

Energy Intensity and Economic Growth in Selected West African Countries

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Abstract:

This study examined the long-run effect of energy intensity on economic growth of selected West African countries for the period 1988–2013 given data availability. To achieve its objective, the study uniquely applied the Panel Fully Modified Ordinary Least Squares (PFMOLS) and Panel Dynamic Least Squares (PDLs). Results of the long-run model, using both approaches, show positive interdependence between GDP and primary energy consumption, on one hand, and GDP and electricity consumption on the other hand. Granger Causality test shows unidirectional interdependence among the variables. Causality runs from GDP to Primary Energy Consumed in the long run. This means that energy conservation policy should be adopted in these countries. The findings show that energy intensity is positive and statistically significant in explaining the level of economic growth in the long-run within West Africa. So, the study concludes that energy conservation and efficiency are necessary factors to consider in deciding investments for the West African Power Pool (WAPP). Furthermore, energy efficiency policies and measures are needful even in countries with low energy access, thereby increasing productivity per unit of energy consumed.

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I. Introduction

Energy is very important for every production and consumption activities [1]–[3]. The extent at which a country efficiently utilises its energy resources is determined from the energy intensity. Energy intensity is computed by dividing energy consumption with GDP of a nation and it measures the units of energy consumed per unit of GDP. When more energy wastes are converted into useful products, it lowers the energy intensity [4]. High energy intensity is an indication that the price or cost of transforming energy into GDP is high [20]. Note that economies that are labour-intensive, as West Africa, have low energy intensity while industrialized countries, like the UK, have high energy intensity due to high industrial output.

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