

CAPITAL FLOWS AND COMMODITY PRICE EFFECTS ON OUTPUT GROWTH IN SUB SAHARA AFRICA: A CASE OF DOMINANT COMMODITY EXPORTING COUNTRIES

Mustapha, Saidi Atanda

Department of Economics, Accounting and Finance,

Bells University of Technology, Ota, Nigeria

satanda4345@gmail.com

Abstract

Using a large panel of 18 sub-Sahara African countries over the last 45 years, the paper shows that capital flows measured by foreign direct investment and commodity prices influenced output growth. This is conducted through the traditional panel data approaches – pooled, fixed and random panel data models. The paper uses the Redundant Fixed Effects Likelihood Ratio and Hausman tests to select the most reliable panel data model among the three traditional approaches. The paper found that physical investments (proxy by GCF), capital flows (proxy by Foreign Direct investment, FDI), Exchange Rate, Population growth rate and Commodity Prices have significant effects on output growth of major commodity exporters in Sub-Sahara countries. Even, after controlling for inclusion of explanatory parameters, the results show that positive change in physical investments and exchange rates reduce output growth in these countries by significant percentiles. In addition, the negative effect of exchange rate shows the high dependence of the region on foreign goods and services, specifically, in the process of acquiring capital equipment and security tools. Based on the findings, the paper recommends that increase expenditures on general and physical investments to promote capital flows and output growth in these countries are highly essential.

Keyword: Capital flows, Commodity prices, Output growth, Fixed effects panel model

INTRODUCTION

In international finance, capital mobility across national borders has earned a wider audience in terms of significance and importance. Early debate on capital flows had established that it is an avenue for investors to integrate in terms of trade and investment and to earn increase or diversified returns (Mustapha, 2013; McKinnon and Liu, 2013; and Mustapha, 2017). It allows capital to seek out the highest rate of return; either from financial market or the goods market. Evidence from the theoretical lens had shown that capital flows can affect goods market through Foreign Direct Investment (FDI) and therefore, based on this argument this research has strongly supported the claim (Reinhart, Reinhart and Trebesch, 2016; Colombo, Loncan and Caldeira, 2017).

There are several insights that have arose on the merits of unrestricted capital flows, some of these merits include: reduction in risk associated to investment through the diversification of lending and investment activities; enhance global integration of capital markets and increase the adoption of best practices in corporate governance and legal practices; limits the ability of governments to pursue bad policies (Dhar, 2017). With these merits, a country can also not wholly depend on free flow of capital as it's attending consequences outweighs these identified merits. Meanwhile, the ability of a country to understand the effect of capital flows and its position in economic growth is paramount.

Most African countries depend solely on their mono-cultural trade practices. These African countries opined that a major source of their capital inflow depends on the ability to facilitate and gain more from commodities they export. For instance, Nigeria earned above 50% of its capital inflow from oil exports. Burundi, Zimbabwe, Mauritania and South Africa earned more of their capital flows from Beverage, Cotton, Tobacco and Metals (see Table 1). This indicates that, the level of capital inflow depends on commodity prices and both have direct effects on output growth in African countries.

Studies on capital flows in Africa have failed to consider the trade peculiarity in their estimations and that could have downsized the relative impact of capital flows on the economic variables of consideration (Mustapha, 2017). Similarly, most studies have downplayed the contribution of commodity exports and their prices in attracting capital flows. Therefore, studies on capital flows in Africa that recognize the importance of commodity prices to stimulating capital flows are absolutely limited. This research intends to fill this vacuum.

There are three major types of international capital flows: foreign direct investment (FDI), foreign portfolio investment (FPI), and debt. Capital flows that have equity-like features (that is, FDI and FPI) are presumed to be more stable and less prone to reversals. FDI yields more benefits than other types of financial flows because it comes with more direct control of

management. In national and international accounting standards, FDI is defined as involving an equity stake of 10% or more. FPI is different from FDI in that it lacks the element of lasting interest and control. The third type of foreign investment - debt flows, consisting of bank loans and bonds, are regarded as more volatile. Capital inflows have played an important role in financing investment and external deficits in many African countries. In addition, higher commodity prices have helped improve external balances and growth outcomes in commodity-exporting countries (Mustapha, 2017; and Dhar, 2017). However, large capital flows and volatile commodity prices have resulted in greater macroeconomic volatility, real exchange rate appreciation, reduced external competitiveness and the build-up of balance sheet vulnerabilities in these countries (see McKinnon and Liu, 2013; Gourio, Siemer and Verdelhan, 2016; Dhar, 2017; and Mustapha, 2017).

Based on the foregoing, the paper contributes to existing researches in two ways: first, it identifies the major exporting commodities that attracts capital inflow to African markets and classify African countries by the exporting capabilities. This approach is to allow the estimation to accommodate the peculiarities of African countries that come to bear as a result of commodity exports. Second, the paper provides the relative effectiveness of capital flows and commodity prices through an output-commodity driven growth. The output-commodity driven growth is a novel measure of output growth that considers the peculiarity of each African country in terms major commodity exports. The paper is organized as follows. Section 1 presents the introduction. Section 2 shows the stylized facts, while section 3 presents the methodology and data. Section 4 provides the estimations, interpretation and discussion. Section 5 concludes on the paper.

STYLIZED FACTS

The relative share of capital flows proxy by foreign direct investment and average capital flow by commodities are presented to provide insights as to how important is this inflow to total inflow and to adjudicate that commodity export is preferred to other country peculiarities in terms of discussing capital flows in Africa. Table 1 shows the classification of countries by major export; eighteen countries are examined, where the major export of six (6) countries is metal, while five countries engage in exportation of beverages (i.e. Coffee, Cocoa). Four countries including Nigeria are exporting oil and the two other countries engage fully in exportation of cotton. This classification is based on tradable goods in international market; although some are booming while the reverse is the case for some other commodities. Consideration of share of FDI is to determine the strength of each country in attracting capital inflow. It is evident that Nigeria has the largest share of 29% within the period under review; and this is followed by Mauritania with

24%. Meanwhile, Burundi and Zimbabwe has 8% share of FDI in the region; when 5% was the share of South Africa.

Table 1: Relative Share of Foreign Direct Investment during (1971-2016)

COUNTRY	EXPORT GOODS	% Share of FDI in Total Inflow
BURUNDI (BUR)	BEVERAGE	0.08
COTEVOIRE (COT)	BEVERAGE	0.03
ETHIOPIA (ETH)	BEVERAGE	0.00
GHANA (GHA)	BEVERAGE	0.01
KENYA (KEN)	BEVERAGE	0.02
UGANDA (UGA)	BEVERAGE	0.03
ZIMBABWE (ZIM)	CT (COTTON, Tobbaco)	0.08
MALAWI (MAL)	CT(cotton, tobacco)	0.01
ALGERIA (ALG)	ENERGY	0.02
ANGOLA (ANG)	ENERGY	0.04
LIBYA (LIB)	ENERGY	0.01
NIGERIA (NIG)	ENERGY	0.02
CONG DEM REP (CONG)	METAL	0.29
GUINEA (GUI)	METAL	0.01
MAURITANIA (MAU)	METAL	0.24
SEIRRA LEONE (SEI)	METAL	0.03
SOUTH AFRICA (SA)	METAL	0.05
ZAMBIA (ZAM)	METAL	0.01

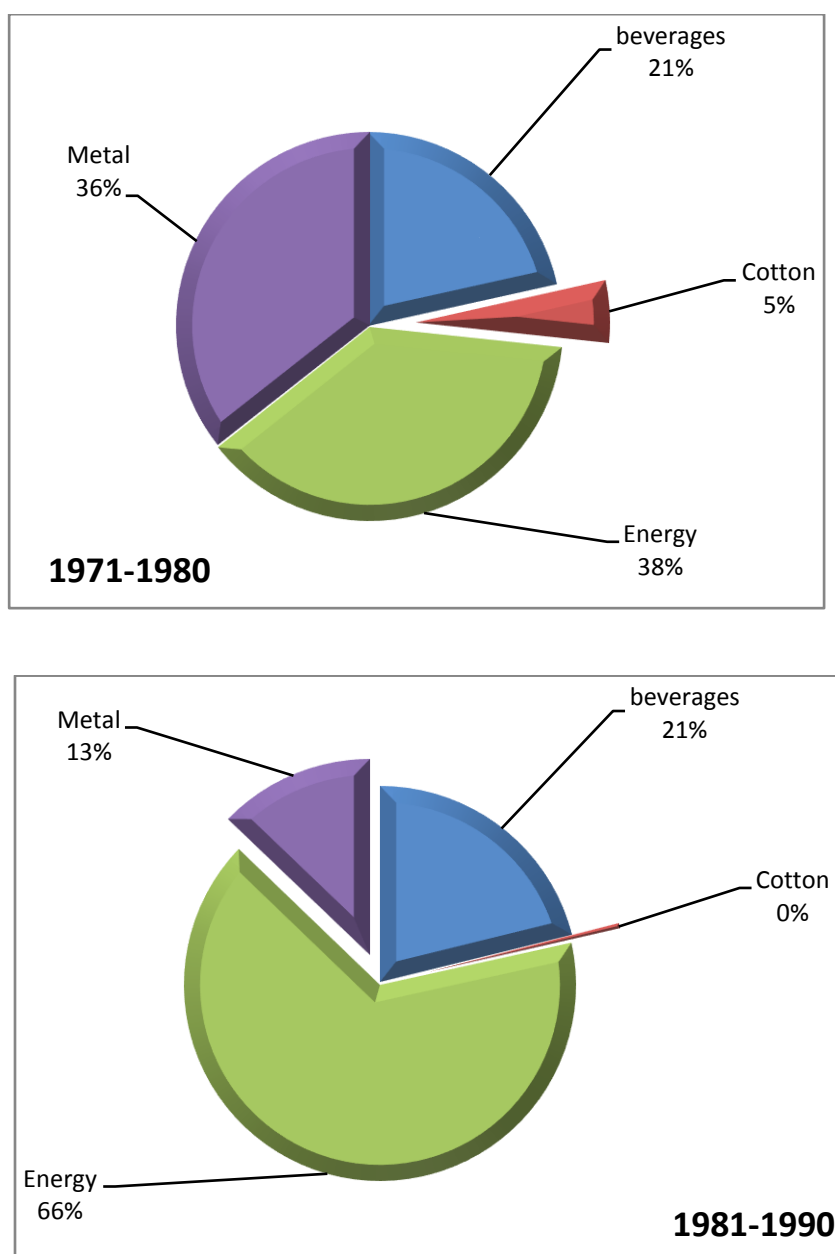
Source: Author's Computation and Compilation (2018)

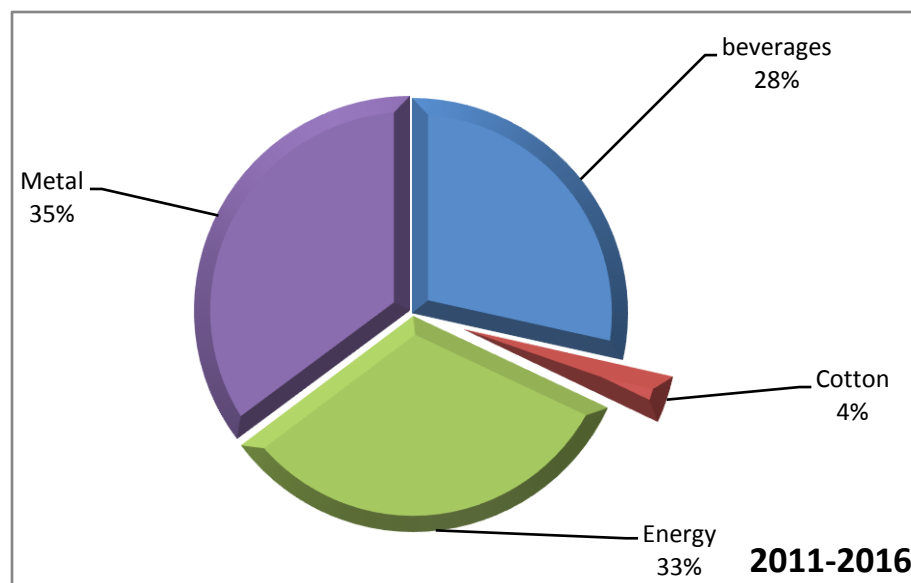
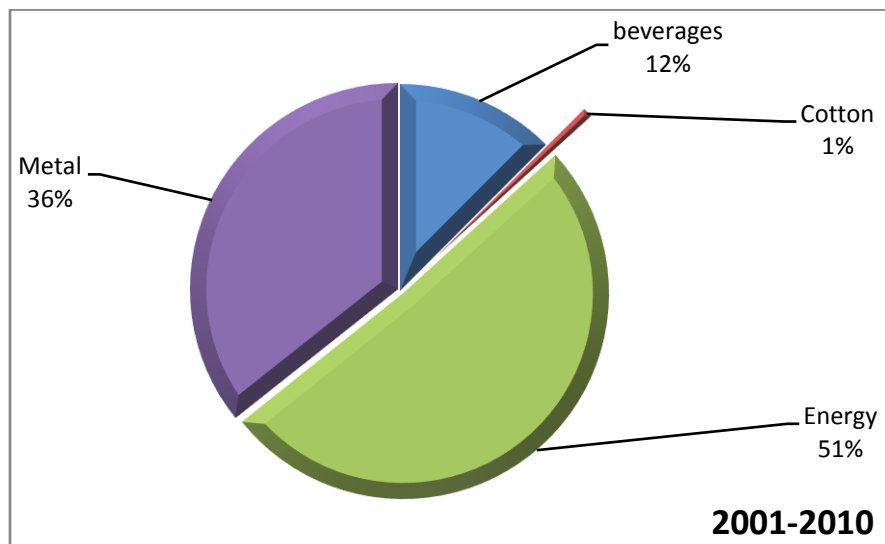
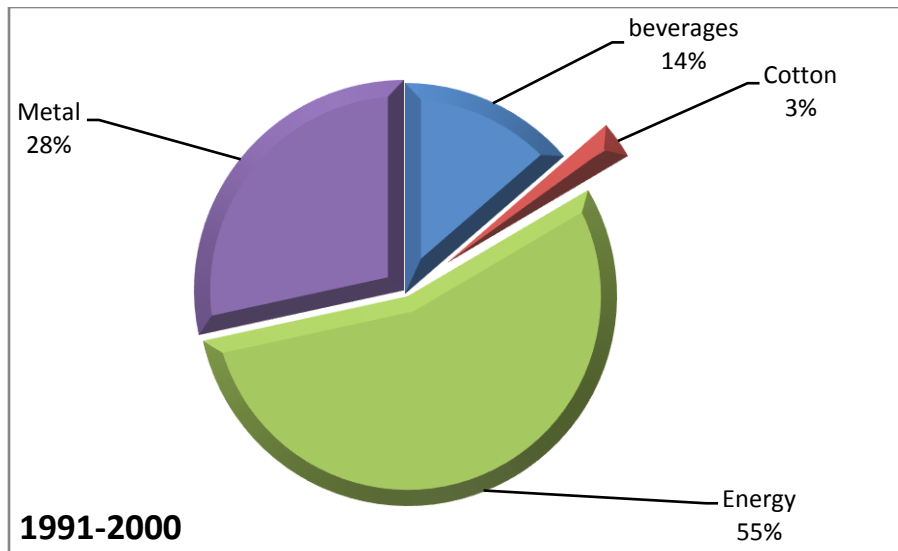
Figure 1 shows the average foreign direct investment that is invested in the selected countries that major in exportation of beverages, cotton, energy and metal. It is evident that the investment in countries that are exporter of crude oil is relatively high among sampled countries over different decades; while countries that produces and exported cotton are relatively low capital inflow. Countries whose export is metal are the second categories of countries with moderate capital inflow in the form of FDI.

However, during 1980-70 period about 38% of FDI in the region is directed towards oil producing countries; while 36%, 21% were invested in Metal and Beverages producing countries. Meanwhile, countries that produced cotton received 5% of the total capital inflow into this sampled selected Africa countries. In the second decade, average investment in energy

supplying countries rose significant to 66% and thus represent the peak period during the period under review; while investment in beverage producing countries remain the same at 21%, that of metal producing countries falls significantly from 36% in previous decade to 13%. Moreover, after 1981-90 periods, FDI to oil producing countries has been declining; while investment has tilted towards countries with major export in metal and beverages.

Figure 1: Average Foreign Direct Investment by Commodities 1970-2016





RESEARCH METHODOLOGY

The data set for the paper include data for 18 sub-Sahara African countries. It garnered data for forty-five years from 1970 to 2015. The main justification for the sample period is the availability of most data series used in the estimation. The data sets are briefly defined as follows: The growth of output which measures the annual growth rate of national output for each of the countries sampled. Capital flows was measured with the change in foreign direct investment, while commodity prices relates to the average basket of prices of similar commodities across selected countries. The paper considered some control variables in line with (Mustapha, 2013; and Gourio, Siemer and Verdelhan, 2016), the control variables are changes in general price level (inflation), investment positions proxy by changes in gross capital formation and exchange rate. The inflation was considered because it determines the real interest rate, which is a source of attraction for foreign investors and thus attracts capital inflows. The investment position in the system ensures that the sub-Sahara African countries selected have adequate investment levels that could drive growth and enhance capital flows. The exchange rate, nonetheless, represents the competitiveness of these countries with the rest of the world. Therefore, the exchange rate is an indicator of countries viability. The data sets were sourced from countries' central banks.

The paper estimated the effects of capital flows and commodity prices on output growth. In this case, the paper runs annual panel regressions of capital flows, commodity prices and output growth. The panel approach used for all the estimations conducted is mainly the traditional panel method. The model is specified as follows:

Model Specification

$$\ln GDP_{it} = \alpha_0 + \alpha_1 \ln FDI_{it} + \alpha_2 \ln ComPrice_{it} + \alpha_3 \ln Infit_{it} + \alpha_4 \ln GCF_{it} + \alpha_5 Exr_{it} + \epsilon_{it}$$

$\ln GDP$ = log of Gross Domestic Product

$\ln FDI$ = log of Foreign Direct investment

$ComPrice$ = log of Commodity price

$\ln GCF$ = log of Gross Capital Formation

Exr = Exchange rate

ϵ = Error Term

EMPIRICAL RESULTS AND DISCUSSION

This section commences with the descriptive analysis. This consists of the panel unit root tests, panel co-integration tests, and traditional panel models. The traditional panels present the estimated models to show the effects of capital flows and commodity prices on output growth in African countries. The results further showcase the relative impact of capital flows on the output

growth with consideration given to the commodity export of these countries. In Table 2, the panel unit root test shows that the null hypothesis establishes the existence of unit root; while the alternate indicate non-existence of unit root. Hence, insignificant p-value indicate acceptance of H_0 ; while significant (i.e. $p < 0.05$) indicate rejection of null hypothesis.

The results of the unit root test indicate that all variables are non-stationary at level. However, when difference in the first-order, it shows that the variables are stationary. It is striking to note that, the related goodness of fit for the model is strong and at about 86.3% of the variation observed in GDP growth. The overall result is significant (F-Stat=21.41, $p < 0.05$) and free from autocorrelation.

Table 2: Result of Unit Root Test

Variables		Levin, Lin & Chu t^*	ADF - Fisher Chi-square	Order of Stationary
In(GDP)	Level	-1.18972 (-0.21548)	44.3784 (0.1171)	Non-Stationary
	First Difference	82.6433 (0.0000)	-10.4731 (0.0000)	I(1)
In(FDI)	Level	1.58577 (0.9436)	1.04926 (0.9837)	Non-Stationary
	First Difference	-5.66164 (0.0000)	23.9492 (0.000)	I(1)
In(COMPRICE)	Level	4.67788 (0.9969)	0.08830 (0.9982)	Non-Stationary
	First Difference	-1.82227 (0.0342)	5.24734 (0.0725)	I(1)
In(GCF)	Level	-0.33499 (0.3688)	1.48018 (0.9306)	Non-Stationary
	First Difference	-2.23480 (0.0127)	23.1448 (0.0580)	I(1)
EXR	Level	2.95014 (0.9984)	0.29869 (0.9995)	Non-Stationary
	First Difference	-4.58042 (0.0000)	24.4628 (0.0004)	I(1)
In(GOVEX)	Level	-11.7445 (0.0000)	43.7826 (0.0000)	Non-Stationary
	First Difference	-13.9792 (0.0000)	64.0525 (0.0000)	I(1)

Panel Co-Integration Test

The essence of co-integration test is to ascertain if a long-run equilibrium relationship exist among variables of the model. The null hypothesis indicates a no co-integration among the variables. The study adopted Pedroni Residual Co-integration test; and the decision rule

requires that the p-value be less than 5% for long-run relationship to assist (i.e. rejecting the null hypothesis); but anything greater than 5% indicates acceptance of null-hypothesis (i.e. no co-integration). In Table 3, the result shows that there is no long-run relationship among the variables as the test statistics for each of the test procedures are not significant.

Table 3: Pedroni Residual Cointegration Test

Series: GDP GFCR FDI EXR INF POP COMPRICE

Alternative hypothesis: common AR coefs. (within-dimension)

	Weighted			
	<u>Statistic</u>	<u>Prob.</u>	<u>Statistic</u>	<u>Prob.</u>
Panel v-Statistic	0.991191	0.1608	0.991191	0.1608
Panel rho-Statistic	0.397340	0.6544	0.397340	0.6544
Panel PP-Statistic	-0.938711	0.1739	-0.938711	0.1739
Panel ADF-Statistic	-1.145839	0.1259	-1.145839	0.1259

Alternative hypothesis: individual AR coefs. (between-dimension)

	<u>Statistic</u>	<u>Prob.</u>
Group rho-Statistic	0.787998	0.7847
Group PP-Statistic	-0.839368	0.2006
Group ADF-Statistic	-1.083019	0.1394

Capital Flows and Commodity Price Effects on Output Growth

In order to ascertain the effects of capital flows and commodity price on output growth, the paper formed and estimated a traditional panel – pooled, fixed and random effect models. As said earlier, the capital flows is represented by the foreign direct investment. The panel regression result is presented in Table 4. It is evident from the table that, Gross Capital Formation (GCF), Foreign Direct investment (FDI), Exchange Rate, Population growth rate and Commodity Price have significant effects on output growth of major commodity exporter in Sub-Saharan countries. Except for inflation that has a not significant coefficient in all the models. After controlling for inclusion of explanatory parameters, the results show that positive change in GCF and Exchange rate reduce economic growth in these countries by 11.28 percent and 0.15 percent, respectively. The implication of this result is that, as investment in real sector or physical capital is undermined, due to poor infrastructural development, such as electricity, output growth in these countries declined precipitously. In addition, the negative effect of

exchange rate shows the high dependence of the region on foreign goods and services, specifically, in the process of acquiring capital equipment and security tools.

Essentially, the result shows that a rising level of foreign direct investment, population growth, and commodity price enhances the position of output growth. Numerically, the estimations reported a meagre 0.0000125% and 0.000342% change for FDI and population growth; however, the effects of commodity prices is huge as it has over 20%. The implication therefore is that, the growth rate accrued to capital inflow (vis-à-vis FDI) is infinitesimal. This shows the weak position of African countries, particularly sub-Saharan African countries to attract capital inflows through FDI. Consequently, the commodity concentration of countries in the region also have varying level of attraction on capital inflows. For instance, the descriptive estimates show that foreign direct investments were tilted towards countries that supply energy products in the world market. Whilst, other countries with less concentration on the commodity received low FDI. This scenario has succeeded in making the contribution of FDI to be very small in the region.

There are two basic features of population and population growth. It is either a consuming population or producing one. The result shows that the population growth characteristics for the region is a consuming one. Increased population within the region has created a large market for goods and services produced by foreigners. Therefore, as the population increases, consumption expenditure also increases and this promote growth of output and not real growth. Conversely, economic growth that is induced by population can as well come from the contribution or productivity of employed labour in the region. Since, the region is marred with high unemployment, intuitively, there is slim conviction to attached economic growth to labour productivity; but could be more realistic to attach such growth to large market created by this factor (population).

The commodity price has a greater influence on the region growth rate; which confirms the submission in various literatures that African countries are predominantly primary products exporters; because the revenue generated from the sales of these commodities constitutes larger percentage of their gross earning. However, consumption and life expectancy ratio are the variables that are significant under Fixed Effect and Random Effect model. Consistently, consumption has reduced poverty after we control for the influence of other variables. Thus, for 1% increase in consumption, poverty has reduced on average by small magnitude (i.e. a significant one); under fixed effect (4.91E-11) and random effect (5.03E-11); while foreign aid and remittance are not statistically significant.

The reliability tests conducted, shows that the fixed effect model has superiority over pooled regression model (see the *Redundant Fixed Effects Likelihood Ratio* test). Similarly, the

result of *Hausman* test, also prefers Fixed Effect to random Effect model; and by implication the fixed effect panel modelling becomes the model for measuring the effects of capital flows, and commodity prices on output growth (see Table 4).

Table 4: Panel Data Analysis

Dependent Variable: GDP Growth Rate

Model	Pooled Effect		Fixed Effect		Random Effect	
	Coefficient	Prob. Value	Coefficient	Prob. Value	Coefficient	Prob. Value
LOG(GFCR)	21.88267	0.0049	-11.28335	0.0095	-11.57628	0.0073
LOG(FDI)	4.38E-07	0.0000	1.25E-07	0.0000	1.34E-07	0.0000
LOG(EXR)	-0.300216	0.0000	-0.155821	0.0015	-0.157781	0.0010
LOG(INF)	0.026835	0.5715	0.019457	0.3766	0.018664	0.3933
LOG(POP)	-7.86E-06	0.0045	8.32E-06	0.0342	6.00E-06	0.1023
LOG(COMPRICE)	8.307841	0.0011	21.02638	0.0000	21.12079	0.0000
C	413.8363	0.0516	-30.84411	0.7968	5.242733	0.9873
R-squared	0.189352		0.862934		0.494676	
Adj. R-squared	0.180508		0.857019		0.489163	
F-statistic	21.41156		145.8971		89.73502	
Prob (F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	0.133274		1.683477		1.338903	

Table 5: Redundant Fixed Effects Tests

Test cross-section and period fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	16.210106	(44,604)	0.0000
Cross-section Chi-square	520.855141	44	0.0000
Period F	1.195039	(14,604)	0.2744
Period Chi-square	18.251684	14	0.1956
Cross-Section/Period F	12.805264	(58,604)	0.0000
Cross-Section/Period Chi-square	535.630591	58	0.0000

Correlated Random Effects - Hausman Test

Test cross-section and period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	7.188427	5	0.0000
Period random	6.742939	5	0.0000
Cross-section and period random	9.193218	5	0.0000

Robustness Results

Table 6, shows the result of Fixed Effect Model (FEM) for segregation of countries by commodity export. Basically, FDI, exchange rate, population growth and commodity prices are the major determinants of growth rate in countries that major in exporting beverages; while inflation and Gross Capital Formation (GCF) remains insignificant. Countries that are major exporters of cotton, has gross capital formation as the major variable that drives capital inflow. Surprisingly, countries that concentrated on crude oil and energy commodities for exports, have gross capital formation and population as major drivers of capital flows and output growth. Lastly, gross capital formation, foreign direct investment, exchange rate and commodity prices remain major drivers of output growth for countries that concentrate on metal as major exports.

Table 6: Panel Data Analysis for Commodity Exporters

Dependent Variable: GDP Growth Rate

Variable	Beverage ¹		Cotton ²		Energy ³		Metal ⁴	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
GCF	0.367735	0.8038	2.566929	0.337	70152744	0.0041	-28.5187	0.0002
FDI	2.66E-07	0.0000	-3.77E-07	0.0037	137727.3	0.5149	2.90E-07	0.0000
EXR	-0.16375	0.0000	0.816904	0.0001	-5391601	0.5198	-0.17522	0.0119
INF	-0.16083	0.6514	-1.61E-05	0.0089	-167727	0.708	0.00437	0.873
POP	2.22E-05	0.0000	-0.33774	0.0000	96.39738	0.0000	9.71E-06	0.1774
COMPRICE	3.264868	0.0000	7.04664	0.0000	-5633765	0.61	19.18276	0.0000
C	-108.497	0.0033	237.4848	0.0025	-4.76E+09	0.0000	501.5363	0.0052
R-squared	0.908918		0.849884		0.487832		0.875734	
Adjusted R-squared	0.904055		0.833465		0.446676		0.866741	
F-statistic	186.8822		51.76247		11.85316		97.38046	
Prob (Fstatistic)	0.0000		0.0000		0.0000		0.0000	
Durbin-Watson stat	1.521368		1.753631		0.866761		1.684252	

1. Burundi, Cote d'Ivoire, Ethiopia, Ghana, Kenya, Uganda
2. Malawi and Zimbabwe
3. Algeria, Angola, Libya and Nigeria.
4. Congo, Dem. Rep., Guinea, Mauritania, Sierra Leone, South Africa and Zambia

Source: Author's computation and compilation

CONCLUSION

The manual has been able to examine the concept and policies that influences how capital flows in and out of a country affects output growth in selected sub-Saharan African countries that are major exporter of Beverages, Cotton, Energy and Metal. The fixed effect panel model (FEM) is conducted to analyze the data set of eighteen countries, between 1970 and 2015, the result shows that the Gross Capital Formation (GCF), Foreign Direct investment (FDI), Exchange Rate, Population growth rate and Commodity Price are significant in influencing the growth rate in major commodity exporter in Sub-Saharan African countries; but inflation was not significant, even, after further estimations.

Similarly, the paper apply the same methodology to analyze country specific effect that is based on commodity classification, the result shows that capital flows proxy by FDI, exchange rate, population growth and commodity prices are the major determinants of output growth in countries that major in exporting beverages; while inflation and Gross Capital Formation (GCF) are not significant. Meanwhile, the results of countries that are major exporters of cotton, show that all the variables are significant except investment variable (gross capital formation). Surprisingly, investment (proxy by gross capital formation) and population growth were significant for countries that are major exporter of crude oil or energy commodities. Whilst, Investment, capital flows, exchange rate and commodity prices were significant for countries that concentrate efforts on metal exports.

Capital inflows and volatile commodity price movements pose significant policy challenges for developing countries. These challenges are of particular relevance to policymakers in Africa, where large capital inflows and rising commodity prices in recent years have strongly affected macroeconomic quantities (fixed investment, trade balances, domestic credit growth, government revenue, GDP growth) as well as prices (CPI inflation, terms of trade, exchange rates). The question as to how to attract capital flows and promote output growth despite these challenges is an issue that is resolved in this paper. Therefore, the paper concludes that, as it is desirable to attract capital flows in these countries, the level of investments and investments in commodities are quite low to stimulate the big-push needed in capital flows; and therefore countries should focus on these two major determinants. Meanwhile, capital flow and commodity prices are good enhancers of output growth. As it is, their effect is quite inconsequential as they possess meagre contributions. However, with the commitment to boost general/physical investments and commodity investments, there is tremendous optimism that the contributions (effects) of these two major variables (capital flows and commodity prices) will improve.

POLICY IMPLICATIONS

- a) The paper recommends increase expenditure on general and physical investments to promote capital flows and output growth in these countries.
- b) It is obvious that commodities and prices have significant effects on output growth and therefore, massive investments in commodities specifically, along the value-chain in which these countries have comparative advantage are desirable.
- c) The commodity price has a greater influence on the region growth rate; which confirms the submission in various literatures that Africa countries are predominantly primary products exporters; because the revenue generated from the sales of these commodities constitutes larger percentage of their gross earning. The paper therefore recommends that these countries should ensure that commodities export should be processed before exported to foreign destinations.

REFERENCES

- Canzoneri, M., Cumby, R.E., Diba, B.T., (2005). The need for international policy coordination: what's old, what's new, what's yet to come? *J. Int. Econ.* 66 (2), 363384
- Colombo, J. A., Loncan, T. R., Caldeira, J. F., (2017), "Do Foreign Portfolio Capital Flows Affect Domestic Investment? Evidence from Brazil", *Jornadas Anuales de Economia*, September 15
- Dhar, A., (2017), "Extreme Capital Flows in Emerging Markets: A Blessing or a Curse?" Department of Economics, University of Mary Washington, Fredericksburg, VA 22401
- Fan, L.S., and Fan, C.M., (2002). The Mundell-Fleming model revisited. *Am. Econ.* 46 (1), 4249. Fleming, M., 1962. Domestic financial policies under fixed and under floating exchange rates.
- Ghosh, A., (1986), "International policy coordination in an uncertain world" *Econ.Lett.* (3).
- Gourio, F., Siemer, M., and Verdelhan, A., (2016), "Uncertainty and International Capital Flows", Federal Reserve Bank of Chicago, United States.
- McKinnon, R. And Liu, Z., (2013), "Hot Money Flows, Commodity Price Cycles, and Financial Repression in the US and the People's Republic of China: The Consequences of Near Zero US Interest Rates", Asian Development Bank Working Paper Series on Regional Economic Integration, No. 107.
- Mustapha, S. A., (2017), "Stock (Mis) pricing and Investment Dynamics in Africa", African Development Bank Working Paper Series No. 278.
- Mustapha, S. A., (2013), "Asset Volatility and Pricing in the Nigerian Stock Exchange Market", African Economic Research Consortium (AERC), Bi-annual series 2013.
- Obstfeld, M. and Rogoff, K., (1995). Exchange rate dynamics redux. *J. Polit. Econ.* June.
- Reinhart, C. M., Reinhart, V., and Tresbesch, C., (2016), "Global Cycles: Capital Flows, Commodities, and Sovereign Defaults, 1815 – 2015", *American Economic Review: Papers & Proceedings* 2016, 106(5): 574-580.
- Soros, G., (2000). *Open society: Reforming global capitalism.* Public Affairs, New York.