702653
political	2.883858	5.797893	0.50	0.619	-8.541257	14.30897
gov	-7.778716	12.92178	-0.60	0.548	-33.2419	17.68447
regulatory	-12.80649	12.13634	-1.06	0.292	-36.72193	11.10895
rule	1.920183	14.14177	0.14	0.892	-25.94706	29.78743
control	-5.671446	7.807309	-0.73	0.468	-21.05624	9.71335
tradeopenness	.1447143	.0455034	3.18	0.002	.0550471	.2343816
capitalopenness	.0300699	.1373408	0.22	0.827	-.240569	.3007087
_cons	69.88362	25.02066	2.79	0.006	20.57883	119.1884
sigma_u	6.4939897					
sigma_e	7.8439542					
rho	.40667403	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(23, 225) =     2.89                 Prob > F = 0.0000
```

Random-effects GLS regression — Number of obs = 262
Group variable: country — Number of groups = 24

R-sq: within = 0.1434 — Obs per group: min = 1
between = 0.5652 — avg = 10.9
overall = 0.2897 — max = 14

Wald chi2(13) = 60.37
corr(u_i, X) = 0 (assumed) — Prob > chi2 = 0.0000

gdpdeflator	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
invest	-.1295337	.0906485	-1.43	0.153	-.3072014	.048134
gross	.1994568	.0578382	3.45	0.001	.0860959	.3128177
population	-.7059088	1.089598	-0.65	0.517	-2.841482	1.429664
life	-.6602157	.2511263	-2.63	0.009	-1.152414	-.1680173
combined	.0552818	.0378556	1.46	0.144	-.0189138	.1294774
voice	-20.13106	6.969967	-2.89	0.004	-33.79194	-6.470176
political	-3.885982	4.290774	-0.91	0.365	-12.29574	4.523782
gov	-.1924504	7.905492	-0.02	0.981	-15.68693	15.30203
regulatory	-23.77671	8.964588	-2.65	0.008	-41.34698	-6.206435
rule	6.574647	9.330307	0.70	0.481	-11.71242	24.86171
control	-1.086902	5.730696	-0.19	0.850	-12.31886	10.14505
tradeopenness	.1082459	.0275726	3.93	0.000	.0542046	.1622872
capitalopenness	-.0092919	.1158304	-0.08	0.936	-.2363153	.2177315
_cons	62.84732	16.44353	3.82	0.000	30.61861	95.07604
sigma_u	4.1004764					
sigma_e	7.8439542					
rho	.21462317	(fraction of variance due to u_i)				

. hausman Fixed .

	(b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
invest	-.1142025	-.1295337	.0153312	.0745013
gross	.2479037	.1994568	.0484469	.0575683
population	-2.117228	-.7059088	-1.41132	.998984
life	-.8501983	-.6602157	-.1899826	.2747257
combined	.0411031	.0552818	-.0141787	.0205914
voice	-13.06665	-20.13106	7.06441	7.215733
political	2.883858	-3.885982	6.76984	3.899336
gov	-7.778716	-.1924504	-7.586265	10.22133
regulatory	-12.80649	-23.77671	10.97021	8.180894
rule	1.920183	6.574647	-4.654464	10.62708
control	-5.671446	-1.086902	-4.584544	5.302188
tradeopenn~s	.1447143	.1082459	.0364684	.0361982
capitalope~s	.0300699	-.0092919	.0393618	.0737959

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(13) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 11.93
Prob>chi2 = 0.5330

Y_4 = National Poverty Rates

```
Fixed-effects (within) regression               Number of obs      =        82
Group variable: country                         Number of groups   =        20

R-sq:  within  = 0.7988                         Obs per group: min =         1
       between = 0.1888                                        avg =       4.1
       overall = 0.2780                                        max =        11

                                                F(13,49)           =     14.97
corr(u_i, Xb)  = -0.6968                        Prob > F           =    0.0000
```

povertyline	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
invest	-.2014145	.1468166	-1.37	0.176	-.4964535	.0936245
gross	.1587697	.152427	1.04	0.303	-.1475437	.4650831
population	-4.75157	1.964171	-2.42	0.019	-8.698719	-.8044207
life	-5.455488	.5332895	-10.23	0.000	-6.527173	-4.383803
combined	.0430735	.0729962	0.59	0.558	-.1036178	.1897648
voice	-14.9213	12.38098	-1.21	0.234	-39.80181	9.959212
political	8.731468	6.589654	1.33	0.191	-4.510938	21.97387
gov	11.28512	18.14597	0.62	0.537	-25.18058	47.75081
regulatory	-45.05569	17.48414	-2.58	0.013	-80.19139	-9.919999
rule	13.75388	22.89475	0.60	0.551	-32.25483	59.76259
control	29.6481	10.74575	2.76	0.008	8.053702	51.2425
tradeopenness	-.0190269	.0694323	-0.27	0.785	-.1585563	.1205025
capitalopenness	.003246	.2261949	0.01	0.989	-.4513096	.4578016
_cons	407.786	35.7456	11.41	0.000	335.9526	479.6195
sigma_u	18.074853					
sigma_e	4.5922655					
rho	.93936297	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(19, 49) =     6.55              Prob > F = 0.0000
```

```
Random-effects GLS regression                   Number of obs      =        82
Group variable: country                         Number of groups   =        20

R-sq:  within  = 0.7093                         Obs per group: min =         1
       between = 0.6415                                        avg =       4.1
       overall = 0.6645                                        max =        11

                                                Wald chi2(13)      =    152.26
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

povertyline	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
invest	-.3846377	.1388561	-2.77	0.006	-.6567907	-.1124847
gross	-.1742627	.1130663	-1.54	0.123	-.3958686	.0473431
population	-6.996556	1.855985	-3.77	0.000	-10.63422	-3.358893
life	-4.017328	.4748335	-8.46	0.000	-4.947984	-3.086671
combined	.0524411	.0725325	0.72	0.470	-.0897201	.1946023
voice	-.2037855	11.14101	-0.02	0.985	-22.03976	21.63219
political	15.74528	5.777127	2.73	0.006	4.422314	27.06824
gov	6.230753	15.76827	0.40	0.693	-24.67449	37.136
regulatory	-47.43882	16.23736	-2.92	0.003	-79.26346	-15.61417
rule	19.1094	15.63218	1.22	0.222	-11.5291	49.74791
control	8.545583	10.03859	0.85	0.395	-11.1297	28.22087
tradeopenness	.1339302	.0471204	2.84	0.004	.041576	.2262844
capitalopenness	-.0220645	.1992845	-0.11	0.912	-.412655	.368526
_cons	309.5533	30.8824	10.02	0.000	249.0249	370.0817
sigma_u	6.3909052					
sigma_e	4.5922655					
rho	.65948608	(fraction of variance due to u_i)				

```
. hausman Fixed .
```

	Coefficients (b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
invest	-.2014145	-.3846377	.1832232	.0476874
gross	.1587697	-.1742627	.3330324	.1022252
population	-4.75157	-6.996556	2.244986	.6428743
life	-5.455488	-4.017328	-1.43816	.2427567
combined	.0430735	.0524411	-.0093676	.0082141
voice	-14.9213	-.2037855	-14.71752	5.40061
political	8.731468	15.74528	-7.013807	3.169912
gov	11.28512	6.230753	5.054364	8.979859
regulatory	-45.05569	-47.43882	2.383121	6.48407
rule	13.75388	19.1094	-5.355524	16.72735
control	29.6481	8.545583	21.10252	3.833772
tradeopenn~s	-.0190269	.1339302	-.1529571	.0509953
capitalope~s	.003246	-.0220645	.0253106	.1070037

```
                b = consistent under Ho and Ha; obtained from xtreg
    B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                chi2(13) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                         =       22.00
              Prob>chi2 =      0.0553
              (V_b-V_B is not positive definite)
```

Y_5 = Income Inequality

```
Fixed-effects (within) regression               Number of obs      =        76
Group variable: country                         Number of groups   =        23

R-sq:  within  = 0.4461                         Obs per group: min =         1
       between = 0.0065                                        avg =       3.3
       overall = 0.0239                                        max =         7

                                                F(13,40)           =      2.48
corr(u_i, Xb)  = -0.7694                        Prob > F           =    0.0140
```

incomeinequal~y	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
invest	.1490553	.0919826	1.62	0.113	-.0368485	.334959
gross	.1076815	.0787519	1.37	0.179	-.0514819	.266845
population	.2943722	1.261737	0.23	0.817	-2.255694	2.844438
life	-1.062172	.3199407	-3.32	0.002	-1.708797	-.4155482
combined	.014086	.0308586	0.46	0.651	-.0482816	.0764535
voice	.6660454	7.510309	0.09	0.930	-14.51286	15.84495
political	-2.860718	5.000865	-0.57	0.570	-12.96784	7.246406
gov	3.19341	12.0245	0.27	0.792	-21.10901	27.49583
regulatory	.3967936	9.664548	0.04	0.967	-19.13599	19.92957
rule	10.03509	13.52157	0.74	0.462	-17.29302	37.3632
control	12.50772	6.848724	1.83	0.075	-1.334067	26.34951
tradeopenness	-.0307416	.0356833	-0.86	0.394	-.1028603	.0413771
capitalopenness	.085392	.1767239	0.48	0.632	-.2717802	.4425643
_cons	102.0623	22.8443	4.47	0.000	55.89227	148.2324
sigma_u	6.5385268					
sigma_e	2.5834759					
rho	.86496468	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(22, 40) =     3.69              Prob > F = 0.0002
```

Random-effects GLS regression — Number of obs = 76
Group variable: country — Number of groups = 23

R-sq: within = 0.2912 — Obs per group: min = 1
between = 0.3543 — avg = 3.3
overall = 0.3548 — max = 7

Wald chi2(13) = 26.26
corr(u_i, X) = 0 (assumed) — Prob > chi2 = 0.0157

incomeinequal~y	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
invest	-.0221708	.0653881	-0.34	0.735	-.1503292	.1059875
gross	.0722023	.0503912	1.43	0.152	-.0265626	.1709673
population	1.071026	.9015974	1.19	0.235	-.6960729	2.838124
life	-.1715437	.1920926	-0.89	0.372	-.5480383	.2049509
combined	.0361109	.0267469	1.35	0.177	-.016312	.0885338
voice	2.623281	5.153764	0.51	0.611	-7.477911	12.72447
political	-.5473831	3.197586	-0.17	0.864	-6.814536	5.719769
gov	1.962074	6.423698	0.31	0.760	-10.62814	14.55229
regulatory	3.62733	6.713889	0.54	0.589	-9.531651	16.78631
rule	5.980015	6.806379	0.88	0.380	-7.360243	19.32027
control	7.946257	4.707058	1.69	0.091	-1.279407	17.17192
tradeopenness	.0063824	.0221357	0.29	0.773	-.0370029	.0497677
capitalopenness	-.1019289	.149741	-0.68	0.496	-.3954159	.1915581
_cons	41.93737	13.0808	3.21	0.001	16.29948	67.57527
sigma_u	3.0765678					
sigma_e	2.5834759					
rho	.58646184	(fraction of variance due to u_i)				

Source	SS	df	MS
Model	701.646042	13	53.9727725
Residual	808.680244	62	13.0432297
Total	1510.32629	75	20.1376838

Number of obs = 76
F(13, 62) = 4.14
Prob > F = 0.0001
R-squared = 0.4646
Adj R-squared = 0.3523
Root MSE = 3.6115

incomeinequal~y	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
invest	-.0473824	.0588207	-0.81	0.424	-.1649633	.0701986
gross	.0332738	.0450223	0.74	0.463	-.0567244	.123272
population	1.675886	.7984263	2.10	0.040	.0798548	3.271918
life	.2570707	.1589973	1.62	0.111	-.0607603	.5749017
combined	.0297045	.0260492	1.14	0.259	-.022367	.0817761
voice	.500038	4.24606	0.12	0.907	-7.987715	8.987791
political	-.787409	2.892029	-0.27	0.786	-6.568493	4.993675
gov	-1.27275	5.320554	-0.24	0.812	-11.90839	9.362885
regulatory	7.856454	5.702588	1.38	0.173	-3.542857	19.25577
rule	4.228935	5.230012	0.81	0.422	-6.225709	14.68358
control	8.51898	3.789424	2.25	0.028	.9440292	16.09393
tradeopenness	.0072021	.0187016	0.39	0.701	-.0301819	.044586
capitalopenness	-.2468888	.1675039	-1.47	0.146	-.5817243	.0879467
_cons	15.65899	11.0596	1.42	0.162	-6.448841	37.76682

Breusch and Pagan Lagrangian multiplier test for random effects

incomeinequality[country,t] = Xb + u[country] + e[country,t]

Estimated results:

	Var	sd = sqrt(Var)
incomei~y	20.13768	4.487503
e	6.674348	2.583476
u	9.46527	3.076568

Test: Var(u) = 0

chibar2(01) = 3.27

Prob > chibar2 = 0.0352

APPENDIX C

STATA OUTPUT FOR THE RELATIONSHIP BETWEEN GOVERNANCE, OPENNESS, AND ECONOMIC PERFORMANCE IN SUB-SAHARAN AFRICA

REGRESSION

Y_1 = Annual Growth Rates of GDP

Fixed-effects (within) regression — Number of obs = 446
Group variable: country — Number of groups = 42

R-sq: within = 0.1271 — Obs per group: min = 3
between = 0.0171 — avg = 10.6
overall = 0.0694 — max = 14

F(13,391) = 4.38
corr(u_i, Xb) = -0.5505 — Prob > F = 0.0000

gdpgrowth	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
invest	.0577742	.0442544	1.31	0.192	-.0292321	.1447805
gross	.1069709	.0274996	3.89	0.000	.0529053	.1610364
population	1.397833	.4027354	3.47	0.001	.6060355	2.189631
life	.0496493	.0977309	0.51	0.612	-.1424945	.2417931
combined	-.0124484	.0082117	-1.52	0.130	-.0285931	.0036963
voice	5.635572	3.596435	1.57	0.118	-1.435199	12.70634
political	2.737795	2.462738	1.11	0.267	-2.10407	7.579659
gov	4.819614	5.572536	0.86	0.388	-6.136269	15.7755
regulatory	2.699951	5.469551	0.49	0.622	-8.053457	13.45336
rule	-6.984577	4.18465	-1.67	0.096	-15.21181	1.242654
control	-.3305971	3.182883	-0.10	0.917	-6.588304	5.92711
tradeopenness	.0290296	.0197702	1.47	0.143	-.0098396	.0678988
capitalopenness	-.0331309	.03839	-0.86	0.389	-.1086076	.0423458
_cons	-8.220399	4.980552	-1.65	0.100	-18.01241	1.571614
sigma_u	3.9925461					
sigma_e	4.1851975					
rho	.47645505	(fraction of variance due to u_i)				

F test that all u_i=0: F(41, 391) = 2.81 — Prob > F = 0.0000

```
Random-effects GLS regression                   Number of obs      =       446
Group variable: country                         Number of groups   =        42

R-sq:  within  = 0.0880                         Obs per group: min =         3
       between = 0.3878                                        avg =      10.6
       overall = 0.1825                                        max =        14

                                                Wald chi2(13)      =     67.63
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

gdpgrowth	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
invest	.0458765	.0374273	1.23	0.220	-.0274796	.1192327
gross	.0433672	.017013	2.55	0.011	.0100224	.076712
population	1.591297	.3219599	4.94	0.000	.9602675	2.222327
life	.0163957	.0575038	0.29	0.776	-.0963096	.1291011
combined	-.014277	.0075708	-1.89	0.059	-.0291155	.0005615
voice	5.838746	2.900061	2.01	0.044	.154731	11.52276
political	.3912058	1.812261	0.22	0.829	-3.160761	3.943172
gov	10.16345	4.546486	2.24	0.025	1.252506	19.0744
regulatory	-8.214393	3.956139	-2.08	0.038	-15.96828	-.4605029
rule	-5.499867	3.119118	-1.76	0.078	-11.61323	.6134921
control	-2.016511	2.342045	-0.86	0.389	-6.606835	2.573813
tradeopenness	.0296379	.0110557	2.68	0.007	.0079692	.0513066
capitalopenness	.0242513	.0336576	0.72	0.471	-.0417164	.090219
_cons	-2.668506	3.070287	-0.87	0.385	-8.686157	3.349145
sigma_u	1.6376095					
sigma_e	4.1851975					
rho	.13277613	(fraction of variance due to u_i)				

```
Breusch and Pagan Lagrangian multiplier test for random effects

        gdpgrowth[country,t] = Xb + u[country] + e[country,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                ---------+------------------------------
                gdpgrowth|    24.68454       4.968354
                       e|    17.51588       4.185197
                       u|    2.681765       1.637609

        Test:   Var(u) = 0
                                 chibar2(01) =     7.77
                              Prob > chibar2 =   0.0027
```

Y_2 = Annual Growth Rates of GDP per Capita

```
Fixed-effects (within) regression               Number of obs      =       446
Group variable: country                         Number of groups   =        42

R-sq:  within  = 0.1068                         Obs per group: min =         3
       between = 0.0089                                        avg =      10.6
       overall = 0.0524                                        max =        14

                                                F(13,391)          =      3.60
corr(u_i, Xb)  = -0.6086                        Prob > F           =    0.0000
```

gdpcap	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
invest	.0528696	.043021	1.23	0.220	-.0317119	.1374511
gross	.0991983	.0267332	3.71	0.000	.0466395	.151757
population	.3516533	.3915115	0.90	0.370	-.4180777	1.121384
life	.0657811	.0950072	0.69	0.489	-.1210078	.25257
combined	-.012662	.0079829	-1.59	0.114	-.0283568	.0030327
voice	5.502221	3.496206	1.57	0.116	-1.371493	12.37594
political	2.592914	2.394103	1.08	0.279	-2.114012	7.29984
gov	5.090358	5.417234	0.94	0.348	-5.560194	15.74091
regulatory	2.667662	5.317119	0.50	0.616	-7.786058	13.12138
rule	-6.953351	4.068028	-1.71	0.088	-14.9513	1.044594
control	-.3754252	3.094179	-0.12	0.903	-6.458735	5.707885
tradeopenness	.0291789	.0192192	1.52	0.130	-.0086071	.0669648
capitalopenness	-.0304111	.0373201	-0.81	0.416	-.1037843	.0429622
_cons	-8.876978	4.841749	-1.83	0.067	-18.3961	.6421403
sigma_u	3.8478452					
sigma_e	4.0685597					
rho	.47214101	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(41, 391) =     2.81             Prob > F = 0.0000
```

```
Random-effects GLS regression                   Number of obs      =       446
Group variable: country                         Number of groups   =        42

R-sq:  within  = 0.0680                         Obs per group: min =         3
       between = 0.2709                                        avg =      10.6
       overall = 0.1357                                        max =        14

                                                Wald chi2(13)      =     47.70
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

gdpcap	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
invest	.0436709	.0364101	1.20	0.230	-.0276916	.1150333
gross	.0411183	.0165801	2.48	0.013	.0086219	.0736147
population	.5605822	.3133916	1.79	0.074	-.0536541	1.174819
life	.0244577	.0560401	0.44	0.663	-.085379	.1342943
combined	-.014245	.0073608	-1.94	0.053	-.0286718	.0001819
voice	5.684516	2.821993	2.01	0.044	.1535105	11.21552
political	.2786458	1.764613	0.16	0.875	-3.179931	3.737223
gov	10.17319	4.424189	2.30	0.021	1.50194	18.84444
regulatory	-7.827145	3.851336	-2.03	0.042	-15.37562	-.278665
rule	-5.447538	3.036626	-1.79	0.073	-11.39921	.5041387
control	-1.950363	2.280927	-0.86	0.393	-6.420898	2.520172
tradeopenness	.0289091	.010775	2.68	0.007	.0077906	.0500277
capitalopenness	.0245686	.0327312	0.75	0.453	-.0395834	.0887205
_cons	-3.117858	2.99178	-1.04	0.297	-8.981638	2.745923
sigma_u	1.6076664					
sigma_e	4.0685597					
rho	.13505186	(fraction of variance due to u_i)				

```
Breusch and Pagan Lagrangian multiplier test for random effects

        gdpcap[country,t] = Xb + u[country] + e[country,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                 ---------+------------------------------
                   gdpcap |    22.07064        4.69794
                        e |    16.55318        4.06856
                        u |    2.584591       1.607666

        Test:   Var(u) = 0
                                 chibar2(01) =     8.10
                              Prob > chibar2 =   0.0022
```

Y_3 = GDP Deflator

```
Fixed-effects (within) regression               Number of obs      =       446
Group variable: country                         Number of groups   =        42

R-sq:  within  = 0.0808                         Obs per group: min =         3
       between = 0.0390                                        avg =      10.6
       overall = 0.0472                                        max =        14

                                                F(13,391)          =      2.64
corr(u_i, Xb)  = -0.4429                        Prob > F           =    0.0015
```

gdpdeflator	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
invest	-.28389	.2212705	-1.28	0.200	-.7189188	.1511388
gross	.1873245	.1374971	1.36	0.174	-.0830016	.4576506
population	-1.339523	2.013664	-0.67	0.506	-5.298487	2.619441
life	-.2058417	.4886514	-0.42	0.674	-1.166555	.7548713
combined	-.050607	.0410585	-1.23	0.218	-.13133	.030116
voice	-27.67628	17.98207	-1.54	0.125	-63.02992	7.677352
political	-46.5767	12.31361	-3.78	0.000	-70.78587	-22.36752
gov	13.56762	27.86251	0.49	0.627	-41.21146	68.34669
regulatory	-24.61399	27.34759	-0.90	0.369	-78.3807	29.15272
rule	38.70078	20.92312	1.85	0.065	-2.435115	79.83668
control	13.40955	15.91432	0.84	0.400	-17.87879	44.69789
tradeopenness	.0863121	.0988504	0.87	0.383	-.1080327	.2806569
capitalopenness	.3645375	.191949	1.90	0.058	-.0128438	.7419188
_cons	45.3123	24.90261	1.82	0.070	-3.647464	94.27206
sigma_u	13.160246					
sigma_e	20.925859					
rho	.28341795	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(41, 391) =     2.68                 Prob > F = 0.0000
```

```
Random-effects GLS regression                   Number of obs      =       446
Group variable: country                         Number of groups   =        42

R-sq:  within  = 0.0610                         Obs per group: min =         3
       between = 0.2121                                        avg =      10.6
       overall = 0.1001                                        max =        14

                                                Wald chi2(13)      =     37.60
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0003
```

gdpdeflator	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
invest	-.3988459	.1802759	-2.21	0.027	-.7521801	-.0455116
gross	.232261	.0790228	2.94	0.003	.0773792	.3871428
population	1.359912	1.531908	0.89	0.375	-1.642572	4.362396
life	-.2649993	.2674025	-0.99	0.322	-.7890987	.2591
combined	-.044092	.0369075	-1.19	0.232	-.1164294	.0282454
voice	-18.67061	13.88858	-1.34	0.179	-45.89172	8.550499
political	-28.40435	8.562288	-3.32	0.001	-45.18613	-11.62257
gov	29.05437	21.75859	1.34	0.182	-13.59167	71.70042
regulatory	-11.71534	18.78278	-0.62	0.533	-48.52892	25.09823
rule	30.50019	14.79489	2.06	0.039	1.502736	59.49765
control	-9.422747	11.01872	-0.86	0.392	-31.01903	12.17354
tradeopenness	.1259599	.0513518	2.45	0.014	.0253122	.2266075
capitalopenness	.3122063	.1633975	1.91	0.056	-.0080469	.6324594
_cons	26.96455	14.31132	1.88	0.060	-1.085117	55.01422
sigma_u	6.6107857					
sigma_e	20.925859					
rho	.09074549	(fraction of variance due to u_i)				

```
Breusch and Pagan Lagrangian multiplier test for random effects

        gdpdeflator[country,t] = Xb + u[country] + e[country,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                ---------+------------------------------
                gdpdefl~r|    552.1801       23.49851
                       e|    437.8916       20.92586
                       u|    43.70249       6.610786

        Test:   Var(u) = 0
                                 chibar2(01) =    25.97
                              Prob > chibar2 =   0.0000

.
```

Y_4 = National Poverty Rates

```
Fixed-effects (within) regression               Number of obs      =        61
Group variable: country                         Number of groups   =        36

R-sq:  within  = 0.8733                         Obs per group: min =         1
       between = 0.0178                                        avg =       1.7
       overall = 0.0418                                        max =         4

                                                F(13,12)           =      6.36
corr(u_i, Xb)  = -0.7071                        Prob > F           =    0.0015
```

povertyline	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
invest	-.624388	.1519917	-4.11	0.001	-.9555495	-.2932266
gross	.1840987	.1061553	1.73	0.108	-.0471938	.4153912
population	8.733429	2.876912	3.04	0.010	2.465176	15.00168
life	-.8375347	.3422673	-2.45	0.031	-1.583271	-.0917983
combined	.0340993	.0349521	0.98	0.349	-.0420548	.1102534
voice	-12.25039	14.08929	-0.87	0.402	-42.94831	18.44754
political	-28.63925	8.544667	-3.35	0.006	-47.25648	-10.02202
gov	-9.321719	16.66292	-0.56	0.586	-45.62711	26.98368
regulatory	-21.70124	14.6648	-1.48	0.165	-53.65309	10.25061
rule	33.29129	13.44051	2.48	0.029	4.006941	62.57565
control	-12.08916	9.546118	-1.27	0.229	-32.88836	8.710045
tradeopenness	-.0858235	.0896127	-0.96	0.357	-.2810729	.1094259
capitalopenness	.4486863	.187699	2.39	0.034	.0397253	.8576474
_cons	106.6633	16.05238	6.64	0.000	71.68816	141.6384
sigma_u	17.438317					
sigma_e	2.7556192					
rho	.97563772	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(35, 12) =    16.58             Prob > F = 0.0000
Random-effects GLS regression                   Number of obs      =        61
Group variable: country                         Number of groups   =        36

R-sq:  within  = 0.7186                         Obs per group: min =         1
       between = 0.1814                                        avg =       1.7
       overall = 0.1852                                        max =         4

                                                Wald chi2(13)      =     46.82
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

povertyline	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
invest	-.5201106	.168654	-3.08	0.002	-.8506664	-.1895549
gross	-.1083229	.0864245	-1.25	0.210	-.2777118	.061066
population	4.33696	2.554833	1.70	0.090	-.6704201	9.34434
life	-.5736567	.2956202	-1.94	0.052	-1.153062	.0057482
combined	.0160733	.0360582	0.45	0.656	-.0545994	.0867461
voice	-5.823261	14.83527	-0.39	0.695	-34.89985	23.25333
political	-14.95312	8.571187	-1.74	0.081	-31.75233	1.8461
gov	7.385833	18.25451	0.40	0.686	-28.39235	43.16402
regulatory	-24.71273	15.43534	-1.60	0.109	-54.96544	5.539975
rule	11.10646	13.72279	0.81	0.418	-15.78971	38.00264
control	-3.838722	9.854843	-0.39	0.697	-23.15386	15.47642
tradeopenness	-.0423708	.068904	-0.61	0.539	-.1774202	.0926787
capitalopenness	.4153446	.2014414	2.06	0.039	.0205268	.8101624
_cons	95.54954	15.66739	6.10	0.000	64.84203	126.2571
sigma_u	10.146219					
sigma_e	2.7556192					
rho	.93130547	(fraction of variance due to u_i)				

```
. hausman Fixed .
```

	Coefficients (b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
invest	-.624388	-.5201106	-.1042774	.
gross	.1840987	-.1083229	.2924216	.0616421
population	8.733429	4.33696	4.396469	1.322669
life	-.8375347	-.5736567	-.263878	.1724981
combined	.0340993	.0160733	.018026	.
voice	-12.25039	-5.823261	-6.427126	.
political	-28.63925	-14.95312	-13.68613	.
gov	-9.321719	7.385833	-16.70755	.
regulatory	-21.70124	-24.71273	3.011494	.
rule	33.29129	11.10646	22.18483	.
control	-12.08916	-3.838722	-8.250437	.
tradeopenn~s	-.0858235	-.0423708	-.0434527	.0572946
capitalope~s	.4486863	.4153446	.0333418	.

```
                b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                chi2(13) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                         =       26.64
              Prob>chi2 =      0.0139
              (V_b-V_B is not positive definite)
```

Y_5 = Income Inequality

```
Fixed-effects (within) regression               Number of obs      =        65
Group variable: country                         Number of groups   =        35

R-sq:  within  = 0.5727                         Obs per group: min =         1
       between = 0.0066                                        avg =       1.9
       overall = 0.0206                                        max =         4

                                                F(13,17)           =      1.75
corr(u_i, Xb)  = -0.5603                        Prob > F           =    0.1381
```

incomeinequal~y	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
invest	.2227982	.2368961	0.94	0.360	-.2770088	.7226052
gross	.2759895	.1142239	2.42	0.027	.0349981	.516981
population	-.2079938	.8986684	-0.23	0.820	-2.104018	1.688031
life	-.3070285	.2961833	-1.04	0.314	-.9319207	.3178636
combined	-.0285097	.0405862	-0.70	0.492	-.1141391	.0571198
voice	43.9298	18.19477	2.41	0.027	5.542193	82.3174
political	-19.22369	8.214083	-2.34	0.032	-36.55389	-1.893488
gov	-37.56983	18.68339	-2.01	0.060	-76.98833	1.848677
regulatory	20.07152	17.05801	1.18	0.256	-15.91774	56.06078
rule	-.1062659	11.65131	-0.01	0.993	-24.68838	24.47585
control	13.88121	11.12991	1.25	0.229	-9.600849	37.36327
tradeopenness	.023691	.0728294	0.33	0.749	-.1299656	.1773476
capitalopenness	-.0128832	.3261063	-0.04	0.969	-.7009074	.6751411
_cons	57.3275	12.50215	4.59	0.000	30.95027	83.70474
sigma_u	9.5725494					
sigma_e	3.187259					
rho	.90020249	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(34, 17) =     5.02                 Prob > F = 0.0004
```

```
Random-effects GLS regression                   Number of obs      =        65
Group variable: country                         Number of groups   =        35

R-sq:  within  = 0.3339                         Obs per group: min =         1
       between = 0.2553                                        avg =       1.9
       overall = 0.3104                                        max =         4

                                                Wald chi2(13)      =     21.62
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0616
```

incomeinequal~y	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
invest	-.2289643	.1517458	-1.51	0.131	-.5263806	.068452
gross	.0493624	.0700491	0.70	0.481	-.0879314	.1866562
population	-.4513728	.8022022	-0.56	0.574	-2.02366	1.120915
life	-.102218	.1865331	-0.55	0.584	-.4678161	.26338
combined	.0112565	.0271659	0.41	0.679	-.0419877	.0645007
voice	3.971716	11.84771	0.34	0.737	-19.24936	27.1928
political	-6.64616	5.614256	-1.18	0.236	-17.6499	4.357581
gov	-1.363321	13.31171	-0.10	0.918	-27.4538	24.72715
regulatory	29.49501	12.37063	2.38	0.017	5.249025	53.741
rule	-6.539518	9.790949	-0.67	0.504	-25.72943	12.65039
control	.9216223	7.420808	0.12	0.901	-13.62289	15.46614
tradeopenness	.0404539	.0387795	1.04	0.297	-.0355525	.1164603
capitalopenness	.201078	.2133673	0.94	0.346	-.2171143	.6192703
_cons	51.08704	9.478155	5.39	0.000	32.51019	69.66388
sigma_u	5.8418685					
sigma_e	3.187259					
rho	.77061354	(fraction of variance due to u_i)				

```
. hausman Fixed .
```

	——— Coefficients ———			
	(b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
invest	.2227982	-.2289643	.4517625	.1819147
gross	.2759895	.0493624	.2266271	.0902232
population	-.2079938	-.4513728	.2433789	.4050635
life	-.3070285	-.102218	-.2048105	.2300651
combined	-.0285097	.0112565	-.0397662	.0301539
voice	43.9298	3.971716	39.95808	13.80874
political	-19.22369	-6.64616	-12.57753	5.995939
gov	-37.56983	-1.363321	-36.2065	13.10982
regulatory	20.07152	29.49501	-9.423494	11.74493
rule	-.1062659	-6.539518	6.433252	6.315882
control	13.88121	.9216223	12.95959	8.294969
tradeopenn~s	.023691	.0404539	-.0167629	.0616464
capitalope~s	-.0128832	.201078	-.2139612	.2466166

```
                b = consistent under Ho and Ha; obtained from xtreg
    B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                chi2(13) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                         =        5.24
              Prob>chi2 =      0.9695
              (V_b-V_B is not positive definite)
```

BIOGRAPHY

NAME	Chanathip Wangworawong
ACADEMIC BACKGROUND	Bachelor of Public Administration, Prince of Songkla University (2001) Master of Economics (Business Economics), National Institute of Development Administration (2006)
PRESENT POSITON	Lecturer, Public Administration Program Faculty of Management Sciences Princess of Naradhiwas University
EXPERIENCE	Received a scholarship from "Southern Border Provinces Administrative Centre**"** for enrolling in the doctoral-level program at the Graduate School of Public Administration**,** National Institute of Development Administration Bangkok, Thailand