

Identifying Binding Constraints on Growth in the Context of Fragility: The Case of South Sudan

*Lual A. Deng,
Abdurohman Ali Hussien
and
Augustino Ting Mayai*

Working Paper FW-014

AFRICAN ECONOMIC RESEARCH CONSORTIUM
CONSORTIUM POUR LA RECHERCHE ÉCONOMIQUE EN AFRIQUE

Identifying Binding Constraints on Growth in the Context of Fragility: The Case of South Sudan

By

Lual A. Deng¹,

Abdurohman Ali Hussien²

and

Augustino Ting Mayai³

AERC Working Paper FW-014
African Economic Research Consortium, Nairobi
January 2022

THIS RESEARCH STUDY was supported by a grant from the African Economic Research Consortium. The findings, opinions and recommendations are those of the author, however, and do not necessarily reflect the views of the Consortium, its individual members or the AERC Secretariat.

Published by: The African Economic Research Consortium
P.O. Box 62882 - City Square
Nairobi 00200, Kenya

© 2022, African Economic Research Consortium.

Contents

List of tables

List of figures

Abstract

1.	Introduction	1
2.	Review of Theoretical and Empirical Literature	5
3.	Research Methodology	23
4.	Data Sources and Empirical Results	26
5.	Conclusion and Policy Recommendations	41
	Notes	43
	References	45
	Annex A: Key informant interview target groups	48
	Annex B: Tables and figures on which analyses of this paper has been based	49

List of tables

1.	Characteristics of Lewis dual economy growth model	11
2.	A framework for Understanding Intersections Between Proximate and Fundamental Causes of Growth	14
3.	Schooling coverage indicators by sector, 2009 and 2015	34
4.	Impact of violence on state capacity with respect to provision of safety and economic opportunities for sustainable livelihoods	38
5.	The impact of violence on institutional capacity as measured by CPIA	39
Annex B: Tables and figures on which analyses of this paper has been based		
1.	Security sector spending in relation to budgets and GDP	49
2.	Annual spending on the military in the IGAD countries, 2012-2016	49
3.	Security sector spending in relation to budgets and GDP	50
4.	Number of displaced people in relations to the total population	51
5.	Public spending by sector (in million SSP)	52

List of figures

1.	Graphical illustration of the Harrod-Domar growth model	9
2.	Programmatic illustration of determinants of economic growth	22
3.	Growth diagnostics framework	24
4.	Impact of conflict on South Sudan's investment explained through growth diagnostic framework	27
5.	Inflation, gross fixed capital formation and other macroeconomic indicators, 2012-2016	28
6.	Security sector spending, net oil revenues, and approved budget in South Sudan, 2012-2016	30
7.	Security sector spending as percent of total GRSS budget and GDP, 2012-2016	31
8.	Military spending in the IGAD countries, 2012-2016	32
9.	Public investment in education and health as a proportion of total annual spending by sector, 2013-2016	35
10.	Violence and state capacity	37
11.	The impact of violence on institutional capacity as measured by CPIA	39
	Annex A: Key informant interview target groups	
	Key informants from different institutions	48

Abstract

The central premise of this study is that violent conflict is the primary binding constraint to economic growth, and an obstacle to transition from fragility to stability in South Sudan. The study looks at the determinants of growth, and then applies the Growth Diagnostics Framework (GDF) to support the central premise of this study. Two key hypotheses underpin the central premise of this research: (1) Violent conflict has constrained investment in South Sudan during the period 2012-2016; and (2) Violent conflict continues to weaken institutions and capacities of the State to provide safety and economic opportunities for sustainable livelihoods in South Sudan.

1. Introduction

The purpose of this case study of South Sudan is to create a common understanding of two critical concepts - growth and fragility. These two concepts provide the theoretical and empirical foundation for our inquiry into the nature of the binding constraints on growth in the context of a fragile state, such as South Sudan.

On growth, we turn to Simon Kuznets who states: “A country's economic growth may be defined as a long-term rise in capacity to supply increasingly diverse economic goods to its population” (Kuznets, 1971:1). The key word from this definition is the capacity of the country (i.e., economy) to produce, distribute, and supply goods and services through a system of sustained transaction and exchange among economic agents within the country and/or with the rest of the world. Kuznets further clarifies that this capacity is “based on advancing technology and the institutional and ideological adjustments that it demands” (Kuznets, 1971:1).

On fragility, we turn to the International Monetary Fund (IMF). The IMF in one of its studies defines fragile states as “states in which the government is unable to reliably deliver basic public services to the population – face severe and entrenched obstacles to economic and human development⁴.” The IMF study further explains that: “While definitions of fragility and country circumstances differ, fragile states generally have a combination of weak and non-inclusive institutions, poor governance, and constraints in pursuing a common national interest.⁵” By this definition, we are able to show that South Sudan became an independent state on 9th July 2011 with inherent fragility that it inherited from Sudan, bearing in mind that Sudan was classified as a fragile country with low level of economic development before the separation of South Sudan.

Inherent fragility notwithstanding, South Sudan is endowed with natural resources such as fossil oil, minerals, water, wildlife, livestock, fisheries, forestry, and a vast area of land consisting of 644,329 square kilometers. It has a population of 12.3 million of which about 83% live in rural areas (NBS, 2016). The country is not only young, but it also has a young population where 51% are less than 18 years old and 72% of the total population of South Sudan is below 30 years of age. It is a multi-ethnic country with over 64 ethnic groups and three main languages (Bantu, Nilotic and Sudanic) families (Nyombe, 2007). It is also a landlocked country surrounded by six countries with a total land boundary of 5,413 km (CIA Factbook, 2012).

South Sudan was expected, in the light of rich natural resources and international political capital, to experience high rates of economic growth or at least to take steps

towards a steady state of her economy. However, it did not for the country was already in a fragility trap. The World Bank articulates five critical phases of the fragility trap. The Bank states that: "If countries experience repeated cycles of poor governance, low investment, new stresses and violent relapses, they can remain stuck in a fragility trap⁶." It is important that we briefly highlight these phases of a fragility trap for South Sudan. They do not only describe the nature of fragility, but the initial conditions prevailing in South Sudan before the onset of the violent conflict in January 2012 and on 15th December 2013.

The first phase is when South Sudan missed, during the Interim Period (2005- 2011), the opportunity to reform institutions of resistance to those of a nation-state. This failure to reform institutions and structures of resistance led South Sudan to the second phase. The second phase is characterized by low investment in what Rodrik (2018) calls 'fundamental capabilities' necessary for the country to embark on the path to sustained peace, economic growth, and poverty eradication. There was, for instance, low if not absence of investment in critical areas such as institutions of economic governance, basic services, social capital, human capital, physical capital, infrastructure, and so forth. This was in spite of large amounts of oil revenue the country received. Our estimates show that the then Government of Southern Sudan (GoSS) and its successor Government of the Republic of South Sudan (GRSS) received a combined estimated amount of US\$ 20.0 billion of oil revenue during the period 2005 to June 2013⁷.

Moreover, World Bank records show that GoSS/GRSS claimed to have spent US\$ 1.3 billion on roads during the same period, yet it is public knowledge that there is only one tarmac highway of 192 km (i.e., Nimule-Juba Road). This was funded by the United States Agency for International Development (USAID). In fact, that amount of money (i.e., US\$ 1.3 billion) could have built 1,300 km of paved roads.

Low investment in the key areas that we have mentioned above led to generalized-discontent and new stresses constituting the third phase of the fragility trap. The stresses were manifested in political recklessness and misguided actions by several warlords and militias. The ruling party, the Sudan People's Liberation Movement (SPLM) also demonstrated political recklessness. The shutdown of oil production in January 2012 and two press conferences of 6th and 8th December 2013 in our view triggered the current violent conflict.

The fourth phase is the eruption of violent conflict as it happened on 15th December 2013 and again on 8th July 2016. The fifth phase is the Agreement on the Resolution of Conflict in South Sudan (ACRISS) of August 2015, which is not holding as conflict persists. South Sudan is therefore entrenched in a conflict-induced fragility trap.

This study investigates why South Sudan as a State is unable to produce, distribute, and supply goods and services to its population. The study starts by hypothesizing that violence is the primary binding constraint to growth, and a major obstacle for South Sudan to escape the fragility trap. The problem is in turn formulated in the form of questions: what are the determinants of growth? Is South Sudan's economy meeting these determinants of growth? If yes, how? And if no, what are the reasons? And what is preventing South Sudan from escaping the fragility trap?

The value added from the findings of this study is that it would contribute to the articulation of three initiatives. These are: a) National Development Strategy (NDS); b) South Sudan National Dialogue (SSND); and c) the IGAD High-Level Revitalization Forum (HLRF).

The Transitional Government of National Unity (TGoNU) of South Sudan is preparing a three-year (July 2018-June 2021) National Development Strategy (NDS). The objective of the NDS is to consolidate peace and stabilize the economy. This is the first initiative that will benefit from the findings of this study. This is because correct understanding of the growth dynamics is important in the design of NDS. A point that has captured the attention of Daniel Bromley (2014) when he says: “My focus on livelihoods is necessary because too many self-appointed experts have offered seriously flawed diagnoses of the current situation in South Sudan.... Let me be very clear: “political problems” and “ethnic tension” are never the causes of anything. Rather, they are the quite predictable effects of dysfunctional market economies and incoherent governance” (Bromley, 2014:1).

The second initiative that will benefit from the analytical findings of this case study is the South Sudan National Dialogue (SSND), which was launched in May 2017. The SSND aims to encourage a wide participation of all segments of the society in addressing the crises of governance and leadership in South Sudan. An informed dialogue will require careful theory and detailed empirical analysis to guide that process towards achieving its stated objectives. This case study is one of the necessary, though not sufficient critical points of reference.

The third initiative that will benefit from this case study is the IGAD High-Level Revitalization Forum (HLRF). The first appropriate act of the HLRF was to convene in August 2017 at a meeting of independent experts with the following stated purpose:

“The objective of the IGAD High Level Independent Experts Meeting is to provide a platform for a comprehensive and thorough discussion on how to revitalize the ARCSS and the way forward in addressing the current political challenges confronting the South Sudan Transitional Process. The IGAD High Level Independent Experts Meeting will reflect on the challenges and propose a way forward for the IGAD Council of Ministers”.⁸”

On research methodology, we use the Growth Diagnostic Framework (GDF) and Key Informant Interview (KII) to answer the research questions. Our call for the utility of the growth theory, and economics of conflict, will provide the essential knowledge and perspective for formulating a post-conflict reconstruction programme for South Sudan. Assessing the effects of violent conflict on the economic performance and state fragility will enable experts to contribute towards: a) correct identification of institutions and growth-promoting policies; b) articulation of assumptions underpinning reforms being proposed, e.g., by the IGAD-mediated ARCISS; and c) systematic use of theory to guide policy implementation.

As Hoeffler (2017:4) points out: “... The policy instrument of peace mediation (to achieve a formal settlement) will stabilize the peace, but it will not enhance post-conflict growth.” This is, in our view, because these instruments of peace mediation are

not grounded in the economics of conflict and institutional economics. Post-conflict growth would be enhanced when inclusive political and economic institutions are put in place.

Moreover, Bromley (2014) reminds us that: “It must be understood that the core problem in South Sudan is one of comprehensive economic dysfunction. It is well understood that meager livelihoods (material scarcity) give rise to conflict. The evidence is also clear that the presence of an abundant natural resource such as oil exacerbates the problem of nation building. However, scarcity can lead to cooperation. The transmission mechanism that makes plausible and sustainable livelihoods possible is coherent governance. A functioning market economy does not simply appear from the morning mist, it must be created” (2014:2).

The rest of the paper is divided into 4 main sections. Section 2 provides literature review. Section 3 highlights the research methodology, including hypotheses, and the nature and sources of data. Section 4 discusses and summarizes the results. Section 5 concludes the paper.

2. Review of theoretical and empirical literature

The entry point of our review of literature is the ten framework research papers commissioned by the African Economic Research Consortium (AERC) under the Research Project on *Growth in Fragile and Post-conflict States in Africa*. The common thrust of these framework research papers is, in our view, the utility of theory and empirics in the formulation and execution of economic policy. They therefore provide an important menu of literature review from which to draw from with respect to the costs of civil war (Dunne and Tian, 2017; Hoeffler, 2017) and with respect to the impact of conflict on growth (Nkurunziza, 2017).

We are also aware of the rich literature on the causes of civil war spearheaded by Collier (1999; 2000; 2009); Collier and Hoeffler (1998; 2002; 2003 and 2015) and Collier et al. (2003). Frontier Economics (2014) complements this knowledge by providing empirical evidence on the economic consequences of the current South Sudanese violent conflict.

Our understanding, however, of the theme of this Collaborative Research Project is on *Growth in Fragile and Post-conflict States in Africa*. Growth and conflict-induced fragility are of particular interest in the case study of South Sudan. Our approach then is to look at the growth literature and at the economics of violence literature. The preferred approach would have been to look at the literature on conflict-induced fragility instead of the economics of violence. However, we do not yet have a theory per se of the economics of fragility. Therefore, our approximation of this theory is the economics of violence. The two theories (growth and violence) complement each other in our search to identify the binding constraints on growth and on exit from fragility. That is, economic growth theory helps us to unearth the proximate and fundamental determinants of growth, while the economics of violence theory enables us to explain the behaviour of economic agents in an environment of great uncertainty brought about by violence. Households in rural areas are, for instance, competing over factors (i.e. land and labour) of production with both the government and armed opposition groups in South Sudan. The government and armed opposition groups are essentially competing over the monopoly of violence, which is informed by a production function of a monopolistic firm.

This chapter is, therefore, divided into two sections: Growth literature and the literature on the economics of violence is briefly reviewed.

The growth literature

A backward journey through the history of economic thought reveals that what makes the economy grow has always been the dominant question, which economists seek to understand and explain. This sustained search started, in our view, with the seminal book of Adam Smith: *An Inquiry into the Nature and Causes of the Wealth of Nations* first published in 1776. We cite the following passage from the introduction of the *Wealth of Nations* to support our view:

“The annual labour of every nation is the fund which originally supplies it with all the necessaries and conveniences of life which it annually consumes ... bears a greater or smaller proportion to the number of those who are to consume it.... [B]ut this proportion must in every nation be regulated by two different circumstances: first, by the skill, dexterity, and judgment with which its labour is generally applied; and secondly, by the proportion between the number of those who are employed in useful labour, and that of those who are not so employed”⁹.

Our interpretation of the above passage leads us to state that labour was, according to Adam Smith, the prime driver of economic growth during his time. Moreover, Adam Smith viewed the growth process to be endogenous (Lowe, 1954; 1987; Eltis, 1984). A careful look at the concept or phrase of the “annual labour” as the “fund” would reveal that Adam Smith was essentially treating labour as a combination of human capital and technology (which is created by this labour through innovation and know-how) that in turn produced what Acemoglu calls “parameters and policies that have first-order influence on physical and human capital and technology” (Acemoglu, 2009:24). Moreover, we would think that what Adam Smith was referring to as “the skill, dexterity, and judgment with which its labour is generally applied,” is in fact what Simon Kuznets is restating as follows:

“If technology is to be employed efficiently and widely, and, indeed, if its own progress is to be stimulated by such use, institutional and ideological adjustments must be made to effect the proper use of innovations generated by the advancing stock of human knowledge” (Kuznets, 1971:1)

It is, therefore, obvious that technological progress is a function of human knowledge (i.e. the skill, shrewdness, and judgment in which labour is used in the production of goods and services). In this regard, we would consider the *Wealth of Nations* as the first economic growth theory in which labour was the prime driver of growth. This point becomes clearer if we turn to Daron Acemoglu who defines technology as: “advances in techniques of production, advances in knowledge, and the general efficiency of the organization of production” (Acemoglu, 2009: 25).

Before we turn to the proximate and fundamental causes of economic growth, it is most appropriate to go back to Simon Kuznets, since we have used his definition of economic growth in the introduction chapter of this paper. Kuznets (1971) has identified in his Nobel Memorial Lecture the following six characteristics of economic growth:

- (i) High rates of increase in per capita product and of population in developed countries;
- (ii) High rates of increase in output per unit of all inputs;
- (iii) High rate of structural transformation;
- (iv) Changes in the structures of society and its ideology, e.g. urbanization and secularization;
- (v) Globalization or what Kuznets describes as “propensity to reach out to the rest of the world” (1971:2); and
- (vi) Growing gap between developed and developing countries in “that the economic performance in countries accounting for three-quarters of world population still fall far short of the minimum levels feasible with the potential of modern technology” (Kuznets, 1971:2).

The above characteristics of modern economic growth have been modified and confirmed through empirical work by Stephen Broadberry (2016) using the work of economic historians (Broadberry, 2015; Broadberry et al., 2015; Maddison 2001; 2010; van Zanden, Jan Luiten and Bas van Leeuwen, 2012; Malanima 2011; Alvarez-Nogal and Prados de la Escosura, 2013); that is, Broadberry, using quantitative data on GDP, population, and per capita GDP dating back as far as the medieval times, summarized his findings as follows:

“...we provide a summary statement of the revised characteristics of modern economic growth, arrived at inductively from the growing availability of quantitative evidence on the long run growth process over the last millennium and presented in the previous section” (Broadberry, 2016:21). The characteristics are:

- Sustained growth of per capita product, with the ending of growth reversals;
- Demographic transition;
- Sustained structural transformation from agriculture to services and to industry;
- Institutional change: fiscal centralization and parliamentary control;
- Market integration; and
- Great Divergence.

As much as the above characteristics of the economic growth are of significant importance, they do not, unfortunately, tell us anything about how and why growth and performance differ between countries and over time; that is, we need a growth theory, which would tell us what the proximate and fundamental causes of economic growth are. Petrakos and Arvanitidis, nevertheless, inform us that there is no unified growth theory.

Finally, it is worth emphasizing that due to lack of a unifying theory on economic growth, a substantial volume of empirical research has multi-theoretical bases. This means that studies draw on several theoretical frameworks and examine factors highlighted by many paradigms. As a result, findings are often contradictory and far from conclusive (2008:12). We are, however, comforted by Daron Acemoglu in that:

“While there is disagreement among macroeconomists about how to approach short-run macroeconomic phenomena and what the boundaries of macroeconomics should be, there is broad agreement about the workhorse models of dynamic macroeconomic analysis. These include the Solow growth model, the neoclassical growth model, the overlapping-generations model and models of technological change and technology adoption. Since these are all models of economic growth, a thorough treatment of modern economic growth can also provide (and perhaps should provide) an introduction to this core material of modern macroeconomics” (Acemoglu, 2009: xi).

It should be stated at this juncture that in undertaking this case study of South Sudan, our interest is not in what Acemoglu (2009) calls the mechanics of growth models, but rather in the mechanics of economic growth itself. We ask a question about why the economy of South Sudan has not been growing despite favourable initial conditions for growth. We turn to the work of Daron Acemoglu (2009) to help us in answering this question. This is because his work is extensive in that he uses theory and empirics to differentiate between proximate and fundamental causes of economic growth. This is a major contribution, in our view, in understanding economic growth in a fragile and post-conflict setting, such as that of South Sudan.

On proximate determinants of growth, Acemoglu (2009) identifies physical capital, human capital, and technology as the proximate causes of economic growth. We add to this list, savings, and investments or more precisely savings ratio and capital-output ratio, which were the focus of earlier theoretical frameworks such as: a) Harrod-Domar model¹⁰ of economic growth; and b) Lewis model of economic growth (i.e., of a dual economy with unlimited supply of labour).

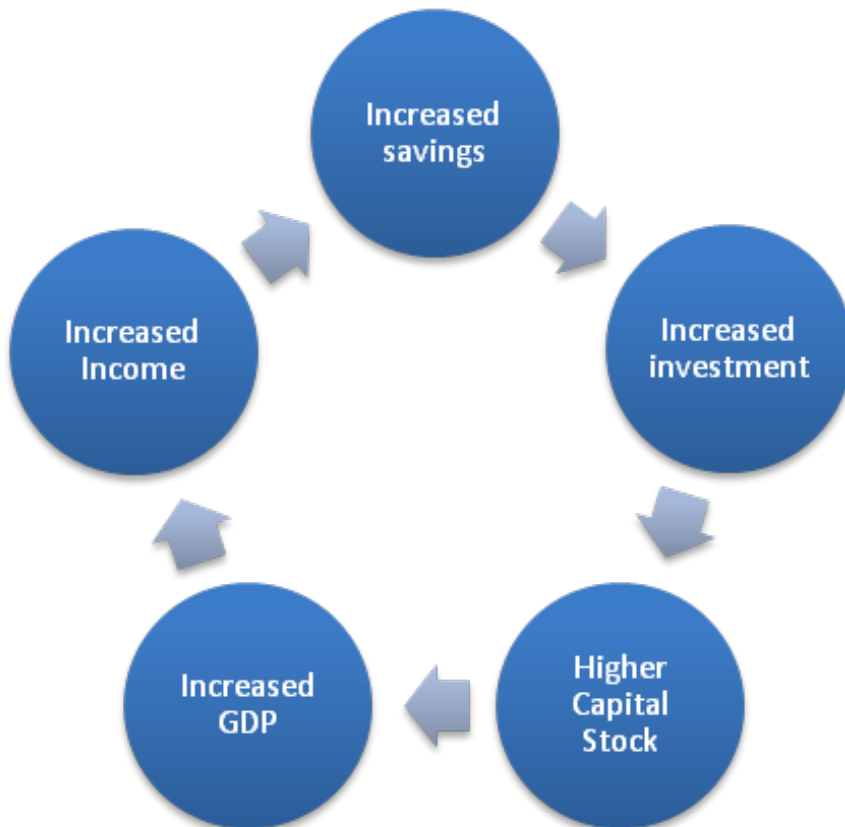
Harrod-Domar model is a classical Keynesian model of economic growth. The model simply states that the rate of growth of GDP is equal to savings ratio divided by capital-output ratio. In this sense, we could say that it is mainly concerned with a study of the conditions that influence the smooth and uninterrupted growth of national

income in a country. Therefore, the central premise of this model is the process of capital accumulation. It is based on the following four assumptions, expressed in simple equations:

- (1) $S=sY$, where S is total savings in the economy, s is savings rate (or propensity to save), Y is total output or income or gross domestic product (GDP).
- (2) $I=\Delta K$ where I is investment, K is capital stock, and ΔK is change in capital stock.
- (3) $I=S$, i.e., savings and investments are equal in *ex-ante* and *ex-post* sense.
- (4) $g = \Delta Y/Y = s/\sigma$, where g is rate of growth of income and σ is capital-output ratio ($\sigma=K/Y$) or productivity of investment.

It is obvious from the third assumption that the model takes into account both the demand side (i.e., investments) and the supply side (i.e., savings) of capital accumulation. For ease of exposition, we illustrate the Harrod-Domar model of economic growth using a virtual cycle.

Figure 1: Graphical illustration of the Harrod-Domar growth model



The ideas of foreign and external borrowing originated from this model in that developing countries would normally face low investment due to low domestic savings. By way of closing the savings gap, an economy of a developing country such as South Sudan could get development assistance (foreign aid) and/or borrowing from developed countries and international financial institutions (IFIs), such as the World Bank, International Monetary Fund (IMF), African Development Bank (AfDB), and so forth. Therefore, increased savings (in Figure 1 above) would in turn lead to increased investments, e.g., in infrastructure, equipment and machinery, and other capital goods. Increased investments lead to higher stock of capital, which would in turn be used in the production of what Kuznets calls “increasingly diverse economic goods” (Kuznets, 1971:1). Increases in GDP (i.e., diverse economic goods and services) would lead to higher levels of income, bearing in mind that savings in this model is a function of income and we are back to the point (i.e. circle) where we started this virtual cycle – increased savings as a consequence of higher national income would lead to increased investment to higher capital stock and the cycle continues.

There is a general agreement among the four main theoretical frameworks underpinning our growth literature review that physical capital accumulation is one of the proximate determinants of economic growth. The four theoretical frameworks are: a) Harrod-Domar model of economic growth; b) Lewis model of economic growth (i.e., of a dual economy with unlimited supply of labour); c) Neoclassical growth model (especially Solow-Swan model); and d) New growth theory. We have not included Walt Rostow’s stages of economic growth among these frameworks for our focus is not on stages of growth per se, but rather on determinants of growth¹¹. The third stage of Rostow’s model (i.e. takeoff) is, however, relevant to this case study, especially when read together with Lewis and Harrod-Domar growth models.

The graphic illustration in Figure 1 above of the Harrod-Domar growth model is based on a large volume of empirical literature. For instance, Nkurunziza (2017) citing the work of Bosworth and Collins (2003) states “that capital accumulation was the key to the successful growth experience of East Asian economies” (Nkurunziza, 2017:16). He concludes “African countries will need to substantially scale up their rates of capital accumulation to deliver high and sustainable rates of economic growth” (Nkurunziza, 2017:16). This is because capital accumulation is affected, according to the growth literature, by low returns to economic activity and high cost of finance (Hausmann et al., 2005; Rodrik, 2013). Moreover, Dani Rodrik (2013) explains using GDF that low returns to private investment and “therefore inadequate demand for investment is due to: government failures, market failures, and problems in other markets¹².”

We would be remiss if we do not mention the Lewis model at this point before proceeding to the fundamental causes of economic growth. W. Arthur Lewis is considered as one of the pioneers of development economics¹³. He was awarded the Nobel Prize in 1979 on his path-breaking work on capital accumulation in the dual economy characterized by two sectors—traditional sector dominated by subsistence

agriculture and a modern capitalist sector led by industry. There are six assumptions underpinning the Lewis growth model, which are:

1. A developing economy has a surplus of unproductive labour in the agricultural sector.
2. These workers are attracted to the growing manufacturing sector where higher wages are offered.
3. The wages in the manufacturing sector are fixed.
4. Entrepreneurs in the manufacturing sector make profit because they charge a price above the fixed wage rate.
5. These profits will be reinvested in the business in the form of fixed capital.
6. An advanced manufacturing sector means an economy has moved from a traditional to an industrialized one.

We present in Table 1 below the comparative features of the Lewis dual economy growth model in a tabular format:

Table 1: Characteristics of Lewis dual economy growth model

Traditional sector (subsistence agriculture)	Capitalist sector (industrial sector)
1. Labour-intensive production process	1. Capital-intensive manufacturing process relying on the use of reproducible capital
2. Low average wages	2. Higher average wages
3. Low marginal and average productivity	3. Higher marginal and average productivity
4. Low dependency on capital	4. High demand for labour

Traditional sector (subsistence agriculture) Capitalist sector (industrial sector)
 1. Labour-intensive production process
 1. Capital-intensive manufacturing process relying on the use of reproducible capital
 2. Low average wages
 2. Higher average wages
 3. Low marginal and average productivity
 3. Higher marginal and average productivity
 4. Low dependency on capital
 4. High demand for labour
 We should point out that dual economy growth model has other characteristics, such as formal versus informal sector, traded versus non-traded, cash versus non-cash economy (Rodrik, 2016). These characteristics of dualism are exhibited by the South Sudanese economy and hence the relevance of the Lewis dual economy growth model to this case study. For instance, our findings show that the surplus labour in the traditional sector (i.e., rural sector of South Sudan in which more than 80% of the population derive their livelihood from) is being diverted towards the production of violence by both the government and armed opposition groups.

We now turn to the fundamental causes of economic growth as spearheaded by the new economic growth theory (Kremendi and Mequire, 1985; Lucas, 1988; Grier and Tulock, 1989; Romer, 1990; Barro, 1991; Acemoglu et al., 2005; Acemoglu, 2009; Rodrik, 2018). It is, however, imperative that we first briefly look at the neoclassical growth model, which arose from the weakness of the Harrod-Domar growth model. The Solow-Swan model is our entry point to neoclassical growth model. This is because the model takes a long-term view of the economy by focusing on the aggregate production function of the Cobb-Douglas type. This aggregate production function is expressed in a simple single equation as follows:

$$F [K, L, A] = Ak^{\alpha}L^{1-\alpha} \quad (1)$$

With $0 < \alpha < 1$, and F is a production function of output (i.e. GDP), which depends on three factors of production: K denoting capital, L representing labour, and A denoting technology. We would add land to the list of factors of production in the case of South Sudan, especially given the importance of natural resources in her economy.

$$F(Y) = Ak^{\alpha}L^{\beta}N^{1-\alpha-\beta} \quad (2)$$

The growth accounting framework is another important contribution of the Solow model (Acemoglu, 2009). It also provides an important framework for utilizing both macroeconomic and microeconomic tools to understand the determinants of growth. Acemoglu underscores this contribution as follows:

“Another major contribution of Bob Solow to the study of economic growth was the observation that this production function, combined with competitive factor markets, also gives us a framework for accounting for the sources of economic growth. Solow (1957) developed what has become one of the most common tools in macroeconomics, the growth accounting framework” (Kuznets, 2009:87).

Moreover, Smriti Chand¹⁴ provides a good summary of the Solow-Swan model of economic growth, which “postulates a continuous production function linking output to the inputs of capital and labour, which leads to the steady state equilibrium of the economy¹⁵.” Here are some of the relevant points for our case study:

1. The growth rate of output in steady state is exogenous and is independent of the savings rate and technical progress.

2. If the savings rate increases, it increases the output per worker by increasing the capital per worker, but the growth rate of output is not affected.
3. Another implication of the model is that growth in per capita income can either be achieved by increased savings or reduced rate of population growth. This will hold if depreciation is allowed in the model.
4. Another prediction of the model is that in the absence of continuing improvements in technology, growth per worker must ultimately cease. This prediction follows from the assumption of diminishing returns to capital.
5. This model predicts conditional convergence. All countries having similar characteristics such as savings rate, population growth rate, technology, etc that affect growth will converge to the same steady state level. It means that poor countries having the same savings rate and level of technology of the rich countries will reach the same steady state growth rates in the long run¹⁶.”

The new growth theory starts from the neoclassical model (i.e., Solow model) by endogenizing technological progress. Daron Acemoglu articulates this point as follows:

“In all our models, especially in those that endogenize physical capital, human capital and technology accumulation, individuals will respond to (profit) incentives. Economic institutions shape these incentives. Therefore, we will see that the way that humans themselves decide to organize their societies determines whether incentives to improve productivity and increase output will be forthcoming. Some ways of organizing societies encourage people to innovate, to take risks, to save for the future, to find better ways of doing things, to learn and educate themselves, to solve problems of collective action and to provide public goods” (Acemoglu, 2009:143).

The above passage from Acemoglu (2009) is an important point for looking at the fundamental causes of growth. He highlights these causes as follows:

“At the risk of oversimplifying complex phenomena, we can think of the following list of potential fundamental causes: (i) luck (or multiple equilibria) that leads to divergent paths among societies with identical opportunities, preferences and market structures; (ii) geographic differences that affect the environment in which individuals live and that influence the productivity of agriculture, the availability of natural resources, certain constraints on individual behaviour, or even individual attitudes; (iii) institutional differences that affect the laws and regulations under which individuals and firms function and thus shape the incentives they have for accumulation, investment and trade; and (iv) cultural differences that determine individuals’ values, preferences and beliefs” (Acemoglu, 2009: 23).

We have now five (i.e., savings, investment, physical capital, human capital, and technology) proximate determinants of growth and four (luck, culture, geography, and institutions) fundamental causes of growth. We propose below a framework in the form of a policy matrix for understanding the intersections between the proximate and fundamental causes of growth. The rows give the proximate determinants of growth, while the columns represent the fundamental causes.

Table 2: A framework for Understanding Intersections Between Proximate and Fundamental Causes of Growth

Proximate Determinants of Economic Growth	Fundamental Causes of Economic Growth			
	Luck (Leadership)	Culture	Geography	Institutions
Savings	Visionary leadership ensures: a) Conducive environment for domestic savings b) Mobilization of development assistance and effective utilization of foreign aid c) Efficient borrowing from both domestic and external sources	Influences society's savings rates	Lends natural resources, which directly contribute to growth in nation's wealth	Effective institutions, just like leadership ensure: a) Conducive environment for domestic savings b) Mobilization of development assistance and effective utilization of foreign aid c) Efficient borrowing from both domestic and external sources
Investment	Visionary leadership ensures: a) Adherence to the rule of law, which would in turn encourage Foreign Direct Investment (FDI) b) Private property rights c) Functioning markets underpinned by free movement of goods and services, including capital	Cultural differences that determine individuals' values, preferences and beliefs for undertaking investment activities	Geographical conditions determine the type and priority areas for investment	Inclusive political and economic institutions that ensure effective and efficient allocation of resources to priority areas of public investment, which in turn leads to: a) high returns to economic activity; b) low cost of financing

continued next page

Table 2 Continued

Proximate Determinants of Economic Growth	Fundamental Causes of Economic Growth			
	Luck (Leadership)	Culture	Geography	Institutions
Physical Capital	Visionary leadership ensures investment: a) Capital goods b) Public goods, e.g. roads and bridges, railway, schools c) Power-generation, telecommunications	Influences society's willingness to accumulate physical capital	Geographical conditions determine the nature and magnitude of capital accumulation, which would in turn determine the pace of economic growth	Inclusive political and economic institutions that ensure effective and efficient capital accumulation for sustainable economic growth
Human Capital	Visionary leadership ensures investment: a) Education b) Health c) Research and Development (R&D)	Influences society's willingness to accumulate human capital	Geographical conditions determine the type of educational system that in turn enables the society or country to pursue economic growth strategies consistent with the geography the society finds itself in	Inclusive political and economic institutions that ensure effective and efficient human capital accumulation for sustainable economic growth
Technology	Visionary leadership ensures: a) Creative destruction of old technology through innovation and adoption of new advanced technologies	Cultural differences that determine individuals' values, preferences and beliefs for the type of technological change and technology adoption	Geographical conditions determine the type of technological change and technology adoption that in turn enables the society or country to pursue economic growth strategies consistent with the geography the society finds itself in	Inclusive political and economic institutions that ensure effective and efficient systems that encourage advances in techniques of production, advances in knowledge, and the general efficiency of the organization of production

Source: Constructed by the authors

The first column is on luck as one of the fundamental causes, which Acemoglu et al. (2016) seem to have substituted with “ignorance!” in their recent book on *Why Nations Fail*. Their perspective is underpinned by three paradigms—institutional economics, development economics, and economic history—that they have used in appraising the empirical validity of the four fundamental causes of growth. Meanwhile, Jones and Olken (2005) treat luck to mean leadership and ask the question: do leaders’ matter? They answer their question in the affirmative. They investigated leadership and economic growth since World War II and found that leaders do matter. They conclude:

“We find robust evidence that leaders matter for growth. The results suggest that the effects of individual leaders are strongest in autocratic settings where there are fewer constraints on a leader's power. Leaders also appear to affect policy outcomes, particularly monetary policy. The results suggest that individual leaders can play crucial roles in shaping the growth of nations (Jones and Olken, 2005:835).

Brady and Spence (2009) support the above empirical evidence through their appraisal of the Report of the Growth Commission.¹⁷ They state that:

In a careful empirical study, Jones and Olken (2005) look across all post-Second World War economies and find 57 cases in which the country's leader suddenly dies or resigns, for example, thus allowing them to use the natural experiment change in leadership for exogenous reasons to solve the endogeneity problem. That is, the unexpected death of a leader gives us a chance to measure the leader's effect on growth. Of course, the change can be positive or negative. They found that the change of national leaders is related to economic growth. The effects were strongest (both positive and negative) in autocratic settings where one or a few leaders have centralized authority (Brady and Spence, 2009:4).

Besley et al. (2011) motivated by the work of Jones and Olken (2005) examined data on about 1,000 political leaders during the period 1875-2004. They found that “heterogeneity among leaders' educational attainment is important with growth being higher by having leaders who are more highly educated” (Besley et al., 2011:205).

We agree with the above findings in that a visionary leader is critical at the initial stages of a new country, such as South Sudan. This is because a visionary leader is required to lay the foundation for inclusive political and economic institutions, which would in turn formulate and execute growth-promoting policies. Therefore, leadership is, in our view, the primary driver of economic growth than institutions. Moreover, there is limited academic research on leadership and economic growth; a point which influences us to make long quotations from the empirical literature as

by way of contextualizing our case study. Here is, for instance, a long passage from Brady and Spence:

...our approach has been to separate the development process into different periods and to analyze leaders' roles at the various stages. The obvious first stage is where the leadership chooses an economic model or strategy, a general overall approach to development and growth, and then builds coalitions, institutions, or both, capable of sustaining a politics that allows the plan time to bring dividends in terms of growth. The second stage is in some sense not delimited in time because it concerns how leaders adjust strategies and choices to changing circumstances—economic and political. These adjustments can be responses to shocks or unanticipated external events, but they also occur in response to the endogenous evolution of characteristics of the economy in the course of growth. These latter challenges can and do range from rising income inequality, a rising middle class, competitive pressures from the global economy, rising incomes and wages causing shifting comparative advantage, and institutions not adapted to the evolving characteristics and state of development economy (Brady and Spence, 2009:5).

The second fundamental cause of growth is culture, which Acemoglu articulates as follows:

By culture, we refer to beliefs, values and preferences that influence individual economic behaviour. Differences in religious beliefs across societies are among the clearest examples of cultural differences that may affect economic behavior. Differences in preferences, for example, regarding how important wealth is relative to other status-generating activities and how patient individuals should be, might be as important as or even more important than luck, geography, and institutions in affecting economic performance. Broadly speaking, culture can affect economic outcomes through two major channels. First, it can affect the willingness of individuals to tradeoff different activities or consumption today versus consumption tomorrow. Via this channel, culture will influence societies' occupational choices, market structure, saving rates and their willingness to accumulate physical and human capital. Second, culture may also affect the degree of cooperation among individuals, and cooperation and trust are often important foundations for productive activities in societies (Acemoglu, 2009:131-132).

The above passage is underpinned, in our view, by the work of Weber (1930), Banfield (1958), Kuznets (1971), and Putnam (1993). In describing the contribution of Max Weber, Acemoglu summarizes it as follows:

Weber argued that English piety Protestantism, was an important driver of capitalists development. Protestantism led to a set of beliefs that emphasized hard work, thrift, saving. It also interpreted economic success as consistent with, even as signalling, being chosen by God. Weber contrasted these characteristics of Protestantism with those of other religions, such as Catholicism and other religions, which he argued did not promote capitalism (Acemoglu, 2009:146).

Geography is the third fundamental cause of growth. We again turn to Acemoglu for his insights on this:

By geography, we refer to all factors that are imposed on individuals as part of the physical, geographic, and ecological environment in which they live. Geography can affect economic growth through a variety of proximate causes. Geographic factors that can influence the growth process include soil quality, which can affect agricultural productivity; natural resources, which directly contribute to the wealth of a nation and may facilitate industrialization by providing certain key resources, such as coal and iron ore during critical times; climate, which may affect productivity and attitudes directly; topography, which can affect the costs of transportation and communication; and disease environment, which can affect individual health, productivity and incentives to accumulate physical and human capital (Acemoglu, 2009:131).

Alfred Marshall was the first to identify geography in his seminal book, *Principles of Economics* (1890), as an important element in economic growth¹⁸. Others supported this view through empirical work (Myrdal, 1968; Diamond, 1997; Sachs, 2000; 2001; Bloom and Sachs, 1998; Gallup and Sachs, 2001).

Institutions constitute the fourth fundamental determinant of economic growth. A common understanding of the theoretical underpinning of institutions is needed before we turn to empirics. Five definitions of institutions would suffice. These are: “*Working rules of collective action in restraint, liberation, and expansion of individual action*” John R. Commons (1959¹⁹: 73); “*Rules and conventions of society that facilitate coordination among people regarding their behavior*”²⁰ Ruttan and Hayami (1984). “*The rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction*” Douglas C. North (1990:3). “*Social phenomena which restrict and pattern interactions in society like laws, regulations, rules, norms, established practices and routines*” Klaus Nielsen and Björn Johnson (1998: xvi). “*Rules, enforcement mechanisms, and organizations*” World Bank (2002: 6).

The term “*rules*” is a common denominator among all the five definitions of institutions presented above. Nonetheless, the definitions of institutions given by Commons and Ruttan, and others are preferable due to the broader considerations of institutional tenets. The other definitions emphasize the constraint/control aspect of institutions and in this sense render them static. Commons stresses three tenets –

restraint, liberation, and expansion – or aspects of the working rules of collective action, hence the dynamic nature of institutions is inherent in this definition.

There is a large body of empirical work on the role of institutions and their effect on economic outcomes. This literature is well articulated by Acemoglu (2007; 2009), Acemoglu and Robinson (2006) and Rodrik (2016). We categorize this literature into three categories. The first group is on market and those who emphasize it as an important institution include Polanyi (1944), Bates (1981), and Hazlitt. Hazlitt gives the working meanings of market and private property:

“The free market means the freedom of everybody to dispose of his property, to exchange it for other property or for money, or to employ it for further production, on whatever terms he finds acceptable. This freedom is of course a corollary of private property. Private property necessarily implies the right of use for consumption or for further production, and the right of free disposal or exchange”²¹.

The second group is on property rights and includes the work of Skaperdas (1992), Tornell and Velasco (1992), Acemoglu (1995), Grossman and Kim (1995; 1996), Hirsleifer (2001) and Dixit (2004). The third group focuses on the importance of policies within a given institutional framework. The third group includes: Perotti (1993), Saint-Paul and Verdier (1993), Alesina and Rodrik (1994), Persson and Tabellini (1994), Ades and Verdier (1996), and Bourguignon and Verdier (2000).

We conclude the review of the growth literature with two proposals. The first is to treat leadership as the primary driver (or first-order condition) instead of being one of the four fundamental causes of economic growth. The second is to conceptualize savings and investments as secondary drivers (or second-order conditions) of economic growth. Stated differently, factors behind cross-country differences with respect to economic growth could be summarized from our review of the growth literature into three categories composed of nine factors/conditions.

The first category is what we would like to call drivers of economic growth, which consist of three drivers: leadership as a primary driver and secondary drivers comprised of savings and investments. The second category consists of three (i.e., culture, geography, and institutions) from the four fundamental causes of economic growth. The third category consists of the proximate causes (physical capital, human capital, and technology) of economic growth.

The economics of violence literature

We have reviewed the growth literature in the preceding sections, which is based on models underpinned by macroeconomics. This section of the literature review is, however, guided by microeconomic theorizing seeking to understand the behaviour of economic agents in an environment of violence and fragility. In this regard, the two theories—growth and economics of violence—are complementary to each other in

explaining the impact of violent conflict on the factors influencing economic growth in South Sudan. This is because microeconomics provides appropriate analysis of the behaviour of economic agents within a macroeconomic policy framework. Our approach would in turn enable those interested in the growth and stability of South Sudan to understand and appreciate the opportunities, incentives, preferences, and scarcity constraints, which influence the choices the people of South Sudan and their leaders make in a conflict environment.

We have identified in the growth literature that leadership is one of the fundamental causes of economic development²². It is, therefore, important to know the behaviour of a leader of any entity, such as country or firm in a conflict environment. For instance, being insecure creates its own rational behaviour, e.g. leaders (on both sides of the conflict) are not sure if they will be forgiven and protected if they give up their positions peacefully. They would, unless they have a vision and political morality, hang-on, until they meet their fate in one way or another! Besouw et al., (2016) stress the centrality of understanding violence as follows:

“Violence is key to understanding human interaction and societal development. A society that is unable to contain violence will be disrupted and cannot be expected to sustain high levels of welfare, as is painfully illustrated by the current situation in Afghanistan, Libya or, perhaps most conspicuously, parts of Sub-Saharan Africa. Countries like Congo, Somalia, and Sudan are almost continuously torn up by extortion and coercion under the threat of violence, factional strife, and intermittent periods of open violence. Such conditions may destroy lives and capital goods, and deter interaction, exchange, investment, trade, and the benefits of specialization that come with trade, leading to significant welfare losses (Besouw et al., 2016:139).

In his Nobel Prize Lecture on 8th December 1979, Schultz had this to say:

Most of the people in the world are poor, so if we knew the economics of being poor, we would know much of the economics that really matters. Most of the world's poor people earn their living from agriculture, so if we knew the economics of agriculture, we would know much of the economics of being poor” (Schultz, 1979:1).

Following Schultz’s tradition of inquiry, we see that about 81.3% of the population in South Sudan is affected by violent conflict - many South Sudanese are insecure for they derive their livelihood in a conflict environment. Therefore, if we were to rephrase Schultz, if we knew the economics of violence, we would know much of the economics of being insecure. That is, “we would know much of the economics that really matters,” (Schultz, 1979:1). In this regard, Bromley (2014) contextualizes this profound economic dimension (i.e., the economics of being insecure) by stressing that what “really matters” is that “Civil conflict arises and persists when young

males cannot find superior livelihood prospects. Predatory behaviour is an expected response to material want and unwanted leisure” (Bromley, 2014:2). Such a situation also creates, according to Besouw et al. (2016:141), an opportunity for “a group of individually optimizing violence specialists” to recruit young males to advance its own agenda and thereby reducing the size of labour force that would have been engaged in productive economic activity.

There is not yet a theory of economics of violence, though the work of Besouw et al. (2016) could be considered as the beginning of a formal theoretical framework. They have introduced an important concept of what they call “violence specialists” comprised of elite coalitions and warlords. They introduce their work as follows:

“We stress that the nature of violence considered in this paper, however, is of a higher level than the banditry-type of violence commonly considered in the literature on the economics of conflict and appropriation (for an overview of this literature, see Garfinkel and Skaperdas, 2007; Konrad, 2009), and that ordinary producer cannot therefore decide to become specialists in violence. In addition, the capacity for large-scale violence is the domain of a small, but substantial group of violence specialists who do not necessarily work together, instead of a monolithic elite or elite group” (Besouw et al., 2016:140).

The above sentiment about the effect of violence has been echoed early by *Economist* magazine of 14th April 2011 when commenting on the World Bank Annual Development Report. It stated: “Yet the World Development Report suggests that the main constraint on development these days may not be a poverty trap but a violence trap. Peaceful countries are managing to escape poverty—which is becoming concentrated in countries riven by civil war, ethnic conflict and organized crime. Violence and bad government prevent them from escaping the trap.”

The economics of violence literature also helps us to explain how conflict (or war) affects what we call the secondary drivers of economic growth. A point articulated by Besouw and others as follows: “Such conditions may destroy lives and capital goods, and deter interaction, exchange, investment, trade, and the benefits of specialization that come with trade, leading to significant welfare losses” (Besouw et al., 2016:139).

South Sudan was born out of a fragile Sudanese State. It would, in our view, therefore fit the description of a natural state whose “societal organization is that a subset of the population, capable of mustering organized large-scale violence, forms an elite coalition that restrains both violence and coercive appropriation” (Besouw et al., 2016:140). Moreover, the behaviour of the ruling elite was underpinned by the inability to internalize the economics of peace within the newly independent state and with her neighbours. For instance, Alemayehu Geda and Steve Kayizzi-Mugerwa (2012) did advise the Sudanese and South Sudanese policy makers as follows:

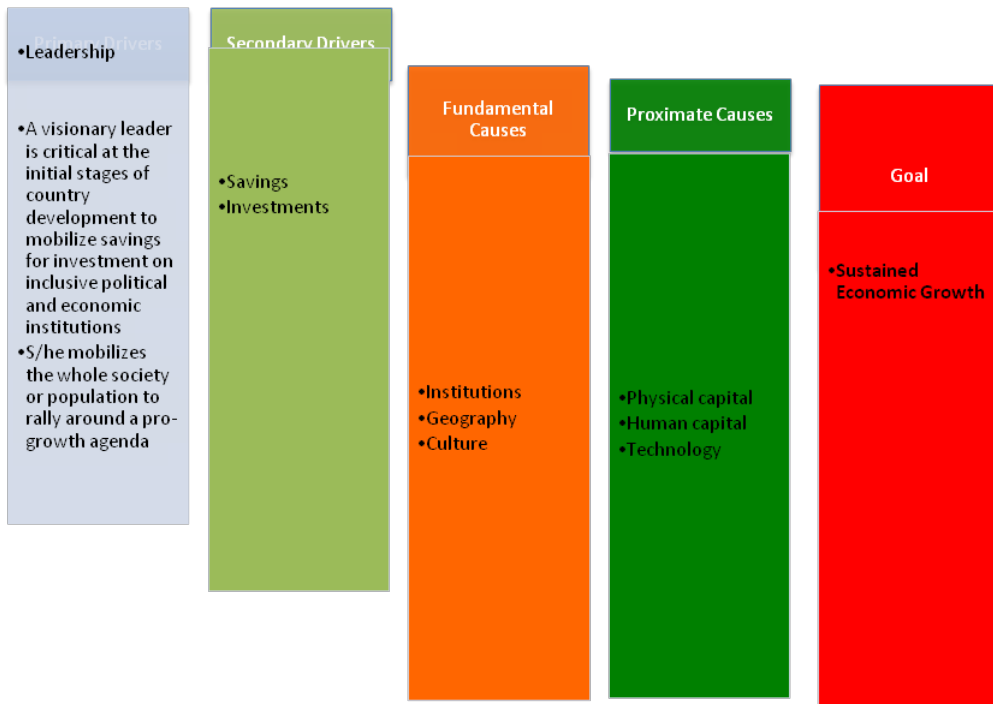
“Notwithstanding the number of outstanding issues that need the immediate attention of the two governments, the agreement on future economic

relations is undoubtedly the most pressing one. Specifically, the immediate task should be to negotiate on the issue of oil, debt, currency and related economic issues. The viability of the two economies is to a large degree conditional on a workable agreement on these issues and having a stable macroeconomic environment in both North and South Sudan. This stable macroeconomic environment relates to the issue of low inflation, stable exchange rate and prudent fiscal and external balance” (Geda and Kayizzi-Mugerwa, 2012:3).

The above advice was ignored by the Government of the Republic of South Sudan (GRSS), evidenced by the shutdown of oil production just six months after independence from Sudan. Geda and Kayizzi-Mugerwa (2012) proposed an analytical framework for negotiating issues of oil, debt, and currency, which could have yielded a win-win outcome, had the GRSS’ experts understood its theoretical underpinning. They did not and the consequences of that failure are vividly captured by the findings of this case study.

We conclude the review of related literature by providing a summary of the determinants of economic growth in a programmatic format given in Figure 2 below.

Figure 2: Programmatic illustration of determinants of economic growth



3. Research methodology

This section discusses the methodology. First, we state here the hypothesis and assumptions of the case study. Two key hypotheses underpin the central premise of this research: (1) violent conflict has constrained investment in South Sudan during the period 2012-2016; and (2) violent conflict continues to weaken institutions and capacities of the state to provide safety and economic opportunities for sustainable livelihoods in South Sudan. There are, for ease of analysis, four assumptions:

1. GRSS is the only producer of goods and services in the economy of South Sudan
2. GRSS oil revenues constitute the total savings in the economy of South Sudan
3. Investments consists of annual total public spending (or development financing), which is equal to savings as assumed in the Harrod-Domar model of economic growth; and
4. Fiscal deficit is equivalent to the savings-gap of the economy of South Sudan.

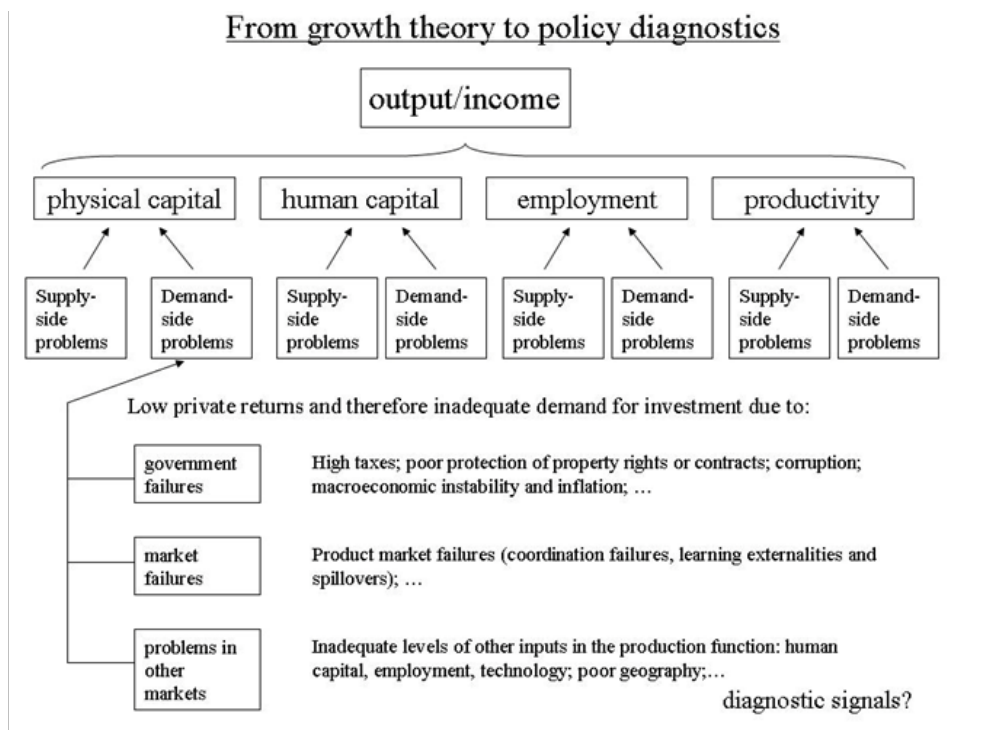
Our research methodology relies, in the light of the above stated hypothesis and assumptions, on the growth diagnostics framework developed by Hausmann et al. (2005) in general, and the Growth Diagnostics Framework (GDF) developed by Rodrik (2013) in particular (see Figures 3 and 4). In addition to the GDF, we have used Key Informant Interview (KII) technique (see Boxes 1 and 2) to obtain critical data from some main stakeholders with knowledge of the conflict in South Sudan to supplement the GDF.

Growth diagnostic framework

We use the GDF to identify the binding constraints to growth in South Sudan. The central premise of this study is that violent conflict is the primary binding constraint to economic growth, and an obstacle to transition from fragility to stability in South Sudan. Figure 3 below is a growth diagnostic framework by Rodrik (2013). It is a diagrammatic illustration of the broad mechanisms causing low investment, which (i.e., investment) we have identified as one of the two secondary drivers of economic growth (see Figure 2). The GDF broadly depicts the supply- and demand-side

factors contributing to low physical capital, low human capital, low employment, and low productivity. The GDF clearly illustrates the role of fundamental causes (e.g., institutions underpinning government and market failures) and proximate determinants (e.g., physical, and human capital, technology) of economic growth.

Figure 3: Growth diagnostics framework



Source: Rodrik (2013), The why and how of growth diagnostics

The Key Informant Interview (KII) Technique

The study utilizes a qualitative analytical tool known as Key Informant Interview (KII). The KII is made of selected individuals who are considered to provide in-depth insights into a particular subject; that is, only a small number of respondents who are particularly knowledgeable about a certain phenomenon take part in the KII. We had planned to consult between 15 and 35 participants according to the prevailing tradition, but we ended up with 18 interviewees.

The target groups of the study are summarized in Annex A. Researchers at Ebony Centre identified these key groups from a range of sectors and institutions. We also made provisions for “snowball” techniques in selecting interviewees, whereby an interviewee might recommend very knowledgeable potential interviewee, who is not included in our interviewee list initially. The KII interviewers were given a guide mapping the fundamental research issues to be covered during the interview (see Box 1 and Box 2 below). No structured questionnaire was administered.

Box 1: Interview guide on growth and fragility in South Sudan

1. Poor Infrastructure, which is vital to enhance the return for private and public investment.
 - Power
 - ICT
 - Roads, Railway
 - Water, etc.
2. Low human capital with the right set of skills, which explains the little private and public investment
 - The extent to which these are binding constraints to private investment and how they have been exacerbated by the civil conflict.
 - Short run and long run solutions
3. Micro risks due to government failure
 - Corruption
 - Contractual enforcement in business transaction
4. Macro risks
 - High inflation
 - Exchange rate instability
 - Debt default
 - Bankinf crisis
 - Undisciplined Public Finance Management (PFM) Practices
 - Oil production and export
 - Export diversification
 - Low government capacity for economic planning and macroeconomic management
 - To what extent are such factors bottlenecks to provate and public investment and how the conflict exacerbated the problems
 - Short run and long run solutions
5. Shortage of finance
 1. Low domestic saving
 2. Limited access to external finance
 3. Low credit rating
 4. The effect of the conflict in exacerbating the financial constraint
 5. Short-run and long-run solutions

Box 2: Guiding Questions

4. Data sources and empirical results

We discuss in this section the sources of data and analysis of the results of the study. There is scarcity in South Sudan of economic data in general, and growth data. This hinders the use of a full pledged time series analysis. Therefore, we are using limited data available to determine trends in status of savings in the form of Government of Republic of South Sudan (GRSS) oil revenues; public investment in form of developing infrastructure, financing health and education (i.e. human capital accumulation); institutional quality (as measured by the World Bank's Country Policy and Institutional Assessment - CPIA); and macroeconomic indicators. For instance, we show using school enrolment and conflict exposure information how human capital has responded to political violence during the conflict period. Similarly, annual budget data is used to illustrate how spending on the security sector has crowded out investments in building inclusive political and economic institutions, infrastructure, and education, which are necessary for growth of the economy over time.

Sources of data

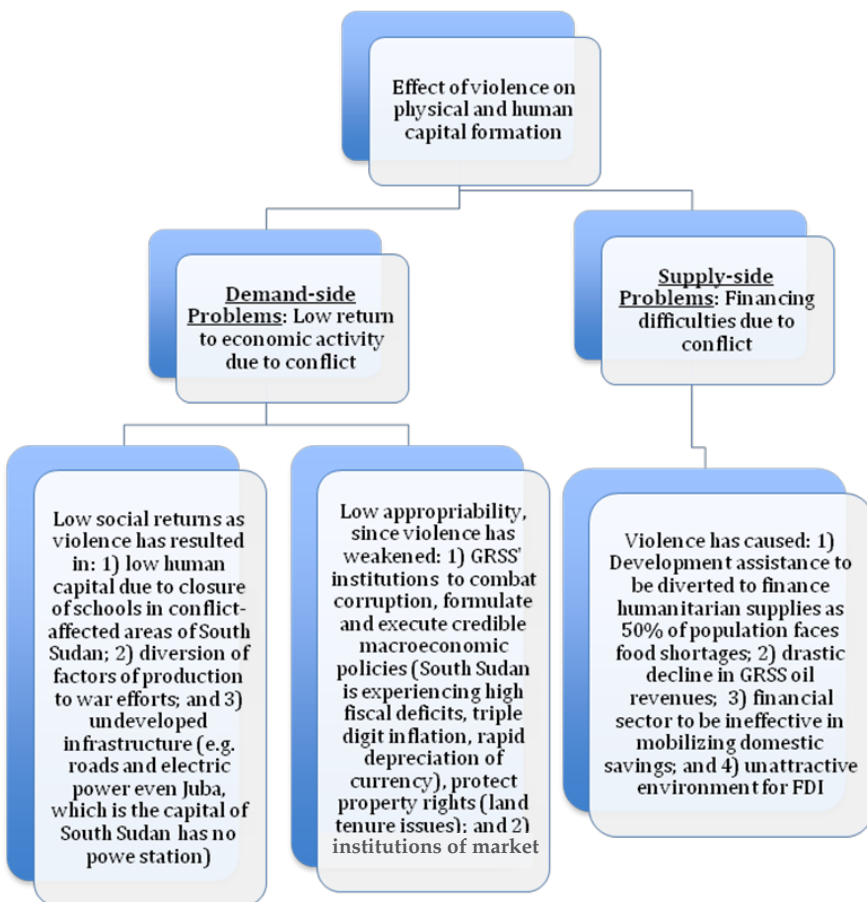
The secondary sources of data are the annual budgets of the GRSS during the period from 1st January 2012 to 31st December 2016. Additional sources of data are on oil production and sales of crude oil from the Ministry of Petroleum. Moreover, our analytical materials include household surveys dating back to 2006; Consumer Price Index (CPI) data provided by the National Bureau of Statistics (NBS); financial data, including exchange rates data from the Bank of South Sudan (BoSS) and from our own daily monitoring of the parallel market for foreign exchange; South Sudan School Attendance and Monitoring System (SSSAMS); trade and FDI, regional migration pattern, and conflict event data. Other sources of data used in this study are: World Bank, IMF, UN system and humanitarian organizations.

We have used KII as our primary source of data. Eighteen (18 organizations based in Juba) Key Informant Interviews were conducted using the snowballing approach. Each targeted institution identified its key experts relevant for the study. The interviewees include director generals, engineers, banking sector officials, and foreign missions' economic advisors. A synthesis of such data is thus presented. By KII, we seek qualitative insights into the binding constraints on growth.

Empirical results

The conflict point for the purpose of this case study is January 2012 when disagreement with Sudan over transit fees led the GRSS to take a self-inflicting decision by shutting down oil production completely. This was the first violence that hit the economy of South Sudan. We look at and compare the status of determinants of growth before and after the onset of violence represented by a series of conflict points in April 2012, in December 2013, and in July 2016. The results show that violent conflict has constrained the growth of the South Sudanese economy and reinforced the fragility trap. We summarize the findings on growth by using a modified version of the GDF (see Figure 4 below). It is a disaggregated description of factors behind low investment in South Sudan. These are divided into two categories causing low investment and consequently low rate of economic growth in South Sudan. The first category consists of demand-side (i.e., low returns to economic activity) factors. The second category comprises of supply-side (i.e., financing difficulties) factors.

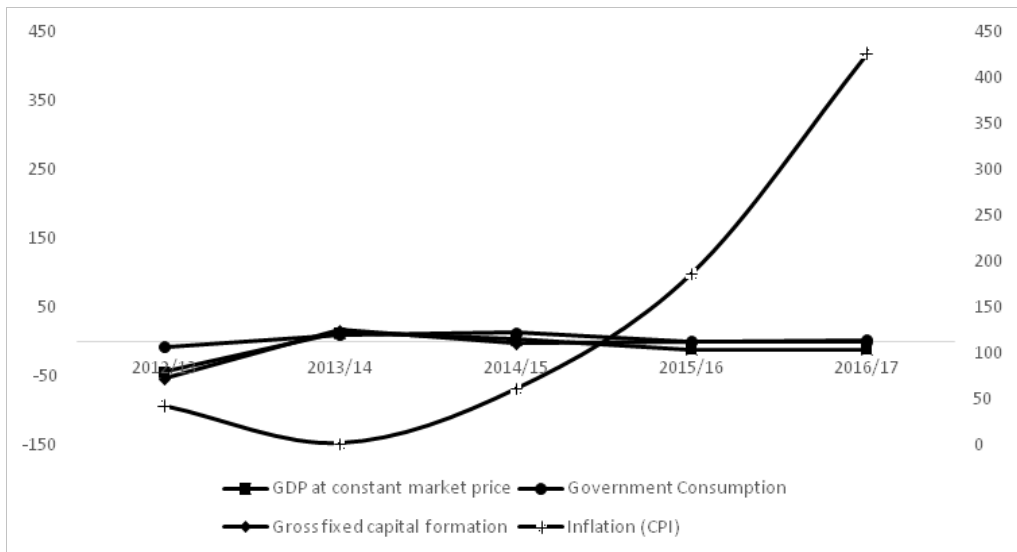
Figure 4: Impact of conflict on South Sudan’s investment explained through growth diagnostic framework



The literature confirms our finding as summarized in Figure 4 above that capital accumulation is imperative for countries to reach steady state equilibrium of such economies (Nkurunziza, 2017; Besouw et al., 2016). In this regard, South Sudan, which is experiencing internal violent conflict, would not reach such steady state if violence persists. The impact of conflict is captured by a negative rate of GFCF of 53.1% in 2012/2013, which was the first budget year without oil production. The GFCF recovered in 2013/2014 by a rate of 17.6 per cent when oil production resumed followed by a brief period of stability. The GFCF again witnessed a negative rate of 2.5% in 2014/2015 and stagnated thereafter (Figure 5²³). The 2014/2015 period witnessed intensified violence in Greater Upper Nile where major towns such as Bentiu, Bor and Malakal changed hands several times between the government and rebel forces.

The storyline from the above passage is about how violence has constrained secondary drivers (i.e., savings and investments), fundamental causes (e.g., institutions) and proximate determinants (i.e., physical capital, human capital, and technology) of economic growth in South Sudan. This can be read from Figures 5, 6, 7, 8, and 9 below. Figure 5 complements the storyline that is being told through the GDF in Figure 4.

Figure 5: Inflation, gross fixed capital formation and other macroeconomic indicators, 2012-2016



The findings of the study are grouped under three headings: a) conflict and development financing (supply-side constraints); b) conflict and development financing (demand-side constraints); and c) conflict and fragility (institutions and violence).

Conflict and development financing: Supply-side constraints

There are four main sources of financial resources (or total savings) in the economy of South Sudan. These are: GRSS' oil revenues; foreign aid (i.e. development assistance); Foreign Direct Investment (FDI); and domestic savings. We show below how conflict has affected these important sources of capital accumulation.

A. Impact of conflict on GRSS' oil revenues

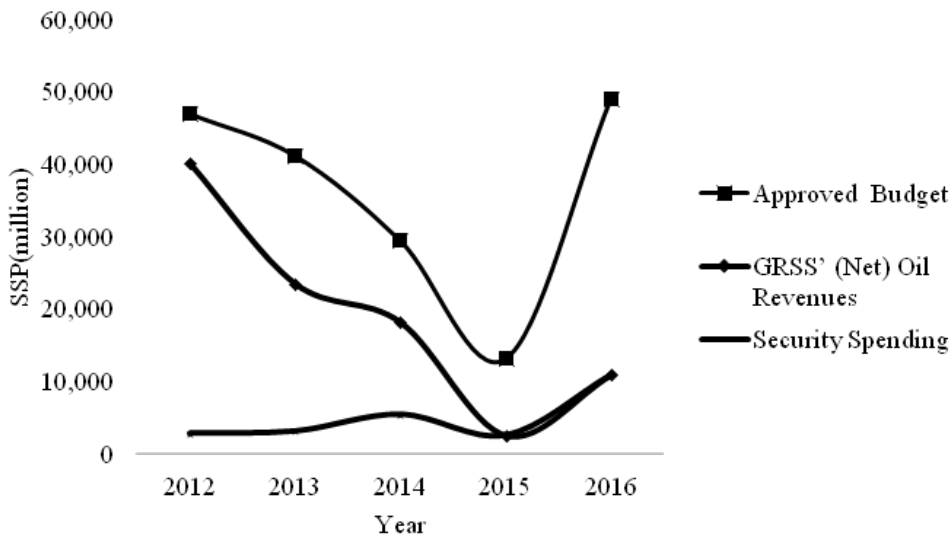
The impact of conflict on savings (i.e., oil revenues) as one of the secondary drivers of economic growth is illustrated by comparing the initial conditions at the birth of the Republic of South Sudan on 9th July 2011 with conditions after the onset of conflict. The first six months of independence could be called the golden period thus far for South Sudan. This is because GRSS received, during this period, US\$ 3.3 billion from oil revenues, which translates to average monthly income of US\$ 556.3 million. The peak was in September 2011 when GRSS received US\$ 675 million in that month. This shows that South Sudan was, during this period, at peace within herself and with her neighbours, especially Sudan. This was, however, a short-lived prosperity for the leaders of the newly independent country soon took it to violent confrontation with Sudan. And when confrontation with Sudan ended in April 2012, the leaders of South Sudan took it unto themselves on 15th December 2013.

The KII tool has confirmed that GRSS faces vast resource constraints characterized by high savings-gap (or fiscal deficit). This commenced as far back as January 2012 when oil production was shut down over a dispute with the Sudan. This situation was subsequently compounded by eruption of internal violent conflict in 2013. First, production stopped completely. Second, global oil prices hit an all-time low in 2015. Since then, the government has struggled to meet its fiscal obligations, let alone allocating resources for production and trade. The limited resources that still flow to the government get spent on salaries and operations.

By way of explaining the KII findings, oil production before January 2012 was to the tune of 450,000 bopd (i.e., barrel of oil per day) compared to 120,000 bopd at the end of December 2016. The impact of the drastic decline in daily oil production is better understood when stated in terms of budget financing. The first fiscal year of independent South Sudan was from 1st July 2011 to 30th June 2012. Oil revenues constituted, before the shutdown, 98% of total government revenues; 100% of exports; and 60% of GDP. Therefore, the consequences of conflict were drastic and catastrophic to the economy because the GRSS' revenue declined by 98% and the national income by 80% in 2012/2013. This means that GRSS' annual expenditure was and continues to be a function of oil revenue accruing to the government.

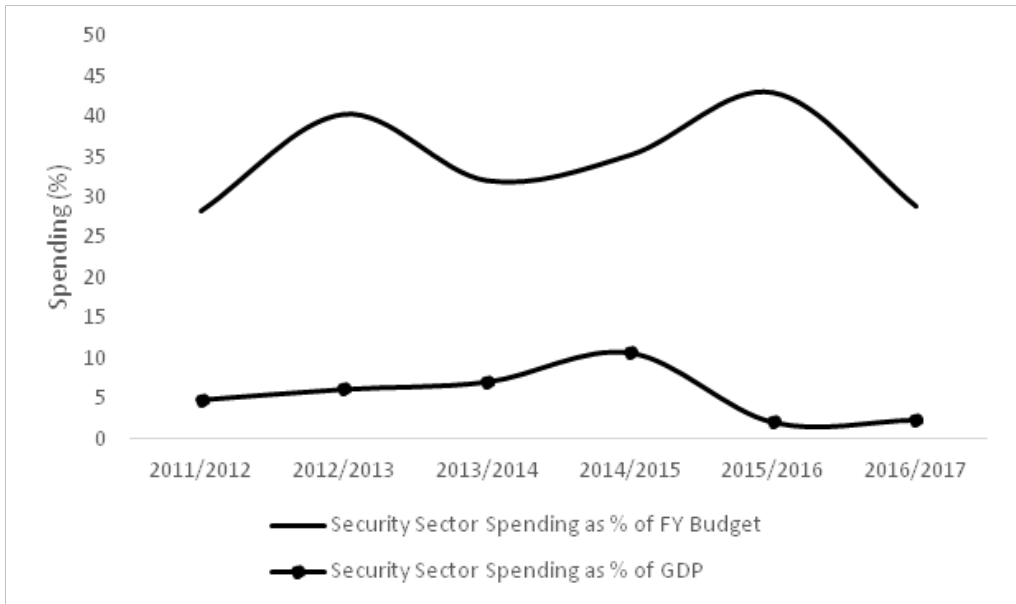
The savings-gap is explained by a monotonic direct relationship between oil revenue and government spending (Figure 6); that is, with shutdown of oil production, GRSS' revenue declined monotonically from US\$ 675 million of oil revenue in September 2011 compared to only US\$ 25 million in September 2016 when the country was at war with itself. In terms of oil production, it was 450,000 bopd (i.e., barrel of oil per day) in September 2011 compared to 110,000 bopd in September 2016. It is also consistent with the empirical literature that spending in general, and security sector spending, is not only influenced by economic conditions; political decisions and strategic national interests do determine, in most cases, the nature and magnitude of security sector spending (SSP).

Figure 6: Security sector spending, net oil revenues, and approved budget in South Sudan, 2012-2016

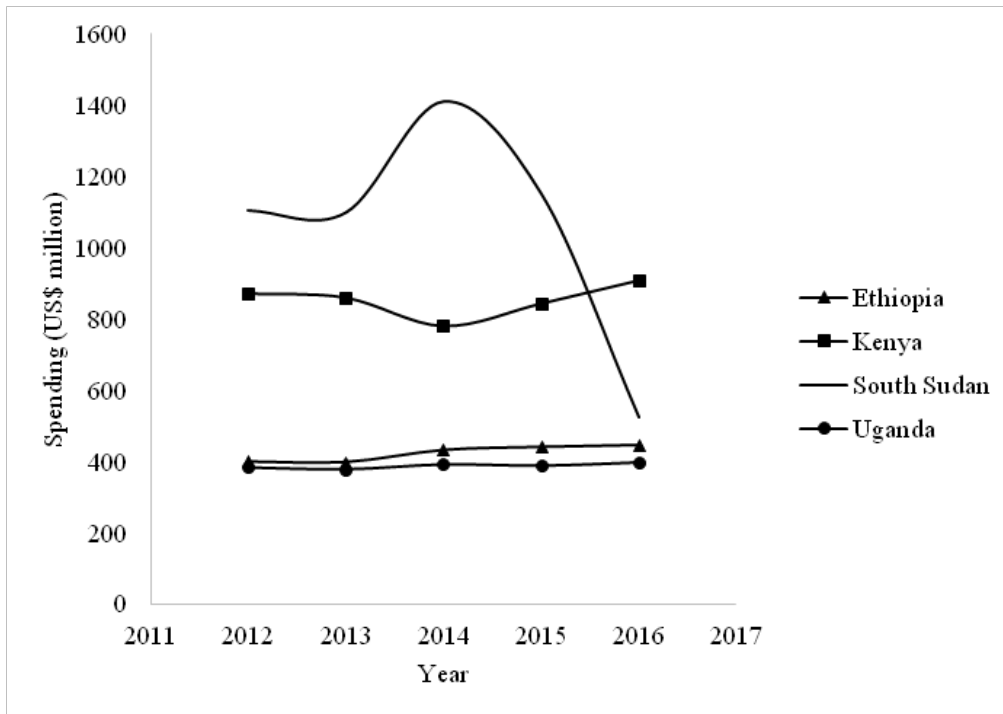


Security sector spending (SSP) as a percentage of annual budget²⁴ (Figure 7) is more than one-third (i.e., 35%) during the period 1st July 2011 to 30th June 2017. The highest percentage (43%) was in 2015/2016), hence our conclusion of 40%. In terms of GDP, security sector spending during the period under review constitutes an average of 5.6% of Gross Domestic Product.

Figure 7: Security sector spending as percent of total GRSS budget and GDP, 2012-2016



The highest (11%) was in 2014/2015. In absolute nominal terms, the spending rose from US\$ 1.1 billion in 2012/2013 to US\$ 1.9 billion in 2013/2014 and dropped to US\$ 1.366 billion in 2014/2015 (Table 3), which makes South Sudan the biggest military spender in the IGAD region (Figure 8). The country has nearly doubled its military spending since 2010 as civil war has been raging in recent years. It is interesting to note that South Sudan imports all its security sector’s requirements, even boots and uniforms. South Sudan spends three times of what Ethiopia and Uganda each spends on their military. This is because the two countries have enjoyed decades of relative stability underpinned by sustained investment in physical infrastructure, education, and health sectors.

Figure 8: Military spending in the IGAD countries, 2012–2016

Finally, it is observed that security sector spending has overshadowed budgetary annual allocations to public investment. This in turn negatively affects economic growth. It is understandable that the government would allocate more public resources to the security sector by attempting to have a monopoly of violence. But, in doing so, it has depleted funds (savings in the form of oil revenue) for investment in the critical areas of: rule of law, infrastructure, education, health, public administration, and economic governance. Moreover, one of the consequences of keeping constant spending on the security sector, in light of falling oil revenues, has been a recurrent huge fiscal deficit (i.e., widening the savings-gap).

B. Impact of conflict on development assistance and foreign direct investment

The conflict has, according to our findings through the KII, deterred foreign private investors. The interviewees stated that before the 2013 conflict, there was an investment conference where about 250 investors pledged to invest. They promised to invest in different sectors, including infrastructure, but the conflict erupted and that hope vanished. The conflict also raised the cost of doing business in South Sudan and thereby created an unfavourable environment for Foreign Direct Investment (FDI).

Moreover, and according to the interviewees through the KII, efforts to build and maintain basic infrastructure in selected areas using support from the Chinese EXIM Bank and the African Development Bank (AfDB) have been incredibly slow and

spotty. They further stressed that one area where the conflict has constrained long-term economic growth is through diversion of resources from areas of long-term development to short-term emergencies and humanitarian assistance. Foreign aid (i.e., development assistance), particularly for capacity building programmes, has been redirected to humanitarian assistance and to the IGAD-led peace process. The US Congress, for example, is only able to fund food aid and thereby crowding out investments in productive economic activities and governance strengthening. The United Kingdom (UK) government, it was reported, uses two-thirds of its funding for humanitarian assistance, with the remainder used on human capital formation (i.e., health and education).

The change in donors' priorities has meant no direct support to the determinants of economic growth in South Sudan. This humanitarian support has, however, enabled communities to continue to receive basic services. Focusing primarily on consumption has meant that the conflict has eliminated or nearly eliminated private sector investment, consequently shrinking the size of the economy.

C. Impact of conflict on domestic resource mobilization

Our assumption of treating GRSS oil revenues to be equivalent to total savings notwithstanding, we would like to look at the domestic resource mobilization by the financial sector. For instance, currency risk and financial instability, according to the findings of KII, are exacerbated by the conflict. In this regard, our interest is to look at domestic savings and financial intermediation, though these are determined by the demand-side factors. For instance, lack of foreign reserves at the BoSS makes it difficult to enforce monetary policy, such as regulating the exchange rate market. As a result, some individuals, non-governmental organizations (NGOs) and commercial banks prefer to hold accounts in neighbouring countries and receive remittances to those accounts, unleashing speculative attacks on the SSP and thereby exacerbating its rapid depreciation.

The conflict has also weakened, according to KII, domestic resource mobilization and export diversification. South Sudan has the potential to export gold, gum Arabic, sesame, and timber, among other products. However, sustained conflict has hindered realizing such growth potential. Recently, there has been considerable progress in domestic resource mobilization. In areas such as Nimule, Kaya, Renk, Wau, and Awiel, for example, the government has managed to collect substantial revenue to pay a portion of the wage bill.

Conflict and development financing: Demand-side constraints

There are two demand-side factors that influence returns to economic activity. These are: a) social returns; and b) appropriability. The conflict has resulted in low returns to economic activity in South Sudan via low social returns and weak appropriability.

We have seen through the GDF in Figures 3 and 4 that low social returns are influenced by low human capital and undeveloped infrastructure. Transporting goods is more costly because of protection costs on the roads and cost of checkpoints. The impact of conflict on infrastructure is straightforward and we would not explain it farther. On human capital, we use school enrolment as one of the measures of human capital formation. The other measure is child vaccination. Mayai (2017) documents the impact of war on schooling in South Sudan using quasi-experimental method. He finds a significant negative effect of violence on primary enrolment. For instance, 63% of the schools that are not operational have closed primarily because of the conflict.

The impact of violence on human capital formation is illustrated below (Table 3 and Figure 9 below). Table 3 gives a comparative view of gross enrolment rates (GER) at primary and secondary education in 2009 (without conflict) to that of 2015 (with conflict). The findings of the research show that GER has significantly declined in primary education, alternative education system (AES) and Technical Vocational Education and Training (TVET) in 2015 compared to 2009. The impact of violence on education is farther illustrated by Table 3, which compares GER for South Sudan to the country without Greater Upper Nile region where conflict had been confined until July 2016.

Table 3: Schooling coverage indicators by sector, 2009 and 2015

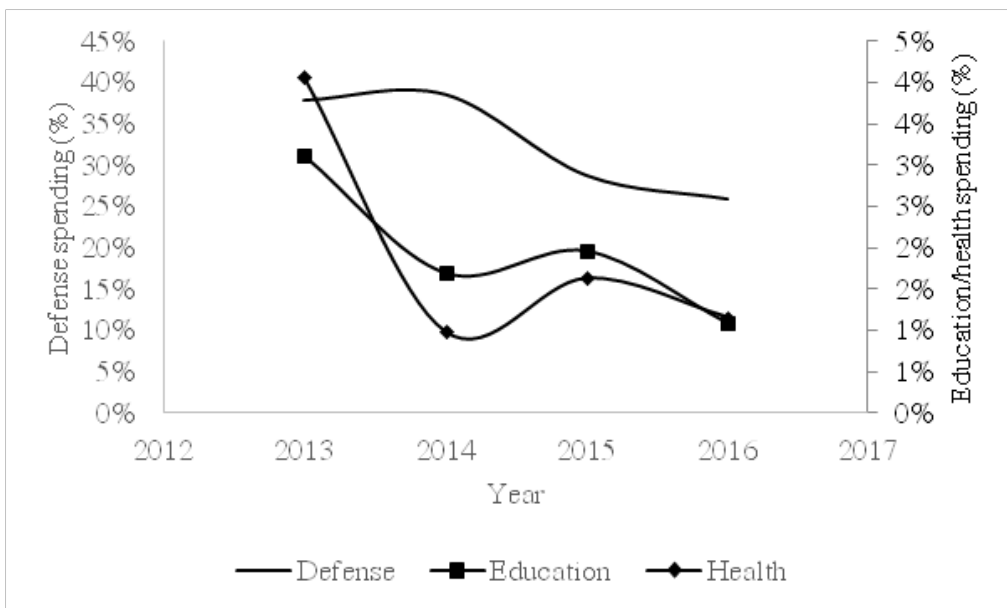
Educational variable	2009	2015	Growth rate 2009–2015
National with GUPN			
GER primary (eight-year cycle)	71.6%	56.5%	-21.1%
GER secondary (including technical secondary)	5.9%	6.5%	10.7%
AES per 100000 inhabitants	2 501	1 282	-48.7%
TVET as % of general secondary education	9.0%	7.3%	-19.0%
National without GUPN			
GER primary (eight-year cycle)	63.9%	72.4%	13.4%
GER secondary (including technical secondary)	7.0%	9.3%	32.0%

Source: UNESCO (2017)

Health has also deteriorated following the war. We illustrate this using child immunization records since 2007. We find that the 2005-2012 period saw improved vaccination activities in the country. For instance, over 36,000 children were immunized before the eruption of the current violence in December 2013, which declined by 27% in 2016. The effects are greater for the region directly exposed to the war. For instance, average immunization in the Upper Nile region, one of the hardest hit regions, declined by 29,000 children in relation to Equatoria. Bahr el Ghazal, which has been less affected, gained an average of 13,500 childhood vaccinations. In 2014, there were 1,741 fewer children vaccinated. Conditioning on war, this number rose five-fold in 2017, reaching 9,662 fewer children.

Looking at individual states, Central Equatoria has had sustained average vaccination coverage over the years, going from nearly 90,000 in 2013 to over 100,000 children in 2014. As expected, states located in the Upper Nile region have had the worst vaccination records. In Jonglei, for example, the average number of children vaccinated dropped by a whopping 67,909. The other remaining states—Unity and Upper Nile—lost on average 74,796 and 73,014, respectively. Taken together, there has been a deficit of 15.4% (-442,621.08) in the average number of children vaccinated annually in South Sudan. The security sector spending in Figure 9 below is shown to be three to four times GRSS’ expenditure on health or education.

Figure 9: Public investment in education and health as a proportion of total annual spending by sector, 2013-2016



Weak appropriability is due to failure of institutions of government and market. For instance, GRSS is fighting the rebels through deficit financing as oil revenues have declined drastically. This has caused macroeconomic instability, which is characterized by triple digit inflation and highly volatile exchange rate regime. In such an environment, the government’s role of providing public goods (e.g., roads) and protecting household savings, labour, and property (e.g., livestock and farmland) and combating corruption had been diminished. Moreover, the purchasing power of income of the households has been eroded by high inflation rates. This means low demand for goods and services.

Both GRSS and rebels compete over household resources (e.g., labour, land, and livestock), especially in the rural areas, for use in the power struggle among the elite. The State competes with the armed groups (rebels) in the utilization of these factors of production. Given that more than 80% of the population lives in rural areas

where household production is anchored on labour and land, the aggregate rate of appropriation is not determined by economic agents, but rather “by a group of individually optimizing violence specialists” (Besouw et al., 2016). The conflict has equally exacerbated corruption, or mismanagement of resources, hampering the government’s function further. The fact that there has been a lot of corruption or mismanagement of resources indicates the importance of resources to the elite’s war.

Conflict and fragility: The impact of violence on institutions

Our finding is that violent conflict continues to weaken institutions and capacities of the State to provide safety and economic opportunities for sustainable livelihoods in South Sudan. We use the Country Policy and Institutional Assessment (CPIA) index of the World Bank as a measure of the capacity of the South Sudanese State to provide safety and sustainable livelihoods. Low scores of CPIA index for South Sudan are indicators of the impact of conflict on institutions. This is because the conflict environment has led to lack of effective regulatory mechanisms and to what Bromley (2016) calls irrational institutional arrangements.

Moreover, it should be noted that safety and sustainable livelihoods are two dependent variables, which depend on the capacity of GRSS to enforce institutional tenets necessary for sustained peace, economic growth, and poverty eradication. We derive these two dependable variables by constructing the following indices: a) insecurity index, which is measured by the percentage of South Sudanese population classified as Internally Displaced Persons (IDPs), Protection of Civilian (POCs), and refugee camps (RECs) in the neighbouring countries; and b) food insecurity (see Table 4 below). The Physical Insecurity Index (PII) is arrived at by putting together three groups of South Sudanese in IDPs, POCs, and RECs and divided by the total population of South Sudan. Let us denote the sum of the three groups (IDPs, POCs, and RECs) by INS (i.e., insecure population) and total population of South Sudan as POP. We can now express the insecurity index as follows:

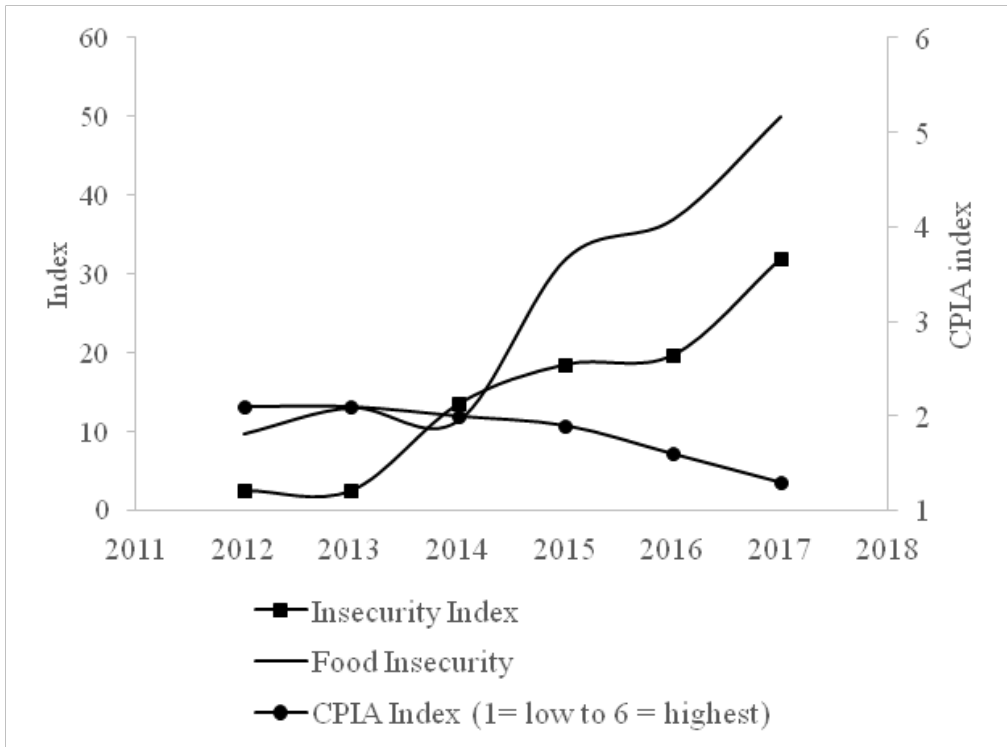
$$INS=IDPs+POCs+RECs \quad (3)$$

$$PII=INS/POP \text{ (multiply by 100)} \quad (4)$$

We take food security index (FII) as given by the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) and published by the South Sudan National Bureau of Statistics (NBS). The two indices are expressed in percentages; therefore, the higher their values, the higher the insecurity, which implies the inability of the State to provide safety and opportunities for sustainable livelihoods. In this regard, we have observed that there is an inverse relationship between the level of

CPIA, physical insecurity and food insecurity; that is, the lower the level of CPIA, the higher the levels of both physical insecurity and food insecurity (see Figure 10 below). This relationship would be understood by looking at the components of the CPIA, which is essentially a composite index.

Figure 10: Violence and state capacity



The World Bank has developed the CPIA to assess the quality of policies and institutions of its member states (specifically those eligible for International Development Assistance - IDA resources). A score of 6 gives the highest quality of policies and institutions of a country. A score of 1 indicates poor quality (i.e. the lowest level) of policies and institutions. The overall CPIA score for South Sudan ranges between 2.1 in 2012, which is the highest so far to a low of 1.3 in 2017 (see Table 4 below). Moreover, South Sudan in 2016 compares poorly to IDA-eligible countries with a CPIA score of 3.2, Sub-Saharan Africa (SSA) with a CPIA of 3.1, and fragile states with a CPIA score of 2.8.

Let us first look at the behaviour of the physical insecurity index (PII), which is measured in percentages. That is, a zero percent (0.0%) means that we have no internally displaced persons, no South Sudanese under the protection of UNMISS, and no people in the refugee camps in the neighbouring countries. The PII was 2.5 for 2012 and 2013, which was probably because of South Sudanese who were still in Sudan after independence. It rose to 13.5 in 2014 following the eruption of violence in Juba on 15th December 2013 and 19.7 in 2016.

We have observed similar behaviour with respect to the Food Insecurity Index (FII). For instance, the index was 9.8 in 2012, which was before conflict compared to 37 in 2016. This drastic rise in the index is because violence erupted again on 8th July 2016 after a brief calm of three months following the formation of TGoNU. The quest for the monopoly of violence between the government and opposition armed groups continues unabated, and preliminary estimates by IPC give a food insecurity index of 50% for 2017.

Table 4: Impact of violence on state capacity with respect to provision of safety and economic opportunities for sustainable livelihoods

Year	CPIA Index (1= low to 6 = highest)	Insecurity Index	Food Insecurity Index ²⁵
2012	2.1	2.5	9.8
2013	2.1	2.5	13.1
2014	2.0	13.5	11.5
2015	1.9	18.5	32.0
2016	1.6	19.7	37.0
2017	1.3	31.9	50.0
Average	1.8	14.8	25.6

Source: Constructed from CPIA of the World Bank, UNMISS, WFP, and UN Humanitarian Affairs Department

The CPIA is constructed based on 16 criteria (or variables), which are in turn grouped into four clusters (see Table 5 below): a) economic management; b) structural policies; c) policies for social inclusion and equity; and d) public sector management and institutions. We briefly look at how South Sudan has performed in 2016 within each of these four clusters.

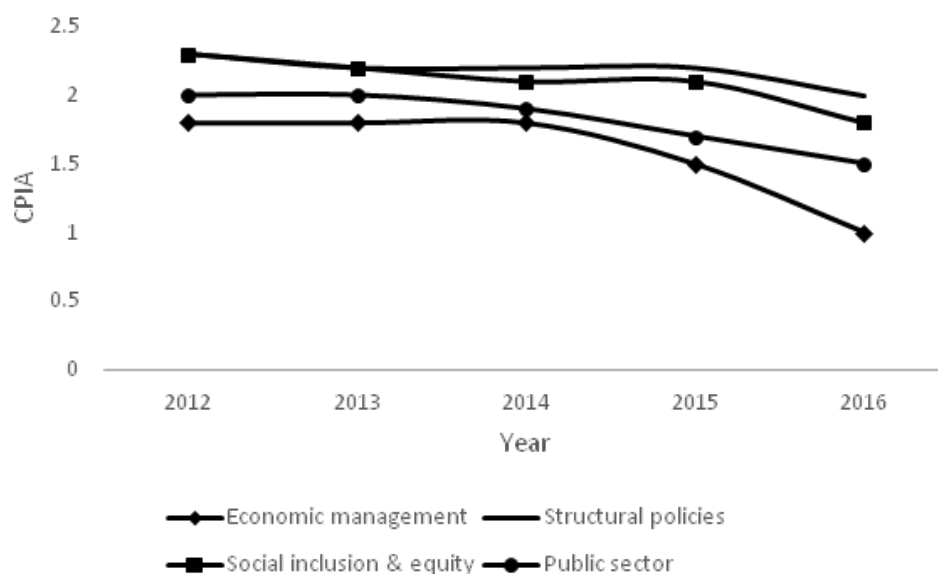
The poor performance of four clusters constituting the CPIA shows beyond doubt the impact of violence on institutions of the South Sudanese State (see Table 5 and Figure 11 below). A brief comparative analysis of the evolution over time of the components of CPIA reveals the effect of violence on institutions, which is one of the fundamental causes of economic growth.

Economic management cluster witnessed the lowest (worst) performing cluster in 2016 with a CPIA score of 1.0 compared to 1.8 in 2012 (i.e., before conflict). The CPIA for Sub-Saharan Africa-IDA eligible countries was 3.2 in 2016. All the three components of this cluster scored the same ranking of 1.0 in 2016. The components are: i) monetary and exchange rate policy; ii) fiscal policy; and iii) debt policy. The performance is the articulation of the macroeconomic instability that we have identified earlier in this chapter of this paper.

Table 5: The impact of violence on institutional capacity as measured by CPIA

Cluster	CPIA Scores by Year					Change in CPIA Scores from 2012 to 2016
	2012	2013	2014	2015	2016	
Economic Management	1.8	1.8	1.8	1.5	1.0	-0.8
Structural Policies	2.3	2.2	2.2	2.2	2.0	-0.3
Policies for Social Inclusion and Equity	2.3	2.2	2.1	2.1	1.8	-0.5
Public Sector Management and Institutions	2.0	2.0	1.9	1.7	1.5	-0.5

Structural policies cluster has been the highest performing cluster during the period 2012-2016. It has, nevertheless, been affected by conflict in that the CPIA score dropped from 2.3 in 2012 to 2.0 in 2016. This cluster is comprised of three sectors (or components) with each scoring 2.0 in 2016. The components are: i) trade; b) financial sector; and c) business environment.

Figure 11: The impact of violence on institutional capacity as measured by CPIA

Moreover, policies for social inclusion and equity cluster has been the second highest performing cluster during the period 2012-2016. The CPIA for this cluster has also dropped from 2.3 in 2012 to 1.8 in 2016. The cluster has five components with a score ranging between 1.0 for environmental sustainability and 2.5 for building human resources. The components are (with scores for 2016): i) gender equity (2.0); ii) equity of public resource use (2.0); iii) building human resources (2.5); iv) social protection and labour (1.5); and v) environmental sustainability (1.0).

The public sector management and institutions cluster has been the second poorly performing cluster during the period 2012-2016. There are five components: i) property rights and rule-based governance (1.5); ii) quality of budgetary and financial management (1.0), which is the lowest performing in this cluster; iii) efficiency of revenue mobilization (2.0); iv) quality of public administration (1.5); and v) transparency, accountability, and corruption in the public sector (1.5).

We therefore conclude that violence has weakened the capacity (measured by CPIA) of GRSS to provide safety and economic opportunities for sustainable livelihoods in South Sudan.

5. Conclusion and policy recommendations

This chapter concludes the study by discussing the implications of the findings of the study, and then provides policy recommendations considering those findings. We have derived from the growth literature three drivers of growth in addition to the fundamental and proximate determinants of growth. The drivers are further divided into two groups: primary (i.e., leadership) and secondary (savings and investment). This conceptualization has in turn enabled the case study to provide an analytical tool in the form of programmatic illustration of the linkages between the causes of growth. Visionary leadership is imperative at the initial stages of economic development to create an enabling environment for the effective and efficient mobilization of resources (i.e., savings). It is this leadership that creates inclusive political and economic institutions that provide appropriate mixture of policies and strategies for capital accumulation needed for sustainable development.

We used the GDF, which relies on the decision-tree methodology and build on the literature on decision-making under ambiguity advanced by Manski (2001), Brock et al. (2003), and others. The study starts by hypothesizing that violence is the primary binding constraint on growth. This is in turn formulated in the form of a question: what are the reasons for low investment in South Sudan? That is, what are the reasons for low rate of capital (physical and human) accumulation in South Sudan? This is followed by a series of questions: Is it low returns to economic activity, ... or high cost of finance? Hausmann and Volasco (2005). This is then disaggregated into various aspects of each of these constraints to allow emphasis on the most binding ones.

The key finding of the study is that violence has forced GRSS to adopt deficit financing as a tool for sustaining its war against armed opposition groups. The consequence of this policy has been macroeconomic instability characterized by high fiscal deficit, rapid depreciation of the national currency, and triple digit inflation. Violence has also undermined the capacity of the South Sudanese State to provide safety and economic opportunities for sustainable livelihoods. In essence, South Sudan is in a conflict-induced fragility trap as articulated by the levels of CPIA, Physical Insecurity Index (PII) and Food Insecurity Index (FII).

All key informants emphasized the need for sustainable peace for long-term investment and growth. Local and foreign investors are keen to invest in different sectors of the economy when peace returns. The government has prioritized investment in infrastructure, considering peace returns soon. Regarding the prospect

for peace and economic recovery, most key informants emphasize the need to rejuvenate traditional authorities that are trusted by the local communities. The traditional authority system is currently weak, but reestablishing, renewing, and re-empowering them will most likely help resolve local conflicts, which influence economic activities. Our respondents also emphasize that the best and quickest way to achieve economic recovery is to get out of the way of individuals' initiatives to do things—they are inherently innovative—let them take initiative and engage in economic activities. Incentivizing such initiatives at the local level is the key to revitalizing the economy.

We recommend in the light of the confirmation of the central premise of the study that the only way to relax the binding constraint on growth and exit from fragility trap is by stopping the war through inclusive political and institutional arrangements. All the reforms in the security, governance, and economic sectors are contingent on the resolution of conflict. South Sudan and her development partners must do first things first – stopping the war is a necessary and sufficient condition for sustained peace, economic growth, and poverty eradication.

Notes

1. Managing Director and founder of Ebony Centre for Strategic Studies, Juba, South Sudan.
2. Researcher at HESPI, Addis Ababa, Ethiopia.
3. Director of Research, Sudd Institute and Assistant Professor, School of Public Policy, University of Juba.
4. Quoted from Building Resilience in Fragile States in Sub-Saharan Africa, chapter 2 of *Regional Economic Outlook for Sub-Saharan Africa*, African Department, International Monetary Fund, October 2014.
5. Ibid.
6. The Way Out of Fragility Trap, a presentation made at the World Bank South Sudan Country Team Retreat, 28-30 May 2014 at Windsor Resort, Nairobi, Kenya.
7. The Minister of Finance in his budget speech to the National Legislative Assembly (NLA) on 2nd July 2014 had given a figure of US\$ 19.0 billion for the period 2006-2013. Our calculations for 2005 tend to indicate that GoSS had at least received US\$ 1.0 billion of oil revenue in that year, hence the estimated total figure is US\$ 20.0 billion.
8. From a letter of invitation sent to Lual A. Deng by IGAD Secretariat.
9. An Inquiry into the Nature and Causes of the Wealth of Nations first published in 1776, p.3.
10. The model had been developed independently by Roy F. Harrod in 1939 and Evsey Domar in 1946.
11. Walt W. Rostow in his book: *Stages of economic growth: A non-communist manifesto* published in 1960 identified five stages of economic growth: 1) Traditional society; 2) Pre-conditions for takeoff; 3) Takeoff; 4) Drive to maturity; and 5) Age of mass consumption.

12. See Figure 2 in the next section of this paper.
13. Lewis, W. Arthur. 1954. *Economic development with unlimited supplies of labour*. The Manchester School. 22: 139–91.
14. Cited from *The Solow-Swan model of economic growth – Explained*: Article shared by Smriti Chand at <http://www.yourarticlelibrary.com/macro-economics/growth-models/the-solow-swan-model-of-economic-growth-explained/31196>
15. Ibid.
16. Ibid.
17. Commission on Growth and Development. 2008. *The Growth Report: Strategies for Sustained Growth and Inclusive Development*. Washington, DC: International Bank for Reconstruction and Development and the World Bank.
18. See Marshall, Alfred. 1890. *Principles of Economics*. Prometheus Books.
19. From 1990 edition.
20. Quoted from Bromley (1989:22).
21. Quoted from <https://fee.org/articles/the-five-institutions-of-the-market-economy/>.
22. We use economic growth and economic development interchangeably in this paper.
23. The figure is constructed from information contained in Annex 2 on macroeconomic Outlook, page 29 of Country Engagement Note (CEN) for the Republic of South Sudan, Report No. 120369-SS, issued by World Bank (2017).
24. The World Bank estimates to be 60%, see Country Engagement Note (CEN) for The Republic of South Sudan. Report No. 120369-SS, issued by the World Bank, November 2017.
25. Derived from Integrated Food Security Phase Classification (IPC), published by South Sudan National Bureau of Statistics (NBS) in collaboration with UNOCHA.

References

- Acemoglu, Daron. 2009. *Introduction to modern economic growth*. Princeton NJ: Princeton University Press.
- Acemoglu, Daron, Simon Johnson, and James Robinson. 2005. "The rise of Europe: Atlantic trade, institutional change, and economic growth". *American Economic Review*, 95: 546–579.
- Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2016. *Why nations fail: The origins of power, prosperity, and poverty*. Crown Publishing Group.
- Alemayehu Geda and Steve Kayizzi-Mugerwa. 2012. "Sudan: A macroeconomic framework for negotiation and cooperation between North and South Sudan". IAES Working Paper Series No. A02/2012.
- Álvarez-Nogal, Carlos and Leandro Prados de la Escosura. 2013. "The rise and fall of Spain (1270-1850)". *Economic History Review*, 66, 1–37.
- Barro, Robert J. 2003. "Determinants of economic growth in a panel of countries". *Annals of Economics and Finance*, 4(2): 231–274.
- Bates, Robert H. 1981. *Markets and states in Tropical Africa: The political basis of agricultural policy*. Berkeley: University of California Press, Series on Social Choice and Political Economy.
- Besouw, B.V., E. Ansink, and B.V. Bavel. 2016. "The economics of violence in natural states". *Journal of Economic Behavior and Organization* 132: 139–156.
- Broadberry, Stephen. 2013. "Accounting for the great divergence". Economic History Working Papers, 184/13. London School of Economics and Political Science, <http://eprints.lse.ac.uk/54573/>.
- Broadberry, Stephen. 2016. *The characteristics of modern economic growth revisited*. Nuffield College, Oxford
- Broadberry, Stephen, Bruce M.S. Campbell, Alexander Klein, Mark Overton, and Bas van Leeuwen. 2015. *British economic growth, 1270-1870*. Cambridge: Cambridge University Press.
- Bromley, D.W. 1989. *Economic interests and institutions: The conceptual foundations of public policy*. Oxford: Basil Blackwell.
- Bromley, D.W. 2014. *Toward sustainable livelihoods in South Sudan: The necessary institutions of governance*. Paper presented to the Development Policy Forum (DPF) organized by Ebony Centre for Strategic Studies, Juba, South Sudan, and February 2014.
- Collier, P.1999. "On the economic consequences of civil war". *Oxford Economic Papers*, 51(1): 168–183.

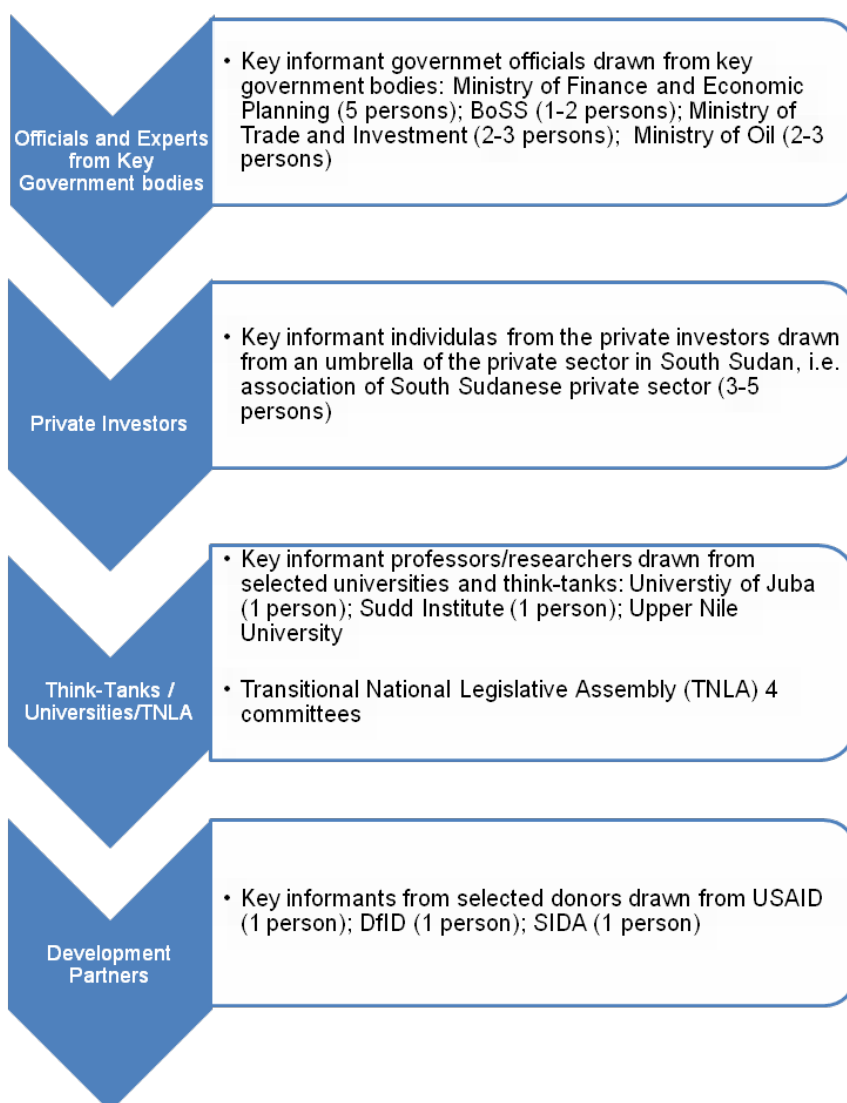
- Collier, P. 2009. The political economy of fragile states and implications for European development policy. Background paper for European Report on Development.
- Collier, P. and A. H. 1998. "On economic causes of civil war". *Oxford Economic Papers*, N. 50.
- Collier, P., L. Elliot, H. Hegre, A. Hoeffler, M. Reynal-Querol and N. Sambanis. 2003. *Breaking the conflict trap: Civil war and development policy*. World Bank and Oxford University Press.
- Collier, P. and A. Hoeffler. 2004. "Greed and grievance in civil war". *Oxford Economic Papers*, 56(4): 563–595.
- Collier, P., A. Hoeffler and M. Soderbom. 2004. "On the duration of civil war". *Journal of Peace Research*, 41(3): 253–273.
- Commons, J.R. 1990. *Institutional economics: Its place in political economy*. New Brunswick (USA): Transaction Publishers.
- Deng, L. A. 2016. "Protecting purchasing power from skyrocketing prices in South Sudan through partial dollarization".
- Domar, Evsey. 1946. "Capital expansion, rate of growth, and employment". *Econometrica*, 14 (2): 137–147.
- Dunne, J. P. and N. Tian. 2017. "Costs of civil war and fragile states". A framework research paper under the AERC Collaborative Research Project on Growth in Fragile and Post-Conflict States in Africa.
- Eltis, W. 1984. *The classical theory of economic growth*. London: Macmillan.
- Harrod, Roy F. 1939. "An essay in dynamic theory". *The Economic Journal*, 49 (193): 14–33.
- Hoeffler, A. 2017. "Post-conflict stabilization in Africa". A framework research paper under the AERC Collaborative Research Project on Growth in Fragile and Post-Conflict States in Africa.
- Hausmann, Rodrik and Volasco. 2005. "Growth diagnostics". Inter-American Development Bank. <http://www6.iadb.org/WMSFiles/products/research/files/pubS-852.pdf>.
- Jones, Benjamin F. and Olken, Benjamin A. 2005. "Do leaders matter? National leadership and growth since World War II". *The Quarterly Journal of Economics*, Volume 120, Issue 3, 1: 835–864.
- Kuznets, Simon. 1971. "Modern economic growth: Findings and reflections". Nobel Memorial Lecture. In Kuznets, Simon, *Population, capital, and growth: Selected essays*. London: Heinemann.
- Lewis, W. Arthur. 1954. "Economic development with unlimited supplies of labour". *The Manchester School*, 22: 139–91.
- Lowe, A. 1954. "The classical theory of economic growth". *Social Research*, 21: 127–58. Reprinted in A. Lowe. 1987. *Essays in political economics: Public control in a democratic society*. Brighton: Wheatsheaf Books.
- Lucas, R.E. 1988. "On the mechanisms of economic development". *Journal of Monetary Economics*, 22: 3–42.
- Mayai, A.T. 2017. The impact of war on schooling in South Sudan, 2013-2016. Working Paper. The Sudd Institute.
- Maddison, Angus 2001. *The world economy: A millennial perspective*, Paris: OECD.
- Maddison, Angus. 2010. Statistics on world population, GDP and per capita GDP, 1-2008 AD. Groningen Growth and Development Centre, <http://www.ggdcenter.net/MADDISON/oriindex.htm>.

- Malanima, Paolo. 2011. "The long decline of a leading economy: GDP in Central and Northern Italy, 1300-1913". *European Review of Economic History*, 15: 169–219.
- Nielsen, K. and B. Johnson. 1998. "New perspectives on markets, firms and technology" in E. Elgar (ed), *Institutions and economic change*. London, UK.
- Nkurunziza, J. D. and R. H. Gates. 2003. Political institutions and economic growth in Africa. The Centre for the Study of African Economies Working Paper No. 185.
- North, D.C. 1990. *Institutions, institutional change, and economic performance*. New York: Cambridge University Press.
- Polanyi, Karl. 2001. *The great transformation: The political and economic origins of our time*, 2nd ed. Foreword by Joseph E. Stiglitz.
- Rodrik, D. 2004. Getting institutions right. A Keynote address delivered at the PREM Week. World Bank: Washington, DC.
- Rodrik, D. 2013. The why and how of growth diagnostics". At <https://www.sss.ias.edu/files/pdfs/Rodrik/Presentations/Growth-diagnostics.pdf>
- Rodrik, D. 2016. "An African growth miracle?" *Journal of African Economies*, 2016: 1–18.
- Rodrik, D., A. Subramanian, and F. Trebbi. 2002. "Institutions rule: The primacy of institutions over geography and integration in economic development". IMF Working Paper Number. At <https://www.imf.org/external/pubs/ft/wp/2002/wp02189.pdf>
- UNDP. 1998. Capacity assessment and development in a systems and strategic management context. Management Development and Governance Division, Bureau for Development Policy, Technical Advisory Paper No. 3.
- van Zanden, Jan Luiten and Bas van Leeuwen. 2012. "Persistent but not consistent: The growth of national income in Holland, 1347–1807". *Explorations in Economic History*, 49: 119–130.

Annexes

Annex A: Key informant interview target groups

Key informants from different institutions



Annex B: Tables and figures on which analyses of this paper has been based

Table 1: Security sector spending in relation to budgets and GDP

Fiscal Year	Security Sector Spending as % of Budget	Security Sector Spending as % of GDP
2011/2012	28.2	4.9
2012/2013	40.3	6.2
2013/2014	32.0	7.1
2014/2015	35.2	10.7
2015/2016	43.0	2.1
2016/2017	28.8	2.4
Average	34.6	5.6

Source: Constructed by authors from the approved annual budget of GRSS

Table 2: Annual spending on the military in the IGAD countries, 2012-2016

Country	Spending (US\$ million) on Military in 2012	Spending (US\$ million) on Military in 2013	Spending (US\$ million) on Military in 2014	Spending (US\$ million) on Military in 2015	Spending (US\$ million) on Military in 2016	Average (US\$ million)
Djibouti	0.000	0.000	0.000	0.000	0.000	0.000
Eritrea	0.000	0.000	0.000	0.000	0.000	0.000
Ethiopia	401	399.7	433.9	442.6	447.8	385.0
Kenya	871	859.9	781.8	843.7	907.6	852.8
Somalia	0.000	0.000	0.000	0.000	0.000	0.000
South Sudan	1104.9	1098.4	1409.8	1151.9	524.8	1057.96
Sudan	0.000	0.000	0.000	2279.6	2465.4	949.0
Uganda	384.1	379	392.7	389.4	398.5	388,8
Average	345.1	342.1	377.2	638.4	593.0	454.2

Table 3: Security sector spending in relation to budgets and GDP

Fiscal Year	¹Approved Budget (SSP)	²Approved Security Sector Spending (SSP)	Security Sector Spending as % of Budget	³GDP (billions of dollars)	Security Sector Spending as % of GDP
2011/2012	5,767,110,495	1,627,210,000	28.22	11.27	4.878
2012/2013	6,771,360,817	2,730,403,408	40.32	14.94	6.174
2013/2014	17,642,498,304	5,645,599,457	32.0	15.10	12.6
2014/2015	11,278,764,895	3,969,094,114	35.19	12.49	10.74
2015/2016	10,642,138,993	4,850,340,524	43.04	3.060	2.138
2016/2017	38,074,035,036	10,946,090,000	28.75	2.920	2.418
2017/2018	46,278,830,967	12,704,832,178	27.45	3.090	2.652
Average	19,493,534,215	5,713,806,473	31.56	8.981	5.156

¹Approved budgets of South Sudan for the stated fiscal years: www.grss-mof.org.

²Approved security sector spending extracted from the approved budgets of the respective fiscal years. www.grss-mof.org

³GDP of South Sudan from the IMF portal: www.imf.org converted at SSP2.96/\$ for 2011/2012, 2012/2013, 2013/2014, 2014/2015; SSP 70/\$ for 2015/2016; and SSP155/\$ for 2016/2017, 2017/2018 as stated in the South Sudan approved budgets.

Table 4: Number of displaced people in relations to the total population

FY	¹ Fragility situation	² IDPs	³ Refugees	Total (IDPs + Refugees)	Safety (%)	⁴ Population reached by aid (millions)	Population reached by aid (%)	⁴ Population in need of aid (millions)	Population in need of aid (%)
2011/2012	N/C	190,000	116,923	306,923	2.516	1.2	9.836	2.3	18.85
2012/2013	N/I	190,000	116,923	306,923	2.516	1.6	13.11	4.5	36.89
2013/2014	2.120	1,100,000	540,376	1,640,376	13.45	1.4	11.48	3.6	29.51
2014/2015	2.092	1,538,484	714,814	2,253,298	18.47	1.8	14.75	6.1	50.00
2015/2016	2.000	1,534,935	839,021	2,403,956	19.70	1.8	14.75	7.5	61.48
2016/2017	1.867	1,944,735	1,942,398	3,887,133	31.86	4.7	38.52	6.2	50.82
2017/2018	1.575	1,872,176	2,123,988	3,996,164	32.76	5.0	41.80	7.6	62.30
Average	1.931	1,195,762	913,492	2,113,539	24.25	2.5	20.61	5.4	43.69

¹ Constructed from CPIA of the World Bank for the given fiscal years.

² Extracted from the OCHA Online Portal: www.unocha.org/south-sudan.

³ Extracted from the UNHCR Online Portal: www.data.unhcr.org/SouthSudan/regional.php.

⁴ Extracted from the UNOCHA annual reports: www.unocha.org/country/south-sudan/humanitarian-fund-achievements.

NB 1: According to trading economics (<https://tradingeconomics.com>) & Country Economy (<https://countryeconomy.com>), the population of South Sudan was estimated to be 12,230,730 by the end of 2016. World Population Review (www.worldpopulationreview.com)

We hence used the findings of case one of 12.2 millions as the base population to calculate the percentages of safety and sustainable livelihood throughout the work.

Table 5: Public spending by sector (in million SSP)

Sector	2013	2014	2015	2016
Education	283,352,248	200,211,238	330,898,715	232,393,458
Health	369,313,215	116,659,728	275,258,418	248,911,646
Youth	24,181,922	4,441,190	13,446,923	31,467,845
Social welfare	32,531,044	6,271,320	21,386,687	16,201,187
Defense	3,442,197,486	4,569,339,267	4,851,659,418	5,542,943,498

Inflation considered

Turning these expenditures for all the years into US dollars, South Sudan's investment on education in 2013 comes down to US\$ 95.7 million; US\$ 67.6 million in 2014; US\$ 111.8 million in 2015; and US\$ 5.5 million in 2016. Thus, the 2016 expenditure on education represents only 5% of what the government spent in 2015.



Mission

To strengthen local capacity for conducting independent, rigorous inquiry into the problems facing the management of economies in sub-Saharan Africa.

The mission rests on two basic premises: that development is more likely to occur where there is sustained sound management of the economy, and that such management is more likely to happen where there is an active, well-informed group of locally based professional economists to conduct policy-relevant research.

www.aercafrica.org

Learn More



www.facebook.com/aercafrica



www.instagram.com/aercafrica_official/



twitter.com/aercafrica



www.linkedin.com/school/aercafrica/

Contact Us

African Economic Research Consortium
Consortium pour la Recherche Economique en Afrique
Middle East Bank Towers,
3rd Floor, Jakaya Kikwete Road
Nairobi 00200, Kenya
Tel: +254 (0) 20 273 4150
communications@ercafrica.org