



SDI FINAL EVALUATION FORM 1.1

PART 1:

Journal Name:	British Journal of Economics, Management & Trade
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Title of the Manuscript:	IMPACT OF OIL PRICE VOLATILITY ON ECONOMIC GROWTH IN SUB-SAHARAN AFRICA

PART 2:

FINAL EVALUATOR’S comments on revised paper (if any)	Authors’ response to final evaluator’s comments
1- Part 2: Overview of oil in sub-saharan Africa: Nigeria, Angola, Gabon, Equatorial Guinea, São Tome, Cameroon, Ivory Coast and more recently, Ghana, Chad and Sudan are the ten major countries in sub -Saharan (sub-Sarahan) Africa which are stakeholders in the world's energy stake and few more countries may join them in the nearest future [6].	This has been corrected.
2- Part 2: Overview of oil in Africa “The percentage contribution of Africa in 2003 and 2004 was 11 percent.” This sentence should be deleted completely.	It has been deleted.
3- Part 2: “The volatility of oil price can be transmitted into the economy through various channels. An increase in oil price in oil importing countries will increase the production cost and restrict the output at a micro level. (At a micro level when there is an increase in oil price in the oil importing countries the cost of production will increase and therefore output will be restricted.) Despite the fact that the producers have a way of partially passing the effect of price increase onto (on to) consumers, the households will face a higher cost of living as a result of the increase. (but as a result of continue increase in oil price the households face higher costs of living, with the poor being particularly vulnerable.) On the other hand, (At macro level,) if the demand for crude oil is perfectly inelastic to the changes in the price level, (then) an increase in the international price of oil will translate to a higher import bill for the net oil importing economies at the macro level. This situation will lead to a higher trade deficit and will consequently cause a deterioration of the country’s current account balance. These impacts will also have further significant, negative effects and serious repercussions throughout the economy as all the macro-indicators such as employment, trade balance, inflation and public accounts, no comma here as well as stock market prices and exchange rates will be affected. The nature and extent of such an increase will depend on the structural characteristics of an economy even among the oil importing countries. (Even among the oil importing countries the nature and extent of such an increase will depend on the structural characteristics of an economy.) For example, the countries that engage more in the oil trade, rely heavily on fossil fuels and/ or use the energy intensively in industrial production are likely to be more exposed to the volatility of oil price on global commodity markets. (For example, the countries that engage more in oil trade are likely to be more exposed to the volatility of oil price on global commodity markets and also the countries that	All has been corrected.



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are heavily relying on a high fossil fuel and high energy intensive in industrial production.)

A price increase in oil may be seen as a blessing since it will increase the government revenue in the oil exporting countries. However, it is a fact that the negative or positive price volatility of oil increases perceived price uncertainty for all the countries regardless of their trade balance. The price volatility of oil affects national planning, hinders investments and may require expensive reallocation of resources. (In the oil exporting countries while a given oil price increase may be seen as blessing as government revenue will increase. But the fact still remains oil price volatility whether positive or negative increases perceived price uncertainty for all countries – regardless of their trade balance. Such oil price volatility is affecting national planning, hindering investments, and may require expensive reallocation of resources.)

Formulating robust national budgets becomes more difficult, **no comma here** as **the** importing countries face uncertainty regarding import costs and fuel subsidies levels, **no comma here** and exporters face volatile revenues. This may be a particularly profound problem in **developing countries with budget constraints (budget constrained developing countries,)** which rely on oil exports as **the (a)** main source of public revenue. In order to protect firms and households against **the** price volatility on international markets, particularly in **the** developing countries, governments often allocate large parts of their budgets to subsidizing fuel. These subsidy systems not only expose governments to significant budgetary risks, but **also** result in significant environmental costs. **They mainly benefit the wealthier; create disincentives for energy efficiency and crowd out resources from education, health and other investments in development.**

(, benefit mainly the wealthier, create disincentives for energy efficiency, and crowd out resources from education, health and other investments in development.)

However, past evidence reveals that the mineral-exporting countries have been witnessing disappointing economic records. Twelve of the world's 25, most mineral dependent states and six of the most oil dependent countries are classified as Highly Indebted Poor Countries by the World Bank. When taken as a group, all "petroleum rich" less developed countries have witnessed a severe decline in the living standards of their populations and many of them currently rank in the bottom one-third of the United Nations Human Development Index. In addition to poor growth records and entrenched poverty, they are characterized by high level of corruption and a low prevalence of democratization, all of which act to create high risks of civil war.

4- **Part 4 Methodology** : "According to [6] different researchers has operationalized equation 1 in several ways depending on how they specified or measured the vector and the the specific production they adopted. [6] stated that in



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[20] framework vector was taken to be total factor productivity i.e the growth that does not caused by factor input.”

This sentence should be **“Different researchers have operationalized equation 1 by several ways, depending on how they specified or measured the vector as well as the specific production they adopted. [6] The framework vector [20] was taken as the total factor of productivity. [6]**

5- **Part 4.1 Measurement of variables and data source:** “The pooled OLS models were estimated with cross-section effects and corrected for cross-section correlation, period arbitrary serial correlation and time varying variances in the disturbances, and observation specific heteroskedasticity. A serious empirical challenge in the estimation of cross-country regressions concerns how to decide whether to use random or fixed effect model but since our data are unbalanced and to to control for omitted variables we make use of fixed effect. We make use of GMM due to its advantage of taking care of omitted variables and solving endogeneity problem through the choice of appropriate instruments of lagging independent variables (6).

Corrected.

Corrected.

Moreover, six variables¹ which are GDP (gross domestic product), labour, capital REXC (real exchange rate) and OPV (volatility of oil price) were used for the regression.” **There are five variables here.**

This sentence should be **“The pooled OLS models were estimated with cross-section effects and they were corrected for cross-section correlation, period arbitrary serial correlation, time varying variances in the disturbances and observation specific heteroskedasticity. A serious empirical challenge in the estimation of cross-country regressions is to choose which model to use, whether to use the random or the fixed effect model. We make use of fixed effect model since we want to control the omitted variables in addition to our unbalanced data. We use GMM due to its advantage of taking care of omitted variables and solving the endogeneity problem through the choice of appropriate instruments of lagging independent variables (6).**

Corrected.

6-Table 6 Estimates of Panel A should be Table 7 and Table 6 Estimates of Panel B should be Table 8.

7- The result of pooled OLS of panel A shows that the volatility of oil price is positive but statistically insignificant. The pooled OLS results also show that FDI is negatively signed and statistically significant at 10% which means that FDI has a negative effect on the economic growth of oil exporting countries in sub-Saharan Africa. The real exchange rate is also negative and statistically significant at 1% under pooled OLS. This also means that real exchange rate has a negative impact on the economic growth in oil exporting countries in sub-Saharan Africa. Labour and capital **have (has) a** positive impact on economic growth as they are positively signed and statistically significant at 5% and 1% respectively. The results of fixed

Corrected.



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effect show that only **the** volatility of oil price has **a** positive impact on economic growth. On the other hand, the results of **the** volatility of oil price under dynamic GMM model is the same with **those of** the fixed result. In other words, the volatility of oil price has a positive effect on economic growth in sub-Saharan Africa. All other variables **except for (apart from) the** lagged dependent variable **have (has) a** negative impact on economic growth **(and statistically significant apart from FDI.)**The positive effect of the volatility of oil price on oil exporting countries found in this study may be due to the fact that the increases in oil prices will encourage and motivate investors to invest in the oil exporting countries, leading to an increase in the investment funds in African oil exporting countries. As a result, this oil windfall will create the opportunity to increase the government revenue in oil exporting country and will boost the economic growth in the oil exporting sub-Saharan Africa countries [23].

Corrected.

The results of pooled OLS in Panel B show that the volatility of oil price and **the** capital have positive signs but **the** volatility of oil price is statistically insignificant. **(While real exchange rate and FDI are negatively signed and statistically insignificant.)** This effect of the volatility of oil price on oil importing countries may have probably occurred because such countries identify and explore alternative sources of energy so that they are protected from the impact of price volatility or they may adopt measures¹ to reduce the level of dependency on oil international markets. Measures such as decreasing the share of **fossil (fossil)** fuels in the national energy portfolio, increasing the efficiency of energy and developing structural and technological alternatives to make the production processes less fossil fuel intensive can all reduce the dependency on oil. Since these structural policy measures have long-term time horizons, they can be complemented with short-term risk management instruments such as physical reserves, strategic purchasing contracts and financial instruments which are all a common practice among many large private companies for hedging their supply risks [24]. In addition, the positive effect of the volatility of oil price on oil importing countries may be due to the fact that the problem of high oil price is offset through foreign aid or government subsidies. Especially the subsidies given by government help to reduce the burden of poor people so that the nation can still buy products at cheaper price. Besides, the production cost remains low through the subsidiaries and this creates the chance to attract more foreigners to invest in the local [3].

Corrected.

The results of fixed effect of panel B are **a** little different from **the results of** pooled OLS, **no comma here since the result of the volatility of oil price is the same with that of pooled OLS. (the volatility of oil price result is the same with pooled OLS.)** Both labour and **(and)** FDI are negative but labour is statistically significant at 1%. This result is consistence with [7].

We choose (GMM) as **the** robustness check due to its advantage of accounting for heteroscedasticity and eliminating any trace of serial correlation [6]. This method shows little difference from **the** fixed effect results as the volatility of oil price is positive but statistically insignificant. Capital, labour and real exchange rate show positive signs and they are all statistically significant. The adjusted variable pooled



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OLS is 0.38 and 0.97 under fixed **estimation (extimation.)**

With respect to the results of Panel A and Panel B, the impact of the volatility of oil price on oil exporting countries is the same with that of the oil importing countries in sub-Saharan Africa. This result is consistent with the study [25] where no statistically significant difference was found between the economic performance of commodity and non-commodity exporters.

The footnote number 1 should be number 5.

1 The target of such measures is to transform and reform economic structures.

8- Conclusion: The results of this study show that the volatility of oil price has a positive impact on the economic growth of both **the** oil exporting and importing countries **although it is only significant for the oil exporting countries. (but only significant in oil exporting.)** The significant effect of the volatility of oil price in panel A means **that** the oil price witnessed more increases than **the** decreases during the study period and the revenue of the oil exporting **countries (were)** boosted due to the increases. Moreover, the positive impact of the volatility of oil price shows that **the** oil importing countries should have alternative sources of energy to be protected against the volatility of oil prices. These countries should take necessary measures to reduce their level of dependency on international oil markets.

The footnote number 1 cannot be number 5 because footnote number 1 is referring to the tests the author [5] conducted in his study i.e tests are LLC (Levin, Lin and Chu Test), IPS (Im, Pesaran and Shin Test), test of cointegration developed by Johansen, Pedroni and ARDL Test.

Corrected.