

**ANALYSIS OF THE IMPACT OF ECONOMIC AND POLITICAL  
INSTITUTIONS ON ECONOMIC GROWTH IN AFRICA**

By

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## ABSTRACT

The importance of economic and political institutions to economic growth has been demonstrated in the literature. However, little is known on how such institutions impact on growth and what determine the quality of economic institutions in Africa. Therefore, this study was aimed at examining the impact of economic and political institutions on growth as well as the impact of political transition on the quality of economic institutions.

Game theory was used to develop a political economy model that incorporated institutional variables into the neoclassical Solow growth model. This model described the interactions among political power (*de-jure* and *de-facto* powers), institutions and economic growth. The model was empirically tested using data drawn from 29 African countries covering the period 1996 to 2009. The selection of countries was guided by availability of data and they spread across the continent. Indexes of economic and political institutions were computed from the World Bank's governance indicators and the Polity IV database. The Ordinary Least Squares (OLS), fixed effect and Generalized Methods of Moments (GMM) techniques were used to test the impact of economic and political institutions on economic growth. A treatment analysis was also employed to test the impact of political transition on the quality of economic institutions and growth.

Strong economic and political institutions had significant and positive impacts on economic growth. Countries with higher institutional qualities are found to be growing faster while those with lower quality grow slower. Generally, a 1.00% increase in the indexes of economic and political institutions led to 0.44% and 0.55% increase in economic growth respectively. However, the impacts of the two indexes differed across different sub-regions. The impact of economic institutions on growth was highest in the Southern African countries with a coefficient of 0.78% and lowest in West Africa with a coefficient of 0.20%. An increase in the index of political institution had the highest impact in the Central African countries and lowest in North Africa. Specifically, political institution was found to aid growth in Central Africa by 1.19% while it slowed down growth in North Africa by 0.49%. Countries that transitioned to democracy recorded 1.28% improvement in their quality of economic institutions and they grew about 0.51% faster than their pre-transition era. However, for countries where political elites persisted

in power after the transition, the quality of economic institutions declined by 1.10% and they experienced a lower growth rate of 0.16%.

Improvement in the quality economic institutions promote growth. Competitiveness of political system improved the quality of economic institutions and growth, while elites' persistence in power reduced the two. Economic growth in Africa can be improved by building and strengthening institutions as well as promoting competitive democracy.

**Keywords:** Economic growth, Political institutions, Game theory.

**Word count:** 442

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## **DEDICATION**

This work is dedicated to all Africans who could not enjoy the freedom of choosing the kind of life they have reason to value due to predominance of weak institutions.

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## CERTIFICATION

We certify that this study was carried out by Mr. AbdulhakeemAbdullahiKilishi in the Department of Economics, University of Ibadan, Ibadan, Nigeria.

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## CHAPTER ONE

### INTRODUCTION

#### 1.1 Statement of the problem

In general, Africa is the poorest region in the world, although economic performance varies from country to country. Maddison (2001) estimated per capita GDP for a number of countries and shows that African countries performed better than Asian countries in the 1950s. Africa's growth even improved more rapidly from 1960 to 1973. However, in the late 1970s, many countries in Africa experienced growth decline. According to Collier and Gunning (1999) since 1980, aggregate per capita GDP in Sub-Saharan Africa (SSA) has declined at almost one percent per annum. Today, SSA is the lowest income region in the world and also the home for the highest proportion of poor people. In the 2010 Human Development Report, the World Bank classified 24 countries as Low Human Development (LHD), out of which 22 were African countries. In the same report, out of 38 countries classified as Very High Human Development (VHHD), no single African country was so classified. Only three countries among the 45 countries that were classified as High Human Development are African countries. The question is: why is Africa not growing like other regions of the world? This question is at the core of analysis of growth divergence across countries.

Several explanations for income divergence have been provided in both theoretical and empirical literature. At theoretical level, differences in the level of technology, accumulation of physical and human capital are responsible for the differences in economic performance across countries (Solow, 1956; Ramsey, 1928; Cass, 1965; Koopmans, 1965; Romer, 1990; Grossman and Helpman, 1991; and Aghion and Howitt, 1992). However, empirical evidence reveals that these theoretical variables cannot satisfactorily explain why some countries (particularly African countries) are not converging with the advanced countries. A number of empirical studies have examined a variety of other factors ranging from the impact of geography, politics, conflict, ethnic fragmentation, culture, institutions and policies.

Historical experiences have shown that economies that are not significantly different in terms of geography and culture can experience different levels of growth. For example, North and South Korea share similar geography, history and culture yet, South Korea has experienced more rapid growth than North Korea. Africa was growing steadily in the 1960s until the 1970s when its economic performance deteriorated (Collier and Gunning, 1999). Ndulu and O'Connell, (2008) show that recently, some countries have recorded improved performance. All these occurred without significant changes in geography or culture. Therefore, Africa's poor economic performance cannot be blamed only on geographical disadvantage or cultural anomalies.

In the literature, emphasis has shifted to the role of institutions and policies that shape incentive of economic agents (North 1992; Abdiweli 2003; Persson 2002; Acemoglu, Johnson and Robinson, 2004; Hall and Jones, 1999; and Rodrik, 2000). Arguably, there is growing consensus on the importance of institutions to economic performance. Even the World Bank and IMF which used to dismiss the importance of institutions, today emphasize institutional reforms (Chang, 2005; and World Bank, 2002). Despite the growing emphasis on the role of institutions in economic performance, a number of issues concerning this remain unresolved.

The key questions of this study are: how and why do weak and growth retarding institutions exist in Africa? What is the impact of institutions on growth? Why does poor economic performance and weak institutions persist despite recent changes in political systems of many countries in Africa? Answering these questions will provide explanations on why countries with growth potentials in Africa fail to take advantage of their opportunities to promote growth.

## **1.2 Objectives of the study**

The broad objective of this study is to develop a political economy framework that underscores the interaction among political power, political and economic institutions as well as economic growth. The framework also shows why changes in economic performance and institutions are sluggish in many African countries despite the recent changes in political institutions (democratic transitions). The specific objectives are to:

- (a) Establish the link among political, economic institutions and performance using a unifying political economy framework.
- (b) Unearth how weak institutions emerged and why they persist in Africa.
- (c) Empirically test the major results of the analytical framework

### 1.3 Justification for the study

Economists and other social scientists in general often try to answer pertinent questions concerning economic performance. One of such is “what are the fundamental causes of the large differences in economic performance across countries”? Stated differently, “why is Africa growing slowly?”. There is little consensus on the answer to this question. The neoclassical theories explain that growth differences across countries are due to differences in levels of technology, quantity and quality of physical and human capital. It suggests that poor countries are poor because they could not improved their technology as well as their inability to accumulate adequate physical and human capital. This argument though informative would not be sufficient to explain economic growth premised exclusively on technology, physical and human capital. This is because there are reasons why levels of technology, physical and human capital differ across countries. North and Thomas (1973) argue that these factors are only proximate determinants and not the fundamental causes of growth. Studies have shown that institutions and policies play important roles in growth of nations (North and Weingast 1989; Hall and Jones 1999; Rodrik 2000, Benson 2004; Pande and Udry 2006; and Acemoglu, Johnson and Robinson 2001; 2002; 2004; and 2005)

Understanding why institutions differ across countries, will go a long way to improve the understanding of the fundamental causes of economic growth. Countries with better institutions such as secure property rights will invest more on physical and human capital as well as use these factors more efficiently to achieve a greater level of national income (North and Thomas, 1973; North, 1981). This view receives support from cross-country correlations between measures of institutions, property rights and economic development (Acemoglu, Johnson and Robinson, 2001; Knack and Keefer, 1995; Mauro, 1995; Hall and Jones, 1999; and Rodrik, 1999). The literature on the roles of institutions in growth is growing fast and the consensus is that they are key to growth. The argument is that advancement in technology, investment in physical and human capital and the efficient use of these factors depend on quality of institutions.

However, little is known about why quality of institutions differ across countries. In other words, why do weak and growth retarding institutions exist in some economies? Earlier studies claim that growth retarding institutions exist because of autocratic rules in many countries. Thus, the

argument that pro-growth institutions will emerge by democratising such economies (Acemoglu and Robinson, 2001; Barro, 1973; Persson, 2002; Persson, Roland and Tabellini, 1997 among others). However, recent experiences in many African countries show that adoption of multi-party democracy has not led to significant changes in economic performance. Thus, there is need for further studies to understand why weak and growth retarding institutions persist despite changes in political institutions. The interaction among political institutions, policies, economic institutions and economic performance have been widely studied in the literature, however, Sayantan and Proto (2008) note that this has not been explicitly formalised. This study is an attempt to formalise this argument by developing a unifying political economy framework that links political power, political and economic institutions, neoclassical variables as well as growth. The study starts with the standard neoclassical framework and systematically extends it to the political economy framework through the “second best theory”. The framework is used to examine the impact of distribution of political power on economic equilibrium under non-democratic and democratic systems. Two types of political power are considered, *de jure* power and *de facto* power. The interaction of the two determines the overall political power.

#### **1.4 Scope of the study**

The focus of the study is to develop a unifying model that integrates neoclassical and political economy models. The impact of political power on equilibrium institutions is examined under two broad political systems – non-democratic and democratic – while different types of these systems are assumed given. At the empirical level, a sample of 29 African countries covering the period 1996 to 2009 are purposively selected. Countries with coastlines that stretch to about 1,000 sq km and more are covered in the sample. Also, included are countries with rich natural resources, and those with a population of 20 million and above. Nations at war are excluded even if they met the selection criteria<sup>1</sup>.

#### **1.5 Plan of the study**

The study is organised in to six chapters. Following this introductory chapter is chapter two which dwells on the background to the study. Chapter three reviews related literature. The analytical framework is presented in chapter four while the empirical tests of the main results are the focus of chapter five. Chapter six presents the summary, conclusions and policy issues.

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<sup>1</sup> See Appendix A for list of countries in the sample



## **CHAPTER TWO**

### **BACKGROUND TO THE STUDY**

This chapter is the conceptualisation of main terms and the working definitions of some concepts. An overview of Africa's economic performance is also presented. Major economic indicators are used to show how Africa as a whole and selected countries have fared over the years. The data used cover 1960 to 2008, 1960 being the year of political independence of many African countries. The structure of Africa economy and its comparative analysis with the rest of the world are equally presented. Finally, sources of growth and indicators of institutions are presented.

#### **2.1 Conceptual issues**

This section discusses the difficulties surrounding the concept of institutions. Working definitions of institutions in a general sense, economic and political dimensions as well as weak and strong institutions are presented in what follows.

##### **2.1.1. Definition of institutions**

One of the major difficulties in the study of institutions is the absence of widely acceptable definition of the concept. This is made more difficult because institutions are studied by people from different disciplines such as economics, philosophy, sociology, politics, law and geography. Therefore, the concept means different things to different people. Chang (2005) identifies some of the reasons why it is difficult to come up with a consensus definition of institutions. First, an institution may perform more than one function. For example, political institutions perform a number of functions such as distillation of different opinions into a decision, conflict resolution, provision of social cohesion, designing economic policies and nation building. Second, a number of institutions may serve the same function, for example, macroeconomic stability is achieved not simply by an independent central bank but also by a host of other institutions, such as budgeting, financial regulation, wage and price setting institutions. Third, the same function could be served by different institutions in different societies or in the same society at different times. Another difficulty in the definition of the concept is the problem of clearly distinguishing

between forms of institutions (e.g. democracy, judiciary and market system) and the functions they perform (e.g. rule of law, respect for private property right, enforceability of contracts, maintenance of price stability, restraint on corruption).

One of the most widely accepted definition of institutions was given by North (1990). According to him “institutions are the rules of the game; more formally, are the humanly devised constraints that structure political, economic and social interaction”. They consist of formal rules (for example, constitutions, laws, property rights), and informal constraints (for example, sanctions, taboos, traditions, customs, norms of behaviour, conventions and self-imposed codes of conduct) as well as their enforcement characteristics. In other words, they consist of the structure that humans impose on their dealings with each other. Institutions often establish the constraints, determine the costs and benefits under which individuals take economic decisions. The extent of constraints and the choices individuals make in different institutional settings depend on the effectiveness of their enforcement. Institutions are constitutive rules and practices prescribing appropriate behaviour for actors. They empower and constrain actors differently and make them more or less capable of acting according to prescribed rules of appropriateness. The core perspective is that institutions create elements of order and predictability.

The problem with this definition is that it is too broad and all encompassing. Thus, it is difficult to conduct any meaningful theoretical and empirical study using it. In this study, institutions are considered to be those laws, policies and regulations that govern the incentives of agents to make economic choice particularly decision to invest and those that govern the level of government involvement in the economic sphere including taxes and spending.

### **2.1.2 Differences between political institutions and economic institutions**

The interactions between economic and political institutions are complex. On one hand, political institutions shape the fate of economic institutions. On the other, economic institutions are critical to the fate of political institutions. Thus, it is difficult mapping a distinction between political and economic institutions. However, economic institutions shape choice while political institutions shape distribution of political power.

There are different approaches and understanding to political institutions. According to March and Olsen (2006), the approaches differ by how individual understands: (i) the nature of institutions as the organised setting within which modern political actors must typically act; (ii)

the processes that translate structures and rules into political impacts; and (iii) the processes that translate human behaviour into structures and rules as well as establish, sustain, transform or eliminate institutions. Premised on the definition by North (1990), political institutions can be seen as the “political rules of the game”. They are collections of structures, rules and standard operating procedures that have a partly autonomous role in political life. March and Olsen (1989, 1995) conceptualise political institution as “a relatively enduring collection of rules and organised practices, embedded in structures of meaning and resources that are relatively invariant in the face of turnover of individuals and relatively resilient to the idiosyncratic preferences and expectations of individuals and changing external circumstances”. They are structures of meaning embedded in identities and belongings: common purpose and accounts that give direction and meaning to behaviour, and explain, justify and legitimate behavioural codes. In this way, political institutions are considered to organise the polity and have an ordering effect on how authority and power is constituted, exercised, legitimated, controlled and redistributed. They affect how political actors are enabled or constrained and the governing capabilities of political system. In this study, political institutions are discussed in relation to how they may influence economic institutions. Therefore, the working definition of political institutions are considered as those laws and regulations that govern political process and political decision making as well as the citizens ability to engage with and criticise that process.

Economic institutions can also be seen as “economic rules of the game”. Economic institutions on the other hand are laws, policies and regulations that govern the interaction of agents in market transactions, including buying, selling of goods and services and use of property. They define the level of restriction on agents to engage in mutually agreed upon economic transactions. They shape the incentives of key economic actors in society, in particular, they influence investments in physical and human capital, technology, as well as the organisation of production. The main function of economic institutions is to minimise transaction costs. This was stressed by Coase (1937) that, if we move from a world of zero to positive transactional costs what becomes immediately clear is the crucial importance of the legal system in the new world. As a result, the legal system will have a profound effect on the working of the economic system and may in certain respects be said to control it. Hence, property rights law, rule of law, regulatory quality and types of credit arrangement are common examples of economic institutions. In between political and economic institutions are overlapping institutions such as

independent judiciary, press freedom, civil liberties, voice and accountability, control of corruption and efficient bureaucracy.

### **2.1.3 Weak versus strong institutions**

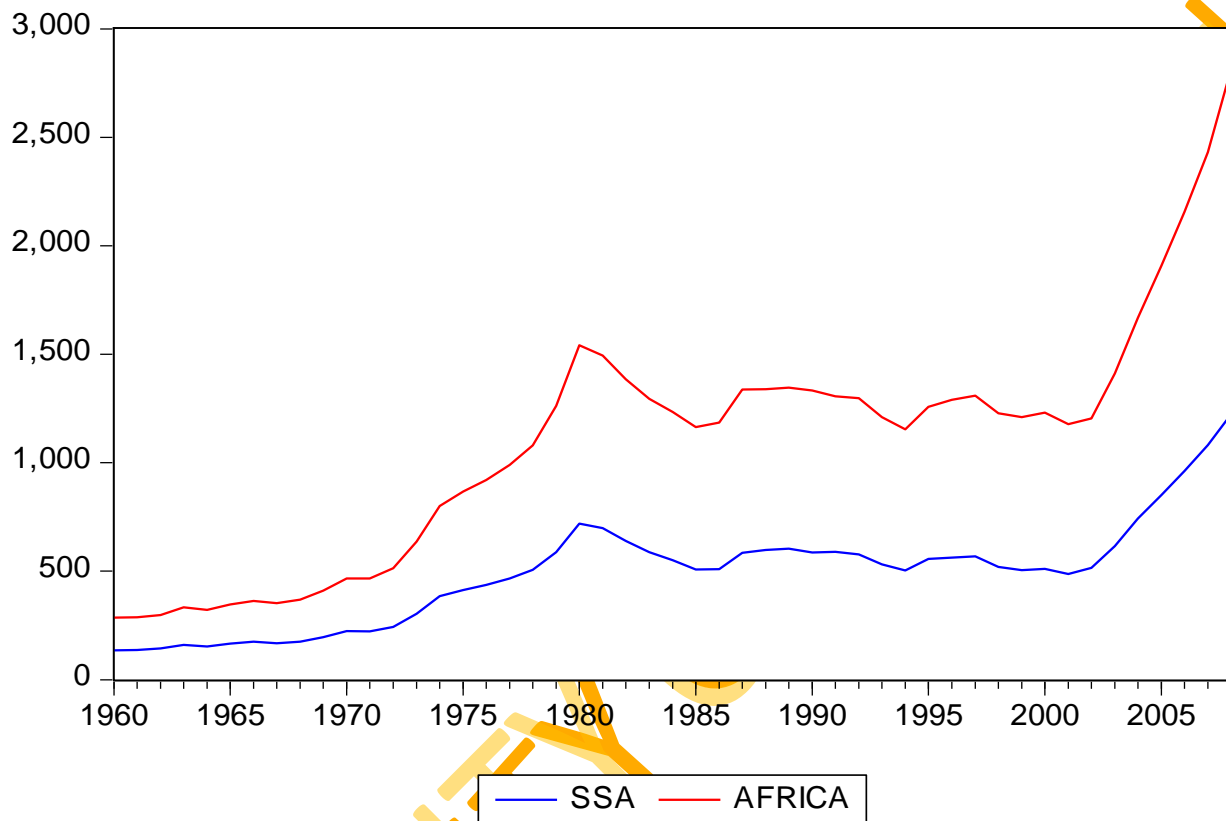
In this study, weak institutions are defined as those that could not sufficiently sanction agents and grant profits to investors with certainty. Thus, they discourage investment in capital and technology and ultimately hinder economic growth. While strong institutions are those that can sanction any agent who deviate from the rules of the game and minimise uncertainty in the markets which invariably motivate entrepreneurs to invest in physical and human capital, thereby enhancing economic growth.

## **2.2 Economic performance in Africa**

This section discusses how Africa has fared economically over the years. Different indicators of economic performance are used to display the performance of the continent as a whole; a subset of the continent, Sub-Saharan Africa (SSA); and selected countries. The juxtaposition of Africa with other regions is also depicted in this section. The share of GDP of different sectors and value added by sectors are equally presented.

### **2.2.1 Evolution of per capita income in Africa**

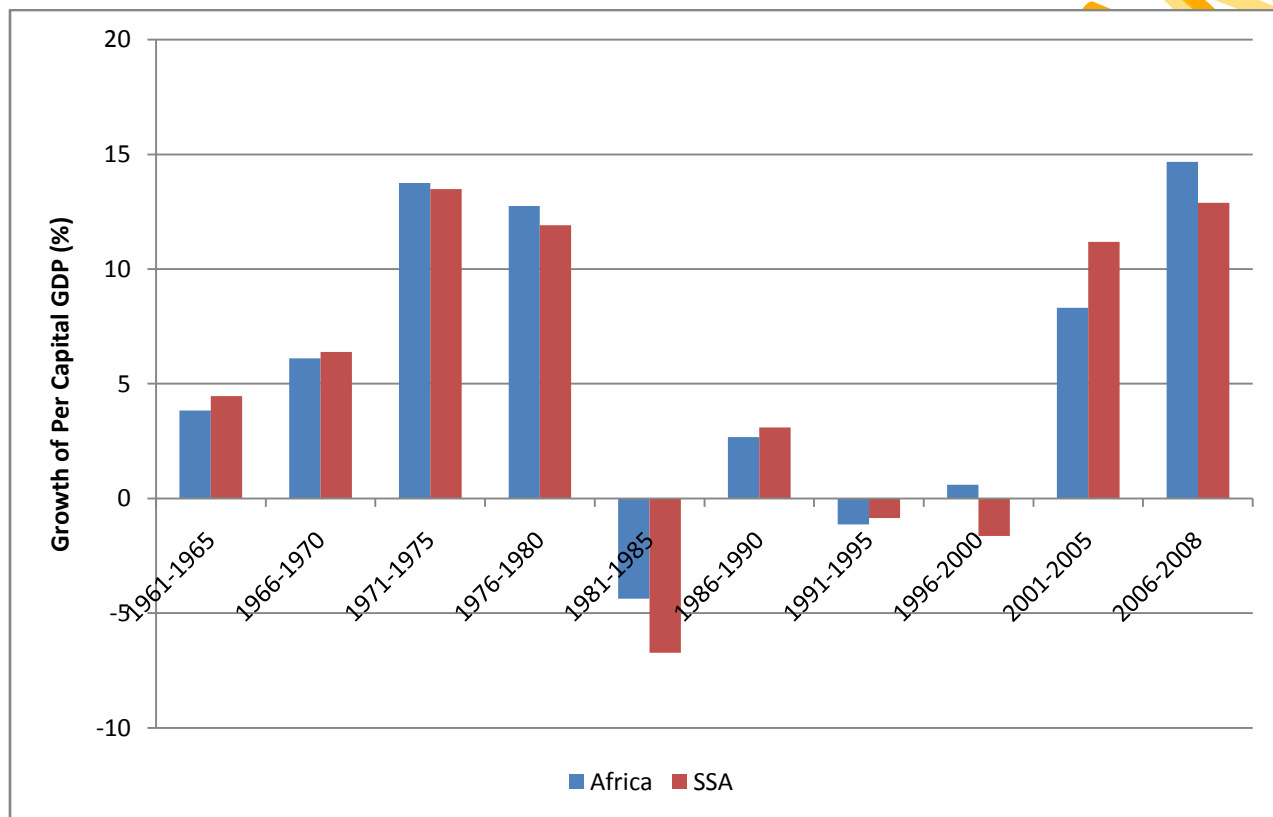
Figure 2.1 displays per capita GDP of Africa, the measure that summarises the average performance of the continent in a clearer way. This measure is closely related to income per person. The period shown in the Figure starts when a substantial number of African countries became independent, 1960, and it runs to 2008. The figure reveals that during the first decade 1960 to 1970 there was slow and marginal increase in the per capita income in the continent. In 1960, the aggregate per capita income in the continent was US\$151.12, it increased to 181.31 and 242.37 in 1965 and 1970 respectively. There was a more rapid increase in the second decade 1970 to 1980, for example, it almost doubled between 1970 to 1975. Income per capita increased from its 1970 value to 454.43 in 1975 and 822.39 in 1980. Thereafter, it declined to about 658 in 1985. It fluctuated through out the period 1980 to 2000. Significant improvement was experienced in the last decade. There was increment from 721.17 in 2000 to 1,057 in 2005 and 1,593.52 in 2008.



**Figure 2.1 Per Capita GDP in Africa and SSA, 1960 to 2008, (in current US\$)**  
 Source: Constructed by the author from Africa Development Indicator (ADI), 2009

Figure 2.1 also presents the evolution of per capita GDP for the subset of the continent, SSA. It is clear from the Figure that the aggregate per capita GDP for the entire continent is higher than the aggregate per capita GDP of countries south of Sahara desert of the continent. This suggests that aggregate data for the entire continent masks the fact that, Northern Africa has performed better than the rest of the continent. In other words, lower GDP per capita in SSA compared to the whole continent is a reflection that North African countries are marginally richer than their southern counterparts.

The growth of per capita GDP (annual %) of Africa and SSA are presented in Figure 2.2. The data is average over five years. From 1960 to mid 1970s, increase in income per capita was experienced in the entire continent as well as in SSA. The growth reached its peak in 1974 and started declining. In 1974 the growth of GDP per capita in Africa was 25.01 and 26.83 in SSA, this was the highest in the entire period considered. There was total growth collapse in the early 1980s. Both Africa and SSA experienced negative growth. The growth for Africa and SSA declined from 22.08 and 22.44 respectively in 1980 to -3.22 and -2.89 in 1981. As of 1985 it was -3.74 and -7.89 for Africa and SSA respectively. In the mid-1980s to early 1990s, there was marginal improvement in growth of per capita GDP. This improvement was not sustained as the continent and SSA experienced decline again in most part of late 1990s. Recovery and subsequent boom was experienced in the last decade. This began in year 2000 when Africa and SSA growth in per capita GDP increased from -0.69 and -2.73 in 1999 to 2.37 and 1.05 respectively in 2000. This recent growth boom has changed Africa story from the slowest growing continent to one of the fastest growing continent of the world. If this can be sustained over time and be equitably distributed then Africa will be on the path of poverty eradication and economic development.



**Figure 2.2 Average Growth of Per Capita GDP (%) in Africa and SSA, 1960 to 2008**  
 Source: Constructed by the author from Africa Development Indicator (ADI), 2009

### 2.2.2 Structure of African economies

An essential insight from classical theory of economic development is that economic growth is intrinsically linked to changes and overall productivity increases are mainly the result of the reallocation of labour from low to high productivity activities. The recent progress in East Asian countries demonstrate that structural transformation of economies provides the bedrock of acceleration and sustained growth. Ndulu et al (2007) show that agriculture dominated economies in Asia have undergone significant diversification away from agriculture even as they underwent phenomenal productivity growth in that sector through the green revolution. World Development Survey (2006) also demonstrated that fast growing Asian regions were able to make large and speedy transitions out of agriculture into industries and services while economies with little structural change lagged behind.

Table 2.1 and Figure 2.3 present value-added by sectors and as percentage of GDP of selected sectors respectively. Figure 2.4 displays percentage of total population employed in the agriculture sector. As shown in Table 2.1, the service sector dominated from 1965 to 2008. Industry and agriculture were the second and third dominant sectors till 2005. From 2006 to 2008, mining and quarrying took over the third position and agriculture became the fourth dominant sector in Africa.

Manufacturing was fourth, while transport and communication as well as mining and quarrying are fifth and sixth respectively from 1965 to 1970. Construction had the least value-added among the seven sectors considered in the period 1965 to 1975. However, from 1971 to 1975, there was little structural change with mining and quarrying becoming the fifth dominant sector while transport and communication moved to the sixth place. During 1976 to 1985, there was decline in manufacturing value-added as well as transport and communication while increase was recorded in mining and quarrying as well as construction sectors. Transport and communication became the least contributing sector in this period. Mining and quarrying moved upward to fourth place while manufacturing dropped to the fifth place. Construction was second to the least contributing sector during this period. From 1986 till today, construction sector contributed the least while transport and communication was the second to the least.



Figure 2.3 shows similar pattern with services occupying the dominant position. Services sector recorded the highest value-added as percentage of GDP from 1965 to 2008. The second is agriculture while manufacturing occupied the lowest position. The contribution of agriculture declined during the period. Manufacturing improved slightly and declined towards the end of the period.

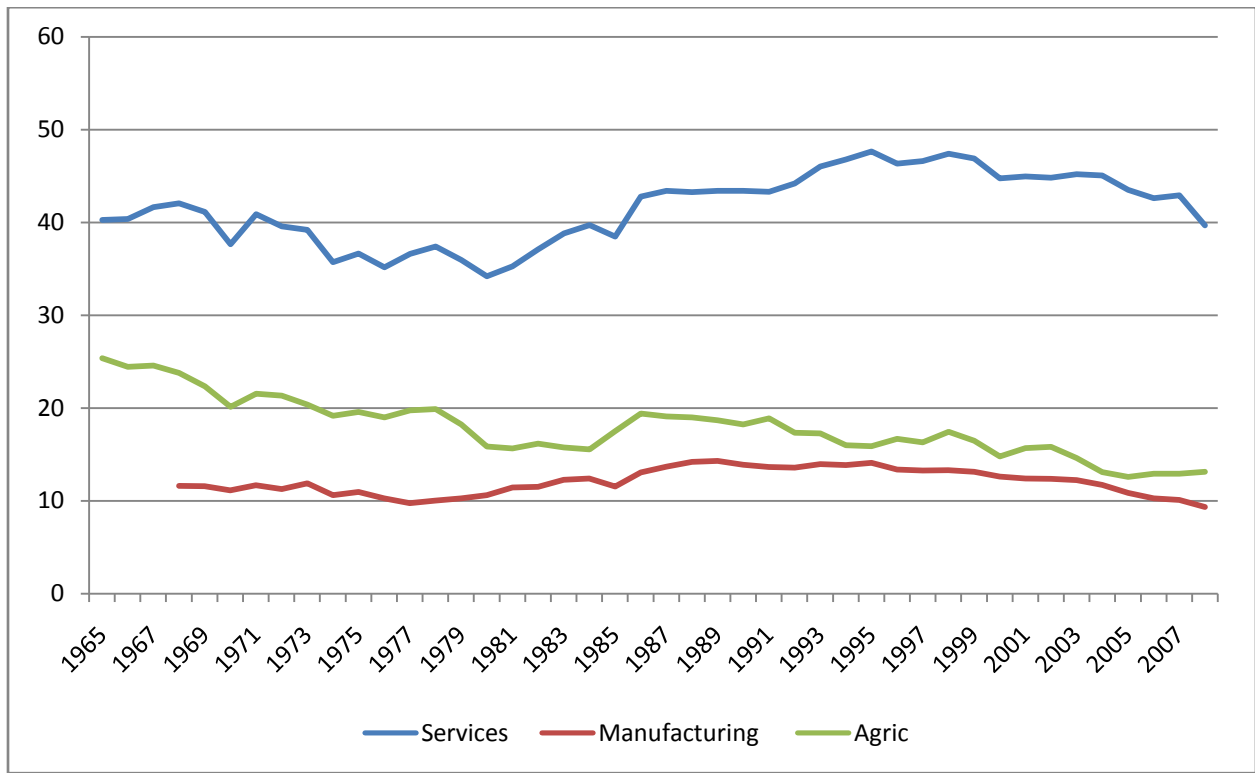
Figure 2.4 presents the population of people engaged in agriculture as percentage of total population of Africa during 1960 to 2005. In 1960, about 79% of total population living in Africa were engaged in agricultural activities. There was slight fall of this percentage to 74% in 1970. This decline continued to about 67%, 59%, 54% and 51% in 1980, 1990, 2000 and 2005 respectively. In four and half decades of the period considered, population engaged in agriculture sector declined from 74% to 51%.

In terms of employment in the agricultural sector there was structural change over the years. However, there was no much structural change in terms of value-added. There is no evidence of the kind of structural transformation predicted in theory or even the kind of transformation witnessed in East Asia. The expectation is that at initial stage agriculture will be dominant, transformation will then start with increase in agriculture productivity, creating ways for agro-allied industry and eventual industrialisation. Services sector will come up at the later part of the development process.

**Table 2.1: Aggregate Africa's Average Value-Added of Main and Sub Sectors, 1965 to 2008**

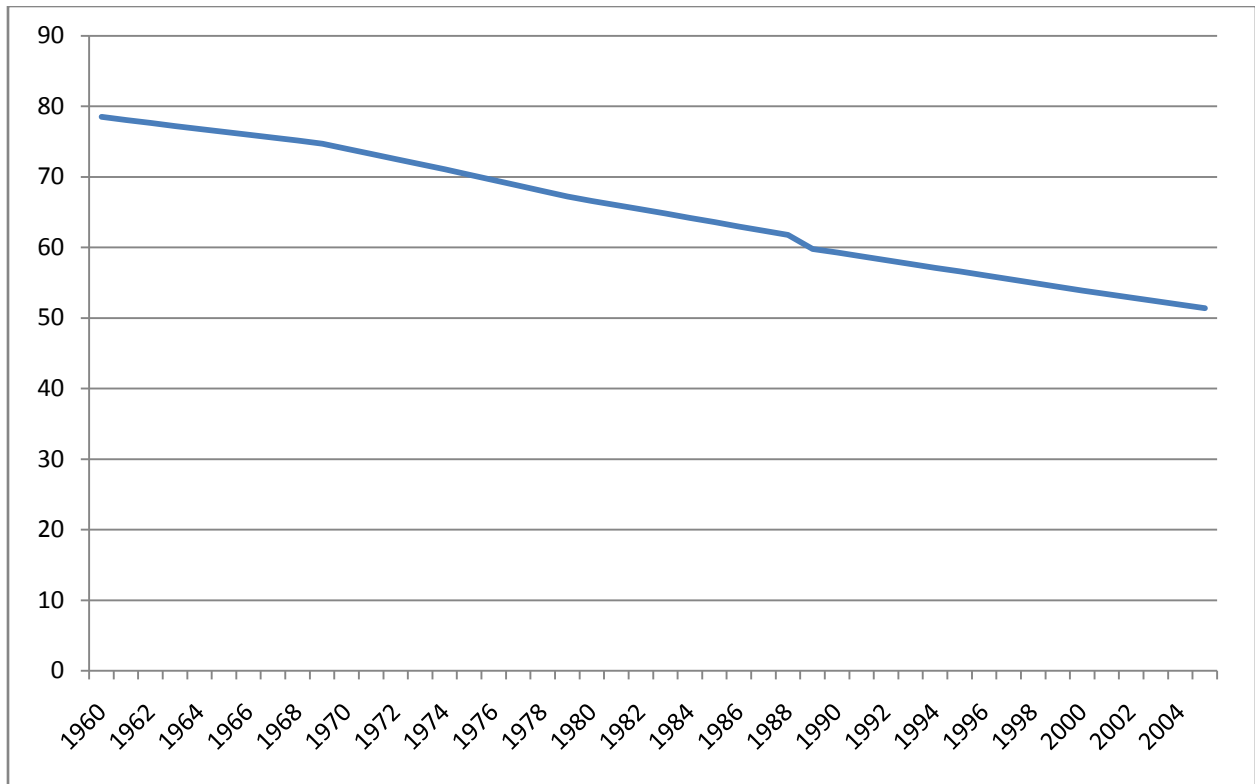
Period	Main Sectors (in current US \$)			Sub – Sectors (in current US \$)			
	Agriculture	Services	Industry	Mining & Quarrying	Manufacturing	Construction	Transport & Comm.
1965-1970	15816.33	27795.78	19422.64	4380.73	8716.16	2786.88	5340.07
1971-1975	27319.39	52730.21	40211.22	10551.28	15165.58	6375.14	9335.91
1976-1980	50903.92	101067.00	83942.35	28976.63	28539.14	15139.27	14181.25
1981-1985	59898.88	142900.90	124446.00	45038.05	43935.91	21786.58	21007.58
1986-1990	82735.68	190414.30	147088.30	40756.49	60742.46	26558.07	26642.54
1991-1995	80978.81	217157.50	154354.50	43574.16	65613.15	23261.49	32180.03
1996-2000	91444.15	259879.30	176528.90	54567.71	73479.26	25286.81	36968.91
2001-2005	103248.70	350624.40	249468.40	101199.70	86404.48	32629.77	49962.23
2006-2008	172590.40	565630.60	510014.20	217218.70	130557.90	57518.65	77093.27

Source: Constructed by the author from Africa Development Indicator (ADI), 2009



**Figure 2.3: Aggregate Value-Added as % of GDP of Selected Sectors of Africa**  
 Source: Constructed by the author from Africa Development Indicator (ADI), 2009

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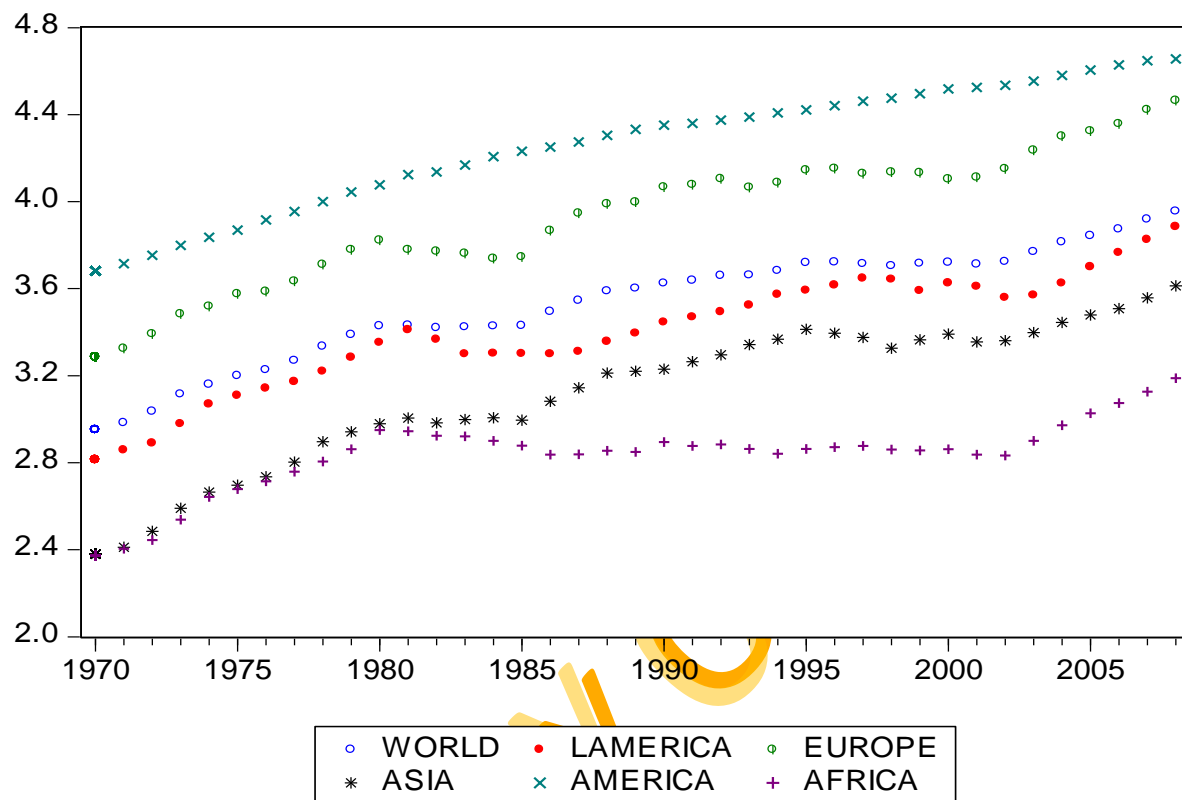


**Figure 2.4: Population Engaged in Agriculture as Percentage of Total Population of Africa**  
 Sources: Constructed by the author from Africa Development Indicator (ADI), 2009

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### 2.2.3 Africa and rest of the world

Figure 2.5 presents the log of per capita income (PCI) for different regions and world average from 1970 to 2008. The Figure depicts performance of Africa relative to performance of other regions. North America was highest compared to any other region considered in the Figure and it maintained steady growth close to four decades shown. Europe was the second richest region in the world over same period. Only these two regions recorded income per capita above the world average PCI. Latin America and Caribbean PCI was close to the aggregate world average income level. The evolution pattern of PCI in the region was similar to the world pattern. Asia and Africa were at the bottom of the income ladder in the 1970s. Starting from early 1980s Asia began to catch up and grew rapidly over the past three decades. Aggregate PCI in Asia was close to the world average. If sub-regional performance is considered, the East Asia countries have an overwhelming performance in the continent. Africa PCI was growing along with Asia in the 1970s till early 1980s. Africa stagnated for about two and half decades. However, some progress have been recorded in recent time.



**Figure 2.5: Log of Per Capita GDP of Different Regions**

Source: Computed by the author from United Nations Data Base (2009)

<sup>2</sup> Where LAMERICA is Latin America and Caribbean, AMERICA is North America.

#### 2.2.4 Economic performance in selected countries

Table 2.2 presents data on per capita income (PCGDP), real GDP (RGDP) and life expectancy (Life Expt) at independence and at current available data for 27 selected countries in Africa. The data at independence depicts the initial condition while current data shows the prevailing situation. This allows for clear understanding of how each country has fared since independence. For countries that became independent earlier than 1960, the values for 1960 is taken as their initial condition.

Starting with the initial condition of PCI, Namibia, Seychelles, South Africa, Gabon and Zambia topped the list in that order. On the other hand, Uganda, Togo, Botswana, Nigeria, and Mauritania are the five bottom countries with relatively poor initial conditions. At independence, Namibia was more than 26 times richer than Uganda and about 20 times richer than Botswana. However, as at 2008, Gabon, Seychelles, Botswana, South Africa, and Algeria topped the list in that order. Botswana, one of the Africa success story was able to transit from the third poorest country on the list to the third richest country between 1966 to 2008. Namibia that was leading the list of initial condition is not among the top five in the list today. The five countries at the bottom as of 2008 are Liberia, Ethiopia, Eritrea, Sierra Leon, and Guinea. Countries like Liberia and Sierra Leon fell from the middle place they occupied at initial stage to the last bottom five. It clear from the ratio of current per capita GDP to initial per capita GDP that on the average, a Botswana today is more than 81 times richer than a Botswana at independence. On the other hand, a Liberian today is only 1.27 times richer than a Liberian at 1960. Botswana has made the greatest progress over the period considered, followed by Gabon and Algeria in that order.

Similarly, the first five countries on top of RGDP initial condition were Namibia, Seychelles, Angola, South Africa and Cape Verde while Tanzania, Ethiopia, Botswana, Mauritania and Togo were at the bottom in that order. Only Seychelles and South Africa are still among the top five as at 2007. Making up the top five are Seychelles, South Africa, Tunisia, Botswana and Gabon. Again Botswana moved from third rear position to forth front position.

Initial condition of human capital measured by life expectancy is also presented in the Table. Top in the list at the initial stage are Seychelles, Namibia, Cape Verde, Botswana, and Eritrea while the bottom five are Sierra Leone, Guinea, Angola, Ethiopia and Nigeria. Currently (as at

2008) toping the list are Tunisia, Seychelles, Algeria, Morocco and Cape Verde and at the bottom are Mozambique, Zambia, Angola, Nigeria and Sierra Leone respectively. In this Table Botswana declined which may be as result of the high prevalence of HIV and AIDS.

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**Table 2.2: Economic Indicators for Selected Countries in Africa**

Country	Initial PCGDP	PCGDP at 2008	Initial RGDP	RGDP at 2007	PCGDP at 2008/Initial PCGDP	Initial Life Expectancy	Life Expectancy at 2008
Algeria	178.55	5060.32	373.62	7267.52	28.34	48.32	72.25
Angola	729.19	3375.95	1332.99	5448.87	4.63	37.98	46.80
Botswana	83.16	6808.01	164.49	10169.61	81.87	53.17	50.59
Cameroon	114.42	1238.02	340.37	2938.10	10.82	41.75	50.39
Cape Verde	NA	3468.42	821.66	8266.29	NA	57.46	70.91
Egypt	149.08	1997.10	291.75	6142.84	13.40	46.16	70.01
Eritrea	147.14	331.04	486.98	624.66	2.25	49.96	57.87
Ethiopia	NA	328.16	161.38	1203.69	NA	38.69	54.98
Gabon	291.28	9967.80	434.72	9178.65	34.22	39.88	60.30
Ghana	179.29	690.48	412.55	1814.84	3.85	45.98	56.49
Guinea	NA	433.86	654.25	3794.40	NA	36.58	57.56
Kenya	103.83	895.49	403.13	2191.48	8.63	48.00	54.06
Liberia	179.96	229.37	NA	408.71	1.27	40.42	58.04
Madagascar	131.90	469.36	245.73	918.20	3.56	40.07	60.11
Mauritania	101.57	893.08	165.11	2417.89	8.79	43.52	64.13
Morocco	175.09	2764.40	345.53	5720.17	15.79	46.92	71.15
Mozambique	NA	446.97	592.90	2306.26	NA	40.32	42.07
Namibia	1658.13	4050.72	3435.31	6805.40	2.44	61.52	52.78
Nigeria	99.07	1401.54	311.55	2519.72	14.15	38.73	46.83
Seychelles	811.80	9648.69	1966.25	12944.52	11.89	68.68	73.19
Sierra Leone	143.16	351.29	388.56	1987.67	2.45	33.45	47.37
South Africa	422.06	5684.57	978.71	11306.94	13.47	49.16	50.46
Tanzania	NA	482.31	88.48	944.89	NA	43.73	55.36
Togo	77.34	437.13	167.10	951.65	5.65	44.93	62.38
Tunisia	202.50	3890.94	617.65	10641.26	19.21	48.59	74.30
Uganda	62.04	458.95	191.82	1298.83	7.40	45.36	52.37
Zambia	239.84	1134.20	639.16	2296.51	4.73	46.03	45.08

Sources: Constructed by the author from Africa Development Indicator (ADI), 2009; Initial PGDP is Per Capita GDP at Independent, RGDP is Real GDP at current US \$, NA is Not Available

### 2.2.5 Sources of growth

Both theory and empirics have shown that physical and human capital are important in the growth and development of any nation or region. Education and health are fundamental determinants of human capital. A country where people are more healthy and educated is likely to grow faster than where the health of people are poor and education is low. Table 2.3 presents aggregate indicators of physical and human capital in Africa. Primary school enrolment is used to proxy education, while under-five mortality rate and life expectancy are used to proxy health status. Though, significant improvement has been recorded in gross primary school enrolment in recent time, the net enrolment is still lagging behind. Under-five mortality rate has fallen below the 1960 rate but it is still as high as about 134 children per 1000 life births in 2008. The continent has also recorded marginal improvement in life expectancy, however, on the average it is still as low as about 55 years in 2008. Gross fixed capital formation is used here as measure of physical capital. As shown in the Table, it fluctuated over time and stood at 20.4 per cent of GDP in 2008. More progress was made in primary school enrolment than infant mortality and life expectancy. In other words, there was more progress in education than health. On the whole, physical and human capital are still low in Africa.

The Table 2.4 presents some of the indicators of institutions, rule of law, regulatory quality, control of corruption, government effectiveness and political stability. Each of the indicators ranges from 0 to 100. On the aggregate, Africa's rank for all the indicators of institutions presented in the Table are below the average rank (50). However, few countries such as Botswana, Seychelles, Mauritius and Tunisia are ranked above average in all the indicators on one hand. On the other hand, countries such as Sudan, Somalia, Liberia, DR Congo, and Zimbabwe ranked far below average in all the indicators. It is clear from the data that institutions are weak in Africa and have persisted over time. For example, the values for control of corruption and political stability in 1996 and 2008 are not significantly different. The values of rule of law and regulatory quality in 2008 are less than their values in 1996. Similarly, government effectiveness rank of 2008 is less than that of 1996. This trend depicts the fact that institutional weakness persists in Africa.

**Table 2.3: Aggregate Physical and Human Capital Indicators for Africa**

Year	School enrollment, primary (% net)	School enrollment, primary (% gross)	Mortality rate, under-5 (per 1,000)	Life expectancy at birth, total (years)	Gross fixed capital formation (% of GDP)
1960			261.42	42.36	
1965					
1970			226.08	46.50	16.42
1975		60.97			21.74
1980		77.76	187.97	50.46	19.85
1985		77.04			20.43
1990	58.02	74.73	169.20	53.17	20.38
1995		76.93			19.00
2000	64.40	85.56	151.10	53.55	17.78
2005	75.37	95.93			17.87
2008	76.76	98.79	134.13	54.82	20.40

Source: Computed by the author from ADI 2009

**Table 2.4: Measures of Institutions, (average percentile rank 0-100)**

Year	Control of Corruption	Government Effectiveness	Political Stability	Rule of Law	Regulatory Quality	Voice and Accountability
1996		30.42	33.03	28.59	30.47	32.80
1998	31.44	29.55	31.83	29.93	28.64	32.66
2000	32.70	28.78	31.35	30.10	30.02	32.44
2002	33.21	28.78	32.03	30.69	30.07	31.81
2003	31.98	29.07	32.48	29.98	29.38	32.86
2004	31.09	28.73	34.34	29.60	28.40	34.12
2005	30.72	27.60	33.79	29.29	27.91	33.67
2006	31.28	27.14	34.97	30.35	28.58	33.95
2007	31.88	28.00	34.20	30.02	28.66	34.78
2008	31.88	27.28	33.89	30.13	29.72	34.30

Source: Computed by the author from ADI 2009

## **CHAPTER THREE**

### **LITERATURE REVIEW**

This chapter reviews relevant literature. The review is presented in four sections: first, review of empirical literature on the relationship between institutions and economic performance. Second, theories on evolution of institutions and the relationship between institutions and economic performance are reviewed. The review of literature on the relationship between political institutions and economic performance is presented in section three of the chapter. Finally, literature on Africa economic performance is reviewed in section four.

#### **3.1 Theoretical review on institutions and economic performance**

Modern economic analysis founded by Adam Smith in the 18<sup>th</sup> century desire to understand the interaction of human beings. One of the greatest insights of Adam Smith's book 'The Wealth of Nations' is the ingenious invention of the idea of a 'spontaneous order', mechanisms through which a good result would be achieved without an authority giving central command. Though Smith made some allowance for rules and principles, the development of the profession of economics focuses on invisible hand and almost unconsciously neglected other methods of coordinating human interaction. With the construction of general equilibrium model by Leon Walras, price mechanism moves to centre stage in economic analysis and became ever more refined through the analysis of Hicks, Samuelson and Arrow – Debreu. Other forms of human relations than the price system, such as rules and principles, political decisions and collective group actions, were crowded out of the profession.

The first economic scientist to discover the lacunae was Coase (1937), who argued that transaction costs had been omitted from economic analysis. North provides the primary arguments on how institutions would help minimise transaction costs in a society. Many of his early contributions centered on American economic history. His most important first attempt that

shows the limits of neoclassical economics and the role of institutions was “Institutional change and American Economic Growth (1970, co-authored with Lance Davis). As mentioned earlier, most application of neoclassical economics take property rights, institutions and rule of the economic game as given. Davis and North (1970) demonstrated that capturing gains from exchange often required changes in property rights and the invention of new institutional arrangements and forms of economic organisation. In doing so, they provided a new interpretation of American economic growth from the perspective of how economic agents pursued profit opportunities by changing the rules. Seen in this way, much of American economic growth occurred not simply because of neoclassical considerations such as factor accumulation but also because of complementary process of institutional evolution. They therefore, develop a theoretical model of institutional innovation. They use the model to explain how institutional arrangement influence main sources of income growth such as economies of scale, risk management, dealing with externalities and correcting market failure.

They further explain that institutional innovation could be engendered by three types of exogenous events: (i) Potential income from arrangement innovation might increase because some exogenous change could lead to the emergence of an externality where none existed before, to restructuring of risks, to a shift in transaction costs, or to the application returns; (ii) The costs of organising and/or operating a new institution might change because of the invention of a new arrangement technology of institutional change in the non – economic sector, or because the price of the factors used in the new or in competing existing institutions may change; (iii) Some legal or political change might alter the economic environment and make it possible for some groups to effect a redistribution or take advantage of an existing external profit opportunity. It is assumed that businessmen are profit maximisers and that entrepreneurs are as willing to take advantage of profit opportunities arising from institutional reorganisation as they are willing to exploit new markets, technologies or changes in relative factor prices.

Thus, the profit potential inherent in any of the three types of exogenous changes would lead to attempts to predict not only the level of the new institutions but also the time that one would expect to elapse between the emergence of the profit opportunity and the innovation of the new institutions.

In a landmark book, North and Thomas (1973) raise fundamental questions about the origin of the immense accumulation of wealth that the West produced over the last few hundred years. They attempt to identify the elements that allowed the Western European economy to rise to affluence. Traditional theories of growth use capital accumulation, technology and economies of scale as explanatory variables. According to North and Thomas (1973), these factors are not the causes of economic growth but inherent parts of the growth process. They argue that the fundamental cause of economic growth was and is an efficient economic system. Efficient in the sense that the system of property rights give individuals incentives to innovate and produce, and conversely inhibits those activities (rent-seeking, theft, arbitrary confiscation and/or excessive taxation) that reduce individual incentives.

They consider property rights as classic public goods. This led them to conclude that development of efficient property rights involves free riding of some countries not paying their share of the institutional arrangement cost. Hence, there may be under investing in the attempts to create more efficient sets of property rights because the jurisdiction that invests in the development of property rights pays the entire cost of their development but receives only benefits that accrue to its jurisdiction, while other jurisdictions can get the benefits without any of the developmental costs.

North (1981) extends the neoclassical model which usually leaves such factors as the state and ideology to other social sciences. He argues that, it is not possible to analyse historical development without taking account of ideology and ideological change. North (1981) develops a new framework for analysing the processes of change in economic history and applies it to analyse different periods in economic history. He defines the objective of economic history to be to explain the structure and performance of economies through time. By performance, he means the rate of growth of output and its distribution in a society. By structure, he means the determinants of performance which are political and economic institutions, technology, demography and ideology. He argues that the state provides a range of basic services, the underlying rules of the economic game and the political institutions.

North (1990) leads to a deeper understanding of the role of institutions. He argues that institutions exist due to the uncertainties involved in human interaction; they are constraints devised to structure that interaction. Yet, institutions vary widely in their consequences for

economic performance; some economies develop institutions that produce growth and development while others develop institutions that produce stagnation. This is because the choice of formal institutions is made within the political system where transaction costs are very high. The situation is also complicated by the fact that the political system is the arena for clashes between different interest groups.

North (1992) summarises his ideas of how institutions evolve and the way they shape economic performance. Institutions, together with the technology employed, determine the cost of transacting and producing. He concludes his analytical framework by summing up the key features of institutional change as: (i) The continuous interaction between institutions and organisations in the economic setting of society and hence competition is the key to institutional change; (ii) Competition forces organisations to continually invest in skills and knowledge to survive. (iii) The institutional framework dictates the kind of skills and knowledge perceived to have the maximum payoff; (iv) The mental constructs of players, given complexity of the environment, limited information feedback on consequences of actions, and the inherited cultural conditioning of players, determine perceptions; and (v) The economies of scope, complementarities and network externalities of an institutional matrix make institutional change overwhelming incremental and path dependent.

Another landmark contribution to the development of theory of institutions and institutional changes is the work of Acemoglu, Johnson and Robinson (2001, 2002). They propose a theory of institutional differences among countries colonised by Europeans and exploit the theory to derive a possible sources of exogenous variation. Their theory rests on three premises:

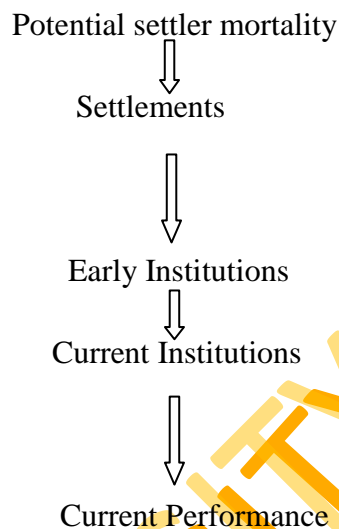
- i. There were different types of colonisation policies which created different sets of institutions. At one extreme, European powers set up 'extractive states', exemplified by the Belgian colonisation of the Congo. These institutions did not introduce much protection for private property nor did they provide checks and balances against government expropriation. The main purpose of the extractive state was to transfer as much of the resources of the colony to the coloniser. At the other extreme, many Europeans migrated and settled in a number of colonies, creating what the historian Crosby (1986) calls 'Neo-Europes'. The settlers tried to replicate European institutions,



with strong emphasis on private property and checks against government power. Primary examples of this include Australia, New Zealand, Canada and the United States.

- ii. The colonisation strategy was influenced by the feasibility of settlements. In places where the disease environment was not favourable to the European settlements, the cards were stacked against the creation of Neo-Europes and the formation of the extractive state was more likely.
- iii. The colonial state and institutions persisted even after independence.

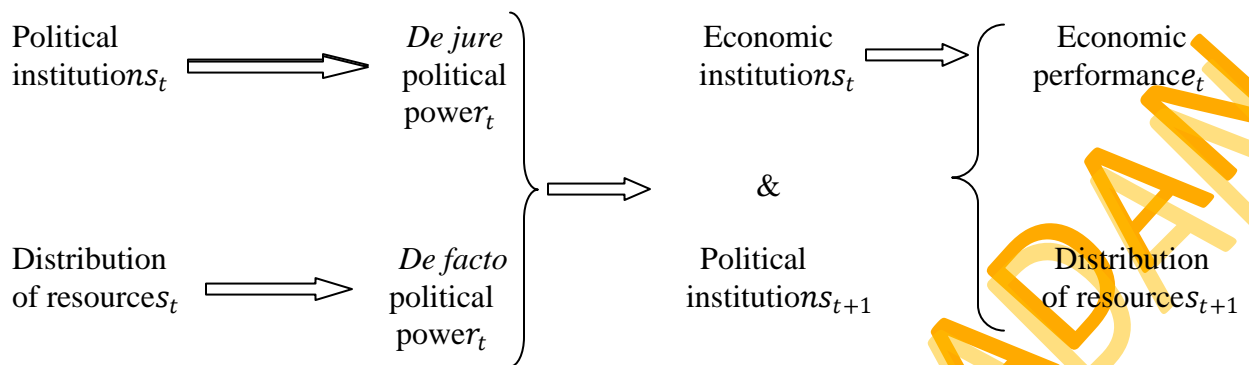
Their theory can be schematically summarised as:



The argument is that current institutional differences across countries are highly influenced by the early institutions setting established by the European colonisers. The early institutions were influenced by the settlement of the Europeans, determined by the mortality rates they faced.

Acemoglu, Johnson and Robinson (2004) consider political economy dimension of how institutions emerge and their impact on economic growth. They started the theory on the basic assumption that economic institutions determine the incentives of and constraints on economic actors and shape economic outcomes. As such, institutions are social decisions, chosen for their consequences. Because different groups and individuals typically benefit from different economic institutions, there is generally a conflict over these social choices, ultimately resolved in favour of groups with greater political power. The distribution of political power in a society is in turn determined by political institutions and the distribution of resources. Political

institutions allocate de jure political power while groups with greater resources typically possess greater de facto political power. The analytical framework is schematically presented as:



While political institutions determine the distribution of de jure political power in a society, the distribution of resources influences the distribution of de facto political power at time  $t$ . These two sources of political power, in turn, affect the choice of economic institutions and influence the future evolution of political institutions. Economic institutions determine economic outcomes, including the aggregate growth rate of the economy and distribution of resources at time  $t + 1$ . Thus, though economic institutions are the essential factor shaping economic outcomes, they are themselves endogenous and determined by political institutions and distribution of resources in the society.

In this framework, there are two sources of persistence in the behaviour of the system: first, political institutions are durable and typically a sufficient large change in the distribution of political power is necessary to cause a change in political institutions, such as a transition from dictatorship to democracy. Second, when a particular group is rich relative to others, this will increase its de facto political power and enable it to push for economic and political institutions favourable to its interest. This will tend to reproduce the initial relative wealth disparity in the future. However, despite the tendencies for persistence emphasise in the framework, there is potential for change. This could come from “shocks” including changes in technologies and the international environment that modify the balance of political power in a society. This kind of changes can lead to major changes in political institutions and therefore in economic institutions and growth.

Recently, many developing countries including African countries have experienced transition from non-democratic to democratic political system, yet there is no significant improvement in economic performance of majority of them. Acemoglu and Robinson (2008) extend their

political economy model to explain why changes in political institutions may not lead to changes in economic institutions and performance. They argue that the transition only alters the distribution of de jure political power but creates incentive for investment in de facto political power which offset the gains from changes in de jure power.

Greif (1993, 1994, 1998) emphasise the role of history and social interaction in understanding the nature and evolution of modern institutions and facilitate the understanding of the institutional transitions that developing economies still face. Greif (1993) for example, presents an economic institution which enabled 11<sup>th</sup> century traders to benefit from employing overseas agents despite the commitment problem inherent in these relations. Agency relations were governed by a coalition – an economic institution in which expectations, implicit contractual relations, and a specific information – transmission mechanism supported the operation of a reputation mechanism. He used historical records and a simple game theoretical model to examine this institution. The coalition was an institution in the sense that it determined the constraints a trader faced. The nature of the coalition and its importance are evident from direct quotations of Maghribi traders and the impact of the coalition on their behaviour, social structure and business practices. The emergence of the coalition and its size reflect an institutional path – dependent process. It reflects the relationship between an historical process initiated by political events, the resulting social entity and positive reinforcement between economic and social institutions. He concludes that the study of non-market economic institutions employed in different historical period is likely to enhance knowledge of the origins, nature and implications of institutions. The study of the coalition underscores the importance of the interrelations between political, social and economic factors. Further, it suggests that due to the nature of these interrelations, once a specific institution emerges, it may become a part of a self – enforcing stable system, not prone to change in response to welfare – enhancing opportunities. Hence, economic growth in different economies may be diverse due to distinct historical origin of institutional.

Greif (1994) argues that the organisation of society - its economic, legal, political, social and moral enforcement, institutions, together with its social constructs and information transmission and coordination mechanism – profoundly affects its economic performance and growth, using historical and game theoretical analysis of the relations between culture and societal organisation by examining the cultural factors that have led two pre-modern societies to evolve along distinct

trajectories of societal organisation. He conjectures that cultural variations account for intersociety differences in societal organisation. He points to factors that make trajectories of societal organisation – and hence economic growth – path dependent. Given the technologically determined rules of the game, institutions – the non-technological constraints on human interactions – are composed of two interrelated elements: cultural beliefs (how individuals expect others to act in various contingencies) and organisations. Thus, the capacity of societal organisation to change is a function of its history, since institutions are combined of organisations and cultural beliefs, cultural beliefs are uncoordinated expectations, organisations reinforce the cultural beliefs that often led to their adoption and past organisations and cultural beliefs influence historically subsequent games, organisations and equilibria. His conclusion is that understanding economic and political institutions and the impact of organisational modifications requires the examination of the historical development and implications of the related cultural beliefs.

Greif (1998) uses historical and comparative institutional analysis (HCIA) conceptual framework to provide explanation to some fundamental questions of institutional economics such as why do societies evolve along distinct institutional trajectories? And why do societies often fail to adopt the institutional structure of more successful ones? He concludes institutions of societies are complex in which informal interrelated with formal institutions in creating a coherent whole. These interrelations direct institutional change and cause this institutional complex to resist change more than its constituting parts would have done in isolation. Hence, this institutional complex is not a static optimal response to economic needs. Rather, it is a reflection of an historical process in which past economic, political, social and cultural features interrelate and have a lasting impact on the nature and economic implications of a society's institutions.

### **3.2 Institutions and economic performance : Empirical evidence**

The core studies that are the forerunners of the argument that institutions are fundamental determinants of economic performance are Mauro (1995), Knack and Keefer (1995), Hall and Jones (1999), Acemoglu, Johnson and Robinson (2001, 2002), and Rodrik, Subramanain and Trebbi (2004).

Mauro (1995) focuses on how corruption and other measures of institutions affect economic growth. His paper tries to identify the channels through which corruption, red tape and

bureaucratic efficiency affect growth and also tries to quantify the magnitude of these effects. He concludes that there is significant association between corruption and investment as well as growth. He also finds significant causal relationship between bureaucratic efficiency and investment as well as growth. Bureaucratic efficiency actually causes high investment and growth. He argues for example, that if Bangladesh were to improve the integrity and efficiency of its bureaucracy to the level of that of Uruguay which is corresponding to a one standard deviation increase in the index of bureaucratic efficiency, its investment rate would rise by almost five percentage points and its yearly GDP growth rate would rise by over half a percentage point.

Knack and Keefer (1995) use different measures of institutions to test their effect on growth and private investment. Their results provide substantial support for the position that the institutional roots of growth and convergence are significant and further offer strong support for three propositions: first, political violence and the Gastil political and civil liberties indicators are insufficient proxies for the quality of the institutions that protect property rights. Thus, more direct indicators are needed to properly account for the influence of institutions; second, institutions that protect property rights are crucial to economic growth and to investment. Moreover, the effect of institutions on growth persists even after controlling for investment. This suggests that the security of property right affects not only the magnitude of investment but also the efficiency with which inputs are allocated; third, when institutions are appropriately controlled, stronger evidence emerges for conditional convergence. The coefficients on initial income, from which conditional convergence or diminishing returns to capital are evaluated, rise in both statistical and economic significance.

Hall and Jones (1999) try to answer the question: “why do some countries invest more than others in physical and human capital”? Understanding this would advance the understanding of why some countries are so much more productive than others. They argue that differences in capital accumulation, productivity and therefore output per worker are fundamentally related to differences in social infrastructure across countries. They defined social infrastructure as the institutions and government policies that determine the economic environment within which individuals accumulate skills and firms accumulate capital and produce output. Social infrastructure favourable to high levels of output per worker provides an environment that supports productive activities and encourages capital accumulation, skill acquisition, invention

and technology transfer. Such a social infrastructure gets the prices right so that individuals capture the social returns to their actions as private returns. They conclude that a country's long run economic performance is determined primarily by the institutions and government policies that make up the economic environment within which individuals and firms make investment, create and transfer ideas, and produce goods and services.

Acemoglu, Johnson and Robinson (2001) exploit differences in European mortality rates to estimate the effect of institutions on economic performance. They develop a theoretical model which hypothesised that potential European's settler mortality rate affected settlements; settlements affected early institutions; and early institutions persisted and formed the basis of current institutions. Europeans adopted very different colonisation policies in different colonies, with different associated institutions. In place where Europeans faced high mortality rates, they could not settle and were more likely to set up extractive institutions. These institutions persisted to the present. They ran empirical test of their model and find a high correlation between mortality rates faced by soldiers, bishops as well as sailors in the colonies and Europeans settlements; between European settlements and early measures of institutions; and between early measures of institutions and institutions today. Their study shows robust result on the impact of institutions on income per capita even after controlling for latitude, climate, current disease, environment, religion, natural resources, soil quality, ethnolinguistic fragmentation and current racial composition.

In Acemoglu, Johnson and Robinson (2002), they documented the reversal in relative incomes that took place during the late eighteenth and early nineteenth centuries which resulted from societies with good institutions taking advantage of the opportunity to industrialise. They find that among countries colonised by European powers during past 500 years those that were relatively rich in 1500 are now relatively poor. They argue that the reversal reflects changes in the institutions resulting from European colonialism. The European intervention appears to have created an "institutional reversal" among these societies, meaning that Europeans were more likely to introduce institutions encouraging investment in regions that were previously poor.

Rodrik, Sabramanian and Trebbi (2004) used trade/GDP and settler mortality rates as instruments to systematically estimate series of regressions in which income are related to measures of geography, integration and institutions. They find that quality of institutions trumps everything else. Once institutions are controlled for, integration has no direct effect on incomes,



while geography has at best weak direct effects. Trade often enters the income regression with negative sign, as do many of the geographical indicators. By contrast, measure of property rights and the rule of law always enter with positive sign and is statistically significant. One standard deviation increase in institutional quality produces two points rise in per capita incomes. They also find that institutional quality has positive and significant effect on integration. Importantly, integration also has positive impact on institutional quality, suggesting that trade can have an indirect effect on incomes by improving institutional quality.

The literature on the importance of institutions is growing fast with new evidences. Though, different study uses different measures of institutions, they all conclude that improvement in institutions promote growth. Acemoglu et al (2003) did not only show that macroeconomic volatility is a symptom of weak institution but also argue that weak institutions cause volatility through a number of microeconomic as well as macroeconomic channels. They argue that countries pursuing poor macroeconomic policies also have weak institutions, including political institutions that do not constrain politicians and political elites, ineffective enforcement of property rights for investors, widespread corruption, and a high degree of political instability. Similarly, Angelopoulos et al (2010) looks at the role of institutions in economic fluctuations in Mexico. He introduces weak property rights in the standard real business cycle (RBC) model in order to examine the role of institutions as a source of economic fluctuations in emerging markets. He finds that the model with shocks to the degree of protection of property rights can match the second moments in the data for Mexico very well. When compared with the standard neoclassical model, he finds that the RBC fit is better with full protection of property rights regarding the auto-correlations and cross-correlations in the data. Viewing productivity shocks as shocks to institutions, his findings using RBC are consistent with the stylised fact of falling productivity and non-decreasing labour hours in Mexico over 1980 to 1994.

In Acemoglu, Johnson and Robinson (2004), the authors argue that differences in economic institutions are the fundamental cause of differences in economic development across countries. Abdiweli (2003) also provides ample evidence which shows that institutional environment in which an economic activity takes place is an important determinant of economic growth. His empirical results reveal that countries with high levels of economic growth are characterised by high levels of economic freedom and judicial efficiency, low levels of corruption, effective bureaucracy and protected private property. Among many other studies, Master and McMillan

(2001) show that one standard deviation increase in index of social infrastructure increase output per worker by 6.80% for tropical countries. Similarly, Bockstette et al (2007), and Kogel (2005) show that one standard deviation increase in index of social infrastructure would increase output per worker by 2.29 percent and annual average TFP (Total Factor Productivity) growth rate by 9.17 percent respectively. Alcalá and Ciccone (2004) show that one standard deviation increase in index of institutional quality increase GDP per capita by 35 percent, Rodrik (1999) also shows that similar increase in freedom house index increase average dollar wages in manufacturing by 19.8%. Huang (2010) also argues that institutional quality have positive effect on financial development at least in the short run, particularly for low income, ethnically divided and French legal origin countries. This effect is expected to persist over longer horizons for low income countries, he concludes.

Though there is no study that empirically proves that institutions are not important in economic growth, Pande and Udry (2006) argue that much may not be learnt from cross –country study on institutions since they differ from one country to another. Cross correlations between institutional development and growth observed in cross – country data have provided persuasive case that long run growth is faster in countries that have higher quality contracting institutions, better law enforcement, increased protection of private property rights, improved central government bureaucracy, smoother operating formal sector financial markets, increased levels of democracy and higher levels of trust. However, the scope of using cross – country data for identifying the channels of influence is limited. The measurement of institutions at the country level is necessarily coarse and obscures important dimensions of heterogeneity. There are therefore very few plausible sources of exogenous variation in country level institutions that can serve to identify the causal effect of institutions on growth. Hence, they call for caution in drawing strong conclusions from cross –countries studies on institutions.

Angeles (2011) argues that the current emphasis on property rights as a fundamental driver of economic development is overstated. He contends that the case for the importance of property rights on capital accumulation and production of ideas can be challenged both on theoretical and empirical grounds. On theory side, innovations can take place in the absence of intellectual property rights. It can even be proved theoretically that intellectual property rights can be detrimental. Empirically, historical events have shown that most innovations in pre – industrial Europe were not patented and countries without a patent system innovated as much as those that



did have one. The case for patent right may be less favourable for the developing world, where large gains can be expected from freely imitating the stock of ideas from developed world rather than having to pay for it.

### **3.3 Review of the link between political institutions and economic growth**

Many studies on institutions and growth focus on the link between political institutions and economic growth. There is no consensus on the measurement of political institutions. Many authors used regime type, whether a country is in democracy or autocracy, whether the democracy is parliamentary or presidential, whether the electoral process is majoritarian or proportional and so on. Large cross – country data base of political institutions that cover several countries such as POLITY IV database and Database on Political Institutions (DPI) are also been used in recent studies. Unlike results on the impact of economic institutions, the results and conclusions from studies on the impact of political institutions on growth are divergent. Some find positive effects while others find negative effects and some did not find any effect. Among those who find positive effects are Pourgerami (1988); Scully (1988); Barro (1989); Dasgupta (1990); Helliwell (1992); Sala-i-Martin (1997); Plumper and Martin (2002); Haan (2007) and more recent and prominent is Persson and Tabellini (2005, 2009). Other recent studies that find positive though weak effects are: Roll and Talbot (2003); Giavazzi and Tabellini (2005); Jones and Olkan (2005); and Rodrik and Wacziarg (2005). Those that find negative effects include Huntington and Dominguez (1975), Weede (1983); Landau (1986); Grier and Tullock (1989) and Bates (2006). Several studies such as Dick (1974); March (1988); Londregan and Poole (1990); Alesina et al (1996); Przeworski and Limongi (1993); Barro (1994); Helliwell (1994); and Haan and Siermann (1995), did not find any or robust effects of democracy on economic growth.

Specifically, Pourgerami (1988) empirically investigated the development – democracy – growth nexus. He finds market and culture have strong and highly significant positive effects on democracy. These effects are directly transmitted. His results show that development affects democracy directly and indirectly via education and investment. The positive causal association between democracy and growth is transmitted both directly and indirectly via labour and welfare. He concludes that there is a need for continuous efforts on the part of government and people to initiate and/or accelerate a process of establishing preconditions for the emergence of democracy

via improvements in the allocative role of markets, enrichment of cultural values in such a way that more diversity and compromise are tolerated in the decision-making processes and improved standard of living by investing in human and physical capital.

Helliwell (1992) shows that the effects of income on democracy are robust and positive while the effects of several measures of democracy and personal freedoms on growth are not significant. Thus, he concludes that there is no direct effect of democracy on economic growth. However, there is evident for indirect effect via education and investment. Similarly, Przeworski and Limongi (1993) conclude that though politics does matter for growth but regime type do not capture the relevant differences. They argue that post war economic miracles include countries that had parliaments, parties, unions and competitive elections, as well as countries ran by military dictatorship. Thus, it does not seem to be democracy or authoritarianism per se that make the difference but something else. Haan and Siermann (1995) equally argue that though it is possible to find significant relation between democracy and growth, the relationship is not robust. Regime stability is also not robustly related to economic growth. They conclude that political and civil rights do not perhaps improve a country's growth rate, though not necessarily impede it.

Abrams and Lewis (1995) find that culture, political and economic arrangements as well as personal freedoms are statistically significant determinants of growth. Personal freedom is shown to be a normal good whose demand might be affected by cultural influences. Democracies raise personal freedoms *ceteris paribus* and consequently grow more quickly than non-democratic regimes. Brunetti (1997) finds measures of policy volatility and subjective perception of politics most successful as explanatory variables in cross – country growth regressions while measures of democracy are least successful.

Roll and Talbott (2003) attempt to provide explanation to the question of what can governments do to speed economic development?. They focus on macroeconomic, structural, political and institutional conditions that can be manipulated by a government to achieve maximum incomes per capita within the constraints of its immutable circumstances. They find that strong property rights, political rights, civil liberties, press freedom, and government expenditures have significant and consistent influence on GNI per capita. While excessive regulation, poor monetary policy, black market activities and trade barriers have significant negative influence.

They argue that when countries undertake a democratic change such as deposing a dictator, they enjoy a dramatic spurt in economic growth which persists for at least two decades. In contrast, an anti-democratic event is followed by a reduction in growth. This verifies that democratic conditions really are causes of cross – country differences in wealth and not the endogenous effect of wealth. There are indeed crucial local conditions for economic development, conditions that can be established by a progressive government on behalf of its citizens. Nkurunziza and Bates (2003) find that political stability and regime type significantly affect economic growth in the Africa sample, that, the inclusion of these variables reduces the variance left unexplained by the Hoeffler equation. However, they find the impact of measures of political violence to be less impressive.

Giavazzi and Tabellini (2004) empirically study the effects of and the interaction amongst economic and political liberalisation. Economic liberalisations are measured as policies towards freer international trade. While political liberalisations correspond to the event of becoming a democracy. They specifically examined the effects of liberalisation on economic performance, on macroeconomic policy and on structural policies, also examined the feedback between economic and political reforms. They find positive feedback effects between economic and political reforms. The timing of events indicate that causality is more likely to run from political to economic liberalisations, rather than vice versa but feedback effects in both directions cannot be ruled out. They argue further that the sequence of reforms also matter. Countries that first liberalise and then become democracies do much better than countries that pursue the opposite sequence, in almost all dimensions. Economic liberalisation speeds up growth by about one percent and raise the share of investment by almost two percent of GDP. The effects of permanent and temporary liberalisations are not very different only that temporary liberalisations seem to have a larger effect on growth and investment than permanent liberalisations. Democratic transition on the other hand are associated with small improvements in economic performance. The effects are generally too small but when all forms of political reforms were considered, the result was robust.

A number of influential commentators have suggested that democratisation in developing countries produces political instability, ethnic conflict and poor economic outcomes. For example Kaplan (2001) states that if a society is not in reasonable health, democracy can be only

risky and disastrous. Zakaria (2001) points out that although democracy has in many ways opened up African politics and brought people liberty, it has also produced a degree of chaos and instability that has actually made corruption and lawlessness worse in many countries. However, Rodrik and Wacziarg (2005) argue that democratisation yields benefits in terms of individual freedom and empowerment. On the average, democratisation will bring about at no discernible cost on growth and benefits in the form of a short run boost in the economy and reduction in economic volatility. Persson and Tabellini (2005) also argue that under democracy, the probability of regime change hurts both investment and growth while under autocracy, the probability of regime change spur growth and investment. Similarly, Gerring and others (2005) argue that there is robust relationship between democratic stock and growth in a variety of plausible specifications and operationalisations. A country growth performance is affected by the number of years it has been democratic, in addition to the degree of democracy expected during that period.

Acemoglu et al (2008) revisited the relationship between income per capita and democracy. They argue that although income and democracy are positively correlated, there is no evidence of a causal effect. Regressions that include country fixed effects and/ or instrumental variable show no evidence of a causal effect of income on democracy over the post war era or the past 100 years. The cross – country correlation between income and democracy is likely due to the fact that political and economic development paths are interwoven. Thus, the correlation reflect a positive correlation between changes in income and democracy over the past 500 years.

Person and Tabellini (2009) argue that having long – time democratic experience favours economic development through physical capital accumulation which helps further consolidate democracy. This in turn, leads to the accumulation of more democratic capital with additional positive effects on income and democratic stability. Democracy appears to be a sufficient but not necessary condition for economic development. According to them, there is a kind of feedback effects between physical and democratic capital accumulation in a virtuous circle. Getting into such a circle is difficult because democratic stability is hard to achieve instantaneously. However, their results suggest the possibility of a virtuous circle, where accumulation of physical and democratic capital reinforce each other, promoting economic development and consolidating democracy. Their results also point to three asymmetries across political regimes:

first, higher income makes democracies more stable but does not make dictator more precarious. Second, while the probability of switching from democracy to autocracy hurts growth, the probability of remaining under autocracy has no effect on growth, or – if anything – a positive effect. Third, the positive influence of democratic capital on growth is due to democracies, not to autocracies. These asymmetries are consistent with a heterogeneous economic effect of democracy, and endogenous sorting of countries into political regimes on the basis of economic expediency.

Mamoon (2011) reveals that countries that practice democracy are less prone to wage inequality and income inequality whereas autocracy is associated with higher level of wage inequalities but its impact on income inequalities are insignificant. Political stability, voice and accountability are more sensitive to inequalities than democracy and autocracy, suggesting that the countries which are politically stable and practice accountability also form more equal societies. Nonetheless, he concludes that democracy is not a sufficient condition in itself for contributing towards the equity or even economic progress of a country. Rather democracy only fit in properly when other institutional variables have evolved appropriately to support its conceptual application.

### **3.4 Review of studies on Africa economic performance**

Understanding why Africa is lagging behind in economic growth and development has attracted interest of researchers and development agents within and outside the continent. A number of factors have been identified in literature to be responsible for Africa's poor economic performance. These include economic, political, geography, demography and institutional variables. Some of the major studies in this area are reviewed here.

The two volumes of African Economic Research Consortium (AERC) project “The Political Economy of Economic Growth in Africa 1960 to 2000” shed light on the challenges of Africa economy as whole and of selected case studies. About 30 countries are being studied by African scholars under general coordination by economists and political economists. The analysis in this project blends macroeconomic accounting, political economy, microeconomic and institutional analyses. Among the factors identified in the project are slow accumulation of capital and productivity growth, delayed demographic transition, limited structural transformation,

geographical location, resource endowments, vulnerability to external shocks, governance failure, civil wars and violent conflicts, policy failure, poor institutional environment and low infrastructural capital. In most of the case studies, it is argued that resource endowments invite a narrow commodity specialisation and provide large and volatile rents to political incumbents. There was policy driven distortions in the composition of investment and the allocation of labour and capital across sectors or firms. Diversion of productive resources into rent – seeking, resulted in different forms of distributional struggle, including civil wars. Remoteness from middle and high income world markets impose high costs of trade and technology transfer. Poor policy and political variables appears to matter in almost all the case studies. Generally, poor policy accounted for between a quarter and half of the difference in predicted growth between African and non-African developing countries.

Hoeffler (2002) argues that the argument in the literature that basic growth models are unable to account for the Africa's low growth was due to choice of estimation techniques. When the unobserved country specific effects and endogeneity are accounted for using two-step regression procedure, the Africa dummy was small and insignificant. This suggests that augmented Solow model can fully account for Sub-Saharan Africa's low growth performance. Her result also indicates that there is no systematic unobserved difference between African and non-African countries. Therefore, to promote growth in Africa attention should be given to the basic factors of the augmented Solow model, such as investment and population growth. Similarly, Sachs and Warner (1997) show that, openness to international trade, life expectancy, and geography are significant factors in explaining growth in SSA. Higher rates of central government savings are associated with faster growth. The quality of institutional index is also significantly related to growth. A rising proportion of the population at working age is associated with a high rate of per capita GDP growth. Other variables such as inflation, ethno-linguistic fractionalisation, growth of neighbouring countries are not important in explaining growth in Africa. However, Barro and Lee (1993) and Easterly and Levine (1997) have shown that the African dummy is large and significant, suggesting that Africa's growth responds to variables different from those explaining it elsewhere. Devarajan, Easterly and Pack (2002) analyse the claim that Africa's slow growth performance is due to low investment rates. They show that the relationship between investment and growth in Africa is not direct. That the positive and significant coefficient on private investment is driven by the presence of Botswana in the sample, omitting Botswana eliminates



the finding. Africa's low investment and growth rates are symptoms of underlying factors. Unless some or all of the underlying factors are addressed, higher investment would not by itself produce faster GDP growth.

Similarly, Masanjala and Papageorgiou (2003, 2004) show that determinants of growth in Africa are strikingly different from the rest of the world. Growth regression models that best explain global growth do poorly in explaining African growth. In their 2003 paper, they show that economic institutional variables are particularly important in explaining Africa growth. In Masanjala and Papageorgiou (2006, 2007) it is shown that the impact of initial conditions on subsequent growth in SSA is distinct from their impact in other parts of the world. Specifically, regressors such as initial primary education, primary resources and geography are shown to be particularly important in African post-war growth.

Bloom and Sachs (1998) argue that, at the root of Africa's poverty and slow growth lies its extraordinarily disadvantageous geography which shapes the African societies and its interactions with the rest of the world. They show that climatic factors, location, demography and disease ecology are major variables explaining Africa's poor economic performance. Given its climate, soils, topography and disease ecology, Africa suffers from chronically low agricultural productivity, high disease burdens and very low levels of international trade, concentrated in few primary commodities. The region's economic performance is further impeded by its demographic circumstances. Africa has the world's highest youth dependency ratios, a consequence of the combination of the world's highest fertility rates and falling levels of infant and child mortality.

Another factor that impedes Africa's growth according to them is the fact that SSA is the most tropical region of the world. In all parts of the world, economic development in tropical zones lags for behind that in temperate zones. The consequences of being tropical include: many kinds of technologies, for example, in agriculture and construction, do not transfer well across ecological zones; temperate region (northern hemisphere mid-latitudes) has recorded more population density which offered much larger markets for innovation; the distance of Africa from the large mid-latitude markets add to transportation costs; there very small coastline relative to land area and very few natural coastal ports; people generally live far from the coast,

Africa has the highest proportion of landlocked states in the world; and there are no rivers leading into the interior of the continent that are navigable by ocean going vessels.

Tropical agriculture especially food production is faced with chronic problems of low yields and fragility due to low photosynthetic potential, high evapotranspiration, low and variable rainfall, high weathered soils, veterinary diseases, and plant and animal pests. Disease ecology is one of their arguments for Africa's poor economic performance. Africa has the poorest regional health status in the world. One linkage between this and growth is through prevalence of endemic vector-borne infectious disease. Malaria is widely recognised as one of the most serious health problems faced by the region. The transmission of malaria tends to be stable in hot climates, unstable in warm but not hot climates and absent in cool climates, such as in most temperate zones. Malaria do not only affect productivity but also presents serious obstacle to foreign investment and tourism in many parts of Africa.

The last part of their argument is demography. They argue that Africa sparse population, that is, low level of population density do not encourage innovation. Ethnic cleavages measure in term of linguistic diversity is another demographic factor that retard growth in Africa. There is delay in demographic transition largely due to the fact that the continent has not recorded appreciable degree of decline in fertility. The combination of falling death rates, concentrated in the youth cohort and stable birth rates have had two principal demographic consequences: rapid population growth and skewing of the age structure toward the young ages. Africa's youth dependency burden poses a significant impediment to the growth of income per capita.

A book project by World Bank staff, edited by Ndulu et al (2007) identifies a number of opportunities and challenges facing Africa and points to strategic directions to accelerate economic growth. The book draws lessons from 45 years of growth experience in Africa and around the world, providing important repository of lesson learnt to shape growth strategies in Africa. Out of the 48 countries in Africa, only six countries have more than tripled their per capita incomes between 1960 and 2005, nine countries have per capita incomes equal to or less than where they started in 1960 and the rest have seen some net improvement but not enough to make a real changes in poverty levels. The report draws six key lessons to inform the growth strategies in SSA.



Many of the countries' fortunes are closely tied to the key minerals in the world market. This makes them vulnerable to external shocks, thus one of the challenges in Africa is how best to manage or respond to shocks. It is argued in the book that low levels of investment and slow productivity growth sharply distinguish African growth performance from the rest of the world. This is the consequence of a number of problems such as: high transaction costs for private enterprise; low level of technology and innovations; poor institutional capacity to support productivity growth and competitiveness; and low productivity in agriculture. Policy and governance was found to matter a great deal in enhancing growth in Africa. Geographical disadvantages is also an important determinant of growth in Africa, it accounted for about one third of the growth gap between Africa and other developing countries. Limited openness in terms of trade and capital flows hindered competitiveness. Delayed demographic transition also accounted for two thirds of the observed differences between average growth in SSA and other developing regions.

A composite of three key strategies are recommended for enhancing growth that will reduce poverty. These include: improvement of the investment climate with emphasis on infrastructure, energy and transport, security of life and properties, political and macroeconomic stability and legal system; emphasising investment in information technology and skill formation to enhance innovation, productivity and competitiveness; building and strengthening institutions. World Development Report (2005) identifies costs associated with contract enforcement, crime, corruption and regulation as an important factor influencing profitability of enterprises. It is also important for African countries to speed up reduction in fertility and expand employment opportunities in order to make reasonable progress. Greater openness, strengthening capabilities for markets, attracting foreign investment and improving facilities such as port capacity and efficiency are crucial.

Ghura and Hadjimichael (1996) find private investment has positive and significant impact on growth. One standard deviation increase in private investment raises per capita growth by about two percent points. Government investment has positive effect on growth though not statistically robust. Macroeconomic policies affect per capita growth through their effects on both the volume and the efficiency of investment. Economic growth is stimulated by public policies that lower the budget deficit in relation to GDP (without reducing government investment), reduce the rate of

inflation, maintain external competitiveness, promote structural reforms, encourage human capital development and lower population growth. Adverse exogenous factors (for example, deteriorations in the terms of trade and droughts) have significant negative effects on per capita growth. Similarly, Ojo and Oshikoya (1995) used the endogenous growth models framework to analyse the determinants of long-term growth in selected African countries from 1970 to 1991. The most important explanatory variables in their study are initial per capita income, investment, population growth, macroeconomic environment (particularly inflation and exchange rates), external factors (such as export growth, external debt, terms of trade), political environment and human capital. Nkurunziza and Bates (2003) also find political variables to be important factors in explaining Africa's growth. They use Hoeffler's (2002) System-GMM estimates of the augmented Solow model. They find that political stability and regime type significantly affect economic growth for the Africa sample. However, political violence give less impressive result.

Easterly and Levine (1995) shed more light on accounting for long-run growth across all countries with emphasis on understanding Africa's growth tragedy. They observe that poor growth is strongly associated with: (i) low schooling; (ii) political instability; (iii) under – developed financial systems; (iv) distorted foreign exchange market as measured by the black market premium; (v) high government deficits; (vi) poor infrastructure; (vii) ethnic fractionalisation and (viii) spillovers from neighbours that magnify (i) to (vii). Boko (2002) finds promoting economic freedom, political rights and civil liberty are growth enhancing in Africa. Lindner and Strulik (2004) show that establishing secure property rights can lead to gains in levels and growth of income and consumption per capita.

### **Gaps in the literature**

Though, the importance of institutions has been established in the literature, the following issues remain unsettled. (i) Most of the empirical evidences are not based on theory; (ii) It is not clear from both the theoretical and the empirical literature why weak institutions emerged in African countries after independence; and (iii) Theories of institutions are standing separately from the orthodox neoclassical theory.

## CHAPTER FOUR

### THE ANALYTICAL FRAMEWORK

This chapter is the unifying analytical framework which addresses three issues: first, integrating institutions into the neoclassical framework. Second, use the framework to explain how weak institutions emerged in Africa, and third, why they persist after changes in the political system. The chapter begins with the building blocks of the framework and follows with the neoclassical framework and proceed through the second best theory of government intervention to the political economy framework.

#### 4.1 The building blocks of the model

The building blocks of the framework developed in this study are described in this section. The framework follow the idea popularised by Acemoglu and Robinson (2006, 2008). It is assumed that economic institutions determine the aggregate economic growth and distribution of resources in economies and that economic institutions are determined as collective choice of the society. Meanwhile, different economic institutions affect different individuals and groups of individuals differently. Hence, different individuals and groups will prefer different institutional settings. Consequently, there is conflict of interest among various social groups and individuals over the choice of economic institutions. It is interesting to ask; “if different social groups prefer different institutional settings, which of the group’s preferred institutions will prevail”? This makes issues of political economy of distribution of political power important. That is, the allocation of political power determines the equilibrium economic institutions. The interest of the group with more political power will prevail. Political power can be divided in to two: *de jure* political power and *de facto* political. The former is determined by political institutions such as the constitution, type of political regime and the constraints on the exercise of executive power. While the latter is acquired by individuals given their level of wealth, possession of weapons, ability to manipulate political process and/or ability to solve the collective action problem. The

interaction of *de jure* power and *de facto* power will determine the overall distribution of political power.

Many African countries started well, promising at independence until when majority of the countries renege to non-democratic system of governance, such as one party state or military dictatorship. The framework considered the distortions caused by these unpopular political systems which created weak institutional equilibrium. The elite class that emerged during this period retained the control of political power even in countries where there is transition to democracy.

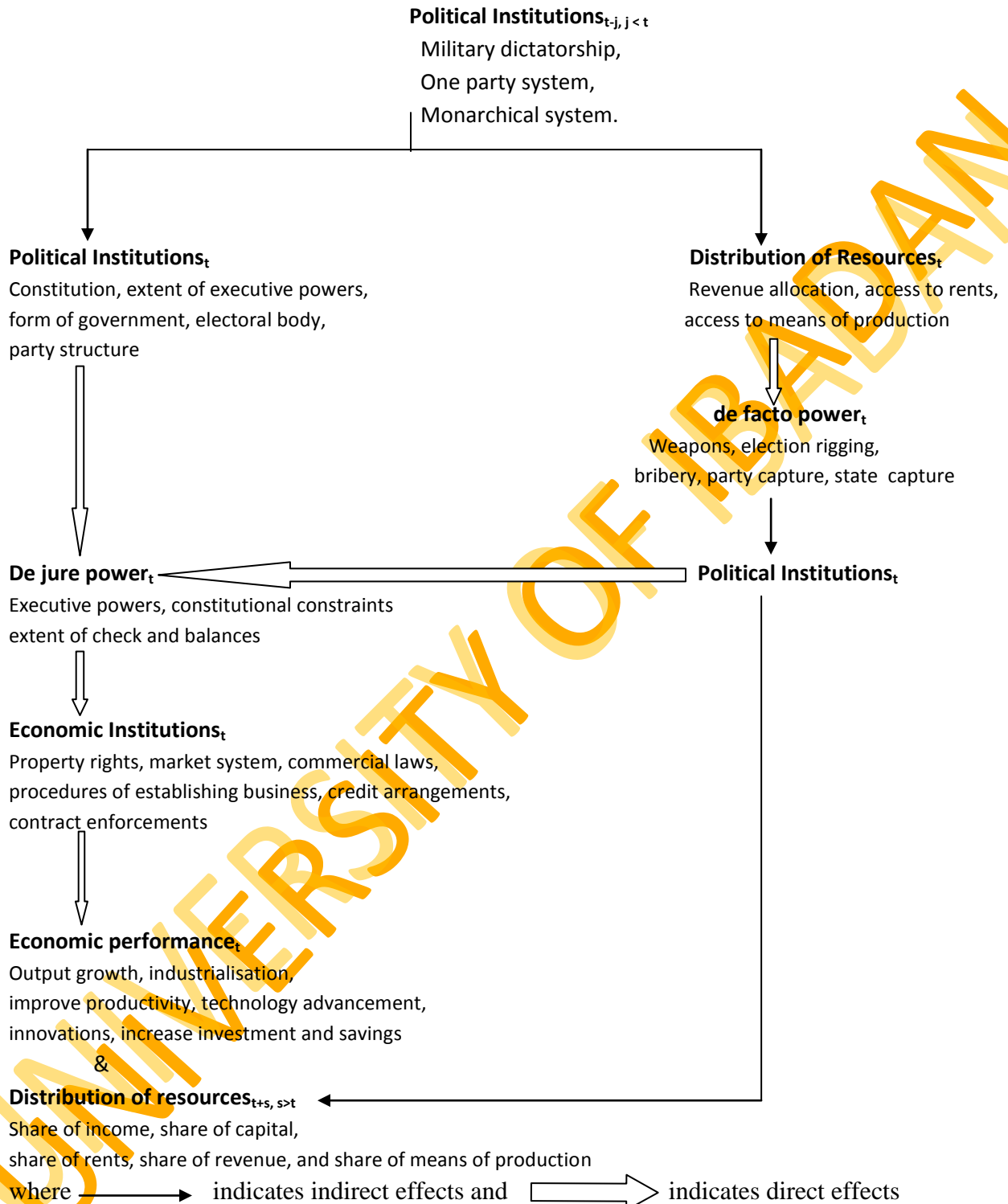
Figure 4.1 is the schematic presentation of the argument of the framework. It is clear from the schema that political institutions in the pre-democratic era exert influence on the political institutions in the democratic era and the distribution of resources. The two sources of political power (political institutions and distribution of resources) in turn affect evolution of political institutions in the democratic era and economic institutions in the period. Economic institutions determine economic outcomes, including the aggregate growth rate of the economy and the distribution of resources in the future. It implies that though economic institutions are essential factor shaping economic incentives and determining economic outcomes, they are themselves endogenous and determined by political institutions and distribution of resources in the society.

Political structure in a democracy can broadly be characterised as a two stage game. Stage one involves the process of electing political leaders and stage two involves elected leaders discharging their political mandates based on the responsibilities assigned to them by political institutions. The political power associated with the first stage has to do with the power to elect who will lead the society, and this is more of *de facto* political power. On the other hand, power associated with the second stage is political power allocated by political institutions, and this is *de jure* political power. This power determines the incentive of politicians. *De facto* political power has serious implication on political institutional reforms. For instance, a change in political institutions (such as transition from non-democratic to democratic system) that modifies the distribution of *de jure* power will not necessarily lead to a change in equilibrium economic institutions because of the offsetting effect of *de facto* political power (e.g in form of bribing politicians, capture of political parties, use of paramilitaries/ ethnic militia, or political “godfathering”).

It is clear from this that de facto political power is determined by distribution of resources. The more resources a group or individual has, the more the group or individual can afford to invest on de facto power. Thus, the political elite used their political power to redistribute more resources to themselves and implement policies and chose institutions that limit the opportunities of non-elite from accumulating wealth.

The summary from the schema is that political institutions in the pre-democratic era exert influence on the political institutions in the democratic era and the distribution of resources. While political institutions determine the distribution of de jure political power, the distribution of resources influences the distribution of de facto political power at time  $t$ . These two sources of political power, in turn affect evolution of political institutions in time  $t+s$  and economic institutions in time  $t$ . Economic institutions determine economic outcomes, including the aggregate growth rate of the economy and the distribution of resources at time  $t+s$ .

**Figure 4.1: Building Blocks of the Analytical Framework**



## 4.2 The basic assumptions of the model

Consider an infinite horizon economy that consists of three social groups: the citizens; the entrepreneurial class; and the elite class. The citizens with population  $L < 1$  are the workers, each worker  $i \in C$  owns one unit of labour which he/she supplies inelastically. The economy is also populated with  $M < 1$  entrepreneurs and  $E < 1$  population of elite. The economy's total population is therefore  $L + M + E = 1$ . The entrepreneurial class is the producers while the elite control the political power (the elite can also engage in entrepreneurial activities as considered later). An individual entrepreneur belong to a set of  $i \in \mathcal{M}$  while an individual elite belongs to a set of elites  $i \in \mathcal{E}$ . The economy is endowed with initial capital  $K_{(0)}$ .

## 4.3 The neoclassical economy

The study begins the analysis by considering an extreme case of neoclassical economy without government. That is, the influence of political economy is absent: in this case, there is no political elite group. The economy consists of two sectors: the household and the firm. The household own factors of production (L labour and K capital) which they supply to the firm at competitive prices. Firm uses these factors to produce final output  $Y$  which is consumed by all agents in the economy. All agents have the same risk neutral utility function given as:

$$\sum_{t=0}^{\infty} \beta^t U(C_{i(t)}) \quad (1)$$

Where:  $\beta \in [0, 1]$  is the discount factor,  $C_{i(t)} \in \mathbb{R}$  denotes the consumption of agent  $i$  at time  $t$ .

Assumption 1:  $U \rightarrow \mathbb{R}$  is continuously differentiable and strictly concave. The firm has access to a neoclassical production technology for producing the final good given as:

$$Y_{i(t)} = F(K_{i(t)}, L_{i(t)}) \quad (2)$$

Where:  $Y_{i(t)}$  is the final output produced by entrepreneur  $i$ , and  $K_{i(t)}$  and  $L_{i(t)}$  are the total amount of capital and labour respectively, used in the production of final output at time  $t$ .

Assumption 2:  $F: \mathbb{R}_+^2 \rightarrow \mathbb{R}_+$  satisfies: continuity; differentiability; positive and diminishing marginal product; and constant returns to scale<sup>3</sup>.

Assumption 3:  $F$  satisfies the Inada conditions

Expressing equation 2 in per capita form, the per capita production function can be written as:

$f(k) \equiv F(K/L, 1)$ ; where:  $k \equiv K/L$  is the capita-labour ratio. The optimal growth problem can be written as a dynamic programming problem. Let the choice variable be the next date's capital stock:

$$k_{(t+1)} = f(k_{(t)}) + (1 - \delta)k_{(t)} - C_{(t)} \quad (3)$$

Where:  $k_{(t+1)}$  is next date's capital-labour ratio and  $\delta$  is rate of depreciation. The problem of agents is to maximise equation 1 subject to 3, that is:

$$\begin{cases} \max \sum_{t=0}^{\infty} \beta^t U(C_{i(t)}) \\ \text{Subject to: } k_{(t+1)} = f(k_{(t)}) + (1 - \delta)k_{(t)} - C_{(t)}; k_{(t)} \geq 0 \end{cases}$$

From the constraint function current consumption can be written as:

$$C_{(t)} = f(k_{(t)}) + (1 - \delta)k_{(t)} - k_{(t+1)} \quad (4)$$

Substituting equation 4 in to the objective function, the problem can then be written recursively as:

$$V(k) = \max \{ f(k_{(t)}) + ((1 - \delta)k_{(t)} - k_{(t+1)}) + \beta V(k_{(t+1)}) \} \quad (5)$$

Assumption 4: Given assumptions 1, 2, and 3, then the value function  $V(k)$  in equation (5) is differentiable.

**Proposition 1:** Given assumptions 1 to 4, the problem specified in equations (1) and (2) has a solution characterised by the value function  $V(k)$  and  $C(k)$ .

<sup>3</sup> The notation  $F: \mathbb{R}_+^2 \rightarrow \mathbb{R}_+$  implies that production technology consists of two positive inputs which result in positive output



Therefore:  $U'(C) = \beta V'(k_{(t+1)})$  ; using the Envelope condition yields:

$$V'(k) = [f'(k) + (1 - \delta)] U'(C)$$

Consequently we obtain :

$$U'(C_t) = \beta [f'(k_{(t+1)}) + (1 - \delta)] U'(C_{(t+1)}) \quad (6)$$

From equation 4  $U$  now corresponds to  $U(f(k_{(t)}) + (1 - \delta)k_{(t)} - k_{(t+1)})$  as a function of the current state variable  $k_t$  and future state variable  $k_{(t+1)}$  , then imposing transversality condition, given as:

$$\lim_{t \rightarrow \infty} \beta' [(f'(k_{(t)})) + (1 - \delta)) U'(C_{(t)}) k_{(t)}] = 0 \quad (7)$$

Thus, the steady state capital–labour ratio satisfies:

$$\beta [f'(k^*) + (1 - \delta)] = 1 \quad (8)$$

#### 4.3.1 The competitive equilibrium

Following from equation 8, at equilibrium each entrepreneur chooses the capital–labour ratio given as:

$$f'[(k^*) + (1 - \delta)] = \beta^{-1} \text{ , hence:}$$

$$k_{i(t)} = k^* = (f')^{-1} (\beta^{-1} + \delta - 1) \quad (9)$$

Equation 9 equates the marginal product of capital with the inverse of the discount factor,  $\beta^{-1}$  and it applies at all points not only in the steady state. Thus, the steady state capital – labour ratio is characterised by the technology, the discount factor and the depreciation rate.

The model assumes a labour market with total labour force  $L$ . Each employer (entrepreneur) can employ up to  $L/M$  workers. The equilibrium wage rate is given as:

$$w_{(t)} = w^* \equiv f(k^*) - k^* f'(k^*) ; \text{ for all } t \quad (10)$$

Finally the household rent out their capital to the firm at competitive rental price. The returns to the household is given as:

$$r_t = f'(k_{(t)}) \quad (11)$$

The economy described above characterised the equilibrium of the standard neoclassical economy without government. This is summarised as:

**Proposition 2:** A competitive equilibrium consists of paths of consumption, capital stock, wage rates, and rental rates of capital,  $\{C_{(t)}, K_{(t)}, w_{(t)}, r_{(t)}\}$  such that the representative household maximises its utility given initial capital stock  $K_{(0)}$  and the path of prices and paths of capital stock and labour, thus, all markets are cleared.

#### 4.4 Government intervention and economic equilibrium

Now government is introduced in to the model. The fundamental objectives of government are regulations, redistributions and provision of public goods. The impact of government intervention in the economic equilibrium is analysed vis-a-vis its fundamental objectives. In other words, how does government intervention impact the economic equilibrium.

##### 4.4.1 Tax and redistribution

This is the starting point of the political economy analysis. Now the elite have the political power to design and implement government policies. For the sake of parsimony, we assume that linear tax rate  $\tau_{(t)} \in \{0, 1\}$  on output is the only means of raising revenue. The tax revenue is redistributed via lump-sum transfers  $T^c \geq 0, T^m \geq 0, \text{ and } T^e \geq 0$  to each of the three social groups (citizens, entrepreneurial class and elite ). Assume that tax rates are announced before entrepreneurs take investment decision and the political elites are committed to it. Thus, at each time  $t$ , the economy starts with a predetermined tax rate on output  $\tau_{(t)}$  and capital stocks  $\{K_{i(t)}\}_{i \in \mathcal{M}}$ . Entrepreneur decides how much labour to hire  $\{L_{i(t)}\}_{i \in \mathcal{M}}$ , output is produced and a fraction of the output is collected as tax revenue. Because of maximum size of firm constraints, each employer employs less than  $L/M$ , and  $L - M\bar{L}$  workers are unemployed and earn zero wages. That is, when there is excess supply of labour, each entrepreneur  $i \in \mathcal{M}$  employs  $\bar{L}$  workers and total employment falls short of total supply. When there is no excess supply, the entire labour force is employed. Therefore :

$$L_{i(t)} = L^* = \min \left[ \bar{L}, L/M \right] ; \text{ for each } i \in \mathcal{M} \text{ at time } t \quad (12)$$

Assumption 5  $M\bar{L} > L$

This assumption ensures that there is full employment and thus,  $L^* = L/M = L_{i(t)}$ . The elite then decides the transfers,  $T_{(t)}^c, T_{(t)}^m$ , and  $T_{(t)}^e$  subject to government budget constraint given as:

$$T_{(t)}^c + T_{(t)}^m + T_{(t)}^e \leq \tau_{(t)} \int f(K_{i(t)}, L_{i(t)}) di \quad (13)$$

The elite announces tax rate  $\tau_{(t+1)}$  that will apply at next date. Entrepreneurs choose their capital stocks for the next date  $K_{i(t+1)}$ , after observing the tax rate. Let  $P^t = \{\tau_{(t)}, T_{(t)}^c, T_{(t)}^m, T_{(t)}^e\}$  denote a feasible sequence of policies starting at time  $t$ . Since the citizens supply labour inelastically, the only important decisions are the decisions of the entrepreneur. For example, if all entrepreneurs decide zero investment or shift to the informal sector, tax revenue becomes zero and there can not be transfers. Given any feasible policy sequence  $P^t$  and equilibrium wages  $w^*$ , the utility of an entrepreneur with capital stock  $K_{i(t)}$  at time  $t$  is:

$$U_i(\{K_{i(t)}, L_{i(t)}\}/P^t, w^*) = \sum_{t=0}^{\infty} \beta^t [(1 - \tau_{(t)})F(K_{i(t)}, L_{i(t)})] - (K_{i(t+1)} - (1 - \delta)K_{i(t)}) - w_{(t)}L_{i(t)} + T_{(t)}^m \quad (14)$$

Maximising equation 14 with respect to the sequence of capital stock yields:

$$\beta [(1 - \tau_{(t)})f'(K_{i(t)})L_{i(t)}] + (1 - \delta) - 1 = 0$$

The solution gives:

$$[(1 - \tau_{(t)})f'(K_{i(t)})L_{i(t)}] + (1 - \delta) = \beta^{-1} \quad \text{expressed in term of future date capital-labour ratio as:}$$

$$[(1 - \tau_{(t+1)})f'(k_{i(t+1)})] + (1 - \delta) = \beta^{-1} \quad (15)$$

Where:  $k_{i(t+1)}$  is capital-labour ratio chosen by entrepreneur  $i$  for time  $t + 1$  given the tax rate  $\tau_{(t+1)}$ . Notice that if taxes are zero ( $\tau_{(t)} = 0$ ) for all  $t$ , then equation 15 would be identical to equation 9 with capital-labour ratio  $k^*$ . Following from equation 15, the equilibrium capital-labour ratio in the presence of positive taxes at time  $t$  for all entrepreneurs is:

$$k^{**}(\tau_{(t)}) \equiv (f')^{-1} \left( \frac{\beta^{-1} + \delta - 1}{1 - \tau_{(t)}} \right) \quad (16)$$

Given equation 16 and assumption 5, then the equilibrium wage at time  $t$  is:

$$w^{**}(\tau_{(t)}) = (1 - \tau_{(t)}) \left[ f(k^{**}(\tau_{(t)})) - k^{**}(\tau_{(t)})f'(k^{**}(\tau_{(t)})) \right] \quad (17)$$

Remarks:

- From equation 16 it is clear that choice of capital is a function of taxes and not transfers.
- Comparing equations 16 and 9 show that capital – labour ratio with redistributive policies is less than the competitive capital – labor ratio.
- Policies of redistribution does not only affect the capital per worker but also affect the equilibrium wage rate.
- Higher taxes distort entrepreneurs' decision to investment

#### 4.4.2 Provision of public goods

Here the impact of provision of public goods is considered. It is assumed that revenue raised from taxes are used by the elite to provide public goods  $G_{(t)}$  in addition to transfers at any time  $t$ . The utility is still given as equation 1 but the government budget constraint and the production technology are now given as:

$$T_{(t)}^c + T_{(t)}^m + T_{(t)}^e + G_{(t)} \leq \tau_{(t)} \int Y_{i(t)} di \quad (18)$$

$$Y_{i(t)} = \frac{1}{\alpha} (K_{i(t)})^\alpha (A_{(t)} L_{i(t)})^{1-\alpha} \quad (19)^4$$

Equation 19 is an augmented Cobb–Douglas production technology where  $A_{(t)}$  measures the productivity of labour (by labour here we refer to both citizens and entrepreneurs contributions to production).  $A_{(t)}$  is specified as time varying because it is assumed that productivity changes over time depending on the level of public goods investment at each time. In other words, the more access to public goods such as education, healthcare, security, sanitation, and basic infrastructure, the higher the productivity of labour. Assume that:

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<sup>4</sup>  $\frac{1}{\alpha}$  is a convenience normaliser

$$A_{(t)} = \left( \frac{\alpha \emptyset}{1-\alpha} G_{(t)} \right)^{1/\emptyset} \quad (20)$$

Where:  $G_{(t)}$  denotes government spending on public goods,  $\emptyset > 1$  ensures that the technology for public goods investment exhibits diminishing returns. One important point here is that certain amount of government investment in public goods is necessary for private citizens to function productively. The political elite sets the tax rate  $\tau_{(t)} \in [0, \bar{\tau}]$  on total output where  $\bar{\tau}$  is maximum tax rate. Then tax revenues are:

$$\text{Tax Revenue}_{(t)} = \tau_{(t)} \int Y_{i(t)} di = \tau_{(t)} Y_{(t)} \quad (21)$$

Before examining what determine elite's decision to invest in public goods, let us first examine the impact of public goods on the state variable (capital – labour ratio). The utility of an entrepreneur with capital stock  $K_{i(t)}$  at time  $t$  is:

$$U_i(\{K_{i(t)}, A_{(t)}, L_{i(t)}\}/P^t, w^*) = \sum_{t=0}^{\infty} \beta^t [(1 - \tau_{(t)})Y_{(t)}] - (K_{i(t+1)} - (1 - \delta)K_{i(t)}) - w_{(t)}L_{i(t)} + T_{(t)}^m \quad (22)$$

Where:  $Y_{(t)}$  is given as in equation 19, thus maximising (22) with respect to the sequence of capital stock yields:

$$(1 - \tau_{(t)})(K_{(t)})^{\alpha-1}(A_{(t)}L_{i(t)})^{1-\alpha} + (1 - \delta) = \beta^{-1} \quad (23)$$

Equation 23 is expressed in term of capital–labour as:

$$(1 - \tau_{(t)})(k_{(t)})^{\alpha-1}(A_{(t)})^{1-\alpha} + (1 - \delta) = \beta^{-1}$$

Therefore, the equilibrium capital–labour ratio is :

$$\hat{k}_{(t)} = \left( \frac{\beta^{-1} + \delta - 1}{1 - \tau_{(t)}} \right)^{1/\alpha-1} A_{(t)} \quad (24)$$

Given equation 20, (24) can be written as:

$$\hat{k}_{(t)} = \left( \frac{\beta^{-1} + \delta - 1}{1 - \tau_{(t)}} \right)^{1/\alpha-1} \left( \frac{\alpha \emptyset}{1-\alpha} G_{(t)} \right)^{1/\emptyset}, \text{ thus the future capital–labour ratio is:}$$

$$\hat{k}_{(t+1)} = \left( \frac{\beta^{-1} + \delta - 1}{1 - \tau_{(t+1)}} \right)^{1/\alpha-1} \left( \frac{\alpha \phi}{1 - \alpha} G_{(t+1)} \right)^{1/\phi} \quad (25)$$

The equilibrium wage rate is also given as:

$$\hat{w}_{(\tau, G)} = (1 - \tau_{(t)}) [f(\hat{k}_{(\tau, G)}) - \hat{k}_{(\tau, G)} f'(\hat{k}_{(\tau, G)})] \quad (26)$$

Equations 25 and 26 are important results which show that investment in public goods do not only impact the choice of future capital–labour ratio but equally has impact on the equilibrium wage rate indirectly. Since, investments in public goods is important in the equilibrium, let us now examine what determines the decision to investment in public goods.

The elite at time  $t$  decides how much of the revenue to spend on public goods for the next date  $G_{(t+1)}$ . The elite is assumed to take this decision such as to maximise the consumption of representative elite given as:

$$C_{(t)}^e = \text{Tax Revenue}_{(t)} - (G_{(t)} + T_{(t)}^i) + T_{(t)}^e; \quad i = m, c \quad (27)$$

Given the tax rate  $\tau_{(t)} \in [0, \bar{\tau}]$ , the capital–labour ratio given by equation 24 and output per capita written from equation 19 as:  $y \equiv f(k) = \frac{1}{\alpha} (k_{i(t)})^\alpha (A_{(t)})^{1-\alpha}$  (19\*)

Substituting equation 24 into 19\* yields:  $y \equiv f(k) = \frac{1}{\alpha} \left[ \left( \frac{\beta^{-1} + \delta - 1}{1 - \tau_{(t)}} \right)^{1/\alpha-1} A_{(t)} \right]^\alpha (A_{(t)})^{1-\alpha}$

$$y \equiv f(k) = \frac{1}{\alpha} \left( \frac{\beta^{-1} + \delta - 1}{1 - \tau_{(t)}} \right)^{\alpha/\alpha-1} A_{(t)} \quad (28)$$

Using equation 28, equilibrium tax revenue from equation 21 can be written as:

$$T_{(A(t))} = \frac{1}{\alpha} \bar{\tau} \left( \left( \frac{\beta^{-1} + \delta - 1}{1 - \tau_{(t)}} \right)^{1/\alpha-1} A_{(t)} \right)^\alpha (A_{(t)})^{1-\alpha}, \text{ which gives:}$$

$$T_{(A(t))} = \frac{1}{\alpha} \left( \frac{\beta^{-1} + \delta - 1}{1 - \tau_{(t)}} \right)^{\alpha/\alpha-1} \bar{\tau} A_{(t)} \quad (29)^5$$

Equation 29 implies that equilibrium tax revenue is a function of investment in public goods.

<sup>5</sup> We substituted equation 24 into  $y \equiv f(k)$  and substituted the result in equation 21

The elite then choose public investment  $G_{(t)}$  to maximise their consumption  $C_{(t)}^e$ . The problem of the elite can be written recursively as:

$$V^e(A_{(t)}) = \max_{A_{(t+1)}} \left\{ T(A_{(t)}) - \frac{1-\alpha}{\alpha\phi} A_{(t+1)}^\phi - T_{(t)}^i + T_{(t)}^e + \beta V^e(A_{(t+1)}) \right\} \quad (30)$$

Where:  $\frac{1-\alpha}{\alpha\phi} A_{(t+1)}^\phi = G_{(t)}$  from equation 20

The first order condition (FOC) with respect to how much the elite invest in future public goods ( $A_{(t+1)}$ ) gives :

$$\frac{1-\alpha}{\alpha} A_{(t+1)}^{\phi-1} = \beta (V^e)'(A_{(t+1)}) \quad (31)$$

Equation 31 links the marginal cost of greater investment in public goods to the greater value that follows from this investment.

Differentiating equation 30 with respect to current state of public goods,  $A_{(t)}$  gives the envelope condition (EC) as:

$$(V^e)'A_{(t)} = T'A_{(t)} = \frac{1}{\alpha} \bar{\tau} \left( \frac{\beta^{-1} + \delta - 1}{1 - \tau_{(t)}} \right)^{\alpha/\alpha-1} \quad (32)^6$$

Equation 32 implies that elite value greater public goods because of the additional tax revenue that could be generated from it. Combining the FOC and the EC, the Markov Perfect Equilibrium (MPE) features the choice of the elite as:

$$A_{(t+1)} = A_{[\bar{\tau}]} \equiv \left( (1-\alpha)^{-1} \bar{\tau} \left( \frac{\beta^{-1} + \delta - 1}{1 - \tau_{(t)}} \right)^{\alpha/\alpha-1} \right)^{1/\phi-1} \quad (33)$$

Notice that from equation 31  $A_{(t+1)} = A_{[\bar{\tau}]} = \left( \frac{\alpha}{1-\alpha} \beta (V^e)'(A_{(t+1)}) \right)^{1/\phi-1}$ , substitution from equation 32 yields 33. It is clear from equation 33 that investment in public goods is a fraction  $1/\phi$  of tax revenue.

<sup>6</sup> We used equation 29 to obtained 32

Substituting equation 32 and 33 into the elite's value function, equation 30 yields:

$$V^e(A_{(t)}) = \frac{(\beta^{-1} + \delta - 1)^{\alpha/(1-\alpha)} (1 - \bar{\tau})^{\alpha/(1-\alpha)} \bar{\tau} A_{(t)}}{\alpha} + \frac{(\beta^{-1} + \delta - 1)^{\alpha/(1-\alpha)} (\phi - 1) (1 - \bar{\tau})^{\alpha/(1-\alpha)} \bar{\tau}}{(1 - \beta)\phi\alpha} A_{[\bar{\tau}]}$$

(34)<sup>7</sup>

From equation 34 it follows that the value function of the elite depends on current state of public goods,  $A_{(t)}$  inherited from previous period and tax revenue that could be generated from such goods. It implies that if past political leaders did not spend on public goods, the current elite in power is not equally likely to invest on them.

**Proposition 3:** In the economy described above, there exist a unique MPE where for all  $t$ ,  $\tau[\bar{\tau}] = \bar{\tau}$  for all  $A$ ,  $A_{(t)}$  is given by  $A[\bar{\tau}]$  as in equation 33 for all  $t > 0$ , and the capital – labour ratio of each entrepreneur  $i$  at each  $t$  is given by equation 24. For all  $t > 0$ , the equilibrium level of aggregate output is:

$$Y_{(t)} = Y_{[\bar{\tau}]} \equiv \frac{1}{\alpha} \left( \frac{\beta^{-1} + \delta - 1}{1 - \tau_{(t)}} \right)^{\alpha/1-\alpha} A_{(t)} \quad (35)$$

The level of  $\bar{\tau}$  that maximises output is derived by solving :

$$\max Y_{[\bar{\tau}]} = \frac{1}{\alpha} \left( \frac{\beta^{-1} + \delta - 1}{1 - \tau_{(t)}} \right)^{\alpha/1-\alpha} A_{(t)}$$

Substituting for  $A_{(t)}$  gives:  $\max Y_{[\bar{\tau}]} = \frac{1}{\alpha} \left( \frac{\beta^{-1} + \delta - 1}{1 - \tau_{(t)}} \right)^{\alpha/1-\alpha} \left( (1 - \alpha)^{-1} \bar{\tau} \left( \frac{\beta^{-1} + \delta - 1}{1 - \tau_{(t)}} \right)^{\alpha/\alpha-1} \right)^{1/\phi-1}$

The output maximising level of tax  $\bar{\tau}$  is thus:

$$\frac{\partial Y_{(t)}}{\partial \tau} \equiv \bar{\tau}^* = \frac{1 - \alpha}{1 - \alpha + \alpha\phi} \quad (36)$$

Let  $\bar{\tau}$  be interpreted as state power or elite power to raise future taxes. If  $\bar{\tau} > \bar{\tau}^*$ , then the elite is powerful enough to raise future taxes above  $\bar{\tau}$ . On the other hand, if  $\bar{\tau} < \bar{\tau}^*$ , the elite is not powerful enough to raise future taxes above  $\bar{\tau}^*$ . Thus, if the power of the elite to raise future

<sup>7</sup> The second term follows from (33) that public goods investment is a fraction of  $1/\phi$  of tax revenue



taxes is limited, there is no incentive for the elite to increase the future productive capacity of the economy by investing more in public goods.

Remarks:

- Public goods investment matter for productivity of labour, aggregate output and tax revenue.
- Elite decision to invest in public goods is determined by level of public goods inherited from past regime and the revenue that could be generated from such investment.
- An excessively powerful elite will impose taxes above the output maximising level of taxes  $\bar{\tau}^*$  while excessively weak elite will not invest in public goods because they can not raise future taxes.

#### 4.5 Political economy of institutions

The economy described so far shows the instruments elite use to manipulate the economy. The question of interest in this study is why would the elite choose growth retarding policies and institutions? In other words, why and how do economies end up with weak institutions and economic equilibrium? Next, we examine this in detail under two different political system: non-democracy and democracy.

##### 4.5.1 The basic environment

The elite do not only take political decisions but they also engage in production activities. Hence, there are two types of entrepreneurs in the economy, the entrepreneurial class and the elite. Let  $h \in \{e, m\}$  denote that an entrepreneur  $i$  is either elite or entrepreneurial class entrepreneur. Assume that elite and entrepreneurial class engage in different types of production activities (e.g. manufacturing versus agriculture; urban versus rural base production; large scale versus small scale; or modern versus tradition).

At the policy level, different types of taxes are imposed on the two types of entrepreneurs,  $\tau^e$  are taxes on elite producers and  $\tau^m$  are taxes on entrepreneurial class producers. The economy is endowed with natural resources and/or there are inflows of foreign aid. The proceeds of taxes and revenues from natural resources and/or foreign aid are used for provision of public goods and transfers. Different social groups prefer different type of public goods, thus, three types of

public goods  $G^c \geq 0, G^m \geq 0, \text{ and } G^e \geq 0$  are provided to the three groups. Part of the total revenue is used to maintain the state, this involves salaries and wages to public servants. Let  $S$  be this amount. A parameter  $\gamma \in [0, 1]$  measures how much of the total revenue is used for provision of public goods.

The utility function is still given as equation 1. Each member of the elite and entrepreneurial class entrepreneur has access to institutional augmented production technology given as:

$$Y_{i(t)}^h = \frac{1}{\alpha} A_{(t)} (K_{i(t)}^h)^{1-\alpha} (I_{(t)}^j L_{i(t)}^h)^\alpha \quad (37)$$

Where:  $A$  is infrastructure and  $I$  represent institutions. Equation 37 is augmented Cobb-Douglas production function. Institutions can either be weak or strong,  $j \in \{w, s\}$ . If  $I = I^{j=s}$  producers have more access to better and greater production institutions (e.g. they can more easily get license to start business, enjoy more property rights, security of life and property, etc). The government budget constraint is given as:

$$T_{(t)}^i + G_{(t)}^i + S \leq \gamma \int_{h \in \mathcal{M} \cup \mathcal{E}} \tau_{i(t)}^h Y_{i(t)}^h dh + R; \quad i = c, m, e \quad (38)$$

Labour is still supplied inelastically by the citizens and the maximum each entrepreneur can employ is still  $\bar{L}$  workers ( $L_{i(t)}^h \leq \bar{L}$ ). Meanwhile, assumption 5 is no longer imposed. Since  $L_{i(t)}^h \leq \bar{L}$ , then :

Assumption 6.  $(M + E)\bar{L} \leq L$

This assumption implies that there can never be full employment but if assumption 6 dose not hold  $[(M + E)\bar{L} > L]$ , then there is full employment. Additional assumption is

Assumption 7.  $M\bar{L} < L, \text{ and } E\bar{L} < L$

Assumption 7 ensures that neither of the two groups generate excess demand for labour by itself so as to employ the entire labour force.

#### 4.5.2 The political economic equilibrium

The basic political economic equilibrium involve in this game is examined as follows. Given a tax sequence  $\{\tau_{(t)}^e, \tau_{(t)}^m\}_{t=0}^\infty$ , equilibrium is defined as a sequence of wages  $\{w_{(t)}\}_{t=0}^\infty$  and

investment and employment level for all producers  $\{[K_{i(t)}^h, L_{i(t)}^h]_{h \in \mathcal{M} \cup \mathcal{E}}\}_{t=0}^{\infty}$  such that given the tax and wage sequences, all producers choose their investment and employment optimally and the labour market clears. Each producer takes wages as given and firms maximise current net profits. Therefore, the optimisation problem of each firm can be written as:

$$\max_{K_{i(t)}^h, L_{i(t)}^h} \frac{1 - \tau_{(t)}^h}{1 - \alpha} A_{(t)} (K_{i(t)}^h)^{1-\alpha} (I_{(t)}^j L_{i(t)}^h)^\alpha - w_{(t)} L_{i(t)}^h - (K_{i(t+1)} - (1 - \delta) K_{i(t)}^h) \quad (39)$$

Since  $\delta < 1$  does not have significant impact on the equilibrium in the previous results, we can assume  $\delta = 1$  without loss of generality. Hence, for sake of simplicity we assume that capital is used up totally. Given this assumption, equation 39 is rewritten as:

$$\max_{K_{i(t)}^h, L_{i(t)}^h} \frac{1 - \tau_{(t)}^h}{1 - \alpha} A_{(t)} (K_{i(t)}^h)^{1-\alpha} (I_{(t)}^j L_{i(t)}^h)^\alpha - w_{(t)} L_{i(t)}^h - K_{i(t+1)}$$

The FOC gives:  $(1 - \tau_{(t)}^h) A_{(t)} (K_{i(t)}^h)^{-\alpha} (I_{(t)}^j L_{i(t)}^h)^\alpha - 1 = 0$

$$K_{i(t)}^h = ((1 - \tau_{(t)}^h) A_{(t)})^{1/\alpha} I_{(t)}^j L_{i(t)}^h \quad (40)$$

Expressing equation 40 in terms of capital-labour ratio as:

$$k_{i(t)}^h = ((1 - \tau_{(t)}^h) a_{(t)})^{1/\alpha} I_{(t)}^j$$

The capital-labour ratio for the future date  $t + 1$  of each entrepreneur  $i \in \mathcal{M} \cup \mathcal{E}$  is given as:

$$k_{i(t+1)} = \hat{k}_{i(\bar{\tau}(t+1))} \equiv (\beta(1 - \tau_{(t+1)}) a_{(t+1)})^{1/\alpha} I_{(t+1)}^j \quad (41)$$

Substituting equation 41 into the production function and subtracting the cost of investment, gives the future net marginal product (productivity) per worker as:

$$\frac{\alpha}{1 - \alpha} (\beta(1 - \tau_{(t+1)}) a_{(t+1)})^{1/\alpha} I_{(t+1)}^j \quad (42)$$

The labour demand for each entrepreneur takes the form:

$$L_{i(t)} \begin{cases} = 0 & \text{if } w_{(t)} > \frac{\alpha}{1-\alpha} (\beta(1-\tau_{(t)})a_{(t)})^{1/\alpha} I_{(t)}^j \\ \in [0, \bar{L}] & \text{if } w_{(t)} = \frac{\alpha}{1-\alpha} (\beta(1-\tau_{(t)})a_{(t)})^{1/\alpha} I_{(t)}^j \\ = \bar{L} & \text{if } w_{(t)} < \frac{\alpha}{1-\alpha} (\beta(1-\tau_{(t)})a_{(t)})^{1/\alpha} I_{(t)}^j \end{cases} \quad (43)$$

Equation 43 states that if wage is above the net marginal product, then the entrepreneur would not employ any worker; if it is strictly below the net marginal product, producer would like to hire labour up to the maximum possible workers  $\bar{L}$ . It is clear from equation 42 that institutions matter for the level of net marginal product of the entrepreneur.

If assumption 6 holds, there exists excess supply of labour and  $w_{(t)} = 0$ . If it does not hold, there is excess demand for labour and the equilibrium wage is given as:

$$w_{(t)} = \min \left\langle \frac{\alpha}{1-\alpha} \beta ((1-\tau_{(t)}^e)a_{(t)})^{1/\alpha} I^j, \frac{\alpha}{1-\alpha} \beta (1-\tau_{(t)}^m)a_{(t)}^{1/\alpha} I^j \right\rangle \quad (44)$$

The intuition from equation 44 is that labour demand comes from two groups, the elite and entrepreneurial class producers. When assumption 6 does not hold, total labour demand exceeds available labour supply, so the market clearing wage will be the minimum of their net marginal product. It is interesting to note that the equilibrium wage rate is equally influenced by institutions. Another interesting feature of equation 44 is that equilibrium wage would be equal to the net marginal productivity of one of the two groups of producers, and either the elite or entrepreneurial class will make zero profit at equilibrium. Finally, using equation 40 and labour market clearing condition, the equilibrium level of aggregate output is given as:

$$Y = \frac{1}{1-\alpha} ((1-\tau^e)a)^{(1-\alpha)/\alpha} I^j \int_{h \in \mathcal{E}} L^h dh + \frac{1}{1-\alpha} ((1-\tau^m)a)^{(1-\alpha)/\alpha} I^j \int_{h \in \mathcal{M}} L^h dh + R \quad (45)$$

Notice that infrastructure per worker ( $a$ ), institutions ( $I^j$ ), taxes ( $\tau$ ), labour demand ( $L$ ) and natural resources and/or aid ( $R$ ) appears in the equilibrium output equation. This economy is summarised as:

**Proposition 4.** Suppose Assumption 6 holds, then given sequence of taxes  $\{\tau_{(t)}^e, \tau_{(t)}^m\}_{t=0}^{\infty}$ , the equilibrium takes the following form:  $w_{(t)} = 0$  and if assumption 6 does not hold, then  $w_{(t)}$  is

given by equation 44. Given the wage sequence, factor demands are given by equations 41 and 43 and aggregate output is given by equation 45.

With this proposition we can now analyse how and why weak institutions, policies and poor infrastructure emerge in economies, particularly Africa economies. As mentioned earlier, two broad distinct political systems are considered: non-democratic and democratic. The types of non-democratic and democratic systems are assumed given in the study.

#### 4.6 Impact of political power on equilibrium institutions: Non-democracy era [N]

Assume that the economy is under some kind of autocratic rule, expected to end at any time  $t + s, s > 0$ . The political state is non-democratic  $N$ . The political leaders are not elected by voters. In fact, there are no voters in the general sense of it<sup>8</sup>. Political power is vested in the elites, so what a representative elite in power needs to maintain power is the support of the elite group. Therefore, the elite does not necessarily have to satisfy the interest of other social groups. Thus,  $G^c = G^m = T^c = T^m = 0$ , and the elite is not likely to tax elite entrepreneurs ( $\tau^e = 0$ ). What determines the equilibrium of this economy is the choice of the elite. It is therefore pertinent to examine what drives the choice of the elite. Three possible drivers are: Revenue Extraction (rent seeking); Market Competition (profiteering); and Consolidation of Political Power. These three drivers are consider in what follows.

##### 4.6.1 Revenue extraction (rent seeking)

The analysis here is related to Acemoglu (2006a, 2006b), Grossman (1991), Grossman and Kim (1995), McGuire and Olson (1996) among other. Suppose that assumption 6 holds and  $L_{(t)}^h = \bar{L}$  from equation 43 for all producers, and that there is upper limit on taxation  $\bar{\tau}$  (*i.e.*  $\tau_{(t)}^m \leq \bar{\tau}$  and  $\tau_{(t)}^e \leq \bar{\tau}$ ). This limit could be institutional such as constitutional limit on tax or may arise because of the ability of producers to hide their output or shift to informal production. The problem of the elites is to choose policies that will maximise their utility. The political equilibrium is given by a sequence of  $\{\tau_{(t)}^e, \tau_{(t)}^m, G_{(t)}^c, G_{(t)}^m, G_{(t)}^e, I_{(t)}^j, a_{(t)}\}$  that satisfies equation 38 and maximises the discounted utility of the elite  $\sum_{t=0}^{\infty} \beta^t C_{(t)}^e$ . The consumption of the elite is given as:

<sup>8</sup> There could be some form of voting among the elites.

$$C_{(t)}^e = \left[ \frac{\alpha}{1-\alpha} ((1 - \tau_{(t)}^e) a_{(t)})^{1/\alpha} I^j - w_{(t)} \right] L_{(t)}^e + G_{(t)}^e + T_{(t)}^e \quad (46)$$

The first term in the bracket is after tax profits per worker while the second term is the equilibrium wage given by equation 44. The total per elite consumption is given by their profits plus the utility they benefit from public goods and their transfer, this could be interpreted as rents from the market as well as rents from controlling power (government).  $G_{(t)}^e$  and  $T_{(t)}^e$  depend on government revenue. Thus, taxes will be set in order to maximise tax revenue, given by:

$$Total\ Revenue_{+(t)} = \frac{\gamma}{1-\alpha} \tau_{(t)}^m ((1 - \tau_{(t)}^m) a_{(t)})^{(1-\alpha)/\alpha} I^j \bar{L} \mathcal{M} + R \quad (47)$$

### Intuitions

Equations 46 and 47 are very intuitive. Starting with equation 46, it consists of two components at the right hand side: profit from elite's investment and rents from government ( $G_{(t)}^e + T_{(t)}^e$ ). If the former is sufficiently larger than the latter, it implies that elite consumption mainly comes from their investment. Thus,  $a_{(t)}$  and  $I^j$  are important determinants of elite's consumption, so strong institutions and high level of investment in public goods particularly infrastructure per worker are likely to emerge. Though, these institutions and investment in public goods are likely to be elite biased, that is, non-elite investors may not enjoy similar facilities. For example, elites can easily obtain license to start business, enjoy property rights and more security of life and properties. Goldstein and Udry (2005) have shown that in Ghana those who hold political office are responsible for land allocation and by virtue of this have more secure property rights on their own land. Bates (1981) also show that policies in many SSA countries are urban biased.

On the other hand, if profit is insignificantly small and consumption of elites come mainly from rents, then government revenue and its sources become relevant in the analysis. Equation 47 which is total government revenue consists of two components: tax revenue and natural resource/aid. The relative importance of these two components determine whether weak or strong institutions and poor or rich infrastructure per worker will emerge. If the economy is abundantly endowed with natural resources, the elites can sacrifice tax revenue. In such situation, the first component of the right hand side of equation 47 is less important and thus, quality of institutions and production infrastructure do really matter to them. Weak institutions and poor/low

infrastructure per worker are likely to emerge. While this analysis may be true in resource abundant economy, it may not hold in resource scarce economy such as Somalia, Central African Republic, Chad, Guinea-Bissau, and Eritrea. It now appears that the first component of equation 47 is the main source of government revenue as well as elite consumption. Ordinarily it is expected that strong institutions that will ensure more production to grantee more tax revenue will exist. However, it is not always the case, for example in the countries listed above, weak institutions coexist with scarce resources. Next, the reason for this is examined.

#### 4.6.2 Resource scarce economy: Lack of commitment problem

Consider an economy where resources are scarce and the government budget is not sufficient to carry out the required investment in  $A$ . Alternatively, entrepreneurs decide to invest in technology and basic facilities to increase productivity. Let the cost associated to such investment in  $A$  per worker be  $\Gamma(a)$  where  $\Gamma$  is non-negative, continuously differentiable and convex.

The equilibrium is essentially unchanged, thus, factor demands are still given by equations 40 and 44 respectively, and equation 47 still determines total revenue. The only difference is the timing of the game. Now the entrepreneurs know the tax rate at time  $t = 0$  and do not know tax rate that will hold in future date ( $t > 0$ ). Since the MPE is same as before, then the tax rate at time  $t = 0$  is the equilibrium tax rate  $\tau^m = \alpha$ .<sup>9</sup> The entrepreneurs sunk investment after observing  $\tau_{(t=0)}^m$ .

The problem here is that the elite will be unable to commit to tax rate  $\tau^m = \alpha$  after entrepreneurs have undertaken investments. They are most likely to deviate at any point in time. Before the deviation they are raising tax revenue of:

$$\gamma \alpha ((1 - \alpha) a)^{1 - \alpha / \alpha} I^j \bar{L} \bar{M} / (1 - \alpha) \quad (48)^{10}$$

And they receive transfer worth of :  $\frac{\gamma}{(1 - \beta)(1 - \alpha)} \alpha ((1 - \alpha) a)^{1 - \alpha / \alpha} I^j \bar{L} \bar{M}$

<sup>9</sup> The equilibrium tax rate is derived by taking the differential of equation 47 with respect to  $\tau^m$ .

<sup>10</sup> Substituting  $\tau_{(t)}^m = \alpha$  in to first term in the right hand side of equation 47 gives equation 48



Thus, the most profitable deviation is to set the maximum tax rate after entrepreneurs have sunk investment. To appreciate the effect of elite decision on entrepreneurs choice of investment, let us consider a situation where assumption 6 holds and the MPE is still as above. Hence, the FOC for an interior solution to the entrepreneurs' investment choice is:

$$\Gamma'(a) = \frac{1}{(1-\beta)} \frac{(1-\tau^m)}{(1-\alpha)} ((1-\tau^m)a)^{1-\alpha/\alpha} I^j \quad (49)$$

The calculus of the elite to set tax in order to maximise tax revenue is to maximise :

$\gamma\tau^m((1-\tau^m)a)^{1-\alpha/\alpha} I^j \bar{L}\mathcal{M}/(1-\alpha)$  subject to equation 49. However, we can derive the equilibrium by taking  $da/d\tau^m$  from equation 49. This is given as:

$$da/d\tau^m : \frac{((1-\tau^m)a)^{1-\alpha/\alpha} I^j - a(1-\tau^m)((1-\tau^m)a)^{1-2\alpha/\alpha} I^j}{(1-\beta)(1-\alpha)\Gamma''(a)} < 0 \quad (50)$$

Equation 50 implies that in order to encourage entrepreneurs to undertake investment in  $a$ , the deviation tax ( $\tau^D$ ) must be lower than the pure revenue extraction tax, that is  $\tau_{(t+s)}^m \equiv \tau^D < \alpha$ .

However, the elite will not be able to credibly commit to lower tax except there are institutions that constraint them to do so or there is credible threat from producers. Since the elite will gain by deviating (particularly to higher taxes), they will therefore deliberately not allow strong institutions to emerge. There are many implications here, first, weak institutions that allow lack of commitment, and less constraint on exercise of executive power will emerge. Second, the elite will though be willing to give addition property rights to new investors, investors will not be willing to apply, hence property rights will be limited. Third, because of lack of commitment, investors are discouraged and hence, poor infrastructure per worker emerge. Ordinarily, one would expect that if tax is the major source of government revenue, good institutions and better infrastructure per worker will emerge but the proof here have shown that it is not true in situation where elite can not commit to policies.



## Remarks

- Strong institutions and high infrastructure per worker emerged if tax revenue is a major source of government revenue if and only if the elite in power credibly commits to policies.
- Weak institutions and poor infrastructure per worker are likely to emerge if natural resources constitute major source of government revenue and there is much power allocated to the elites.
- Overall, preferences over revenue extraction (rent seeking) and elite biased policies will determine preferences over institutions.

### 4.6.3 Lobbying equilibrium

Assume that it is possible for each entrepreneurial class producers to make voluntary contribution to raise fund paid to the elite so as to set  $\tau^m = \alpha$  and provide  $I^{j=s}$  and invest more on infrastructure. The maximisation problem becomes:

$$\max_{K_{i(t)}^m, L_{i(t)}^m} \frac{1}{1-\alpha} A_{(t)} (K_{i(t)}^m)^{1-\alpha} (I_{(t)}^{j=s} L_{i(t)}^m)^\alpha - w_{(t)} L_{i(t)}^m - K_{i(t+1)}^m \quad (51)$$

The FOC gives

$$K_{i(t)}^m = (I_{(t)}^{j=s} L_{i(t)}^m) A^{1/\alpha} \quad (52)$$

The capital – labour ratio is given as:

$$k_{i(t)}^m = (I_{(t)}^{j=s}) (a)^{1/\alpha} \quad (53)$$

The future date capital – labour ratio is thus:  $k_{i(t)}^m = \beta \left[ (I_{(t)}^{j=s}) (a)^{1/\alpha} \right]$

Equation 53 is an the SPE of the game<sup>11</sup> which states that if  $\beta$  is sufficiently large, the behaviour along the equilibrium path involves each investor in the entrepreneurial class make a positive contribution to the fund and the elite set output maximising taxes, provide strong institutions

<sup>11</sup> The idea of backward induction is used here

$(I^s)$  and invest more on infrastructure. However, if total contributions to the fund fall below  $\bar{F} > 0$  or if the elite set distortional taxes at any time  $t + s$ ; for  $s > 0$ , then the game involves a tax rate  $\tau = 1 - \alpha$ , weak institutions  $I^w$ , poor infrastructure and zero contributions to the fund for all  $t + s \geq t$ .

#### 4.6.4 Special case: Elite the only entrepreneur

It is assumed here that elites are the only producers in the formal sector, for example in Morocco where King Hassan II who ruled between 1961 and 1999 became one of the largest businessmen in the country (Owen, 2004). The maximisation problem becomes:

$$\max_{K_{i(t)}^e, L_{i(t)}^e} \frac{1}{1 - \alpha} A_{(t)} (K_{i(t)}^e)^{1-\alpha} (I_{(t)}^j L_{i(t)}^e)^\alpha - w_{(t)} L_{i(t)}^e - K_{i(t+1)}^e$$

The FOC gives :  $K_{i(t)}^e = (A)^{1/\alpha} (I_{(t)}^j L_{i(t)}^e)$

The capital-labour ratio is given as:  $k_{i(t)}^e = (a)^{1/\alpha} I_{(t)}^j$  while the capital-labour ratio for future date is:  $k_{i(t+1)}^e = \beta \left( (a)^{1/\alpha} I_{(t+1)}^j \right)$

This result is similar to lobbying equilibrium, except that the elite receives no bribe in order to provide strong institutions and invest more on infrastructure. What determines the decision of the elite here is discount factor.

#### 4.6.5 Competition in the marketplace

This sub-section follows the arguments in Acemoglu (2003, 2006b), Nugent and Robinson (2002), and Sonin (2003). Suppose assumption 6 does not hold, assumption 7 holds,  $\gamma = 0$  and  $(G_{(t)}^e + T_{(t)}^e)$  in equation 46 is significantly smaller to profits from elites' investment. In this case, tax revenue is of no importance to the elites, their only objective therefore is to reduce the factor demand and investment of the entrepreneurial class. If choice on policy vector  $\{\tau_{(t)}^m, I_{(t)}^j, a_{(t)}\}$  has no cost on elite investment, then elite will choose, high taxes, weak institutions, and poor infrastructure so as to reduce the productivity of competing producers from

the entrepreneurial class. This would result in similar result as in section 4.6.1, elite's biased policies.

**Proposition 5:** Suppose assumption 6 does not hold, assumption 7 holds,  $\gamma = 0$  and  $\bar{\tau} < 1$ , then the elite choose distortional taxes, weak institutions and poor infrastructure.

Following from proposition 5 is that with  $\bar{\tau} < 1$ , labour demand from the entrepreneurial class is high enough to generate equilibrium wage. However, since  $\gamma = 0$ , taxes will raise no revenue for the elite, and thus, their objective is to increase their profits by reducing labour demand of entrepreneurial class and wage rate as much as possible. This suggests that when it is within their power, the elite will choose weak economic institutions so as to reduce the productivity of competing producers (entrepreneurial class).

#### 4.6.6 Competition in the marketplace and revenue extraction combined

The idea here is that the elites want to get income from the market by increasing their profits while reducing their competitor's (entrepreneurial class) profits and at the same time enjoy rents from government revenues. Suppose assumption 6 does not hold, wage is given by equation 44, rents from government is obtained from equation 47 and  $\tau^e = G_{(t)}^c = G_{(t)}^m = T_{(t)}^c = T_{(t)}^m = 0$ . The maximisation problem can be written as:

$$\max_{\tau_{(t)}^m} \left[ \frac{\alpha}{1-\alpha} (a_{(t)})^{1/\alpha} I_{(t)}^j - w_{(t)} \right] L_{(t)}^e + \frac{1}{\varepsilon} \left[ \frac{\gamma}{1-\alpha} \tau_{(t)}^m ((1 - \tau_{(t)}^m) a)^{1/\alpha} I_{(t)}^j L_{(t)}^m \mathcal{M} + R \right] \quad (54)$$

$$\text{Subject to equation 44 and} \quad \mathcal{E}L_{(t)}^e + \mathcal{M}L_{(t)}^m = L \quad (55)$$

$$L_{(t)}^m = \bar{L} \text{ if } ((1 - \tau_{(t)}^m) a)^{1/\alpha} I^j \geq (a)^{1/\alpha} I^j \quad (56)$$

In this problem,  $L_{(t)}^m$  and  $L_{(t)}^e$  are the equilibrium employment by entrepreneurial class and elite entrepreneurs respectively. The first term at right hand side in equation 54 is the elite's net profit, and the second term is the rents they enjoy for maintaining political power. Equation 55 is labour market clearing constraint while equation 56 ensures that entrepreneurial class producers employ as much labour as they wish, provided that their net productivity is greater than that of elite producers.

The solution can take two different forms, depending on whether equation 56 holds at the solution. If it does, then  $w = \alpha(a)^{1/\alpha} I^j / (1 - \alpha)$  and elite producers make zero profits and their only income is derived from rents. Intuitively, this corresponds to the case where the elite prefer to let the entrepreneurial class producers undertake all of the profitable activities and they maximise tax revenues. On the other hand if equation 56 does not hold at the solution, then the elite generate revenues both from their production and from taxing the entrepreneurial class. In this case,

$$w = \alpha((1 - \tau^m)a)^{1/\alpha} I^j / (1 - \alpha)$$

Assumption 8  $(\alpha)^{1/\alpha} I^j \geq \gamma((1 - \alpha)a)^{(1-\alpha)/\alpha} I^j \frac{\mathcal{M}}{\varepsilon}$

When assumption 7 holds, then  $w_{(t)} = \alpha((1 - \tau_{(t)}^m)a)^{1/\alpha} I^j \tau_{(t)}^m / (1 - \alpha)$  and the elite's problem is choosing  $\tau_{(t)}^m$ , to maximise:

$$\frac{1}{\varepsilon} \left[ \frac{\gamma}{1 - \alpha} \tau_{(t)}^m ((1 - \tau_{(t)}^m)a)^{(1-\alpha)/\alpha} I_{(t)}^j L_{(t)}^m \mathcal{M} + R \right] - \frac{\alpha}{1 - \alpha} ((1 - \tau_{(t)}^m)a)^{1/\alpha} I^j \bar{L} \quad (57)$$

Where we used the fact that all elite producers will employ  $\bar{L}$  employees and from equation 55  $L_{(t)}^m = (L - \bar{L}\varepsilon) / \mathcal{M}$ . The maximisation of equation 57 gives:

$$\frac{\tau_{(t)}^m}{(1 - \tau_{(t)}^m)a} = k(\bar{L}, \varepsilon, \alpha, \gamma) \equiv \frac{\alpha}{1 - \alpha} \left( 1 - \frac{\gamma\varepsilon}{(1 - \bar{L}\varepsilon)\gamma} \right) \quad (58)$$

From equation 58 it is clear that  $\tau_{(t)}^m < 1$ , but  $\tau_{(t)}^m > \alpha$ , because  $k(\bar{L}, \varepsilon, \alpha, \gamma) < \alpha$  but  $k(\bar{L}, \varepsilon, \alpha, \gamma) \gg \frac{\alpha}{1 - \alpha}$ . Therefore, the motive of elite to reduce productivity of their competitors in the marketplace always increases taxes above the pure revenue maximising level while the revenue maximisation motive reduces taxes relative to the pure market competition case. Thus, the MPE features:

$$\tau_{(t)}^m = \tau^{CRF} \equiv \frac{k(\bar{L}, \varepsilon, \alpha, \gamma)}{1 + k(\bar{L}, \varepsilon, \alpha, \gamma)}; \text{ for all } t \quad (59)$$

Where :  $k(\bar{L}, \varepsilon, \alpha, \gamma) \equiv \frac{1 - \alpha}{\alpha} \left( 1 + \frac{\varepsilon\bar{L}}{(1 - \varepsilon\bar{L})\gamma} \right) \quad (60)$

Remarks:

- If the number of elite producers increases and the state is inefficient (e.g. inefficient bureaucrats), then bad institutions, high taxes and poor level of infrastructure that will reduce productivity of entrepreneurial class would emerge.
- If the state capacity increases and elite's investment is relatively small then good institutions, output maximising taxes, and better infrastructure would emerge to grantee more tax revenue in the future.

#### 4.5.7 Competition for political power

The mechanism of the analysis in this sub-section is closely related to Acemoglu (2006b), Acemoglu and Robinson (2000a, 2000b). Assume that there is a probability  $\theta_{(t)}$  that in period  $t$ , political power shifts from elite to the entrepreneurial class. Once the entrepreneurial class take over power, they will pursue policies that maximises their utility. It implies that the elite will not only lose political power, they will equally lose rents from government and even profits from their businesses. The elites would therefore need to consolidate their political power to preserve it. Assume that the probability that the entrepreneurial class will take over power is a function of their level of income such as:  $\theta_{(t)} = \theta(\mathcal{M}Y_{(t)}^m) \in [0, 1]$  (61)

$\theta$  is assumed to be differentiable and strictly increasing with derivative  $\theta'(\cdot) > 0$ . This assumption implies that when the entrepreneurial class are richer, they are more likely to take over power.

The optimisation problem of the elite now includes consolidation of political power. This is written recursively as:

$$V^e(E) = \max_{\tau_{(t)}} \left\{ \left[ \frac{\alpha}{1-\alpha} (a)^{1/\alpha} I^j - w_{(t)} \right] L_{(t)}^e + \frac{1}{\varepsilon} \left[ \frac{\gamma}{1-\alpha} \tau_{(t)}^m ((1-\tau_{(t)}^m)a)^{(1-\alpha)/\alpha} I^j L_{(t)}^m \mathcal{M} + R \right] + \beta [(1-\theta_{(t)})V^e(E) + \theta_{(t)}V^e(M)] \right\} \quad (62)$$

Notice that  $\theta_{(t)} = \theta\left(\frac{\alpha}{1-\alpha} ((1-\tau_{(t)}^m)a)^{1/\alpha} I^j L_{(t)}^m \mathcal{M} - w_{(t)} L_{(t)}^m \mathcal{M}\right)$  and  $V^e(E)$  denotes the value function of elite when they are in power and  $V^e(M)$  is the value function of entrepreneurial class

in power respectively. If the solution involves  $Y_{(t)}^m = 0$ , then the same fiscal policy as in revenue extraction and/or market competition is still optional despite the risk of losing power. If the solution involves some  $Y_{(t)}^m > 0$ , then there is additional motive to reduce profit of the entrepreneurial class.

Suppose assumption 6 holds, so that  $w_{(t)} = 0$  and optional policy is  $\tau_{(t)}^m = \tau^{RE} \equiv \min\{\alpha, \bar{\tau}\}$  ( $\tau^{RE}$  is revenue extraction tax rate) which implies positive profit and income for the entrepreneurial class agents. The dynamic maximisation problem of the elite becomes:

$$V^e(E) = \max_{\tau_{(t)}^m} \left\{ \frac{\alpha}{1-\alpha} (a)^{1/\alpha} I^j \bar{L} + \frac{1}{\varepsilon} \left[ \frac{\gamma}{1-\alpha} \tau_{(t)}^m ((1-\tau_{(t)}^m)a)^{(1-\alpha)/\alpha} I^j \bar{L} \mathcal{M} + R \right] \right. \\ \left. + \beta \left[ V^e(E) - \theta \left( \frac{\alpha}{1-\alpha} ((1-\tau_{(t)}^m)a)^{1-\alpha} I^j \bar{L} \mathcal{M} \right) (V^e(E) - V^e(M)) \right] \right\} \quad (63)$$

The FOC for an interior solution is expressed as:

$$\frac{\gamma}{(1-\alpha)\varepsilon} ((1-\tau_{(t)}^m)a)^{(1-\alpha)/\alpha} I^j \bar{L} \mathcal{M} \left( 1 - \frac{1-\alpha}{\alpha} \frac{\tau_{(t)}^m}{(1-\tau_{(t)}^m)a} \right) \\ + \beta \varepsilon \theta' \left( \frac{\alpha}{1-\alpha} ((1-\tau_{(t)}^m)a)^{1-\alpha} I^j \bar{L} \mathcal{M} \right) (V^e(E) - V^e(M)) \\ = 0 \quad (64)$$

The first term corresponds to the revenue extraction motive while the second relates to the political replacement effect. It is clear from equation 64 that when  $\theta'(\cdot) = 0$ , the solution will yield  $\tau^m = \tau^{RE} \equiv 1 - \alpha$  as discussed under revenue extraction motive. However, when  $\theta'(\cdot) > 0$  and  $V^e(E) - V^e(M) > 0$ , then  $\tau_{(t)}^m = \tau^{PC} > \tau^{RE}$  ( $\tau^{PC}$  is political competition tax rate while  $\tau^{RE}$  is revenue extraction tax rate).  $V^e(E) - V^e(M) > 0$  follows from the fact that when entrepreneurial class take over power, they will tax elites and receive all the rents from government. Now the objective of elites is not only to increase revenue but also to consolidate their political power. Higher distortionary taxes are useful for the elite, so that they can reduce the income and political power [de factor] of the entrepreneurial class.

Notice that tax rate is decreasing in  $R$  and  $\gamma$ . When  $R$  increases, the elite become more willing to sacrifice tax revenue in order to increase their chance of remaining in power. Higher  $\gamma$ ,

interpreted as greater state capacity, also increases the gap between  $V^e(E)$  and  $V^e(M)$  and hence, implies higher tax rate on the entrepreneurial class.

**Proposition 6:** Consider an economy with political competition between elites and the entrepreneurial class. Suppose that assumptions 6 and 7 hold, and  $\gamma=0$ , the elite will prefer policies, institutions and infrastructure that will reduce profit of entrepreneurial class.

Remarks:

- Weak institution, poor infrastructure and distortional policies would emerge, if there is greater chance for political replacement.
- Greater chance for political replacement will result in more income inequality between elites and other social groups and more market distortions.

#### 4.7 Transition to democracy [D]

Now the economy has experienced a change in the political system (political institution) by transiting from non-democracy to democracy. The key issue of interest here is that, would this change in political institution lead to automatic change in the economic equilibrium with better institutions, improved infrastructure, even distributions of income and better economic growth?

##### 4.7.1 Basic environment

The assumptions and mechanism use here are related to Acemoglu and Robinson (2008). Political leaders can now emerge from any of the social groups, thus, de jure political power is more evenly distributed. Meanwhile, de facto power is not evenly distributed because of the uneven distribution of resources in the previous political era. The overall political power is determined by the interaction between de jure and de facto power. For ease of analysis it is now assumed that there are two social groups: the citizens and the elites. Henceforth, every other person in the economy who is not a citizen is referred to as elite. The citizens population is  $L$  while that of elite is  $E$ .

Assumption 9.  $L > E$

Assumption 9 means that citizens are more numerous than the elite. This gives citizens more power in democracy than the elite. Thus, in democratic era elites are likely to lose the grab of de jure power since they are fewer in number. Therefore, they will decide to invest more on their de facto power. Let an individual elite  $i \in \mathcal{E}$  spend an amount  $\sigma_{(t)}^i \geq 0$  as contribution to activities increasing their group's de facto power. This could be in form of forming a political party (party capture), campaign contribution, or lobbying fund, or bribing the new political leaders, or purchase of weapons. Elites de facto power can be written as:

$$\rho_{(t)}^e(s = D) = \mu^e(s = D) \sum_{i \in \mathcal{E}} \sigma_{(t)}^i \quad (65)$$

Where:  $\mu^e(s = D)$  measures the probability that an individual elite  $i \in \mathcal{E}$  will invest in de facto power in a democratic era.

Citizens can equally decide to invest in their de facto power. Citizens can increase their de facto power if they solve their problems collectively. Since citizens are more numerous than the elites, they are likely to have more de jure power in democracy than the elites. The overall citizens power can be written as:

$$\rho_{(t)}^c(s = D) = \mu^c(s = D) \sum_{i \in \mathcal{C}} \sigma_{(t)}^i(s = D) + \omega_{(t)} + \eta J(s = D) \quad (66)$$

Where:  $\mu^c(s = D)$  measures the probability that an individual citizen  $i \in \mathcal{C}$  will invest in de facto power during democracy.  $\omega_{(t)}$  is a random variable drawn from a given distribution  $F[.]$  and  $\eta J(s = D)$  is an indicative function that gives more de jure power to the citizens under democratic system with  $J > 0$  measuring citizen's democratic power. The random variable capture the possibility that citizens will solve their collective problems. Equation 66 implies that in democracy the political power of the citizens shifts to the right in the sense of first- order stochastic dominance.

Assumption 10.  $F$  is defined over  $(\bar{\omega}, \infty)$  for some  $\bar{\omega} < 0$ , is everywhere strictly increasing, and is twice continuously differentiable and  $F[\omega]$  is single peaked and satisfies  $\lim_{\omega \rightarrow \infty} f[\omega] = 0$ .

Recall that the conflict of interest between the social groups was over the choice of set of policies  $P_{(t)} = [\tau_{(t)}^i, T_{(t)}^i, G_{(t)}^i, I_{(t)}^{i,j}]$ , where  $i \in \{\mathcal{C}, \mathcal{E}\}$ . As mentioned early on, different choices



of  $P_{(t)}$  affect different groups differently. Consider now the reduced form of the political economy framework. Let  $P_{(t)}^c$  be citizens' preferred set of policies and  $P_{(t)}^e$  be elites preferred set of policies. Assuming  $\mathcal{R}$  is the rent the elite derive from both the market and government if their preferred set of policies is chosen in the democratic era. From results in the previous sections, it is clear that  $P_{(t)}^c$  consists of output maximising taxes, even transfers of government revenues, more provision of infrastructure and strong institutions and good policies. Thus,  $P_{(t)}^c$  is likely to result in higher (competitive) equilibrium. On the other hand,  $P_{(t)}^e$  consists of distortionary taxes, uneven transfers, poor/uneven supply of basic infrastructure, and weak institutions, with the resulting repressive equilibrium.

If  $P_{(t)}^e$  is chosen, workers earn below their marginal product (the competitive wage rate  $w^*$ ) and a fraction  $\lambda \in [0, 1]$  of potential national income is lost because of the distortions. Let  $\pi < 1$  be the share of national income that goes to the citizens. Thus:

If  $P_{(s=D)} = P^c$  then;

$$w^c = w^* \quad (67)$$

and

$$\mathcal{R}_{(s=D)}^c = 0 \quad (68)$$

Where:  $w^c$  and  $\mathcal{R}^c$  are wage rate to citizens and rents to elites when citizen's preferred policies are chosen.  $\mathcal{R}$  is a reduced form of all rents from government and profits from market accruing to elites.

On the other hand, if  $P_{(s=D)} = P^e$  then:

$$w^e = \pi(1 - \lambda)w^* \quad (69)^{12}$$

and

$$\mathcal{R}_{(s=D)}^e = (1 - \pi)(1 - \lambda) \frac{w^*L}{E} \quad (70)$$

<sup>12</sup>  $w^*$  is given by equation 11, superscript  $c$  and  $e$  are used here to mean that citizens' or elites' preferred set of policies are chosen.

Where:  $w^e$  and  $\mathcal{R}^e$  are wage rate to citizens and rents to elites when elite's preferred policies are chosen.

Using equations 67 to 70, the gain to each group by shifting to their preferred set of policies can be written as:

$$\Delta w \equiv w^c - w^e = w^* - \pi(1 - \lambda)w^* \equiv (1 - \pi(1 - \lambda))w^* > 0 \quad (71)$$

$$\Delta \mathcal{R} \equiv \mathcal{R}^e - \mathcal{R}^c = (1 - \pi)(1 - \lambda) \frac{w^* L}{E} > 0 \quad (72)$$

Therefore, the choice of  $P_{t(s=D)}$  is the core of the conflict. The group with more political power decides  $P_{(s=D)} \in [P^e, P^c]$ . Each elite agent  $i \in \mathcal{E}$  and each citizen  $i \in \mathcal{C}$  simultaneously chooses how much to spend to acquire de facto political power for their group,  $\sigma_{(t)}^i \geq 0$ . Meanwhile, overall political power is determined by the interaction of de facto and de jure political power. If  $\rho_{(t)}^e \geq \rho_{(t)}^c$  a representative elite agent chooses  $P_{(t)} (P_{(t)} = P_{(t)}^e)$  and if  $\rho_{(t)}^e < \rho_{(t)}^c$  then a representative citizen chooses  $P_{(t)} (P_{(t)} = P_{(t)}^c)$ .

#### 4.7.2 Value function and equilibrium

The value function of each group depend on how much each member of the group is willing to invest in de facto power. This decision is conditional on the political state of the economy. Suppose all elite agents, except  $i \in \mathcal{E}$  have chosen a level of contribution to de facto power  $\sigma^e(s = D)$  and all citizens choose  $\sigma^c(s = D)$ . If agent  $i \in \mathcal{E}$  chooses  $\sigma^i$ , then total elite power is:

$$\rho^e(\sigma^i, \sigma_{(s=D)}^e, \sigma_{(s=D)}^c, /s = D) = \mu_{(s=D)}^e [(E - 1)\sigma_{(s=D)}^e + \sigma^i] \quad (73)$$

If  $\mu_{(s=D)}^e [(E - 1)\sigma_{(s=D)}^e + \sigma^i] \geq \mu_{(s=D)}^c L\sigma_{(s=D)}^c + \omega + \eta J(s = D)$ , the elite will have more political power than the citizens in the new democratic era. Thus, the probability that the elite will capture political power in democracy is given as:

$$\rho^e(\sigma^i, \sigma_{(D)}^e, \sigma_{(D)}^c, /s = D) = F[\mu_{(D)}^e [(E - 1)\sigma_{(D)}^e + \sigma^i] - \mu_{(D)}^c L\sigma_{(D)}^c + \eta J(s = D)] \quad (74)^{13}$$

<sup>13</sup> To simplify notations we used subscript D for s=D and N for s=N, which mean democratic and non-democratic eras respectively

Now the value function for a representative elite can be written recursively as:

$$V^e(D/\sigma_{(N)}, \sigma_{(D)}) = \max_{\sigma^i \geq 0} \left\{ -\sigma^i + \rho(\sigma^i, \sigma_{(D)}^e/D) [\mathcal{R}_{(D)}^e + \beta V^e(N/\sigma_{(N)}^e, \sigma_{(D)}^e)] + \right. \\ \left. (1 - \rho(\sigma^i, \sigma_{(D)}^e, \sigma_{(D)}^c/D)) [\mathcal{R}_{(D)}^c + \beta V^e(D/\sigma_{(D)}^e, \sigma_{(D)}^c)] \right\} \quad (75)$$

Where:  $\rho(\sigma^i, \sigma_{(D)}^e, \sigma_{(D)}^c/D)$  is given by equation 65. The First Order necessary Condition is:

$$\mu_{(D)}^e f \left[ \mu_{(D)}^e \left( (E-1)\sigma_{(D)}^e + \sigma^i \right) - \mu_{(D)}^c L\sigma_{(D)}^c - \eta \right] [\Delta\mathcal{R} + \beta\Delta V^e] \leq 1 \quad (76)$$

The Second Order sufficient Condition is given as:

$$f' \left[ \mu_{(D)}^e \left( (E-1)\sigma_{(D)}^e + \sigma^i \right) - \mu_{(D)}^c L\sigma_{(D)}^c - \eta \right] < 0 \quad (77)^{14}$$

It is clear that political power in the pre-democratic era ( $s=N$ ) is relevant in the elites value function and even in the analysis of the equilibrium. Therefore, using backward induction the value function of the elite in the non-democratic era is given as:

$$V^e(N/\sigma_{(N)}, \sigma_{(D)}) = \max_{\sigma^i \geq 0} \left\{ -\sigma^i + Z^e + \rho(\sigma^i, \sigma_{(N)}^e/N) [\mathcal{R}^e + \beta V^e(N/\sigma_{(N)}^e, \sigma_{(D)}^e)] \right. \\ \left. + (1 - \rho(\sigma^i, \sigma_{(N)}^e, \sigma_{(N)}^c/N)) [\mathcal{R}^c + \beta V^e(D/\sigma_{(N)}^e, \sigma_{(N)}^c)] \right\} \quad (78)$$

Where:  $Z^e = [T_{(t-1)}^e, G_{(t-1)}^e, R_{(t-1)}^e]$ ,  $\sigma_{(N)}^e$  is the contribution of all other elites to de facto power in non-democratic era and  $\sigma_{(D)}^e$  is their contribution in democratic era. The First Order necessary Condition is:

$$\mu_{(N)}^e f \left[ \mu_{(N)}^e \left( (E-1)\sigma_{(N)}^e + \sigma^i \right) - \mu_{(N)}^c L\sigma_{(N)}^c \right] [\Delta\mathcal{R} + \beta\Delta V^e] \leq 1 \quad (79)$$

Where:  $\Delta V^e = \beta V^e(N/\sigma_{(N)}^e, \sigma_{(N)}^e) - \beta V^e(D/\sigma_{(D)}^e, \sigma_{(D)}^e)$ . The Second Order Sufficient Condition is:

$$f' \left[ \mu_{(N)}^e \left( (E-1)\sigma_{(N)}^e + \sigma^i \right) - \mu_{(N)}^c L\sigma_{(N)}^c \right] < 0 \quad (80)$$

<sup>14</sup>  $\sigma^i \geq 0$ , and the FOC exist with complementary slackness

The intuition of equation 79 is that the marginal cost of investment in de facto power is not less than the benefits derivable from such investment.

At the equilibrium, a symmetric MPE exists which consists of contribution levels for elite agents,  $\sigma^e = (\sigma_{(N)}^e, \sigma_{(D)}^e)$ . The decision variable in this equilibrium is the investments in the de facto power taken by elite agents. Thus, the characterisation of the MPE involves solving for elites optimal behaviour. Hence, in the equilibrium the  $\sigma^i$  that solves equations 76 and 79 must yield  $\sigma_{(N)}^e > 0$  and  $\sigma_{(D)}^e > 0$  while  $\sigma_{(N)}^c = \sigma_{(D)}^c = 0$ . Therefore, the equations that characterise interior equilibrium are:

$$\mu_{(N)}^e f[\mu_{(N)}^e E \sigma_{(N)}^e] [\Delta \mathcal{R} + \beta \Delta V^e] = 1 \quad (81)$$

and

$$\mu_{(D)}^e f[\mu_{(D)}^e E \sigma_{(D)}^e - \eta] [\Delta \mathcal{R} + \beta \Delta V^e] = 1 \quad (82)$$

For the interior equilibrium to exist, additional assumption is made:

$$\text{Assumption 11. } \min \{ \mu_{(N)}^e f[0] \Delta \mathcal{R}, \mu_{(D)}^e f[-\eta] \Delta \mathcal{R} \} > 1$$

This assumption ensures that the gains to elites from implementing their preferred set of policies  $P^c$  is sufficiently large. It makes investment in de facto power worthwhile. Thus,  $\mu_{(D)}^e = 0$  and  $\mu_{(N)}^e = 0$  cannot be part of the equilibrium. Since  $F[\omega]$  is continuous and  $\lim_{\omega \rightarrow \infty} f[\omega] = 0$ , both equations 81 and 82 must hold as equalities for some interior values of  $\mu_{(D)}^e$  and  $\mu_{(N)}^e$ . Then, equations 81 and 82 give:

$$f[\mu_{(N)}^e E \sigma_{(N)}^e] = f[\mu_{(D)}^e E \sigma_{(D)}^e - \eta] \quad (83)$$

Since  $f$  is single peaked, equation 83 can be satisfied only when  $\mu_{(N)}^e E \sigma_{(N)}^e = \mu_{(D)}^e E \sigma_{(D)}^e - \eta$ .

This implies that:

$$\sigma_{(D)}^e = \sigma_{(N)}^e + \frac{\eta}{\mu_{(D)}^e E} \quad (84)$$

**Proposition 7:** Suppose assumptions 9, 10 and 11 hold and that  $\mu_{(N)}^e = \mu_{(D)}^e$ , then there exists a unique symmetric MPE which involves  $\rho_{(D)} = \rho_{(N)} \in (0, 1)$ , so that the probability distribution over  $P_{(t)}$  is non-degenerate and independent of whether the society is democratic or non-democratic.

Intuitively, equation 84 states that in the new democratic era elites invest sufficiently more to increase their de facto political power so that they can offset the democratic advantage of the citizens coming from their de jure power.

Remarks:

- When elite persist,  $\rho_{(N)} = \rho_{(D)} = 1$ , and  $P_{(t-1)} = P_{(t)}$ , thus the economic equilibrium is invariant in the two regimes. That is, level of infrastructure, economic institutions and policies persist if elite political power persists.
- When elite lose control of de jure political power but solution equation 84 holds,  $P_{(t-1)} = P_{(t)}$ . That is, level of infrastructure, economic institutions and policies persist if elite sufficiently invest in their de facto power.
- Therefore, change in political institutions can coexist with persistence economic institutions and policies. In other words, despite the change in political system, weak production institutions, distortional market policies, poor infrastructure and uneven distribution of resources may persist.

### 4.7.3 Democratic consolidation

Over time, the nascent democracy would gradually grow to maturity as democratic values increase and more democratic capital is accumulated. This section examines what happens as democracy consolidates. Assume that assumption 10 does not hold, the gain to elite from choosing their preferred set of policies will be infinitesimal. Thus, investment in de facto power is no more a profitable activity. Imposing the following conditions:

Suppose assumptions 9 and 10 hold but 11 does not and that there exists  $\bar{\sigma}_{(N)}^e > 0$  such that:

$$\mu_{(N)}^e f[\mu_{(N)}^e E \bar{\sigma}_{(N)}^e] \left( \frac{\Delta \mathcal{R} + \beta Z^e - \beta \bar{\sigma}_{(N)}^e}{1 - \beta f[\mu_{(N)}^e E \bar{\sigma}_{(N)}^e]} \right) = 1 \quad (85)$$

and that

$$\eta > -\omega \quad (86)$$

Then there exists a symmetric MPE in which  $\rho_{(N)} \in (0, 1)$  and  $\rho_{(D)} = 0$ . Suppose such MPE exists with  $\sigma_{(D)}^e = 0$ , implying  $\rho_{(D)} = 0$ , then  $V_{(D)}^e = \mathcal{R}^c L / ((1 - \beta)E)$  while  $V_{(N)}^e$  is still given by equation 78 and the relevant first order necessary condition for  $\sigma_{(N)}^e > 0$  is given by equation 81. Combining this with the expression for  $V_{(D)}^e$ , yielded  $\sigma_{(N)}^e = \bar{\sigma}_{(N)}^e$  as in (85) and

$$\Delta V^e \equiv V_{(N)}^e - V_{(D)}^e = \frac{F[\mu_{(N)}^e E \bar{\sigma}_{(N)}^e] \Delta \mathcal{R} - \bar{\sigma}_{(N)}^e + Z^e}{1 - \beta f[\mu_{(N)}^e E \bar{\sigma}_{(N)}^e]} \quad (87)$$

Condition in equation 86 implies that  $f[-\eta] = 0$ , thus:

$$\mu_{(D)}^e f[-\eta] \left( \frac{\Delta \mathcal{R} + \beta Z^e - \beta \bar{\sigma}_{(N)}^e}{1 - \beta f[\mu_{(N)}^e E \bar{\sigma}_{(N)}^e]} \right) < 1 \quad (88)$$

The implication is that, positive investment in de facto power under non-democratic regime is optimal for the elites while zero investment in democratic era is also optimal for them. Thus, equation 86 and  $f[-\eta] = 0$  established the existence of a symmetric MPE with  $\rho_{(N)} \in (0, 1)$  and  $\rho_{(D)} = 0$ . In other words, as democracy consolidates, probability that, the elite will control political power is zero, and citizens' preferred institutions and policies would prevail.

**Proposition 8:** If assumption 11 is relaxed and equation 86 holds, then political economy equilibrium with political consolidation will emerge. Then changes in economic institutions, policies and investment on infrastructure will occur with changes in political institutions and thus, significant changes in economic performance.

Remarks:

- If the gains of holding power is reduced, the incentive for elite to invest in de facto power is destroyed and change in political institutions will lead to positive change in level of infrastructure, economic institutions, policies and distribution of resources.

- If democracy creates sufficient de jure power for the citizens, the gain to elite by controlling political power in democracy is significantly reduced, thus, change in political institutions will lead to change in economic institutions.
- Therefore, change in political system can result in significant change in economic equilibrium with better growth enhancing institutions, more supply of public goods, even distribution of resources and output maximising taxes, if only if high de jure power to citizens is ensured and elites incentive to invest on de facto power reduces.

#### 4.7.4 Some comparative statics

Considering the MPE where  $\mu_{(N)}^e = \mu_{(D)}^e > 0$ , equations 75, 78 and 84 imply that:

$$\Delta V^e \equiv V_{(N)}^e - V_{(D)}^e = Z^e + \frac{\eta}{\mu^e E} \quad (89)$$

Using equation 84, equation 76 can be rewritten as:

$$\mu^e f(\mu^e E \sigma_{(N)}^*) \left[ \Delta \mathcal{R} + \beta \left( Z^e + \frac{\eta}{\mu^e E} \right) \right] = 1 \quad (90)$$

Similarly, equation 82 is written as:

$$\mu^e f(\mu^e E \sigma_{(D)}^* - \eta) \left[ \Delta \mathcal{R} + \beta \left( Z^e + \frac{\eta}{\mu^e E} \right) \right] = 1 \quad (91)$$

Where:  $\sigma_{(N)}^*$  and  $\sigma_{(D)}^*$  are the equilibrium levels of  $\sigma_{(N)}^e$  and  $\sigma_{(D)}^e$  respectively.

**Proposition 9.** Suppose assumptions 9 to 11 hold, and  $\mu_{(N)}^e = \mu_{(D)}^e$ . Given that  $f$  is differentiable everywhere and  $f' < 0$  as given in equations 77 and 80, then using implicit function theorem, the following comparative statics results are derived from equations 90 and 91:

#### Effect of change in rents ( $\Delta \mathcal{R}$ )

$$\frac{\partial \sigma_{(N)}^*}{\partial \Delta \mathcal{R}} = - \frac{f(\mu^e E \sigma_{(N)}^*)}{f'(\mu^e E \sigma_{(N)}^*) [E \mu^e (\Delta \mathcal{R} + \beta Z^e) + \beta \eta]}$$

From equation 80,  $f' < 0$ , therefore:

$$\frac{\partial \sigma_{(N)}^*}{\partial \Delta \mathcal{R}} = - \frac{f(\mu^e E \sigma_{(N)}^*)}{f'(\mu^e E \sigma_{(N)}^*) [E \mu^e (\Delta \mathcal{R} + \beta Z^e) + \beta \eta]} > 0 \quad (92)$$

Similarly, 
$$\frac{\partial \sigma_{(D)}^*}{\partial \Delta \mathcal{R}} = - \frac{f(\mu^e E \sigma_{(N)}^* - \eta)}{f'(\mu^e E \sigma_{(N)}^* - \eta) [E \mu^e (\Delta \mathcal{R} + \beta Z^e) + \beta \eta]}$$

From equation 77,  $f' < 0$ , therefore:

$$\frac{\partial \sigma_{(D)}^*}{\partial \Delta \mathcal{R}} = - \frac{f(\mu^e E \sigma_{(N)}^* - \eta)}{f'(\mu^e E \sigma_{(N)}^* - \eta) [E \mu^e (\Delta \mathcal{R} + \beta Z^e) + \beta \eta]} > 0 \quad (93)$$

Given  $\rho^* = F(\mu^e E \sigma_{(N)}^*)$ , and  $\rho^* = F(\mu^e E \sigma_{(D)}^* - \eta)$ ; using chain rule it is obvious to see that:

$$\frac{\partial \rho^*}{\partial \Delta \mathcal{R}} = \frac{\partial \rho^*}{\partial \sigma_{(N)}^*} \times \frac{\partial \sigma_{(N)}^*}{\partial \Delta \mathcal{R}} > 0 \quad (94)$$

$$\frac{\partial \rho^*}{\partial \Delta \mathcal{R}} = \frac{\partial \rho^*}{\partial \sigma_{(D)}^*} \times \frac{\partial \sigma_{(D)}^*}{\partial \Delta \mathcal{R}} > 0$$

### Intuition

Equations 92 and 93 show that as the rents elite can obtain by controlling political power increases, their contribution to the activities that increase their de facto power will equally increase irrespective of whether the economy is non-democratic or democratic era. The only difference between non-democratic or democratic state of the economy is the negative effect of citizens de jure power in democracy as shown in equation 93. Following from this, is that, as the rents increases, the probability that the elite will control political power also increases (equation 94).

### Effect of size of elite class ( $E$ )

$$\frac{\partial \sigma_{(N)}^*}{\partial E} = \frac{\beta \eta \mu^e \sigma_{(N)}^*}{f'(\mu^e E \sigma_{(N)}^*) [E^2 \mu^e (\Delta \mathcal{R} + \beta Z^e) + \beta \eta]}$$

Given that  $f' < 0$ :



$$\frac{\partial \sigma_{(N)}^*}{\partial E} = \frac{\beta \eta \mu^e \sigma_{(N)}^*}{f'(\mu^e E \sigma_{(N)}^*) [E^2 \mu^e (\Delta \mathcal{R} + \beta Z^e) + \beta \eta]} < 0 \quad (95)$$

Similarly:

$$\frac{\partial \sigma_{(D)}^*}{\partial E} = \frac{\beta \eta \mu^e \sigma_{(D)}^*}{f'(\mu^e E \sigma_{(D)}^* - \eta) [E^2 \mu^e (\Delta \mathcal{R} + \beta Z^e) + \beta \eta]} < 0 \quad (96)$$

Given  $\rho^* = F(\mu^e E \sigma_{(N)}^*)$ , and  $\rho^* = F(\mu^e E \sigma_{(D)}^* - \eta)$ ;  $\partial \rho^* / \partial E$  is ambiguous, however, from equation 90 if  $E$  increases, the second term on the left hand side of the equation will decline. Thus,  $f(\mu^e E \sigma_{(N)}^*)$  will increase but  $\mu^e E \sigma_{(D)}^*$  will decrease since  $f' < 0$ . Hence,  $\rho^* = F(\mu^e E \sigma_{(N)}^*)$  will decline as  $E$  increases.

The intuition here is that, as the number of elite increases, their contribution to activities that increase their de facto power will reduce. This could be due to the fact that collective action problem intensify as the size of the elite group increases. It follows therefore that as the number of elites increases, the probability that they control political power will decline.

#### Effect of increase in citizens *de jure* power ( $\eta$ )

$$\frac{\partial \sigma_{(N)}^*}{\partial \eta} = - \frac{\beta f(\mu^e E \sigma_{(N)}^*)}{f'(\mu^e E \sigma_{(N)}^*) [E^2 \mu^e (\Delta \mathcal{R} + \beta Z^e) + E \beta \eta]}$$

Since  $f' < 0$ , then:

$$\frac{\partial \sigma_{(N)}^*}{\partial \eta} = - \frac{\beta f(\mu^e E \sigma_{(N)}^*)}{f'(\mu^e E \sigma_{(N)}^*) [E^2 \mu^e (\Delta \mathcal{R} + \beta Z^e) + E \beta \eta]} > 0 \quad (97)$$

Similarly:

$$\frac{\partial \sigma_{(D)}^*}{\partial \eta} = - \frac{\beta f(\mu^e E \sigma_{(D)}^* - \eta)}{f'(\mu^e E \sigma_{(D)}^* - \eta) [E^2 \mu^e (\Delta \mathcal{R} + \beta Z^e) + E \beta \eta]} > 0 \quad (98)$$

Thus:

$$\frac{\partial \rho^*}{\partial \eta} = \frac{\partial \rho^*}{\partial \sigma_{(N)}^*} \times \frac{\partial \sigma_{(N)}^*}{\partial \eta} > 0; \quad \frac{\partial \rho^*}{\partial \eta} = \frac{\partial \rho^*}{\partial \sigma_{(D)}^*} \times \frac{\partial \sigma_{(D)}^*}{\partial \eta} > 0 \quad (99)$$

Equations 97 and 98 state that as the citizens *de jure* power increases, the elite invest more on their *de facto* power. In other words, as elite lose control of *de jure* political power, the more they invest in *de facto* political power ceteris paribus. Equation 99 which follows from equations 97 and 98 is the most surprising result. It states that as citizens *de jure* power increases, the probability that elite will control political power also increases. The implication of this result is that increasing *de jure* power of citizen alone without disincentivising elite investment on *de facto* will not lead to democratic consolidation.

### Remarks

- a) Increase in the political rents will increase elite incentive to invest more in their *de facto* power and the probability that they control political power.
- b) Increase in the number of elites will intensify the collective action problem among them, and will reduce their incentive to invest in *de facto* power and the probability that they control political power.
- c) Increase in the advantage of the citizens in democracy, other things being equal will increase the elite's incentive to invest in their *de facto* political power and the probability that they control political power.

## CHAPTER FIVE

### EMPIRICAL ANALYSIS

A number of quantitative results were derived in chapter four. To add substance to the analytical framework developed in this study the main analytical conjectures should be subjected to empirical tests. In this chapter therefore, empirical tests of main conjectures of the analytical framework are presented. Broadly speaking, the main argument is that institution is one of the key factors that determine growth. It is argued that weak institutions emerged as a result of concentration of political power in hands of few elites during non-democratic political systems experienced in many parts of Africa. This weak institutional equilibrium persists after transition to democracy in many countries due to persistent of elite control of political power.

There are a number of equilibria in the analytical model, and each can form good testable hypothesis for the study. However, to keep to the scope of this study, empirical test is conducted on only two: first, that economic institutions matter for economic growth in Africa; and second, transition to democracy would not result to improvement in quality of institutions and economic performance if elite control of political power persists.

#### 5.1 Empirical model

The hypothesis that institutions matter is tested against the benchmark of a neoclassical production function given as equation 2 in chapter four. The arguments of the benchmark model are capital and labour. Thus, the benchmark model is specified as:

$$(1) \quad y_{it} = b + \psi k_{it} + \Phi n_{it} + v_{it};$$

Where:  $y$  is output per capita of country  $i$  in time  $t$ ;  $k$  is capital;  $n$  is growth of working age population;  $b$  is intercept; and  $v$  is the error term. To gauge the impact of institutions on national income, augmented production function specified as equation 37 in chapter four is subjected to empirical test. The benchmark model is augmented with institutions and infrastructure. The empirically augmented model is hence specified as:

$$(2) \quad y_{it} = b + \psi k_{it} + \Phi n_{it} + \Upsilon INST_{it} + \Omega INF_{it} + v_{it};$$

Where: *INST* is index of institutions, *INF* is index of infrastructure and others are as defined above. At analytical level, institutions and infrastructure enter output equation via capital, these variables are therefore interacted with capital as:

$$(3) \quad y_{it} = b + \psi k_{it} + \Phi n_{it} + \Upsilon(k_{it} * INST_{it}) + \Omega(k_{it} * INF_{it}) + v_{it};$$

In the augmented Solow model, a new variable is usually augmented with labour. Therefore, institutions and infrastructure are interacted with labour as:

$$(4) \quad y_{it} = b + \psi k_{it} + \Phi n_{it} + \Upsilon(n_{it} * INST_{it}) + \Omega(n_{it} * INF_{it}) + v_{it};$$

To minimise the problem of missing variables, the lag of per capita output is added as control variable since it is found to be significant in many studies including the extreme bounds text of Levine and Renelt (1992). Thus, models (1) to (4) are re-specified as:

$$(5) \quad y_{it} = \chi y_{it-1} + \psi k_{it} + \Phi n_{it} + v_{it}$$

$$(6) \quad y_{it} = \chi y_{it-1} + \psi k_{it} + \Phi n_{it} + \Upsilon INST_{it} + \Omega INF_{it} + v_{it}$$

$$(7) \quad y_{it} = \chi y_{it-1} + \psi k_{it} + \Phi n_{it} + \Upsilon(k_{it} * INST_{it}) + \Omega(k_{it} * INF_{it}) + v_{it}$$

$$(8) \quad y_{it} = \chi y_{it-1} + \psi k_{it} + \Phi n_{it} + \Upsilon(n_{it} * INST_{it}) + \Omega(n_{it} * INF_{it}) + v_{it};$$

The second hypothesis is tested using treatment analysis. That is, the hypothesis of whether quality of institutions, level of infrastructure and per capita income change significantly after a country transits to democracy. Given that democratisation does not take place in all countries in the sample at the same time, the sample is grouped into two: the control group and the treated group. Countries that experience democracy during the sample period form the treated group, while others which may have already been in democracy before the beginning of the sample period or have never been in democracy at all form the control group. The analysis is conducted by estimating difference-in-difference models specified as:

$$(9) \quad INST_{it} = a_i + b_t + \Psi Demo_{it} + v_{it}$$

$$(10) \quad INF_{it} = a_i + b_t + \Psi Demo_{it} + v_{it}$$

$$(11) \quad y_{it} = a_i + b_t + \Psi Demo_{it} + v_{it}$$

Where: *a* and *b* are country and year fixed effects respectively, *Demo* represents measures of democracy.

## 5.2 Data issues and estimation techniques

The per capita output for all the countries in the sample are obtained from African Development Indicator (ADI). Index of institutions is computed by taking simple average of six World Bank governance indicators. These are rule of law, control of corruption, regulatory quality, government effectiveness, voice and accountability, and political stability. The data is sourced from the World Bank databank. Index of infrastructure is computed from seven variables, comprising total road network in kilometer (km), total km of rail lines, air transport freight in million-km, energy production, mobile phone subscribers, internet users and telephone mainlines. Data on all the variables are obtained from ADI. Investment as share of GDP is used as proxy for capital. The growth of population from age 16 to 64 is used as proxy for growth of labour force<sup>15</sup>. Four definitions of democratisation are used; first, dummy variable that takes the value of 1 in the year multiparty executive election takes place and following years, otherwise 0 (MPE). Second, dummy variable that takes the value 1 if POLITY2 value is strictly positive and zero otherwise (POLITYRATE). Third, is POLITY2 values (the values range from -10 to +10), this is an indicator that capture quality of democracy in POLITY IV dataset available for all countries with population of 500,000 and above from 1800 to 2009<sup>16</sup>. And fourth, is the value of democracy in POLITY IV dataset (DEMOC). A dummy variable that captures elite's persistence is used, it takes the value of one if the president/prime minister after election was the head of state or president before the transition.

The OLS (pooled regression) estimator, the fixed effect regression (FE) and random effect regression (RE) are used to estimate the static part of the panel data specifications 1 to 4. On the other hand, Arellano and Bond first-difference Generalised Method of Moment (GMM) and Arellano and Bover/ Blundell and Bond System GMM estimators are used for the dynamic versions of the model (models 5 to 8). The Arellano and Bond first-difference GMM is widely used for estimation of dynamic growth regressions. However, Blundell and Bond (1998) show that the first difference GMM estimator may be subject to a large downward finite sample bias. Bond, Hoeffler and Temple (2001) also argue that using first difference GMM estimator to estimate dynamic growth regression can be poorly behaved and suggest the use of system GMM instead.

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<sup>15</sup> Growth of total population is used for Seychelles

<sup>16</sup> Cape Verde and Seychelles are omitted in POLITY IV dataset, since their total population is less than 500,000

Though models 9 to 11 are specified like conventional fixed effect models, the mechanism of estimating  $\Psi$  require some special techniques particularly if  $a_t$  and  $b_t$  are related to the *Demo* in some unknown ways. Difference –in- indifference estimation technique is used to estimate these models. This is a special version of Within estimator which takes the difference of two differences. The first difference is the difference between the pre-democracy and post-democracy outcomes for the treated group. The second difference is the difference between pre and post democracy for the control group. Thus, the coefficient of *Demo*,  $\Psi$  gives the average outcome of treated countries after the transition against the outcome before the transition as well as the average outcome of the control group.

### 5.3 Presentation and discussion of growth regression results

Results of the static model is reported in Tables 5.1 to 5.3; Table 5.1 is the OLS regression results, Table 5.2 presents the fixed effect regression results and Table 5.3 reports the random effect regression results. The column labelled 1 reports result of the benchmark model and column labelled 2 is the result of the model with institutions and infrastructure as independent variables. Result of model where institutions and infrastructure interact with capital is reported in column 3, while result of where these variables interact with labour is in column 4.

The two variables in the benchmark model are significant, capital has positive impact on growth while population growth has negative impact. The results in Table 5.1 show that a one per cent increase in capital would lead to about 0.74 per cent increase in growth, and one percent increase in the growth of population will reduce growth by about 1.54 per cent. When institutions and infrastructure are introduced, all variables are still significant. A one per cent increase in the quality of institutions will lead to 0.44 per cent increase in growth and similar increase in infrastructure will lead to about 0.11 per cent increase in growth. It is observed that when these two variables are introduced, the coefficient of capital reduces from 0.74 to 0.66 while that of labour improves from -1.54 to -1.15. It is also observed that the R square increased from 0.42 to 0.52. What this suggests is that, a model without institutions and infrastructure in the analysis of Africa's growth will not adequately capture the problem. The results also suggest that the impact of capital is overestimated in the first model. The improvement in the coefficient of labour suggest that if institutions and infrastructure improve, population growth (particularly working population) will lead to growth, otherwise, it will hurt growth. Interacting institutions and infrastructure with capital and/or labour give similar results.

However, there is limit to which the OLS results can be trusted, since the disturbance term may have included unobserved country specific effects that may be correlated with the regressors. Thus, the fixed effect model is considered. The results also show similar pattern, that inclusion of institutions and infrastructure improves the performance of the model even after accounting for individual specific effect. In the bench mark model, one per cent increase in capital leads to 0.17 per cent increase in growth, while similar increase in population growth would reduce growth by -0.44 per cent. When institutions and infrastructure are introduced, the result shows that one per cent increase in capital, institutions and infrastructure would lead to 0.05, 0.16 and 0.15 per cents increase in growth respectively. While one per cent increase in population growth would reduce growth by only -0.13 per cent. The R square increased, the coefficient of capital reduces, the coefficient of labour improves, and the coefficients are all significant. The redundant fixed effects tests show that the specific individual country fixed effects are relevant in the model. Since the fixed effect is significant, it suggest that fixed effect offer better results to the random effect model. This is also supported by the Hausman test. Observably, since random effect model results seem to be biased, they are not discussed, though reported in Table 5.3.

Results of the dynamic models are reported in Tables 5.4 and 5.5. The Blundell and Bond System GMM gives better results to the Arellano and Bond first difference GMM. In all the results validity of the overidentifying restriction assumptions are rejected in the later, while it was accepted in the former. The results also suggest the relevance of institutions and infrastructure. In Table 5.5, the results show that poorer countries in Africa are diverging from the relatively richer countries by about 1.04%. However, when institutions and infrastructure are control for this reduced to about 0.95%. Institutions and infrastructure are significant in all the regressions. Physical capital is significant and positive while population growth is negative and significant. The coefficients of capital decline when institutions and infrastructure are control for while the negative impact of population growth also reduced.

**Table 5.1: OLS Regression Results, the Dependent Variable is  $\text{Log}(y_{it})$**

	(1)	(2)	(3)	(4)
$\text{Log}(k_{it})$	0.7409* (0.1026)	0.6633* (0.0767)	0.1157 (0.1306)	0.6574* (0.0872)
$\text{Log}(n_{it})$	-1.5403* (0.2192)	-1.1465* (0.1841)	-1.1465* (0.1841)	-1.6725* (0.1600)
$\text{Log}(INST_{it})$		0.4367* (0.0803)		
$\text{Log}(INF_{it})$		0.1109* (0.0196)		
$\text{Log}(k_{it} * INST_{it})$			0.4367* (0.0803)	
$\text{Log}(k_{it} * INF_{it})$			0.1109* (0.0196)	
$\text{Log}(n_{it} * INST_{it})$				0.4826* (0.0871)
$\text{Log}(n_{it} * INF_{it})$				0.0002 (0.00003)
Constant	6.5721* (0.3906)	3.5651* (0.5094)	3.5651* (0.5094)	4.7383* (0.4866)
$R^2$	0.4284	0.5152	0.5152	0.4941
No. Obs.	404	404	404	404

\*significant at 1%, \*\*significant at 5%, \*\*\*significant at 10%, standard error in parentheses.

Source: Computed by the author



**Table 5.2: Fixed Effect Model Results, the Dependent Variable is  $\text{Log}(y_{it})$**

	(1)	(2)	(3)	(4)
$\text{Log}(k_{it})$	0.1664* (0.0365)	0.0473*** (0.0257)	-0.2665* (0.0548)	0.0473*** (0.0257)
$\text{Log}(n_{it})$	-0.4438* (0.0824)	-0.1323** (0.0597)	-0.1323** (0.0597)	-0.4461* (0.0794)
$\text{Log}(INST_{it})$		0.1636* (0.0483)		
$\text{Log}(INF_{it})$		0.1502* (0.0082)		
$\text{Log}(k_{it} * INST_{it})$			0.1636* (0.0483)	
$\text{Log}(k_{it} * INF_{it})$			0.1502* (0.0082)	
$\text{Log}(n_{it} * INST_{it})$				0.1636* (0.0483)
$\text{Log}(n_{it} * INF_{it})$				0.1502* (0.0082)
Constant	6.8664* (0.1212)	4.4991* (0.1761)	4.4991* (0.1761)	4.4991* (0.1761)
$R^2$	0.4232	0.2485	0.2485	0.2485
$F(\mu_i = 0)$	103.43	197.17*	197.17*	197.17*
No. Obs.	404	404	404	404

\*significant at 1%, \*\*significant at 5%, \*\*\*significant at 10%, standard error in parentheses.

Source: Computed by the author

**Table 5.3: Random Effect Model Results, the Dependent Variable is  $\text{Log}(y_{it})$**

	(1)	(2)	(3)	(4)
$\text{Log}(k_{it})$	0.1853* (0.0370)	0.0588** (0.0264)	-0.2804* (0.0557)	0.0588** (0.0264)
$\text{Log}(n_{it})$	-0.4856* (0.0834)	-0.1642* (0.0613)	-0.1642* (0.0610)	-0.5035* (0.0803)
$\text{Log}(INST_{it})$		0.1921* (0.0488)		
$\text{Log}(INF_{it})$		0.1472* (0.0084)		
$\text{Log}(k_{it} * INST_{it})$			0.1921* (0.0488)	
$\text{Log}(k_{it} * INF_{it})$			0.1472* (0.0084)	
$\text{Log}(n_{it} * INST_{it})$				0.1921* (0.0488)
$\text{Log}(n_{it} * INF_{it})$				0.1472* (0.0084)
Constant	6.8555* (0.2003)	4.4377* (0.2355)	4.4377* (0.2355)	4.4377* (0.2355)
$R^2$	0.4239	0.2787	0.2787	0.2787
Hausman Test	-22.80	-44.80	-44.80	-44.80
No. Obs.	404	404	404	404

\*significant at 1%, \*\*significant at 5%, \*\*\*significant at 10%, standard error in parentheses.

Source: Computed by the author

**5.4: Arellano and Bond First Difference GMM Results, the Dependent Variable is  $\text{Log}(y_{it})$**

	(1)	(2)	(3)	(4)
$\text{Log}(y_{t-1})$	1.0168* (0.0264)	0.8057* (0.0358)	0.8057* (0.0358)	0.8057* (0.0358)
$\text{Log}(k_{it})$	0.0013 (0.0176)	0.0161 (0.0160)	-0.0406 (0.0361)	0.0161 (0.0160)
$\text{Log}(n_{it})$	-0.1648* (0.0527)	-0.0004 (0.0518)	-0.0004 (0.0518)	-0.0570 (0.0610)
$\text{Log}(INST_{it})$		-0.0003 (0.0331)		
$\text{Log}(INF_{it})$		0.0569* (0.0074)		
$\text{Log}(k_{it} * INST_{it})$			-0.0003 (0.0331)	
$\text{Log}(k_{it} * INF_{it})$			0.0569* (0.0074)	
$\text{Log}(n_{it} * INST_{it})$				-0.0003 (0.0331)
$\text{Log}(n_{it} * INF_{it})$				0.0569* (0.0074)
Constant	0.1018 (0.2001)	0.6503* (0.2226)	0.6503* (0.2226)	0.6503* (0.2226)
Sargan Test	213.3131*	199.649*	199.649*	199.649*
No. Obs.	345	345	345	345

\*significant at 1%, \*\*significant at 5%, \*\*\*significant at 10%, standard error in parentheses.

Source: Computed by the author

**Table 5.5: Arellano-Bover/ Blundell-Bond System GMM Results, the Dependent Variable is  $\text{Log}(y_{it})$**

	(1)	(2)	(3)	(4)
$\text{Log}(y_{t-1})$	1.0353* (0.0096)	0.9373* (0.0177)	0.9373* (0.0177)	0.9373* (0.0177)
$\text{Log}(k_{it})$	0.0232** (0.0096)	0.0115*** (0.0067)	-0.0793* (0.0098)	0.0115*** (0.0067)
$\text{Log}(n_{it})$	-0.1243* (0.0257)	-0.0202 (0.0170)	-0.0202 (0.0170)	-0.1110* (0.0244)
$\text{Log}(INST_{it})$		0.0545* (0.0129)		
$\text{Log}(INF_{it})$		0.0363* (0.0039)		
$\text{Log}(k_{it} * INST_{it})$			0.0545* (0.0129)	
$\text{Log}(k_{it} * INF_{it})$			0.0363* (0.0039)	
$\text{Log}(n_{it} * INST_{it})$				0.0545* (0.0129)
$\text{Log}(n_{it} * INF_{it})$				0.0363* (0.0039)
Constant	-0.1178 (0.0805)	-0.1488** (0.0767)	-0.1488** (0.0767)	-0.1488** (0.0767)
Sargan Test	28.3428	28.5926	28.5926	28.5926
No. Obs.	375	375	375	375

\*significant at 1%, \*\*significant at 5%, \*\*\*significant at 10%, standard error in parentheses.

Source: Computed by the author

#### 5.4 Results of impacts of democracy on growth, institutions and infrastructure

The impact of democracy on growth, quality of institutions and level of infrastructure is tested using different measures of democracy. This test is conducted on the total sample as well as the control sample. The two countries (Libya and Morocco) in the control sample that have not experienced multiparty executive election are excluded, and the result is not significantly different from result obtained from the total control sample. Tables 5.6 to 5.8 report results of these tests. Table 5.6 reports result of the impact of democracy on economic growth, Tables 5.7 and 5.8 report its impact on institutions and infrastructure respectively.

From Table 5.6, the various measures of democracy except multiparty election have significant positive impact on growth. Both in the total and control samples POLITYRATE has the largest coefficient, this suggests that as a country moves from less competitive to more competitive political system, the economy will grow more rapidly. This impact will be more, if the country transits from autocracy. The significant negative impact of MPE suggests that mere introduction of multiparty periodic elections could hurt instead of enhancing it. This is because, it is possible for a country to have periodic multiparty elections that is not competitive (examples can be seen in Cameroon, Togo, Angola, Eritrea, Gabon and Mauritania). These countries though adopted multiparty executive elections but still have negative values in their POLITY2 scores. Implying that all democracies are not actually competitive and democracy can lead to growth if and only if it is competitive.

Similarly all the measures of democracy considered in this study except MPE (multiparty elections) have significant positive impact on quality of institutions. In the control sample, MPE does not have significant impact on the quality of institutions. This is noted in both the level and log regressions' results reported in Tables 5.7a and 5.7b respectively. The results also show that POLITYRATE has greater impact on the quality of institutions than other measures of democracy. This is also suggesting that competitiveness of political system matters, as the political system becomes more competitive, the quality of institutions improves.

Table 5.8 presents results of the impact of measures of democracy on level of infrastructure. All the coefficients are significant and have positive impact except MPE that shows negative sign. The pattern is similar to results on Tables 5.6 and 5.7, MPE has negative impact on infrastructure, POLITYRATE has the highest positive impact and all variables are significant.

**Table 5.6: The Impact of Democracy on Economic Growth**

<b>TOTAL GROUP</b>				
	Log(PCGDP <sub>it</sub> )	Log(PCGDP <sub>it</sub> )	Log(PCGDP <sub>it</sub> )	
POLITY2	0.0637* (0.0091)			
POLITYRATE		0.5463* (0.1047)		
DEMOC			0.0982* (0.0136)	
R <sup>2</sup>	0.004	0.0069	0.0326	
<b>CONTROL GROUP</b>				
	Log(PCGDP <sub>it</sub> )	Log(PCGDP <sub>it</sub> )	Log(PCGDP <sub>it</sub> )	Log(PCGDP <sub>it</sub> )
MPE	-1.4938*** (0.8572)			
POLITY2		0.0486* (0.0122)		
POLITYRATE			0.3107*** (0.1624)	
DEMOC				0.0873* (0.0199)
R <sup>2</sup>	0.1331	0.0207	0.0007	0.0548

\*significant at 1%, \*\*significant at 5%, \*\*\*significant at 10%, standard error in parentheses.

Source: Computed by the author.

**Table 5.7a: The Impact of Democracy on Institutions (level regression)**

<b>TOTAL GROUP</b>				
	<i>INST<sub>it</sub></i>	<i>INST<sub>it</sub></i>	<i>INST<sub>it</sub></i>	
POLITY2	0.8417* (0.1226)			
POLITYRATE		6.0088* (1.4194)		
DEMOC			1.4291* (0.1817)	
<i>R</i> <sup>2</sup>	0.2513	0.1045	0.3563	
<b>CONTROL GROUP</b>				
	<i>INST<sub>it</sub></i>	<i>INST<sub>it</sub></i>	<i>INST<sub>it</sub></i>	<i>INST<sub>it</sub></i>
MPE	4.9985 (14.3963)			
POLITY2		0.6207* (0.1662)		
POLITYRATE			5.1913** (2.1773)	
DEMOC				1.2706* (0.2695)
<i>R</i> <sup>2</sup>	0.0063	0.4661	0.3657	0.5327

\*significant at 1%, \*\*significant at 5%, \*\*\*significant at 10%, standard error in parentheses.

Source: Computed by the author.

**Table 5.7b: The Impact of Democracy on Institutions (log regression)**

<b>TOTAL GROUP</b>				
	<i>Log(INST<sub>it</sub>)</i>	<i>Log(INST<sub>it</sub>)</i>	<i>Log(INST<sub>it</sub>)</i>	
POLITY2	0.0520* (0.0063)			
POLITYRATE		0.3000* (0.0753)		
DEMOC			0.0870* (0.0094)	
<i>R</i> <sup>2</sup>	0.1505	0.0466	0.2316	
<b>CONTROL GROUP</b>				
	<i>Log(INST<sub>it</sub>)</i>	<i>Log(INST<sub>it</sub>)</i>	<i>Log(INST<sub>it</sub>)</i>	<i>Log(INST<sub>it</sub>)</i>
MPE	0.1279 (0.4367)			
POLITY2		0.0262* (0.0073)		
POLITYRATE			0.2606* (0.0945)	
DEMOC				0.0490* (0.0119)
<i>R</i> <sup>2</sup>	0.0041	0.3746	0.3371	0.4156

\*significant at 1%, \*\*significant at 5%, \*\*\*significant at 10%, standard error in parentheses.

Source: Computed by the author.



**Table 5.8: The Impact of Democracy on Infrastructure**

<b>TOTAL GROUP</b>				
	Log(INF <sub>it</sub> )	Log(INF <sub>it</sub> )	Log(INF <sub>it</sub> )	
POLITY2	0.2346* (0.0342)			
POLITYRATE		1.4879* (0.3806)		
DEMOC			0.3640* (0.0531)	
R <sup>2</sup>	0.0129	0.004	0.0271	
<b>CONTROL GROUP</b>				
	Log(INF <sub>it</sub> )	Log(INF <sub>it</sub> )	Log(INF <sub>it</sub> )	Log(INF <sub>it</sub> )
MPE	-1.5846*** (0.8244)			
POLITY2		0.1481* (0.0370)		
POLITYRATE			1.3419* (0.4458)	
DEMOC				0.2789* (0.0606)
R <sup>2</sup>	0.0623	0.0440	0.0245	0.0672

\*significant at 1%, \*\*significant at 5%, \*\*\*significant at 10%, standard error in parentheses.

Source: Computed by the author.

## **5.5 Results of impact of democratic transition on growth, institutions and infrastructure**

The results of the treatment analysis are reported in Tables 5.9 to 5.11. The focus of the discussion here is on columns 5 and 6 of the tables. These columns investigate the timing of the effect of democracy on economic growth, institutions and infrastructure. A dummy variable 3YPREDE equals to 1 in the three years preceding democracy, and another dummy variable 3YPOSTDE equals to 1 in the year democracy starts and in the three following years are used as explanatory variables in the analysis.

The coefficient of 3YPREDE is negative in all the regressions' results reported in the four Tables. This suggest that democracies in the sample are preceded by crisis such as poor growth, weak institutions and poor infrastructure. Since democracy seems to be triggered by crisis, would the positive impact of democracy established earlier be felt three years after democracy? From column 5 in Table 5.9 the coefficient of 3YPOSTDE is negative, this suggests that the positive impact of democracy can not be seen in growth three years after democracy. Though, the coefficient is still negative, there is an improvement, implying that it will take time for democracy to result in positive economic growth. In column 6 of this same Table an interactive term is introduced. Evidence from the result is that if elite do not persist, democracy will lead to positive growth after three years of democracy. Countries that moved from non-democratic to democratic system would growth 0.519 per cent higher, but if elite persist in power, they will only grow by 0.1671 per cent higher. However, if elite persist, the crisis preceding the democracy will not be over come immediately, that is, three years after democracy the economic growth will still be low.

From Tables 5.10a, 5.10b and 5.11, it is evidenced that years immediately preceding democracy are characterised with weak institutional quality and negative growth of infrastructure. The results in columns 5 and 6 shows that three years after launching democracy, quality of institutions and level of infrastructure improved. However, if elite persists both institutional quality and infrastructure become worse than their levels before democracy.

**Table 5.9: Democratic Transition and Economic Growth, The Dependent Variable is Log(PCGDP<sub>it</sub>)**

	(1)	(2)	(3)	(4)	(5)	(6)
MPE	0.4020* (0.0664)					
POLITY2		0.0858* (0.0124)				
POLITYRATE			0.7311* (0.1237)			
DEMOC				0.1092* (0.0172)		
3YRPREDE					-0.4392* (0.0786)	-0.4392* (0.0780)
3YRPOSTDE					-0.2318* (0.0714)	0.0701 (0.1782)
3YRPOSTDE*EP						-0.3522*** (0.1908)
$R^2$	0.1378	0.1451	0.1934	0.0334	0.0251	0.0046

\*significant at 1%, \*\*significant at 5%, \*\*\*significant at 10%, standard error in parentheses.

3YPreDemo= 1 in three years preceding democracy, zero otherwise

3YPostDemo = 1 in the year of democracy and three years after, zero otherwise

EP = 1 if elected chief executive of the country was former executive leader/ruler, zero otherwise

Source: Computed by the author.

**Table 5.10a: Democratic Transition and Institutions (level regression),** The Dependent Variable is  $Institutions_{it}$

	(1)	(2)	(3)	(4)	(5)	(6)
MPE	5.2994* (0.8729)					
POLITY2		1.1971* (0.1654)				
POLITYRATE			5.4874* (1.9158)			
DEMOC				1.6716* (0.2162)		
3YRPREDE					-3.9267* (1.1400)	-3.9267* (1.0482)
3YRPOSTDE					0.1380 (1.0355)	9.3766* (2.3962)
3YRPOSTDE*EP						-10.7785* (2.5654)
$R^2$	0.0394	0.2853	0.4485	0.0959	0.0121	0.0017

\*significant at 1%, \*\*significant at 5%, \*\*\*significant at 10%, standard error in parentheses.

3YPreDemo= 1 in three years preceding democracy, zero otherwise

3YPostDemo = 1 in the year of democracy and three years after, zero otherwise

EP = 1 if elected chief executive of the country was former executive leader/ruler, zero otherwise

Source: Computed by the author.

**Table 5.10b: Democratic Transition and Institutions (log regression),** The Dependent Variable is  $Log(Institutions_{it})$

	(1)	(2)	(3)	(4)	(5)	(6)
MPE	0.4334* (0.0613)					
POLITY2		0.0853* (0.0121)				
POLITYRATE			-0.0117 (0.1408)			
DEMOC				0.1267* (0.0157)		
3YRPREDE					-0.2375* (0.0840)	-0.2375* (0.0707)
3YRPOSTDE					0.1056 (0.0763)	1.0443* (0.1614)
3YRPOSTDE*EP						-1.0951* (0.1738)
$R^2$	0.0940	0.1833	0.4195	0.0420	0.0295	0.4629

\*significant at 1%, \*\*significant at 5%, \*\*\*significant at 10%, standard error in parentheses.

3YPreDemo= 1 in three years preceding democracy, zero otherwise

3YPostDemo = 1 in the year of democracy and three years after, zero otherwise

EP = 1 if elected chief executive of the country was former executive leader/ruler, zero otherwise

Source: Computed by the author.

**Table 5.11: Democratic Transition and Infrastructure, The Dependent Variable is  $\text{Log}(\text{Infrastructure}_{it})$**

	(1)	(2)	(3)	(4)	(5)	(6)
MPE	2.6861* (0.2805)					
POLITY2		0.4302* (0.0599)				
POLITYRATE			1.5611** (0.6520)			
DEMOC				0.4957* (0.0800)		
3YPREDE					-1.1895* (0.4514)	-1.1895* (0.4345)
3YPOSTDE					0.0170 (0.4100)	2.7214* (0.9836)
3YPOSTDE*EP						-3.1551* (1.0511)
$R^2$	0.3023	0.0092	0.0748	0.0009	0.040	0.0126

\*significant at 1%, \*\*significant at 5%, \*\*\*significant at 10%, standard error in parentheses.

3YPreDemo= 1 in three years preceding democracy, zero otherwise

3YPostDemo = 1 in the year of democracy and three years after, zero otherwise

EP = 1 if elected chief executive of the country was former executive leader/ruler, zero otherwise

Source: Computed by the author.

## 5.6 Duration analysis of elite persistence

Tables 5.12 and 5.13 present the survivor function and the life table respectively. The survivor function is the probability function of elites persisting in power during democracy and over time. Similarly, the life table shows the probability that elite will not lose control of political power, that is, remain in power. As evidenced in Table 5.12, elites are likely to persist in power with certainty (a probability of 1) in the first three years of democracy. The probability of persisting declined to 0.96 in the fourth year of democracy and continued to fall. As at 2009 the probability of elite persistence fell to as low as about 0.11. The life table reported in Table 5.13 displays the probability of elite persistence in power between the interval of one year over the sample period. Between 1996 and 1997, elite persisted in power with probability of about 0.93. As democracy is practiced over time, this probability fell, and it stood at 0.03 between the period 2008 to 2009.

Figures 5.1, 5.2 and 5.3 present the hazard rates. Figure 5.1 shows the hazard rate of elite persistence over time. As evidenced in Figure 5.1, elite persisted between 1996 to 2000 and started to lose power gradually up till 2005 when elite persistence began to decline rapidly. Figures 5.2 and 5.3 present the conditional rate of failure of elite persistence. Figure 5.2 shows elite persistence being conditional on citizens *de jure* power, while Figure 5.3 shows elite persistence being conditional on elite *de facto* power. Citizens *de jure* power is measured by a variable *xropen* which capture the possibility of non-elite gaining executive power in the POLITY IV data set. The *de facto* power proxy by *xcont* which measures executive power in same dataset. From these two Figures, it is evidenced that elite persist less with high *de jure* power and low *de facto* power while they persist more with low *de jure* power and high *de facto* power respectively. This results confirm the argument in the comparative statics result of the analytical model, that elite persistence declines with increase in *de jure* power of citizens.

**Table 5.12: Survivor Function**

Time	Fail	Net Lost	Survivor Function	Standard Error	95% Conf. Int.	
1996	0	7	1.0000	-	-	-
1997	0	7	1.0000	-	-	-
1998	0	7	1.0000	-	-	-
1999	3	4	0.9610	0.0221	0.8841	0.9873
2000	3	4	0.9199	0.0314	0.8302	0.9632
2001	3	4	0.8760	0.0388	0.7750	0.9336
2002	4	3	0.8135	0.0470	0.6997	0.8875
2003	4	3	0.7471	0.0536	0.6236	0.8352
2004	4	3	0.6759	0.0591	0.5451	0.7766
2005	6	1	0.5600	0.0652	0.4234	0.6764
2006	6	1	0.4400	0.072	0.3067	0.5654
2007	4	3	0.3562	0.0662	0.2303	0.4841
2008	4	3	0.2544	0.0639	0.1407	0.3847
2009	4	3	0.1090	0.0549	0.0315	0.2418

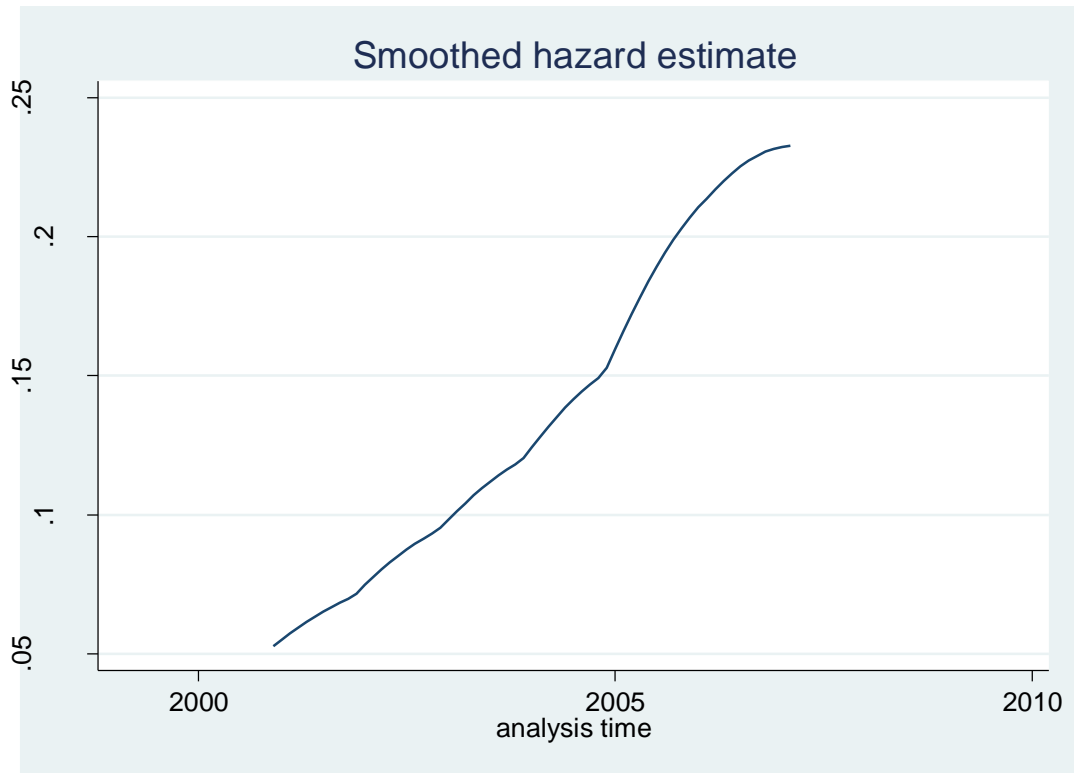
Source: Computed by the author.



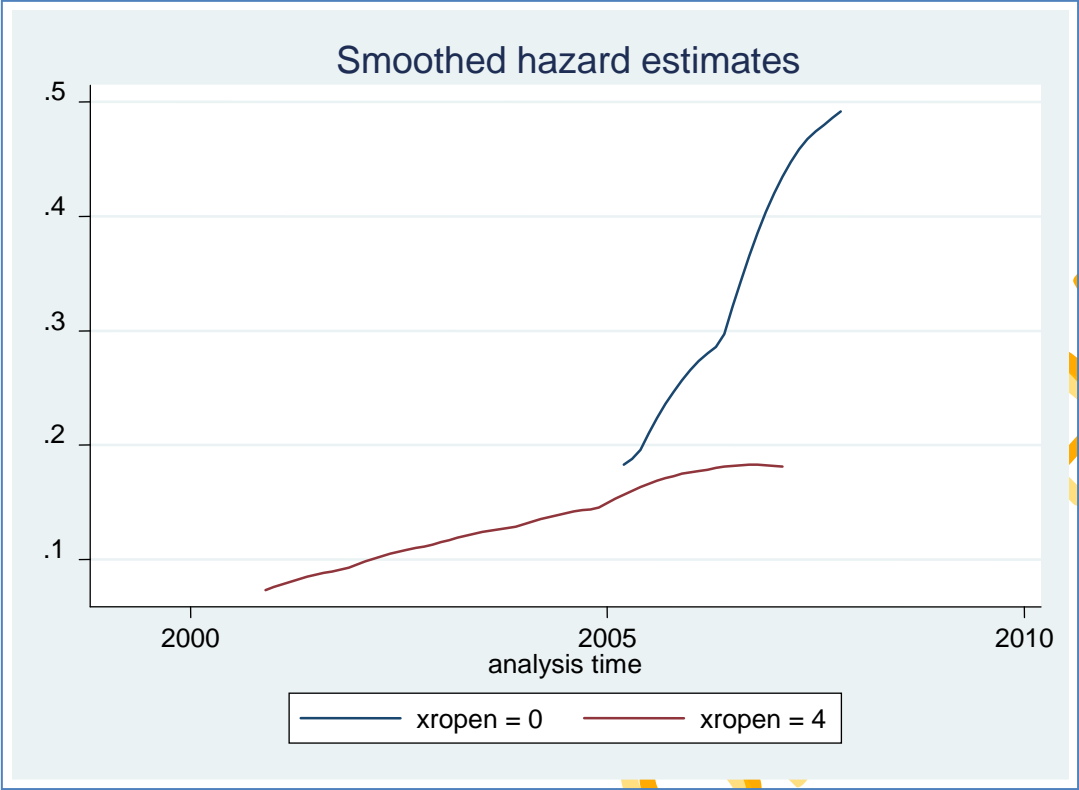
**Table 5.13: Life Table**

Interval	Survival	Standard Error	95% Conf. Int.	
1996 1997	0.9286	0.0260	0.8560	0.9653
1997 1998	0.8571	0.0353	0.7707	0.9128
1998 1999	0.7857	0.0414	0.6906	0.8546
1999 2000	0.7143	0.0456	0.6137	0.7930
2000 2001	0.6429	0.0484	0.5395	0.7288
2001 2002	0.5714	0.0500	0.4676	0.6624
2002 2003	0.5000	0.0505	0.3976	0.5940
2003 2004	0.4286	0.0500	0.3296	0.5237
2004 2005	0.3571	0.0484	0.2638	0.4514
2005 2006	0.2857	0.0456	0.2002	0.3769
2006 2007	0.2143	0.0414	0.1394	0.2999
2007 2008	0.1429	0.0353	0.0824	0.2194
2008 2009	0.0714	0.0260	0.0315	0.1335
2009 2010	-	-		

Source: Computed by the author.

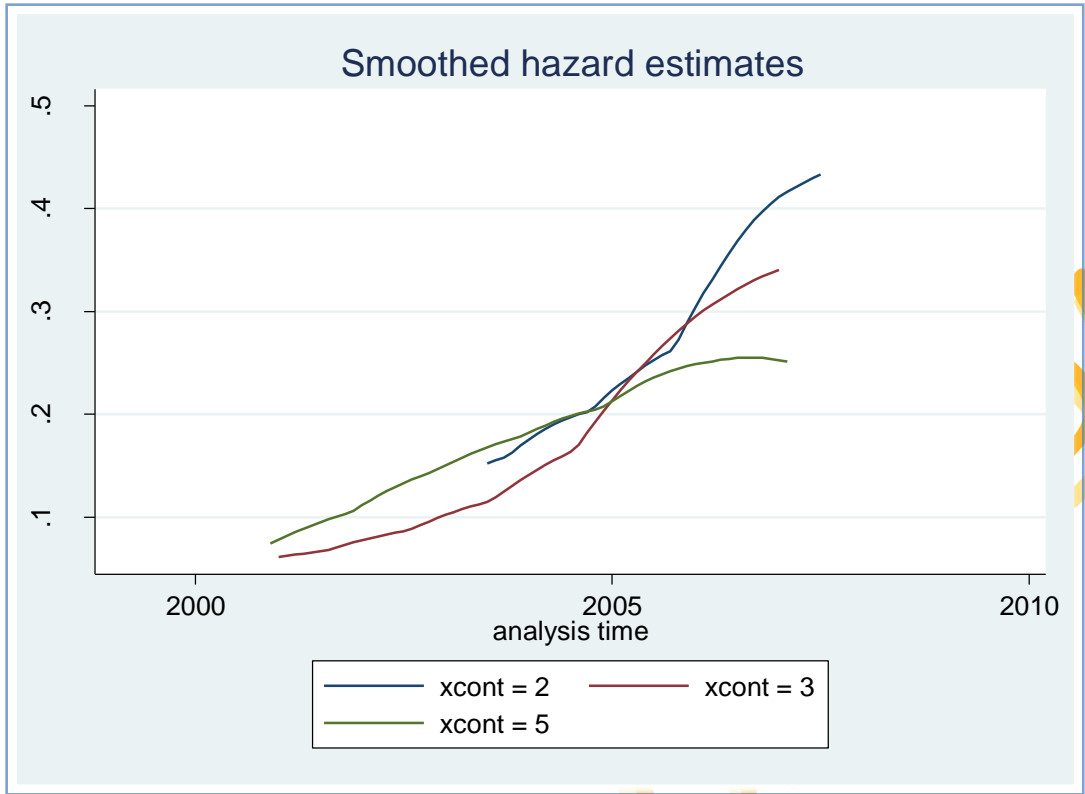


**Figure 5.1: Hazard Rate**  
Source: Plotted by the author



**Figure 5.2: Hazard Rate with *De Jure* Power**

Source: Plotted by the author



**Figure 5.3: Hazard Rate with *De Facto* Power**  
Source: Plotted by the author

## CHAPTER SIX

### SUMMARY, CONCLUSIONS AND POLICY ISSUES

#### 6.1 Summary and conclusions

Understanding the process of economic growth and sources of differences in economic performance across nations are some of the most important and challenging research areas in economics and the entire social sciences. The literature on growth has grown so voluminous, yet so many issues remain unresolved. For example, little is known on what is responsible for the poor economic performance of African countries, particularly Sub-Saharan Africa (SSA) countries. Several explanations have been provided in both theoretical and empirical literature. Meanwhile, emphasis has shifted to the roles of institutions in determining economic performance in recent time. However, a number of issues remained unclear, such as the endogeneity problem and why do weak institutions exist and persist in Africa and other developing countries. This study therefore, developed an unifying political economic model, that endogenised institutions into the neoclassical framework and explain how weak institutions emerged and why they persist in Africa. The following conclusions from the analytical framework can be drawn.

Government interventions distort the economic equilibrium and that redistribution does not influence entrepreneurs' decision to invest but investment on public goods (specifically infrastructure), tax and tax policies do. The decision of political elites to invest on public goods is determined by level of public goods inherited from past regime (stock of infrastructure) and the revenue that could be generated from such investment. The implications of these findings in Africa economic performance are crucial: first many African governments are mainly concerned with redistribution of national wealth among social groups. Second, the level of infrastructure is poor in almost all the countries in SSA and government investment on it is also low. Third, tax is not a major source of revenue in most African countries. Fourth, first to third observations could negatively affect the incentives of entrepreneurs to invest.

Institutions matter for both investment on capital and economic growth. Weak institutions are likely to emerge if: (i) tax revenue is not a major source of government revenue; (ii) there is concentrations of political power in the hands of few elites and there is no sufficient constraint on the exercise of such power; (iii) rent seeking is prevalent; (iv) the state is inefficient (such as inefficient bureaucracy); and (v) there is high chance of political replacement (via non-democratic means). Available statistics have shown that institutions are weak in Africa. The values of various measures of institutions are low in many African countries relative to other countries outside Africa. This may not be surprising, all the factors that make society to end in lower institutional equilibrium identified in the model seem to be common characteristics of Africa states. For example, rent seeking in terms of political corruption is high in many African countries and SSA recorded the highest incidence of coups in the world in the past five decades. The constrains on executive power are weak and bureaucracy is equally weak and largely inefficient. Consequently, weak institutions with poor economic incentive system prevail.

The weak institutions that emerged during the non-democratic era are likely to persist if: (i) elite persist in power (still control de jure power after the transition) and (ii) elite invest sufficiently on de facto power (though they have lost control of de jure power). This could provide good explanation why weak institutions still exist in many African countries despite the recent wind of democracy that blew across the continent. In most of the countries, the same elites that control power during the non-democratic era still emerged as national political leaders after transition to democracy. In cases where they do not contest or win elections, they control the majority party.

It is also found that as democracy consolidates, de jure power to citizens increases and incentives to invest on de facto power decreases and hence, the probability that elites control political power decreases. Thus, quality of institutions improve as democracy consolidates. One important lesson to draw from this finding is that, since most democracies in Africa are relatively new, major changes in the quality of institutions and economic growth generally should not be expected. Empirical evidences support this argument, countries with relatively long history of democracy such as Botswana have better institutions and grow faster.

The empirical analyses also show some interesting results: first, it reveals that institutions matter. Second, other variables such as capital, infrastructure and competitive democracy have significant positive impact on economic growth. Third, democracy and competitiveness of

democracy matter for quality of institutions as well as level of infrastructure. Population growth has significant negative effect on growth, though if institutions are strong and there is sufficient investment in infrastructure, growth of the working population will result in more growth.

Different measures of democracy were used and they all performed well. Notably, the results show that introduction of mere multiparty periodic elections will hurt growth instead. It also has significant negative impact on infrastructure. The level of competitiveness of democracy seems to matter for growth, quality of institutions as well as infrastructure. As the economy moves from non-competitive political system to a competitive system, that is, as the political system becomes more competitive, the quality of institutions improves, the economy grows faster and quantity and quality of infrastructure also improve.

It was also found that democracies are usually preceded by crisis such as negative growth, very weak institutions and poor state of infrastructural facilities. Growth responds more slowly to changes in political system (introduction of democracy). In other words, it takes relatively long period for democracy to cause rapid growth in an economy. Institutions and infrastructure will start to respond positively beginning from the third year after democracy, though marginally.

Another interesting finding of the empirical analysis is that, persistence of political elite in power seems to drag the rate of response of growth, institutions and infrastructure to democracy. If elite persist, institutions, infrastructure and growth get worse three years after democracy. The intuition to be drawn here, is that, if the elite succeed himself after democratic transition, the quest to stay in power will make them keep institutions weak (particularly institutions that constraint executive power) and divert resources from investment in infrastructure to investment on *de facto* power. Consequently, growth will not be different from what it was before the introduction of democracy.

Elite political power tends to persist longer with less constraints on executive power and limited *de jure* power to citizens. They will lose control of political power faster with more constraints on executive power and sufficient *de jure* power to citizens. Equally, the longer the democratic history the lesser the probability of elite controlling political power and vice versa. Thus, as democracy consolidates over time, *de jure* power grows while incentives to invest on *de facto*

power decline and the probability that the erstwhile traditional elites control political power decreases.

This impact differs across regions, institutions have the highest impact in Southern African countries and lowest impact in West Africa. Similarly, improvement in measures of democracy has highest impact in Central African countries and lowest impact in North African countries<sup>17</sup>.

## 6.2 Policy issues

The study reveals that policy reforms are not as mechanical as many researchers think. Policy reform are to be implemented by the politicians with *de jure* power, if those who benefits from the distorted system controls *de jure* power, then reforms could be frustrated. More so, if the *de facto* power of the political elite is sufficiently larger than the *de jure* power, reforms could be twisted to the benefit of few political elites. However, if reforms are allowed, everyone (including the elites) will benefit in the long run. But the uncertainty on outcomes of reforms make elites to currently want to frustrate them.

Since almost all African countries are now moving to democracy, it is recommended that: first, these democracies should be made competitive by increasing the chances of non-traditional elites to gain executive power. Second, there should be adequate constraints on the exercise of executive (check and balances), otherwise, emergence of new set of too powerful political elites will be experienced in the democracy. Third, rent seeking and corruption should be controlled more vigorously and realistically. Then forth, institutions (e.g. rule of law, voice and accountability, bureaucratic efficiency, government effectiveness) should be strengthened and quantity and quality of infrastructure (particularly energy, transport and communication) be improved.

If the citizen can solve their collective problems, they will create more *de facto* power for themselves and be able to seize power from the elites and thus, implement policies that will benefit the citizens generally.

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<sup>17</sup> See Appendix B



### **6.3 Limitations and suggestions for further research**

Though, the analytical framework provides useful insights to understanding the poor economic performance in Africa, most of the results and conclusions are based on certain assumptions. Like any other analytical framework, changes in some of the assumptions could significantly affect the results. For example, assumptions about the labour market assumed absence of labour unions. The introduction of labour union's activities in the model could alter some of the results at equilibrium. The framework also assumed a homogenous elite group, however, heterogenous elites' groups usually organise and operate along ethnic groups are common features of Africa social groups. At empirical level, specific country and micro study can provide more useful policy information than cross country, macro study done in this study. Going by the argument of the framework, northern Africa countries should have worst institutions, infrastructure and economic growth, but this is not the case. The framework (particularly the aspect of political power consolidation, section 4.5.7) can be extended to explain why countries where particular elites control power for long period could perform better.

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## Appendix A

S/No	Country	Reason for inclusion
1.	Algeria	Resources <sup>1</sup> , Coastline <sup>2</sup> and Population <sup>3</sup>
2.	Angola	Resources and Coastline
3.	Botswana*	Resources
4.	Cameroon	Resources
5.	Cape Verde*	Coastline
6.	Egypt	Resources, Coastline and Population
7.	Eritrea	Coastline
8.	Ethiopia	Population and Under cultivated fertile soil
9.	Gabon	Resources
10.	Ghana*	Population
11.	Guinea	Resources
12.	Kenya	Population and Under cultivated fertile soil
13.	Liberia	Resources
14.	Libya	Resources and Coastline
15.	Madagascar	Resources, Coastline and Population
16.	Mauritania	Resources
17.	Mauritius*	Coastline
18.	Morocco	Resources, Coastline and Population
19.	Mozambique	Coastline and Population
20.	Namibia	Resources and Coastline
21.	Nigeria	Resources and Population
22.	Seychelles*	
23.	Sierra Leone	Resources
24.	South Africa	Resources, Coastline and Population
25.	Tanzania	Resources, Coastline and Population
26.	Togo	Resources
27.	Tunisia	Resources and Coastline
28.	Uganda	Population
29.	Zambia	Resources

1. Country with rich resource endowment irrespective of level of exploration

2. Country with coastline of about 1,000km and above spread

3. Country with total population of 20 million and above

\* Continental or regional success stories are added for analytical purpose

4. Democratic Republic of Congo and Sudan meet the population and resources criteria, while Somalia meets the coastline criterion, but all are not included because of conflicts



## Appendix B

### Regional Difference of the Impact of Institutions and Democracy

Region	Economic Institutions	Measures of Democracy
Central Africa	1.75	1.19*
East Africa	0.33*	0.69*
North Africa	-1.25	-0.49*
South Africa	0.78*	-0.45
West Africa	0.20*	0.53*

\*significant at 1%, \*\*significant at 5%, \*\*\* significant at 10%

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