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Dynamic relationships among non-oil revenue, government spending and economic growth in an oil producing country: Evidence from Nigeria

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ABSTRACT

This paper investigated the dynamic relationships among non-oil revenue, government spending and economic growth in Nigeria for the period of 1981 to 2015. After establishing a long run relationship among the variables, the error correction model, impulse responses were estimated as well as the granger causality test among the variables. The results of the short run and long run showed negative effects of government spending on economic growth while non-oil revenue showed positive effect on economic growth. We also found non-oil revenue to have negative shocks on economic growth while the government spending shock was positive. The Granger causality revealed that government spending granger caused both non-oil revenue and economic growth supporting the Keynesian and spend-tax hypothesis in Nigeria over the period of the study. We recommend that the economy of Nigeria should be diversified into non-oil sector rather than relying solely on revenue from oil export.

1. Introduction

Nigeria has been a developing economy with her economic growth being unstable, unpredictable and unsatisfactorily low in recent years especially when compared with some other nations of the world (Machi, 2011). As the largest exporter of oil in Africa and an oil dependent economy, the country has witnessed many oil price shocks and disturbances over the years due to oil price volatility in the international market. The oil price has been fluctuating since the 1980s and the 1990s due to activities of the world powers in the global market. Apart from the incessant drop in the price of oil in the past, the recent notable one was the drastic fall of the oil price from $112 per barrel in 2014 to almost $38 per barrel as at the end of 2015 due to the incessant and massive supply of Shale oil by the United States to the global market (British Petroleum Statistical Review of World Energy, 2017). In 2014, according to International Energy Agency (IEA, 2015), Nigeria earned $77 billion from oil export. However, with the fall in oil price in 2015, Nigeria' oil revenue fell to $41.33 billion (Organisation for Petroleum Exporting Countries (OPEC) Annual Statistical Bulletin, 2016). By implication, the fall in oil price in the global market implies fall in the revenue accruing to the Nigerian economy and difficulties in achieving a sustainable level of growth. The reason being that over 80 percent of the government revenue comes from oil export. In addition, the monolithic nature of Nigerian economy since the start of oil exploration in the 1970s has been persistently threatened by the fluctuation in oil prices. This has made the government to come to terms with the growing need for economic diversification from oil to non-oil economy.

In the 1960s, prior to the discovery of oil, more than 70% of the rural population of Nigeria engaged in one type of agricultural activity or the other and between 1963 and 1964, the non-oil sector contributed as much as 65% to the Nation's Gross Domestic

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Product (GDP) (Yesufu, 1996). However, the oil boom of 1973/74 changed the economic environment drastically as the windfall from oil boom around this time had a pervasive effect on the Nigerian economy even till the early 1980s. The shocks nevertheless, slowed-down the economic activity and as a result caused severe fiscal imbalances for Nigeria and oil revenues decreased drastically (Audu, 2012). The slow growth process associated with oil endowed countries has been observed in the resource literature by (Ahmed, 2016, Badeeb, Lean, & Clark, 2017, Balsalobre-Lorente, 2018; Sachs and Warner, 2001; Shahbaz et al., 2017). The over reliance on the exogenous and volatile nature of oil revenue led the Nigeria government to make structural changes in order to look into alternative means of financing the economy by reconsidering non-oil sector that had been neglected in the past due to oil exploration (Edame and Efefiom, 2013).

For this reason, non-oil sector, which is referred to as those groups of economic activities that are outside the petroleum and gas industry forms a crucial sector in Nigeria (Ude and Agodi, 2014). The non-oil sector has the potential or capacity to provide food for human population, source of raw materials for industries and thus, promote economic growth. In the 1980s, the contribution of non-oil revenue to economic growth was 40.02%. Between1980 and 1985, revenue from non-oil increased to 42.27%. In 1995, it was 35.27% after a decade; the non-oil revenue increased to 45.09%. Furthermore, from 2008 to 2014 non-oil revenue has shown tremendous increase from 45.09% to 48.01% (National Bureau of Statistics, (NBS) 2014). This shows that if government devotes much effort to revenue generation from the non-oil sector, the flow of government revenue will be sustainable and appreciable overtime. According to Izuchukwu (2011), the non-oil sectors have the potentials of providing employment opportunities for the teeming population and thereby contributing to the growth of the economy.

The persistent rise in the total government expenditure over the years has been tied to the unpredictable fluctuations in revenue from oil which has led to the unstable growth process in Nigeria. The recent diversification moves of the federal and the state governments in Nigeria solely away from oil to non-oil economy especially due to the recession being experience at present with the negative growth rate of 0.36 percent (National Bureau of Statistics, (NBS) 2016). The debate in the literature has been the rationale for government intervention in the fluctuations of the economy in the short run. The classical economists are of the opinion that the economy will always adjust itself in the long run without the state influence. However, the Keynesian economists submitted that long run adjustment will not take place due to price stickiness as experienced in the United State great depression in 1936 (Keynes, 1936 and Magazzino, 2012). This has since led to several contentions on the role of government spending in the long term growth of national economies. Studies have been conducted on the dynamic relationship between government spending and economic growth on one hand. There are also studies on the relationship between government and revenue on the other hand but with conflicting results. Some studies such as Kumar (2009), Kumar et al. (2009) and Abdullah and Maamor, (2010) are of the conclusion that government spending promotes economic growth (Keynesian hypothesis) while studies such as Ziramba (2009), Ghorbani and Zarea (2009), Yay and Tastan (2009) and Magazzino (2012) advocate that economic growth promotes public spending (Wagnerian hypothesis). There is also the spend-and-tax hypothesis that government spending promotes tax revenue (Hye & Jalil, 2010 and Saunoris & Payne 2010) and tax-and-spend hypothesis that revenue promotes government spending (Eiita & Mbazima, 2008, Wolde-Rafael, 2008 and Magazzino, 2012). The available studies in Nigeria are either on the relationships between non-oil revenue and economic growth (Abogan, Akinola, & Baruwa, 2014; Raheem & Busari 2013; Ude & Agodi 2014 among others) or relationships between government spending and economic growth (Amassoma, Nwosa, & Ajisafe, 2011; Binuomote, 2012; Okoro, 2013 among others). To the best of our knowledge, specific study to date that investigates the dynamic relationship among non-oil revenue, government spending and economic growth in Nigeria is scarce.

This study covers the period of 1981 to 2015. The choice of the starting year is informed by data availability and it was the year of oil boom that resulted in the shift from non-oil sector to the oil sector. The ending year is due solely to data availability. The paper is timely due to the recent diversification move of the federal and the state government away from oil to non-oil economic activities like manufacturing, agriculture, mining, tourism as contained in the Economic Recovery Growth Plan (ERGP) from 2017 to 2020. Lastly, Nigeria can dictate the price and quantities of non-oil commodities unlike the price and quantity of oil which are fixed by the activities in the international market and the OPEC which place limit to the potential growth of Nigeria's economy. It therefore becomes necessary to investigate this area of economic research.

Our results show that long run relationship exists among the variables. The short run and the long run show that non-oil revenue contributes positively to economic growth while government spending contributes negatively to economic growth. The impulse response shows that shocks from non-oil have more negative impact on growth compared to shocks from government spending. Therefore, the outcome of this study would provide more information, understanding and serve as a guide to policy makers, fiscal authorities and governments as regards the interactions among non-oil revenue, government spending and economic growth in Nigeria. The study will also serve as a frame work for further study in this area of economic research. The rest of the paper is as follows. Section 2 gives the literature review, brief history on non-oil reforms is given in Section 3, in Section 4 we have source of data and measurement. Finally, the empirical results are discussed in Section 5 while Section 6 concludes.

2. Literature review

There are many past studies on the relationship between revenue and expenditure on one part and government spending and economic growth on the other part for both developed and developing countries. The nature of the relationship has been inconclusive. The past related studies are reviewed as follows. Ram (1986) examined the impact of government expenditure on growth with the use of production functions specified for both public and private sectors. The data for 115 countries were adopted. The study found government spending to have a significant positive effect on growth. The panel nature of the study excluded the country-specific characteristics of the sampled countries.