

DOMESTIC RESOURCE MOBILISATION AND INDUSTRIAL SECTOR PERFORMANCE IN ECOWAS COUNTRIES: EVIDENCE FROM GHANA AND NIGERIA

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ABSTRACT

This paper investigates the relative impact of domestic resource mobilisation (DRM) on the industrial sectors of Ghana and Nigeria. Three variables – remittances, tax revenue, and savings – were used to capture the DRM phenomenon. Employing the ARDL bounds testing procedure, findings indicate that all DRM variables had significant but varying effects on industrial sector performance in both countries. While remittances and tax revenues impacted positively on Ghana's industrial output, they had opposite effect on Nigeria's. Conversely, while savings had a benevolent impact on Nigeria's industrial output, the same could not be said of Ghana's. Furthermore, the two economies are plagued by deficient institutional capacity to mobilize local resources and deploy same to their industrial sectors. The study recommends, inter alia, the securitisation of future remittances by banks for critical infrastructure and developmental projects.

Keywords: DRM, Industrial Sector, Nigeria, Ghana

JEL Classification: D78, E22 and F65.

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1. INTRODUCTION

The coordinated and strategic assembling of local resources in pursuance of development goals is conceptually termed Domestic Resource Mobilisation (DRM) and has been shown to be a better approach to achieving accelerated development of developing countries than its competing alternative of aid, foreign direct investment (FDI), debt relief, and even trade (Culpeper and Bhushan, 2010). DRM encompasses the savings and investments created by government, households and domestic firms in the economy. Among its merits is the policy space which it provides government and the latitude which it gives the implementing country in taking ownership of its domestic policy and strategy. This lessens the tendency of dependence which is tied to aid as well as the manipulation of the domestic political economy by donor countries and their agencies.

Nigeria and Ghana are two significant economies within the ECOWAS sub-region. While the former is undoubtedly the dominant player in the economics of the Community with its vast natural and human resources, the latter is also a major participant in its own right with huge reserves of oil recently discovered. The two countries have a combined population of 201.51 million people (Nigeria 174.51 million and Ghana 27.0 million) out of a total of 331.43 million people in the entire West Africa. This represents about 60.8% of the ECOWAS population (ECOWAS, 2016). Furthermore, the two economies represent close to 60 per cent of the entire ECOWAS market and a combined GDP of \$607,156 billion disaggregated into \$38,648 billion and \$568,508 billion for Ghana and Nigeria respectively, out of \$731,542 billion for the entire sub-region (WDI, 2015).

Besides the dominance of these economies vis-à-vis the rest of the sub-region, their industrial sectors are strikingly similar, bedevilled by analogous features. For instance, the growth rate of manufacturing value added in the Nigerian industrial sector exhibited unstable trends in recent times. In 2009 it stood at 7.8% with a marginal decline to 7.56% the following year. However by 2011, there was a huge leap of the rate to 17.8% with another episode of decline in 2012 to 13.4%. Again the growth rate surged radically to 21.7% in 2013 but again characteristically plummeted to 14.7% in 2014. Yet its worst performance was in 2015 and 2016 where it recorded a growth rate of -1.5% and -4.32% respectively (WDI, 2016). For Ghana, a more dismal picture emerges. Manufacturing value added growth rate was not only inconsistent but low. It recorded a negative growth rate of -1.3% in 2009, rising astronomically to 7.6% and 16.9% in 2010 and 2011 respectively. However, by 2012 and 2013 it tumbled to 1.9 and 0.4% respectively, and grew marginally to 1.01 in 2014. By 2015, it was 2.2%, nose-diving to 1.9% in 2016 (WDI, 2016).

Similar patterns emerge when considering the overall industrial sectors of the two economies. Growth rate of the value added in the Nigerian industrial sector grew

steadily from 2.8% (2009) to 5.9% (2010) to 8.3% in 2011. By 2012 and 2013 the rate nose-dived to 2.4 and 2.1 respectively, recovering rapidly to 12.0 per cent in 2014. Trends for Ghana indicate a gradual increase from 4.4% in 2009 to 6.9% in 2010, with a prodigious surge to 41.6% in 2011. By 2012, however, the rate gradually collapsed to 11.0% and then to 3.8% in 2014 (WDI, 2016).

An evaluation of DRM trends in both countries reveals the following features. The percentage contribution of gross domestic savings (GDS) to Ghana's GDP has been unsteady all through the decades of the 1970s to 2000s. Specifically, the average share of savings to GDP was 10.1% in the 1970s, plunging to 4.7% in the 1980s, then rising to 7.5% in the 1990s, and reducing to 5.8% in the succeeding decade. However the share has been continually rising from 16.3% in 2009 to its peak of 22.9% in 2012. By 2013 its share in the GDP reduced to 12.4%. The share of GDS to Nigeria's GDP was understandably higher than Ghana's (on account of her huge population) for the same period. It, though, showed the same inconsistent trends. In the 1990s its share stood at 25.7%, dropping to 20.0% in the 2000s. In 2009 its share was 16.0%, rising to 27.3 and 35.0% in 2011 and 2012 respectively (WDI, 2015). Furthermore, an evaluation of trends of tax revenue as a percentage of GDP for the two economies indicate that in Ghana the rate has been consistently rising from 12.1% in 2009 to 13.3% and 14.8% in 2012 respectively; whereas Nigeria's reveal a low and downward pattern of 5.1% in 2009, 2.2% in 2010 and finally 1.55% in 2012. Indeed, these twin but similar trends in the economies of these nations justify the need for a comparative analysis of DRM efforts vis-à-vis the industrial sector of these countries.

African economies, indeed the oil producing ones like Nigeria, are facing acute fiscal challenges because of dwindling oil prices in recent times. Once again, the trite calls for economy diversification have assumed deafening tones; fiscal prudence is at the front burner of macroeconomic management, with the IMF calling on the Federal Government of Nigeria to increase the Value Added Tax (VAT) rates. Expectedly, the Nigeria government has unleashed policies aimed at sealing the leakages in the system with the implementation of the Treasury Single Account (TSA) and restrictions of funds transfer out of the country. Evidently, the Ghanaian economy is not immune to the shocks from the international oil market. With mounting fiscal challenges due to dwindling oil revenues, the Ghanaian government had to obtain an emergency bailout capital of close to \$1 billion from the IMF. This is ironic given that Ghana just entered the club of oil exporters in 2010. The national currency, the cedi, like the Nigerian naira, has been traumatised by its ever-increasing free fall relative to the dollar. In fact, it was the worst performing currency in Africa relative to the dollar in the first half of 2015 (Bax, 2015). These cumulatively had an unpleasant impact on general economic performance, for in 2014 Ghana's growth rate of 4 per cent was the slowest in 20 years and in 2015 its budget deficit target as a percentage of GDP was raised to 7.3% to

compensate for deteriorating oil receipts (Bax, 2015). Again in the second quarter of 2016 the Ghanaian economy recorded an annual negative growth rate of GDP of 2.5%. In view of these disturbing trends occasioned by the oil glut in the international market, the one single word on the lips of government is economic introspection, a looking inwards by way of DRM. Certainly, the price of oil is a significant variable determining macroeconomic performance of these countries, and its weakness has considerable negative ramifications for their industrial performance in particular. This is because industrialisation is key to economic growth and development (Alokan, 2004; Ekpo, 2004; Udoh, Udejaja & Ebong, 2011).

Given the pivotal role and increasing relevance of DRM, what then is its relative impact on industrial sector performance in the economies of these major ECOWAS countries? Are there any lessons to be learnt from their DRM efforts, especially the institutional capacity of the public sector in mobilizing resources? Have the industrial sectors of these countries benefited from resources locally mobilised? The study focuses on the industrial sector because macroeconomic performance is a general reflection of the underlying economic health of the component sectors of the economy of which the industrial sector is the driving force. Specifically, our empirical analysis zeroes in on the industrial sector in its aggregative form. In the literature, economic development is synonymous with industrialization (Ortiz, Castro, and Badillo, 2009; Castro, 2015) and thus the study takes a deeper analysis of the impact of DRM on the industrial sectors in these countries.

The connection between DRM and industrialisation is apparent. High tax revenues, coupled with high savings, have direct correlation on investment capacity of countries, and could aid the industrial sector via the provision of critical infrastructure which could free the industrial and technological space for private investors. It could provide a critical pool for government to invest in research – a luxury in our climes, but the catalyst that drives industrialisation in developed countries. Indeed the common trends in the industrial sector performance of these countries as well as their DRM patterns compels a study and the present effort hopefully will shed useful policy insights into the dynamics of the industrial sectors of the two economies and how a well-articulated DRM policy could rejuvenate the sectors in the face of palpable macroeconomic crises. To the best of our knowledge, such comparative study is novel.

Following this introduction, section 2 takes a brief overview of DRM in African economies and provides general stylised facts on the focal area of study. Section 3 reviews relevant empirical literature, while section 4 discusses the econometric methodology adopted and offers the theoretical anchor for the study. The result of our empirical analysis is presented and discussed in section 5, while section 6 concludes the paper with salient policy recommendations.

2. DRM AND AFRICAN ECONOMIES

In assessing the capacity of domestic institutions to mobilize taxes and savings, critical measures of DRM, a study done by the African Development Bank (AfDB, 2010), shows that across Africa, countries generally exhibited weak institutional capacity in tax administration. Consequently, the corporate world in Africa exploits these weaknesses and underreports profits and also shifts tax from high to low tax jurisdictions. In 2007 for instance, the following statistics (reported as a percentage of GDP) summarized the position of Africa compared to Germany with regards to efficiency in DRM: resource taxes was just 14% ; taxes on personal income and profits 6.2% ; VAT and excises 6.0% ; and Import duties 2.1% compared to Germany's 36%, 11.6%, 10.5%, and 14.3% respectively. These inefficiencies are structural, having its roots in other imbalances and rigidities in the economy. They are manifested in high tax collection costs, inadequately paid and poorly trained staff, as well as low fiscal returns. Additionally, as significant as the informal sector is to the African economy, taxes are hardly collected as a result of the nature of businesses carried on as well as the near non-financialisation of the sector.

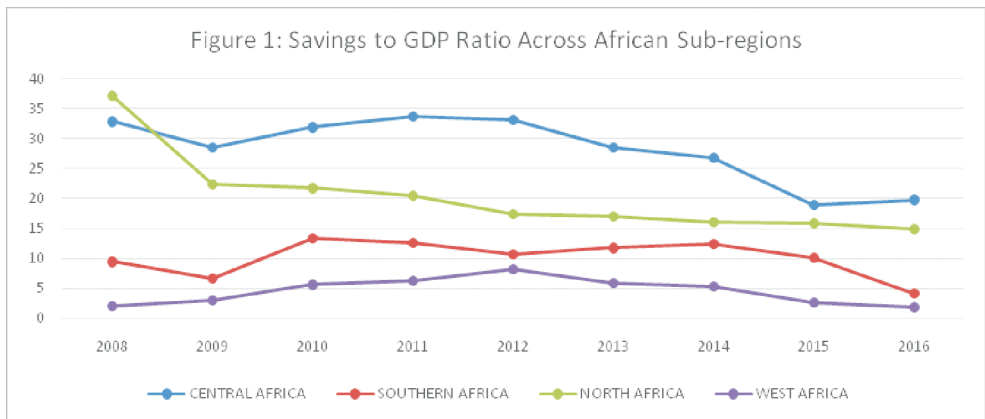
For instance Sudan had a collection cost as a percentage of collected tax revenues of 5.7%; Ethiopia 5.3%; Congo DRC 5.2%; Rwanda 3.2%, and Tanzania 3.2%, compared with Ecuador's and Costa Rica's 1.0% and 0.8% respectively (AfDB, 2010). A study by Oxfam (2012) reveals that in South Africa only about 10% of the population, approximately about 5.9 million out of over 50 million people fulfil their tax obligations, coupled with a huge number of high net worth individuals who are outside the tax net, thus implying a very narrow tax base. At the corporate angle, of the more than 2 million registered companies, a little over 1.6 million are active tax payers.

Table 1 and the associated Figure 1 buttress the above point further. It shows the relative strength of savings as a percentage of GDP across various regions in Africa. Within the selected years, central Africa portrays the strongest position in the mobilization of domestic savings, followed by North Africa, and thirdly by countries of the Southern African region. Interestingly the ECOWAS sub region shows itself the least in savings mobilization. This situation, as stressed earlier, is due to weak institutional capacity to generate the needed domestic resources. Generally, while savings rates in the whole of sub-Saharan Africa are chronically low, it also suffers the burden of high dependence on foreign aid, rising and persistent capital flight due to political instability, insecurity, narrow tax base, as well as policy inconsistency. A review of the Africa Progress Panel's 2014 'Grain, Fish Money' Report by the AfDB (2015) submits that "illegal and unregulated activities related to the fisheries sector in West Africa alone costs the region US\$ 1.3 billion annually in lost revenues, while illegal logging costs the continent US\$ 17 billion every year".

Table 1: Gross Domestic Savings (% of GDP)

Country Group	2008	2009	2010	2011	2012	2013	2014	2015	2016
West Africa	2.04	3.2	5.7	6.3	8.4	5.9	5.4	2.7	1.9
North Africa	37.3	22.5	21.9	20.5	17.4	17.2	16.2	15.9	15.1
Southern Africa	9.6	6.8	13.4	12.8	10.8	11.9	12.4	10.2	4.2
Central Africa	32.9	28.6	31.9	33.7	33.2	28.6	26.8	19.1	19.9

Source: Computed by Authors using data from WDI (2017)



However, the DRM picture is not altogether gloomy. A recent report by AfDB (2015) apparently indicates an optimistic surge in the revenues collected across Africa. Within the last decade, aggregate tax revenues increased four times, from US\$138 billion in 2000 to US\$527 billion in 2012. Comparatively, Africa’s domestic tax revenues in 2012 were 10 times bigger than the net Official Development Assistance (ODA) which stood at US\$51.8 billion. Of the continent’s total tax effort, 68% of total tax revenue is generated by the big five largest tax collectors¹. Indeed this optimism is further strengthened by the fact that both FDI and remittances of Africans now surpass aid which the continent receives yearly.

Variability, though, exists in the tax mobilization efforts among different African countries, with the upper middle income African countries² recording a collection rate of 34% of GDP. This is close to the OECD mean rate of 35%. The low income African countries¹, on the other hand, collected a little less than 17% of their gross income in tax revenues.

3 - Algeria, Angola, Libya, Nigeria and South Africa

4 - Angola, Botswana, Algeria, Gabon, Libya, Mauritius, Namibia, Seychelles, Tunisia and South Africa.

2.2 Stylized Facts on Nigeria and Ghana

2.2.1 Nigeria

Rapid industrial development has become the focus of economic growth owing to its inherent potential benefits. Industrialization, as pointed earlier, drives economic growth and fast tracks the achievements of structural transformation. Before independence in Nigeria, according to Mordi, Englama and Adebuseyi (2010), industrialization was not part of the British colonial economic policy which was anchored on making the colonies primary product producers and importers of finished goods. As a result of this, the first indigenous administration after political independence in 1960 set out for itself the transformation of the Nigerian economy into a modern industrial economy. This was also manifest in the fact that after independence, other National Development plans⁴ embraced rapid industrialization as one of the core national development objectives.

The process of industrial development in Nigeria may be categorized into four phases after independence (Mordi, Englama and Adebuseyi, 2010). The first phase (Table 2 below) which commenced soon after independence was characterized by the implementation of inward looking policies of Import Substitution Industrialization (ISI) of which the Indigenization Decree 1972 provided legal backing. A major objective of this decree was to ensure Nigerians gained control of the commanding heights of the economy. Another feature of this period was the centralization of industrial planning and excessive government involvement in industrial activity. These policies were viewed largely to be successful, evidenced by the increase in the percentage contribution of manufacturing output to GDP from 4.8% in 1960 to 8.6% in 1979 (Udo, et al 2011; Ndebbio, 1991).

Phase two was the oil burst era (1980-1985), when the glut in the international oil market reduced drastically Nigeria's foreign exchange earnings thus impacting negatively on industrial activities.

5 - Côte d'Ivoire, Cameroon, DR Congo, Cape Verde, Djibouti, Egypt, Ghana, Lesotho, Morocco, Mauritania, Nigeria, Sudan, Senegal, South Sudan, São Tomé and Príncipe, Swaziland and Zambia.
6 - starting from 1962-1968, 1970-1975, 1975-1980 and 1981- 1985

Table 2- Industrialization Episodes in Nigeria

Post Independence 1960-	Oil Burst (1980-1985)	SAP (1986-1998)	Consolidation of Structural Reforms (1999-2007)
<ul style="list-style-type: none"> • Import Substitution Industrialization (ISI) • Indigenization Decree 1972 • Centralization of industrial planning and excessive government • Increase in the percentage contribution of manufacturing output to GDP 	<ul style="list-style-type: none"> • Collapse of international oil market • Rise in exchange rate, lower oil earnings, rising national debt • surging imports, lower exports, capacity underutilization • Lower percentage share of industrial output in GDP • Negative growth rates of the industrial sector 	<ul style="list-style-type: none"> • Rationalization of incentives system • Liberalization of the economy • Reduction of the public sector, greater role of the private sector • Second Tier Foreign Exchange Market. Weakening of the naira • Poor performance of the manufacturing and industrial sectors 	<ul style="list-style-type: none"> • NEEDS as the main policy tool. • Wealth Creation; Employment Generation; Poverty Reduction; Value Re-Orientation; Reforming government and institutions; Growing the private sector

Source: Assessment of Literature by Authors

Consequently, the naira fell relative to the dollar, capital inputs into the manufacturing sector became scarce as a result of high exchange rate, capacity utilization in industry fell and by 1985 the percentage share of industrial output in GDP fell to 26.8% as against 40.1% in 1980. Within the period, industrial sector growth rates recorded negative figures of -21.7%, -8.7% and -5.7% from 1981, 1982, and 1983, respectively (CBN Statistical Bulletin, 2008).

Phase three was the structural adjustment period (1986-1998) in which government sought to rationalize its role by reducing direct participation in industrial activities. Performance of the industrial sector worsened further due mainly to the monetary and trade policies that were pursued. The naira was left to compete freely with the dollar at the Second Tier Foreign Exchange Market (SFEM). Thus foreign exchange became

scarce, exchange rate depreciated; industrial inputs, which were mostly imported capital goods soared in prices and impacted negatively on the manufacturing subsector. Expectedly, the industrial sector which recorded a positive growth rate of 26.0% in 1985 drastically posted a negative growth of -10.6% in 1986, the very year SAP was introduced. Capacity utilization fell steeply from 73.3% in 1981 to 38.8% in 1986 (CBN Statistical Bulletin, 2008).

Finally, phase four (1999-2007) is regarded as era of the consolidation of structural reforms. At this time, the National Economic Empowerment and Development Strategy (NEEDS) was launched as the main macroeconomic policy tool to drive the economy. Its core values and objectives were wealth creation; employment generation; poverty reduction; value re-orientation; reforming government and institutions, as well as growing the private sector. Table 3 summarizes the performance of the industrial sector based on its growth rates during these industrial episodes.

Table 3: Growth Rates of Nigeria's Industrial sector in Selected Periods (In Percentage)

Industrial Subsector	End of Civil War (1970-1979)	International Oil Glut(1980-1985)	SAP Period (1986-1998)	Consolidation of Structural Reforms (1999-2007)
Manufacturing	23.4	23.0	0.92	7.34
Industrial	29.5	40.8	2.75	3.58

Source: Authors' Review of literature

In the 1970s, the entire industrial sector (growing at a rate of 29.5%) is rising in tandem with the specific performance of the manufacturing subsector. While the industrial subsector increased substantially to about 41% growth rate in the international oil glut phase, the manufacturing sector still demonstrated that it is the catalyst of industry by maintaining its growth rate of 23% recorded in the previous phase. As the general economy worsened due to debilitating effects of the economic reform programme, the industrial sector was caught in the fray, posting a discouraging growth rate of 2.75% and 3.58% in the succeeding phases. Expectedly, the manufacturing sector fared no less. It recorded a growth rate of 0.92% and 7.34% during the post-SAP phases.

2.2.2 Ghana

The Ghanaian economy is typical of African economies and that of the LDCs generally. It is characterized by production and export of raw materials¹, trade deficits,

¹ - Cocoa, gold, and bauxite

balance of payment disequilibrium, dualistic economic structures, rigidities, poverty and entrenched unemployment. There are three identifiable phases in assessing the performance of the Ghanaian economy. These are 1957 to 1966; 1966 to 1983, and 1984 to 2015.

The first period (1957–1966) was that of moderate economic growth with a mean rate of 4.5%. Industrialization of the economy was anchored on the Import Substitution Industrialization (ISI) strategy, which aim was to modify the industrial structure and reduce dependence on colonial powers. This policy led to heavy state dominance in the economy manifested in the establishment of large scale, capital-intensive manufacturing industries like the Akosombo Hydroelectric Dam, the development of Township and Industrial City, and the Ghana Industrial Holding Corporation (GIHOC) (Anaman and Osei-Amponsah, 2009). These industries were established just after the post-colonial period. The success of the ISI strategy in Ghana could be measured by the expansion of the local manufacturing sector and the growth of extant industries. Thus, the relative contribution of the sector to real GDP grew from 2% in 1957 to 9% in 1969. Manufacturing output grew in the 1960s at a rate of 13% annually, while its share in aggregate industrial productivity rose from 10% in 1960 to 14% in 1970. There was an average growth rate of 8% annually in industrial sector employment, while manufacturing sector employment grew by almost 90% between 1962 and 1970 (Ackah, Adjasi, and Turkson, 2012).

With political and economic instability looming large during the post-Nkrumah era, coupled with the self-inhibiting nature of the ISI policy which discouraged the expansion of exports and agriculture, external shocks, and deterioration in national infrastructure – the manufacturing sector significantly declined, recording a growth rate of 6.9% annually within the period 1963–73. The sector steadily declined even further until the mid-1980s, posting a negative growth rate of -2.4% per annum from 1979–86 (Baah-Nuakoh and Teal, 1993). Thus, the second period (1966–1983) was that of economic gloom, stagnation and decline, with huge reversals of the industrialization boom begun in the first period. During this period, the share of manufacturing value added in total GDP plummeted. The industrial sector grew marginally from 19.3% in 1970 to 21% in 1975 and then fell steeply to 14.8% in 1980 and still fell sharply to 11.1% in 1984. Expectedly, the manufacturing sector also fell sharply in its contribution to the industrial sector from 12.7% in 1970 to 7.6% in 1984 (Ackah, et al. 2012). Few years into the introduction of SAP, precisely in 1987, the sector recovered slightly with a 10% share in GDP. By 1985 the manufacturing sector in Ghana was ranked as the sixth biggest in sub-Saharan Africa in terms of manufacturing value added at \$526m (Baah-Nuakoh and Teal, 1993).

Finally, the third phase which spans to the present was defined by political stability, moderate economic growth averaging 4.8%, and the implementation of huge doses of

neo-liberal policies supported by the World Bank and IMF. These neo-liberal policies embodied in the Structural Adjustment Programme aimed at rationalizing the incentive system and strengthening the competitiveness of local manufacturers. With the removal of quantitative and exchange rate restrictions, liberalization of imports, and privatization of government enterprises, the domestic currency radically depreciated with significant negative impact on the manufacturing sub-sector. Thus in 1981 the growth rate of manufacturing subsector was 0.78%, but with the introduction of SAP, growth in the subsector deteriorated to -36.31% and -11.17% in the subsequent years. However by 1984 the subsector had recovered, posting a growth rate of 12.90%. Yet growth rate of the industrial sector reduced sharply from 11% in 2012 to 7.0% in 2013, with only crude petroleum recording the highest growth rate of 18% in 2013 (GSS, 2014).

Current industrial policy to revamp the sector is captured by the Industrial Sector Support Programme. In it government provides support to the private sector by offering incentives and favourable regulatory framework, technological innovation and expansion of production and channels of distribution. Table 4 abstracts the growth rates of the Ghanaian industrial sector in selected time periods, while Table 5 summarizes the industrialization episodes of Ghana. Table 4 confirms the theoretical notion that the industrial sector develops as much as the manufacturing does, being the most dynamic of all the subsectors. All through segmented decades, the industrial sector has grown as much as the manufacturing has, except for the first period where manufacturing grew by almost 4% and the industrial sector by a paltry 2.1%.

Table 6 indicates the comparative performance of the Nigerian economy with that of the Ghanaian over the last decade. For instance while Ghana entered the Millennium with a whopping 25% inflation rate as against Nigeria's 7%, Ghana's inflation rate increased to almost 33% with Nigeria's at almost 19%. In the subsequent years, macroeconomic policies pursued by both countries helped to marginally reduce the instability but clearly the battle to keep the rate at single digit had not been won. On the whole it appears that of the 15 years x-rayed, Nigeria was able to post a single digit inflation for 5 years while Ghana achieved it for only 2 years. Figure 2 depicts this scenario.

With regards to tax revenue as a percentage of GDP, our conclusion is that Ghana outperformed Nigeria in her ability to mobilize resources (see Figure 2 below). For all of the years, she posted double digit figures as against Nigeria's marginal single digit. This perhaps shows better institutional tax management regime than Nigeria's. Nigeria's economic problems seem to have been further compounded and Ghana's attenuated by the former's inability to retain capital. Flight capital in Nigeria steadily increased from \$517.6 million in 2000 reaching a peak of \$37,990.8million in 2008.

This scenario further widened the financing gap and exerted deeper constraints on resources for development. Other variables of GDP growth rate were a combination of mixed results of inconsistency in performance between the two countries. Of significance however is the fact that Nigeria's gross domestic savings as a percentage of GDP was far greater than that of Ghana in all the years. This is not surprising because Nigeria being the largest economy in the sub-region and indeed the whole of Africa should naturally save a greater proportion of her income than other countries.

**Table 4 – Growth Rates of Ghana's Industrial sector in Selected Periods
(In Percentage)**

Industrial Subsector	1981-1989	1990-1999	2000-2015
Manufacturing	3.96	3.68	4.93
Industrial	2.10	4.41	8.74

Source: Computed by the authors using data from WDI (2016)

Table 5 – Phases of Industrialization in Ghana

Inward over-protected ISI Strategy (1960-83)	Outward liberalized Industrialization Strategy (1984-2000)	Private sector-led accelerated Industrial Development Strategy (2001 -2015)
<ul style="list-style-type: none"> • Dependence on massive public sector investment as the catalyst of industrial development. Use of quantitative import restrictions and import tariffs to secure and support the ISI strategy during the 1960s-early 1970s; • Large-scale deployment of administrative controls to define incentives and apportion resources for industrialization. Introduced in 1962, but extensive use from the beginning of the 1970s to 1983). 	<ul style="list-style-type: none"> • Removal of price and distribution controls, abolishing of import licensing and resorting to market-determined prices as part of ERP from late 1984; • Privatization of the SOEs, launched in 1988; • Industrial policies to assist distressed but potentially viable SOEs in the early 1990s. 	<ul style="list-style-type: none"> • Policy strategy is the industrial Sector Support Programme • Industrial architecture based on value-added processing of Ghana's natural resource endowments. • Market intervention by Government through support of the private sector in the areas of expansion of production and distribution channels, technology and innovation, incentives and regulatory regime.

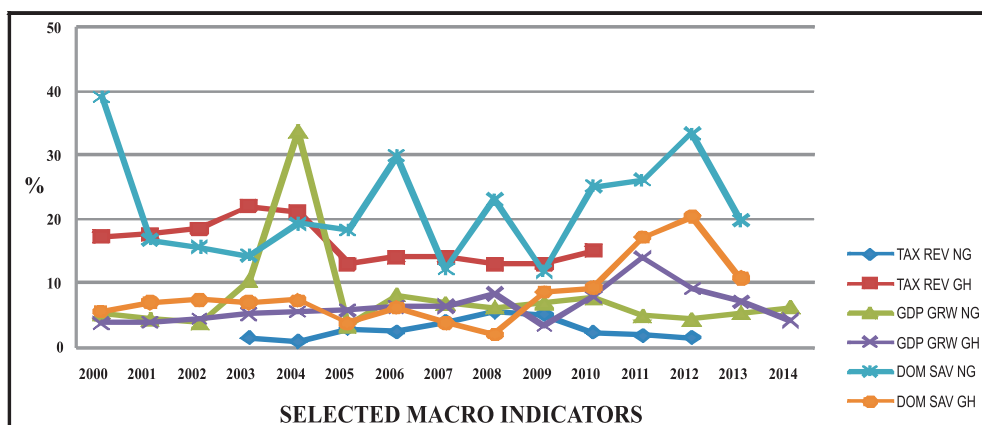
Source: Adapted from Ackah, et al

Table 6: Selected Macroeconomic Indicators of Ghana and Nigeria

YR	TAX REVENUE % OF GDP		INFLATION		REMITTANCES % OF GDP		GDP GROWTH		CAPITAL FLIGHT (In Million, constant 2010 \$US)		GROSS DOMESTIC SAVINGS % OF GDP	
	NIG	GHA	NIG	GHA	NIG	GHA	NIG	GHA	NIG	GHA	NIG	GHA
2000			6.9	25.2	3.00	0.86	5.3	3.7	517.6	209.6	39.1	5.6
2001	-	17.2	18.9	32.9	2.64	0.71	4.4	4.0	3356.5	199.5	16.7	7.0
2002	-	17.5	12.9	14.8	2.05	0.85	3.8	4.5	2723.1	1041	15.6	7.4
2003	1.5	18.5	14.0	26.7	1.57	0.93	10.4	5.2	13106.9	397.8	14.2	7.0
2004	0.91	22	15.0	12.6	2.59	0.92	33.7	5.6	9812.1	499.2	19.3	7.3
2005	2.87	21	17.9	15.1	13.0	0.52	3.4	5.9	29263.4	-908	18.3	3.7
2006	2.41	13	8.2	10.9	11.6	0.47	8.2	6.4	24307.3	748.3	29.9	6.1
2007	3.98	14	5.4	10.7	10.8	0.44	6.8	6.5	26908.4	733.2	12.2	3.8
2008	5.5	14	11.6	16.5	9.23	0.44	6.3	8.4	37990.8	1445	23.1	2.0
2009	5.11	13	11.5	19.3	10.8	0.42	6.9	3.4	29029.3	678	11.8	8.6
2010	2.30	13	13.7	10.7	5.35	5.4	7.8	7.9	18454.6	1184	25.1	9.3
2011	1.80	15	10.8	8.7	5.01	5.14	4.9	14.0	-	-	26.1	17.2
2012	1.56	-	12.2	9.2	4.46	3.9	4.3	9.3	-	-	33.4	20.4
2013	1.48	-	8.5	11.6	4.04	5.2	5.4	7.2	-	-	19.8	10.8
2014	-	-	8.1	15.5	3.66	13.3	6.3	4.2	-	-	21.8	13.1
2015			9.0	17.1	4.38	-	2.7	3.6			15.6	15.7

Source: World Development Indicators, 2016

Remittances data presented above clearly portray Nigeria as being in a stronger position relative to Ghana. Apparently, the size of its economy and diaspora population accounts for this.



More recently, the main sectors driving the growth of the Ghanaian economy has been the Service sector. In 2012 for instance it posted a growth rate of 10.2% of GDP and still emerged one with the largest share of 50.0% of GDP followed by Industry with 27.3% and Agriculture 22.7%. Specifically, the Industrial sector had a growth of 7.0%. Within this sector, Construction and Electricity subsectors posted comparatively high growth rates of 11.2% and 11.1% in that order. Mining and quarrying posted 5.0% growth, while manufacturing and water grew by 5.0% and 2.0% respectively (Sarpong, 2013). Within the same period i.e. 2013, Nigeria's productivity growth was similarly driven by the non-oil sector which grew by 8.4 % compared with 5.8% in 2012, with the Services sector also accounting for the biggest contribution of 35.9 % to the GDP growth. This was followed by trade and agriculture with 1.1 and 0.7 per cent respectively. Construction contributed 0.5% while Industry contributed a negative growth rate of -0.02% to GDP compared to Ghana's 27.3%. The share of industry to GDP reduced to 20.6% in 2013 compared with 21.7% in 2012 (CBN, 2013). It could therefore be fair to argue that the Ghanaian industrial sector is more robust and efficient than Nigeria's.

3. RELATED LITERATURE REVIEW

Several theories find relevance in this study. These are Rostow's economic stages of growth theory, Gerschenkron's theory of economic deprivation, the neoclassical (exogenous) growth theory of Solow, and the endogenous growth model. We briefly review them seriatim.

Generally, the Rostow model attempts to provide a framework as to how economies grow and develop, and whether such definite pattern finds generic applicability to all economies. The Rostow theory explains the historical path of the development process as stretching through and encompassing five stages, namely, the traditional society; the pre-conditions for take-off; take-off to sustained growth; the drive to maturity; and, the age of high mass consumption (Rostow, 1960; Goodall, 1987; Alokun, 2004). Typically describing the development trajectory of a developed capitalist economy, the model's first stage x-rays a traditional society existing at the fringes of economic activity, characterised by subsistence, primitive farming, unskilled labour and the near absence of scientific and technological knowledge. In the pre-conditions for take-off stage, a transition ensues, knowledge of science and its application, education, the mastering of the dynamic forces of nature gathers momentum, and entrepreneurs emerge, culminating in rising national savings. In the third stage, economic growth accelerates, especially in certain sectors where the factory cum industrial system substitutes hitherto primitive methods and techniques. At the drive to maturity, economic growth diffuses to other sectors and the economy becomes more diverse, depending less on imports. The final stage of the theory alludes to a socio-economic condition where citizens relish in rabid consumerism, with development evenly spread amongst the population. Criticised for its ethnocentrism (its wrong assumption that all countries must pass through the same historical

trajectory), compartmentalisation and rigidity, the theory nevertheless is relevant to the present study. Its key policy implication is the emphasis it places on the mobilisation of savings (DRM) as a condition precedent in transiting from a traditional to a developed economy, especially at the take-off stage where rapid industrialisation is the cornerstone.

While the Rostow model describes a developed capitalist milieu, the Gerschenkron's theory of economic deprivation aptly portrays economic conditions of developing countries. It underlines a correlation between economic backwardness and technological development. The theory contends that backwardness deepens as other nations advance economically, creating social tensions and greater sensitivity of the contrasting development differentials and deprivations in the former. These pressures induce great effort on the part of the deprived nations to pursue industrialisation by selecting and importing the most sophisticated machines that can confer scale economies. The theory throws up several implications, a few of which is highlighted here. One, the more deprived and backward an economy is, the more inputs are required for development, and the more coercive and comprehensive the State must intervene. Two, the resources needed to import the capital goods for industrialisation must come from the developed nations, given that the major exports of developing nations are primary products and the attendant balance of payments difficulties that would arise. Three, the development path which developing countries must tread is different from that taken by the advanced capitalist countries. Four, importation of foreign technology is not enough; such must be adapted and domesticated. Finally, the State must play a prominent role in the process of industrialisation – a key element in our study. Mobilisation of resources is purely within the domain of the State. Strong institutions are needed to plug leakages in tax collections. The State must deliberately initiate policies to broaden the tax base. As stressed earlier, DRM is conceptually preferred to aid and so the emerging trend is inward looking.

Finally, the neoclassical growth model and its endogenous modification are relevant in this study, for it also underlines the importance of capital accumulation through savings. It underscores the relationship between aggregate output and the factors that influence it. An extension of the Harrod-Domar model, the Solow theory postulates that economic growth occurs through a combination of three factors, namely, technology, capital and labour. It shows that in the long run, an economy's rate of savings determines the size of the capital stock and therefore the level of output. The policy implications of the model are significant. First, the theory predicts a growth convergence between developed and developing countries. This is because of its inherent assumption of diminishing returns to the factors. Thus, developing nations would grow faster than the developed ones because the returns to capital, for instance, would be greater in the former than in the latter countries. Second, that in the absence of technological progress, economic growth would come to a halt (the steady state), because what drives technological progress is determined (exogenously) outside the model.

This limitation of the Solow Model is modified by the endogenous growth theory, which maintains all the assumptions and functional structure of the former except that it assumes that A , the productivity of K or L is determined within the model (Schumpeter, 1942; Romer, 1986, 1990). Thus the steady state is not a possibility in this model. Increasing returns to the factors is assumed, in as long as firms, motivated by monopoly profits, intentionally invest in research, and government deliberately invest in human capital, infrastructure, and initiate policies to improve domestic savings.

In summary, a common principle that runs through these theories is that economies must accumulate enough savings for investment (capital accumulation) which in turn would be directed and deployed to industrialisation. Economic growth and development would be a natural consequence of these dynamic interactions. The main principle underlying the concept of DRM is its concern with increased revenue generation from savings, taxes (e.g. indirect taxes on goods and services, and taxes on production), remittances and other sources and their rational deployment to critical sectors of the economy like education, research, infrastructure, etc.

While revenue generation from these sources is key to DRM, plugging the loopholes and leakages which deplete national resources that would have been deployed for industrial development purposes is another area of policy focus. Which is why empirical studies on DRM (Ajayi and Khan 2000; Boyce and Ndikumana, 2001) stress the importance of removing the constraints of capital flight in developing countries' efforts at resource mobilization. In 2012 alone about \$991.2bn was siphoned out of developing countries due to tax evasion, corruption, and crime (GFI, 2014.). Growing at an average rate of about 12%, these outflows are equivalent to 10 times the yearly global aid flows and twice as much as the debt developing nations repay every year. Put differently, developing economies lose more capital via illegal capital flight that they gain via ODA and FDI. And between 1970 and 2010, Nigeria topped the list of countries in SSA with the highest capital flight of \$311.4b; Ghana's was \$12.4b (Boyce and Ndikumana, 2012).

Remittances as a source of domestic capital for developing countries have been witnessing a surging trend over the last decade. The world bank Group (World Bank 2016) submits that officially documented remittances to developing countries was \$431.6 billion in 2015 as against \$430 billion in 2014, a rise of 0.4%. In SSA it grew marginally by 1% in 2015 compared to the 0.2% increase in 2014. In nominal terms, Nigeria was the fourth nation (\$20,630.71million)with the highest inflow of remittances in 2014, while Ghana's was \$2,007.83million. Of the three major sources of development finance available to developing countries – aid, FDI, and remittances – remittances outpaced aid in 2004 to emerge the biggest inflow, while in 2011 it was 56% of total inflow to fragile states, of which Nigeria is classified (OECD, 2014). While the development impact of remittances remains unclear and often disputed

because a large chunk of it goes to basic household needs of health care and education [as in Egypt, 80% is spent on consumption expenditures; 20% on small businesses (IOM, 2010)], they nonetheless enhance an economy's development capacity in many ways. It enhances financial inclusion, provides a ready pool of funds for remittances-backed projects (as in Albania and Mexico), and also can be used as leverage for access into the capital market by financial institutions. By securitising future receipts of remittances, they can be used to raise capital for infrastructure and developmental projects (OECD, 2014).

It is widely acknowledged by scholars (Culpeper and Bhushan, 2010; Aryeetey, 2008) that financing domestic investments from domestic resources is potentially the largest source of long term financing for any economy that desires rapid industrialisation. This is because a well-conceived DRM strategy is a necessary condition for developing countries to exit from aid dependence. It is potentially harmonious with resource ownership compared to aid which is inherently tied to conditions and restrictions of external donors. Besides, aid or FDI is constrained to the prior commercial objectives of investors and not to the industrial development needs of the host country. Interestingly, Khan (2007) pointed out that domestic revenue flows are less volatile and more predictable than external revenue sources.

In the ECOWAS sub region, the fragmented and uncoordinated state of DRM and the resultant inefficient intermediation between savings and investment are the key bottlenecks to sustainable industrial development (Culpeper and Bhushan, 2010). Given its importance the problems of inadequate DRM in developing countries due to market failure has dominated attention in recent times. It has been argued that it is not the lack of investible funds that essentially constricts industrial and economic development in developing countries but the inability to effectively mobilize the available funds for productive investment (Shende, 2015). At least, the present battle of the Buhari Administration in Nigeria to plug massive systemic leakages provides an apt example.

While empirical studies linking DRM to industrialisation are scarce, sufficient studies have shown the nexus between DRM and economic growth; and as noted earlier, there is a universal consensus of the oneness of industrialisation with economic growth (Ortiz, Castro, and Badillo, 2009; Castro, 2015). For instance, Szirmai (2009) submits that the industrial sector is the one single sector which utilises more profoundly industrial plants and machinery in the generation of consumption and intermediate goods. This in turn creates and diffuses technical progress into the broad spectrum of the economy. Manufacturing, a critical component of the industrial sector, on the other hand, induces a forward shift in the production possibility curve. Thus, as Thirlwall (1983) argues, a positive correlation exists between industrial performance (cum its associated dynamism) and labour productivity. The poor performance of the industrial sector quickly shows up in lower labour productivity,

which itself is symptomatic of decreasing marginal investment rates per worker as well as negative learning by doing effects. And in the words of De Castro (2015) this “means that there is a fall in the accumulation of experience in handling capital machinery by the labour force”. Studies by De Long and Summers (1991) show that every 1% of GDP invested in plant and machinery raises GDP by 0.33%. They accordingly conclude that industrialisation is synonymous with growth. We therefore affirm that it is not possible for the industrial sector to grow without a concomitant growth in the economy, which manifest in the form of positive externalities, spill over effects, increasing returns and dynamic economies of scale (Kaldor, 1966; Ortiz, Castro, and Badillo, 2009).

It is in the light of the above background linkage between industrialisation and economic growth that studies by Ogunleye and Fashina (2010), for instance, find relevance. Employing Arellano-Bond GMM technique on a panel of 38 SSA countries, they found that savings and investment were the only variables that contributed positively and significantly to economic growth while all the tax revenues, though positive, were insignificant. This result confirms the weak nature of DRM process. We however query the model as specified by Ogunleye and Fashina (2010) study on the grounds that savings and investment are included simultaneously as explanatory variables. It is trite theory that both variables are different sides of the same coin. Ogiriki and Andabai (2014) investigated the relationship between domestic resources with emphasis on domestic credit mobilization and economic development in Nigeria using non-parametric statistics for a sample size of 10 years. The results indicated that there exist a significant relationship between domestic credit mobilization and economic development in Nigeria.

In the same vein, Abeng (2006) undertook a qualitative study in Nigeria that concluded that it is relatively efficient to domestically mobilize resources in an economy that is highly monetized. The study surmises that DRM is restricted in an undeveloped economy where a large proportion of economic activities take place in the hidden economy. Deductively, in such scenario, savings becomes precautionary as opposed to investment driven motive which creates structural savings trap and inevitably affects investment and industrial growth. Also, the existence of the hidden economy that accounts for 47.75% and 36.73% of economic activities (Nchor, Adamec, and Kolman, 2016) in Nigeria and Ghana respectively greatly hinders efficient and effective fiscal revenue mobilization. This buttresses the implications of the results obtained by Ogunleye and Fashina (2010) as earlier discussed and strengthens the fact that developed countries that have highly monetized economies are more vigorous in mobilizing domestic resources (tax revenues).

Overall, our review of literature strongly suggests that while there is a preponderance of studies linking DRM to economic growth or performance, none exist to the best of our knowledge which attempts to quantify the impact of DRM on the industrial sector

specifically. The present effort not only bridges this general gap but zeroes in on the influence of DRM on the industrial sectors of two most significant economies in the West African sub-region.

4. ECONOMETRIC METHODOLOGY

The theoretical underpinning of this study is the endogenous (Solow) growth model which asserts that the long run growth of an economy is determined by combinations of labour and capital, with the assumptions of substitution between the two inputs and increasing returns to the factors. It is essentially of the same structural form akin to the augmented Cobb-Douglas production function. We choose the endogenous version of Solow model because of its assumption that A (total factor productivity, TFP) is determined within the model. This variable could be augmented to include DRM variables already highlighted above. It must be noted that though the Solow model defines economy-wide output, we have shown from the literature that economic growth per se stems from industrialisation. Thus following Lucas (1988), Adebisi & Dauda (2004), Ogbuagu and Udo (2012) and Ada & Anyanwu (2013), who deployed the augmented neoclassical production function to model a subset of the economy, in our specification below, we conceptually substitute industrial output growth for economic growth:

$$Y_t = A_t K_t^\alpha L_t^\varphi \dots\dots\dots (1)$$

where Y_t is output of the industrial sector (INY), A_t is TFP; K_t is capital, and L_t is labour force. In particular, the process of DRM supports the inherent philosophy of the endogenous model in the sense that increased savings (via the different tax channels) and investment guarantee growth. As reviewed above, mobilisation of resources is enhanced where institutions are efficient in sealing the leakages from the system and stemming the tide of corruption and capital flight. Thus A must be defined to include the DRM variables and institutions as discussed in the literature, namely, savings, tax revenue, institutions, and remittances. Capital flight enters the model as a control variable.

Thus,

$$A_t = f(\text{SAV, TXR, REM, INST, CFL}) \quad (2)$$

Specifying equation 2 explicitly, we have

$$A_t = \text{SAV}_t^\lambda \text{TXR}_t^\delta \text{REM}_t^\varrho \text{INST}_t^\gamma \text{CFL}_t^\pi \quad (3)$$

A combination of equations (1) and (3) gives:

$$Y_t = K_t^\alpha L_t^\varphi \text{SAV}_t^\lambda \text{TXR}_t^\delta \text{REM}_t^\varrho \text{INST}_t^\gamma \text{CFL}_t^\pi \quad (4)$$

We linearize and transform equation (4) to an econometric model of the form:

$$\ln Y_t = c + \alpha \ln K_t + \ln \phi L_t + \ln \lambda SAV_t + \ln \delta TXR_t + \ln \partial REM_t + \ln \gamma INST_t + \ln \pi CFL_t + \mu \quad (5)$$

Where:

IN Y	=	Output of the industrial sector
SAV	=	Savings
TXR	=	Tax Revenue
REM	=	Remittances
LAB	=	Labour force
INST	=	Institutions
K	=	capital or Gross Fixed Capital Formation (GFCF)
CFL	=	Capital Flight

where all the variables are as previously defined and μ is the error term. The sign of all the elasticity coefficients are expected to be positive except for capital flight (CFL) which is expected to be negative. The inclusion of capital flight as a control variable is to ascertain the level of responsiveness of industrial output to it, given the fact that an increase in capital flight suggests the incapacity of an economy to efficiently mobilize and retain its domestic financial resources (UNCTAD, 2007).

The study employed autoregressive distributed lagged (ARDL) or bounds testing co-integration procedures of the ordinary least squares regression analysis (Pesaran, Smith and Shin, 2001) because of the time series properties of the data. Preliminary investigations showed they were integrated of different orders. Three merits are derived from this approach. First, it overcomes the challenge of order of integration characteristic of the Johansen procedure (Johansen and Juselius, 1990). Second, it is particularly adaptable to small sample size in contrast to the traditional multivariate Cointegration approaches. And third, it furnishes long run estimates that are unbiased even with endogenous regressors (Ogbuagu and Udo, 2012). Thus the ARDL model to be estimated is of the form:

$$\begin{aligned} \Delta Y_t = & c_0 + \delta_1 Y_{t-1} + \delta_2 K_{t-1} + \delta_3 \ln L_{t-1} + \delta_4 SAV_{t-1} + \delta_5 TXR_{t-1} + \delta_6 \ln REM_t + \delta_7 INST_t + \delta_8 \ln CFL_t \\ & + \sum_{i=0}^k \lambda_1 \Delta Y_t + \sum_{i=0}^k \lambda_2 \Delta K_{t-1} + \sum_{i=0}^k \lambda_3 \Delta \ln L_{t-1} + \sum_{i=0}^k \lambda_4 \Delta SAV_{t-1} + \sum_{i=0}^k \lambda_5 \Delta TXR_{t-1} + \sum_{i=0}^k \lambda_6 \Delta REM_t + \sum_{i=0}^k \lambda_7 \Delta INST_t \\ & + \sum_{i=0}^k \lambda_8 \Delta \ln CFL_t + \mu \end{aligned} \quad (6)$$

In the above specification δ_1 to δ_8 are long run multipliers; c = intercept, and μ the error term. Series of steps are involved in the ARDL technique. First, we deploy the OLS methodology in determining if there is a long run relationship amongst the variables. Second, if there exist a long run relationship (determined by the F-test for the joint significance of the lagged levels of the variables), we proceed to estimate the long run

model. Finally, we estimate the short run parameters of the dynamic model. Table 7 presents a summary of the sources of data as well as their respective measurements. The study period is 40 years (1973 -2013), chosen on the basis of common data availability for the two countries.

Table 7: Variable measurements and Sources of Data

Variables	Measurements	Data Sources
INY	Industrial value Added as a percentage of GDP	WDI (2014)
SAV	Savings as a percentage of GDP	WDI (2014)
TXR	Tax Revenue as a percentage of GDP	WDI (2014)
REM	Remittances in US dollars	WDI (2014)
LAB	Active Working Population	WDI (2014)
INST	Constraints on the Executive, as conceptualized in the Polity IV Database. Existence of checks and balances on the Executive by elected Legislative bodies	Polity IV Project Database. Tabellini (2005) and Ogunleye and Fashina (2010)
K (GFCF)	Stock of GFCF as a percentage of GDP	WDI (2014)
CFL	Capital Flight	Boyce and Ndikumana (2012)

5. PRESENTATION AND DISCUSSION OF RESULTS

5.1 Unit Root Tests

Results of stationarity test of the variables for both countries are reported in Table 8. Results for the two countries show that three of the variables were stationary at levels while the rest were stationary upon first differencing [i.e. I(1)]. The results of the ARDL bounds testing for both countries are reported in Table 9. It shows that the calculated F-statistic of 23.55 for Ghana is greater than the upper bound critical value of 4.85 at the five percent significance level. Similarly for Nigeria, the calculated F-statistic of 63.28 is greater than the critical upper bound value of 4.43. We thus reject the null hypotheses of no cointegration and conclude that there is long run equilibrium relationship amongst the variables in the models for the two countries. Next, we estimated the long run coefficients of the ARDL model at level using the ordinary least squares regression. Our maximum lag length was determined using the AIC and the SIC criteria. These criteria indicated lowest values at the third lag respectively.

Table 8 – Unit Root Test (Ghana)

Variable	GHANA				Rem	NIGERIA			
	ADF Stats	ADF Stats	5% Critical value			ADF Stats	ADF Stats	5% Critical value	
	Level	1 st Diff	Level			Level	1 st Diff	Level	
INY	-	-4.5156	-2.9339	I(1)	-4.4736	-	-2.9331	I(0)	
SAV	-	-5.2913	-2.9339	I(1)	-	-9.9403	-2.9331	I(1)	
TXR	-2.9571		-2.9329	I(0)	-	-6.1711	-2.9331	I(1)	
REM	-	-3.4386	-2.9339	I(1)	-	-6.2143	-2.9331	I(1)	
LAB	-	-4.6026	-2.9339	I(1)	-	-7.6453	-2.9331	I(1)	
INST	-3.5927		-2.9320	I(0)	6.6519	-	-2.9331	I(0)	
GFCF		-6.0859	-2.9339	I(1)	-3.8750	-	-2.9331	I(0)	
CFL	-3.3691		-2.9320	I(0)					

Source: Computed by authors using E-views 8.1

Table 9 – ARDL Bounds Test for Co-integration

Ghana					
Test Statistic	Value	K	Lower bound	Upper bound	Sig Level
F- statistic	23.55	7	3.79	4.85	5%
Nigeria					
Test Statistic	Value	K	Lower bound	Upper bound	Sig Level
	63.28	7	3.15	4.43	5%
Decision for both countries: There is cointegration					

Unrestricted intercept and unrestricted trend (k=7) from Pesaran et al (2001). Note: Upper and lower bounds critical values are obtained from Table C1.v of Pesaran, Shin and Smith.

Source: Authors' Computation

5.2 Long Run Static ARDL Model

Table 10 presents the long run estimated coefficients of the industrial model for both countries using the ARDL technique. From the table, we observe that for Ghana all the variables in the model had the correct a priori signs except savings and institutions.

Furthermore, they were all statistically significant except gross fixed capital formation. Specifically, a unit increase in tax revenue led to 0.623 unit increase in industrial output, whereas a ten percent increase in remittances resulted in 0.1% increase in industrial performance.

Table 10: Industrial Model Results.

Dependent Variable: INY									
	GHANA					NIGERIA			
Variable	Coeff	Std Error	t-stats	Prob	Coeff	Std Error	t-stats	Prob	
C	391.742	181.612	2.157	0.074	0.373	0.169	2.204	0.042	
SAV	-0.825	0.278	-2.962	0.009	0.241	0.053	4.477	0.000	
TXR	0.623	0.106	5.854	0.000	-0.365	0.137	-2.650	0.012	
Log(REM)	0.011	0.005	2.012	0.050	-0.482	0.123	-3.891	0.000	
Log(LAB)	2.531	0.559	4.521	0.000	0.621	0.188	3.293	0.002	
INST	-0.572	0.161	-3.553	0.001	-1.479	0.226	-6.552	0.000	
GFCF	0.096	0.542	0.178	0.865	1.051	0.056	18.499	0.000	
Log(CFL)	-50.635	20.004	-2.531	0.022	-0.779	0.237	-3.277	0.003	
R-Squared	0.8646				0.7092				
Adjusted R Squared	0.8255				0.6853				
DW. Stat	2.6139				2.2167				
F-Stats	260.308				5.4940				
Prob. F-Stat	0.0000				0.0000				

Source: Computed by authors using E-views

The results also indicate that institutions and capital flight may be the constraining variables impeding the growth of the industrial sector in Ghana. This is because, though institutions, for instance, was statistically significant, it nonetheless had the wrong sign. This is a surprising result because it is against the general notion that Ghana is one of the most stable democracies with strong institutions on the African continent. And the sheer size of the capital flight estimate (50.6) indicates the negative impact capital outflows have on the performance of the industrial sector. In the long run, the stock of capital (GFCF) accumulated over time correlates positively with industrial output. However it was not a significant variable explaining the performance of Ghana's industrial sector.

For Nigeria, while three of the variables [(SAV), (GFCF), and (LAB)] turned out with the right a priori sign, TXR, REM, and INST posted negative signs inconsistent with theoretical expectations. A combination of reasons could account for this, namely, weak institutions for which Nigeria is known for (Ajayi, 2003; Sanusi, 2011; Effiom and Ubi, 2015) may have accounted for low tax collections and ultimately the negative

correlation between tax revenues and the industrial sector. Capital flight, like in the Ghana result, turned out with the right a priori sign, indicating that it is still a problem constraining the capacity of the economy to effectively mobilize and deploy resources to the Nigerian industrial sector. The ARDL model posted robust statistical and diagnostic properties as indicated by the adjusted R-squared, DW statistic and the F-statistic.

5.3 Short Run Error Correction Results

The short run error correction representations for the two countries (Table 11) show that the error terms (ECM) are correctly signed and also significant at the five percent level. It indicates a speed of adjustment to long run equilibrium of about 22.22% (Ghana) and 60.34% (Nigeria). The diagnostics indicate robustness for the two models. Other dynamic characteristics of the models show that for Ghana and Nigeria, one period lagged value (INY(-1)) of industrial sector output had a positive and significant impact on their current output.

Table 11: Error Correction of ARDL Model.

Dependent Variable: INY								
Ghana					Nigeria			
Variable	Coeff.	Std. Error	t-stats	Prob.	Coeff.	Std. Error	t-stats	Prob.
C	2.3562	1.0225	2.3042	0.0281	0.3738	0.1695	2.2044	0.0425
D(INY(-1))	0.3738	0.1695	2.2044	0.0425	0.2412	0.0538	4.4771	0.0001
D(LOG(CFL(-1)))	-0.2412	0.0538	-4.4771	0.0001	-0.3656	0.1379	-2.6507	0.0125
D(GFCF(-1))	-0.4823	0.1239	-3.8914	0.0005	-2.2429	2.7876	0.8045	0.5055
D(GFCF(-2))	-0.3656	0.1379	-2.6507	0.0125	-0.3613	0.1972	-1.8324	0.0211
D(INST(-1))	-0.3613	0.1972	-1.9524	0.0211	-1.3918	0.3681	-3.7803	0.0043
D(INST(-2))	2.3562	1.0225	2.3042	0.0281	-0.0691	0.0283	-2.4398	0.0210
D(LOG(LAB(-1)))	40.8879	19.5903	2.0871	0.0481	0.5111	0.1481	3.4501	0.0017
D(LOG(LAB(-2)))	2.0139	0.4099	4.9132	0.0001	0.7936	0.3167	2.5056	0.0252
D(LOG(REM(-1)))	2.4725	0.5362	4.6108	0.0001	-1.3213	0.4168	-3.1698	0.0068
D(LOG(REM(-2)))	-0.6230	0.3090	-2.0161	0.0124	0.0127	0.0048	2.6169	0.0225
D(SAV(-1))	1.0512	0.0568	18.499	0.0000	0.6774	0.2970	2.2807	0.0321
D(SAV(-2))	0.9589	0.2055	4.6656	0.0000	-0.0679	0.0204	-3.3247	0.0028

D(TXR(-1))	-0.8910	1.0179	- 0.8752	0.3874	-156.58	38.403	- 4.0775	0.0047
D(TXR(-2))	0.5990	0.2456	2.4382	0.0229	-10.333	3.8940	- 2.6536	0.0328
ECM	-0.2222	0.1240	- 2.5427	0.0189	-0.6034	0.1545	- 3.9034	0.0036
R-Squared	0.849685				0.88907			
Adjusted R Squared	0.719371				0.72335			
DW. Stat	1.889773				1.96308			
F-Stats	8.142110				172.905			
Prob. FStat	0.0000				0.0000			

Source: Author's computation

Specifically for the two countries, capital flight was correctly signed and statistically significant. This is consistent with the long run result reported earlier. This is worrying, considering that this variable is symptomatic of the constraints and leakages the economy must grapple with, even as authorities initiate policies to mobilise domestic resources for development. GFCF for the two countries surprisingly posted a negative (inconsistent with theory) sign for the two lagged periods, though statistically significant in the Ghana model. In Nigeria, however, its first lagged period was insignificant. The institutional variable was inconsistent with theory for Nigeria; for Ghana its second lag was positive signed. However in both models, they proved to be significant factors explaining industrial output. A plausible explanation to these inconsistent empirical outcomes measured against theoretical expectation is that institutions could be weak, leading to low tax collection rates. With general macroeconomic instability, household incomes, firm revenues and profits could have been depressed resulting in low aggregate savings and its associated negative relationship with industrial output. Of course, weak institutions further constrain the ability of authorities to channel domestic resources to the industrial sector. Labour force estimated coefficients for the two countries met a priori expectations and were also statistically significant. However, savings, remittances, and tax revenue though significant factors explaining industrial performance for Ghana and Nigeria, showed mixed relationships in their respective lags with the dependent variable for the two models.

Other diagnostic tests show that the ARDL model is free of functional form misspecification and serial correlation problems. For instance, the Ramsey Reset test (F-stat = 0.67689; $p = 0.85643$) confirms the linearity of our model, while the Breusch-Godfrey Serial Correlation LM Test and the Q-statistics all suggested the absence of serial autocorrelation in the residuals. These tests produced high probability values across all the estimated lag lengths.

The results also pass the error non-normality test. In particular, Figures 2 and 3 depict the stability properties of the model measured by the cumulative sum of squares residual. The recursive residual lies within 5% critical bounds. We thus conclude that the models are stable.

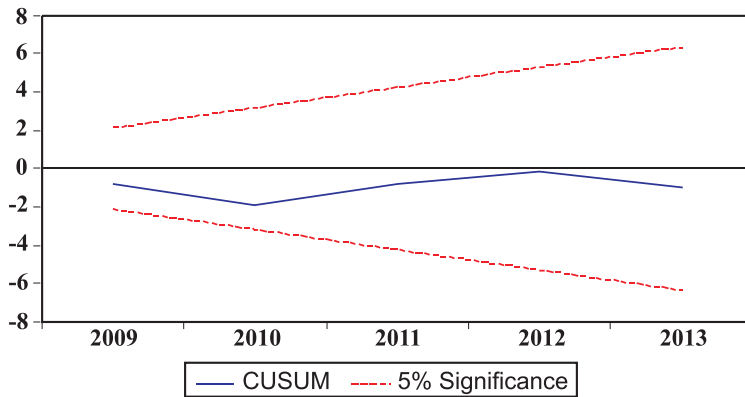


Figure 1: Plot of Cumulative Sum of Recursive Residuals – Ghana

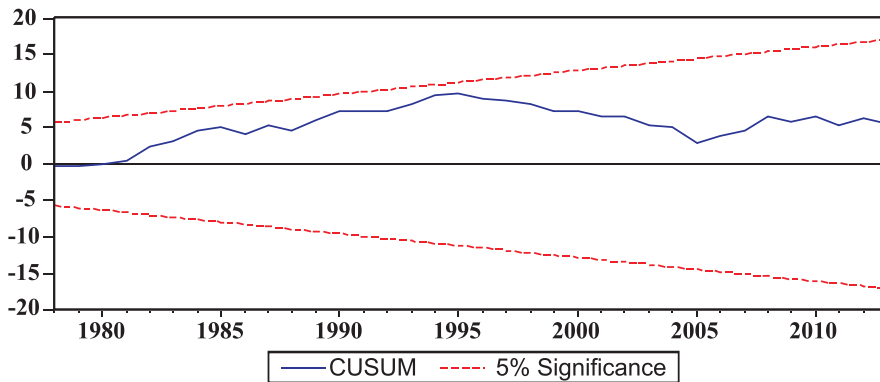


Figure 2: Plot of Cumulative Sum of Recursive Residuals - Nigeria

5.4 Comparative Analysis of Ghana and Nigeria DRM Efforts

We devote this subsection to underscore the relative impact of DRM efforts of Nigeria and Ghana on their respective industrial sectors. In doing this, we pay particular attention to three key pointers in the results: the magnitude of the estimated coefficients, the significance level of the estimated coefficients, as well as the consistency of the signs of the estimated parameters with economic theory. The long run ARDL model estimates for Ghana showed that savings and institutions did not correlate positively as expected with industrial output. For Nigeria, tax revenue, remittances and institutions turned out with the wrong signs. For both countries all variables were statistically significant, except for GFCF in Ghana. There is thus a

shared challenge of the weakness of institutions for the two economies. This has been confirmed by related empirical studies. For instance, Ogwumike and Omole (1997) found the persistence of domestic resource constraint in the Nigerian economy due largely from the weakness of one the key institutions responsible for resource mobilization and deployment – the capital market. Indeed, 26 years later, nothing seem to have changed. A similar study by Siaw, Enning and Pickson (2017) concludes that short run estimates of domestic savings in Ghana have negative and significant impact on economic growth. Affirming this negative scenario further, Adom and Elbahnasawy (2014) assert that there are significant gaps between optimal and actual levels of savings and investment in the economies of Ghana and Nigeria.

Relating these findings to our enquiries, which formed the objectives of this paper, we thus submit that in the long run, specific components of domestic resources impact disproportionately on the industrial sectors of these countries. Specifically (for Ghana), savings did not positively influence industrial output, while it did for Nigeria; tax revenue had a positive and significant impact on industrial performance in Ghana, while for Nigeria it did not contribute to the performance of the industrial sector. Again, the industrial sector in Ghana benefited from remittance inflow from its citizens, while the opposite was recorded for Nigeria. Both countries were however plagued by the twin challenge of weak institutions and capital flight. Comparatively, GFCF had a more benevolent effect on the industrial sector in Nigeria (1.051) than in Ghana (0.096). The magnitude of the estimated coefficients of both variables show that while institutions impacted more negatively on the industrial sector in Nigeria (-1.479) than in Ghana (-0.572), capital flight was more problematic to industrial sector performance in Ghana (-50.63) than in Nigeria (-0.78).

In the short run dynamic representation of the ARDL model for Ghana, the following variables turned out with the wrong signs: GFCF for the first and second lags, first lag of institutions, first and second lags of remittances, and first lag of tax revenues. For Nigeria, variables with the wrong theoretical signs included: GFCF for the first and second lags, first and second lags of institutions, first lag of remittances, second lag of savings, and first and second lags of tax revenue. All the variables were statistically significant for the two countries, except first lag of tax revenue for Ghana and first lag of GFCF for Nigeria. Thus, a common challenge for the two countries is first, the paucity of capital for industrialisation purposes; second the vulnerability of institutions; third, ineffective utilisation of remittances; and fourth, low tax revenues. Among the variables that turned out with the right sign for the two countries was capital flight. Thus in addition to the above constraint at DRM, is capital flight which drains the domestic economy of need resources for industrial development.

6. CONCLUSION AND POLICY RECOMMENDATIONS

Developing economies and indeed economies of the ECOWAS sub-region are in dire straits, especially those which are mono-cultural in structure, depending on oil as the dominant income earner. Nigeria and Ghana are two dominant players in the sub-region, sharing a common index as net oil exporters. But with the current oil glut and the significant plummeting of oil prices, incomes generated from oil has dwindled, national currencies have depreciated with attendant inflationary pressures on goods and services. Policy prescriptions out of these economic woods include targeted efforts at economic diversification through the mobilisation of domestic resources for investment. Resurgent calls are pervasive on the need for the populace to patronize home-made goods. It was within this context that this study set for itself the objective of empirically determining the extent to which domestic resources are mobilized for the purposes of industrial sector development of the Ghanaian and the Nigerian economies.

Our findings – specifically set forth in the last preceding section – suggest that there is gross deficiency in State capacity of the two countries in mobilizing local resources for industrialization purposes. This reflects in negative effect of savings on industrial performance in Ghana, as well as negative effect of tax revenues and remittances on industrial output in Nigeria. For both countries we recommend:

- A comprehensive policy in harnessing the huge capital inflow by way of remittances which the two economies enjoy. This means a strengthening of the financial institutional mechanisms that interface between the nationals of these countries abroad and their home countries. Governments of Ghana and Nigeria might consider allowing banks to securitise future remittances by transforming them to securities for critical infrastructure and developmental projects. They might also take a cue from Albania and Mexico which provide matching funds for projects financed via remittances
- Secondly, the challenge of weak institutions across Africa, the developing world, and specifically Nigeria and Ghana has been a perennial one. There is no simple solution to it. Rather, the building of strong institutions is squarely within the province of the political economy of the respective countries. State organs, especially the legislature and judiciary must strive for and maintain their independence so as to cap the excesses of executive power. Non-State actors like NGOs and civil society organisations (CSOs) must hold governments at all levels to account by insisting on transparency in government transactions, and blowing the whistle whenever necessary.
- Thirdly, the study is definitive of the compromising role played by capital flight to DRM efforts of the two countries. Literature on capital flight have adduced several reasons responsible for this phenomenon, amongst which are instability and insecurity in the domestic economy, infrastructural decay and deficiency, higher

rates of returns abroad, etc. A solution to this lies in better institutions and regulatory framework. Capital outflow restrictions can only be effective within the context of strong macroeconomic fundamentals and institutional quality. The Panama papers exhibit ample evidence, that capital flight thrives amidst weak regulatory institutions.

- The labour force in the two economies has been shown to be a significant factor in the performance of the industrial sector. Governments of both countries should continue to strengthen the human capital component of the labour force. Specifically, investments in education and research, acquisition of skills, training and retraining, are necessary.
- Governments of the two countries might consider initiating specific policies to induce agents to save. Savings respond to high deposit interest rates. The current obsession of agents in the MMM scheme (despite warnings from monetary authorities) is a classic demonstration of the elasticity of savings to high savings rates. The monetary authorities must specifically address the issue of wide interest rate spread so as to encourage savings and mobilise funds for industrial purposes.
- Lastly, Nigeria should improve its capacity to generate revenue. Evidently, she has a broader tax base than Ghana, but the latter generates more tax revenue (as a percentage of GDP) than Nigeria. By the tax criterion set by the ECOWAS Monetary Cooperation Programme (EMCP), a tax threshold of 20% is set for member countries (Ndiaye & Korsu, 2014). However, Nigeria presently has one of the lowest tax ratios of 6% in the world (Adeosun, 2017). Current efforts by the Nigerian government in plugging leakages in the system are welcome; it should be strengthened.

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