Ph.D. Dissertation of Public Policy

Socioeconomic Performance in Sub-Saharan Africa with Reference to Southeast Asia:

Natural Resources or Institutions?

사하라 이남 아프리카와 동남아시아 국가의 경제성과에 대한 연구:

자원인가 제도인가?

August 2017

Graduate School of Public Administration
Seoul National University
Public Policy Major

Ben Katoka Kasongo

Socioeconomic Performance in Sub-Saharan Africa with Reference to Southeast Asia:

Natural Resources or Institutions?

Academic Advisor Kwon, Huck-ju

Submitting a doctoral thesis of Public Administration

March 2017

Graduate School of Public Administration
Seoul National University
Public Policy Major

Ben Katoka Kasongo

Confirming the doctoral thesis written by
Ben Katoka Kasongo

June 2017

Chair	Kum, Hyunsub	(Seal)
Vice Chair	Koo, Mingyo	(Seal)
Examiner	Kwon, Huck-ju	(Seal)
Examiner	Yoon, Jiwoong	(Seal)
Examiner	Hwang, Wongyu	(Seal)

Abstract

Socioeconomic Performance in Sub-Saharan Africa with Reference to Southeast Asia - Natural Resources or Institutions? -

Ben Katoka Kasongo
Public Policy Major
The Graduate School of Public Administration
Seoul National University

This study addresses three questions: (1) how Sub-Saharan Africa (SSA) performs in economic and social indicators relative to Southeast Asia (SEA); (2) whether and how abundance in natural resources and institutional quality influence patterns of socioeconomic performance across and within the two regions; and (3) to what extent interactions between institutional quality and abundance in natural resources determine economic and social outcomes. It covers the period from 1990 to 2015 for a set of forty-five SSA and nine SEA countries.

The analysis applies three measures to capture socioeconomic performance: (1) per capita GDP growth; (2) foreign direct investment (FDI) inflows; and (3) infant mortality rate. It uses the World Bank's Regulatory Quality (RQ) indicator as the institutional quality measure; and the share of natural resource exports in percentage of total merchandise exports as a measure for resource abundance. Further, the analysis controls for a range of

variables that may potentially influence per capita GDP growth, FDI, and infant mortality. These variables include inflation rates, government expenditure, official development aid (ODA), population growth, and the share of urban population in percentage of total population.

The interest in such analysis originated in the observation that poor institutional quality or governance and abundance in natural resources, often argued to explain SSA's development problems, are in fact also present in a large part of SEA. For instance, many countries in both regions are among the world's most corrupt according to the Transparency International's Corruption Perceptions Index (CPI) and are similarly richly endowed in natural resources such as oil and gas. Another motivation for this analysis is that no empirical work has been done using cross-national longitudinal statistics to address the question on how certain factors, in particular institutions and natural resources, influence economic and social outcomes in the two regions.

For that purpose, the study draws upon two analytical perspectives: (1) the institutional perspective (institutions as the fundamental cause of good economic performance); and (2) the resource curse perspective (abundance or dependence on natural resources, especially minerals and oil, adversely affects economic performance). In addition, the study accounts for the explanation according to which socioeconomic performance, especially in SSA, may be linked to physical or geographic causes.

The main findings can be summarized as follows: first, keeping constant institutional quality, abundance in natural resources, and other

variables, a country located in SSA has lower per capita GDP growth, lower flows of inward FDI, and higher infant mortality relative to a country located in SEA. In other words, despite similarities in the measured institutional level in both regions, SEA experiences better economic and social outcomes compared to SSA.

Second, a country that improves its institutional quality—RQ—is likely to experience higher per capita GDP growth, larger FDI inflows, and lower infant mortality, irrespective of whether it is located in SSA or SEA. Better-performing-countries in both regions tend to have higher RQ scores compared to the poor-performing-countries. Among the countries with better RQ, however, those located in SEA perform somewhat better than their counterparts located in SSA.

Finally, abundance in natural resources does not necessarily have adverse effects on economic outcomes. In SSA for instance, per capita GDP growth and FDI inflows are greater for resource-abundant countries than for their resource-scarce counterparts. Further, resource-abundant countries with good RQ have higher economic growth and receive more FDI than either countries with abundant natural resources and poor RQ, or no resources with good RQ, or non-resources with poor RQ.

Overall, these findings have important implications for empirical research on the role of institutional quality in explaining differences in economic and social outcomes across countries. This study's main contribution is to understand how countries that display similar measured level of

institutional quality or governance may experience different economic and social outcomes.

Key words: Sub-Saharan Africa, South-East Asia, Regulatory Quality, institutions, resource abundance, panel data
Student ID: 2014-30825

Table of Contents

List of Tables

List of Figures

1. Introduction

1.1. Background, objectives, and significance

It is recognized that since about 1995 economic and social indicators have improved in Sub-Saharan Africa (SSA) (Arndt et al 2016). Improvements in institutional quality or governance have been suggested as the drivers of such performance (Fosu 2015). It has also been reported that SSA countries richly endowed with natural resources have on average outperformed their resource-poor counterparts on a range of economic and social indicators (Lundgren et al 2013). Concerns remain, however, about SSA socioeconomic performance relative to other developing regions, and more importantly, about the actual role of natural resources and institutional quality.

This study's main contribution takes the form of an analysis of socioeconomic performance in SSA and Southeast Asia (SEA). It addresses the following questions: (1) how SSA performed compared to SEA in the post-1990 period; (2) how natural resources and institutional quality influence economic and social outcomes across and within the two regions; and (3) whether and how the impact on socioeconomic performance of natural resources is conditioned by institutional quality; or similarly, whether the impact on socioeconomic performance of institutional quality is moderated by natural resources.

To address the first two questions, the study draws on three analytical perspectives: the institutional perspective, which emphasizes institutions as the

fundamental cause of good economic performance (Acemoglu et al. 2005; Rodrik et al. 2004) and its other variants (Chang 2011; Khan 2012); the resource curse perspective, according to which abundance in or dependence on natural resources, especially minerals and oil, adversely affects economic performance (Sachs and Warner 1995; 2001; Auty 2002); and the geographical perspective, which links development problems to physical or geographic causes such as the distribution of inland waterways and coastlines, and endemic diseases (Bloom et al. 1998; Collier and Gunning 1999; Gallup et al 1999).

On the other hand, to address the third question, the study draws on a strand of the resource curse literature that establishes that institutional development determines the extent to which natural resources affect economic and social outcomes (Mehlum et al. 2006a; Robinson et al. 2006; Brunnschweiler 2008).

In utilizing these analytical approaches, the study aims to explain causalities between natural resources, institutional quality, their interactions, and socioeconomic performance. Another aim is to examine whether and how the effects on performance of natural resources and institutional quality are influenced by geographic factors (i.e., regional location).

The focus on SSA and SEA is motivated by two factors: first, the two regions are not fundamentally different in terms of their institutional development. A comparison of performance in some of the major institutional indicators reveals that countries in both regions perform poorly compared to more advanced parts of the world (i.e., OECD countries). For instance, most of

the countries in SEA perform equally poorly in the World Bank's Worldwide Governance Indicators (WGI) or the Transparency International's Corruption Perception Index (CPI).

Second, no work has been done using cross-national longitudinal statistics to address the question on how certain factors, in particular institutions and natural resources, influence economic performance in the two regions. The existing few studies on the differential performance between SSA and SEA are generally narrative or based on comparative case studies.

For instance, Henley (2015) compares two countries in SEA (Indonesia and Malaysia) with two in SSA (Kenya and Nigeria) to explain the role of differences in policy choices in the diverging development path between the two regions. Similarly, Berendsen et al. (2013) investigates the role of policies in explaining differences in economic performance between the two regions. Their analysis is based on comparative case studies of four SEA countries (Cambodia, Indonesia, Malaysia, and Vietnam) and four SSA countries (Kenya, Nigeria, Tanzania, and Uganda). Another major study proposed by Kelsall (2013), and based on a qualitative comparative analysis of ten high-growth performers in SSA (Cameroon, Cote d'Ivoire, Kenya, Malawi, and Mozambique) and SEA (Indonesia, Laos, Malaysia, Thailand, and Vietnam), suggest no evidence that good institutions such as the rule of law, the absence of corruption, and property rights explain performance in the two regions. Overall, existing studies, all based on comparative case studies, argue that

institutional constraint is not the key to explaining the development success and failure in SEA and SSA, respectively.

The current study uses panel data for forty-five SSA and nine SEA countries over the period from 1990 to 2015. It applies three measures to capture socioeconomic performance, including GDP per capita growth, foreign direct investment (FDI), and one aspect of human development, namely infant mortality.

The choice for these three variables was motivated by the fact that per capita GDP growth is a well-accepted economic performance indicator in the governance or the resource curse literature (Acemoglu et al. 2014; Arezki and van der Ploeg 2011; Lederman and Maloney 2007; Rodrik et al 2004). On the other hand, the ability for a country to attract large flows of FDI can be suggestive of improvement in other economic and social indicators such as know-how and technology diffusion, employment generation, and expansion of access to infrastructure and social services (Borensztein et al, 1998; Lim, 2001). FDI can thus be thought of as a proxy for employment, technology diffusion, access to infrastructure, and so forth.[1]

---

[1] Perhaps this argument is more relevant for SEA than for SSA. It has been argued that FDI has played a leading role for major changes in economic structure of most SEA countries (Thomsen 1999). Foreign firms have fueled export-led growth and contributed to changes in economic structures of countries like Malaysia, Indonesia, Thailand, and the Philippines. In most of SSA countries, however, FDI is mostly directed to extractive industries. Whether FDI in extractive industries generates

Conversely, it has been suggested that an analysis of economic performance should consider other variables beyond economic growth (Stigitz et al 2009). A country can grow rapidly without making significant improvement in terms of social welfare. For instance, in a country like Equatorial Guinea the main indicators of human development such as child mortality, primary school enrolment, and fertility rates have not improved in spite of the sustained growth of per capita income over two decades (Daniele 2011: 566).

The analysis may suffer from problems with data and methodology. As for the former, secondary data such as those used in the current study (i.e., institutional indicators, GDP growth, population, FDI, and so forth) are likely to suffer from problems of approximation and errors in their collection. These may in turn lead to measurement errors in empirical specifications. With regard to methodology, one of the main problems in the empirical literature relates to the search for a satisfactory statistical model. As Durlauf et al (2005: 609) put it, "The basic problem in developing statistical statements is that there do not exist good theoretical reasons to specify a particular model". With these two concerns in mind, findings from this analysis should be interpreted with caution.

However, this study is significant in three ways: first, it claims to be the first analysis applying panel data to compare performance in economic and social indicators in SSA and SEA; second, it contributes to understanding how

---

employment, or promotes technology diffusion in SSA is beyond the scope of the current analysis. It is assumed, however, that it does.

regions that somewhat have similar measured levels of institutional quality may experience different economic and social outcomes; finally, it adds to the debate on the factors explaining socioeconomic performance in SSA in the post-1990 period.

1.2. Structure of the thesis

The remainder of this thesis is divided into six chapters. Chapter II discusses how the current study differs from the existing research, and elaborates the extent to which natural resources and institutions may influence economic and social outcomes in SSA and SEA. It is organized as follows: it first discusses the theoretical as well as the empirical literature on the links between institutions, natural resources, and socioeconomic performance; and then reviews the existing studies comparing economic and social outcomes between SSA and SEA.

Chapter III offers some observations about the patterns of performance in a range of economic and social variables across countries in the SSA region. Specifically, the analysis focuses on 45 SSA countries classified into two groups—resource-abundant and resource-scarce. The analysis is based on annual data for the period from 1990 to 2015, and covers a range of economic and social variables, including GDP (growth and level), FDI, and infant mortality, adult literacy rate, poverty rates, and other macroeconomic variables, including inflation, trade, debt, and others. It then attempts to describe whether and how institutions shape patterns of performance within SSA.

Similarly, chapter IV explores some of the major features of economic performance in SSA and SEA, and describes the role of institutions and natural resources. The core of the chapter is divided into five sections. The first section compares aggregates of the two regions as well as the behavior of individual countries on an array of economic and social variables, including growth, inflation, foreign direct investment (FDI), trade diversification, and progress on the Millennium Development Goals. The second section compares performance in some composite institutional indicators between SEA, SSA, and some advanced economies of Asia and other regions. It then looks at the association between performance in institutional indicators and other variables including growth, FDI, and a broad measure of development progress—infant mortality rates. The third section describes differences in economic performance between resource-abundant and resource-scarce countries in the two regions. The fourth section then explores the extent to which natural resources and institutional quality influence measures of socioeconomic performance, including growth, income, FDI, and infant mortality. The last section draws some general conclusions about the differential economic performance between SSA and SEA and the role of institutions and natural resources.

Chapter V discusses how the three main concepts of interest in the current study—natural resources, institutional quality, and socioeconomic performance—are measured. The other main focus of this chapter is to present the empirical models employed to address the research questions.

Chapter VI empirically tests the hypotheses formulated in the current study. It proposes a more detailed presentation of the empirical specifications and then discusses the findings. The chapter is divided into three parts: the first part the proposition on whether under-performance is severe in SSA relative to SEA when institutional quality and abundance in natural resources are not accounted for; and whether this effect is reversed or sustained when the quality of institutions and abundance in natural resources are taken into consideration. The analysis here is based on a panel of forty-five SSA and nine SEA countries over the period from 1995 to 2015. The second part in turn tests the proposition on whether natural resources, institutions, and their interactions contribute to better socioeconomic performance in SSA. The analysis here focuses on the SSA sample comprising forty-five SSA countries.

Finally, chapter VII concludes the study by discussing the findings and their implications for public policy and research. In terms of the implications for research in particular, the chapter emphasizes the importance of investigating policies that contribute to making good institutions in SSA and SEA.

2. Review of Related Literature

2.1. Description

As noted in the introductory chapter, studies that compare economic and social indicators between the two regions are too scarce. The existing few ones are generally based on case studies. This study contributes by looking at the impact of two variables, namely natural resources and institutional quality on economic and social outcomes in the two regions. The analysis is based upon panel data.

The aim in this chapter is to review the existing studies comparing socioeconomic performance between SSA and SEA. Such discussion is essential in order to understand the extent to which the current study differs from the existing ones. The other focus of this chapter is to elaborate how institutional quality and natural resources may influence socioeconomic performance in the two regions.

The remainder of the chapter is divided into four sections. Section 2.2 discusses the theoretical and empirical literature on the impact of institutions on socioeconomic performance. Section 2.3 reviews the theoretical and empirical literature on the resource curse and on the interactions between natural resources and institutions. Section 2.4 then reviews the existing literature comparing socioeconomic performance between SSA and SEA, and also highlights some key studies comparing SSA with other developing regions. Section 2.5 sums up the key implications from the literature review.

2.2. Institutions and socioeconomic performance

As complete time series of institutional indicators have become available for many countries, the debate over the relationship between institutional quality and economic performance has spurred much research. A complete review of such research lies outside the scope of the current study. This subsection instead discusses some of the major issues in the empirical literature establishing a link between institutions and economic performance, including endogeneity, conceptualization, measurement, and sampling problems.

To begin with, it has been argued that institutional variables are generally endogenous (Aron 2000). For instance, causality can run from improved institutions to growth and from good economic growth to institutional enhancement. This is well illustrated by Kurtz and Schrank (2007), who estimate various cross-section regressions for all countries for which data on the World Bank's governance effectiveness is available from 1996 to 2006 and present some important findings: ex ante measure of governance shows little capacity to predict subsequent patterns of economic performance, but antecedent economic conditions strongly predict perceptions of the quality of public institutions. They explain these patterns by the fact that perceptions of immediate economic conditions affect perceptions of government effectiveness, which in turn biases performance in the governance effectiveness index. With these findings, Kurtz and Schrank (2007) question the assumption that improvements in the institutional quality will drive broader socioeconomic

development. Further, they advocate for more caution about how good governance, and more generally, good institutions are defined and conceptualized.

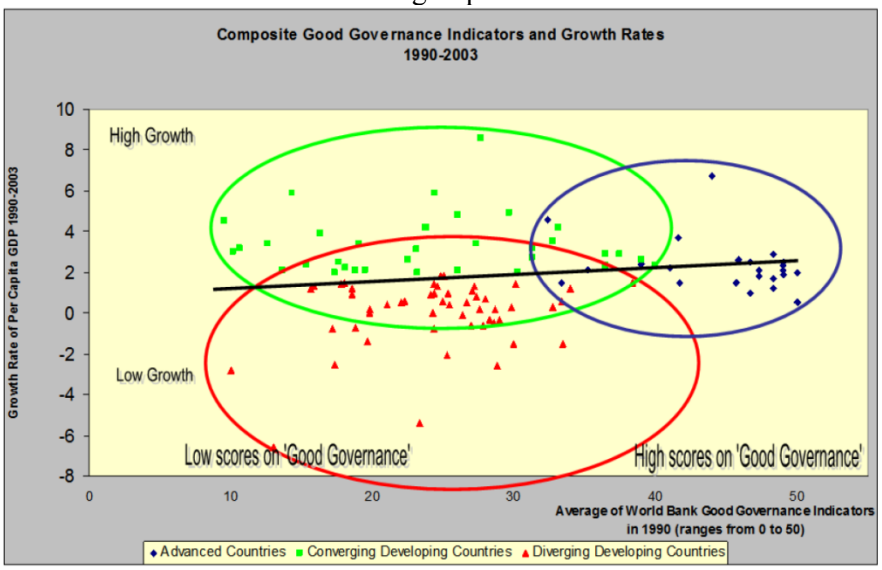
With respect to issues relating to the conceptualization of good institutions, Rothstein and Teorell (2009) argue that it is impossible at the conceptual level to generalize what good institutions are without considering differences in the type of institutional arrangements across countries. Specifically, if one considers that good institutions significantly address economic and social problems, then one should also note that institutional arrangements that cause growth and development in one country may be very different from that of other counties. As Eicher and Leukert (2009: 197) put it, "it is unclear whether the identified institutions matter to the same degree across all countries, or whether perhaps an altogether different set of institutions matters in advanced countries".

Sampling has been argued as another major problem with empirical studies showing positive effects of institutions on economic performance (Chang 2011a). As previously noted, findings based on heterogeneous samples are likely to be misleading. As Chang (2011a: 481) puts it, "Even the same institutions in the same dose may be good for one country but bad for another". For instance, a level of protection of property rights that may bring net benefit to a rich country may be harmful for a developing country. The issue of differential effects of institutions on economic performance in different countries was discussed by Andrews (2010), arguing that 'good government

means different things in different countries'. Andrews (2010) analyzes public financial management practices—budget practices—across 38 OECD and non-OECD countries over the period from 1990 to 2006. He finds that even countries labeled as reflecting 'good governance' according to prominent good governance indicators such as the World Bank's Governance Indicators have varying characteristics which are not captured by these indicators. These include for instance (1) policy choices, (2) outcomes, and (3) institutional characteristics.

These differentiations may in turn explain why countries with the same measured levels of institutional quality may experience diverging economic performance (Khan 2010). Figure 2.1, borrowed from Khan (2010: 5), shows the relationship between good governance and growth rates between three groups of countries: (1) diverging countries (lower growth rates); (2) converging countries (higher growth rates); and (3) advanced countries. The figure reveals that advanced countries have better good governance scores than both the diverging and converging countries. Also, and more interestingly, the figure shows no significant difference in good governance scores between the converging and diverging countries.

Figure 2.1: Mushtaq Khan's comparison of governance and economic growth between three groups of countries



Source: Khan (2010: 5), *Figure 4.*

2.3. Natural resources and socioeconomic performance

2.3.1. The resource curse thesis

The resource curse thesis posits that natural resource endowments, in particular fuels and minerals, might be harmful for economic development (Auty 1993; Sachs and Warner 1995). The basic claim is that natural resources produce windfall gains for resource-owning states; yet these gains fail to be turned into long-term and growth generating investments. Instead, states suffer from various unwanted negative results of their resource windfalls and experience in the long run lower rates of growth, higher income inequality, or poverty, in comparison with countries with no or little resource endowments.

Four major channels can potentially explain the negative impact of natural endowments on economic performance: first, countries with abundant

natural endowments are likely to display cronyism, corruption, or less accountability, which in turn lead to poor economic performance. It has been suggested that 'natural resources foster rent seeking behavior of all sorts, so there is no effective government will to use resources to improve economic performance or to benefit the citizenry at large' (Venables 2010: 341). In effect, 'rents entice government officials to engage in politically rational but economically inefficient decision-making' (Stevens and Dietsche 2008: 59).

Second, natural resource endowments might also serve as an instigator for armed conflict. This is particularly pronounced in societies that suffer from ethnic, religious or other politically relevant divisions, which might become entrenched due to the ability of state actors and insurgents to sustain conflicts based on the extraction of revenue from natural resources (Collier et al. 2009). In particular, resources which are more 'appropriable', that is resources which are 'very valuable, which are easy to transport, and which are easily sold—i.e. gold or alluvial diamonds —are more attractive for anyone interested in short-term illegitimate gains and are, therefore, potentially more problematic than agricultural products' (Boschini et al. 2007: 595). Hence, a greater availability of resource rents from such resources increases the vulnerability of the state to organized predators—i.e. guerrillas and armed groups—in particular as a result of a weakened bureaucratic capacity (Costello, 2016). Similarly, Collier and Venables (2010) points out that resource abundance increases the risk of state fragility, which in turn hinders opportunities for economic progress.

Third, it has been established that countries with abundant natural resources and whose exports are largely based on natural resources, suffer from boom-bust cycles resulting from rapid changes in commodity prices. Boom-bust cycles affect the exchange rate and inflation, the price of non-traded goods (real estate, services, non-traded agricultural and manufacturing goods), and patterns of government spending (Frankel 2010: 19). Large cutbacks in the level of government spending resulting from changes in commodity prices in turn explain the negative impact on economic performance (Gelb and Grassman 2009). In addition, volatility can induce 'shortsighted planning policies that can result in debt over-hang as revenues fail to recover' (Manzano and Rigobon, 2013: 44). Specifically, Manzano and Rigobon argue that in the 1970s commodity prices were high, which led developing countries to use them as collateral for debt. However, the fall in those prices in the 1980s left developing countries with a considerable amount of debt and a low flow of foreign resources to pay them.

Finally, countries with abundant natural resources and whose exports are largely based on natural resources suffer from the Dutch disease—adverse effects on non-mineral sectors resulting from a boom in minerals exports. Specifically, a sharp rise in minerals exports causes a currency appreciation, which in turn increases domestic prices—making exports more expensive relative to world market prices, and resulting in the crowding out of investment in the agricultural and manufacturing activity (Papyrakis and Gerlagh 2004). Hence, a lack of economic diversification can contribute to declining growth rates over time, in particular because sectors that are crowded out are associated

with more positive spillovers—economies of scale and learning by doing—on the rest of the economy (Krugman 1987).

Based on cross-sectional or panel data analysis, numerous studies have established evidence of the resource curse (for a review of this literature, see, Gamu et al. 2015). Sachs and Warner (1995) are the first to show empirical evidence of a resource curse. They base their analysis on a cross-sectional growth regression on the period 1970-1989 to examine the impact of natural resources (measured in terms of the share of primary product exports to GNP) on per capita GDP growth. They find that natural resources impede long-term growth rate for a country. Furthermore, they include some institutional measures in their specifications in an attempt to find whether institutional quality plays a role in explaining the link between resource abundance and growth. They, however, conclude that institutional quality does not explain the resource curse.

2.3.2. Institutional quality and the resource curse

The idea that good institutions may turn the resource curse into a blessing can be attributed to (Mehlum, Moene, and Torvik 2006a), who argued that countries with abundant natural resources can turn the curse into a blessing if they have strong institutions. Their empirical analysis is based on the data set used by Sachs and Warner (1995), and they include an independent variable capturing the interaction between natural resources and institutional quality. They find that resource-abundant economies with 'producer-friendly' institutions—measured as an unweighted average of five indexes including rule

of law, bureaucratic quality, corruption in government, risk of appropriation, and government repudiate of contracts—experience greater economic growth than both resource-scarce economies and resource-abundant economies with bad institutions. In a similar vein, Robinson et al. (2006) develop a model suggesting that countries with institutions that promote accountability and state competence—good political institutions—experience better economic performance.

The view that the quality of institutions determines the impact of natural resources on economic performance is not corroborated by Arezki and van der Ploeg (2007). They estimate various OLS regressions for 96 countries over the period from 1965 to 1990 to examine the impact of institutions versus openness on economic growth. They include two types of interaction terms: between natural resources and institutions; and between natural resources and trade openness. They find that the interaction term between natural resources and institutions is not robust to changes in econometric specification, whereas the coefficient for the interaction term between natural resources and trade openness remains significant and positive. They therefore conclude that the presence of less restrictive trade policies have primacy over the quality of institutions in explaining differential economic performance across resource-abundant countries.

Nevertheless, it has now become well established that institutions do contribute to better economic performance as shown in various other studies. Kolstad (2009) tests the impact of the ‘private sector institutions’ (measured by

a rule of law index) versus ‘public sector institutions’ (measured by a democracy index) on economic performance (measured as the average GDP growth in the period 1970 and 1990). He uses the Sachs and Warner (1997) data set, and controls for variables such as initial income level of countries, openness to trade, and the investment rate. He also includes two interaction terms (between natural resources and, respectively, rule of law and democracy). He concludes that countries with better private sector institutions have better economic performance. Appendix 2.1 briefly presents findings from Sachs and Warner (1995) in comparison with revised cross-country regressions by Mehlum et al. (2006) and Kolstad (2009). In Sachs and Warner (second column) institutions are neutral. They do not reverse the negative impact of natural resources. In Mehlum et al. (third column), institutions play a significant role in reversing the negative impact of natural resources on economic growth. In Kolstad (fourth column), only economic institutions—rule of law—can reverse the negative impact of natural resources on economic growth. Moreover, it is worth noting that the natural resource variable has negative and significant coefficients in all three specifications in Appendix 2.1.

In line with Kolstad (2009), the literature has increasingly differentiated between two types of institutions, namely the economic or private sector institutions (for example, protection of property rights disputes resolution, among others), and the political or public sector institutions (for example, accountability, transparency, political regime, and the like) (Keenan 2014).

For instance, Andersen and Aslaksen (2008) focus on the impact of political institutions, arguing that differences in economic performance across countries is determined by the constitutional arrangements. They estimate a cross-sectional model of 90 countries including democracies as well as nondemocratic regimes. They find that parliamentary regimes experience a better economic performance than do presidential regimes. Furthermore, they find that the negative impact of resource abundance on economic growth is larger in countries with proportional electoral systems than in countries majoritarian systems.

In turn, Collier and Hoeffler (2009) have argued that the type of political regime does not affect economic performance in resource-abundant countries. They estimate a panel of resource-abundant and resource-scarce developing countries for the period from 1970 to 2001. Their results suggest some interesting patterns. First, in developing countries the combination of resource abundance and democracy—understood in terms of competitive elections or how a government acquires power—has been significantly growth-reducing. Specifically, resource-scarce countries that are democracies outperform their autocratic counterparts, whereas resource-abundant countries that are autocracies perform better than resource-abundant countries that are democracies. Second, the negative impact of natural resource on economic performance is reversed in countries where there is strong system of checks and balances—understood in terms of constraint on how a government can use power. Brückner (2010) also suggests that ‘constraints on politicians through strong checks and balances on political decision-making are the key to whether

countries suffer from a resource curse or not' (p. 462). Specifically, he finds that the negative impact of resource abundance on income growth is more pronounced in countries with high levels of corruption. These findings provide empirical evidence to the model developed by Robinson et al. (2006) and mentioned earlier. Robinson and his colleagues have argued that national income is higher in resource-abundant countries where institutions limit the possibility of politicians to clientelism purposes and to corrupt elections.

Other studies have focused on economic and political institutions. For instance, Béland and Tiagi (2009) use the Fraser Institute's Economic Freedom Index as a measure for institutional quality. They estimate various models including ordinary least squares (OLS), two stage least squares (2SLS) for a sample of 76 countries over the period from 1970 to 2006 to examine the impact of natural resources and institutions on economic growth. They include an independent variable capturing interactions between natural resources and institutional quality. They find a positive and significant association between their interaction term and economic growth, and conclude that strong economic freedom is crucial for economic growth in resource-abundant countries. Similarly, in an effort to explain how Botswana has succeeded in escaping from the resource curse, Iimi (2006) estimates a cross-sectional model for a sample of 89 countries to examine the relationship between natural resources, governance, and economic growth. He includes a set of interaction terms capturing the relation between resource abundance and each of the six WGI governance indicators—voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of

corruption—in six different specifications. His results show negative correlation between natural resources and growth in all the six specifications. On the other hand, he finds no significant association between all the six governance indicators and growth, but finds that three interaction terms between natural resources and voice and accountability, governance effectiveness, and regulatory quality, respectively, are positively and significantly associated with growth. He therefore attributes the poor economic performance in resource-abundant countries to a lack of good business regulations, accountability, and poor quality of the public sector. Similarly, Boschini et al.(2013) include two types of institutions in their estimating specifications—rule-based (democracy) and contracting (index of formality in legal procedures and index of procedural complexity). In various specifications (different time spans and different econometrics techniques), they include independent variables capturing interactions between natural resources and these institutions measures. They also find positive and significant coefficients for interaction variables, although not robust across specifications.

Finally, other studies have attempted to switch the focus from economic (GDP) growth to other economic performance indicators. For instance, Farhadi et al. (2015) use five components of the Fraser Institute's economic freedom index—government size, property rights, access to sound money, freedom to trade, and setting proper regulations. They estimate a panel of 99 countries over the period from 1970 to 2010 to examine whether free market institutions can reverse the adverse effect of natural resources on economic performance—measured in terms total factor productivity. They also

find that economic freedom can harness the contribution of natural resources to economic success. Similarly, El Anshasy and Katsaiti (2013) look at the impact of natural resources and institutions—corruption, good governance, democracy, transparency in budgetary institutions—on fiscal performance. They estimate a yearly panel data of 79 resource-abundance and resource-scarce countries for the period from 1984 to 2008, and find a positive association between these institutional measures and fiscal performance. They therefore conclude through that good institutions, better fiscal performance, can help resource-abundance achieve economic success. Botlhole et al. (2012) look at the domestic resource mobilization performance of SSA countries. They estimate a panel model of 46 SSA countries over the period from 1990 to 2007 and show that in the absence of good institutions—instrumented by European settler mortality rate as in Acemoglu et al. (2001)—natural resources are detrimental to tax revenue mobilization in SSA.

2.4. Existing comparative studies on SSA and SEA (and other regions)

As noted earlier, studies that compare economic and social outcomes in SSA and SEA are too scarce. The existing few ones are generally narrative or based on comparative case studies. For instance, Henley (2015) compares two countries in SEA (Indonesia and Malaysia) with four in SSA (Kenya and Nigeria) to explain the diverging development path between SEA and SSA. He argues that the differential economic performance between the two regions lie in pro-poor agricultural and rural development (i.e., substantial public investment in rural infrastructure and smallholder agriculture), while also

ensuring macroeconomic stability and economic freedom. He argues that SSA is poor relative to SEA because it failed to implement such policies. Similarly, a pairwise comparative study of Indonesia and Nigeria and Malaysia and Kenya supports the idea of rural development as a key factor explaining divergent development trajectories between SSA and SEA (van Donge et al 2012). Further, the study emphasizes the importance of macroeconomic stabilization and economic freedom for small entrepreneurs and peasant farmers in SEA.

One major study that explicitly focuses on an analysis of economic performance in the two regions is based on a series of comparative case studies of four SEA countries (Cambodia, Indonesia, Malaysia, and Vietnam) and four SSA countries (Kenya, Nigeria, Tanzania, and Uganda) (Berendsen et al 2013). The study's main finding is that governance matter less than the content of policy in explaining the differential performance between the two regions. It thus concludes that "SSA does not need good governance before, and as a precondition for, development success" (p.500).

Similarly, Booth (2012) concludes that good governance, as advocated by western donors, should not be regarded as a prerequisite to economic development. His analysis is based on a series of case studies including Ethiopia, Ghana, Malawi, Mozambique, Rwanda, Tanzania, and Uganda, with certain reference to SEA's experience. He argues that "in SSA, the most relevant dimension of variation among regimes is between more and less developmental forms of neopatrimonialism" (p. 25). Specifically, the most successful countries in SSA tend to have a combination of the following factors:

(1) a strong and visionary leader, with centralized management of the main economic rents in support of a long-term vision; (2) a single or dominant party system; (3) a competent and confident economic technocracy; (4) consensual decision-making; and (5) a sound policy framework. In some of the successful countries such as Ethiopia and Rwanda, central leaderships have been able to pursue a national development vision and steer rent creation into areas with high economic potential. He further argues that neopatrimonial regimes have contributed to economic transformation in SEA countries such as Indonesia, Malaysia, and Vietnam.

Another major study examines variables that influence economic performance in ten high-growth performers in SSA (Cameroon, Cote d'Ivoire, Kenya, Malawi, and Mozambique) and SEA (Indonesia, Laos, Malaysia, Thailand, and Vietnam). The study concludes that inclusive institutions such as the rule of law, the absence of corruption, and property rights do not explain performance in the two regions (Kelsall 2013). Instead, the study found a combination of three factors to be the main determinants of good performance in SSA and SEA: (1) regulations that promote the private sector development, in particular foreign direct investment and industrial development; (2) resilience to external shocks; and (3) sound policy-making either through an effective bureaucracy insulated from political pressure or through a tradition of consensual decision-making and leadership succession.

As can be observed, all of the existing studies on development processes and outcomes in SSA and SEA countries tend to strongly support the

idea that differences in the policies pursued explain the differential performance between the two regions. The current paper indirectly corroborates these views by arguing that one needs good policies to make institutions right. What constitute good institutions or government is actually a mixture of policy choices that may not be identical in different environment (Andrews 2010). Economic and social outcomes are in turn influenced by such policy choices, not by measured levels of institutional quality per se. It is thus possible that the effects on performance of institutions are different for SSA and SEA.

On the other hand, abundant natural resources might offer greater development potential to SSA compared with SEA (Smith 2012). Unfortunately, evidence suggests that abundance in natural resources actually explains SSA's underperformance. For instance, Sala-i-Martin and Subramanian (2013) take the case of Nigeria as an illustration of how natural resources, through corruption and institutional weakness, lower economic growth in the SSA region. Similarly, Lee and Gueye (2015) examine whether resource windfall deteriorates the standard of living—income (GDP) and inequality (Gini coefficient) of Sub-Saharan African countries. They use a sample of 130 countries which they divide into three different groups: 130 developed and developing countries, 28 SSA countries, and nine fragile SSA countries. They estimate a panel data for the period from 1963 to 2007 and find a positive and significant association between resource windfall and welfare in the whole sample, but an insignificant or even negative correlation when the sample is restricted to countries.

Studies that focus on the post-1990 period show SSA has been experiencing recovery. For instance, Young (2012) shows how SSA's living standards, in terms of the quality of housing, the health and mortality of children, the education of youths, the allocation of female time in the household, or the ownership of durable goods, has improved since the early 1990. In a similar vein, Pinkovskiy and Sala-i-Martin (2014) show that during the same period poverty fell SSA countries, regardless of differences in institutional quality or abundance in natural resources. Another study by the United Nations University World Institute for Development Economic Research (UNU-WIDER) reveals that since about 1995 SSA experienced recovery and acceleration of economic growth (Arndt et al. 2016). Among the five factors identified as the main determinants of SSA's growth recovery, the study points out the institutional improvements (more democratic and accountable governments). Conversely, Fosu (2015) conclude that improvements in institutions or governance, in particular business regulations for private sector development, have contributed to economic recovery in the post-1990 period in SSA. Yet another study reports that since SSA countries richly endowed with natural resources have experienced better economic and social outcomes compared with their resource-scarce counterparts (Lundgren et al 2013). These findings suggest that it is not whether recent economic performance in SSA can be explained by natural resources or institutions.

2.5. Summary

Overall, seven implications can be drawn from the preceding discussion: first, institutional quality matters for economic performance but caution is needed as to how institutional quality is conceptualized; second, countries with similar measured levels of institutional quality can experience diverging economic and social outcomes (see Figure 2.1); third, abundance in natural resources can impede economic performance: developing countries richly endowed with natural resources tend to experience lower economic and social outcomes; fourth, institutional quality can reverse the negative effects of natural resources on economic performance: resource-abundant countries with good institutions tend to have better economic performance then countries with poor institutions; fifth, there is no agreement as to which factors explained economic performance in SSA since the early 1990s—natural resources, institutions, or policies?; sixth, studies that examine development processes and outcomes in SSA and SEA countries are scarce, and nearly all of these studies are narrative or based on comparative case studies: no work has been done using cross-national or panel data regressions; Finally, on the differential economic performance between SSA and SEA, existing studies emphasize the role of policy differences.

With these implications in mind, the current study contributes to the literature in three respects: first, it contributes to understanding how regions that somewhat have similar measured levels of institutional quality have different economic and social outcomes. As previously noted, a number of

studies have established that policy differences in terms of macroeconomic stabilization, rural development, regulations for small business, among others, explain the differential performance between SSA and SEA. The current study indirectly corroborates these views by arguing that one needs good policies to make institutions right. As pointed out earlier, institutional quality actually embeds a mixture of policy choices that may differ from one environment to another (Andrews 2010). Economic and social outcomes are in turn influenced by such policy choices, not by measured levels of institutional quality per se. It is thus possible that the effects on performance of institutions are different for SSA and SEA. In consequence, this study argues that institutions are likely to have more appreciable effects on performance for SEA than for SSA. This is because SEA countries are claimed as having good policies compared with their SSA counterparts.

Second, it adds to the debate on the factors explaining economic performance in SSA in the post-1990 period. Aside from institutions, SSA's abundant natural resources can potentially contribute to ameliorate the region's performance in comparison with SEA. Further, good institutions can harness the contribution of natural resources for economic performance.

Finally, the study proposes the first panel data analysis to examine the extent to which natural resources and institutions explain the differential socioeconomic performance between SSA and SEA. It makes the following propositions: (1) natural resources and institutional quality promote or hinder

good socioeconomic performance in SSA relative to SEA; (2) institutional quality promotes good socioeconomic performance in SEA relative to SSA.

3. Natural Resources, Institutions, and Socioeconomic Performance in Sub-Saharan Africa

3.1. Introduction

Between 1990 and 2015, and particularly since 1995, SSA experienced remarkable improvements in economic and social indicators. Growth rates were high, child mortality fell, and there has been a surge in the flow of FDI into the region. During the same period, natural resources considerably contributed to increases in government revenues in many countries of the region (Lundgren et al 2013). At the same time, efforts toward more democracy, more accountability, less corruption, and better business regulations have been achieved by many countries in the region (Fosu 2015). Since revenues from natural resources can offer a significant pool of finance for governments to invest in development and poverty reduction (World Bank 2015), it is fair to ask if countries with abundant natural resources have benefited more from the recent economic and social improvements. Similarly, because institutions are 'the underlying determinant of the long-run economic performance' (North 1990: 107), it is enlightening to investigate whether countries that have improved their institutional quality have performed better comparing with countries that have not improved their institutions.

To address the first question, this chapter compares socioeconomic performance across two groups of countries: (1) resource-abundant and (2)

resource-scarce. It applies the three performance measures considered in the current study, namely GDP per capita growth, FDI inflows, and infant mortality. With regard to the second question, the chapter explores socioeconomic performance across individual countries. Specifically, it investigates whether countries that have improved their institutions in the period between 1990 and 2015 have also experienced superior performance compared to countries that have not improved their institutional quality. The analysis covers the period from 1990 to 2015.

Further, the classification into resource-abundant and resource-scarce is based upon a strategy that has been subsequently employed in the resource curse literature (see, e.g., Collier and Hoeffle, 2009: 298; Lee and Gueye, 2015:11): resource-abundant countries are those whose average total natural resource rents for the period 1990-2015 exceeds 10 percent of GDP; and resource-poor countries are those whose average total natural resource rents is less than 10 percent of GDP.

The remainder of this chapter is organized as follows. Section 3.2 briefly explores the aggregate performance in GDP, FDI, infant mortality, and institutional indicators in SSA. Section 3.3 explores the differences in socioeconomic performance between resource-abundant and resource-scarce countries in SSA. Section 3.4 compares socioeconomic performance across individual SSA countries. And section 3.5 concludes.

3.2. Economic growth, FDI, and infant mortality in SSA

To put things in perspective, this section provides an overall picture of economic growth, FDI inflows, infant mortality, and institutional improvement in SSA in the period from 1990 to 2015.

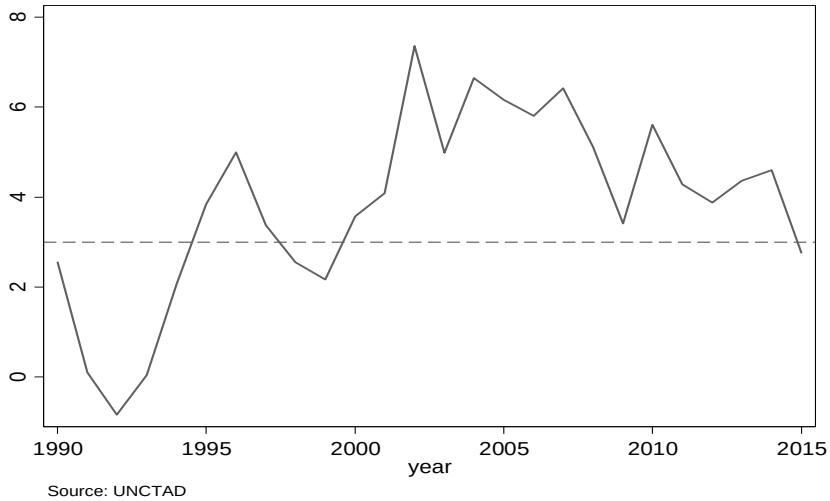
3.2.1. Growth performance, 1990-2015

Figure 3.1 shows economic growth in SSA in the period from 1990 to 2015. It can be observed that since the mid-1990s, the region as a whole has experienced a per capita GDP growth of above 3 percent, with only a drop to below 3 percent in the period between 1998 and 1999—perhaps corresponding to the financial crisis in Asia.

There is a debate on whether the growth performance since about 1995 has delivered development in the region. Some studies provide a more pessimistic answer, arguing that the 1995-2015 growth performance has not contributed to creating sustainable jobs, or reducing inequality (Obeng-Odoom 2015), and 'can never deliver development (Pillay 2015). A recent collection of 16 country case studies on the growth experience in SSA since 1995, shows that some countries have experienced a rapid economic growth and substantial improvement in welfare and living conditions (e.g., Ethiopia, Ghana, Malawi, Rwanda, and Uganda); others have not been able to channel the benefits of economic growth into social welfare (e.g., Burkina Faso, DR Congo, Mozambique, Nigeria, Tanzania, or Zambia); and finally, others have experienced little (or no) economic growth or social development (e.g., Cameroon, Cote d'Ivoire, Kenya, Madagascar, or South Africa).

The following section explores whether the growth performance has been better for resource-abundant countries or for countries that have been able to ameliorate their institutions.

Figure 3.1: Per capita GDP growth in Sub-Saharan Africa, 1990-2015



3.2.2. Foreign direct investment

As already mentioned, FDI is recognized as a powerful driver of development as it can create and maintain productive growth, bring together know-how and technology diffusion, employment generation, and expansion of access to infrastructure and social services in host economies (Borensztein et al, 1998; Lim, 2001). As shown in Table 3.1, FDI is the largest source of international capital flow in SSA. For instance, in 2013, FDI as a share of total international capital flows amounted to 65 percent; much larger comparing with ODA (6 percent).

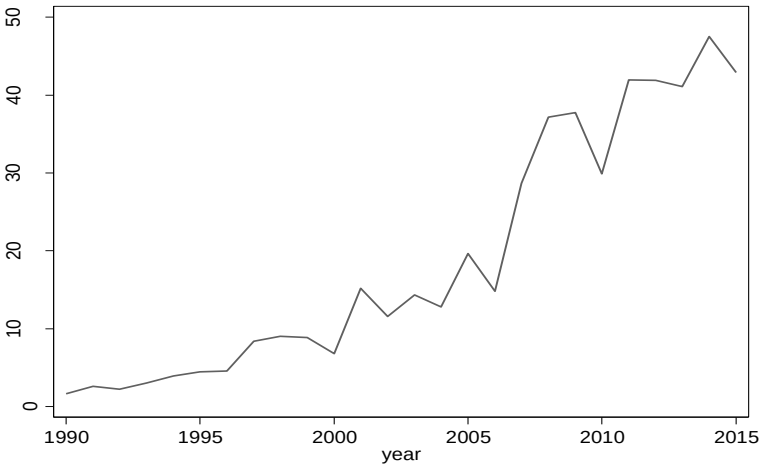
Table 3.1: International Capital Flows to Sub-Saharan Africa in 2013 (as % of total flows)

Resource type	Share in %
Short-term debt flows	1
Banks	3
Bonds	8
Portfolio equity inflows	16
ODA & OOF	6
FDI Inflows	65
Other Private flows	1

Source: World Bank

Figure 3.2 shows that there has been a surge in FDI inflows into SSA, from less than US$ 2 billion in 1990 to over US$ 40 billion in 2015. There is no agreement as to which factors explain such an increase in the flow of inward FDI. A number of studies emphasize the role of institutional improvements (i.e., Asiedu 2013), while others focus on natural resources. Again, the next section explores the extent to which FDI inflows are distributed across resource-abundant and resource-poor, and across countries with good and poor institutions.

Figure 3.2: Foreign direct investment in SSA (1990-2015)

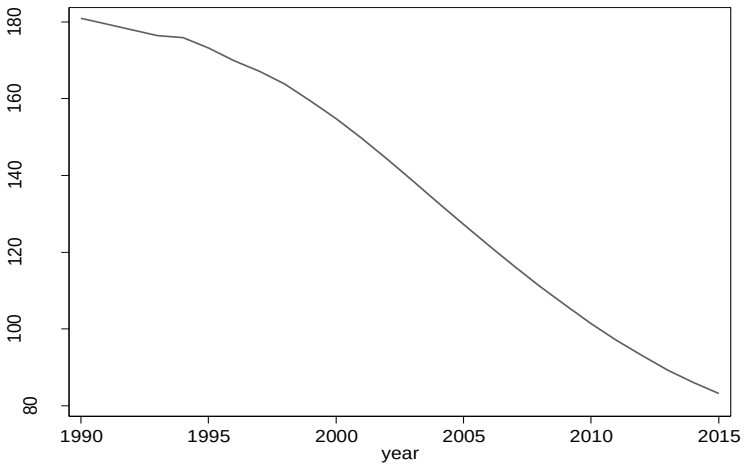


Source: UNCTAD

3.2.3. Infant mortality

Although still lagging behind other developing regions, SSA experienced noticeable improvements in social indicators. As shown in Figure 3.3, infant mortality dramatically decreased from nearly 200 under-five deaths per 1000 live deaths in 1990 to around 80 deaths in 2015. Again, the next section compares performance in this indicator between resource-abundant and resource-scarce countries. It also explores performance among countries with good institutions compared with countries with poor institutions.

Figure 3.3: Infant mortality rate in SSA (1990-2015)



Source: World Bank, *WDI*

Overall, this section has shown that SSA experienced good performance in economic and social indicators, especially since 1995. The region on average had a higher economic growth, attracted larger FDI, and registered a drop in the infant mortality rate (number of under-five deaths per 1,000 live births).

The next task is to investigate whether and how performance in socioeconomic indicators differs across countries, based on the level of intensity in natural resources, on the one hand; and on the institutional quality, on the other.

3.3. Resource-abundant versus resource-scarce countries

The disaggregation according to abundance in natural resources generates two groups: (1) resource-abundant and (2) resource-poor.

Table 3.2 reports this grouping, using average data for the 1990-2015 period. Of the 46 SSA countries, 18 are classified as resource-abundant and 28 are resource-scarce. Further, nine of the resource-abundant countries are oil producers (Angola, Cameroon, Chad, Congo, Equatorial Guinea, Gabon, Ghana, Nigeria, and Sudan), and nine others are minerals producers (Botswana, DR Congo, Guinea, Liberia, Mauritania, Namibia, Sierra Leone, South Africa, and Zambia).

To allow for a better comparability between the two groups, countries for which consistent data on socio-economic indicators are not available are dropped from the sample (Sao Tome and Principe and Djibouti).

Table 3.2: Resource-abundant and resource-scarce grouping

Resource-abundant	Resource-scarce
Angola(*)	Benin
Botswana(+)	Burkina Faso
Cameroon(*)	Burundi
Chad(*)	Cabo Verde
DR Congo(+)	Central African Republic
Congo(*)	Comoros
Equatorial Guinea(*)	Cote d'Ivoire
Gabon(*)	Eritrea
Ghana(*)	Ethiopia
Guinea(+)	Gambia
Liberia(+)	Guinea
Mauritania(+)	Guinea-Bissau
Namibia(+)	Kenya
Nigeria(*)	Lesotho
Sierra Leone(+)	Madagascar
South Africa(+)	Malawi
Sudan(*)	Mali
Zambia(+)	Mauritius
	Mozambique
	Niger
	Rwanda
	Senegal
	Seychelles
	Swaziland
	Tanzania
	Togo
	Uganda
	Zimbabwe

Source: World Bank: *WDI*; Author's calculation
Note: (*) oil producer; (+) mineral producer

3.3.1. Per capita GDP growth

Table 3.3 provides means of per capita GDP growth in five different periods extending from 1990 to 2015 for the two groups. It can be observed that resource-abundant countries as a whole have experienced a better growth performance in each period since 1995, which also corresponds to the upward trajectory to above 3 percent illustrated in Figure 3.1. Put simply, growth

performance is better for resource-abundant countries compared with their resource-scarce counterparts.

Table 3.3: Mean of GDP per capita growth for SSA resource-abundant and resource-scarce countries in 1990-1994, 1995-1999, 2000-2004, 2005-2009, and 2010-2015

Period	Resource-abundant	Resource-scarce
1990-1994	-1.74	0.02
1995-1999	4.33	2.43
2000-2004	3.76	1.37
2005-2009	3.44	2.42
2010-2015	2.58	2.38

Source: World Bank: *WDI*; Author's calculation
Notes: Eritrea and Sao Tome and Principe are excluded from the sample due to insufficient data

As noted earlier, however, there are several limits to GDP as an indicator of economic performance (Stigitz et al 2009). For instance, GDP growth may not capture some phenomena which have an impact on the quality of life, including for example, the distribution of income, health, employment, access to clean water, nutrition, education, and so forth. A country may experience high growth rates without registering progress on social indicators.

3.3.2. Infant mortality

Table 3.4 shows that infant mortality fell nearly by half between 1990 and 2015 in both groups. The table also shows that in spite of such improvement, resource-abundant countries perform relatively poorly in terms of infant mortality compared with resource-poor countries.

Table 3.4: Infant mortality per 1,000 live births in resource-abundant and resource-scarce countries

Year	Resource-abundant	Resource-scarce
1990	102.46	89.78
1995	98.49	86.14
2000	91	78.20
2005	78.35	66.06
2010	66.15	54.55
2015	56.68	46.65

Source: World Bank: *WDI*

3.3.3. Foreign direct investment

FDI inflows are highly asymmetric across SSA resource-abundant and resource-scarce countries. Table 3.5 reports the mean distribution of FDI inflows between the two groups over five different periods starting from 1990. First, one can note the dramatic surge in the FDI inflows in SSA in particular since 2000. Second, resource-abundant countries have consistently attracted more FDI inflows than did their resource-scarce counterparts.

Table 3.5: Mean of FDI inflows in million US$ for SSA resource-abundant and resource-scarce countries in 1990-1994, 1995-1999, 2000-2004, 2005-2009, and 2010-2015

Period	Resource-abundant	Resource-scarce
1990-1994	391.09	110.36
1995-1999	625.82	270.19
2000-2004	563.57	267.71
2005-2009	1803.23	555.27
2010-2015	2983.15	976.76

Source: UNCTAD: *FDI statistics database*
Notes: Eritrea and Sao Tome and Principe are excluded from the sample due to insufficient data

Moreover, a look at the performance of the individual SSA countries suggests that between 2000 and 2015 much of the FDI inflows were directed to a handful of resource-abundant countries. As Table 3.6 illustrates, Nigeria and

South Africa alone, received on average approximately 39 percent of the total share of FDI inflows in SSA over the period 2005-2014. Other major FDI recipients, with the exception of Tanzania, are all resource-abundant (Mozambique, Ghana, Congo, DR Congo, Equatorial Guinea, Tanzania, and Zambia). Based on the ten-year average, these ten countries shared approximately 75 percent of the total FDI inflows in SSA.

Table 3.6: Top 10 FDI recipients (average 2005-2014) and Share of China's FDI (percent of regional total)

Country	Average FDI in million US$: 2005-2014	Share of FDI inflows (average 2005-2014)
1. Nigeria	6530.445	19.37%
2. South Africa	5665.740	16.81%
3. Mozambique	2339.183	6.94%
4. Ghana	2139.540	6.34%
5. Congo	1958.846	5.58%
6. DR Congo	1702.134	5.04%
7. Eq. Guinea	1389.473	4.12%
8. Tanzania	1337.063	3.97%
9. Sudan	1214.084	3.60%
10. Zambia	1204.673	3.57
Region's average	674.175	-

Source: calculations based on data from UNCTAD, http://unctadstat.unctad.org

It is also worth noting that resource-abundant countries are among the largest recipients of China's FDI in SSA. This is particularly instructive because China's rapid demand for SSA's natural resources has been argued to have contributed to recent economic growth in the region (Rodrik 2010).

Table 3.7: Top 10 Chinese FDI recipients in SSA (in millions, US dollars), 2005-2012

Country	2005	2006	2007	2008	2009	2010	2011	2012
Nigeria	94	216	630	796	1,026	1,211	1,416	1,950
Zambia	160	268	429	651	844	944	1,200	1,998
DRC	25	38	104	134	397	631	709	970
Angola	9	37	78	69	196	352	401	1,245
Mauritius	27	51	116	230	243	283	606	701
Tanzania	62	112	111	190	282	308	407	541
Ethiopia	30	96	109	126	283	368	427	607
Zimbabwe	42	46	59	60	100	135	576	875
Kenya	58	46	55	78	120	222	309	403

Source: UNCTAD, *Foreign Direct Investment Database*

Overall, this section gives evidence that resource-abundant countries on average had higher GDP growth and received greater FDI inflows. However, performance in social progress, measured here in terms of infant mortality, is somewhat poorer compared with resource-poor countries.

Aggregate data, however, might mask a wide diversity in performance across countries within the two groups. For instance, in the resource-abundant group, one can differentiate between a well-performing Botswana and a lagging DR Congo. Similarly, in the resource-scarce group there is a considerable contrast between Mauritius and Burundi. Hence, the next section explores whether performance across individual countries is influenced by the level of institutional quality (measured here in terms of the RQ indicator from WGI).

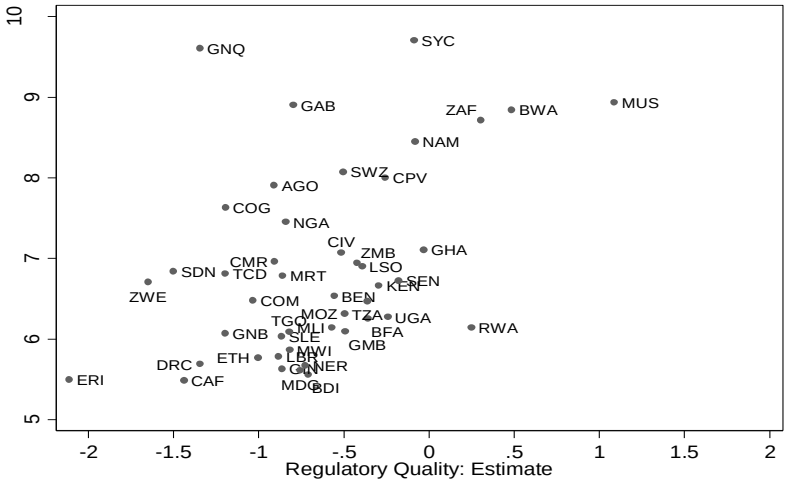
3.4. Comparing performance across individual countries

To begin with, recall that the RQ indicator has scores ranging from -2.5 (poor quality) to +2.5 (good quality). Hence, countries with scores closer to -2.5 are considered as having poor institutions.

3.4.1. Per capita GDP growth

Figure 3.4 plots the log of per capita GDP against RQ scores for 2015. It can be observed that most of the countries with poor institutions are concentrated in the lower-left area of the figure. On the other hand, countries that score highest on RQ, including Botswana, Mauritius, Namibia, Seychelles, and South Africa, locate themselves at the upper-right area of the figure. At the same time, resource-abundant countries (i.e., Angola, Equatorial Guinea, Congo, and Gabon) with lower RQ scores also have higher per capita GDP. Figure 3.4 thus suggests that performance in per capita GDP in SSA is somewhat determined by the abundance in natural resources and institutional quality.

Figure 3.4: GDP per capita (constant 2005 US$) and RQ score in SSA (2015)



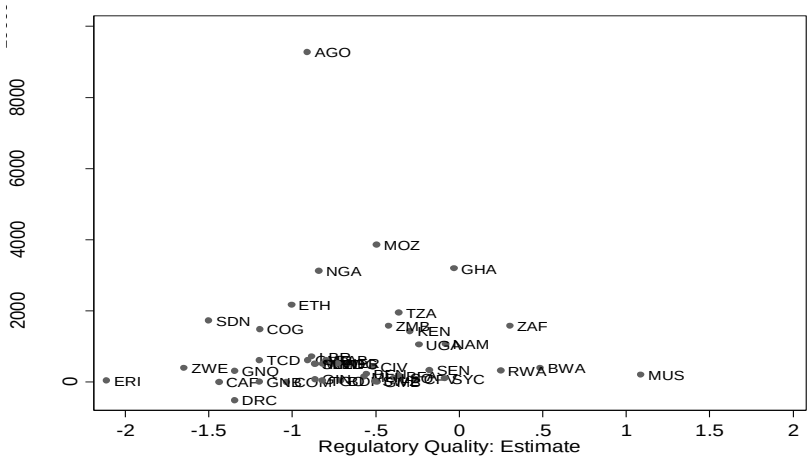
Source: World Bank, *WDI; WGI*

3.4.2. Foreign direct investment

Figure 3.5 plots FDI inflows against the RQ score. It gives no indication that countries with higher RQ scores also attract larger FDI inflows. Instead, most of the largest FDI recipients in SSA are resource-abundant (i.e., Angola, Congo, Mozambique, Nigeria, and Sudan). Interestingly, it shows also that resource-abundant countries such as the DRC and Equatorial Guinea are among the laggards in terms of attracting FDI in 2015. Note also that these countries score lowest on the RQ indicator. On the other hand, countries scoring highest on RQ such as Mauritius, Botswana, and Rwanda attracted as few FDI as countries scoring lowest such as the Zimbabwe, Guinea, or Chad. This is suggestive that institutional quality is not a strong determinant of FDI in SSA. For instance, it has been suggested that the share of outflows FDI from China into SSA is higher in the weak governance states (Chen, Dollar, and Tang 2015). Further, in addition to natural resources, other factors such as market size,

openness to trade, government consumption expenditure, and remittances have been suggested as strong determinants of FDI inflows to SSA (Anyanwu 2011).

Figure 3.5: FDI inflows in million US$ and Regulatory Quality score (2015)



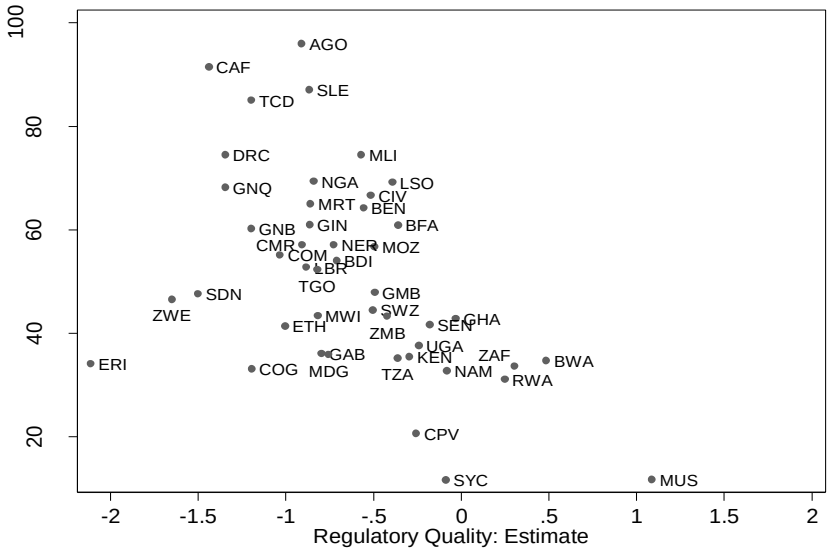
Source: World Bank, *WDI; WGI*

3.4.3. Infant mortality

Finally, Figure 3.6 plots infant mortality against the RQ scores. The figure somewhat indicates that better institutional quality is associated with lower infant mortality. Specifically, there are less than 40 under-five deaths per 1,000 live births in countries that score highest on the RQ indicator (i.e., Botswana, Mauritius, Namibia, Mauritius, and Seychelles). By contrast, infant mortality is highest in countries that score lowest on the RQ indicator (i.e., Angola, Central African Republic, Chad, DRC, and Sierra Leone). Note also that most of the countries where infant mortality is above 60 deaths per 1,000 live births are resource-abundant countries (i.e., Angola, Chad, DRC, Equatorial Guinea, Guinea, Mauritania, and Nigeria). This suggests that in SSA,

abundance in natural resources does not contribute to social progress, in spite of improving economic indicators (i.e., GDP growth). In a country like Equatorial Guinea, for instance, it has been pointed out that the main indicators of human development such as child mortality, primary school enrolment, and fertility rates have not improved in spite of the sustained growth of per capita income over two decades (Daniele 2011: 566).

Figure 3.6: Infant mortality rate versus Regulatory Quality score in 2015



Source: World Bank, *WDI; WGI*

3.5. Summary

The descriptive analysis provided in this chapter focused on SSA in the period between 1990 and 2015. The aim was to compare aggregates of two groups, namely resource-abundant and resource-scarce countries. The analysis applied the three performance measures considered in the current study, namely per capita GDP, FDI inflows, and infant mortality. The second focus of this chapter was to examine whether performance in these three measures differed

across countries based on their level of institutional quality.

Overall, the analysis has shown that in SSA abundance in natural resources is associated with higher per capita GDP growth and FDI inflows, but has no appreciable effect on infant mortality. In fact, most of the resource-abundant countries in the region tend to have higher under-five mortality rates compared with resource-poor countries.

On the other hand, comparing performance across countries on the basis of institutional quality reveals three noticeable points: first, higher institutional quality is not necessarily associated with higher per capita GDP; second, institutional quality does not determine FDI; and third, higher institutional quality is associated with lower infant mortality. This is suggestive that SSA countries need good institutions if they are to achieve social progress SSA.

Finally, in spite of increasing per capita GDP and FDI, abundance in natural resources does not contribute to achieving social progress in SSA. Further implications from this analysis are discussed in later chapters.

4. Natural Resources, Institutional Quality, and Socioeconomic performance in Sub-Saharan and Southeast Asia

4.1. Introduction

If SSA and SEA countries are compared on one basic variable—per capita GDP growth—one can find enormous variation across the two regions (Table 4.1). Between 1990 and 2015, most of the SEA countries experienced per capita GDP growth exceeding 3 percent per annum, while several countries in SSA (Burundi, Cameroon, Central African Republic, Cote d'Ivoire, DR Congo, Liberia, Madagascar, Niger, and Zimbabwe) had negative growth rates or stagnated. This inter-regional contrast is similar in a wider range of other variables. For instance, by 2015, progress on the Millennium Development Goals was largely satisfactory in SEA, while none of these goals was achieved in SSA (United Nations Development Program 2015).

It has been argued that policy features, including macroeconomic stability, economic freedom (especially for small entrepreneurs and farmers), and rural sector development in SEA, and the lack thereof in SSA, explain the observed variations in economic and social outcomes across the two regions in recent decades (Berendsen et al 2013).

Along with these policy distinctions, there are other respects in which one could explain the heterogeneity across the two regions, in particular the

presence of good institutions and abundance in natural resources. These factors are essential as they can influence patterns of economic and social outcomes. Little, however, is known about the extent to which institutional quality and abundance in natural resources can help account for recent variations in economic performance across the two regions.

Moreover, while from a simple cross-regional comparison one can derive useful general findings that can be applied across countries, one may also find it instructive to take into account intra-regional diversity. An interesting fact about SSA and SEA is that they do not differ substantially with respect to their institutional landscape. For instance, a comparison of performance in one widely used indicator of the extent of corruption—the Transparency International's Corruption Perception Index—suggests that both SSA and SEA are home to some of the most corrupt governments in the world. Further, many countries in both regions are ruled by non-democratic regimes, and lack political freedom.

In fact, SSA and SEA encompass countries that differ widely in terms of institutional development, natural endowments, and economic performance. For instance, although on average SEA outperforms SSA on economic performance, not all SSA countries perform badly. More interesting is that the better-performing-countries in both SEA and SSA tend to have good institutions and score higher in terms of institutional quality.

The central goal in this chapter is to put things in perspective, by exploring some of the major features of socioeconomic performance in SSA

and SEA, and describing the role of natural resource resources and institutional quality. It addresses three specific questions: (1) to what extent is socioeconomic performance better in SEA compared with SSA? (2) Are institutions more developed in SEA compared with SSA? (3) Can natural resources and institutional quality explain the observed variations in socioeconomic performance between the two regions? The analysis is based on the period from 1990 to 2015 for a set of forty-five SSA and nine SEA countries.

The remainder of this chapter is divided into five sections. Section 4.2 describes some general facts about differences in socioeconomic performance between the two regions. It compares aggregates of the two regions as well as the behavior of individual countries on an array of economic and social variables, including growth, inflation, foreign direct investment (FDI), trade diversification, and progress on the Millennium Development Goals. Section 4.3 then focuses on the role of institutional quality in explaining patterns of socioeconomic performance across SSA and SEA countries. It starts by comparing the level of institutional development between SEA, SSA, and some advanced economies of Asia and other regions. It then looks at the association between performance in institutional indicators and other variables including growth, FDI, and a broad measure of development progress—infant mortality rates. Section 4.4 identifies differences in economic performance across resource-abundant and resource-scarce countries in the two regions. Section 4.5 extends the discussion by looking at the combined impact of natural resources and institutions on measures of economic performance, including growth, income, FDI, and infant mortality. Section 4.6 draws some general conclusions

about the differential socioeconomic performance between SSA and SEA and the role of institutions and natural resources.

Table 4.1: Growth, GDP per capita, and population in SSA and SEA

Country	Average annual growth in GDP per capita, 1990-2015	GDP per capita, PPP (constant 2011 international $), 2015	Population (million), 2015
Angola	1.71	6,958.25	25.02
Benin	1.31	2,112.56	10.88
Botswana(**)	2.57	16,415.20	2.26
Brunei(**)	-0.61	79,507.60	0.42
Burkina Faso	2.37	1,727.49	18.11
Burundi	-1.54	831.085	11.18
Cabo Verde(+)	5.23	6,502.47	0.52
Cambodia(+)	5.53	3,498.26	15.58
Cameroon	-0.07	3,147.98	23.34
Central Af. Republic	-1.55	627.639	4.9
Chad	2.39	2,639.63	14.04
Comoros	-0.39	1,521.76	0.79
Congo, Dem. Rep.*	-2.24	767.488	77.27
Congo, Rep.	0.49	6,722.44	4.62
Cote d'Ivoire	-0.01	3,358.70	22.70
Equatorial Guinea(**)(+)	17.20	43,522.10	0.85
Eritrea	1.51	1,299.88	n.a.
Ethiopia*(+)	3.49	1,804.39	99.39
Gabon(**)	0.03	18,676.90	1.73
Gambia, The	0.17	1,649.79	1.99
Ghana	2.86	4,291.06	27.41
Guinea	0.03	1,238.34	12.61
Guinea-Bissau	0.03	1,510.71	1.84
Indonesia*(**)(+)	3.64	11,148.50	257.56
Kenya	0.83	3,218.10	46.05
Lao PDR(+)	4.86	5,351.47	6.80
Lesotho	2.93	3,003.04	2.14
Liberia	-0.15	874.528	4.50
Madagascar	-0.62	1,466.23	24.24
Malawi	1.75	1,126.45	17.22
Malaysia(**)(+)	3.76	26,211.20	30.33
Mali	1.47	2,190.57	17.59
Mauritania	1.01	4,311.44	4.07

Mauritius(**)(+)	3.93	19,572.70	1.26
Mozambique(+)	4.40	1,192.18	27.98
Myanmar(+)	7.80	5,479.88	53.89
Namibia(**)	2.05	11,224.40	2.46
Niger	-0.13	1,077.18	19.89
Nigeria*(+)	2.95	6,120.83	182.20
Philippines*	2.17	7,282.27	100.69
Rwanda(+)	3.46	1,810.17	11.61
Sao Tome and Principe	2.74	3,250.42	0.19
Senegal	0.67	2,456.28	15.13
Seychelles(**)	2.66	26,677.30	0.09
Sierra Leone	0.76	1,592.96	6.45
South Africa(**)	0.63	13,208.70	54.96
Sudan(+)	3.07	4,393.57	40.23
Swaziland	2.15	9,712.13	1.29
Tanzania(+)	2.23	2,909.71	53.47
Thailand*(**)(+)	3.71	16,130.10	67.96
Togo	0.10	1,488.65	7.30
Uganda(+)	3.25	2,002.43	39.03
Vietnam*(+)	5.37	6,036.60	91.70
Zambia	1.67	3,852.14	16.21
Zimbabwe	-1.12	1,983.68	15.60

Source: Author's calculation based on data from the IMF's World Economic Outlook database

Notes: (*) Population larger than 60 million; (**) per capita GDP (PPP) greater than 10,000 US$; (+) Average per capita GDP growth greater than 3 percent between 1990 and 2015.

Data for Eritrea are based on averages for the period 1993-2015.

4.2. Performance in some selected economic and social indicators

As previously indicated, this section describes some of the major features of cross-region and cross-country economic and social data on SSA and SEA. Sub-section 4.2.1 explores the growth performance in the two regions, and makes some general observations on the role that other variables such as

inflation, population, and dependency ratio may exert. Sub-section 4.2.2 describes general facts about differences between SSA and SEA in attracting FDI. It also looks at patterns of associations between FDI and trade diversification, and development of the manufacturing industry. Sub-section 4.2.3 discusses progress on the Millennium Development Goals, and looks at differences on government expenditure across the two regions.

4.2.1. Economic growth

Between 1990 and 2015, there has been a great contrast in economic performance between SSA and SEA. Table 4.2 provides a brief comparison of selected economic indicators for the two regions. In terms of GDP growth, it shows that SEA consistently grew at an average of approximately 5.6 percent between 1990 and 2015. By contrast, SSA grew at an average of more than 3 percent per annum between 1995 and 2010, before declining to below 3 percent between 2010 and 2015. In per capita terms, the contrast between the two regions is even bigger. The table provides a simple comparison of mean and median per capita GDP adjusted for PPP of the SEA countries compared with that of SSA countries. Medians are interest due to the skewed nature of the observations resulting from the inclusion of countries like Brunei, Equatorial Guinea, or Mauritius. Table 4.2 shows that in each period, income per capita in SSA has consistently remained about one-third that of SEA.

Many factors can explain the poor per capita performance of SSA relative to SEA. First, it is widely recognized that higher inflation has

detrimental effects on long-term economic growth. It has been argued that inflation rates exceeding 17 percent have more distortional effects on economic performance in non-industrialized countries (Kremer et al 2013). One can thus suggest that higher inflation rates in SSA, in particular between 1990 (17.21 percent), 1995 (more than 90 percent) and 2000 (more than 20 percent), have significantly contributed to the poor performance in the region. By contrast, SEA experienced relatively lower inflation rates, except the pick in the early 1990s (22.36 percent). This also can be suggestive of the presence of better macroeconomic policies in SEA compared with SSA (van Donge et al. 2012).

Table 4.2: Selected economic indicators in SSA and SEA (all incomes)

	Region	1990	1995	2000	2005	2010	2015
Mean GDP per Capita, PPP (constant 2011 $)	SSA	2005.39	2,217.53	2,787.348	3,902.8	4,769.48	5,609.60
	SEA	9,392.63	11,671.52	11,232.85	13,272.78	15,673.18	17,849.55
Median GDP per capita, PPP (constant 2011 $)	SSA	1,028.72	1,121.7	1,297.72	1,665.35	2,163.53	2,547.95
	SEA	2,757.56	3,654.98	3,400.54	4,305.77	5,550.36	7,282.27
Inflation, annual average (% change)	SSA	17.21	92.14	25.70	7.66	5.84	4.95
	SEA	22.36	11.42	2.08	6.48	4.62	3.01
GDP, annual % growth rate	SSA	1.20	4.96	3.70	5.50	3.66	2.89
	SEA	5.44	7.27	6.73	6.87	6.83	5.14

Sources: Author's calculation based on data from the IMF, *World Economic Outlook;* World Bank, *WDIs*

Second, it is instructive to note that three of the largest countries in SSA by population size (the DR Congo, Nigeria, and Ethiopia) have grown relatively slowly compared to their SEA counterparts (Indonesia, Philippines, Thailand, and Vietnam). Table 4.3 reports the average GDP per capita growth for the period from 1990 to 2015 of SSA and SEA countries with a population

size larger than 50 million. Aggregating growth rates of the most populous countries in each of the two regions, one can observe average growth rates of less than 2 percent and more than 3.5 percent in SSA and SEA, respectively. This corroborates Ndulu (2007), who attributes the larger divergence between SSA and other developing regions to the slow growth in the large countries in the region in contrast with the relatively rapid growth of very populous countries such as Indonesia and India in Asia.

Table 4.3: Real GDP per capita growth in most populous countries (population above 60 million)

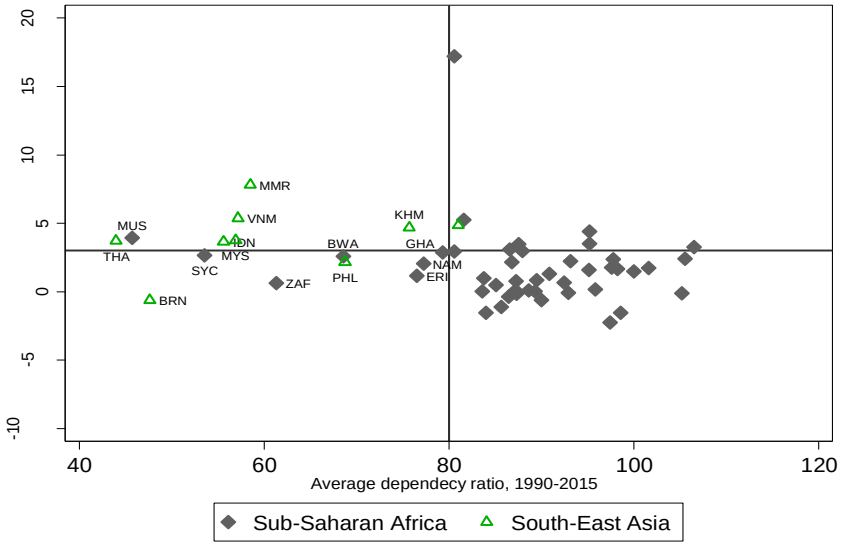
Group	Country	GDP per capita growth (annual %), average 1990-2015
Sub-Saharan Africa	DR Congo	-2.23
	Ethiopia	3.64
	Nigeria	2.95
South-East Asia	Indonesia	3.64
	Philippines	2.17
	Thailand	3.71
	Vietnam	5.37

Source: IMF, *World Economic Outlook;* Author's calculations

Furthermore, the growth literature suggests that higher population growth may have adverse effect on real incomes per capita through several channels, and in particular the dependency ratio. It has been suggested that higher population growth is associated with increased dependency ratio (ratio of dependents to working-age population), which in turn reduces the productive capacity per worker (Bloom et al. 1998). In the context of SSA and SEA, data suggests that dependency ratio is higher in the former. To further illustrate this, Figure 4.1 plots the average ratio of dependents to working-age

population against the average GDP per capita growth for SSA and SEA countries. It shows that most of the SSA countries tend to have higher dependency (more than 80 percent) compared with SEA countries (less than 80 percent). In addition, lower dependency ratio is associated with average per capita GDP growth exceeding 3 percent per annum in most of the SEA countries (Cambodia, Indonesia, Myanmar, Thailand, and Vietnam), while the higher dependency ratio is associated with lower GDP per capita growth in most of the SSA countries.

Figure 4.1: Scatter plot dependency ratio vs. GDP per capita growth, in SSA and SEA (1990-2015)



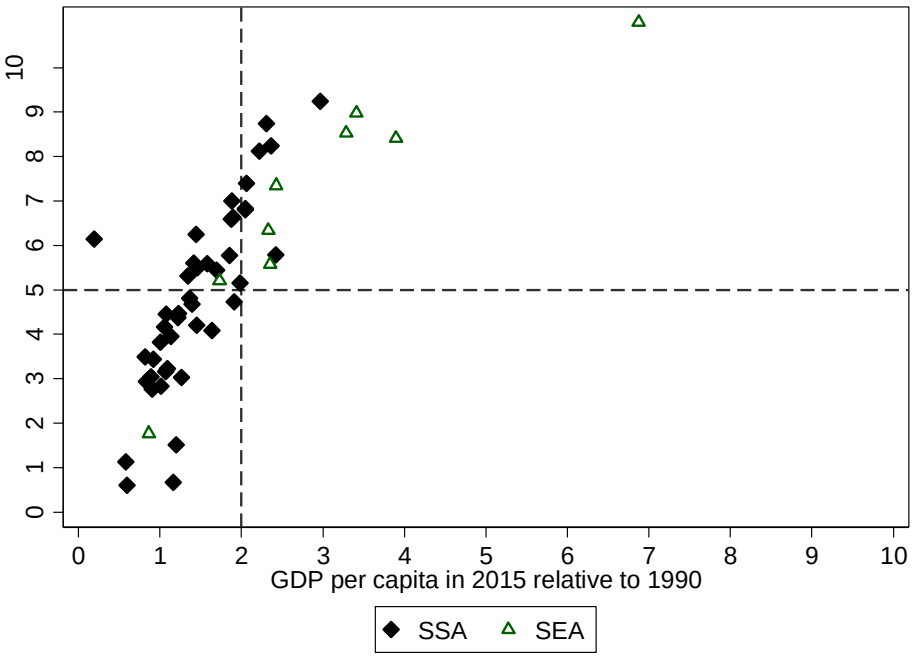
Source: World Development Indicators; Author's calculations

As previously mentioned, higher dependency ratio tends to impede SSA's ability to achieve improvement in income per capita. This can be further illustrated in Figure 4.2 which compares how much GDP per capita for each of

the 55 SSA and SEA countries considered in this study has grown in 2015 relative to the 1990 level. Performance in per capita GDP for each country is computed as the share of per capita GDP in 2015 in percentage of that in 1990. Figure 4.2 thus plots the performance in per capita GDP against the average growth rate for the period 1990-2015. It can be observed that over the period from 1990 to 2015 seven of the nine SEA countries (Cambodia, Lao, Indonesia, Malaysia, Myanmar, Thailand, and Vietnam) grew at more than 5 percent per annum and improved substantially their income level in 2015 relative to 1990. In addition, improvement in income level in several SEA countries can be explained by the shared growth, which according to Lewis (2013: 54), 'increased employment and improved livelihoods across many sectors, notably the rural majority'.

By contrast, most of the SSA countries with growth rates of above 3 percent per year performed badly in terms of improving their income level relative to their 1990 position. One can thus conclude that SSA has stagnated in spite of higher growth rates registered in the period 1990-2015. Higher growth rates in SSA have not contributed to improve the per capita income levels in 2015 relative to 1990. This corroborates Page and Shimeles (2015: 17) who argue that high growth rates in SSA have not been well shared and have not contributed to poverty reduction. In SSA, only Equatorial Guinea—observation at the upper-right area of Figure 4.2—has achieved substantial performance in income per capita.

Figure 4.2: Performance in GDP per capita (constant 2005 US$) in 2015 relative to the 1990 level



Source: Author's calculations based on data from the IMF, *WEO*
Note: To allow for a clearer visibility of the graph the observation for Equatorial Guinea was dropped. In effect, Equatorial Guinea's 2015 GDP per capita level relative to the 1990 level was more than 20.

4.2.2. Foreign direct investment

As already noted in chapter 3, FDI is the primary source of international capital to the SSA countries. Yet the region's performance in attracting FDI flows remains poorer compared to other developing regions, and in particular SEA. As Table 4.4 illustrates, in spite of a dramatic surge in the net inflows of FDI between 2000 and 2015, SSA received much smaller amounts of FDI compared with SEA.

In addition, a comparison of the index of export concentration—Hirschman Herfindahl Index—between the two regions suggests that SSA has not succeeded in diversifying its economy. In fact, SSA still heavily depends on the export of natural resources, particularly minerals and fuels. By contrast, SEA countries 'have succeeded in developing other exports and diversifying their economies into manufacturing, agro-industries, value-added services, and other activities that enable them to move up the value chain in the global economy' (van Donge et al 2012: 9). This is particularly instructive, because many countries in SEA including Brunei, Indonesia, Malaysia, Myanmar, and Vietnam have significant natural endowments, yet their exports dependent less heavily on them.

It is argued that FDI has played a leading role for major changes in economic structure of most SEA countries (Thomsen 1999). Foreign firms have fueled export-led growth and contributed to changes in economic structures of countries like Malaysia, Indonesia, Thailand, and the Philippines.

Table 4.4: Foreign Direct Investment and Trade in SSA and SEA

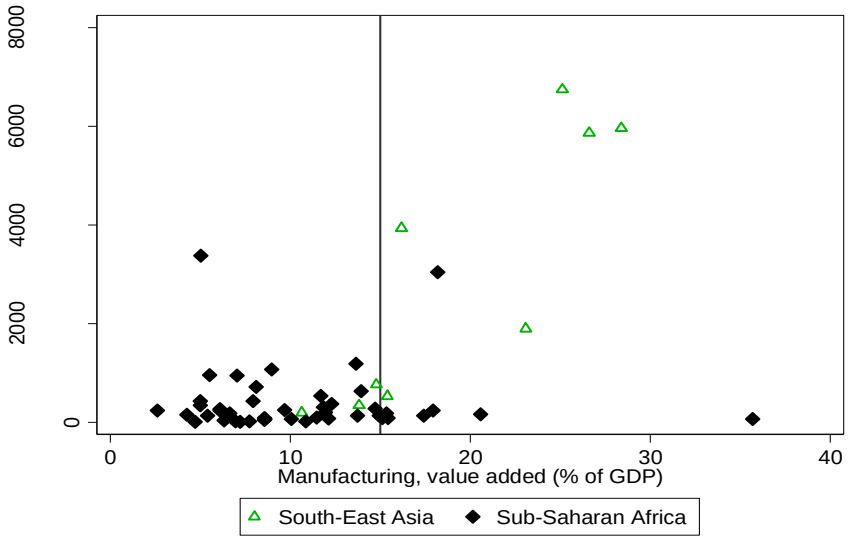
	Region	1990	1995	2000	2005	2010	2015
Net inflows of FDI (million USD)	SSA	25.57	100.27	150.39	432.67	617.25	908.41
	SEA	963.97	1797.05	724.41	2767.73	5821.17	7188.11
Index of export concentration (Hirschman Herfindahl Index)	SSA	-	0.210	0.341	0.424	0.420	0.304
	SEA	-	0.124	0.182	0.152	0.127	0.116

Source: UNCTAD

Notes: The Hirschman Herfindahl Index is the sum of squared shares of each product in total export. A country with a perfectly diversified export portfolio will have an index close to zero, whereas a country which exports only one export will have a value of 1 (least diversified). See World Bank's Trade Indicators available at: http://wits.worldbank.org/wits/wits/witshelp/Content/Utilities/e1.trade_indicators.htm

This can also explain the small size of the manufacturing sector in most of the SSA countries compared with their SEA counterparts. Figure 4.3 plots the FDI inflows (in million US$) against the share of manufacturing in GDP for SSA and SEA countries. It also provides a visual comparison of the share of manufacturing in GDP between SSA and SEA countries for which data is available between 1990 and 2015 (observations are based on averages for available years between 1990 and 2015). It shows that countries that attract larger inflows of FDI tend to have higher shares of manufacturing in GDP. Also, and perhaps more importantly, SSA countries are mostly located on the lower left-hand side of the figure, suggesting that they attract smaller FDI and are less industrialized. By contrast, SEA countries are mostly located on the upper right-hand side of the figure, suggesting that they receive larger inflows of FDI and are more industrialized. The share of the manufacturing industries exceeds 15 percent of GDP in most of the SEA countries, whereas it represents less than 10 percent in most of the SSA countries.

Figure 4.3: FDI (million US$) and the share of manufacturing in GDP in SSA and SEA, 1990-2015



Source: Author's calculations based on data from the World Development Indicators.

4.2.3. Social development

As illustrated in the previous sections, SSA and SEA diverge widely in terms of income per capita growth, competitiveness in attracting FDI, and economic diversification. Along this divergence, this section shows that even in terms of social development, SEA countries on average outperform their SSA counterparts. In order to compare the differential social development between the two regions, one can rely on a comparison of the overall performance in the Millennium Development Goals (MDGs). Specifically, Table 4.5 reports the performance in the eight MDGs in 2015 relative to 1990: (1) eradication of extreme poverty and hunger; (2) achievement of universal primary education by 2015, with equal access for boys and girls; (3) promotion of gender equality and empowerment of women; (4) reduction of under-five mortality rate by two-

thirds between 1990 and 2015; (5) reduction of maternal mortality by three-quarters between 1990 and 2015; reverse the spread of HIV/AIDS, malaria and other disease by 2015; (7) ensure environmental sustainability; and (8) develop a global partnership for development.

Table 4.5 shows that the overall performance in the MDGs has been widely satisfactory in SEA compared with SSA. For instance, the target of halving the proportion of people who live in extreme poverty has been successfully achieved in SEA as the regional population living on less than US$1.25 fell from 46 in 1990 to 7 in 2015. In SSA, by contrast, more than 40 percent of the population still remained in extreme poverty in 2015 (57 percent in 1990).

In terms of the goal of ensuring universal primary education by 2015, SSA (85 percent) still lags behind SEA (94 percent), in spite of a relatively good progress. And with regard to one variable of interest in the current study, namely the infant mortality, Table 4.5 shows the same divergence between the two regions. SSA registered a relatively good progress, with under-five mortality rate falling by more than two-thirds between 1990 and 2015. This proportion, however, remains much higher compared to 33 per 1,000 live births in SEA in 2015. In addition, maternal mortality rate remains much higher in SSA (510 maternal deaths per 100,000 live births for women aged 15-49) than in SEA (140 maternal deaths per 100,000 live births for women aged 15-49) in 2015.

Moreover, according to the 2015 Human Development Report of the United Nations Development Program, twenty-seven of the thirty countries that

rank lowest, and nineteen of the bottom twenty, are in SSA. Further, of the forty-six SSA countries included in the current analysis, thirty-seven are in the bottom fifty of the 2015 Human Development Index (HDI), except Equatorial Guinea, Congo, Namibia, Cabo Verde, South Africa, Gabon, Botswana, Mauritius, and Seychelles. On the other hand, three SEA countries that rank lowest in the 2015 HDI, namely Lao (141), Cambodia (143), and Myanmar (148), actually rank above the bottom forty. In other words, even the poorest SEA countries perform relatively well compared to the majority of SSA countries.

Table 4.5: Performance in the Millennium Development Goals in SSA and SEA

Goal	Target	Sub-Saharan Africa		Southeast Asia	
		1990	2015	1990	2015
1	(A)Halve, between 1990 and 2015, the proportion of people whose income is less than $1 a day (Proportion of people living on less than $1.25 a day)	57	41	46	7
	(B)Achieve full, productive, and decent employment for all (Employment-to-population ratio, %)	63	65	67	67
	(C)Halve the proportion of people who suffer from hunger between 1990 and 2015. (Proportion of undernourished people, %)	33	23	31	10
2	Ensure full and equal access to primary education for boys and girls by 2015. Adjusted net enrolment rate in primary education (%)	52	80	93	94
3	Promote equal access to paid employment (Share of women in wage employment in the non-agricultural sector, %)	24	34	35	39

	Promote women's political representation (Proportion of seats held by women in single or lower houses of national parliament, %)	13	23	12	18
4	Reduce by two thirds, between 1990 and 2015, the under-five mortality rate. (Under-five mortality rate, deaths per 1,000 live births)	179	86	71	33
5	Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio. (Maternal mortality ratio, maternal deaths per 100,000 live births, women aged 15-49)	990	510	320	140
	Achieve universal access to reproductive health by 2015 (Proportion of women aged 15-49 attended four or more times by any provider during pregnancy, %)	47	36	45	84
6	Halt by 2015 and reverse the spread of HIV/AIDS (Estimated number of new HIV infections, thousands)	1370	700	120	120
7	Reduce biodiversity loss, and achieve a significant reduction in the rate of loss by 2010. (Terrestrial areas protected, %)	10.6	15.3	8.4	14.0
	Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation (Proportion of population using an improved drinking water source, %)	48	56	72	90
	Achieve improvement in the lives of at least 100 million slum dwellers. (Proportion of urban population living in slums, %)	65	55	40	27

Source: United Nations, *The Millennium Development Report 2015*

4.3. Institutional quality and socioeconomic performance

As demonstrated in the previous sections, SEA experienced better economic and social outcomes during the period between 1990 and 2015. SEA had higher growth rates, lower inflation, more diverse economic structures, and received larger inflows of FDI compared with SSA. In addition, social development as measured by MDGs has been largely satisfactory in SEA compared with SSA. And as noted in chapter 1, numerous studies have attributed the overall poor economic performance in SSA to the lack of good institutions such as those that promote the private sector competitiveness, and improve the accountability of governments (Acemoglu and Robinson 2010; Acemoglu et al 2004; Fosu 2010). This section thus describes the importance of institutions in explaining the differential economic performance in SSA and SEA. The section is divided into two parts. Section 4.3.1 discusses performance in some composite institutional indicators in order to find whether on average SEA countries have better institutions than their SSA counterparts. Section 4.3.2 extends this discussion by examining whether better institutional quality is associated with better economic performance in the two regions.

4.3.1. Performance in institutional indicators

In order to address the question of whether institutional quality is higher in SEA than in SSA, Figure 4.4 compares performance in one widely used measure of the extent of corruption, namely the Transparency International's Corruption perception index (CPI), between SSA, SEA, and other more advanced economies in Asia (China, Hong Kong, Japan, Korean,

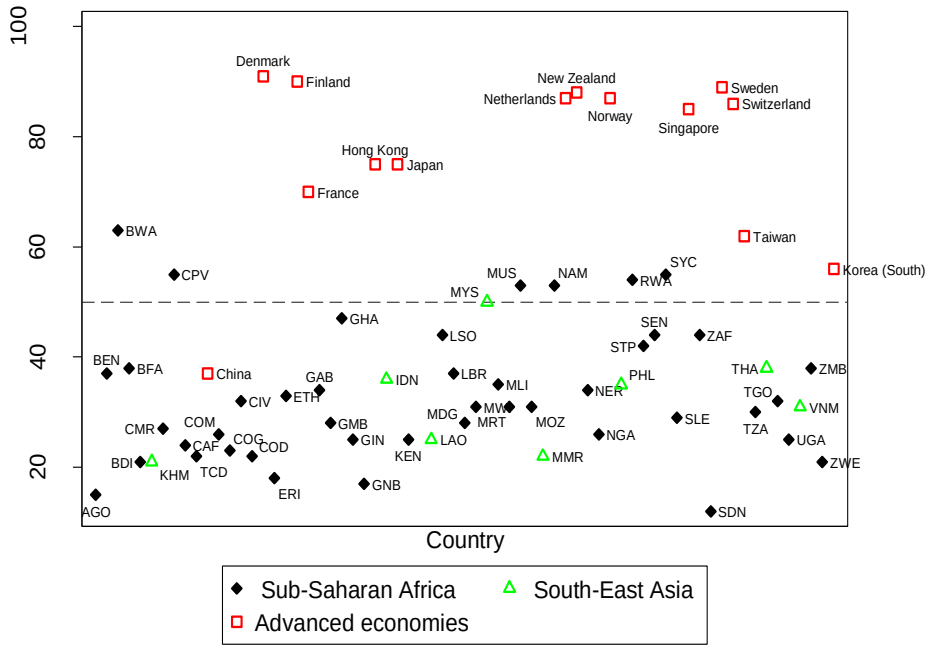
Singapore, and Taiwan) and others (Denmark, Finland, France, Netherlands, New Zealand, Norway, Sweden, and Switzerland). Poor performance in the CPI can be suggestive of a lack of accountability and bad practices in the public sector. The CPI has scores ranging from 0 (highest level of perceived corruption) to 100 (lowest level of perceived corruption). In descending order, scores from 49 to 0 represent moderately to highly corrupt economies, while in ascending order, scores from 50 to 100 indicate moderately clean to very clean economies.

Figure 4.4 shows that both SSA and SEA are home to some of the most corrupt countries (CPI scores below 40). Only one SEA country (Malaysia) scored above 50, while the remaining eight countries scored less than 40. Cambodia, Lao, and Myanmar are the most corrupt SEA countries on the list, with scores below 30. In SSA, six countries (Botswana, Cape Verde, Mauritius, Namibia, Rwanda, and Seychelles) scored above 50, while the majority scored less than 30. Figure 4.4 thus gives no indication that institutions are better in SEA than in SSA.

To further illustrate the overall poor institutional quality in both SSA and SEA, countries are now compared on the main institutional variables considered in the present study, namely the WGI Regulatory Quality and Voice and Accountability. As already mentioned in previous chapters, Regulatory Quality gives an indication of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development (Kaufmann et al 2010). Voice and Accountability, on the other hand, 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 (Kaufmann et al 2010). Both indicators have scores ranging from -2.5 to 2.5, with scores below 0 representing poor quality, and above 0 representing good quality.

Figure 4.4: 2015 Corruption Perception Index Scores in SSA, SEA, and other regions

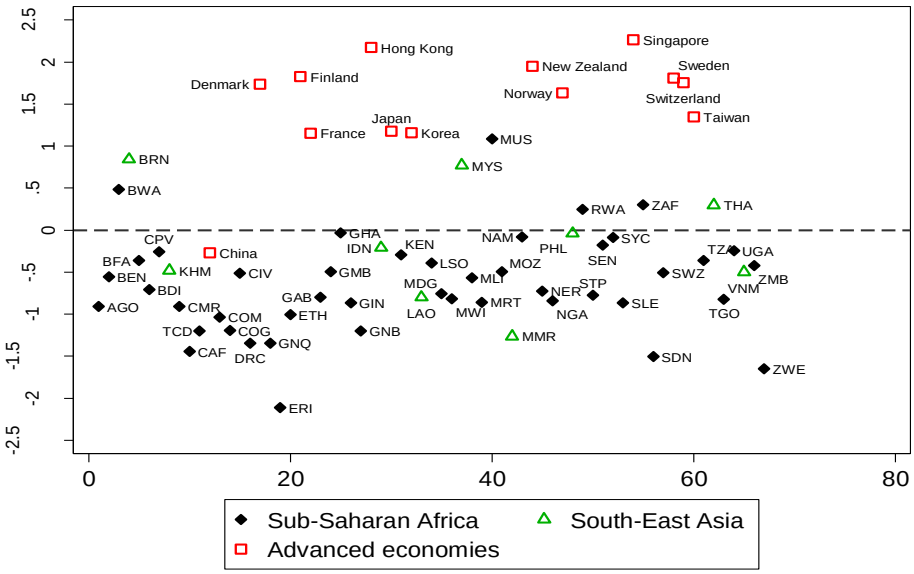


Source: Transparency International, *Corruption Perception Index* 2015

Figure 4.5 shows the 2015 WGI Regulatory Quality scores for 55 SSA and SEA countries and other advanced countries (also included in Figure 4.4). Again, the overall picture provides no indication that SEA has better institutions than SSA. In fact, countries in SSA as well as in SEA have poorer Regulatory Quality compared with the more advanced economies. Three SEA countries (Brunei, Malaysia, and Thailand) and four SSA countries (Botswana, Mauritius, Rwanda, and South Africa) score above zero. Most countries of the two regions

score in the below zero space, indicating that they lack sound policies and regulations for private sector development. It should be noted, however, that four other SEA countries (Cambodia, Indonesia, Philippines, and Vietnam) score in the zone between -0.5 and 0. This suggests that they perform relatively better compared with most of the SSA countries (scoring below -0.5). Finally, the Central African Republic, the DR Congo, Eritrea, Equatorial Guinea, Sudan, and Zimbabwe have the poorest Regulatory Quality in SSA, while Myanmar has the lowest score among the nine SEA countries in the list.

Figure 4.5. Regulatory Quality score, 2015 (-2.5 to +2.5)

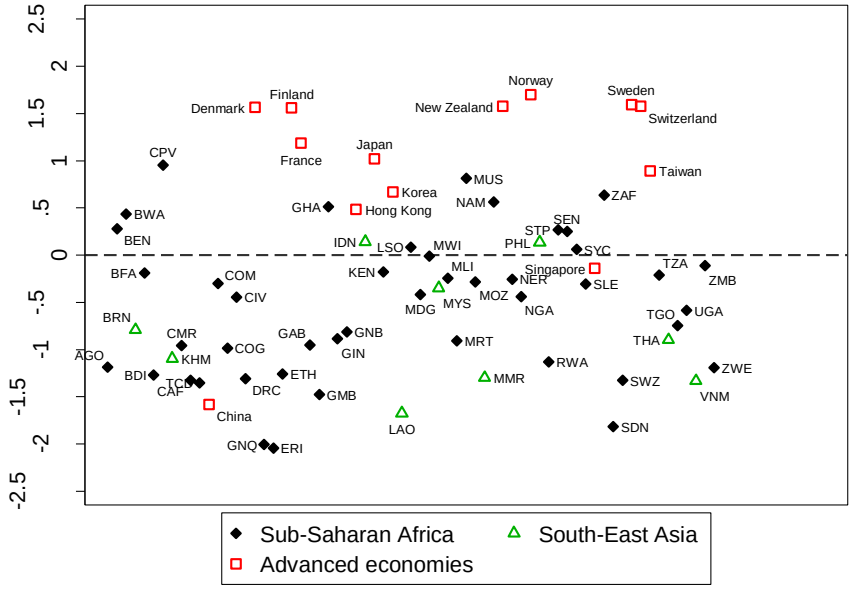


Source: World Bank, *World Governance Indicators (WGI)*

Figure 4.6 in turn, shows the 2015 WGI Voice and Accountability scores for 55 SSA and SEA countries and other advanced countries. Again, it shows that governments in both SSA and SEA tend to be less accountable

compared with those in the more advanced economies. However, more countries in SSA (Botswana, Benin, Cape Verde, Ghana, Lesotho, Mauritius, Namibia, Sao Tome and Principe, Senegal, Seychelles, and South Africa) score higher on this indicator compared with countries in SEA (Indonesia, Philippines).

Figure 4.6: Voice and Accountability score, 2015 (-2.5 to +2.5)



Source: World Bank, *World Governance Indicators (WGI)*

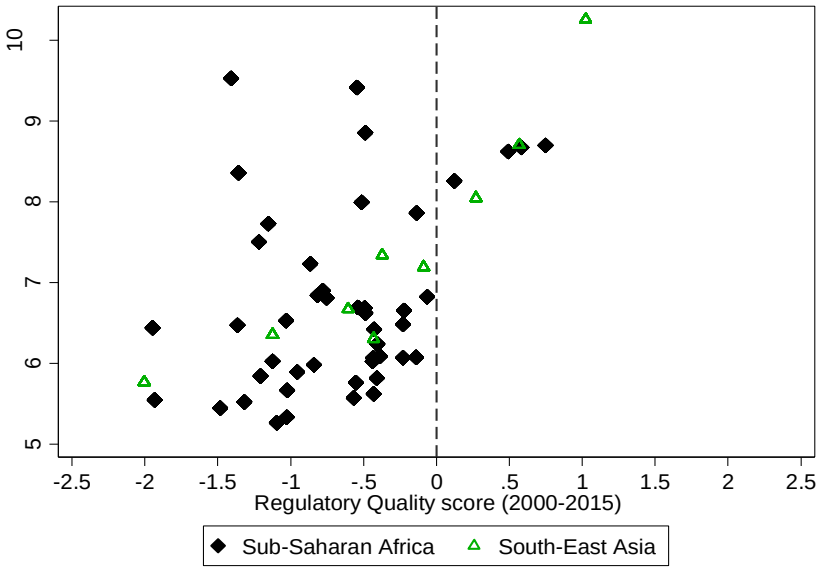
4.3.2. Institutional quality and socioeconomic outcomes

As shown in the previous discussion, there is no indication that institutions are particularly better in SEA than in SSA. There are, however, countries in the two regions that do have good institutions and score highest on composite institutional indicators. One question of interest is on whether countries scoring highest on these indicators have better economic and social outcomes. In order to address this question, the analysis in this sub-section

focuses on the WGI Regulatory Quality indicator as a measure for institutional quality. Specifically, the analysis focuses on the extent to which countries with good Regulatory Quality have good economic and social outcomes, measured here in terms of three variables—per capita GDP, infant mortality, and FDI.

To begin with, Figure 4.7 shows average real per capita GDP (expressed in logarithm) and average Regulatory Quality score for the period 2000-2015 across 55 SSA and SEA countries. It shows that countries with good Regulatory Quality (right-hand side of the figure) tend to have higher per capita GDP over this period, compared with many of the countries with poor Regulatory Quality (left-hand side). Figure 4.7 somewhat gives an indication that having sound policies and regulations for private sector development can contribute to better economic outcome.

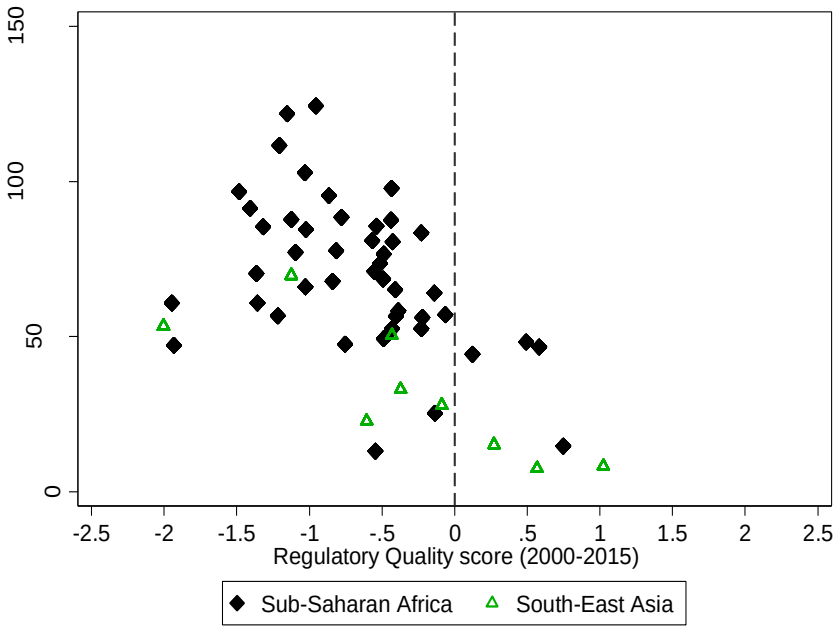
Figure 4.7: Per capita GDP (constant 2005 US$) and Regulatory Quality (1990-2015)



Source: World Bank, WGI; IMF, WEO; Author's calculation

Figure 4.8 in turn shows average infant mortality and Regulatory Quality score over the period 2000-2015 for the list of SSA and SEA countries. Countries located in the lower-right area of Figure 4.8 have good Regulatory Quality and lower infant mortality. More specifically, countries scoring above zero have less than 50 deaths out of thousand live births, while most of the countries scoring below zero have higher mortality rates. The Figure thus suggests a lower infant mortality in countries with good institutions compared with many of the countries on the left-hand (poor institutions). One could therefore argue that countries with good institutions have characteristically better social outcomes.

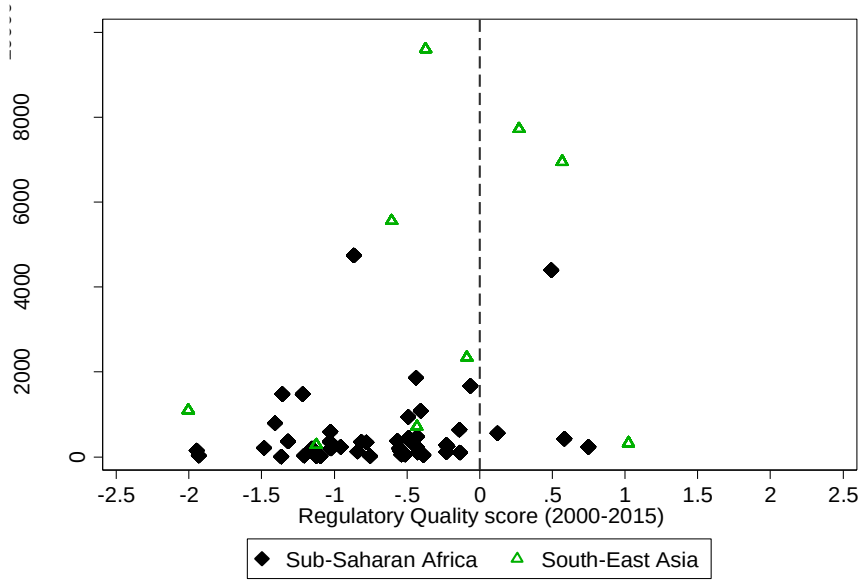
Figure 4.8: Infant mortality and Regulatory Quality Score, average 1995-2015 (-2.5 to +2.5)



Source: Author's calculations based on data from the World Bank's WGI and WDI

Finally, Figure 4.9 shows average FDI inflows in million US$ and average Regulatory Quality score for the period 2000-2015. There seems to be no clear pattern describing the relationship between FDI and regulatory quality. Perhaps one needs to take into account differences across countries in other factors such as abundance in natural resources or the level of income. This issue is further discussed in section 4.6. However, using other measures of the regulatory quality such as the World Bank's Doing Business indicators, numerous studies suggest that countries with more effective business regulations benefit more from the FDI flows (see, for example, Bayraktar 2013; Busse and Groizard 2008; Jayasuriya 2011; Katoka and Kwon, forthcoming; Nnadozie and Njuguna 2011).

Figure 4.9: Foreign direct investment versus Regulatory Quality Score, average 1995-2015 (-2.5 to +2.5)



Source: Author's calculation based on data from the World Bank's *WGI*, and UNCTAD

4.4. Resource-abundance and socioeconomic performance

As will be discussed later, numerous studies have pointed to the abundance in natural resources as a major factor explaining poor economic and social outcomes in developing regions. This section explores some patterns describing the relationship between abundance in natural resources and socioeconomic performance in SSA and SEA. Specifically, it compares resource-abundant countries to countries that are not resource-abundant in both regions.

To begin with, it is worth noting that there is no established convention for the designation of "resource-abundant" and "resource-scarce" countries. The literature on the resource-curse proposes different classification strategies (see, for example, Collier and Hoeffler 2009: 298; Davis 1995: 1770; IMF 2015: 66; Lundgren et al 2013: 4). The approach adopted in this chapter classifies a country as resource-abundant if its average total natural resource rents for the period 1990-2015 represent at least 10 percent of its GDP. Similarly, a country is classified as resource-scarce if its average total natural resource rents for the period 1990-2015 represent less than 10 percent of its GDP. Accordingly, the grouping is as follows:

On the one hand, the resource-abundant group consists of twenty-six countries, including Angola, Botswana, Brunei, Cameroon, Chad, Congo, DR Congo, Equatorial Guinea, Gabon, Ghana, Guinea, Indonesia, Lao, Liberia, Malaysia, Mauritania, Mozambique, Myanmar, Namibia, Niger, Nigeria, Sierra Leone, South Africa, Sudan, Vietnam, and Zambia. Second.

On the other hand, thirty-nine countries are in turn classified as resource-scarce, including Benin, Burkina Faso, Burundi, Cabo Verde, Cambodia, Central African Republic, Comoros, Cote d'Ivoire, Eritrea, Ethiopia, Gambia, Guinea-Bissau, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritius, Philippines, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Swaziland, Tanzania, Thailand, Togo, Uganda, and Zimbabwe).

As in the previous sections, resource-abundant and resource-scarce countries are then compared on economic and social measures, including GDP growth, income, infant mortality, and FDI.

First, Table 4.6 classifies resource-abundant and resource-scarce countries according to their growth performance, using average data for 1990-2015. The table shows that fourteen countries grew at an average of at least 3 percent per annum. Of these countries, eight are resource-abundant (Equatorial Guinea, Indonesia, Lao, Malaysia, Mozambique, Myanmar, Sudan, and Vietnam) and six other are resource-scarce (Cabo Verde, Cambodia, Ethiopia, Mauritius, Rwanda, and Thailand). Eleven other countries grew at an average of 2 to 3 percent per annum, among which five are resource-abundant (Botswana, Chad, Ghana, Namibia, and Nigeria) and six are resource-scarce (Burkina Faso, Lesotho, Philippines, Seychelles, Swaziland, and Tanzania). One resource-abundant country (Angola) and five resource-scarce countries (Benin, Eritrea, Malawi, Mali, and Zambia) grew at an average of 1 to 2 percent per annum. Among the countries that grew at an average of 0 to 1 percent, five are resource-abundant (Congo, Gabon, Guinea, Mauritania, and South Africa)

and six are resource-scarce (Gambia, Guinea-Bissau, Kenya, Senegal, Sierra Leone, and Togo). The remaining eleven countries experienced negative per capita growth, among which five are resource-abundant (Brunei, Cameroon, DR Congo, Liberia, and Niger) and six are resource-scarce (Burundi, Central African Republic, Comoros, Cote d'Ivoire, Madagascar, and Zimbabwe). Against the idea that abundance in natural resources may be detrimental to economic performance, Table 4.6 suggests that resource-scarce countries did not outperform their resource-abundant counterparts. Furthermore, when one looks at the group of laggards (countries with negative per capita GDP growth), one can observe that many of the resource-abundant and resource-scarce countries performed poorly. Table 4.6, however, shows that most of the resource-abundant countries that grew at more than 3 percent per annum are SEA (four out of six). By contrast, most of the countries that experienced average negative growth rates are SSA, of which six are resource-scarce (out ten countries).

Overall, Table 4.6 shows that abundance in natural resources tends to be associated with the good growth performance of many of the SEA and SSA countries, although many other countries performed poorly. It is also instructive to look at the extent to which abundance or scarcity in natural resources influence the differential social development across countries in the two regions.

Table 4.6: Growth performance in resource-abundant versus resource-scarce countries, 1990-2015

Growth rate (Gr)	Resource-abundant	Resource-scarce
Gr < 0 percent	Brunei, Cameroon, DR Congo, Liberia, Niger	Burundi, Central African Republic, Comoros, Cote d'Ivoire, Madagascar, Zimbabwe
0< Gr <=1	Congo, Gabon, Guinea, Mauritania, South Africa.	Gambia, Guinea-Bissau, Kenya, Senegal, Sierra Leone, Togo
1< Gr <=2	Angola	Benin, Eritrea, Malawi, Mali, Zambia
2 < Gr <= 3	Botswana, Chad, Ghana, Namibia, Nigeria	Burkina Faso, Lesotho, Philippines, Seychelles, Swaziland, Tanzania
Gr>3	Equatorial Guinea, Indonesia, Lao, Malaysia, Mozambique, Myanmar, Sudan, Vietnam	Cabo Verde, Cambodia, Ethiopia, Mauritius, Rwanda, Thailand

Source: Author's classification based on data from WDI and UNCTAD.

Table 4.7 shows average infant mortality (per 1,000 live births) for the period 1990-2015. It arbitrarily classifies the list of twenty-four resource-abundant and thirty-one resource-scarce countries into three distinct groups. The first group consists of countries with the highest average infant mortality rate (more than 80 deaths out of 1000 live births). Twenty-three countries are in this group, among which twelve are resource-abundant (Angola, Chad, DR Congo, Equatorial Guinea, Liberia, Niger, Sierra Leone, and Sudan) and eleven are resource-scarce (Benin, Burkina Faso, Burundi, Central African Republic, Cote d'Ivoire, Guinea-Bissau, Malawi, Mali, Mozambique, and Rwanda). The second group consists of countries with moderate infant mortality (between 50 and 80 deaths out of 1000 live births). The group has twenty-one countries, of which eight are resource-abundant (Cameroon, Congo, Gabon, Ghana, Lao, Mauritania, Myanmar, and Sudan) and thirteen are resource-scarce (Cambodia, Comoros, Eritrea, Ethiopia, Gambia, Kenya, Madagascar, Senegal, Swaziland, Tanzania, Togo, Uganda, and Zimbabwe). Finally, the last group consists of

countries with the lowest infant mortality (less than 50 deaths out of 1000 births). Seven of these countries are resource-abundant (Botswana, Brunei, Indonesia, Malaysia, Namibia, South Africa, and Vietnam) and five others are resource-scarce (Cabo Verde, Mauritius, Philippines, Seychelles, and Thailand). Again, the classification in Table 4.7 shows no indication that resource-abundant countries had a bad social development compared with their resource-scarce counterparts. In fact, most of the countries with the lowest infant mortality are resource-abundant (seven out of twelve countries).

Table 4.7: Infant mortality in resource-abundant versus resource-scarce countries, 1990-2015

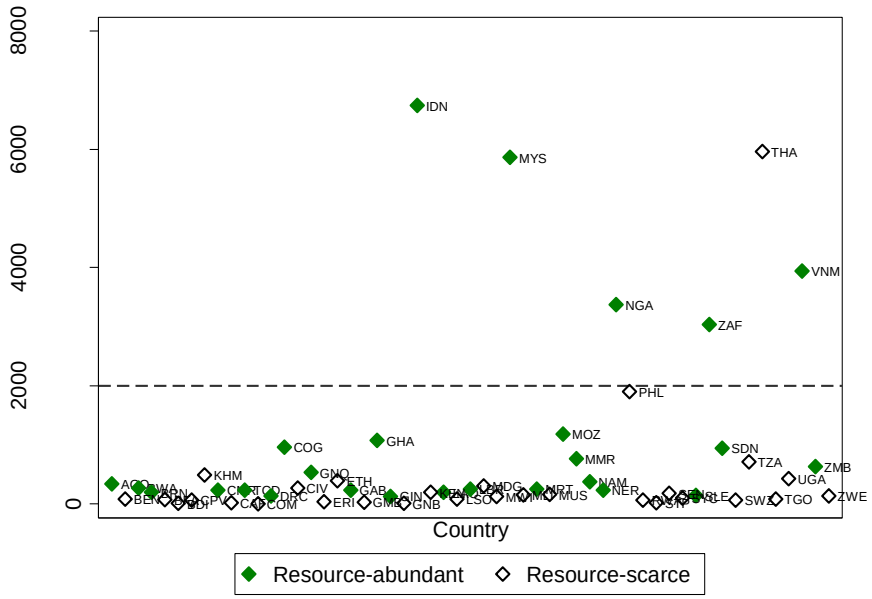
Infant mortality, per 1000 live births (IMRT)	Resource-abundant	Resource-scarce
IMRT > 80	Angola, Chad, DR Congo, Equatorial Guinea, Guinea, Liberia, Niger, Nigeria, Sierra Leone, Zambia	Benin, Burkina Faso, Burundi, Central African Republic, Cote d'Ivoire, Guinea-Bissau, Malawi, Mali, Mozambique, Rwanda
50 < IMRT <= 80	Cameroon, Congo, Gabon, Ghana, Lao, Mauritania, Myanmar, Sao Tome and Principe, Sudan	Cambodia, Comoros, Eritrea, Ethiopia, Gambia, Kenya, Madagascar, Senegal, Swaziland, Tanzania, Togo, Uganda, Zimbabwe
IMRT < 50	Botswana, Brunei, Indonesia, Malaysia, Namibia, South Africa, Vietnam	Cabo Verde, Mauritius, Philippines, Seychelles, Thailand

Source: Classification based on data from the WDI.

An alternative way of showing the extent to which natural resources influence economic performance in SSA and SEA is to show the diversity of experience between resource-abundant and resource-scarce countries in terms of FDI competitiveness. Figure 4.10 shows average FDI inflows in million US$ across twenty-six resource-abundant and twenty-nine resource-scarce countries, based on averages for the period 1990-2015. The figure shows that

larger amounts of FDI inflows are almost exclusively reserved for the resource-abundant countries. In fact, of the six countries that have received FDI inflows averaging more 2 billion US$, five are resource-abundant (Indonesia, Malaysia, Nigeria, South Africa, and Vietnam) and only one (Thailand) is resource-scarce. Most of the resource-scarce countries appear to be concentrated at the bottom of the figure (close to zero). The figure thus suggests that abundance in natural resources increases the competitiveness of countries in attracting FDI in SSA as well as in SEA.

Figure 4.10: Foreign direct investment inflows (million US$), average 1990-2015



Source: Author's calculations based on data from UNCTAD

4.5. Institutional quality versus resource-abundance

This section extends the preceding discussion on whether institutional quality (section 4.3) and abundance in natural resources (section 4.4) explain patterns of socioeconomic performance in SSA and SEA. It looks at the combined impact of resource-abundance and institutional quality on measures of socioeconomic performance, including growth, income, FDI, and infant mortality. For this purpose, the list of countries is split into four groups based on abundance in natural resources and performance in the WGI Regulatory Quality scores. The first group—resource-abundant and good-institutions (RAGI)—consists of resource-abundant countries with average Regulatory Quality scores of above zero. The second group—resource-abundant and poor institutions (RAPI)—consists of resource-abundant countries with average Regulatory Quality scores of below zero. The third group—resource-scarce and good institutions (RSGI)—consists of resource-scarce countries with average Regulatory Quality scores of above zero. And the last group—resource-scarce and poor institutions (RSPI)—consists of resource-scarce countries with average Regulatory Quality scores of below zero. Means and medians for economic performance measures (GDP growth, income per capita, FDI inflows, and infant mortality rate) are then computed for each of these four groups based on available data for the period from 2000 to 2015. If the resource-abundant group with good institutions performs better than the resource-abundant group with poor institutions, then this would be suggestive evidence that good institutions matter in resource-abundant countries. Similarly, if the resource-scarce group with good institutions performs better than the resource-scarce

group with poor institutions, then this would suggest that institutional quality matters for resource-scarce countries. Finally, and perhaps more importantly, if there is large differential economic performance between groups with good institutions and those with poor institutions, then this would be suggestive that the quality of institution matters for economic performance regardless of whether a country is resource-abundant or –scarce.

This grouping is reported in Table 4.8, which shows some interesting patterns: first, countries with good institutions (RAGI and RSGI) on average have higher income per capita, attract larger inflows of FDI, and have lower infant mortality (which measures social development) than countries with poor institutions. By contrast, countries with poor institutions (RAPI and RSPI) on average have higher infant mortality, lower income, and receive less inflows of FDI compared with countries with good institutions. Second, resource-abundant countries with good institutions (RAGI) have higher income, lower infant mortality, and receive larger inflows of FDI compared with resource-abundant countries with poor institutions (RAPI). By contrast, RAPI have the highest GDP growth among the four groups, but perform badly in terms of income per capita and infant mortality. Third, resource-scarce countries with good institutions have the highest income and the lowest infant mortality, and also receive larger amounts of FDI compared with the other three groups. Finally, resource-scarce countries with poor institutions have higher infant mortality and perform poorly in terms of income per capita and competitiveness in attracting FDI. At the same time, when comparing countries with poor institutions, those abundant in natural resources tend to have better economic

outcomes compared with their resource-scarce counterparts. Table 4.8 thus gives the following evidence with regard to SSA and SEA countries: first, the quality of institutions is associated with better economic and social outcomes regardless of whether a country is resource-abundant or –scarce; second, in countries with poor institutions, those abundant in natural resources perform relatively better compared with their resource-scarce counterparts; finally, resource-abundant countries that have poor institutions can experience high output growth rates but at the same time experience low level of income and poor social development. Perhaps one can argue that the latter case properly describes recent high economic growth rates experienced by many resource-abundant countries in SSA. In effect, it has been argued that since 2000 GDP per capita growth has been higher for many SSA resource-abundant countries, but the translation into higher living standards for the population as a whole has been slow, due to poor governance (Lundgren et al York 2013).

Table 4.8: Resource-scarce countries with good institutions vs. resource-scarce with poor institutions

Resource abundan-ce/scarcity	RQ		GDP growth (annual %)	GDP per capita (constant (2005 US$)	FDI inflows, million (USD)	Mortality rate, infant (per 1,000 live births)
Abundant	Good	Mean	3.67	9945.63	1949.62	29.03
		Median	4.2	5848.10	374.24	41.53
	Poor	Mean	6.18	1884.66	1071.83	71.28
		Median	6.22	790.56	341.01	72.85
Scarce	Good	Mean	4.21	4558.79	3061.95	13.90
		Median	4.21	4558.79	3061.95	13.90
	Poor	Mean	4.14	1136.92	221.94	60.37
		Median	4.04	510.47	82.54	61.1

Source: Author's calculations

Notes: Calculations are based on averages for the period 2000-2015. (1) GDP growth is based on the average annual GDP growth obtained from the IMF's World Economic Outlook (WEO); (2) GDP per capita is based on per capita GDP in constant 2005 prices, obtained from UNCTAD; (3) FDI inflows is based on the annual net inflows of FDI in million US$, obtained from UNCTAD; and (4) infant mortality rate is obtained from the WGI.

4.6. Summary

This chapter has provided a descriptive analysis of the differential socioeconomic performance between SSA and SEA over the period from 1990 to 2015. It compared the two regions in terms of their performance in an array of social, economic, and institutional variables. It then looked at the influence of institutions and natural resources in shaping patterns of economic performance across and within the two regions. The main lessons from this analysis can be summarized as follows:

1. Over the period from 1990 to 2015 on average SEA experienced better economic performance than SSA. Comparing aggregates of the two regions, data suggest that growth rates, per capita GDP, and FDI inflows, have been higher in SEA than in SSA. Also, SEA experienced lower inflation—indicating better macroeconomic policies—and characteristically lower dependency ratio, which in turn may have positively affected other economic outcomes (e.g. per capita growth). Also, comparing growth rates in the most populous countries of the two regions, data suggest that unlike in SEA, the large countries in SSA on average experienced slow growth. Finally, large inflows of FDI tend to be associated with a large manufacturing sector in most of the SEA countries, whereas the largest FDI recipients in SSA tend to have smaller manufacturing sector.

2. Comparing social development progress in terms of the Millennium Development Goals, SEA experienced better

performance compared with SSA. For many of the SEA countries, progress on the eight MDGs has been largely satisfactory. By contrast, SSA has not achieved any of the MDGs: for instance, the proportion of people living on less than 1.30 US$ per day, the maternal as well as infant mortality are still very high.

3. When it comes to comparing the quality of institutions, there is no clear regional pattern showing that SEA countries have better institutions compared with their SSA counterparts. In both regions, the institutional landscape is dominated by corrupt governments, more restrictive regimes, and poor business regulations. In this analysis, SSA and SEA countries' performance in institutional composite indicators such as the Transparency International's Corruption Perception Index (CPI), the WGI Regulatory Quality, the WGI Voice and Accountability, has been compared with that of some advanced economies (e.g. China, Japan, Korea, Singapore, Taiwan, and other economies of the OECD). Figures suggest that SSA and SEA countries lag behind the more advanced economies. Some SSA and SEA countries, however, score higher on these indicators. Those countries with good institutions tend also to have good economic and social outcomes.

4. Abundance in natural resources is not necessarily associated with better economic and social outcomes in both SSA and SEA. However, and more importantly, resource-abundant countries that have good institutions tend to have better economic and social

outcomes compared with those with poor institutions.

All in all, this analysis reveals the complexity of the differential economic performance between SSA and SEA. On the one hand, comparing simple aggregates of the two regions suggests that the former does poorly compared with the latter. When looking at individual countries, however, data show that not all SEA countries performed better compared SSA countries. On the other hand, when taking into account the presence of good (or poor) institutions and abundance (or scarcity) in natural resources, data suggest a wide intra-regional diversity of experiences. More importantly, the better-performing-countries in both SSA and SEA tend to have good institutions. This analysis thus suggests that an appropriate analysis of economic performance of the two regions requires deeply examining the extent to which both natural resources and institutions influence patterns of performance. The next step consists in empirically examining the extent to which resource abundance and institutional quality influence performance in three indicators, including per capita GDP, FDI inflows, and infant mortality rate.

5. Concepts and Empirical Methodology

5.1. Background and Structure of the Chapter

The preceding chapters, especially chapters 3 and 4, have compared countries in SSA and SEA on a range of economic, social, and institutional indicators. Findings from this descriptive analysis allows making the following propositions: (1) natural resources and institutional quality promote or hinder good socioeconomic performance in SSA relative to SEA; and (2) institutional quality moderates the effects of natural resources on socioeconomic performance in SSA.

In order to empirically test these propositions, it is essential to have a clear understanding of how the three main concepts of interest in the current study are measured. The other main objective in the current chapter is to present data briefly present the empirical specifications to be employed in order to test the propositions formulated above.

The remainder of this chapter is structured as follows. Section 5.2 proposes clear-cut definition and measurement of the concepts under investigation. It addresses the following questions: (5.2.1) how to measure natural resources or resource abundance (dependence); (5.2.2) what is the meaning of 'institutions' and how are they measured; and (5.2.3) how to measure socioeconomic performance. Section 5.3 then introduces the empirical methodology.

5.2. Concepts

5.2.1. Measuring natural resources and resource abundance/dependence

To begin, it might be helpful to define what is generally understood by natural resources. Natural resources are natural since they are present without human intervention—gifts of nature—and are not produced (Basedau 2005: 8). Thus they must be differentiated from other forms of resources such as physical (roads or machines), human (well-educated or skilled individuals), social (interpersonal relations), and institutional (formal and informal) capital. In its quantification of the wealth of nations, the World Bank (2006) includes natural resources along with these other forms of capital. And it is well established that if properly managed, natural resources can be an important source of economic development (Arezki, Gylfason, and Sy, 2011).

From an economic perspective, it is significant to differentiate between different types of resources. For instance, Auty (2001) differentiate between 'point' and 'diffuse' resources. The former refer to resources that are concentrated in certain areas—for example, gold, diamond—and the latter refer to resources that are dispersed over a country's territory. Similarly, Le Billon (2005) introduces the concepts of 'proximate' or 'distant' resources, whereby resources are differentiated on the basis of whether or not they can be easily controlled by a country's central government. This form of differentiation is further extended by Boschini et al. (2007) who introduce the concept of 'appropriability of resource'—how easy it is to realize large economic gains, within a relatively short period of time, from having control over it.

Accordingly, natural resources such as diamond, gold, or other precious metals are likely to attract interest from various sorts of actors than fertile land or agricultural products. Numerous studies have established that different categories of primary commodities tend to have different effects on the GDP growth rate (Boschini et al., 2013; Sala-i-Martin and Subramanian, 2013; Murshed et al., 2015).

From an empirical perspective, there is no consensus on the appropriate proxy for measuring resource abundance (Lederman and Maloney, 2007). For example, measures used in empirical literature include, among others, natural resource exports as a share of GDP (Sachs and Warner, 1995) or as a share of total merchandise exports (Boschini, 2013), the ratio of resource rents to GDP (Atkinson and Hamilton, 2003), natural resource exports per labor force (Barro, 1991), or mineral reserves in US$ (Brunnschweiler and Bulte, 2008).

Many have pointed to the endogenous features of resource measures based on exports or rents, suggesting that measures based on 'actual resource endowments' or 'proven reserves' are more exogenous, therefore, suitable for empirical research (Stijns, 2005; Brunnschweiler and Bulte, 2008). This argument, however, has been contested. For instance, it has been argued that the industrialized and countries with well-functioning institutions may have explored and found more of their reserves than other countries. Consequently, empirical studies using mineral reserves are likely to find a positive correlation between resource-abundance and growth. That is because, as Torvik (2009: 245)

puts it, 'Other things equal, advanced and well-functioning countries may be measured as more resource-abundant than less well-functioning countries'. Moreover, when it comes to studying different dimensions of the interaction between resources and institutions, measures of resource exports or rents are more suitable because they offer a more homogenous measure of resources over time for a larger number of countries (Boschini et al., 2013: 21).

Consequently, the primary resource measure employed in the present thesis is the total natural resource rents as a percentage of GDP (see chapters 3-4). In chapters 3 and 4, a country is considered resource-abundant if its average share of natural resource rents as a percentage of GDP for years for which data is available in the period 1990-2015 is higher than 10 percent. Note that Botswana is classified as resource-abundant although its resource rents data is not provided by the World Bank. This is due to Lee and Gueye (2015).

The alternative resource measure to be used in this study is the share of natural resource exports as a percentage of total merchandise exports (EXP). Data for resource exports is obtained from the United Nations Conference on Trade and Development (UNCTAD) statistics database. EXP is specifically constructed from data on fuels and minerals exports, as comprised in section A00.3 (mineral fuels, lubricants and related materials) and section A17 (ores, metals, precious stones and non-monetary gold) of the UNCTAD product groupings and composition. EXP is then obtained as follows:

$$EXP_{it} = 100 \ * \frac{Oil_{it} + \quad Minerals_{it}}{Total \ \ Exports_{it}}$$

Where EXP denotes the share of natural resource (oil and minerals) exports in total merchandise exports of country *i* for the year *t*; Oil represents the average oil exports in current US$ of country *i* for the year *t*; $Minerals$ represents the average minerals exports of country i for the year *t*; and $Total\ Exports_i$ represents the average total merchandise exports in current US$ of country *i* for the year *t*.

Table 5.1: Natural resource exports as a share of total merchandise exports, average 1995-2015

Country	Sub-Saharan Africa	South-East Asia
Resource-abundant countries (N=32)	Angola; Botswana; Cameroon; Chad; Congo; DR Congo; Equatorial Guinea; Gabon; Ghana; Guinea; Liberia; Mauritania; Mozambique; Namibia; Niger; Nigeria; Sierra Leone; South Africa; Sudan; Zambia	Brunei; Indonesia; Malaysia; Myanmar; Vietnam
Resource-scarce countries (N=23)	Benin; Burkina Faso; Burundi; Cabo Verde; Comoros; Cote d'Ivoire; Eritrea; Ethiopia; Gambia; Ghana; Guinea-Bissau; Kenya; Lesotho; Madagascar; Malawi; Mali; Mauritius; Senegal; Seychelles; Swaziland; Tanzania; Togo; Uganda; Zimbabwe	Cambodia; Lao; Philippines; Thailand

Source: Classification based on data from UNCTAD, Product Groupings and Composition

In the following empirical estimation, resource exports (EXP) is the favored resource measure. This is because, unlike for total rents, annual data for exports are available not only for all of the 55 SSA and SEA countries, but also for the entire period extending from 1995 to 2015.

5.2.2. Measuring institutions

According to North (1990: vii), "The specification of exactly what institutions are, how they differ from organizations, and how they influence transaction and production costs is the key to much of the analysis".

To begin with, institutions can be regarded as "agreed-upon rules that people impose on themselves to structure their interactions" (North, 1995: 35), or to organize interactions within organizations, which may be families, neighborhoods, markets, firms, sports leagues, churches, private associations, schools, political parties, regulatory agencies, or governments at all scales (Ostrom, 2004: 4). Ostrom (1990: 51) also defines institutions as "the sets of working rules that are used to determine who is eligible to make decisions in some arena, what actions are allowed or constrained, what aggregation rules will be used, what procedures must be followed, what information must or must not be provided, and what payoffs will be assigned to individuals dependent on their actions".

Accordingly, one can note that institutions include both "the rules of the game and the mechanisms by which those rules are developed, contested, and enforced" (Keenan, 2014: 225). These rules are commonly known and are endowed with a sanctioning mechanism (Voigt, 2013).

Institutions can therefore be classified in various ways, depending on the degree of embeddedness or formality, and subject category—action arena (Ostrom, 2005) or institutional matrix (North, 1993). For instance, Joskow (2008) categorizes between four types of institutions—social, legal, political, and economic institutions—which have important effects on economic performance.

First, social institutions provide the basic social and cultural institutional foundations. They encompass informal institutions, customs, traditions, ethics and social norms, religion, and some aspects of language and cognition. They tend to vary very slowly over time—no shorter than a hundred years.

Second, legal institutions include defined constitutions, political systems, human rights, property rights, courts, and other arrangements that define formal rules of the game be they social, political, or economic.

Third, political institutions refer to institutions that determine the political system and electoral competitiveness, identification of/to political parties, checks and balances, tenure and stability of a government, electoral rules, the role of the legislature, or subnational political structure (Beck et al., 2001). Political institutions are important for economic performance because they include settings that limit the political abuse of power, for example, accountability, quality of the bureaucracy control of corruption, or the type of political regime, among others (Collier and Hoefler, 2009), and they determine how state institutions are developed away from "patrimonial practices towards

the use of rational and meritocratic criteria in allocating public sector resources" (Robinson et al., 2006: 450). Political institutions "limit the discretion of politicians and define their policy space" (Cabrales and Hauk, 2011: 59).

Finally, economic institutions are those "that shape the incentives of key economic actors in society, in particular, they influence investments in physical and human capital and technology, and the organization of production" (Acemoglu et al., 2005: 389). In other words, economic institutions are enabling—they enable private actors to achieve their goals by using institutions as tools—whereas political institutions are constraining—they tell politicians what to do (Voight, 2013: 7).

According to North (1990: 107), institutions are "the underlying determinant of the long-run economic performance". Substantial empirical research has suggested that institutions are the fundamental determinant of economic development (Acemoglu et al., 2001; 2004; Acemoglu and Robinson, 2008), and have primacy over geography in explaining differential economic performance between countries (Rodrik et al., 2004).

Performance in these different types of institutions is quantified by an array of composite indicators available from various sources. The most widely used, however, include indicators from the International Country Risk Group (ICRG), the World Bank's Worldwide Governance Indicators (WGI), the World Bank's Doing Business Index, the Heritage Foundations' Index of Economic Freedom, the Fraser Institute's Economic Freedom of the Word (EFW) index, the Freedom House's Freedom of Press and Freedom in the

World, the Transparency International's Corruption Perception Index (CPI), and the Polity IV's index of institutional democracy/autocracy.

Table 5.2, adapted from Kunčič (2014: 143), classifies various institutional composite indicators into legal, economic, and political institutions. The table shows that that time and country coverage vary widely across different sources, with the largest coverage provided by the WGI.

Table 5.2: Institutional indicators by category

Institutional group	Institutional measure	Source	Number of countries covered	Starting year
Legal institutions	Index of economic freedom: property rights	The Heritage Foundation and Wall	178	1995
	Freedom of the press: legal environment	Freedom House	195	1972
	Freedom in the world: civil liberties	Freedom House		
	Economic Freedom of the World Index (EFWI): judicial independence	Fraser Institute	157	1970
	EFWI: impartial courts			
	EFWI: protection of property rights	International Country Risk Group (ICRG)	140	1984
	Law and order	ICRG		
	Religion in politics	ICRG		
	Rule of law	WGI	>200	1996
Political institutions	Freedom of the Press: political environment	Freedom House	195	1972
	Freedom in the World: political rights: political rights	Freedom House	196	1980
	Institutional democracy/Institutional autocracy	Polity IV	167	1800
	Voice and accountability	WGI	>200	1996
	Democratic accountability	ICRG	140	1984
	Corruption	ICRG		
	Bureaucratic quality	ICRG		
	Internal conflict	ICRG		
	Military in politics	ICRG		
	Control of corruption	WGI		

	Corruption perception index	Transparency international;	82	1995
Economic institutions	Index of economic freedom: financial freedom	The Heritage Foundation and Wall Street Journal	178	1995
	Index of economic freedom: business freedom	The Heritage Foundation and Wall Street Journal		
	Regulatory quality	WGI	>200	1996
	Freedom of the Press: economic environment	Freedom House		
	EFWI: freedom to own foreign currency bank accounts	Fraser Institute	157	1970
	EFWI: regulations of credit, labor, and business: credit market regulations	Fraser Institute		
	EFWI: regulation of credit, labor, and business: labor market regulations	Fraser Institute		
	EFWI: regulations of credit, labor, and business: business regulations	Fraser Institute		
	EFWI: foreign ownership/investment restrictions	Fraser Institute		
	EFWI: capital controls	Fraser Institute		
	Doing Business Index	World Bank	185	2003

Source: as noted in table; and adapted from Kunčič (2014: 143)

While indicators listed in Table 5.2 are generally used as institutional proxies in the empirical literature, their adoption often lacks rigorous discussion about what they actually capture and how they were developed (Luiz, 2009). Further, one needs to be cautious that each of the institutional dimensions (i.e., enforcement of property rights, rule of law, civil liberty, control of corruption, or accountability) has a potentially different mechanism through which it may impact on economic and social outcomes (Aron, 2000).

The current study uses data from the World Bank's WGI as they cover a larger set of countries and years than the other data bases listed in Table 5.2. Moreover, the analysis focuses on the Regulatory Quality indicator, which captures perceptions of the ability of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. The Regulatory Quality indicator is an index based on a combination of factors, including: (1) regulations and administrative requirements for starting, operating, and closing a business; (2) investment licensing requirements; (3) the extent to which the government supports uncompetitive industries through subsidies; (5) the complexity and efficiency of the tax system; (6) labor market policies; (7) prevalence of trade barriers; (8) strength of the banking system and legal regulations in the banking sector; and (9) the existence of a policy, legal, and institutional framework that supports the rural or agricultural sector.

Furthermore, the Regulatory Quality indicator is based on data coming from various sources, including the World Bank's Country Policy and Institutional Assessments (CPIA), the Afrobarometer, the African Development Bank Country Policy and Institutional Assessments, the Asian Development Bank Country Policy and Institutional Assessments, the Business Enterprise Environment Survey, the Bertelsmann Transformation Index, the Freedom House Countries at the Crossroads, the Transparency International Global Corruption Barometer Survey, the Heritage Foundation Index of

Economic Freedom, the Political Risk Services International Country Risk Guide, the (IFAD) Rural Sector Performance Assessments, among others.[2]

Overall, the preference for Regulatory Quality as the institutional measure was motivated by the idea that the regulations and practices captured by this indicator may have a strong influence not only on FDI, but also may exert an impact on other economic and social indicators. Further, and perhaps more importantly, Regulatory Quality reflects more about the overall institutional quality than what matters only to private sector development. For example, a country with a sound Regulatory Quality is also likely to have a more effective and less corrupt government.

This can be illustrated by the strong correlation between the Regulatory Quality scores and some selected institutional indicators (see Table 5.3). Regulatory Quality has a 0.8 correlation with Corruption Perceptions Index, a 0.9 correlation with Governance Effectiveness, a 0.81 correlation with the Fraser Institute's Economic Freedom Index, and a 0.88 correlation with The Heritage Foundation's Economic Freedom. Such high correlations give added confidence in using the RQ variable. Nevertheless, robustness checks will be conducted using some of the other institutional variables.

[2] Readers interested in learning how this indicator is constructed, in particular which individual variables are used to construct it can refer to the following technical note: http://info.worldbank.org/governance/wgi/pdf/rq.pdf

Table 5.3: Correlations between RQ and some selected institutional indicators, 1996-2015

Indicator	Correlation	Number of Obs.
RQ	1	1134
Corruption Perceptions Index (TI)	0.80	550
Control of Corruption (WGI)	1	1134
Governance Effectiveness (WGI)	0.90	917
Economic Freedom Summary Index (Fraser Institute)	0.81	615
Economic Freedom (The Heritage Foundation)	0.88	977

Source: Author's calculations based on the full sample of 54 SSA and nine SEA countries.

Data for RQ are available since 1996 for all the countries included in the current analysis. The RQ has scores ranging from -2.5 to 2.5, with scores close to -2.5 representing poor quality, and scores close to +2.5 representing good quality. The RQ scores are also available on a different scale—percentile rank—indicating the country's rank among all countries covered by the indicator, with 0 corresponding to lowest rank, and 100 to highest rank (Kaufman et al. 2010). Both scales well capture a country's Regulatory Quality: the correlation between the two scales for the list of countries included in the current analysis is approximately 0.98. Such high correlation gives somewhat confidence in using either of these two measures. Nevertheless, the second measure with scores ranging from 0 to 100 appears to be more suitable for the current analysis. This choice is dictated by the high correlation between this measure and the three independent variables of interest (Table 5.4).

Table 5.4: Correlation between RQ (-2.5 to +2.5), RQ (0 to 100) and the three dependent variables of interest

	Log of GDP per capita	FDI inflows in current USD (billion)	Log of infant mortality rate
RQ (-2.5 to +2.5)	0.51	0.26	-0.56
RQ (0 to 100)	0.52	0.29	-0.60

Source: Author's calculations.

5.2.3. Measuring socioeconomic performance

From a macroeconomic perspective, the difference between countries with good economic performance and countries with poor economic performance can be summarized by saying that the former have at some point of their history experienced extended periods of rapid economic growth, but the latter have not experienced sustained growth or have experienced economic decline (Abel and Bernanke, 1991). Economic performance thus can be referred to as the achievement or not of economic progress over a certain period of time. More broadly, however, economic performance can be assessed in terms of socio-economic welfare, that is whether a country has experienced decreased unemployment, increased levels of savings, decreased levels of poverty or inequality, increased investment levels, improvement in measures of human development—e.g. literacy rates or infant mortality rate—and so forth.

As noted earlier, GDP per capita growth has constituted a major and popular measure of economic performance in the empirical literature on the resource curse (see, for example, Sachs and Warner, 1995, 2001; Lederman and Maloney, 2007; Collier, 2007; Arezki and van der Ploeg, 2011).

This thesis takes a different approach to decide on the appropriate economic performance measure. First, assuming that GDP growth is the ideal measure of economic performance, the 15 best performing countries of both SSA and SEA are compared on a set of socio-economic indicators including real GDP per capita, infant mortality rate, and FDI inflows in US$. Second, it is assumed that the best performing countries have to perform above average by SSA or SEA regional standards. With that in mind, one can make the following observations from Table 5.5:

First, nine of the top 15 growth performers are resource-abundant countries. This suggests that abundance in natural resources may not be detrimental to economic success. Second, in terms of performance in income per capita over the period 2000-2015, only two countries (Equatorial Guinea and Mauritius) perform above regional average. One country (Nigeria) has income per capita around SSA average.

In terms of infant mortality rate, most countries have performed poorly (infant mortality rate above regional averages), suggesting that having achieved high levels of economic growth over the sixteen-year period (2000-2015) has not necessarily brought improvement in health conditions of people living in these countries. Only six countries (Ethiopia, Vietnam, Rwanda, Eritrea, Sudan, and Mauritius) have performed well (mortality rates of below regional average).

Finally, seven countries (Equatorial Guinea, Ethiopia, Vietnam, Rwanda, Nigeria, Mozambique, Sudan, and Indonesia) have attracted inflows of FDI above regional averages.

Table 5.5: Top 15 growth performers in SSA and SEA (2000-2015)

Country	GDP growth	Income per capita (real GDP)	Infant mortality rate	Foreign direct investment
Equatorial Guinea*	9.31	+	+	+
Myanmar*	9.71	-	+	-
Ethiopia	6.09	-	-	+
Cambodia	6.04	-	+	-
Lao	5.56	-	+	-
Vietnam*	5.21	-	-	+
Rwanda	4.83	-	-	-
Nigeria*	4.76	~	+	+
Chad*	4.60	-	+	-
Mozambique*	4.43	-	+	+
Eritrea	4.42	-	-	-
Sudan*	4.16	-	-	+
Angola*	4.01	-	+	-
Indonesia*	3.92	-	+	+
Mauritius	3.89	+	-	-

Source: Author's calculations based on 2000-2015 averages and data from the World Bank's WDI and UNCTAD

Notes: (*) Resource-abundant countries; (+) above regional average; (-) below regional average; (~) around regional average.

This comparison, in spite of being unsophisticated, suggests that one needs to be cautious to limit an analysis of economic performance to GDP growth. The effects of natural resources on economic performance can be highly mixed depending on how economic performance is conceptualized. This thesis considers three aspects of performance, namely economic growth, FDI, and infant mortality. A similar approach is adopted by Alexeev and Conrad (2011) who examine the impact of natural resources on a set of socio-economic and institutional variables including economic growth (growth of GDP per capita), institutional quality (rule of law, control of corruption, and voice and accountability), investment in human and physical capita, life expectancy, and infant mortality rate.

First, per capita GDP growth is a well-accepted economic performance indicator in the governance or the resource curse literature (Acemoglu et al. 2014; Arezki and van der Ploeg 2011; Lederman and Maloney 2007; Rodrik et al 2004).

Second, a country can grow rapidly without making significant improvement in terms of social welfare (Stigitz et al 2009). For instance, in a country like Equatorial Guinea the main indicators of human development such as child mortality, primary school enrollment, and fertility rates have not improved in spite of the sustained growth of per capita income over two decades (Daniele 2011: 566). Hence, it is useful to also examine the impact of natural resources and institutional quality on a broad indicator of social indicator such as infant mortality rate.

Finally, the ability for a country to attract large inflows of FDI can be regarded as an indicator of economic performance. FDI can create and maintain productive growth, bring together know-how and technology diffusion, employment generation, and expansion of access to infrastructure and social services in host economies (Borensztein et al, 1998; Lim, 2001). FDI can thus be thought of as a proxy for employment, technology diffusion, access to infrastructure, and so forth.[3]

---

[3] Perhaps this argument is more relevant for SEA than for SSA. It has been argued that FDI has played a leading role for major changes in economic structure of most SEA countries (Thomsen 1999). Foreign firms have fueled export-led growth and contributed to changes in economic structures of countries like Malaysia, Indonesia,

5.3. Empirical Methodology

As noted in the preceding chapters, over the last two decades and a half on average SEA experienced better economic and social outcomes compared to SSA. However, disaggregation to individual countries reveals a wide diversity within the two regions. In both SSA and SEA, countries that have good institutions (i.e., higher RQ score) tend to have higher per capita GDP, greater FDI inflows, and lower infant mortality. Furthermore, resource-abundant countries within SSA tend to outperform their resource-scarce counterparts. These patterns further raise questions on the actual role of institutional quality and natural resources in explaining performance in SSA relative to SEA.

This section presents the empirical methodology for analyzing the effects of natural resources and institutional quality on socioeconomic performance in SSA and SEA. In order to allow for a clear presentation, the analysis is divided into two parts. The first part is based on the following research questions: (1) how SSA performed compared with SEA in the post-1990 period, and how natural resources and institutions influence patterns of performance across the two regions. The second part then is based on the

---

Thailand, and the Philippines. In most of SSA countries, however, FDI is mostly directed to extractive industries. Whether FDI in extractive industries generates employment, or promotes technology diffusion in SSA is beyond the scope of the current analysis. It is assumed, however, that it does.

following questions: (2) whether resource-abundant countries performed better compared with their resource-scarce counterparts, and whether and how the impact on performance of being resource-abundant is conditioned by institutional quality.

Part 1: How SSA performed compared with SEA in the post-1990 period; and how natural resources and institutions influence patterns of performance across the two regions.

In order to address these questions, the analysis makes the following assumptions: SSA performs poorly relative to SEA; natural resources and institutional quality promote or hinder good economic performance in SSA relative to SEA.

These assumptions imply that for a country located in SSA socioeconomic performance is inferior relative to a country located in SEA. Further, the impact on performance of SSA location is conditional upon institutional quality or abundance in natural resources.

Multiplicative interaction models can thus be employed to reflect these propositions. Specifically, one simple way to reflect it into a regression model is to start with a standard linear-additive model that would take the following form:

$$Y = \propto + \beta_1 SSA + \beta_2 RQ + \beta_3 EXP + \varepsilon \qquad (5.1)$$

Where Y is a performance measure (per capita GDP growth, FDI, or infant mortality); SSA is a time-invariant variable which equals unity if the country is located in SSA, and takes the value 0 if the country is located in SEA; RQ is an institutional quality measure; EXP is a resource abundance measure; and ε is the error term.

Equation (5.1) is thus a standard linear-additive model that expresses the relationship between performance (Y) and each of the three independent variables, namely SSA location, institutional quality, and abundance in natural resources. Specifically, $\propto$ is the intercept and represents the effect on performance of being located in SEA, that is, when SSA=0, and holding constant institutional quality and abundance in natural resources. β_1 is the effect on performance of being located in SSA, that is, when SSA=1, and holding constant institutional quality and abundance in natural resources. β_2 is the effect of institutional quality on performance for both SEA and SSA, when abundance in natural resource is held constant. Finally, β_3 is the effect of natural resource abundance on performance for both SEA and SSA, when institutional quality is held constant.

As noted, equation (5.1) is a standard linear-additive model that only reflects the effect on Y of each of the independent variables. However, equation (3.1) does not explicitly capture the extent to which performance in SSA or SEA is conditional upon institutional quality or abundance in natural resources.

Two approaches can be utilize for estimating the extent to which institutional quality or abundance in natural resources influence the impact of

regional location on economic performance. The first approach is to dichotomize the sample on the regional location (SSA versus SEA), and then estimate separate linear regressions such as (5.2) for each sample.

$$Y = \propto + \beta_1 RQ + \beta_2 EXP + \varepsilon \qquad (5.2)$$

Hence, equation (5.2) would be estimated for the SSA-only sample, on the one hand, and for the SEA-only sample, on the other. The point estimates of the two regressions would then be compared to see whether the effect of each of the explanatory variables differ across the two samples.

The second approach, which is preferred for the current study, involves creating a multiplicative (or interaction) term between the regional location variable and each of the explanatory variables of interest (i.e. RQ and EXP), and then estimate a single regression. In consequence, equation (5.2) can be modified to reflect the conditional proposition that performance in SSA (or SEA) is influenced by institutional quality and abundance in natural resources. Specifically, equation (5.2) is modified by adding a SSA dummy and two multiplicative terms. The first term interacts the SSA duumy with institutional quality, while the second term interacts the SSA dummy with abundance in natural resources. This gives the following multiplicative equation[4]:

$$Y = \propto + \beta_1 SSA + \beta_2 RQ + \beta_3 EXP + \beta_4 (SSA * RQ) + \beta_5 (SSA * EXP) + \varepsilon \qquad (5.3)$$

[4] One could instead interact institutional quality and abundance in natural resources with the SEA location. However, since the main focus in the current analysis is on SSA, the SSA dummy is the preferred moderating term.

Expression (5.3) differ from (5.2) in several ways. First, the intercept ($\propto$) reflects the effect of being located in SEA (SSA = 0) on performance, holding institutional quality and abundance in natural resources at zero. Second, β_1 reflects the effect on performance of being located in SSA, holding institutional quality and abundance in natural resources at zero. Third, β_2 is now the effect of institutional quality on performance for a SEA country relative to a SSA country, holding abundance in natural resources at zero. Forth, β_3 is the effect of natural resource abundance on performance for a SEA country relative to a SSA country, holding institutional quality at zero. Fifth, β_4 is the effect on performance of being located in SSA relative to being located in SEA conditional upon institutional quality. Sixth, β_5 is the effect on performance of being located in SSA relative to being located in SEA conditional upon abundance in natural resources. β_4 can also be interpreted as the effects on performance of institutional quality for a SSA country. β_5, on the other hand, reflects the effect of natural resources on performance for a SSA country. These interpretations suggest that both being located in SSA (*SSA*) and institutional quality (*RQ*) intervene in each other's relations to performance.

To put it more simply, equation (5.1) estimates the effect of *SSA* on *Y*, controlling for institutional quality and natural resources. Equation (5.2), by contrast, estimates the effect of institutional quality and abundance in natural resources on performance for both SSA and SEA. Finally, equation (5.3) estimates the effects of institutional quality and abundance in natural resources on performance, conditional upon regional location. Equation (5.3) can also be interpreted as the effects of regional location on performance, conditional upon

institutional quality and abundance in natural resources.[5]

With that in mind, the preferred model for examining the extent to which institutions (*RQ*) and natural resources (*EXP*) influence the differential performance (*Y*) between SSA and SEA will take the form of equation (5.3). Recall that since equation (5.3) implies that the effects of *RQ* and *EXP* on *Y* depend on regional location (*SSA*), caution is needed with regard to the interpretation of the marginal effects. As the above discussion should have made clear, the coefficients on *RQ* and *EXP* capture respectively the effects of *RQ* and *EXP* on *Y* when *SSA*=0, that is, for a SEA country. By contrast, the coefficients on the two interaction terms capture the effects of *RQ* and *EXP* on *Y* when *SSA*=1, that is, for a SSA country. These can be further illustrated as follows.

Taking derivatives from equation (5.3), the marginal effect of institutional quality (*RQ*) is given by the expression:

$$\frac{\partial Y}{\partial RQ} = \beta_2 + \beta_4 SSA \qquad (5.4)$$

Because SSA is dichotomous, and equals either 0 or 1, the marginal effect of *RQ* for a SEA country, that is, when SSA equals 0 is given by:

$$\frac{\partial \mathrm{Y}}{\partial \mathrm{RQ}} = \beta_2 \qquad (5.5).$$

[5] This is because both interpretations are symmetric in the context of a multiplicative interaction model (Kam and Franzese 2003).

This is because $\beta_2[= \beta_2 + (\beta_4 * 0)]$. Similarly, the marginal effect of *RQ* for a SSA country, that is, when SSA equals unity is given by:

$$\frac{\partial Y}{\partial RQ} = \beta_2 + \beta_4 \qquad (5.6)$$

This is because $\beta_2 + \beta_4 \ [= \beta_2 + (\beta_4 * 1)]$.

So, it can be said that for a SEA country, an increase of 1 unit of *RQ* will lead to a β_2 change in *Y,* holding constant other variables. Similarly, for a SSA country, a 1 unit increase in *RQ* will change *Y* by $\beta_2 + \beta_4$, holding constant other variables.

The same logic applies for computing the marginal effect of natural resources on *Y* for SSA and SEA countries. Again, taking derivatives from equation (3.3) will give the following expression:

$$\frac{\partial \mathrm{Y}}{\partial \mathrm{EXP}} = \beta_3 + \beta_5 \mathrm{SSA} \qquad (5.7)$$

Hence, the marginal effect of *EXP* on *Y* for a SEA country, (SSA = 0) is simply β_3. This is because $\beta_3 \ [= \beta_3 + (\beta_5 * 0)]$. Similarly, the marginal effect of *EXP* on *Y* for a SSA (SSA = 1) is $\beta_3 + \beta_5$, because $\beta_3 + \beta_5 \ [= \beta_3 + (\beta_5 * 1)]$.

In consequence, a 1 unit increase in natural resource abundance in a SEA country will lead to a β_3 change in *Y.* In a SSA country, by contrast, a 1 unit increase in natural resource abundance will change *Y* by $\beta_3 + \beta_5$.

Part 2: Do resource-abundant countries in SSA perform better compared with their resource-scarce counterparts; and is performance in resource-abundant countries conditioned by institutional quality?

The second part of the analysis makes the assumption that in SSA economic performance is superior in resource-abundant countries than in resource-scarce countries. Further, it theorizes that the effect on performance of being resource-abundant is moderated by the quality of institutions.

The analysis employs a similar logic as developed in the preceding discussion. Specifically, it estimates an equation that takes the following form:

$$Y = \propto + \beta_1 RA + \beta_2 RQ + \beta_3 (RA * RQ) + \varepsilon \qquad (5.8)$$

Where Y is an indicator of economic performance; *RA* is a time-invariant variable which equals unity if the country is resource-abundant, and takes the value of 0 if the country is resource-poor; RQ is an institutional quality measure; and (*RA* * *RQ*) interacts the resource-abundant dummy with the continuous institutional measure.

Again, drawing from the logic in the preceding discussion, β_1 is the effect of being resource-abundant on *Y* relative to being resource-poor, holding constant institutional quality. β_2 is the effect of *RQ* on *Y* for a resource-poor country (*RA* = 0), because $\beta_2 = \beta_2 + (\beta_3 * 0)$. For resource-abundant country, by contrast, the effect of *RQ* on *Y* is $\beta_1 + \beta_3$, because $\beta_2 + \beta_3 = \beta_2 + (\beta_3 * 1)$.

VI. Empirical Analysis and Findings

6.1. Background and Structure of the Chapter

Drawing on the empirical methodology discussed in the preceding chapter, this chapter attempts to empirically address the main research questions of this study. The chapter is divided into two parts. The first part is based on the full list of forty-five SSA and nine SEA countries introduced in the previous chapters, and for the period from 1995 to 2015. It empirically examines (1) how SSA performed compared with SEA in the post-1990 period; and (2) how natural resources and institutions influence patterns of performance across the two regions. For this purpose, it estimates pooled ordinary least squares (OLS) models that include a dummy variable for SSA and interaction terms between the SSA dummy and continuous measures of institutional quality and resource abundance, respectively. This approach is borrowed and modified from Collier and O'Connell (2008) who studied the differential growth performance between four groups of countries: resource-abundant, landlocked; resource-scarce, landlocked; resource-abundant, coastal; and resource-scarce, coastal.

The second part in turn focuses on performance within SSA. The goal here is to empirically examine the impact of resource abundance and institutional quality on performance; and whether and how the impact on performance of natural resources is conditioned by institutional quality. Furthermore, it differentiates between two groups of countries—resource-abundant and resource-poor. It estimates a panel of forty-five SSA countries for

the period from 1995 to 2015, using pooled OLS models with robust standard errors that account for cross-sectional dependence.

As already noted, the current analysis applies three sorts of performance measures, including GDP per capita growth, foreign direct investment (FDI), and one aspect of social welfare, namely infant mortality rates. As such, the analysis controls for a range of variables that can potentially influence these three performance measures, including inflation rates, official development assistance inflows (ODA), government expenditure, urban population size, population growth, and dependency ratio. Aside from being often included in the empirical growth, governance, or resource curse literature, these variables are considered in the current analysis for their policy relevance, as will be discussed later. Furthermore, both the OLS and fixed effects estimations applied in this chapter use the heteroscedasticity consistent standard errors proposed by Driscoll and Kraay (1998) and modified by Hoechle (2007), which account for spatial and temporal dependence in unbalanced panel data. This approach is also appropriate if the panel's time dimension (T) is smaller than its cross-sectional dimension (N), as is the case in the current analysis. Regression results suggest a number of noticeable patterns with regard to the role of natural resources and institutions in SSA and SEA.

The remainder of this chapter is organized as follows: section two presents the hypotheses and empirical models. Section three reports empirical results. Section four then concludes.

6.2. Regression specifications and data

As already noted, the analysis in this chapter is divided into two parts. The first part is based on the full sample of 54 SSA and SEA countries, and addresses the following questions: (1) how SSA performed compared with SEA in the post-1990 period; and (2) how natural resources and institutions influence patterns of performance across the two regions. The second part, on the other hand, focuses on the SSA sample and addresses two questions: (1) whether resource-abundant countries performed better compared with their resource-scarce counterparts; and (2) whether and how the impact on performance of being resource-abundant is conditioned by institutional quality.

(1) How SSA performed compared with SEA in the post-1990 period; and (2) how natural resources and institutions influence patterns of performance across the two regions.

In order to test the propositions formulated in the current study, regression (6.1) is first introduced:

$$Y_{it} = \propto + \beta_1 SSA_i + \beta_2 RQ_{it} + \beta_3 EXP_{it} + \varepsilon_{it} \qquad (6.1)$$

Where i = 1, …, 54 denotes the countries and t = 1995, 1996, 1997, …, 2015 is the year extending from 1995 to 2015. Y_{it} is an indicator of economic performance in country i and year t; SSA is a time-invariant variable which equals unity if the country is located in SSA, and takes the value 0 if located in SEA; RQ_{it} is the Regulatory Quality Score in country i in year t; EXP_{it} is the share of natural resource exports in percentage of total merchandise exports in country i in year t. Note that for the purpose of the current analysis, RQ and

institutional quality, as well as EXP and abundance in natural resources will be used interchangeably. Finally, ε_{it} is the error term.

In regression (6.1), $\propto$ (the intercept) is the expected effects of being located in SEA, holding constant institutional quality and abundance in natural resources. β_1 captures the effects of being located in SSA relative to being located in SEA, holding constant institutional quality and abundance in natural resources. β_2 captures the effects of institutional quality, while β_3 captures the effects of abundance in natural resources in both SSA and SEA.

Regression (6.1), however, does not explicitly capture the effects of institutional quality or abundance in natural resources for a SSA country relative to a SEA country. Hence, regression (6.2) modifies regression (6.1) by introducing two interactions terms: one that interacts the SSA dummy with the continuous institutional quality variable (RQ), and another that captures interactions between the SSA dummy and the continuous resource abundance variable (EXP). Overall, this gives a model that can be expressed as follows:

$$Y_{it} = \propto + \beta_1 SSA_i + \beta_2 RQ_{it} + \beta_3 EXP_{it} + \beta_4 (SSA * RQ)_{it} + \beta_5 (SSA * EXP)_{it} + \varepsilon_{it}$$
(6.2)

Regression (6.2) has the same structure as regression (6.1), but includes two multiplicative variables. Specifically, $SSA * RQ$ is an interactions term between the SSA binary variable and the continuous measure of institutional quality (Regulatory Quality); similarly, $SSA * EXP$ interacts the SSA dummy with the continuous resource abundance measure (EXP). Regression (6.2) thus allows seeing the strength of institutional quality, abundance in natural

resources, and their interactions in explaining performance across SSA and SEA. It shows if the regional effect on economic performance can be changed by the quality of institutions and abundance in natural resources. More specifically, $\propto$ (the intercept) captures the expected value of Y_{it} for a SEA country when other variables equal zero. β_1 captures the effect of being located in SSA relative to being located in SEA when the quality of institutions and abundance in natural resources equal zero. β_2 and β_3 respectively capture the effects of changes in institutional quality and abundance in natural resources if the country is located in SEA. By contrast, β_4 captures the effect of changes in institutional quality for a country located in SSA relative to SEA country. Finally, β_4 captures the effect of changes in resource abundance for a country located in SSA relative to SEA country.

Moreover, in order to allow for meaningful interpretation of the results, values of Regulatory Quality scores (*RQ*) as well as the share of natural resource exports in total merchandise exports (*EXP*) are centered to their respective means. Such transformation allows evaluating the impact of being located in SSA and SEA on *Y* at the mean of *RQ* and *EXP*. The benefit with centering is that values of zero on *RQ* or *EXP* would correspond to the mean, whereas without centering, this would not be the case (Jaccard et al 1990). More specifically, without centering, values of zero would correspond to zero natural resource exports and zero institutional quality. Since in real world every SSA or SEA at least exports some amount of natural resources and experiences some level of institutional quality, it is thus entirely appropriate using centered values.

Regression (6.1) and regression (6.2) are then estimated for the three dependent variables: (i) lnGDP, defined as the log of GDP per capita in 2005 constant prices; (ii) FDI, defined as the net inflows of foreign direct investment in billion US$; and (iii) lnIMRT, defined as the log of infant mortality rate (deaths per 1,000 live births).

Table 6.1 shows simple correlations between each of the three performance measures and the explanatory variables used in regression (6.1) and regression (6.2). Column (1) shows a negative and significant association between the SSA dummy and per capita GDP growth. Note also the relatively high and positive correlation between lnGDP and RQ. This is suggestive that institutional quality has a positive impact on per capita GDP growth. There is also a positive and significant association between natural resources and per capita GDP growth. The two product terms are also significantly and positively associated with per capita GDP growth. These suggest both institutional quality and abundance in natural resources augment per capita GDP growth in SSA. Column (2) shows correlations between FDI and other variables used in regression (6.1) and (6.2). Again, note the negative correlation between the SSA dummy and FDI, indicating the negative effect of being located in SSA on the flow of inward FDI. Also, RQ is significant and significantly associated with FDI. By contrast, the association between natural resources and FDI is not statistically significant for full sample. However, product term between the SSA dummy and natural resources seems to indicate that the association between natural resources and FDI is positive and significant for SSA. Finally, column (3) confirms the adverse impact on performance of being located in SSA. This

is indicated by positive and significant association between the SSA dummy and infant mortality rate. Note also the negative and significant association between RQ, the product term (SSA times RQ), and Infant mortality rate. This is suggestive that institutional quality significantly reduces infant mortality in both SSA and SEA. By contrast, the association between natural resources and infant mortality is positive.

Table 6.1: Bivariate Correlations (Number of Observations = 1134)

	(1) lnGDP	(2) lnFDI	(3) lnIMR
SSA	-0.178***	-0.299***	0.537***
RQ	0.523***	0.270***	-0.603***
EXP	0.203***	0.039	0.233***
SSA*RQ	0.332***	0.176***	-0.351***
SSA*EXP	0.200***	0.122***	0.155***

Source: Author's calculations

Overall, these preliminary findings seem to suggest that: first, being located in SSA reduces per capita GDP growth and FDI inflows, and augments infant mortality; second, institutional quality augments per capita GDP growth and FDI, and reduces infant mortality; finally, natural resources augment per capita GDP growth, but have no appreciable effects on FDI and infant mortality. Correlation does not imply causation. However, consistent with the discussion in the preceding chapters, it is possible to formulate the following hypotheses:

GDP per capita growth (log of GDP per capita) as the dependent variable:

In regression (6.1), β_1 is negative (being in SSA reduces per capita GDP growth relative to being in SEA when the quality of institutions and abundance in natural resources are not accounted for); β_2 is positive (improvement in institutional quality increases GDP per capita for a SSA and SEA country); and β_3 is positive (increase in resource abundance increases GDP per capita for a SSA and SEA country).

In regression (6.2), β_1 is negative (being in SSA reduces per capita GDP growth relative to being in SEA when the quality of institutions and abundance in natural resources are not accounted for); β_2 is positive (improvement in institutional quality in a SEA country increases GDP per capita relative to a SSA country); and β_3 is positive (increasing institutional quality in a SEA country increases GDP per capita relative to a SSA country). β_4 is positive (increasing institutional quality in a SSA country increases GDP per capita relative to a SEA country); and β_5 is positive (abundance in natural resources increases GDP per capita for a SSA country relative to a SEA country).

Foreign direct investment (log of FDI inflows in billion US$) as the dependent variable:

In regression (6.1), β_1 is negative (being in SSA reduces FDI inflows relative to being in SEA when institutional quality and abundance in natural resources are not accounted for); β_2 is positive (improvement in institutional quality increases FDI inflows for a SSA and SEA country); and β_3 is positive (increase in resource abundance increases FDI inflows for a SSA and SEA

country).

In regression (6.2), β_1 is negative (being in SSA reduces FDI inflows relative to being in SEA when the quality of institutions and abundance in natural resources are not accounted for); β_2 is positive (improving institutional quality in a SEA country increases FDI inflows relative to a SSA country); and β_3 is positive (increasing institutional quality in a SEA country increases FDI inflows relative to a SSA country). β_4 is positive (increasing institutional quality in a SSA country increases relative to a SEA country); and β_5 is positive (abundance in natural resources increases FDI inflows for a SSA country relative to a SEA country).

Infant mortality rate (log of infant mortality per 1,000 live births):

In regression (6.1), β_1 is positive (being in SSA augments infant mortality relative to being in SEA when the quality of institutions and abundance in natural resources are not accounted for); β_2 is negative (improving institutional quality reduces infant mortality for a SSA and SEA country); and β_3 is negative (increase in resource abundance reduces infant mortality for a SSA and SEA country).

In regression (6.2), β_1 is positive (being in SSA augments infant mortality relative to being in SEA when the quality of institutions and abundance in natural resources are not accounted for); β_2 is negative (improvement in institutional quality in a SEA country reduces infant mortality relative to a SSA country); and β_3 is positive (increasing institutional quality in a SEA country reduces infant mortality relative to a SSA country). β_4 is negative (increasing

institutional quality in a SSA country reduces infant mortality relative to a SEA country); and β_5 is negative (abundance in natural resources decreases infant mortality for a SSA country relative to a SEA country).

Having specified regression (1) and (2), it is also instructive to examine whether the effects of institutions and resource abundance on performance are different when other variables are controlled for. These variables include inflation rates, government expenditure, official development aid (ODA), population growth, and the share of urban population in percentage of total population. These variables are selected for their potential effects on per capita GDP growth, FDI, and infant mortality, and also for their policy relevance.

First, inflation can be regarded as an indicator of the overall ability of the government to manage the economy (Fischer 1991). An economy with higher rates of inflation is unlikely to experience higher economic growth. There is empirical evidence that inflation rates exceeding 17 percent have more distortional effects on economic performance, in particular in non-industrialized countries (Kremer et al 2013). Following this argument, a variable capturing the threshold of 17 percent will be introduced in the models. The variable is dichotomous and equals unity if inflation in period *t* in country *i* exceeds 17 percent, and equals 0 if it is less than 17 percent. This variable is introduced to capture the effect of higher inflation rate on economic growth as well as on FDI and infant mortality. In fact, high inflation rates are also suggested to discourage the flow of FDI: countries with high and uncertain

inflation (unstable macroeconomic conditions) are likely to receive less FDI inflows (Asiedu 2006). Finally, inflation may affect social progress, in particular through its impact on income. By depressing income (real wage), inflation may have more detrimental effects for the poor (Easterly and Fischer 2001), and thus may deteriorate measures of social progress such as infant mortality.

Second, increases in government expenditure have been suggested to have positive and statistically significant growth effects (Wu et al 2010). These positive effects depend, however, on the composition of public expenditure (Devarajan et al 1996) or the quality of institutions (Cooray 2009). With regard to the relationship between government expenditure and FDI, one needs to consider two lines of arguments. On the one hand, there is empirical evidence to the idea that increases in government spending result in the crowding of private investment (Bairam 1993). This is because increased public spending requires more government borrowing in the domestic market, which in turn reduces the capital available for the private sector. On the other hand, increased public investment in areas such as physical infrastructure and education reduces the cost of private capital, which in turn increases the level of private investment (Collier et al. 2010). Therefore, following the second line of argument one can argue that increases in government spending result in larger inflows of FDI. Finally, building on the preceding argument, increased government spending may lead to more investment in health care, water supply, and sanitation. Improvement in health, water supply, and sanitation may in turn result in reduced infant mortality (Gupta et al 2002).

Third, population growth has been suggested to be positively and significantly associated with economic growth in developing countries (Yanikkaya 2010). Other studies have suggested that a large growth in population can depress growth and prevent development (van der Ploeg and Poelhekke, 2008). In the case of SSA for instance, rapid population growth since the early 1970s has been argued to have depressed individual African incomes in comparison with those of citizens of other regions such as SEA or Latin America (Ndulu et al. (2007). Empirical literature on FDI, on the other hand, has often included population size as a proxy for the market size under the hypothesis that a larger domestic market is likely to attract greater FDI inflows (see, for example, Mottaleb and Kalirajan 2010).

Forth, Official Development Aid (ODA) is suggested to positively affect performance. A developing country that receives a large inflow of foreign aid is likely to experience positive economic and social outcomes, including higher growth, reduced poverty and lower infant mortality (Arndt et al 2015). This is because aid increases investment in physical and human capital (Clemens et al. 2012). Hence, by raising the marginal productivity of capital, ODA may have a catalyzing effect on FDI (Selaya and Sunesen 2012). In consequence, this analysis expects that ODA is positively associated with economic growth and FDI, and negatively associated with infant mortality.

Fifth, the size of the urban population also can potentially influence performance. Some studies have suggested that it positively affects growth, as populations living in cities might be more productive compared to those living

in rural areas (e.g., Bertinelli and Black, 2004). Also, a larger urban population offers some potential economic gains in terms of access to a larger pool of workers, localized knowledge spillovers, and economies of scale related to infrastructure and other public services, which in turn can influence the net inflows of FDI (Guimarae et al 2000). Finally, urbanization is suggested to have positive implications for national development (Njoh 2003).

Hence, in the following specification the five variables introduced above are added to regression (6.2):

$$Y_{it} = \propto + \beta_1 SSA_i + \beta_2 RQ_{it} + \beta_3 EXP_{it} + \beta_4 (SSA * RQ)_{it} + \beta_5 (SSA * EXP)_{it} + \beta_6 (Z)_{it} + \varepsilon_{it} \quad (6.3)$$

Regression (6.3) modifies regression (6.2) by adding Z_{it}, which is a vector of control variables. Z_{it} includes $Inf17_{it}$, which is a dummy variable capturing rates of inflation exceeding 17 percent. It takes the value of 1 if inflation rates in country *i* and year *t* exceeds 17 percent, and equals 0 if it is less than 17 percent; ODA_{it} is the net official development assistance and official aid received in current US$ per capita in country *i* and year *t;* GEX_{it} is the government expenditure in percentage of GDP in country *i* and year *t;* $lnPOP_{it}$ is introduced to capture population growth. It denotes the logarithm of total population in country *i* and year *t;* $urban_{it}$ denotes the size of the urban population in percentage of the total population in country *i* and year *t;* Finally, *HIC* is dummy variable that equals unity if the country has a per capita income exceeding 12.476 US$ (High-income) according to the World Bank classification. HIC equals zero if the country has a per capita income below that

threshold.

Before estimating regressions (6.1), (6.2), and (6.3), it is worth noting the following points. First, the panel at hand is unbalanced. As shown in Table 6.2, observations for some continuous variables are missing. Second, the number of countries (cross-sections) is larger than the number of years (time series), that is $N > T$. Third, countries within and across both SSA and SEA may potentially exhibit cross-sectional dependence, perhaps due to some unobservable common factors, including location, distance, or common economic or institutional factors across or within the two regions. It has been stated that many countries in both SSA and SEA have similar social structure and history, ethnic and religious diversity, and institutional landscape dominated by authoritarian regimes, corruption, patronage, and elite rent-seeking (Lewis 2013: 52). Also, changes in commodity prices are likely to affect economies in both regions. Overall, the presence of a cross-sectional dependence in the dataset is confirmed after conducting a Pesaran's test of cross sectional dependence. The null hypothesis of no contemporaneous correlation is rejected for all regressions (p value of Perasan's test equals 0.000 using each of the three dependent variables). This in turn suggests that estimating regression (6.1), (6.2), and (6.3) without accounting for such disturbances would lead to biased statistical inference (Hsiao 2014: 327). Finally, including fixed effects in regression (6.1), (6.2), and (6.3) would remove one of the main variables of interest—SSA—which is time-invariant.

Straightforward alternatives for estimating regression (6.1), (6.2), and (6.3) are pooled OLS and random effects. The former constitutes the preferred estimation strategy given the interest in examining the overall impact of institutions and abundance in natural resources on performance for all individual countries included in the sample. Following Baltagi's (1995: 47) words, the interest here is in testing whether the behavioral relationship predicting performance from one year to the other over the twenty-one-year period is the same across SSA and SEA countries.

The aforementioned concerns, including the unbalanced nature of the panel at hand, cross-sectional dependence, time-invariant independent variables, alongside the purpose of the current analysis, justify use of pooled OLS with Driscoll-Kraay standard errors. In effect, the estimators proposed by Driscoll-Kraay (1998) and adjusted by Hoechle (2007) produce heteroscedasticity consistent standard errors that are robust to temporal and spatial dependence in unbalanced panel data with $N > T$. In addition, it is worth noting that in regression (6.1), (6.2), and (6.3) residuals are constrained to be autocorrelated up to 2 lags. The choice for the 2 year lags follows procedures proposed by Newey and West (1994) for automatically selecting the optimum number of lags according to an asymptotic mean squared error criterion.[6] Table 6.2 presents descriptive statistics of all continuous variables.

[6] This procedure is available in Stata using the xtscc program (For more details, see, Hoechle 2007)

Table 6.2: Descriptive statistics

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
Urban	1,130	37.07	15.74	7.211	87.16
SSA	1,134	0.833	0.373	0	1
lnGDP	1,134	6.788	1.228	4.028	10.32
lnIMR	1,134	4.012	0.663	1.792	5.064
lnFDI	1,134	4.841	2.824	-8.871	9.993
INFL17	1,134	0.116	0.320	0	1
lnPOP	1,134	2.138	1.639	-2.586	5.551
HIC	1,134	0.0370	0.189	0	1
EXP	1,134	0	30.40	-34.80	64.61
SSA*EXP	1,134	3.224	28.49	-34.80	64.61
RQ	1,134	0	20.50	-31.67	63.33
SSA*RQ	1,134	-1.925	17.02	-31.20	51.98
ODA	1,070	598.6	819.1	-943.2	11,428
GEXP	1,102	24.18	10.74	2.147	128.3
SSA*INFL17	1,134	0.0996	0.300	0	1
SSA*GEX	1,102	20.49	13.66	0	128.3
SSA*ODA	1,070	497.9	770.9	-14.13	11,428
SSA*lnPOP	1,134	1.603	1.555	-2.586	5.205
SSA*Urban	1,130	30.13	19.30	0	87.16
Number of groups	54	54	54	54	54

(2) Do resource-abundant countries performed better compared with their resource-scarce counterparts? Is the impact on performance of being resource-abundant conditioned by institutional quality?

In order to address these questions, the following regression is estimated:

$$Y_{it} = \propto + \beta_1 RA + \beta_2 RQ_{it} + \beta_3 (RA * RQ)_{it} + \beta_4 UMHIC + \sum_{k=5}^{n} [\beta_k (Z)_{it} + RA * \beta_k (Z)_{it}] + \varepsilon_{it} \quad (6.4)$$

Where i = 1, …, 45 denotes the countries and t = 1995, 1996, 1997, …, 2015 is the year extending from 1995 to 2015. Y_{it} is a performance measure in country i and year t; RA is a time-invariant variable capturing whether a country is resource-abundant or not. It equals unity if the country's average of total natural resource exports represents at least 25 percent of total merchandise

exports for the period 1995-2015. RA equals 0 otherwise. RQ_{it} is the Regulatory Quality Score in country *i* in year *t*; $(RA * RQ)_{it}$ is the interaction term between *RA* and *RQ*. Z is a vector of control variables, including $Inf17_{it}$ (a dummy variable which equals unity if annual rates of inflation exceeds 17 percent); ODA_{it} (net official development assistance and official aid received in current US$ per capita in country *i* and year *t*); GEX_{it} (the government expenditure in percentage of GDP in country *i* and year *t*); $lnPOP_{it}$ (population growth); $urban_{it}$ (the urban population in percentage of the total population in country *i* and year *t*); Finally, *UMHIC* is dummy variable that equals unity if the country has a per capita income exceeding 4.036 US$ (Upper-middle-income and High-income countries). Each of the controls included in vector *Z* is interacted with the resource-abundant (RA) dummy in order to allow for different effect between resource-abundant and resource-poor countries.

Again regression (6.4) is estimated using pooled OLS with Driscoll-Kraay standard errors. Further, the Newey and West's (1994) procedure constrain the residuals to be autocorrelated up to 2 lags. Table 6.3 presents descriptive statistics of all continuous variables.

Table 6.3 provides a more detailed description as well as sources of the variables used in all the regression models.

Table 6.3: Variables and sources

Variable	Description	Source
GDP per capita growth	Logarithm of per capita GDP in constant 2005 prices	World Bank: World Development Indicators (WDI)
Resource abundance (*EXP*)	Share of natural resource exports in total merchandise exports (%). It is obtained using the following formula: $EXP_{it} = 100 * \frac{Oil_{it} + Minerals_{it}}{Total\ Exports_{it}}$ Where *Total Exports* is the total merchandise exports in current US$; *OIL* is the oil (mineral fuels, lubricants and related materials) exports in current US$ and *MIN* is the minerals (ores, metals, precious stones and non-monetary gold) exports in current US$.	United Nations Conference on Trade and Development (UNCTAD)
Regulatory Quality	Regulatory Quality percentile rank scores, centered to the mean	Kaufman et al. (2008, 2011) and available online at the World Bank's Worldwide governance indicators (WGI)
Government expenditure	Government Consumption Expenditure, % of GDP	WDI
Foreign direct investment	Logarithm of foreign direct investment inflows in current US$. Since data on FDI inflows includes both positive and negative values, the log of FDI has been computed as follows using Stata: -ln(-FDI + 1) if FDI <=0; and ln(FDI + 1) if FDI > 0	UNCTAD
Population growth	Logarithm of total population	International Monetary Fund: World Economic Outlook (WEO)
Urban population	Urban population, % of total population	UNCTAD
ODA	The net official development assistance and official aid received in current US$ per capita	WDI
Infant mortality rate	Logarithm of the number of children dying before the age of 5 per 1,000 births	WDI
Inflation	A dummy variable that takes the value of 1 if the annual % change in consumer price exceeds 1 percent, and	WEO

	takes the value of 0 otherwise	
HIC	A dummy variable that takes the value of 1 if the country is classified as High-income economy in the World Bank's classification, and has a value of 0 otherwise. HIC includes the following countries: Brunei and Seychelles	World Bank
UMHIC	Is a variable created using SSA countries classified as Upper-middle-income or High-income countries in the World Bank's classification	World Bank
RA	Is a variable created to classify SSA countries into two groups, namely resource-abundant and resource-poor. It equals unity if the country's average share of natural resource exports exceeds 5 percent of total merchandise exports in the period 1995-2015. It takes the value of 0 if the country's average natural resource exports represent less than 25 percent of total merchandise exports during the same period.	UNCTAD

6.3. Empirical Findings

Consistent with the preceding section, results are divided into two parts. The first part is based on the full sample of 54 SSA and SEA countries, while the second part focuses on the SSA sub-sample. Note also that several regressions are run to test the robustness of the main results, namely the effects of natural resources and institutional quality on measures of socioeconomic performance. These regressions employ different institutional and socioeconomic performance measures. However, in order to keep the discussion in the current chapter focused, results of these alternative regressions are reported in the appendices.

6.3.1. *Estimation of the full sample (SSA versus SEA)*

Recall that when interaction terms are included, as in regression (6.2) and regression (6.3), it is useful to go beyond the results table and compute the marginal effects of the variables of interest on *Y* (Brambor et al. 2005). For this purpose, the analysis relies upon the differentiation method to compute and interpret substantively meaningful marginal effects. With respect to regression (6.2) and regression (6.3), the effects of RQ on *Y* (performance measure) for a SEA country (i.e., SSA = 0), is simply:

$$\frac{\partial Y}{\partial RQ} = \beta_2 \qquad (6.5)$$

In expression (6.6), the coefficient β_2 indicates by how much *Y* changes with a percentile increase in RQ score when SSA equals 0, that is, for a SEA country.

Similarly, expression (6.6) below indicates the amount by which a percent increase in EXP increases *Y* for a SEA country:

$$\frac{\partial Y}{\partial EXP} = \beta_3 \qquad (6.6)$$

For a SSA country, that is, when SSA equals unity, the effects of RQ on *Y* can be expressed as follows:

$$\frac{\partial Y}{\partial RQ} = \beta_2 + \beta_4 \qquad (6.7)$$

Finally, the effect of EXP on *Y* for a SSA country can be expressed as follows:

$$\frac{\partial Y}{\partial EXP} = \beta_3 + \beta_5 \qquad (6.8)$$

Expressions (6.5) through (6.8) can thus be applied to compute and interpret

the interactive effects from regression (6.2) and (6.3). Because regression (6.3) includes all the explanatory variables considered in the current analysis, it is the preferred model to compute the interactive effects for relevant values of RQ and EXP. Tables 6.4, 6.6, and 6.8 show the estimation results when the dependent variable is lnGDP (per capita GDP growth), lnFDI (growth rate of FDI inflows), and lnIMR (infant mortality rate), respectively. In each of these tables, Column (1) shows the regression (6.1), that is, where the SSA dummy, RQ, and EXP are the only explanatory variables; column (2) reports results from regression (6.2), where the interaction terms are included; and column (3) shows results from regression (6.3). Overall, in spite of the small magnitude of the coefficients, the regression results show a number of noticeable points.

Per capita GDP growth as the dependent variable:

Results reported in Table 6.4 somewhat fully confirm the hypotheses about the signs of the coefficient estimates. First, the coefficient on *SSA* is negative and statistically significant in all the regressions.

In regression (6.1), it suggests that all else held constant, being located in SSA reduces per capita GDP growth relative to a being located in SEA by -0.450 percentage points, at the 1 percent significance level. Second, the coefficients on *RQ* and *EXP* are both positive and significant at the 1 percent level. Specifically, the coefficient on *RQ* suggests that a one percentile increase in Regulatory Quality score increases per capita GDP growth by 0.03 percentage points in a SSA or SEA country. The coefficient on *EXP*, on the other hand, indicates that a one percent increase in the share of natural resource

exports in percentage of total merchandise exports augments per capita GDP growth by 0.01 percentage points in a SSA or a SEA country.

Overall, regression (6.1) confirms the negative effect of being located in SSA on per capita GDP relative to being located in SEA. It further shows that institutional quality and abundance in natural resources in all SSA and SEA countries have positive effects on per capita GDP growth, somewhat against the resource curse thesis. Regression (1), however, does not include the interaction terms.

With respect to regression (6.2), inclusion of interactions terms also shows some interesting patterns. First, the coefficient on the intercept suggests that all else remaining constant, per capita GDP growth in a SEA country increases relative to a SSA country by 7.38 percentage points. Second, the coefficient on *SSA* is negative. It suggests that when institutional quality and abundance in natural resources are at their means, GDP per capita growth decreases for a SSA country relative to a SEA country by 0.67 percentage points. Third, the coefficient on *RQ* is positive and significant at the 1 percent level. It suggests that a one percentile increase in the Regulatory Quality score increases per capita GDP growth for a SEA country relative to a SSA country by 0.04 percentage points. Fourth, the coefficient on *EXP* is positive and significant, indicating that a one percent increase in the share of natural resource exports in total merchandise exports augments per capita GDP growth in a SEA country relative to a SSA country by 0.03 percentage points. Fifth, coefficients on the two interaction terms are both significant at the 1 percent level.

Regression (6.3) examines how location, natural resources and institutions affect per capita GDP growth when other explanatory variables are accounted for. First, it shows that being located in SSA reduces per capita GDP growth relative to being located in SEA by 0.24 percentage points. Now, expression (6.5) and expression (6.7) can be applied to obtain the marginal effect of RQ on per capita GDP for a SEA and a SSA country, respectively. For a SEA country, a percentile increase in RQ score will increase per capita GDP growth by 0.02 percentage points. In a SSA country, by contrast, a 1 percentile increase in RQ score will augment per capita GDP growth by 0.017 percentage points [0.023+(-0.006) = 0.017]. On the other hand, the effect of a 1 percent increase in the share of natural resource exports in percentage of total merchandise exports is as follows: in a SEA country, it will reduce per capita GDP growth by 0.004 percentage points; and in a SSA country, it will augment per capita GDP growth by 0.006 percentage points [-0.004 + 0.012].

Table 6.4: Pooled OLS with Driscoll-Kraay standard errors.
Dependent variable = lnGDP

VARIABLES	(1) Reg 1	(2) Reg 2	(3) Reg 3
SSA	-0.450***	-0.672***	-0.242**
	(0.088)	(0.066)	(0.087)
RQ	0.033***	0.0446***	0.023***
	(0.001)	(0.001)	(0.002)
EXP	0.014***	0.032***	-0.004*
	(0.001)	(0.004)	(0.002)
SSA*RQ		-0.018***	-0.006***
		(0.002)	(0.001)
SSA*EXP		-0.0199***	0.012***
		(0.004)	(0.004)
INFL17			-0.084
			(0.090)
GEX			0.012***
			(0.002)
ODA			0.00001
			(0.00003)
lnPOP			-0.154***
			(0.030)
Urban			0.027***
			(0.003)
HIC			1.125***
			(0.101)
Constant	7.163***	7.378***	5.959***
	(0.098)	(0.056)	(0.207)
Observations	1,134	1,134	1,035
R-squared	0.381	0.412	0.624
Number of groups	54	54	54

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In addition, coefficients on control variables are also of interest: first, as one could expect, inflation rates exceeding 17 percent per annum is negatively associated with per capita GDP growth, although the coefficient is statistically insignificant; second, the coefficient on ODA is insignificant. This gives no indication that SSA and SEA countries that receive larger flows of net

official development assistance and official aid per capita significantly experience increase in per capita GDP. Third, government expenditure significantly increases per capita GDP growth by 0.012 percentage points at the 1 percent level in both SSA and SEA. Finally, consistent with the theory, population growth significantly reduces per capita GDP growth by 0.154 percentage points, whereas larger urban population size in percentage of the total population significantly increases per capita GDP growth by 0.027 percentage points.

Overall, regression (6.3) suggests that the magnitude of the effects of institutions and natural resources differ between SSA and SEA. Specifically, higher levels of institutional quality augment per capita GDP in both SSA and SEA, but the magnitude of the effect is somewhat larger in SEA than in SSA. With regard to abundance in natural resources, on the other hand, the effect is positive in SSA, but negative in SEA.

In order to get a better sense of these effects, marginal effects of RQ and EXP on Y (per capita GDP) are calculated for relevant values of RQ and EXP. Specifically, marginal effects are calculated at 10th, 25th, 75th, and 90th percentile of RQ and EXP for the year 2015[7]. Hence, for the year 2015, the 10th, 25th, 75th, and 90th percentile of RQ correspond to the value of RQ for Sudan, Central African Republic, Botswana, and Malaysia, respectively. Conversely, the 10th, 25th, 75th, and 90th percentile of EXP correspond to the value of EXP

[7] 2015 is chosen for purely illustrative purpose. One could randomly pick a year in the period extending from 1995 to 2015.

for Swaziland, Comoros, Chad, and DR Congo, respectively. Results are reported in Table 6.5, and show some notable points. First, in both SSA and SEA per capita GDP growth augments as RQ increases. In either SSA or SEA, a country whose RQ in 2015 equals that of Sudan would experience lower per capita GDP growth compared to a country with a RQ as higher as that of Malaysia.

The second notable point is that per capita GDP growth in SEA is higher relative to SSA at lower levels of EXP. In SSA, by contrast, per capita GDP growth increases as EXP increases. For instance, at a EXP level similar to Swaziland (2.63 percent) SEA countries would experience higher per capita GDP growth relative to their SSA counterparts. By contrast, at a EXP level similar to the DR Congo (91 percent) SEA countries would experience lower per capita GDP growth relative to their SSA counterparts.

Table 6.5: Marginal effects of RQ and EXP on per capita GDP growth, at the 10th, 25th, 75th, and 90th percentiles

Variable	Percentile	Value	Sub-Saharan Africa	Southeast Asia
RQ	10	-26.864	-0.472	-0.627
	25	-26.383	-0.463	-0.616
	75	36.597	0.643	0.854
	90	42.848	0.753	0.999
EXP	10	-32.200	-0.267	0.116
	25	-31.479	-0.262	0.114
	75	56.093	0.4667	-0.203
	90	56.656	0.471	-0.205

Note: RQ and EXP at 10th, 25th, 75th, and 90th percentile are computed for the year 2015.

Foreign direct investment as the dependent variable:

Table 6.6 reports the estimating results when foreign direct investment (lnFDI) is used as the dependent variable. Here, the negative and significant coefficient on *SSA* in regression (6.1) indicates that being located in SSA reduces FDI inflows relative to being located in SEA by 2.189 percentage points, holding constant other factors. Also interestingly, the coefficients on *RQ* and *EXP* are both positive and significant at the 1 percent level. The coefficient on *RQ* indicates that a 1 percentile increase in Regulatory Quality score leads to an increase of FDI inflows by 0.031 percentage points, irrespective of regional location.

Conversely, a one percent increase in the share of natural resource exports in total merchandise exports in a SSA or SEA country augments FDI inflows by 0.02 percentage points. Regression (6.1) in Table 6.6 thus confirms the hypothesis on the negative effect on FDI inflows of being located in SSA relative to being located in SEA. It further confirms the positive effects of better institutional quality and abundance in natural resources on FDI inflows in the overall sample.

Regression (6.2) shows the following patterns: first, being located in SSA reduces FDI inflows by 1.235 percentage points. Second, the coefficient on RQ is positively and statistically significant at the 1 percent level. This indicates a positive effect of RQ on FDI inflows for a SEA country. By contrast, the coefficient on EXP, although statistically significant, has a negative sign. This implies that resource-abundance reduces FDI inflows for a SEA country.

Third, the coefficient on the first interaction term is negative and statistically insignificant. The negative sign implies that RQ is negatively associated with FDI inflows for a SSA country. Finally, the positive and significant coefficient on the second interaction term implies that abundance in natural resources increases FDI inflows for a SSA country. These effects are further analyzed by computing the marginal effects for substantial values of RQ and EXP, and using results from regression (6.3).

Table 6.6: Pooled OLS with Driscoll-Kraay standard errors. Dependent variable = lnFDI

VARIABLES	(1) Reg 1	(2) Reg 2	(3) Reg 3
SSA	-2.189***	-1.235***	-0.375
	(0.252)	(0.326)	(0.664)
RQ	0.0312***	0.039***	0.032***
	(0.003)	(0.007)	(0.009)
EXP	0.015***	-0.029***	-0.0272**
	(0.003)	(0.004)	(0.013)
SSA*RQ		-0.008	-0.011
		(0.010)	(0.010)
SSA*EXP		0.047***	0.031**
		(0.006)	(0.014)
INFL17			-0.351
			(0.335)
GEX			0.025*
			(0.013)
ODA			0.001***
			(0.0001)
lnPOP			0.521***
			(0.098)
Urban			0.034***
			(0.009)
HIC			1.348***
			(0.294)
Constant	6.665***	5.704***	1.590
	(0.393)	(0.467)	(1.001)
Observations	1,134	1,134	1,035
R-squared	0.154	0.164	0.285
Number of groups	54	54	54

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Regression (6.3) confirms results of regression (6.2) after controlling for other variables. First, being located in SSA reduces FDI inflows by 0.375 percentage points. Second, for a SEA country a percentile increase in RQ score will augment the flow of inward FDI by 0.032 percentile points [0.032 + (-0.027)]. For a SSA country, a 1 percent increase in RQ score will augment the flow of inward FDI by 0.021 percentage points. Third, increasing EXP by 1 percent reduce the flow of inward FDI in a SEA country by 0.027 percentage points. For a SSA country, by contrast, increasing EXP by 1 percent will increase the flow of inward FDI by 0.004 percentage points [-0.027 + 0.031 = 0.027]. These effects are statistically significant at the 1 percent level.

With FDI as the dependent variable, regress (6.3) suggests that natural resources have more appreciable effects for a SSA country compared with a SEA country. On the other hand, institutional quality augments the flow of inward FDI in both SSA and SEA. Again, in order to get a better sense of these findings it is instructive to compute the effects of RQ and EXP at reasonable values of RQ and EXP. Accordingly, marginal effects of RQ and EXP on FDI are calculated at 10th, 25th, 75th, and 90th percentile of RQ and EXP for the year 2015. Results are reported in Table 6.7. It can be observed that FDI inflows augment both in SSA and SEA as RQ increases. By contrast, as the value of EXP augments, FDI inflows augment in SSA but decrease in SEA.

Specifically, at higher levels of EXP such as that of the DR Congo in 2015 (91 percent), a SEA country would receive less FDI inflows relative to a SSA country. By contrast, at lower levels of EXP such as in Swaziland, SEA

countries would receive more FDI inflows than their SSA counterparts.

The picture is different for the effects of RQ. In either SSA or SEA a country with a RQ score as high as in Malaysia would receive more FDI inflows compared to a country with a RQ score as low as Sudan.

Table 6.7: Marginal effects of RQ and EXP on FDI inflows, at the 10th, 25th, 75th, and 90th percentiles

Variable	Percentile	Value	Sub-Saharan Africa	Southeast Asia
RQ	10	-26.864	-0.547	-0.848
	25	-26.383	--0.538	-0.833
	75	36.597	0.746	1.156
	90	42.848	0.873	1.352
EXP	10	-32.200	-0.115	0.876
	25	-31.479	-0.113	0.856
	75	56.093	0.201	-1.525
	90	56.656	0.203	-1.541

Note: RQ and EXP at 10th, 25th, 75th, and 90th percentile are computed for the year 2015

In addition, regression (6.3) reveals interesting associations between FDI inflows and the control variables. First, although not statistically significant, annual rates of inflation exceeding 17 percent reduce FDI inflows. Second, the coefficient on the net official development assistance and official aid is significant and positively associated with FDI inflows at the 1 percent level. Third, government expenditure in percentage of GDP significantly increases FDI inflows by 0.025 percentage points at the 10 percent level. Also, as the theory on the determinants of FDI predict, larger market size in terms of population growth and urban population size positively affect FDI inflows: a one percentage point rise in population growth augments FDI inflows by 0.521

percentage points; and a one percent increase in urban population in percentage of total population leads to an increase of FDI inflows by 0.03 percentage points in SSA and SEA. Finally, being a high-income country augments FDI inflows relative to being in other income groups by 1.348 percentage points. Again, regression (6.3) seems to indicate that for a SEA country, institutions have primacy over natural resources in explaining FDI inflows in SEA, whereas for SSA, both institutions and natural resources matter for FDI.

Infant mortality rate as the dependent variable:

Table 6.8 presents results when infant mortality rate is used as the dependent variable. In all of the three regressions, the coefficient on *SSA* is positive and significant at the 1 percent significance level. It indicates that being located in SSA augments infant mortality relative to being located in SEA. In regression (6.1), Regulatory Quality significantly reduces infant mortality, whereas abundance in natural resources has no appreciable effect on infant mortality in both SSA and SEA.

Regression (6.2) also shows some interesting patterns: first, the negative and significant coefficient on RQ suggests that RQ decreases infant mortality for a SEA country. Second, the positive coefficient on EXP indicates that EXP has no appreciable effect on infant mortality for a SEA country. For a SSA country, on the other hand, abundance in natural resources lowers infant mortality, whereas RQ has no appreciable effect.

Regression (6.3) confirms that being located in SSA augments infant mortality relative to being located in SEA by 0.458 percentile points. Increasing institutional quality reduces infant mortality in SEA and SSA by 0.015 and 0.008 [0.008 = -0.015 + 0.006] percentage points, respectively. Abundance in natural resources augments infant mortality in SEA and SEA by 0.012 and 0.004 [0.004 = 0.012 + (-0.008) percentage points, respectively. Regression (6.3) thus suggests that in both SSA and SEA, institutional quality reduces infant mortality, whereas abundance in natural resources augments it.

Table 6.8: Pooled OLS with Driscoll-Kraay standard errors.
Dependent variable = lnIMR

VARIABLES	(1) Reg 1	(2) Reg 2	(3) Reg 3
SSA	0.717***	0.787***	0.458***
	(0.026)	(0.099)	(0.054)
RQ	-0.0161***	-0.024***	-0.015***
	(0.000)	(0.002)	(0.003)
EXP	0.001	-0.008*	0.012***
	(0.001)	(0.004)	(0.002)
SSA*RQ		0.012***	0.006**
		(0.002)	(0.002)
SSA*EXP		0.009**	-0.008***
		(0.003)	(0.002)
INFL17			0.032
			(0.065)
GEX			-0.008***
			(0.001)
ODA			-0.0001***
			(0.000)
lnPOP			0.0238**
			(0.010)
Urban			-0.012***
			(0.001)
HIC			-0.948***
			(0.037)
Constant	3.415***	3.350***	4.330***
	(0.068)	(0.035)	(0.142)
Observations	1,134	1,134	1,035
R-squared	0.523	0.562	0.706
Number of groups	54	54	54

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

It is also instructive to calculate the marginal effects for relevant values of RQ and EXP. Consistent with Table 6.5 and Table 6.7, Table 6.9 reports the marginal effects at 10th, 25th, 75th, and 90th percentile of RQ and EXP. It shows that infant mortality decreases in both SSA and SEA as institutional quality (RQ) increases. Note, however, that the effect is superior for SEA. On the other hand, as resource abundance increases infant mortality also augments in both regions.

Put differently, having a RQ score similar to Malaysia in 2015 would decrease infant mortality by 0.355 and 0.621 percentage points in a country located in SSA and SEA, respectively. Similarly, a lower level of RQ similar to Sudan in 2015 would imply a higher infant mortality.

With regard to natural resources, results reported in Table 6.9 indicate that having high levels of EXP like the DR Congo in 2015 (91 percent) would have a detrimental effect on social progress (i.e. infant mortality), irrespective of whether the country is located in SSA or SEA.

Table 6.9: Marginal effects of RQ and EXP on infant mortality rate, at the 10th, 25th, 75th, and 90th percentiles

Variable	Percentile	Value	Sub-Saharan Africa	Southeast Asia
RQ	10	-26.864	0.223	0.389
	25	-26.383	0.219	0.382
	75	36.597	-0.303	-0.530
	90	42.848	-0.355	-0.621
EXP	10	-32.200	-0.118	-0.375
	25	-31.479	-0.115	-0.367
	75	56.093	0.205	0.654
	90	56.656	0.207	0.660

Note: RQ and EXP at 10th, 25th, 75th, and 90th percentile are computed for the year 2015.

It is also instructive to see the relationship between infant mortality and the control variables, despite the small coefficients. First, annual rates of inflation exceeding 17 percent (*INFL17*) are positively correlated with infant mortality. Second, with negative and significant coefficient at the 1 percent lever, net official development assistance and official aid (*ODA*) reduces infant mortality. Larger government expenditure is significant and negatively correlated with infant mortality. Population growth is also significant and negatively associated with infant mortality. This correlation may, however, appear counter-intuitive. A recent study shows that reduced mortality leads to population growth (Shelton 2014). Against the so-called 'child survival hypothesis', the study shows that substantial declines in infant mortality in a number of SSA countries have not been followed by declines in fertility.[8]Furthermore, the study argues that reduced child mortality contributes to rapid population growth in particular in pre-transition societies such as in SSA. It seems thus possible that population growth at some time lag be negatively correlated with infant mortality.

[8] According to this hypothesis, when children survive in greater numbers, parents decide to have smaller families leading to reduction in fertility levels.

Finally, a 1 percent increase in urban population in percentage of total population reduces infant mortality by 0.01 percentage points. As noted in the preceding section, urban population is likely to have access to better health infrastructure and facilities which in turn can contribute to decreasing infant mortality. Conversely, being high-income reduces infant mortality by 0.93 percentage points.

6.3.2. Estimation of the SSA sub-sample (resource-abundant versus resource-scarce)

As previously noted, the second part of the analysis focuses on the SSA sample. It examines whether performance is superior for resource-abundant countries compared with resource-poor countries. Further, it examines whether and how institutional quality promotes or hinder performance in a resource-abundant country relative to a resource-poor country. For this purpose, the model employed to address these questions allows for the effects of all explanatory variables (except UMHIC) to vary between resource-abundant and resource-scarce countries. Table 6.10 shows the estimation results, indicating a number of noticeable points.

First, being resource-abundant has no significant effect on per capita GDP growth relative to being resource-poor. Second, being resource-abundant augments the flow of inward FDI relative to being resource-poor by 2.858 percentage points. This is consistent with some existing empirical studies on the determinants of FDI in SSA suggesting a positive and significant association between FDI inflows and abundance in natural resources (i.e., Anyanwu 2011). Third, being resource-abundant augments infant mortality

relative to being resource-poor by 0.228 percentage points. Fourth, a 1 percentile increase in RQ score will augment per capita GDP growth in a resource-poor country by 0.012 percentage points, but will reduce per capita GDP growth in a resource-abundant country by 0.003 percentage points [-0.003 = 0.012 + (-0.014)]. Fifth, a 1 percentile increase in RQ score will augment the flow of inward FDI in both resource-abundant and resource-scarce countries by 0.027 and 0.014 [= 0.027 + (-0.014)] percentage points, respectively. This is consistent with the results from regression (6.3) (see Table 6.7) suggesting that improvement in institutional quality augments the flow of inward FDI in both SSA and SEA. Sixth, increasing RQ score by 1 percentile will reduce infant mortality by 0.01 percentage points in a resource-poor country. Similarly, a 1 percentile increase in RQ score will reduce infant mortality in a resource-abundant country by 0.005 percentage points [-0.005 = -0.009 + 0.004]. This is suggestive that improvement in institutional quality has appreciable effect on infant mortality in both resource-poor and resource-abundant countries in SSA.

Table 6.10: Estimation results from regression (6.4)

VARIABLES	(1) Dependent variable = lnGDP	(2) Dependent variable = lnFDI	(3) Dependent variable = lnIMR
RA	-0.262	2.858***	0.228
	(0.156)	(0.937)	(0.178)
RQ	0.012***	0.027***	-0.009***
	(0.001)	(0.005)	(0.001)
RA*RQ	-0.0141***	-0.014	0.004***
	(0.001)	(0.009)	(0.001)
INFL17	-0.239***	-0.166	-0.074
	(0.032)	(0.238)	(0.112)
RA*INFL1	-0.171	-0.0205	0.175*
	(0.150)	(0.584)	(0.096)
GEX	0.006***	0.039***	-0.009***
	(0.001)	(0.008)	(0.002)
RA*GEX	-0.006	-0.008	0.012***
	(0.003)	(0.018)	(0.004)
ODA	0.0002***	0.0009***	-0.0003***
	(0.0000)	(0.0001)	(0.000)
RA*ODA	-0.0002**	-0.0002	0.0003***
	(0.00005)	(0.0004)	(0.003)
lnPOP	-0.252***	0.566***	0.153***
	(0.020)	(0.122)	(0.022)
RA*lnPOP	0.290***	-0.187	-0.187***
	(0.027)	(0.201)	(0.014)
Urban	0.015***	0.061***	-0.01***
	(0.002)	(0.008)	(0.002)
RA*Urban	0.003	-0.050*	0.001
	(0.003)	(0.027)	(0.003)
UMHIC	1.758***	0.093	-0.390***
	(0.067)	(0.522)	(0.053)
Constant	5.982***	-0.346	4.567***
	(0.069)	(0.808)	(0.189)
Observations	876	876	876
R-squared	0.743	0.270	0.627
Number of groups	45	45	45

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.5. Summary

The aim in this chapter was two-fold. First, empirically examine the extent to which institutions and natural resources influence patterns of performance across SSA and SEA. Second, empirically examine whether resource-abundant countries in SSA experience better performance in economic and social indicators, and whether institutional quality influence these effects. Overall, the findings can be summarized as follows:

1. All else held constant, being located in SSA is significantly associated with lower per capita GDP growth, lower flow of inward FDI, and higher infant mortality rates relative to being located in SEA. These results thus corroborate the prevailing argument of SSA's under-performance compared to other developing regions.

2. Institutional quality is an important determinant of the three performance indicators in both SSA and SEA. Specifically, improving institutional quality increases per capita GDP growth and the flow of inward FDI, and reduces infant mortality, irrespective of regional location (SSA or SEA). The magnitude of the impact of institutional quality, however, is larger for SEA compared with SSA.

3. Abundance in natural resources augments infant mortality in both SSA and SEA. However, the effects of abundance in natural resources on the two other performance measures (per capita GDP growth and FDI) are different between SSA and SEA: on the one hand, increasing

resource-abundance augments per capita GDP growth and the flow of inward FDI in SSA, and on the other, it reduces per capita GDP growth and the flow of inward FDI in SEA.

4. Comparing performance across resource-abundant and resource-poor countries in SSA reveals that institutional quality matters for both groups. Specifically, increasing the RQ score increases per capita GDP growth and the flow of inward FDI, and reduces infant mortality in both resource-abundant and resource-poor countries.

7. Implications and Conclusion

7.1. Summary of principle findings

The main purpose of this study was to examine performance in economic and social indicators in SSA countries relative to their SEA counterparts over the period from 1990 to 2015. The interest in such analysis originated in the observation that poor institutional quality or governance and abundance in natural resources, often argued to explain SSA's development problems, are in fact also present in a large part of SEA. For instance, many countries in both regions are among the world's most corrupt according to the Transparency International's CPI and are similarly richly endowed in natural resources such as oil and gas. The aim thus was to explain causalities between abundance in natural resources, institutional quality, and their interactions, and socioeconomic outcomes in the two regions.

Specifically, the study attempted to address the following questions: (1) how SSA performed relative to SEA in the period between 1990 and 2015; (2) whether and how abundance in natural resources and institutional quality influence patterns of socioeconomic performance across and within the two regions; and (3) whether and how the impact on socioeconomic performance of natural resources is conditioned by institutional quality.

In order to address these questions, the study drew upon two analytical perspectives: (1) the institutional perspective (institutions as the fundamental cause of good economic performance); and (2) the resource curse perspective (abundance in or dependence on natural resources, especially minerals and oil,

adversely affects economic performance). In addition, the study accounted for the explanation according to which socioeconomic performance, especially in SSA, may be linked to physical or geographic factors.

The analysis was divided into two parts. The first part, which comprised chapters 4 and 5, proposed a descriptive analysis on whether and how natural resources and institutional quality influence performance in economic and social indicators in SSA and SEA. Specifically, chapter 3 focused on a comparison of socioeconomic performance across two groups of SSA countries, namely resource-abundant and resource-scarce. Chapter 4, by contrast, proposed a comparison of the SSA and SEA data on a range of indicators, including institutional quality (i.e., Corruption Perception Index, Regulatory Quality, and Voice and Accountability), economic performance (i.e., per capita GDP growth, FDI, inflation rates, natural resource exports, economic diversification), and social welfare (i.e. infant mortality rate, dependency ratio). The aim here was to describe whether and how natural resources and institutional quality influence patterns of economic and social outcomes between and within the two regions.

The second part of the analysis (chapter 6), empirically examined the link between natural resources, institutional quality and socioeconomic performance in SSA and SEA. The analysis used the Regulatory Quality indicator of the World Bank's WGI and the share of natural resource exports in percentage of total merchandise exports as the institutional quality and natural resource abundance measures, respectively. Further, socioeconomic

performance was measured in terms of three variables: per capita GDP growth, the flow of inward FDI, and a measure of social progress, namely infant mortality rate.

The choice for these three variables was motivated by the fact that per capita GDP growth is a well-accepted economic performance indicator in the governance or the resource curse literature. On the other hand, the ability for a country to attract large flows of FDI can be suggestive of improvement in other economic and social indicators such as know-how and technology diffusion, employment generation, and expansion of access to infrastructure and social services. Finally, infant mortality rate can be indicative of a country's social welfare conditions.

The empirical analysis was based on an estimation of pooled ordinary least squares (POLS) models that accounted for the interactions between regional location and institutional quality as well as abundance in natural resources. On the other hand, the analysis of socioeconomic performance within SSA considered interactions between institutional quality and natural resource abundance, and was also based upon an estimation of POLS models. In addition, the estimated models controlled for a range of variables that can potentially influence per capita GDP growth, FDI inflows, and infant mortality rates. Such variables included inflation rates, official development assistance inflows (ODA), government expenditure, urban population size, population growth, and dependency ratio.

Overall, the main findings can be summarized as follows:

1. Performance in institutional indicators such as the CPI and the WGI is poor in both SSA and SEA compared to more advanced economies (e.g. Japan, Korea, and other OECD countries);

2. Despite similarities in terms of institutional performance in SSA and SEA, a country that is located in the former is likely to experience lower per capita GDP growth, lower FDI inflows, and higher infant mortality relative to a country located in SEA. Further, SEA on average experiences better economic and social outcomes compared to SSA.

3. At the same time, regardless of the regional location (SSA or SEA), a country that improves its Regulatory Quality is likely to experience an increase in per capita GDP growth and FDI inflows, and decrease in infant mortality. It has been shown that better-performing-countries in both SSA and SEA tend to have higher Regulatory Quality scores compared to the poor-performing-countries. Among the countries with better Regulatory Quality, however, those located in SEA perform somewhat better than their counterparts located in SSA.

4. The effects of natural resource abundance are particularly noticeable for SSA as it contributes to augmenting per capita GDP and the flow of inward FDI. In SEA, by contrast, what seems to matter for per capita GDP growth, FDI inflows, and infant mortality, is the improvement in

Regulatory Quality. In effect, unlike for the Regulatory Quality measure, there is no significant association between the natural resource measure and the three performance measures (per capita GDP growth, FDI, and infant mortality rate).

5. Within SSA, a sound Regulatory Quality positively influences socioeconomic performance, regardless of whether a country is resource-abundant or resource-scarce. Keeping Regulatory Quality and other factors constant, however, socioeconomic performance differs between resource-abundant and resource-scarce countries: resource-abundant countries experience higher per capita GDP growth, and tend to attract larger FDI inflows compared to their resource-scarce counterparts. By contrast, resource-scarce countries tend to have lower infant mortality (under-five deaths per 1,000 live births) compared to their resource-abundant counterparts.

6. Finally, resource-abundant countries with a good Regulatory Quality have higher economic growth and receive more FDI than either countries with abundant natural resources and poor Regulatory Quality, or no resources with good Regulatory Quality, or non-resources with poor Regulatory Quality.

What are the implications of these findings? It is argued in this chapter that institutional enhancement—a better Regulatory Quality—can be regarded as a precondition for achieving better economic and social outcomes. Further,

the benefits from having good institutions could be particularly greater for countries richly endowed with natural resources, especially in SSA.

The next section elaborates these claims about the implications of the findings by explaining (1) the relative backwardness of SSA compared to SEA; (2) how SSA and SEA, with similar measured level of institutional quality, experience different economic and social outcomes; and (3) what can explain the effects of natural resources, especially on social outcomes. The last section then concludes with some final remarks and suggestions for future research.

7.2. Discussion of principle findings and implications

In order to be more sharply focused, this section puts an emphasis on issues that may require further research to be addressed. The first issue concerns the relative backwardness of SSA compared to SEA. Throughout this study it has been shown that a country located in SSA is more likely to experience lower per capita GDP growth, smaller flow of inward FDI, and greater infant mortality relative to a country located in SEA. The aim in this section thus is to discuss what factor(s) explain(s) such poor performance and what can be done about it (them).

The second issue concerns the role of institutions in explaining the observed variation in economic and social outcomes between SSA and SEA. The aim here is to discuss how socioeconomic performance differs between the two regions in spite of having similar measured levels of institutional quality.

The final issue relates to the actual impact of natural resources on

economic and social outcomes, especially in SSA. It has been shown that abundance in natural resources does not necessarily impede economic growth or the attractiveness to FDI. Infant mortality, by contrast, seems to be less affected the abundance in natural resources. The analysis has shown that resource-abundant countries, especially in SSA, tend to have a higher infant mortality. Put differently, abundance in natural resources is likely to be detrimental to measures of social progress. The aim here thus is to elaborate the reasons that may explain the adverse effects of natural resources on measures of social progress.

7.2.1. Explaining SSA backwardness relative to SEA

Earlier, Baro (1991) attributed part of the observed difference in economic performance between SSA and other regions to the fact of "being in Africa" (p. 419). As he put it, "Even if you provide the same level and quality of physical and human capital and technology to an average African economy and to an average economy outside Africa, the growth rates of the two would ultimately differ…" It would be, however, too simplistic to attributing a SSA country's development problems to the simple fact of 'being in SSA'. Other variables such as policy choices may be worth accounting for in the observed economic and social outcomes in SSA (see, e.g., Ndulu et al 2008).

In the understanding of SSA underperformance relative to SEA, there is a number of case-study evidence that strongly suggests that the differences in development outcomes between the two regions may be explained by differences in the adoption of three policy features: economic freedom for

peasants and small entrepreneurs; rural sector development (i.e., pro-poor, pro-rural spending), and macroeconomic stability (i.e., low inflation) (see, e.g., Berendsen et al. 2013; van Donge et al 2012; Henley 2012). While such policies were adopted in most of the SEA countries, they have been neglected in SSA. One should note, however, that such findings are based on the period extending from 1960 to the early 2000s.

With regard to macroeconomic stabilization, based on data for the period 1990-2015, the current study has shown that SEA on average consistently enjoyed lower inflation rates relative to SSA. On the other hand, SSA has been able to achieve dramatic improvements in macroeconomic stabilization, especially since the early 2000s (see, e.g., Appendix 4, p. 174). The clearest example is the DR Congo, where inflation rates were brought down from over 300 percent in the 1990s to under 10 percent by the 2010s.

With regard to policies related to rural sector development and economic freedom for peasants, there is some indication that SEA performs better relative to SSA, based on data from the International Fund for Agricultural Development (IFD). The IFD assesses rural policy environment in terms of the following areas: policy and legal framework for rural organizations, enabling conditions for rural financial services development, investment climate for rural businesses, access to agricultural input and product markets, access to land, and access to water for agriculture. A comparison of SSA and SEA data on these policy areas suggests some variations between the two regions (see Appendix 5, p. 175). This study thus suggests that differences in

policies for rural sector development as well as the economic freedom for peasants may help explain the differential performance between SSA and SEA.

Accordingly, it is argued here that the backwardness of SSA relative to SEA may not be caused by regional location (i.e., geographic factors) per se, but by the poor adoption of the three policy features highlighted above. More investigation is needed using advanced analytical tools such as panel data techniques, to examine the actual impact of these three policy features and their interactions with regional location on economic and social outcomes in the two regions.

7.2.2. Explaining the varying impact of Regulatory Quality on socioeconomic performance between SSA and SEA

As pointed out earlier, both SSA and SEA on average have lower measured level of institutional quality compared to more advanced economies. At the same time, findings from the empirical analysis have suggested that improvement in Regulatory Quality is beneficial to socioeconomic performance for all countries, regardless of whether they are located in SSA or SEA. Among the countries with better Regulatory Quality, however, those located in SEA perform somewhat better than their counterparts located in SSA.

According to Andrews (2010), countries reflecting similar level of governance may in fact have varying characteristics "in terms of the very dimensions that institutional indicators imply" (p. 7). For instance, countries that have similar scores on the WGI Regulatory Quality indicator may in fact

differ in terms of particular rules or practices that are used to construct this measure (i.e., price controls, trade policy, regional integration, or ease of starting a new business). That being said, SSA and SEA countries may have lower Regulatory Quality scores, but it is their performance in specific rules or practices that in fact may influence their economic and social outcomes.

In the current study, the WGI Regulatory Quality indicator has been utilized as the institutional quality measure. Recall that the Regulatory Quality is in fact a composite indicator that captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Note also that a range of variables are used to construct this indicator, including business regulations (see p. 94). The quality of a country's business regulations may in turn be assessed in terms of a set of objective measures affecting business lifecycle from starting to operating and closing (e.g., time, procedures, and costs for starting and operating a business as determined by local law, prevalence of trade barriers, tax burden, contract enforcement, buying a property and obtaining an electric connection).

A comparison between SSA and SEA on these objective measures (see, Appendix 6, p.176) suggests substantial differences on three areas of business regulations: trade policy, tax burden, and electricity.

First, better trade policy in SEA may reflect a better regional integration (i.e., ASEAN), compared to SSA. In fact, most of the SEA countries offer better regulations for international trade (e.g., time, cost, procedures

associated with exporting and importing a standard shipment of goods by sea transport). By contrast, despite efforts to further sub-regional integration, SSA as whole remains a poorly integrated region. Trade facilitation thus remains a challenge in most of the SSA countries (see, Appendix 6.2, p. 177). Empirical evidence suggests that greater international trade is strongly correlated with economic growth (World Bank 2016). It is thus possible that variation in trade facilitation between SSA and SEA may explain the differential impact of Regulatory Quality on economic and social outcomes between the two regions.

Second, a comparison of SSA and SEA data on tax regulations suggests some noticeable variation between the two regions (Appendix 6.4, p. 179). For instance, lower tax rates as well as the few number of tax payments per year are indicative of better regulations in SEA relative to SSA. These differences are of important interest, in particular because keeping tax rates at a reasonable level in addition to simple tax rules can contribute to promoting the private sector as well as economic growth. For instance, a recent study shows that countries where it is easier to pay taxes, in terms of the number of tax payments per year, are likely to register more new business entries (Braunerhjelm and Eklund 2014). Evidence also suggests that an increase in tax rates leads to a decrease in GDP growth over the following 3-year period (Romer et al 2010). Imposing high tax rates is particularly detrimental to SSA economies because it not only adds little to government revenue,[9] but also

[9] It has been pointed out that more than 90 percent of (registered) taxpayers in SSA are small and medium-size enterprises (SME). However, their effective contribution

discourages new business entry and increase the likelihood of businesses to become informal (Hibbs et al 2010). A comparison of SSA grouped by tax rates indicates that low tax rate countries experience greater domestic and foreign investment, have higher per capita GDP growth, and better social indicators compared with high tax rate countries (see Appendix 6.4, p. 180). One can thus attribute the differential impact of RQ on socioeconomic performance to variation in tax regulations (i.e. heavy tax burden in SSA versus light tax burden in SEA).

Finally, poor electricity services have been recently reported as one of the top obstacles to private sector development (World Bank 2016). Countries offering a more reliable and cheaper priced supply of electricity are likely to register greater amounts of private capital (foreign and domestic) (Perre and Martin 2010) and achieve economic growth (World Bank 2016). A simple comparison of SSA and SEA data on the electricity supply and tariffs suggests that SEA countries are more competitive in terms of reliability, time, and cost of electricity supply (see Appendix 6.7, p. 183). Again, differences in electricity services may in turn explain the differential impact of RQ on socioeconomic performance between SSA and SEA.

Overall, countries that exhibit similar measured level of Regulatory Quality can have very different regulatory rules and practices. This in turn can explain the differential impact of Regulatory Quality on socioeconomic

---

to tax revenue represents only 25 to 35 percent (see, International Tax Dialogue 2007).

performance between SSA and SEA. The discussion in this sub-section and data around Appendices 6.1-6.9 has shown that SSA and SEA vary on some variables used to construct the Regulatory Quality indicator. This was shown here with regard to business regulations as measured by the World Bank's Doing Business Index. More attention should be paid to the importance of specific regulatory rules or practices in shaping the impact of Regulatory Quality on economic and social outcomes.

7.2.3. Explaining the effects of abundance in natural resources

This study has shown that abundance in natural resources, measured as the share of natural resource exports (oil and minerals) in percentage of total merchandise exports, has contributed to higher economic growth and larger FDI inflows in SSA. Specifically, per capita GDP growth and the flow of inward FDI for resource-abundant countries have been higher than for other SSA countries over the period from 1995 to 2015.

Surprisingly, the same factor that have driven economic growth and FDI inflows had adverse or no impact on the indicator capturing social progress. In effect, findings show a significant and positive association between natural resources and infant mortality rate. Put more simply, abundance in natural resources does not necessarily bring improvements in social welfare. This is particularly relevant for SSA countries.

A study by the IMF also highlights the contrast in economic and social outcomes between resource-abundant and resource-scarce countries in SSA

(Lundgren et al 2013). The study shows large disparities between performance in GNI per capita and the Human Development Index (HDI) among the SSA resource exporters. Put differently, higher income level in a SSA resource exporter does not necessarily reflect higher standard of living or social welfare. The clearest example is Equatorial Guinea, where the main indicators of social progress such as child mortality, primary school enrolment, and fertility rates have not improved in spite of the sustained growth of per capita income since the 1990s (see chapters 3-4).

Possible explanations to the adverse effects of resource abundance on measures of social progress may include factors such as institutional weakness, violent conflict, the crowding out of manufacturing (Dutch Disease), and volatility (see chapter 2):

First, countries with abundant natural resources tend to display cronyism, corruption, or less accountability. Government officials of these countries are likely to engage in inefficient decision-making (i.e., wasteful spending) that impedes the ability of resources to benefit the citizenry at large (Venables 2010).

Second, violent conflict (i.e., civil war) is related to reduction in life expectancy, child malnutrition, and infant mortality. Since many resource-abundant countries in SSA have been afflicted by civil war (or other forms of violence), it is not surprising that abundance in natural resources adversely affects their social outcomes.

Third, the crowding out of manufacturing due to a sharp rise in natural resource exports (Dutch Disease) may cause currency appreciation, increase domestic prices, further unemployment, among others. Such effects may in turn exacerbate underperformance in other social indicators, including infant mortality, malnutrition, and so forth.

Finally, volatility in government revenues, due to fluctuations in commodity prices could indirectly hurt social welfare by impeding the ability of the state to consistently provide public services (e.g., health care).

In SSA, resource-abundant countries are 20 times more likely to experience violent conflict relative to their resource-scarce counterparts (see Appendix 7, p. 185). Further, resource-abundant countries in SSA on average have poorer institutional quality (i.e., Control of Corruption) comparing with countries that are resource-scarce. Similarly, the share of the manufacturing sector in GDP is on average greater in resource-scarce countries than in resource-abundant countries. Surprisingly, there seems to be no major difference in volatility between resource-abundant and resource-scarce countries.

There is a wide array of studies that prescribe policies that can help countries to avoid the negative effects of natural resource endowments. A discussion of such policies is beyond the scope of the current study. Future studies could perhaps investigate which of the four factors highlighted above significantly explains poor social outcomes in SSA resource-abundant countries.

7.3. Unanswered questions and concluding remarks

This study is significant for being the first analysis applying panel data to examine the role of institutional quality and natural resources in explaining socioeconomic performance in SSA and SEA. Findings contribute to understanding how regions that somewhat display similar measured level of institutional quality may experience different economic and social outcomes. The theory proposed in this study suggests that countries that exhibit similar measured level of Regulatory Quality may in fact vary in terms of regulatory rules and practices; and such differences may in turn moderate the effects of Regulatory Quality on economic and social outcomes.

Further empirical work is needed to assess the extent to which particular rules or practices influence a country's institutional quality. Such exercise would avoid the 'misleading' approach which consists in simply regressing an economic performance variable (i.e., GDP growth) on a composite institutional variable (i.e., Regulatory Quality, Economic Freedom, Quality of Government), and neglect the fact that countries differ on specific practices or rules used to construct those composite indicators. Also, and perhaps more importantly, such analysis would contribute to identifying particular practices and rules that are critical for sound regulatory reforms and thus for economic success. This idea is relevant not only for the Regulatory Quality indicator, but also for other institutional dimensions such as corruption (i.e., rules and practices for fighting corruption), quality of the public administration (i.e., rules and practices for hiring civil servants), or government

accountability (i.e., rules and practices for controlling decisions made by politicians), and so forth.

On the other hand, contrary to the resource curse thesis, findings have shown that natural resources do not necessarily have adverse effects on economic performance, especially in SSA. It has been argued that by improving their institutions—i.e., having better Regulatory Quality—resource-abundant countries can be able to achieve better development success compared to their resource-scarce counterparts. Further research is also needed to identify particular policies that have succeeded in SEA (i.e., Malaysia and Indonesia) and SSA (i.e., Botswana) resource-abundant countries, and which can be proposed to countries experiencing the resource curse (i.e., DR Congo, Nigeria, among others).

Finally, there is a need to empirically assess the existing explanations according to which SSA's backwardness relative to SEA is due to differences in the adoption of three policy features: macroeconomic stability; rural sector development; and economic freedom for small entrepreneurs and peasants. Such analysis would address the question of why SSA failed to adopt such policies. One possible answer to such question could be that policy failure is itself a consequence of a poor institutional development. That having been said, one way to gain leverage over such research would be to investigate how interactions between institutional quality/governance and other factors (i.e., geography and/or external shocks) influence the adoption of these three policy features in the two regions.

Overall, putting together the pieces of the SSA development puzzle will often require understanding and explaining whether, why, and how SSA responds differently to particular variables (economic, institutional, geographic, and social) compared to other regions. This study has contributed to such exercise, and highlighted a few key areas that need further investigation.

Appendix 1: Findings from Sachs and Warner (1995) versus Others

GDP per capita	(1) Sachs and Warner (1995)	(2) Melhum et al. (2006)	(3) Kolstad (2009)
Share of primary exports to GNP	-5.925** (2.263)	-14.34* (-4.21)	-20.11*** (3.58)
Initial GDP per capita	-1.891* (5.220)	-1.26* (-6.70)	-1.79*** (0.22)
Investments	13.665 (4.018)	0.16* (7.15)	0.68** (0.33)
Openness	2.246* (3.664)	1.66* (3.87)	1.56*** (0.39)
Institutional Quality	0.166 (1.137)	-1.3 (-1.13)	
Interaction term		15.4* (2.40)	
Rule of law			0.11 (0.15)
Rule of law*Resource abundance			2.64** (1.26)
Democracy			-0.04 (0.05)
Democracy*Resource abundance			0.26 (0.47)
Number of observations		87	67
Adjusted R^2		0.50	0.75
Estimation technique	OLS	OLS	OLS

Source: Sachs and Warner (1995); Mehlum et al. (2006: 15); Kolstad (2009: 441)

Appendix 1 shows empirical results from three studies on the relationship between economic growth and natural resource abundance. First, Column (1) reports the main findings from Sachs and Warner (1995) suggesting that abundance in natural resources adversely affects economic growth. In other words, countries that are rich in natural resources experience poor economic performance.

Second, column (2) reports results from Mehlum et al. (2006), suggesting that institutional quality reverses the adverse effects of natural

resources on economic growth. In other words, by improving the quality of their institutions (i.e. good governance, low corruption), resource-abundant countries can achieve better economic performance, compared to resource-abundant countries where institutions are poor (i.e., poor or bad governance).

Finally, Colum (3) reports results from Kolstad (2009), suggesting that only economic institutions (i.e., property rights, rule of law) are important in reversing the adverse effects of natural resources on economic growth. Political institutions (i.e., democracy), by contrast have no effects in removing the resource curse. In other words, economic institutions matter more than political institutions in addressing the resource curse.

Appendix 2: Estimation using alternative institutional variables

A number of institutional indicators (Control of Corruption, Governance Effectiveness, Voice and Accountability) are used to estimate the effects of institutional quality on the three performance measures (per capita GDP growth, FDI, and infant mortality). Using several institutional indicators allows capturing whether institutional quality has the same effect on performance, regardless of the aspect or dimension of institutions considered.

Appendices 2.1 through 2.5 reports results using control corruption, governance effectiveness, and voice and accountability, respectively. Annual data for these institutional indicators are obtained from the World Bank's WGI for the period extending from, 1996 to 2015. Marginal effects of these institutional variables on the three performance measures suggest that institutional quality has the same effect on performance in both SSA and SEA, regardless of the institutional dimension accounted for.

Appendix 2.1: Pooled OLS, using Control of Corruption as the institutional variable

VARIABLES	(1) GDP	(2) FDI	(3) Infant mortality
SSA	-0.056	-0.484	0.450***
	(0.065)	(0.367)	(0.067)
Control of Corruption	0.021***	0.025**	-0.015***
	(0.001)	(0.010)	(0.002)
Natural resources	-0.009**	-0.016**	0.009***
	(0.003)	(0.007)	(0.003)
Interaction between SSA and natural resources	0.017***	0.022***	-0.006**
	(0.005)	(0.007)	(0.003)
Interaction between SSA and Control of Corruption	-0.003***	-0.004	0.007***
	(0.001)	(0.001)	(0.002)
Inflation	-0.120	-0.472	0.086
	(0.079)	(0.316)	(0.069)
ODA per capita	-0.001***	0.005***	-0.001***
	(0.000)	(0.001)	(0.000)
Government expenditure in % of GDP	0.013***	0.026*	-0.008***
	(0.002)	(0.013)	(0.001)
Population growth	-0.155***	0.853***	-0.037***
	(0.026)	(0.079)	(0.0114)
Urban population in % of total population	0.028***	0.030***	-0.011***
	(0.003)	(0.009)	(0.001)
High-income countries (dummy)	1.225***	1.813***	-0.968***
	(0.086)	(0.294)	(0.055)
Constant	5.803***	1.319*	4.427***
	(0.181)	(0.656)	(0.101)
Observations	1,128	1,128	1,128
R-squared	0.645	0.284	0.720
Number of groups	54	54	54

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix 2.2: Marginal effects of control of corruption and EXP on GDP, FDI, and infant mortality for SSA versus SEA

		GDP	FDI	Infant mortality
SSA	Control of Corruption	0.018	0.021	-0.008
	Natural resources	0.008	0.005	0.004
SEA	Control of Corruption	0.021	0.025	-0.015
	Natural resources	-0.009	-0.016	0.009

*** p<0.01, ** p<0.05, * p<0.1

Appendix 2.3: Pooled OLS, using Governance Effectiveness as the institutional variable

VARIABLES	(1) GDP	(2) FDI	(3) Infant mortality
SSA	-0.052	-0.477	0.440***
	(0.065)	(0.379)	(0.067)
Governance Effectiveness	0.021***	0.025**	-0.015***
	(0.001)	(0.010)	(0.002)
Natural resources	-0.009**	-0.016**	0.009***
	(0.003)	(0.007)	(0.003)
Interaction between SSA and natural resources	0.017***	0.022***	-0.006**
	(0.005)	(0.007)	(0.003)
Interaction between SSA and Governance Effectiveness	-0.003***	-0.004	0.007***
	(0.001)	(0.011)	(0.002)
Inflation	-0.120	-0.472	0.086
	(0.079)	(0.316)	(0.069)
ODA per capita	-0.001***	0.005***	-0.001***
	(0.000)	(0.001)	(0.000)
Government expenditure in % of GDP	0.013***	0.026*	-0.008***
	(0.002)	(0.013)	(0.001)
Population growth	-0.155***	0.853***	-0.038***
	(0.026)	(0.079)	(0.011)
Urban population in % of total population	0.028***	0.031***	-0.011***
	(0.003)	(0.009)	(0.001)
High-income countries (dummy)	1.225***	1.813***	-0.968***
	(0.086)	(0.294)	(0.056)
Constant	5.773***	1.284*	4.448***
	(0.181)	(0.654)	(0.099)
Observations	1,128	1,128	1,128
R-squared	0.645	0.284	0.720
Number of groups	54	54	54

Appendix 2.4: Marginal effects of Governance Effectiveness and EXP on GDP, FDI, and infant mortality for SSA versus SEA

		GDP	FDI	Infant mortality
SSA	Governance effectiveness	0.018	0.021	-0.008
	Natural resources	0.008	0.006	0.004
SEA	Governance effectiveness	0.021	0.025	-0.015
	Natural resources	-0.009	-0.016	0.009

Appendix 2.5: Pooled OLS, using Voice and Accountability as the institutional variable

VARIABLES	(1) GDP	(2) FDI	(3) Infant mortality
SSA	-0.051	-0.476	0.439***
	(0.065)	(0.381)	(0.066)
Voice & Accountability	0.021***	0.025**	-0.015***
	(0.001)	(0.010)	(0.002)
Natural resources	-0.009**	-0.016**	0.009***
	(0.003)	(0.007)	(0.003)
Interaction between SSA and natural resources	0.017***	0.022***	-0.006**
	(0.006)	(0.007)	
			(0.003)
Interaction between SSA and Voice & Accountability	-0.003***	-0.004	0.007***
	(0.003)	(0.011)	(0.002)
Inflation	-0.120	-0.472	0.086
	(0.079)	(0.316)	(0.069)
ODA per capita	-0.001***	0.005***	-0.001***
	(0.000)	(0.001)	(0.000)
Government expenditure in % of GDP	0.0134***	0.026*	-0.008***
	(0.002)	(0.013)	(0.001)
Population growth	-0.155***	0.853***	-0.038***
	(0.026)	(0.079)	(0.011)
Urban population in % of total population	0.028***	0.031***	-0.011***
	(0.003)	(0.009)	(0.001)
High-income countries (dummy)	1.225***	1.813***	-0.968***
	(0.086)	(0.294)	(0.056)
Constant	5.768***	1.278*	4.451***
	(0.181)	(0.654)	(0.099)
Observations	1,128	1,128	1,128
R-squared	0.645	0.284	0.720
Number of groups	54	54	54

Appendix 2.6: Marginal effects of Voice and Accountability and EXP on GDP, FDI, and infant mortality for SSA versus SEA

		GDP	FDI	Infant mortality
SSA	Voice and Accountability	0.018	0.021	-0.008
	Natural resources	0.008	0.006	0.004
SEA	Voice and Accountability	0.021	0.025	-0.015
	Natural resources	-0.009	-0.016	0.009

Appendix 3: Regression using alternative dependent variables

Appendix 3 uses the Log of GDP per Person employed (constant 2011 PPP $) and the Prevalence of undernourishment (% of total population) as alternative measures for per capita GDP growth and infant mortality rate, respectively. This allows capturing whether the effects of institutional quality and abundance in natural resources are robust to the use of different measures of economic and social progress.

Appendix 3.1: Pooled OLS

VARIABLES	(1) Log of GDP per Person employed (constant 2011 PPP $)	(2) Prevalence of undernourishment (% of total population)
SSA	-0.898***	5.575***
	(0.0799)	(1.606)
RQ	0.0292***	-0.173**
	(0.00148)	(0.0641)
Natural resources	0.0229***	-0.149*
	(0.00382)	(0.0852)
Interaction between SSA and natural resources	-0.0157***	0.229***
	(0.00454)	(0.0797)
Interaction between SSA and RQ	-0.0108***	-0.0481
	(0.00133)	(0.0345)
Inflation	-0.129**	5.171***
	(0.0568)	(1.011)
ODA per capita	-0.00282***	0.0123*
	(0.000320)	(0.00590)
Government expenditure in % of GDP	0.0127***	-0.114*
	(0.00286)	(0.0593)
Population growth	-0.184***	-0.863**
	(0.0134)	(0.412)
Urban population in % of total population	0.0270***	-0.414***
	(0.00157)	(0.0202)
High-income countries (dummy)	-1.378***	11.08**
	(0.153)	(4.966)
Constant	8.922***	38.49***
	(0.111)	(2.501)
Observations	1,107	985
R-squared	0.657	0.422
Number of groups	53	47

Appendix 3.2: Marginal effects of RQ and natural resources on GDP per person employed and Prevalence of undernourishment (% of total population) for SSA versus SEA

		Log of GDP per Person employed (constant 2011 PPP $)	Prevalence of undernourishment (% of total population)
SSA	RQ	0.018***	-0.221
	Natural resources	0.007***	0.080***
SEA	RQ	0.0292***	-0.173**
	Natural resources	0.0229***	-0.149*

*** p<0.01, ** p<0.05, * p<0.1

Appendix 4: Inflation rate in SSA and SEA, 1995-2015

Country	1995-1999	2000-2004	2005-2009	2010-2015
SSA (forty-five countries)	**50.87**	**13.82**	**8.77**	**6.2**
DR Congo	334.37	189.88	23.03	7.06
Ethiopia	3.88	3.01	19.06	15.18
Nigeria	25.46	13.54	11.12	10.39
South Africa	7.35	5.49	6.76	5.22
Tanzania	16.92	4.84	8.21	9.25
SEA (nine countries)	**15.09**	**5.95**	**7**	**4.1**
Indonesia	20.55	7.98	9.01	5.61
Myanmar	26.24	23.92	16.36	6.14
Philippines	7.27	4.35	5.48	3.36
Thailand	5.10	1.7	3.21	2.21
Vietnam	7.56	2.64	10.82	8.05

Sources: Author's calculation based on data from the IMF, *World Economic Outlook*

Appendix 5: Rural sector performance in SSA and SEA, 2004-2015

Country	Policy and legal framework for rural organizations	Access to land	Access to water for agriculture	Enabling conditions for rural financial services development	Investment climate for rural businesses
SSA (forty-five countries)	**0.577**	**0.492**	**0.495**	**0.507**	**0.525**
DR Congo	0.619	0.459	0.475	0.429	0.378
Ethiopia	0.594	0558	0.623	0.707	0.621
Nigeria	0.587	0.445	0.464	0.553	0.573
South Africa	0.63	0.585	0.593	0.56	0.688
Tanzania	0.706	0.653	0.695	0.633	0.631
SEA (nine countries)	**0.641**	**0.557**	**0.537**	**0.575**	**0.594**
Indonesia	0.601	0.526	0.518	0.566	0.551
Myanmar	0.374	0.336	0.364	0.343	0.336
Philippines	0.759	0.627	0.614	0.693	0.611
Thailand	0.813	0.694	0.637	0.686	0.842
Vietnam	0.729	0.601	0.638	0.582	0.646

Source: International Fund for Agricultural Development, *Rural Sector Performance Assessments;* Author's calculation.
Note: Each of these dimensions is based on a 10-point scale for the period 2004-2015.

Appendix 5 compares SSA and SEA in terms of their rural sector environment. Assessment of the rural sector environment is provided by the International Fund for Agricultural Development (IFD) in a range of areas including policy and legal framework for rural organizations, enabling conditions for rural financial services development, investment climate for rural businesses, access to agricultural input and product markets, access to land, and access to water for agriculture. A simple comparison highlights substantial variation between SSA and SEA in terms of rural sector performance. First, aggregates of the two regions indicate that SEA outperforms SSA in all of the five dimensions highlighted in the table above. Second, disaggregation to individual countries also suggests that rural sector performance is better in SEA countries (in the exception of Myanmar), compared to SSA.

Appendix 6: Comparing of Business Regulations between SSA and SEA

Appendix 6 utilizes the World Bank's Doing Business indicators to compare the quality of business regulations between SSA and SEA.

Appendix 6.1: Starting a Business in SSA versus SEA, 2004-2015

Country	Procedure (number)	Time (days)	Cost (% of income per capita)	Paid in minimum capital (% of income per capita)
SSA (forty-five countries)	**10**	**45**	**131.52**	**159.77**
DR Congo	13	101	786.52	117.43
Ethiopia	12	31	146.34	820.57
Nigeria	8	30	111.63	0
South Africa	7	49	5.2	0
Tanzania	10	30	81.03	0
SEA (nine countries)	**12**	**65**	**53.99**	**588.61**
Indonesia	12	93	63.05	50.88
Myanmar	14	76	145.8	6883.83
Philippines	17	42	21.91	4.24
Thailand	8	32	12.79	0.03
Vietnam	10	40	17.43	0

Sources: Author's calculations based on data from the World Bank's Doing Business

Appendix 6.1 compares SSA and SEA in terms of the number of procedures required for an entrepreneur to start up and formally operate an industrial or commercial business; time and cost required to complete these procedures; and paid-in minimum capital that companies must deposit before registration. It can be observed that on average in SEA it takes more procedures and time (days) for starting up a business relative to SSA. Further, minimum capital requirements are greater in SEA. On the other hand, the cost for completing business start-up procedures in SSA is higher relative to SEA. Overall, appendix 6.1 suggests that it is relatively easier to start-up a business in SSA compared with SEA.

Appendix 6.2: Trading Across Borders in SSA vs SEA, 2004-2015

Country	Documents to export (number)	Time to export: Border compliance (hours)	Cost to export (US$ per container)	Documents to import (number)	Time to import: border compliance (hours)	Cost to import (US$ per container)
SSA (forty-five countries)	**8**	**335**	**1922.86**	**9**	**40**	**2440.1**
DR Congo	7	347	2937	10	3039	3519
Ethiopia	8	57	2181.8	11	668	2729
Nigeria	9	135	1195.8	13	1077	1411
South Africa	6	100	1445.4	7	657	1671.5
Tanzania	7	96	1150.7	12	1350	1441.7
SEA (nine countries)	**6**	**52**	**754.51**	**8**	**22**	**830.59**
Indonesia	4	48	590.9	8	384	653.3
Myanmar	9	144	653.33	9	367	643.33
Philippines	6	42	699.2	7	580	773.3
Thailand	6	51	658.6	7	233	827.5
Vietnam	5	60	545.7	8	392	612.4

Source: Author's calculations based on data from the World Bank's Doing Business

Appendix 6.2 compares SSA and SEA in terms of the Trading-Across-Borders indicators. This indicator measures the time and cost associated with exporting and importing a standard shipment of goods by sea transport, and the number of documents necessary to complete the transaction. In contrast with the Starting-a-Business indicator, it can be seen here that SEA on average performs better than SSA. For instance, the time and cost for exporting or importing a container is significantly lower in SEA.

Appendix 6.3: Registering Property in SSA vs SEA, 2004-2015

Country	Procedures (number)	Time (days)	Cost (% of property value)
SSA (forty-five countries)	**6**	**77**	**10.31**
DR Congo	7	48	13.15
Ethiopia	8	53	6.94
Nigeria	13	81	21.01
South Africa	7	23	8.23
Tanzania	9	72	4.69
SEA (nine countries)	**7**	**79**	**4.37**
Indonesia	5	33	10.63
Myanmar	6	85	6.53
Philippines	9	35	4.3
Thailand	4	6	6.64
Vietnam	5	61	0.93

Author's calculations based on data from the World Bank's Doing Business

Appendix 6.3 compares SSA and SEA in terms of the procedures necessary for a business to purchase property from another business and transfer the property title to the buyer's name. Overall, there is no major difference between the two regions. While in SSA it takes fewer procedures and time for registering a property, the cost for property registration is much smaller in SEA.

Appendix 6.4: Paying Taxes, 2004-2015

Country	Payments (number per year)	Time (hours per year)	Total tax rate (% of profit)	Profit tax (% of profit)	Labor tax and contributions (% of profit)	Other taxes (% of profit)
SSA (forty-five countries)	**54**	**61.157**	**49.74**	**402.02**	**117.31**	**18.47**
DR Congo	41	323.6	254.8	43.2	10.35	14.4
Ethiopia	30	233	31.47	26.6	3.4	3.4
Nigeria	50	998	31.58	21.75	10.75	0.5
South Africa	9	242	32.47	23	4.05	3.2
Tanzania	48	174	44.31	20.45	17.75	6.1
SEA (nine countries)	**34**	**318.46**	**33.33**	**18.09**	**8.56**	**3.54**
Indonesia	56	323.7	30.57	16.7	11.3	3.4
Myanmar	31	240.5	35.3	26.4	0	6
Philippines	45	194.4	45.59	20.8	9.65	14
Thailand	25	264	39.23	23.9	5	2.7
Vietnam	39	974.8	38.93	14.3	23.15	0.1

Author's calculations based on data from the World Bank's Doing Business

Appendix 6.4 compares SSA and SEA in terms of tax regulations. SEA on average has lower tax rates relative to SSA. Further, looking at the number of tax payments per year suggests that paying taxes is easier in SEA relative to SSA. These differences are of important interest, in particular because keeping tax rates at a reasonable level in addition to simple tax rules can contribute to promoting the private sector as well as economic growth.

Appendix 6.4: High tax rates and socioeconomic indicators in SSA

	Low total tax rate countries (< 30 % of profit)	Lower-medium total tax rate countries (>=30 & <50 % of profit)	Upper-medium total tax rate countries (>=50 & <70 % of profit)	High total tax rate countries (>=70 % of profit)
Gross fixed capital formation (% of GDP)	28.87	22.36	22.25	25.49
Access to electricity, rural (% of rural population)	44.56	17.55	14.23	18.38
Foreign direct investment, net inflows (million US$), average 2011-2015	1229.96	1117.1	325.01	224.4
Infant mortality rate (under-five mortality rate, deaths per 1,000 live births)	35.6	52.97	67.95	64.28
GDP per capita growth (annual %)	2.76	2.26	1.7	0.62

Source: Author's calculations based on data from the World Bank, *Doing Business; WDI*

Appendix 6.4 creates four hypothetical groups of SSA countries based on their respective total tax rate in 2015. The first group includes countries whose total tax rate is less than 30 percent of profit (Botswana, Lesotho, Mauritius, Namibia, Seychelles, South Africa, and Zambia); the second group includes countries whose total tax rate ranges between 30 and less than 50 percent of profit (Burkina Faso, Burundi, Cabo Verde, Cameroon, Equatorial Guinea, Ethiopia, Gabon, Ghana, Guinea-Bissau, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Sudan, Swaziland, Tanzania, Uganda, and Zimbabwe); the next group comprises countries with total tax rate ranging between 50 and less than 70

percent of profit (Angola, Benin, Chad, DR Congo, Congo, Cote d'Ivoire, Gambia, Guinea, and Togo); and the final group includes countries whose total tax rate exceeds 70 percent of total profit (Central African Republic, Comoros, Eritrea, and Mauritania). The four groups are then compared on a range of economic and social indicators (e.g., gross fixed capital formation, access to electricity in rural areas, FDI inflows, infant mortality rate, and GDP per capita growth). The table seems to indicate that in SSA high tax rate leads to poor socioeconomic performance. Specifically, low tax rate countries experience greater domestic and foreign investment, have higher per capita GDP growth, and better social indicators compared with high tax rate countries.

Appendix 6.6: Dealing with Construction Permits, 2004-2015

Country	Procedures (number)	Time (days)	Cost (% of warehouse value)
SSA (forty-five countries)	**14**	**191**	**12.92**
DR Congo	8.2	182	3.01
Ethiopia	9.2	126	18.86
Nigeria	17	116	119.31
South Africa	17	139	0.88
Tanzania	18	205	12.72
SEA (nine countries)	**17**	**193**	**2.28**
Indonesia	17	195	6.63
Myanmar	14	95	6.3
Philippines	27	97	2.21
Thailand	17	143	0.1
Vietnam	10	166	1.11

Author's calculations based on data from the World Bank's Doing Business

Appendix 6.6 compares SSA and SEA in terms of the regulations in the construction sector. These include all the procedures, time and costs required for a business in this sector to obtain all the necessary approvals to build a warehouse, connect it to basic utilities and register it. A comparison between SSA and SEA on these regulations shows no major difference between the two regions. One should note, however, that the cost to comply with formalities to build a warehouse in SSA is on average greater relative to SEA.

Appendix 6.7: Getting Electricity, 2004-2015

Country	Procedures (number)	Time (days)	Cost (% of income per capita)	Price of electricity (US cents per kWh)
SSA (forty-five countries)	**5**	**139**	**5450.16**	**19.87**
DR Congo	6	103	33297.32	11.5
Ethiopia	4	88	3006.48	4.7
Nigeria	9	211	1158.32	15.7
South Africa	5	222	830.62	9.9
Tanzania	4	155	2095.85	16.6
SEA (nine countries)	**5**	**88**	**1232.31**	**14.02**
Indonesia	6	90	740.13	14.2
Myanmar	6	98	2920.03	12.3
Philippines	4	42	297.98	20
Thailand	5	37	57.7	17.1
Vietnam	6	115	2335.85	12

Author's calculations based on data from the World Bank's Doing Business

Appendix 6.7 compares the reliability of electricity supply and tariffs in SSA and SEA. This can be measured in terms of all procedures required for a local business to obtain a permanent electricity connection and supply for a standardized warehouse, as well as time and cost to complete each procedure. Based on averages for the period 2004-2015, a number of differences between the two regions can be highlighted. First, in SEA fewer procedures are required for a business to obtain electricity relative to SSA. Second, the cost for obtaining a permanent electricity and connection supply in SSA are about five times higher relative to SEA. Third, electricity in US$ per kWh is cheaper and more reliable in SEA. Finally, SSA and SEA are quite similar with regard to the other aspects, including mechanisms for monitoring outages, restoring service, and communication of tariffs and tariff changes. Appendix 6.7 thus suggests that SEA on average is more competitive in terms of reliability, time, and cost of electricity supply.

Appendix 6.8: Enforcing Contracts in SSA and SEA, 2004-2015

Country	Time (days)	Cost (% of claim)
SSA (forty-five countries)	**667**	**59.52**
DR Congo	637	139.58
Ethiopia	610	15.2
Nigeria	524	87
South Africa	600	33.2
Tanzania	515	14.3
SEA (nine countries)	**594**	**51.99**
Indonesia	496	134.95
Myanmar	1160	51.5
Philippines	855	26.53
Thailand	469	15.37
Vietnam	410	29.88

Author's calculations based on data from the World Bank's Doing Business

A country's regulatory quality is also assessed in terms of the effectiveness and efficiency of the judicial system (i.e., time, cost and procedural complexity of resolving a commercial lawsuit involving two domestic businesses). There is empirical evidence that enhancement in contract enforcement is associated with the development of the private sector (Islam 2003) as well as economic growth (Feld and Voigt 2004). Appendix 6.8 shows that SSA and SEA are quite similar in terms of the effectiveness and efficiency of contract enforcement. In both regions on average it takes about a year and half to resolve a commercial dispute between two domestic businesses.

Appendix 6.9: Resolving Insolvency in SSA and SEA, 2004-2015

Country	Recovery rate (cents on the dollar)	Time (years)	Cost (% of estate)
SSA (forty-five countries)	**18.95**	**3**	**23.5**
DR Congo	n.a	n.a	n.a
Ethiopia	31.02	3	14.5
Nigeria	27.41	2	22
South Africa	33.72	2	18
Tanzania	21.62	3	22
SEA (nine countries)	**24.79**	**3**	**19.14**
Indonesia	24.11	2	21
Myanmar	14.03	5	18
Philippines	7.15	3	37
Thailand	51.09	2	30
Vietnam	17.82	5	15

Author's calculations based on data from the World Bank's Doing Business

In addition to the contract enforcement, a country's regulatory quality can be assessed in terms of the strength of the legal framework for dealing with bankruptcy. This is covered by the Resolving Insolvency index, which also measures the time, cost and outcome of insolvency proceedings involving domestic legal entities (World Bank 2017). A good insolvency regime contributes to improving businesses' access to credit (Haselmann 2010), which in turn can positively affect the growth of the private sector. Appendix 6.9 shows that some areas of insolvency regimes are slightly better in SEA compared to SSA. For instance, the average debt recovery rate in SEA is higher relative to SSA. On the other hand, the time it takes for resolving an insolvency is similar in both SSA and SEA.

Appendix 7: Comparing institutional weakness, prevalence of violent conflicts, Dutch disease, and volatility between resource-abundant and resource-scarce countries

	Resource-abundant	Resource-scarce
Institutional weakness (Control of Corruption)	28.14	34.29
Violent conflict	0.67	0.03
Dutch Disease	9.12	11.8
Volatility	0.44	0.48

Notes: (1) institutional weakness is measured in terms of the mean value of Control of Control for the period 1996-2015, taken the World Bank WGI; (2) violent conflict is the mean value of the Magnitude of episodes of civil warfare in the period 1990-2015, taken from Polity IV; (3) Dutch Disease is measured in terms of the mean value for each country's value-added in the manufacturing sector (measured as a fraction of GDP) during the period 1990-2015; data are obtained from the World Bank's WDI; and (4) Volatility is the Standard deviation of government revenue for the years 1990-2015 (measured as a fraction of GDP), divided by the mean for the same period; data are obtained from the IMF's Government Finance Statistics.

Resource-abundant countries include Angola, Botswana, Cameroon, Chad, DR Congo, Congo, Equatorial Guinea, Gabon, Ghana, Guinea, Liberia, Mauritania, Mozambique, Namibia, Nigeria, Sierra Leone, South Africa, Sudan, and Zambia.

Resource-scarce countries include Benin, Burkina Faso, Burundi Central African Republic, Comoros, Cote d'Ivoire, Eritrea, Ethiopia, Gambia, Guinea-Bissau, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Niger, Rwanda, Senegal, Seychelles, Swaziland, Tanzania, Togo, Uganda, and Zimbabwe.

Cabo Verde and Mali are dropped due to missing observations

Bibliography

Acemoglu, Daron, Simon Johnson, and James A Robinson. 2004. "Institutions as the Fundamental Cause of Long-Run Growth." *Handbook of Economic Growth* 1A: 386-472.

Acemoglu, Daron, Francisco A Gallego, and James A Robinson. 2014. "Institutions, Human Capital, and Development." *Annu. Rev. Econ* 6: 875–912.

Acemoglu, Daron, Suresh Naidu, Pascual Restrepo, and James A Robinson. 2014. "Democracy Does Cause Growth." *NBER Working Paper 20004*. National Bureau of Economic Research.

Acemoglu, Daron, and James A. Robinson. 2010. "Why Is Africa Poor?" *Economic History of Developing Regions* 25 (1): 21–50.

Alexeev, Michael, and Robert Conrad. 2011. "The Natural Resource Curse and Economic Transition." *Economic Systems* 35 (4): 445–461.

Andersen, Jorgen Juel, and Silje Aslaksen. 2008. "Constitutions and the Resource Curse." *Journal of Development Economics* 87 (2): 227–246.

Andrews, Matt. 2010. "Good Government Means Different Things in Different Countries." *Governance* 23 (1): 7–35.

Anyanwu, John C. 2011. "Determinants of Foreign Direct Investment Inflows to Africa, 1980-2007." *AfDB Working Paper 136*. African Development Bank.

Arezki, Rabah, Thorvaldur Gylfason, and Amadou Sy. 2011. *Beyond the Curse: Policies to Harness the Power of Natural Resources*. Washington, D.C.: International Monetary Fund.

Arezki, Rabah, and Frederick van der Ploeg. 2011. "Do Natural Resources Depress Income per Capita?" *Review of Development Economics* 15 (3): 504–521.

Arndt, Channing, Sam Jones, and Finn Tarp. 2015. "Assessing Foreign Aid's Long Run Contribution to Growth and Development." *World Development* 69: 6–18.

Aron, Janine. 2000. "Growth and Institutions: A Review of the Evidence." *The World Bank Research Observer* 15 (1): 99–135.

Atkinson, Giles, and Kirk Hamilton. 2003. "Savings, Growth and the Resource Curse Hypothesis." *World Development* 31 (11): 1793–1807.

Bairam, Erkin, and Bert Ward. 1993. "The Externality Efect of Government Expenditure on Investment in OECD Countries." *Applied Economics* 25 (7): 711–716.

Baro, Robert. 1991. "Economic Growth in a Cross Section of Countries." *The Quaterly Journal of Economics* 106 (2): 407-443.

Basedau, Matthias. 2005. Context Matters: Rethinking the Resource Curse in Sub-Saharan Africa. *Working Papers Global and Area Studies, Working Paper* 1. German Overseas Institute.

Béland, Louis-philippe, and Raaj Tiagi. 2009. "Economic Freedom and the 'Resource Curse': An Empirical Analysis." *Studies in Mining Policy.* Fraser Institute.

Le Billon, Philippe. 2005. *Fuelling War: Natural Resources and Armed Conflict*. New York: Routledge.

Berendsen, Bernard, Ton Dietz, T., Henk Schulte Northolt, and Roel van der Veen. 2013. *Asian Tigers, African Lions: Comparing the Development Performance of Southeast Asia and Africa*. Leiden: Brill.

Bloom, David E, Jeffrey D Sachs, Paul Collier, and Christopher Udry. 1998. "Geography, Demography, and Economic Growth in Africa." *Brookings Papers on Economic Activity* 1998 (2): 207–295.

Booth, David. 2012. *Development as a Collective Action Problem: Addressing the Real Challenges of African Governance.* London: Zed Books.

Borensztein, E., De Gregorio J., and Lee J-W. 1998. "How Does Foreign Direct Investment Affect Economic Growt?" *Journal of International economics* 45: 115-135.

Boschini, Anne D., Jan Pettersson, and Jesper Roine. 2007. "Resource Curse or Not: A Question of Appropriability." *Scandinavian Journal of Economics* 109 (3): 593–617.

Boschini, Anne D., Jan Pettersson, and Jesper Roine. 2013. "The Resource Curse and Its Potential Reversal." *World Development* 43: 19–41.

Botlhole, Thuto, John Asafu-Adjaye, and Fabrizio Carmignani. 2012. "Natural Resource Abundance, Institutions and Tax Revenue Mobilisation in Sub-Sahara Africa." *South African Journal of Economics* 80 (2): 135–156.

Brambor, Thomas, Roberts Clark William, and Matt Golderl. 2005. "Understanding Interaction Models: Improving Empirical Analyses." *Political Analysis* 14 (1): 63-82.

Braunerhjelm, Pontus, and Johan E Eklund. 2014. "Taxes, tax administrative burdens and new firm formation", *Kyklos* 67 (1): 1–11.

Brückner, Markus. 2010. "Natural Resource Dependence, Non-Tradables, and Economic Growth." *Journal of Comparative Economics* 38: 461–471.

Brunnschweiler, Christa N. 2008. "Cursing the Blessings? Natural Resource Abundance, Institutions, and Economic Growth." *World Development* 36 (3): 399–419.

Brunnschweiler, Christa N., and Erwin H. Bulte. 2008. "The Resource Curse Revisited and Revised: A Tale of Paradoxes and Red Herrings." *Journal of Environmental Economics and Management* 55 (3): 248–264.

Bulte, Erwin H., Richard Damania, and Robert T. Deacon. 2005. "Resource Intensity, Institutions, and Development." *World Development* 33 (7): 1029–1044.

Cabrales, Antonio, and Esther Hauk. 2011. "The Quality of Political Institutions and the Curse of Natural Resources." *Economic Journal* 121 (551): 58–88.

Chang, Ha-Joon. 2011. "Institutions and Economic Development: Theory, Policy and History." *Journal of Institutional Economics* 7 (4): 473–98.

Chen, Wenjie, David Dollar, and Heiwai Tang. 2015. "Why Is China Investing in Africa? Evidence from the Firm Level." *World Bank Economic Review* lhnw049.

Chitonge, Horman. 2015. *Economic Growth and Development in Africa: understanding trends and prospects.* New York: Routledge.

Clemens, Michael A., Steven Radelet, Rikhil R. Bhavnani, and Samuel Bazzi. 2012. "Counting Chickens When They Hatch: Timing and the Effects of Aid on Growth." *The Economic Journal* 122 (561): 590–617.

Collier, Paul, and Jan Willem Gunning. 1999. "Explaining African Economic Performance." *Journal of Economic Literature* 37 (1): 64–111.

Collier, Paul, and Anke Hoeffler. 2009. "Testing the Neocon Agenda: Democracy in Resource-Rich Societies." *European Economic Review* 53 (3): 293–308.

Collier, Paul, Rick Van der Ploeg, Michael Spence, and Anthony J Venables. 2010. "Managing Resource Revenues in Developing Economies." *IMF Staff Papers* 57: 84–118.

Cooray, Arusha. 2009. "Government Expenditure, Governance and Economic Growth." *Comparative Economic Studies* 51 (3): 401–18.

Davis, Graham A. 1995. "Learning to Love the Dutch Disease: Evidence from the Mineral Economies." *World Development* 23 (10): 1765–1779.

Devarajan, Shantayanan, Vinaya Swaroop, and Heng-Fu Zou. 1996. "The Composition of Public Expenditure and Economic Growth." *Journal of Monetary Economics* 37: 313–44.

Djankov, Simeon, Tim Ganser, Caralee McLiesh, Rita Ramalho, and Andrei Shleifer. 2010. "The Effect of Corporate Taxes on Investment and Entrepreneurship." *American Economic Journal: Macroeconomics* 2 (3): 31–64.

Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2008. "The law and economics of self-dealing." *Journal of Financial Economics* 88 (3):430-465.

Driscoll, John C., and Aart C Kraay. 1998. "Consistent Covariance Matrix Estimation with Spatially Dependent Panel Data." *Review of Economics and Statistics* 80 (4): 549–560.

Easterly, William, and Stanley Fischer. 2001. "Inflation and the Poor." *Journal of Money, Credit and Banking* 33 (2): 160–178.

Eicher, Theo S., and Andreas Leukert. 2009. "Institutions and Economic Performance: Endogeneity and Parameter Heterogeneity." *Journal of Money, Credit and Banking* 41 (1): 197–219.

El Ansashy, Amany A., and Marina S Katsaiti. 2013. “Natural Resources and Fiscal Performance: Does Good Governance Matter?” *Journal of Macroeconomics* 37: 285–298.

Farhadi, Minoo, Md Rabiul Islam, and Solmaz Moslehi. 2015. “Economic Freedom and Productivity Growth in Resource-Rich Economies.” *World Development* 72: 109–26.

Feld, Lars P, and Stefan Voigt. 2004. “Making Judges Independent—Some Proposals Regarding the Judiciary.” *Democratic constitutional design and public policy, analysis and evidence* (pp. 251–288). Cambridge: MIT Press.

Fischer, Stanley. 1991. “Growth, Macroeconomics, and Development.” *NBER macroeconomics annual* 6: 329–64.

Fosu, Augustin K. 2010. “Africa’s Economic Future: Learning from the past.” CESifo Forum 11: 62-71.

Fosu, Augustin K. 2015. *Growth and institutions in African Development* 117. New York: Routledge.

Frankel, Jeffrey A. 2012. “The Natural Resource Curse : A Survey of Diagnoses and Some Prescriptions.” In *Commodity Price Volatility and Inclusive Growth in Low-Income Countries.* Eds. Arezki, Rabah, Catherine Pattillo, Marc Quintyn, and Min Zhu. Washington, D.C.: International Monetary Fund.

Gallup, John Luke, Jeffrey D Sachs, and Andrew D Mellinger. 1999. “Geography and Economic Development.” *International Regional Science Review* 22 (2): 179–232.

Gelb, Alan, and Sina Grasmann. 2008. “Confronting the Oil Curse.” *Mimeo*. World Bank.

Gete, Pedro. 2014. "Dealing with Construction Permits, Interest Rate Shocks and Macroeconomic Dynamics" *Proceedings from Doing Business (DB) Conference*. Washington, D.C.: World Bank.

Guimarae, Paulo, Octavio Figueiredó, and Douglas Woodward. 2000. “Agglomeration and the Location of Foreign Direct Investment in Portugal 1.” *Journal of Urban Economics* 47 (1): 115–135.

Gupta, Sanjeev, Marijn Verhoeven, and Erwin R Tiongson. 2002. "The Effectiveness of Government Spending on Education and Health Care in Developing and Transition Economies." *European Journal of Political Economy* 18: 717–737.

Haselmann, Rainer, Katharina Pistor, and Vikrant Vig. 2010. "How Law Affects Lending." *Journal of Financial Studies* 23 (2): 549–580.

Henley, David. 2015. *Asia-Africa Development Divergence: A Question of Intent*. London: Zed Books.

Hibbs, Douglas A, and Violeta Piculescu. 2010. "Tax Toleration and Tax Compliance: How Government Affects the Propensity of Firms to Enter the Unofficial Economy." *American Journal of Political Science* 54 (1): 18–33.

Hoechle, Daniel. 2007. "Robust Standard Errors for Panel Regressions with Cross-Sectional Dependence." *Stata Journal* 7 (3): 281–312.

Iimi, Atsushi. 2006. "Did Botswana Escape from the Resource Curse?" *IMF Working Papers* 06/138. International Monetary Fund. 1.

International Tax Dialogue. 2007. "Taxation of Small and Medium Enterprises." *Background paper for the International Tax Dialogue Conference*. Buenos Aires.

Islam, Roumeen. 2003. "Institutional Reform and the Judiciary: Which Way Forward." *Research Working Paper 3134*. Washington, D.C.: World Bank.

Joskow, Paul. 2008. "Introduction to New Institutional Economics: A Report Card." In *New Institutional Economics: A Guidebook*. Eds. Brousseau, Eric, and Jean-Michel Glachant. Cambridge: Cambridge University Press.

Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi. 2011. "The Worldwide Governance Indicators: Methodology and Analytical Issues." *Hague Journal on the Rule of Law* 3 (2): 220–246.

Keenan, Patrick. 2014. "International Institutions and the Resource Curse." *The Economic Journal* 3(1): 1–20.

Kelsall, Tim. 2013. "Economic Growth and Political Succession: A Study of Two Regions." *Developmental Regimes in Africa Project Working Paper 01*. London: Overseas Development Institute.

Khan, Mushtaq H. 2010. “Governance, Growth and Development.” *ARI* 138/2010. Madrid: Elcano Royal Institute for Strategic and International Studies.

Khan, Mushtaq. 2012. “Governance and Growth: History, Ideology, and Methods of Proof.” In *Good Growth and Governance in Africa: Rethinking Development Strategies*. Eds. Noman, Akbar, Kwesi Botchwey, Howard Stein, and Joseph E Stiglitz. Oxford: Oxford University Press.

KPMG. 2016. *Competitive Alternatives: KPMG's Guide to International Business Location*. Amsterdam.

Kremer, Stephanie, Alexander Bick, and Dieter Nautz. 2013. “Inflation and Growth: New Evidence from a Dynamic Panel Threshold Analysis.” *Empirical Economics* 44: 861–878.

Kunčič, Aljaž. 2014. “Institutional Quality Dataset.” *Journal of Institutional Economics* 10 (1): 135–161.

Kurtz, Marcus J, and Andrew Schrank. 2007. “Growth and Governance: Models, Measures, and Mechanisms.” *Journal of Politics* 69 (2): 538–554.

Lederman, Daniel, and William F Maloney. 2007. *Natural Resources: Neither Curse nor Destiny*. Washignton, DC.: Stanford University Press.

Lee, Munseob, and Cheikh Anta Gueye. 2015. “Do Resource Windfalls Improve the Standard of Living in Sub-Saharan African Countries ? Evidence from a Panel of Countries”. *IMF Working Paper* 15/83. Washignton, D.C.: International Monetary Fund.

Lundgren, Charlotte, Alun Thomas, and Robert York. 2013. *Boom, Bust, or Prosperity? Managing Sub-Saharan Africa's Natural Resource Wealth*. Washignton, DC.: International Monetary Fund.

Masanjala, Winford H, and Chris Papageorgiou. 2008. “Rough and Lonely Road to Prosperity: A Reexaminatin of the Sources of Growth in Africa Using Bayesian Model Averaging.” *Journal of Applied Econometrics* 23: 671–682.

Mehlum, Halvor, Karl Moene, and Ragnar Torvik. 2006a. “Cursed by Resources or Institutions?” *World Economy* 29 (8): 1117–1131.

Mehlum, Halvor, Karl Moene, and Ragnar Torvik. 2006b. "Institutions and the Resource Curse." *Economic Journal* 116 (508): 1–20.

Murshed, Syed, Muhammad Badiuzzaman, and Mohammad Habibullah Pulok. 2015. "Revisiting the Role of the Resource Curse in Shaping Institutions and Growth." *ISS Working Paper Series / General Series* 605. Rotterdam: Erasmus University.

Ndulu, Benno J, Stephen A O'Connell, Robert Bates, Paul Collier, Chukwuma C Soludo, Jean-Paul Azam, Augustin Fosu, Jan W Gunning, and Dominique Njinkeu. Eds. 2008. *The Political Economy of Economic Growth in Africa 1960-2000.* 2 vols. Cambridge: Cambridge University Press.

Newey, Whitney K, and Kenneth D West. 1994. "Automatic Lag Selection in Covariance Matrix Estimation." *Review of Economic Studies* 61: 631–653.

Njoh, Ambe J. 2003. "Urbanization and Development in Sub-Saharan Africa." Cities 20(3): 167–174.

Obeng-Odoom, Franklin. 2015. "Africa: On the Rise, but to Where?" *Forum for Social Economics* 44 (3): 234–50.

Noman, Akbar. 2012. *Good growth and governance in Africa: Rethinking d evelopment strategies*. Oxford: Oxford University Press.

Page, John, and Abebe Shimeles. 2015. "Aid, Employment and Poverty Reduction in Africa." *African Development Review* 27 (S1): 17–30.

Perre, Audinet, and Martin, Rodriguez Pardina. 2010. *Managing an Electricity Shortfall: A guide for policy makers.* Washington, D.C: World Bank.

Pillay, Devan. 2015. "The Global Economic Crisis and the Africa Rising Narrative." *Africa Development* 40 (3): 59–75.

Pinkovskiy, Maxim, and Xavier Sala-i-Martin. 2014. "Africa Is on Time." *Journal of Economic Growth* 19 (3): 311–338.

Robinson, James A, Ragnar Torvik, and Thierry Verdier. 2006. "Political Foundations of the Resource Curse: A Simplification and a Comment." *Journal of Development Economics* 79: 447–68.

Rodrik, Dani, Arvind Subramanian, and Francesco Trebbi. 2004. "Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development." *Journal of Economic Growth* 9 (2): 131–165.

Romer, Christina, and David Romer. 2010. "The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks." *American Economic Review* 100: 763–801.

Ross, Michael. 2012. "The Paradoxical Wealth of Nations." In *The Oil Curse: How Petroleum Wealth Shapes the Development of Nations*. Available online at: press.princeton.edu/chapters/s9686.pdf

Rothstein, Bo, and Jan Teorell. 2009. "What Is Quality of Government: A Theory of Impartial Institutions." *Governance* 21(2): 165–190.

Sachs, Jeffrey D, and Andrew M Warner. 1995. "Natural Resource Abundance and Economic Growth." *NBER Working Paper* 5398. National Bureau of Economic Research

Sachs, Jeffrey D., and Andrew M. Warner. 2001. "The Curse of Natural Resources." *European Economic Review* 45(4–6): 827–838.

Sala-i-Martin, Xavier, and Arvind Subramanian. 2013. "Addressing the Natural Resource Curse: An Illustration from Nigeria." *Journal of African Economies* 22(4): 570-615.

Selaya, Pablo, and Eva Rytter Sunesen. 2012. "Does Foreign Aid Increase Foreign Direct Investment?" *World Development* 40 (11): 2155–2176.

Shelton, James D. 2014. "Taking Exception. Reduced Mortality Leads to Population Growth: An Inconvenient Truth." *Global health, science and practice* 2(2): 135–138.

Stevens, Paul, and Evelyn Dietsche. 2008. "Resource Curse: An Analysis of Causes, Experiences and Possible Ways Forward." *Energy Policy* 36(1): 56–65.

Stigitz, Joseph E, Amartya Sen, and Jean-Paul Fitoussi. 2009. *Report by the Commission on the Measurement of Economic Performance and Social Progress*. Available online at: www.stiglitz-sen-fitoussi.fr

Stijns, Jean-Philippe C. 2005. "Natural Resource Abundance and Economic Growth Revisited." *Resources Policy* 30 (2): 107–130.

The World Bank. 2006. *Where Is the Wealth of Nations?* Washignton, DC.: World Bank.

Thomsen, Stephen. 1999. "Southeast Asia: The Role of Foreign Direct Investment Policies in Development". *OECD Working Papers on International Investment* 1999/01. Paris: OECD Publishing. http://dx.doi.org/10.1787/431857742281 (February 1, 2017).

Torvik, Ragnar. 2009. "Why Do Some Resource-Abundant Countries Succeed While Others Do Not?" *Oxford Review of Economic Policy* 25 (2): 241–256.

Van Donge, Kees, Henley, David, Lewis, Peter. 2012. "Tracking Development in Southeast Asia and Sub-Saharan Africa; The Primacy of Policy." *Development Policy Review* 30 (1): 5–24.

Weinthal, Erika, and Pauline Jones Luong. 2006. "Combating the Resource Curse: An Alternative Solution to Managing Mineral Wealth." *Perspectives on Politics* 4 (1): 35–53.

World Bank. 2016. *Doing Business: Measuring Regulatory Quality and Efficiency.* Washington, D.C.: World Bank.

Wu, Shih-Ying, Jenn-Hong Tang, and Eric S Lin. 2010. "The Impact of Government Expenditure on Economic Growth: How Sensitive to the Level of Development?" *Journal of Policy Modeling* 32: 804–817.

Young, Alwyn. 2012. "The African Growth Miracle." *Journal of Political Economy* 120 (4): 696–739.

국문초록

사하라 이남 아프리카와 동남아시아 국가의 경제 성과에 대한 연구: 자원인가 제도인가?

Ben Katoka Kasongo
행정대학원 정책학 전공
서울대학교

본 연구는 사하라 이남 아프리카 지역의 발전이 늦어지는 이유로 지목되는 낮은 제도의 질, 혹은 거버넌스 수준과 풍부한 천연자원의 문제가 동남아시아 지역에서도 동일하게 발견된다는 문제의식에서 시작됐다. 국제투명성기구의 부패인식지수에 따르면 두 지역에 위치한 많은 국가들은 세계에서 가장 부정부패가 심각한 상황이고, 두 지역 모두 석유 및 천연가스 매장량이 풍부하다. 제도 및 천연자원과 같은 요인들이 두 지역의 경제적, 사회적 성과에 어떤 영향을 미쳤는지에 대한 시계열적 비교 연구가 그동안 이루어지지 않았다는 점에서 본 연구는 학술적 기여를 하고 있다.

본 연구는 (1) 경제성장은 근본적으로 제도의 우수성에 달려있다는 관점 (2) 광물 및 석유 등 천연자원의 풍부한 매장량 및 그에 대한 의존성이 경제성장에 악영향을 미친다는 관점 등의 두 관점에 초점을 맞추고 분석을 진행하였다. 이와 함께 본 연구는 사하라 이남 아프리카지역을 중심으로 어떠한 사회경제적 성과가 물리적, 혹은 지리적 원인과 연관되어 있는 지에 대해 설명하고자 했다.

본 연구가 다루는 질문은 다음과 같다. (1) 경제 및 사회 지표 상에서 사하라 이남 아프리카 지역의 성과는 동남아 지역과 비교하여 어떠한 모습을 보이고 있는가 (2) 천연자원의 매장량 및 제도의 질은 얼만큼, 그리고 어떻게 두 지역의 사회경제적 성과 패턴에 영향을 미치는가 (3) 천연자원의 매장량과 제도의 질 사이의 상호작용은 경제 및 사회에 어느 정도의 영향을 미치는가. 위의 질문들에 답하기 위하여 본 연구는 1990년과 2015년 사이의 기간을 중심으로 사하라 이남 아프리카 지역의 45개국과 동남아시아 지역의 9개국을 분석하였다.

사회경제적 성과를 분석하기 위하여 본 연구는 (1) 1인당 GDP 성장률 (2) 해외직접투자(FDI) 수입 (3) 유아사망률 등 세 가지 지표를 활용하였다. 제도의 질을 평가하기 위한 수단으로는 세계은행의 규제의 질(RQ) 지표를 활용하였고, 전체 수출품 중 천연자원이 차지하는 비율을 통해 천연자원의 매장량을 평가하였다. 분석을 위해 위의 지표들에 영향을 미칠 수 있는 물가상승률, 정부 지출, 공적개발원

조, 인구증가, 전체 인구 중 도시 인구가 차지하는 비율 등은 통제하였다.

본 연구의 주요 결론은 다음과 같다. 첫째, 제도의 질과 천연자원의 매장량 및 기타 요인들이 동일할 때, 사하라 이남 아프리카 지역의 국가들은 동남아시아 지역의 국가들보다 낮은 수준의 1인당 GDP 성장률 및 해외직접투자 수입을 보였고, 유아사망률은 더 높았다. 즉, 제도의 질이 동일할 때, 동남아시아 지역의 국가들은 사하라 이남 아프리카 지역의 국가들보다 우월한 경제적, 사회적 성과를 냈다.

둘째, 국가가 위치한 지역에 상관 없이 규제의 질(RQ) 수치를 기준으로, 제도의 질을 향상시킨 국가는 높은 수준의 1인당 GDP 성장률 및 해외직접투자 수입을 보였고, 유아사망률은 더 낮았다. 사하라 이남 아프리카 지역에서나 동남아시아 지역에서나 우수한 성과를 보여주고 있는 국가들은 저조한 성과를 내고 있는 국가들에 비해 규제의 질(RQ) 측면에서 높은 점수를 받았다. 그러나 규제의 질(RQ) 측면에서 높은 점수를 받은 국가들 중에서는 동남아시아 지역에 위치한 국가들이 사하라 이남 아프리카 지역에 위치한 국가들보다 우수한 성과를 보이는 경향이 있었다.

마지막으로, 풍부한 천연자원은 경제성장에 악영향을 미치지 않는 것으로 보인다. 동남아시아 지역의 경우, 천연자원 매장량이 많은 국가들은 자원 매장량이 적은 국가들에 비해 1인당 GDP 성장률과

해외직접투자 모두 높았다. 또한, 천연자원의 매장량이 많고 규제의 질(RQ)에서 높은 점수를 받은 국가들은 천연자원이 많고 규제의 질(RQ)에서 낮은 점수를 받은 국가나 천연자원이 적고 규제의 질(RQ)에서 높은 점수를 받은 국가, 혹은 천연자원이 적고 규제의 질(RQ)에서 낮은 점수를 받은 국가보다 높은 경제성장률을 보였다.

본 연구의 가장 중요한 의미는 비슷한 수준의 제도의 질, 혹은 거버넌스 수준을 가진 국가들도 전혀 다른 경제적, 사회적 결과물을 만들어낼 수 있음을 보였다는데 있다. 이와 같은 연구결과는 규제의 질과 그것이 국가의 경제적, 사회적 성과에 미치는 영향에 대한 향후 연구가 필요함을 보여준다.

키워드: 사하라 이남 아프리카, 동남아시아, 규제의 질, 제도, 자원 매장량, 패널 데이터

Student ID: 2014-30825

This work is dedicated to my dad, Honoré Kasongo Lubambu, who believed in my potential since my youngest age. I am proud to be the son of this man from whom I have learned to appreciate God's holy love and the love for the family, honesty and hard work.

Acknowledgement

First and foremost, I would like to express my appreciation and profound respect to my dissertation supervisor, Professor Huck-ju Kwon. He has truly been a great mentor, whose guidance and support go far beyond what is contained in this dissertation.

I am also very grateful for my dissertation committee members, Professors Hyunsub Khum, Mingyo Koo, Jiwoong Yoon, and Wongyu Hwang, for their excellent feedbacks and advice. I sincerely appreciate their dedication to helping shape and complete my dissertation.

I would also like to extend my gratitude to Ms Yongmi Lee and the GMPA office. I am indebted for their invaluable assistance over the years of my stay in South Korea, and as a student at the Graduate School of Public Administration/SNU.

Finally, my special thanks go to my mother, my brother Willy and all my siblings, my wife Laetitia and daughter Saïna Katoka. Their unconditional support has been my source of energy.