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Rethinking the Resource Curse Thesis in Fragile and Conflict-affected Contexts: Analysis of the Patterns and Relative Conditions of Diversification in Sub-Saharan Africa (2001-16)*

Jisun Yi
Kyung Hee University, Korea

Is it (im)possible for Sub-Saharan Africa to achieve growth through industrial and export diversification? And how do the conditions of natural resources, armed conflict, and weak government capacity interact with the diversification progress in the region? To address these questions, this paper delves into the recent phenomenon of diversification in SSA's 13 fragile and conflict-affected states. A time-series analysis shows that some diversification does occur across the country group but largely in a boom and bust cycle, which leads to an inefficient performance of growth from the perspective of sustainable, long-term development. Although the resource curse thesis has been a major explanation of the erratic performance of resource-rich African countries, the following evidence suggests otherwise: among the conflict-experiencing SSA economies, the presence of ample resources appears to work as a factor in differentiating country's diversification performance within the country group. Relatively speaking, the SSA countries with different levels of war experience and state fragility do not perform differently in terms of diversifying their industrial and export bases.

[Key Words: Diversification, specialization, Sub-Saharan Africa (SSA), fragile and conflict-affected states or situations (FCSs), sustainable development]

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Ⅰ. Introduction

Is it (im)possible for Sub-Saharan Africa (SSA) to achieve growth through industrial and export diversification? How do the conditions of natural resources, armed conflict, and weak government capacity interact with the diversification progress in SSA? To address these questions, this paper delves into the recent phenomenon of diversification in SSA's 13 fragile and conflict-affected states.

In fact, economic diversification is a growth strategy for developing countries. It is strategically important for agrarian and natural resource-rich economies to expand exports within or outside of primary commodity sectors so that they can stabilize export earnings and reduce vulnerability to external shocks; therefore, such an approach is considered favorable for generating an economy-wide and long-term economic growth when compared to a strategy of specialization (Hesse 2008). For the last several decades, late-industrialized (then newly industrializing) countries in East Asia, Europe, and Latin America have remarkably diversified their economies.[1] Korea, Taiwan, China, Finland, and Chile are the exemplars that enjoyed high and sustained GDP growth rates in the 1980s and 1990s as a result of massive structural transformation of national industries. Having departed from their initial industrialization strategy of imports substitution, these countries have aggressively expanded and diversified their industrial bases for production and export (de Piñeres & Ferrantino 2000; Alexander and Warwick 2007; Agosin 2008;[2] Agosin et al. 2012).

1) Almost 80 percent of their exports were primary products in the early years of industrialization, whereas the equivalent share is now composed of industrial products (Gelb 2010).

2) According to Agosin (2008), the average GDP growth rates of Asia and Latin America (during the period from 1981 to 2003) account for 5.9 and 2.4, respectively. The GDP-export elasticity of the two regions are 0.47 and 0.49, respectively. This means

Apart from these notable cases of diversification-led growth around the world, SSA seems to remain far away from the benefits of diversification. Still, many of the SSA countries depend heavily on the wealth from their primary sector, therefore remaining highly vulnerable to the volatility of international commodity prices (UNCTAD 2003). What makes matters yet more challenging is that the region tends to attract, both domestically and overseas, substantially insufficient investment in basic infrastructure and human capital, both of which are deemed essential requirements for diversification (Habiyaremye & Ziesemer 2006). As the sources of growth in SSA are locked into a few export sectors, and its growth rates hyper-fluctuate in the absence of sustained, broad-based growth records, the development gap between SSA and the rest of the world looms large and continues to grow (Fosu 2015).

While diversification in full swing is hardly observed in SSA, there is a subgroup of SSA countries whose phenomena of poverty and de-growth are made extreme by persistent wars and dysfunctional governments. For these countries, the notion of economic diversification is dismissed as non-viable or even irrelevant, as evidenced by the existing diversification literature. Studies thus far focus least on SSA (OECD 2011), and almost none of the studies highlights the contours and potential of diversification in fragile and conflict-affected situations.

To some extent, such knowledge lacunae are understandable, since these countries represent the most impoverished and politically unstable areas in the world, in which the space for pro-diversification change is extremely narrow. Besides, other peaceful, relatively better-performing African countries absorb most of the attention in the academic research and policy discussions about the deep-rooted underdevelopment problems in SSA, hence marginalizing conflict-affected contexts in diversification research.[3)]

that as regional exports grow, regional GDP also grows at almost half the rate of export growth.

3) Although diversification has been constantly advised for African leaders for a long time,

The following study suggests that due attention should be given to this area of study, with special reference to conflict-affected African countries. In this research, weak or regressive diversification in conflict-affected situations is not just viewed as a consequence of having damaged bases for investment, production, and growth, but also as a key potential area of development strategy to break out of the poverty/de-growth traps and to induce structural change for sustainable and broad-based development (UNFCCC 2016).

Moreover, in the current era of the United Nations' Sustainable Development Goals (SDGs, 2016-30), the suggested issue, in line with Africa's chronic aid dependency problem, is expected to reach an opportune time for renewed interest in the need for industrialization in policy and academic circles. This is partly because today's several African regional integration projects appear too slow and too weak to lend a strong impetus for economic development in the region (Johnson 2016); this may allow African development and policy actors to turn to other viable options that can enhance domestic resource mobilization. Also, the newly included 'peace' goal [*Goal 16: peace, justice and strong institutions*] to the SDGs embodies an emerging approach of the global development community: that the politically sensitive, sovereign matter of civil wars and political violence in developing countries should not be ignored or avoided, if it is intended for the world to achieve poverty reduction in an effective and sustainable manner. In that connection, the dynamics of poverty and growth in conflict-affected countries are now being paid great attention and explored for evidence and action (WB-UN 2018).

Against the backdrop, this study is aimed at refreshing our knowledge of 'growth-diversification (or concentration)' dynamics in conflict-affected countries in SSA. This paper is structured as follows: first, the literature on the

there has been a lack of coherent and comprehensive discussion that can guide actual policy design and implementation (Johnson 2016).

relationship between diversification and growth in developing countries and Africa is revisited. In the first part of the analysis, this research provides a cross-country picture of industrial shares of GDP and per capita export incomes (as a proxy measure of diversification) for selected SSA countries. The second half of the analysis explores the extent to which these factors help explain the varied performances in diversification. By dividing the countries into subgroups by natural resource endowments, armed conflict, and state fragility, the study examines the extent to which the curse of natural resources —a major explanation of the poverty trap in resource-abundant countries (Auty 1993; Ross 1999)—is relevant to explaining the conditions and patterns of diversification among selected 'fragile and conflict-affected African countries' (hereafter FCACs)[4] (2001-16).

Ⅱ. Literature

1. Diversification as a growth strategy: general ideas

Low-income countries tend to be weakly diversified. As income per capita rises, production concentration falls. For the least developed countries, diversification is regarded as a growth strategy to decrease the dependency of national income on agricultural or extractive industries.

In existing research, the positive relationship between export diversification and growth has been comprehensively documented (Nourse 1968; Lederman & Maloney 2003; Hausmann et al. 2005; Hesse 2008; Klinger & Lederman 2010). Several scholars present longitudinal evidence that export

4) Countries selected: Burundi, Cameroon, the Central African Republic, Chad, the Republic of the Congo, Cote d'Ivoire, the Democratic Republic of the Congo, Guinea, Liberia, Mali, Sierra Leone, Sudan, and Togo.

diversification promotes economic growth (Al-Marhubi 2000; Herzer & Nowak-Lehmann 2006), while others, inversely, demonstrate that economic growth (i.e., increases in national income and per capita income) leads to diversification (Akbar et al. 2000; Parteka & Tamberi 2013).

Considering the growth effects of two different development strategies (diversification vs. specialization), Naudé and Rossouw (2008) find that diversification periods brought about higher GDP growth and employment than the periods of specialization in the case of South Africa (1962-2000). Given that some other low-/ middle-income countries boosted their economies through industrial and trade specialization (Yi 2003; Lee 2011; Santos-Paulino 2011), such an alternative approach of selectively producing and exporting items with strong comparative advantage is often believed to result in short-lived and sector-exclusive economic growth.

With regard to whether diversification is competitively associated with sustained or broad-based growth in comparison with specialization, Agosin (2008) explains that by adding new products to the production and export baskets, as one of the modes of export diversification, the risks of sudden drops in export earnings would be spread over a broader portfolio of the economic sector. Due to the 'portfolio effect', growth can be achieved in a sustained manner. Also, as new discoveries of products entail productivity improvement and technological upgrades, the changes in one sector could invigorate other sectors—this is called the 'dynamic effect'. With regard to these hypothetical ideas, de Piñeres and Ferrantino (1997) provide country-specific evidence that the Chilean export diversification contributed to a long-term growth trajectory. Al-Marhubi (2000), nevertheless, argues that diversification appears to be rather strongly associated with rapid growth. However, it is not clear whether long-sustained growth is induced.

Also, the 'diversification-growth' relationship displays a distinctive pattern over the varied stages of development, according to cross-country empirical

studies. Imbs and Wacziarg (2003) find a non-linear relationship between diversification and national income levels: although low-income countries have very specialized production structures, once gross domestic product (GDP) per capita of the countries increases, the number of items (using the Gini index) that they produce also increases over time. Diversification of production continues until the countries reach a GDP per capita level of USD 10,000. Immediately after passing this point, the countries refocus on producing a smaller number of products, which means de-diversifying the economy. Likewise, an inverted U-curved relationship between diversification of products and GDP per capita is reconfirmed by another seminal study (Cadot et al. 2011); the pattern found was almost identical to that of Imbs and Wacziarg if the number of new products per year and GDP per capita are counted together.

As plentiful evidence confirms, diversification is likely to work for growth, and vice versa. However, as previously mentioned, a key puzzle, with regard to the growth and industrial transformation of SSA, rests on why and to what extent diversification is not happening, or even whether de-diversification is occurring in the region.

2. Export diversification in SSA: previous research and findings

SSA's progress in industrial transformation and its record of embracing the diversification strategy has been very subtle. The determinants of diversification in the context of SSA have been investigated in only a small number of studies. In general, the relevant literature focuses on the following factors to explain the phenomenon of slow diversification or de-diversification in Africa: natural resource endowments, basic infrastructure, education, geography, and public governance. First of all, Osakwe's regression analysis (2007) attempts to figure out the significance of the factors of aid, geography,

and resource endowments for export diversification in Africa (covering 53 countries); smaller aid receipts, higher infrastructure quality, and richer resource endowments are robustly associated with export diversification. Nonetheless, no systematic interaction is found between geographical conditions and diversification. Interestingly, the institutional factors (proxied by the durability of political regime) seem to be insignificant in the African context, whereas oil has a negative effect on diversification.

Habiyaremye and Ziesemer (2006) look at the particular association between human-/ physical- absorptive capacity (i.e., the quality of human capital and basic infrastructure) and export diversification. According to the study, the abundance of natural resources impedes diversification in SSA. This study suggests that SSA needs investment in basic infrastructure and education. While Cabral and Veiga (2010) view the governance qualities (in terms of corruption, transparency, and accountability) as the important determinants in SSA (1960-2005), Elhiraika and Mbate (2014) show that per capita income, infrastructure, and human capital are significantly correlated with the success of economic diversification in SSA (1995-2011). As a matter of fact, the factor of civil wars (or other forms of violent conflict) is underexplored in the existing diversification literature.

As for specific country cases for African diversification, the Republic of Botswana is deemed a relative success (Sarraf & Jiwanji 2001). The country is landlocked but resource-rich and politically stable. Initially, minerals (e.g., diamonds and nickel) accounted for 80 percent of Botswana's exports, and the Botswana government's share of mineral revenue stood at around 50 percent. Combined with its good government capacity, the regional monetary initiatives, and the prudent management of reserves, the country was able to avoid the 'Dutch disease' to some extent (Rodrik 2003; Maipose 2003; Ndulu et al. 2007; Iimi 2007; Pegg 2010)[5]. Marking 6.4 percent per capita income

5) Jordaan and Eita (2009) reveal a bi-directional relationship between growth and

growth from 1960 to 2004, Botswana has transformed from a low-income to an upper-middle-income country. Mauritius, a resource-poor and island economy, is another example of a relatively diversified African economy. Sannassee and his colleagues (2014) reveal that the country benefits from a positive relationship between diversification and short-/long-term economic growth during the period from 1980 to 2010. Other SSA countries—including South Africa, Kenya, Angola, and Benin—are newly suggested as having good potential for economic diversification in the near future (OECD 2011). With a diverse set of initial conditions identified, some positive changes in the domestic-private sector, regional, and international contexts have been observed and documented (Walker & Jourdan 2003; Naudé & Rossouw 2008; OECD 2011).

3. Explaining the diversification phenomenon in conflict-affected situations: the resource curse thesis and its limitation

The resource curse refers to a counter-intuitive situation in which natural resources impede economic development. In this last section of the literature review, there is no intention to fully engage in the already-well developed discourse on the resource curse. Rather, it is intended to point out that although the resource curse thesis has offered a major explanation with regard to the slow or negative growth problem of conflict-affected countries, the thesis may have limitations if we seek to understand the relative significance of these factors with respect to diversification; although the explanatory power of the thesis built upon the holistic relationship between resources, conflict, and state fragility cannot be gainsaid, one might need to understand the associated links in a more disaggregated manner.

In human history, endowed resources have long and firmly been believed

diversification in the case of Botswana.

to offer great advantages to a country's production and exchange of products. Earlier studies support the wisdom that mineral resources are likely to be desirable for expanding a country's wealth (Maddison 1994). However, the presence of natural resources is not always beneficial. On the contrary, the noteworthy growth of East Asian economies during the Cold War era (i.e., South Korea and Taiwan), in fact, was not impeded by their resource deficiency; rather, these countries were incentivized to promote competitive manufactured exports. In some corners of the world, plentiful natural resources became a curse to national development. Auty (1993, 1997) explains the irony that natural resources themselves distort the economy in the first place. Without proper policy and institutional responses, abundant resources appear to induce bad behavior on the part of actors in society, leading to political and armed conflict, corruption and rent-seeking, inequality, lack of education and skilled human resources, environmental pollution, and incompetent and undemocratic public institutions (Peg 2010).

Empirically speaking, in many cases, the resource curse is accompanied and even exacerbated by the presence of civil wars and fragile states: that is, these factors—resource endowment, armed conflict, and weak government capacity—together lead to a very complex phenomenon of impoverishment and underdevelopment. However, a recent study (Cuvelier et al. 2014) argues that the relationship between resources, conflict, and governance is predominantly assumed in the existing resource curse literature, but this link might be unwarranted.

With regard to the interplay between natural resources and conflict, Bannon and Collier (2003) confirm that well-endowed low-income countries suffer from significant risks of conflict. Furthermore, the more the economy depends on primary commodity exports for its GDP, the higher the risks of civil war. Also, the effect of oil on civil wars is larger than the effect of any other mineral resources. Armed conflicts in the first post-Cold War decade appear strongly

linked to the political competition for natural resources (le Billon 2001). This is because the wealth from resource exploitation transfer to repressive regimes and rebel groups. The mechanism of how natural resources become the driver of civil wars is still highly relevant to the contemporary phenomenon of armed conflict (le Billon 2013). When it comes to the relationship between natural resources and governance, Collier and Venables (2010) suggest that the relationship works bi-directionally in their comprehensive review of relevant studies, which means that resources determine the quality of governance, and governance quality matters for resource-rich or -poor countries for economic improvement. The quality of political leadership also affects the extent to which a country suffers from the resource curse (Caselli & Cunningham 2009). Specifically, as for Africa, resource-abundant countries tend to be embroiled in hyper-corruption (McFerson 2009).

In sum, in light of the previous studies on diversification, SSA, and the resource curse, the significance of the following analysis is two-fold. First, there is a very slim literature on the determinants and patterns of diversification in SSA; furthermore, few studies are being done investigating export diversification with special reference to conflict-affected contexts in SSA. For that unique context of development, this study is intended to examine the patterns and progress of diversification in a recent decade. Second, as a critique of the dominantly assumed link between resources, conflict, and governance, this paper argues that careful attention to respective factors is required. In that respect, the following analysis tries to capture the relative importance of these factors of diversification in conflict-affected SSA.

Ⅲ. Methodology and data

In this paper, economic diversification is defined as a phenomenon of expanding and upgrading economic activities from traditional to

non-traditional sectors (Samen 2010). Although various levels and scopes of economic diversification can be considered, this study focuses primarily on export diversification[6] that occurs in the field of sectoral (i.e., primary, secondary, and tertiary sectors) production and export at the national level. Along with the *Herfindahl* index (HI), the *Gini* coefficient, and the *Theil* index —the popular measurements of export diversification—this study adds an alternative measure of export diversification so as to effectively capture the dynamic change observed in both fields of export performance and sectoral dependence of GDP.[7] By the standards of data availability during the targeted years and economy size (island and very small economies excluded), 13 fragile and conflict-affected states (FCSs) in SSA are selected from the World Bank's *Harmonized Lists of Fragile and Conflict-affected Situations* (2010-17).

The following quantitative analysis is designed to figure out the relative importance of the selected three factors (natural resource endowment, armed conflict, and state fragility). Therefore, this study employs a very simple method of data processing for the comparison across subgroups of SSA countries. The subgrouping of the country cases is based on a country's abundance of natural resources (resource-poor vs. resource-rich country groups), war experience (country groups at occasional, moderate, and extreme war), and state fragility ('state fragility score' improved vs. exacerbated country groups). Data in the areas of natural resource endowments, armed conflict,

6) Export diversification is widely defined as the progression from traditional to non-traditional exports. Such a progression can be captured by changes in the number of newly added export products (Cadot *et al.* 2011), the number of newly discovered export destinations (Ali et al. 1991), and the spread of production over sectors (Berthelemy & Chauvin 2000). In theory, export diversification can lower instability in export earnings, expand export revenues, upgrade the value added, and enhance growth due to the improvements in technology and human capital (Samen 2010).

7) UNCTAD's Diversification Index turns out to be an inadequate tool for capturing any meaningful changes in the diversification dynamics for this particular research. Its figures are almost constant over the period of 2001 to 2016 in SSA (0.6) and FCACs (0.8).

state fragility (alternatively, public governance) are collected from the following sources: the World Bank's *World Development Indicators, the Country Policy and Institutional Assessment* (CPIA), and the *Commodity Price Indices* (CPI); the International Monetary Fund's data; the *Uppsala Conflict Data Program* (UCDP); the *Armed Conflict Location and Event Data Project* (ACLED); the Fund for Peace's *Fragile States Index* (FSI); and UNCTAD's *Herfindahl* index (also called the Concentration Index).

Ⅳ. Analysis

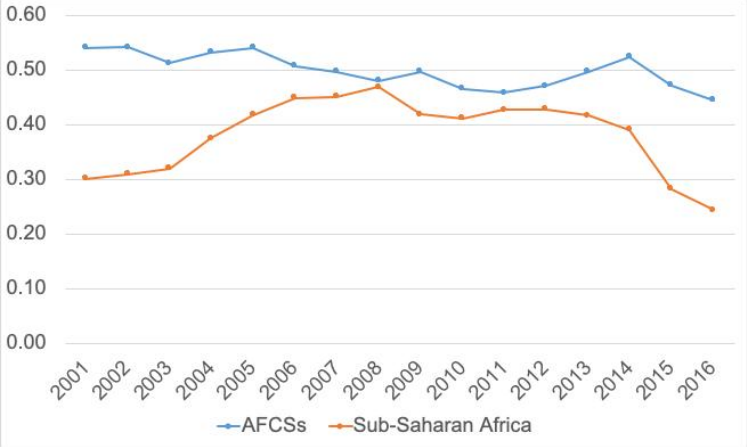
1. Sectoral diversification and exports growth across SSA

Before looking at the patterns of diversification and growth in selected SSA countries, it is important to revisit several 'diversification-growth' models that are globally observed and relevant to SSA cases. First, some economies prosper through the expansion of manufactured exports and this model of diversification is widely observed in East Asia and South Asia in the post-Cold War era. Such a model is in favor of generating broad-based benefits. Also, for coastal economies, they can maximize their trade competitiveness with a relatively low level of transaction costs. Among SSA countries, South Africa seems to have taken this approach in recent decades (Ndulu et al. 2007). The second model is natural resource-based export diversification. This strategy of diversification is similar to the practice of Latin American economies. The first step is expanding the number of products within the primary sector of raw material extractive industries and then capitalizing on the early benefits for non-resource-based industrialization. This model appears ideal for landlocked countries, such as Botswana (Ndulu et al. 2007). Third, a model of labor export and service sector-oriented diversification is also possible. This

is an attempt to encourage investment in a migrated population in better-off regional economies, which, in turn, allows the economy to expand its service sector. Among others, Cote d'Ivoire might be a relevant case of the model.

To compare the diversification performance (proxied by the degrees of 'export concentration') between a group of SSA countries and the FCACs, the figure[8] below shows a distinctive time-series pattern of concentration among the selected fragile and conflict-affected African countries. According to UNCTAD's concentration index (based on the annual product concentration data of exports), over the period from 2001 to 2016, the annual concentration levels of the FCACs (a sub-group of SSA countries) are higher than the average concentration level of SSA; in other words, FCACs' industrial and export bases are relatively less diversified by SSA standards. Since 2008, SSA countries have substantially diversified their exports. On the contrary,

<Figure 1> The Concentration Index: SSA and FCACs (2001-16)



(Source: UNCTAD Statistics; accessed 03 March 2019)
* The selected FCACs covered in this graph are 12 in total except Sudan (due to the lack of data).

8) The figure includes the data of 12 countries; due to the data constraint, *Figure 1* is not able to include the data of Sudan.

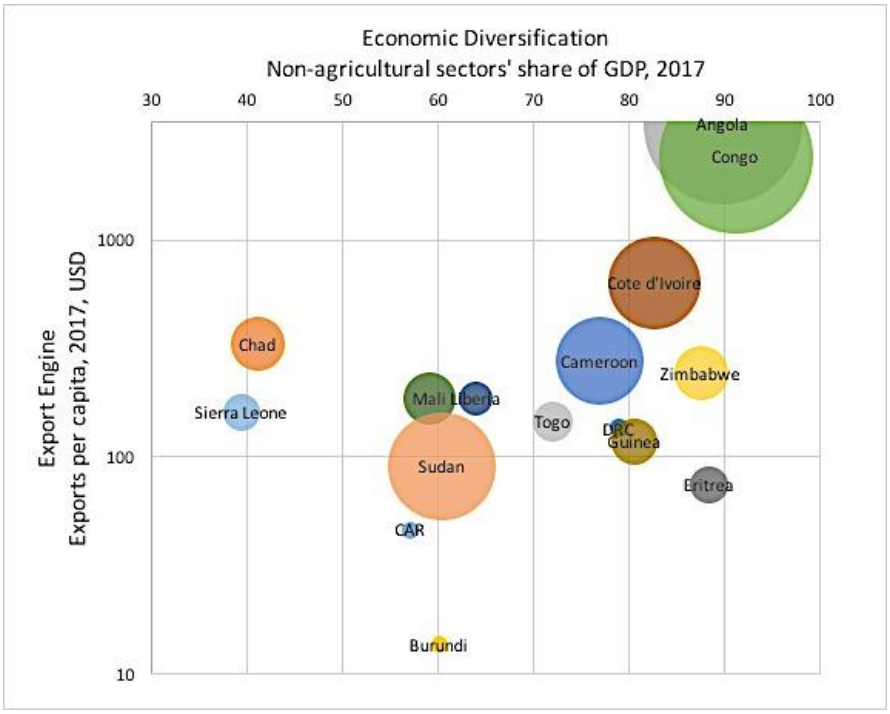
the overall diversification progress of the FCACs seems relatively subtle over the same period. This figure implies that the export concentration trends are widely varied among SSA and the FCACs.

To further understand the diversification dynamics, beyond the implications of UNCTAD's concentration index, this study looks at sector-specific shares of GDP (i.e., agricultural sector, industrial sector) and exports per capita (population-weighed export growth) for the FCACs. Although employment-, income- or production-oriented approaches to defining export diversification—e.g., the Gini index and GDP per capita (Imbs & Waczinarg 2003), the size/scale of employment moving across sectors and GDP per capita, the number of new products annually added to export production and GDP per capita (Cadot et al.2011)—are so far employed in general, this study embraces a simplified model of export diversification and growth. According to the suggested approach, the country's performance in export diversification is plotted by a sectoral share of GDP and per capita income from exports (McKinsey and Company 2010). Also, such a choice of approach appears practical for this research, since the data constraints with regard to the chosen SSA countries are larger than any other country case.

As an alternative proxy of diversification, the figure below depicts the respective performances of the FCACs in terms of non-agriculture sectors' share of GDP and exports per capita in 2017 (See <*Figure 2*>). These countries are mostly the poorest countries in the world: their values of exports per capita are less than USD 1000 (except the Republic of Angola and the Republic of the Congo (hereafter 'Angola' and 'Congo', respectively)). An overall trend is that the FCACs appear to be locked into a 'low-income and low-industrialization' trap. Nonetheless, the performances of respective FCACs diverge. The relatively industrialized FCACs, such as Angola, Congo, and Cote d'Ivoire, seem correlated to higher exports per capita. However, the

highly-concentrated economies (either on agriculture or on mineral-extractive industries), for instance, Sierra Leone, Chad, CAR, Burundi, and Sudan, do not perform well in terms of export growth on this graph.

<Figure 2> Sectoral diversification and exports per capita in selected SSA countries (2017)

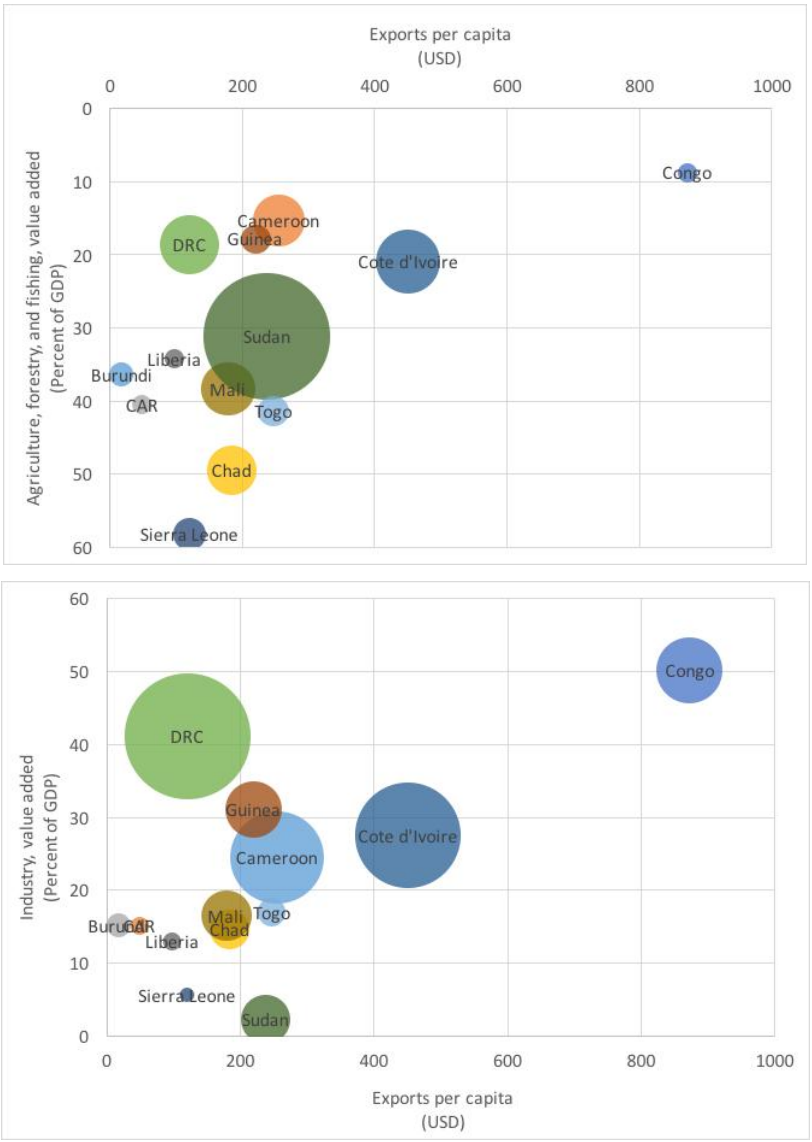


(By author's compilation)

* Size of circle means sector-specific GDP in absolute terms.

** This graph includes 16 African countries for an overview. In the main analysis, however, the country cases of Angola, Zimbabwe, and Eritrea are excluded. Angola and Zimbabwe are not categorized as fragile and conflict-affected countries in this analysis. Eritrea is excluded due to the lack of data.

<Figure 3> Sector-specific GDP ratios and exports per capita (2016)



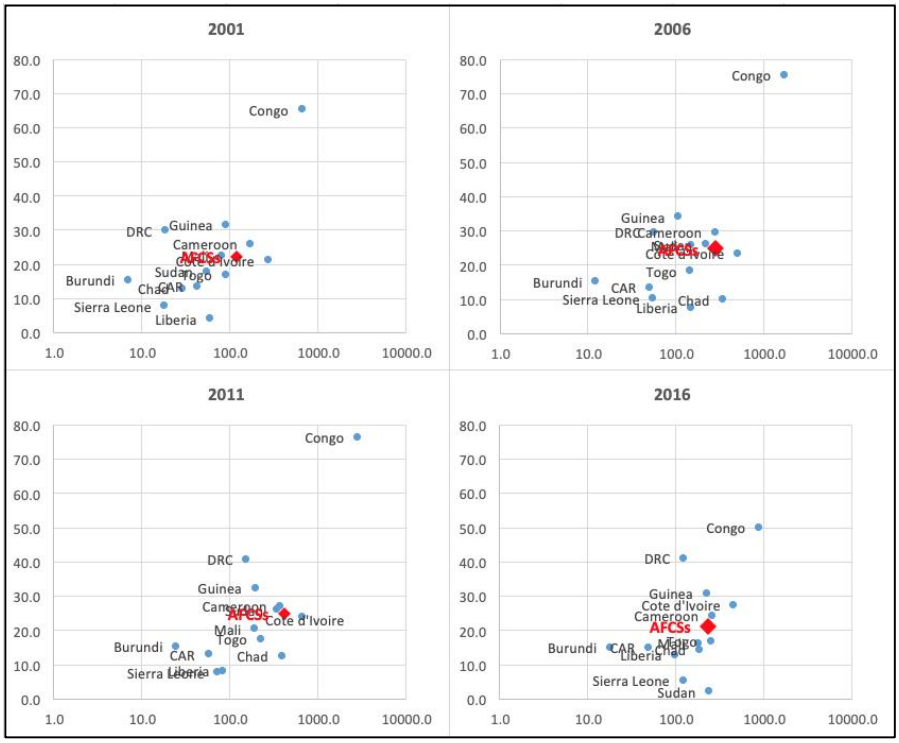
(By author's compilation)

* Size of circle means sector-specific GDP in absolute terms.

<*Figure 3*> offers another picture of diversification from a slightly different angle regarding how agricultural/industrial GDP shares are correlated with exports per capita. The upper part of the graph shows that the FCACs hinge to varying extents on the agricultural sector. The agrarian FCACs (including Sierra Leone, Chad, Togo, CAR) tend to display lower levels of exports per capita and they are relatively smaller economies. Speaking of industry sector's share of GDP and income from exports, the relatively industrialized FCACs, including the Democratic Republic of the Congo (DRC), Guinea, Congo, Cote d'Ivoire, and Cameroon, likely display a higher level of industrial GDP and exports per capita.

Together with the static picture of diversification above, the following evidence shows a time-series pattern of export diversification in the FCACs. The figure below (Go to <*Figure 4*>) illustrates the diversification dynamics for the last decades (2001-2016). An overall trend for the selected thirteen countries over the years is that all of them appear to have industrialized their economies and expanded their export-led income in a gradual manner from 2001 to 2006. For the period from 2006 to 2011, for almost all FCACs, there was a slight backwardness in industrialization, but they continued to grow, still benefiting from the income from exports. However, during the period from 2011 to 2016, most FCACs significantly regressed in both areas of industrialization and exports. Such a course of change explicitly depicts the typical problem of poverty-trapped countries in Africa. Largely similar to the findings from a previous study (Hammouda et al. 2010), there is a continued trend of ups and downs, showing little cumulative, long-standing progress in terms of export diversification and growth.

<Figure 4> Trajectory of diversification and exports growth for thirteen FCACCs (2001, 2006, 2011, 2016)



(By author's compilations)
* Unit: X-axis: exports per capita, USD; Y-axis: industry, percent of GDP.

From a cursory look, such temporal backwardness and lack of progress are subject to the commodity prices in the international markets. For the last sixteen years (2001-16), crude oil prices have widely fluctuated. It is obvious that the performance of crude oil exporters among the FCACCs is inevitably afflicted at times of oil prices drops. Even for the resource-poor FCACCs, their vulnerability to agricultural product prices remains high. According to the World Bank's commodity price indices, during the period from 2011 to 2016, the 'bubble burst effect' was particularly strong because the fall of commodity prices in energy (e.g., crude oil and metals) and non-energy (e.g.,

agriculture) sectors hit the markets in 2015 and 2016.

Therefore, based the levels of industrialization, volume of export-led national income, and long-term diversification, the selected FCAC cases can be categorized into three groups (pre-transition, transition, and relatively diversified economies): 'Pre-transition' economies (X: under USD 500; Y: non-agricultural sector's share of GDP (range: 30~70 percent)), whose levels of export diversification are very low, with no significant progress observed over time, are Chad, Sierra Leone, Mali, Liberia, Sudan, the Central African Republic (CAR), and Burundi. These economies heavily rely on agricultural production for national income generation. 'Transition' economies (X: under USD 1,000; Y: 70~90 percent of non-agricultural sector's share of GDP) are identified as follows: Cote d'Ivoire, Cameroon, Togo, the DRC, Guinea, Zimbabwe, and Eritrea. Only two countries, Angola and Congo, are regarded as 'relatively diversified' (X: over USD 2,000; Y: over 90 percent of non-agricultural sector's share of GDP). In contrast, Angola and Congo were considered as highly concentrated economies; their recent progress in relative and absolute terms is noteworthy. Overall, wide gaps exist among the FCACs, but these gaps are insignificant when compared with those of other peaceful SSA countries.

2. Comparative analysis of sub-grouped countries

The subsequent section examines the extent to which natural resource endowments, armed conflict, and state fragility affect the 'diversification-growth' performances of FCACs.

First, an attempt is made to see to what extent a country's natural resource base makes a difference in boosting diversification and export growth. In clarifying which countries are defined as resource-rich or otherwise, this analysis uses the International Monetary Fund's classification (IMF 2010); of

44 SSA countries, 20 are classified as resource-rich (of which 9 are oil/gas exporters). In the SSA context, oil- and gas-exporting countries function as the driving force for the entire SSA economy, accounting for more than 80 percent of total regional GDP (SSA). In recent years, Sudan, Liberia, and Côte d'Ivoire are newly classified as 'resource-rich', given their recent discoveries of new raw materials for export, according to UN Comtrade statistical yearbooks (2012-13); in fact, these countries display good potential for diversification.

<Table 1> Export diversification and natural resource endowments among FCACs

Country grouping	Exports per capita (USD), average values of each country group				Industry share (% of GDP), average values of each country group,			
	2001 (year)	2006 (year)	2011 (year)	2016 (year)	2001 (year)	2006 (year)	2011 (year)	2016 (year)
Resource-rich country group	154.8	381.2	591.0	268.6	29.0	31.2	32.0	27.6
Resource-poor country group	87.9	171.3	211.0	186.6	13.2	15.1	14.7	15.7

The table presented above (See <*Table 1*>)—if a conventional list of resource-rich/poor countries (IMF 2010) is employed—illustrates varied degrees of export diversification between resource-rich and resource-poor country groups. For the sixteen year-period, both groups show interrupted progress in diversification. Remarkably, in both areas of exports per capita and industrial share of GDP, a coherent and distinctive gap exists between the resource-rich and resource-poor country groups. The resource-rich country group clearly excels in both areas. Considering the vulnerability to the price volatility, however, the resource-poor group appears less vulnerable in comparison with the other group. In a nutshell, resource-

dependent countries further diversify and enjoy larger export gains when compared to countries with weak resource bases.

It is also examined whether countries with different intensities of war experience would show differences in diversifying their economies. In theory, political and social instability is detrimental to the export performance of a country. We might wonder whether countries that are embroiled in different intensities of civil wars would perform differently. From a broader perspective, the more intensive the conflict history a country has, the lower the GDP growth rates the country scores.

To begin with, the selected FCACs are divided into three different groups according to their records of armed conflict (2007–16). In order to classify countries by the intensity of armed conflict, the combined data of reported conflict-affected deaths from the Uppsala Conflict Data Program (UCDP) and the Armed Conflict Location and Event Data Project (ACLED) are used. The four countries—Congo, Liberia, Sierra Leone, and Togo—are categorized as a country group with less intensive war experience among the FCACs (named 'Relatively peaceful' in <*Table 2*>). The countries with moderate war experiences (named 'Moderately violent') include Burundi, Chad, Cote d'Ivoire, Guinea, and Mali. The FCACs with extreme war records (named 'Extremely violent') are Cameroon, CAR, DRC, and Sudan.

<Table 2> Export diversification and armed conflict among FCACs

Country grouping	Exports per capita (USD), average values of each country group				Industry share (% of GDP), average values of each country group			
	2001 (year)	2006 (year)	2011 (year)	2016 (year)	2001 (year)	2006 (year)	2011 (year)	2016 (year)
Relatively peaceful country group	204.4	509.9	791.8	334.2	23.7	28.0	27.6	21.5
Moderately violent country group	94.8	220.7	289.0	210.2	20.9	21.8	21.1	21.0
Extremely violent country group	71.2	149.7	229.2	165.6	22.0	24.8	26.9	20.8

When comparing the three country groups in terms of exports per capita and industrial share of GDP, the relatively peaceful country group is associated with a higher level of exports per capita. The performance gap between relatively peaceful and extremely violent FCACs is far larger than that between natural resource-based country groups. The effect of volatile international commodity prices is equally great on all groups. However, regarding the industrial ratio of GDP, no particular distinctions are found across the groups.

Lastly, the analysis examines how differently the fragility of the state (proxied by indicators of government capacity or governance quality) matters to country's diversification performance. In fact, 'state fragility' is defined in a variety of ways. Among several key measurements, state fragility is estimated by two indicators in this analysis: first, a well-cited indicator of good governance, the World Bank's *Country Policy and Institutional Assessment*; second, a multi-faceted indicator that encompasses political, social, economic, and environmental dimensions of state fragility, the *Fragile States Index* (FSI).

Given the CPIA scores (as of 2016), Cameroon, Cote d'Ivoire, Liberia, and Mali fall into a category of countries with relatively good governance. Burundi, Chad, Congo, Guinea, Sierra Leone, Togo are included as the middle group. The rest of the countries—CAR, DRC, Sudan—are viewed as having extremely weak public governance. Based on the FSI score changes over the last decade, the FCACs can be divided into three different groups, depending on decade-long performance records (2007-2016). Cote d'Ivoire (-10.0), Sudan (-4.3), Sierra Leone (-3.2), and Chad (-2.6) are reported to have significantly improved their state capacity and quality of public institutions. The second country group either moderately performs or remains almost the same; this category includes Togo (-1.6), Congo (-0.3), Guinea (-0.2), and Liberia (1.6). The other group of countries—Burundi (3.3), the DRC (4.0),

Cameroon (4.1), the CAR (7.4), and Mali (18.0)—have significantly worsened.

<Table 3-1> Export diversification and good governance among FCACs (With reference to the CPIA scores)

Country grouping	Exports per capita (USD), average values of each country group				Industry share (% of GDP), average values of each country group			
	2001 (year)	2006 (year)	2011 (year)	2016 (year)	2001 (year)	2006 (year)	2011 (year)	2016 (year)
High-performer country group	82.3	157.1	199.1	163.2	18.6	21.7	20.1	20.4
Mid-performer country group	147.4	391.4	614.3	276.8	25.2	27.3	27.1	22.3
Lowest-performer country group	120.9	254.8	348.9	245.6	20.6	23.2	26.8	19.5

<Table 3-2> Export diversification and state fragility among FCACs (With reference to the FSI scores)

Country grouping	Exports per capita (USD), average values of each country group				Industry share (% of GDP), average values of each country group			
	2001 (year)	2006 (year)	2011 (year)	2016 (year)	2001 (year)	2006 (year)	2011 (year)	2016 (year)
FSI score-improving country group	92.0	277.0	361.8	247.9	15.1	17.5	17.7	12.5
Non-improving country group	222.5	522.6	821.8	359.3	29.7	34.0	33.8	27.8
Deteriorating county group	63.8	108.6	158.9	124.3	21.6	22.8	23.5	22.5

What both <*Table 3-1*> and <*Table 3-2*> imply is that state fragility does not seem to serve as a differentiating factor to countries' performance in industrialization and export growth; in other words, more fragile states are not necessarily associated with worse outcomes in export diversification,

according to the evidence shown in the tables. This is opposed to what the literature predominantly claims. No systematic trends are observed across the country groups. With the FSI-based country categorization, the moderately progressed FCACs turn out to be relatively high performers in expanding export-led income. The less fragile states (named 'Improved FCACs') are the middle performers, but their growth rates in exports per capita are higher than those of any other country group. Interestingly, the FCACs with deteriorating FSI scores do not experience ups and downs in terms of the ratios of industry-dependent GDP.

Ⅴ. Conclusion

Due to the dismal image of protracted development and failed industrialization in war-prone parts of SSA, economic diversification in these areas has been considered wishful thinking in academic and policy circles. The motivation of this research, nevertheless, is to pay due attention to these African countries, given their changing sectoral and export dynamics in a recent decade. Export diversification for SSA, as a development strategy and a development corridor for sustainable and irreversible growth, is worthy of in-depth scrutiny in the context of fragile and conflict-affected situations. To this end, the diversification pattern and export performance in FCACs are captured at the cross-continent and cross-country group levels. In particular, the interaction between diversification and export performance is examined through weighing the relative importance of three endogenous factors—natural resource endowment, conflict intensity, and state fragility. As previously mentioned, this discussion is limited to several factors only, leaving other critical external factors, such as foreign aid, official finance flows, and imposition of economic sanctions, to future studies.

Not so surprisingly, in a global comparison, the conflict-prone countries in

SSA comprise the lowest performers in terms of exports per capita and industrial share of GDP over the last decades. As duly predicted, both annual export performance and non-primary sector production are sensitively subject to international commodity prices, whose ups and downs are, in turn, translated into those in the growth and industrialization process in almost all FCACs. That says the 'concentration trap' does exist, preventing the benefits of short-lived export growth from being transferred to long-term, structural progression towards industrialization and diversification. Overall, the time-series analysis demonstrates that even today, some diversification does occur, albeit in a boom and bust cycle, and remains largely subject to the fluctuation of international commodity prices. Although the resource curse thesis has been a major explanation of the erratic performance of resource-rich countries, the following evidence suggests otherwise; among the violence-affected, unstable economies in SSA, resource endowments remain critical to have a better chance of diversifying their industrial bases and exports. The presence of ample resources is one of the factors that help differentiate the individual performances of the FCACs in both the areas of exports per capita, and of industrial share of GDP. A more intensified war experience is associated with a smaller volume of exports per capita, whereas the industrial share of GDP is not sensitive to varied conflict records. Among other things, the measured state fragility displays the weakest association with varied diversification levels of the FCACs.

Given the overall trends identified, it is centrally argued that among the chosen conditions, natural resource endowments[9] is the most likely to function as a positive factor to export diversification in conflict-affected contexts; in other words, the effect of the 'resource curse' adversely plays out

9) This study focuses on the resource endowments only, but other important initial conditions (e.g., quality of infrastructure, human capital (education), geography (access to the coastlines or rivers), foreign aid endowment, arable land endowment, durability of political regime) should be considered in future studies.

in the conflict-affected contexts in which resource-rich economies tend to be more diversified than resource-poor ones. Relatively speaking, however, the factors of armed conflict and state fragility are less likely to determine the diversification performance in the country groups. Perhaps, economic diversification may not sound ideal for all areas of Africa. Likewise, a recent OECD policy recommendation (2011) warns some African countries against their hasty return to the strategy of specialization as their economic growth levels are not sufficiently high. Although there is a huge and disturbing gap found between the diverse African realities and the high-level policy discussions, due attention is once again given to African country cases with civil wars and massive conflicts that may present a varied set of opportunities and potentials for diversification.

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국문초록

‘자원의 저주’ 이론 재탐색: 사하라이남아프리카지역 취약분쟁국 산업다각화의 패턴 및 상대적 조건 분석

이지선
경희대학교

지난 60년 동안 사라하이남아프리카(SSA)에서는 경제발전 및 사회개발을 위한 대대적인 노력을 펼쳐왔음에도 불구하고 산업다각화 부문에 있어서 지지부진한 성과를 보여왔다. 지속가능발전목표(Sustainable Development Goals) 시대를 맞이하여 장기적이고 안정적인 국가발전전략으로써 다각화가 다시 주목받고 있는 가운데 본 논문은 SSA국가들 중 국가취약성이 강하게 나타나고 무력분쟁에 시달리는 국가들에 대한 다각화연구가 부재함을 인식하고 이들 국가들에게서 나타나는 다각화의 특수성을 밝히고자 했다. 주요 산업화 결정요인으로 확인된 자원보유, 무력분쟁, 그리고 정부역량 정도에 따라 세부국가군을 나누어 이들 간 다각화 및 경제성장 정도를 비교하였다. 13개의 아프리카 취약분쟁국들의 무역 및 산업다각화 중심으로 시계열분석을 실시했을 때, 대체로 다각화는 지속적으로 발생되기보다는 진보, 후퇴를 반복하는 패턴을 보였다. 흥미로운 것은 ‘자원의 저주’이론에도 불구하고 이들 취약분쟁국들은 자원의 보유 정도가 높을수록 오히려 다각화 정도가 상대적으로 높게 나타났다는 점이다. 자원보유는 다른 주요 요인들인 ‘무력분쟁의 강도’ 또는 ‘정부의 역량(또는 국가취약성)’에 비해 분쟁취약국들의 다각화 성과를 차별화시키는 주요한 상대요인으로 보인다.

[주제어: 산업다각화, 경제발전, 자원보유, 분쟁, 국가취약성, 아프리카]

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