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Effect of Oil Revenue and the Sudan Economy: Econometric Model for Services Sector GDP

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Abstract

This paper investigates the impact of oil revenue and the service GDP of Sudan for the period 2000 to 2012. To achieve this goal, secondary data were collected and analyzed using regression methods. The results reveal a causal relationship between oil revenue (independent variable) and service GDP (dependent variables). Regression analysis result suggests that oil revenue affects the service GDP positively. Oil revenue is estimated to have contributed to 78.8 percent of variation in GDP between 2000 and 2012. Furthermore, a unit change in oil revenue will cause a .0246 percent change in service GDP.

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Keywords: GDP; Oil revenue; service sector; Sudan economy, productive sector, regression analysis;

1. Introduction

The global economy is increasingly described as a service economy; this is primary because of the rising share and importance of the service sector in the economies of most developing and developed countries (Mitra 2013). In fact, the country's economic progress has long been depending on the growth of the service sector. Successful economic experiments mention that all advanced economics have always witnessed a shift from classical economic depending mainly on agriculture to industry and then to the service sector(Giarini 1980).

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In 2008, services sector formed over 50 percent of GDP in developing countries. For example, about 47 percent of economic growth in sub-Saharan Africa during the period from 2000 to 2005 is due to the services sector. Industry sector contributed 37 percent while agriculture accounts only 16 percent during the same period. These figures imply that, the economic growth in Africa recently depend heavy on the services sector.(Berument, Ceylan et al. 2010). Consistent with the global economic trend, this paper has paid more attention to the role of service sector in the economic development in the Sudan. The gross domestic product (GDP) in Sudan's economy consists of three fundamental productivity sectors, which are the agricultural, industrial and services' sectors (Drras and Abdullah 2014). The services sector is an important part in economic and social development issues; availability of good services would make a great transformation for the community. Therefore, the primary objective of this paper is to examine the effect of oil revenue on the service sector GDP. The range of this study is limited to a period between 2000 and 2012. The choice of study period is based on the oil production period in Sudan. The research question is as follows:

What is the impact of oil revenue on the service GDP? The study assumes that oil revenue has a significant impact on service GDP.

2. Literature review

Most literature in this area suggests that, the oil economics have enjoyed economic growth since it to begin export oil. It would be valuable to show the transmission in oil economics and determined whether oil revenue lead to real economic growth. Odularu in (2008), shown empirically that domestic and exports oil revenue has positively contributed to the real GDP in Nigeria(Cali 2008). Furthermore, Ceylan and Berument in (2007) had investigated the impact of petroleum price shocks on a number of North African and Middle Eastern economies. The authors applied vector autoregressive model. Their results mention the positive effects of oil price on the GDP for most selected countries (Berument, Ceylan et al. 2010). Another study conducted by Lam and Yang in (2008) examines the causal relationship between economic growth and oil price in seventeen oil developing countries applying cointegration methods. Their results conclude that oil booms often followed by increases in investment and GDP per capita.(Yang and Lam 2008)

As well as, Ogbonna and Ebimobowei in (2012) examined the impact of oil revenue and the Nigerian economy during the period of 1970-2009. They used Pearson correlation to analyze primary and secondary and descriptive statistics to explain evidence and events. The results of the analysis show that oil revenue positively affected the gross domestic product and per capita income of Nigeria. However, the relationship between petroleum revenue and inflation rate was negative. They suggested proper utilization and management of oil revenue to achieve long-run growth and development of the country(Ogbonna and Ebimobowei 2012). Torben and Mideksa in (2012) investigated the economic impact of oil resource endowment using quantitative comparative method and focusing on the Norwegian economy. The study results indicated that on average, about 20% of the growth in GDP per capita since 1974 has been due to the petroleum endowment. In Sudan, a few studies examine the impact of oil production in economic growth.(Mideksa 2013). Hassan Ali in (2010) highlighted the case of Oil, Peace and Development. The author attempted to describe how oil is a core player on the national economy, peace and development issue(Gadkarim 2010). Another study conducted by Samia Satti in, (2011) examines the effect of oil revenue and the opportunities and challenges for economic development in Sudan. The study used recent secondary data in order to provide a comprehensive analysis and clarify negative and positive impact of oil on economic development in Sudan (Nour 2013). Mehdi in (2007) also evaluate the prospective impact of oil revenues on the Sudan economy. The author highlights the difficulties faced by the government in policy designing principally, allocation of oil revenues, diversification of the output and export structure.(Shafaeddin 2007)

3. Materials and Methods

The methods of data analysis are the linear regression (SLRM) and ordinary least square (OLS). The liner regression model specification is as follows:

$$\gamma = \alpha + \beta X + U \tag{1}$$