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Do Savings and Income affect energy consumption? An Evidence from G-7 countries.

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Abstract

The article investigates the relationship between the energy consumption, gross domestic savings and gross domestic income of G7 countries by using the time series data from 1970-2012. The study employs the recently developed ARDL- bounds testing approach. The article finds there is strong evidence that growth rate of income, gross domestic savings play a stronger role in determining the short run and long run behavior of energy consumption per capita in G7 countries. The empirical results suggested that in most of the countries the relationship of consumption per capita and gross domestic income is positive, that means when the income rises the consumption will also rise but not necessarily at the same rate, which is in accordance with theory of Keynes of marginal propensity to consume, confirming the absolute income hypothesis. On the other hand the gross domestic savings has a negative relationship with the energy consumption per capita which confirms the same relationship of consumption as the function of difference of income and savings in long run. The Parameters of error correction terms in USA and France are -0.4283 and -0.6190 represents the speed of adjustment is very high and it would return back to the equilibrium level very quickly. While countries like Canada, Germany, and Great Britain are having the parameters of the error correction term as -0.0794, -0.2205, and -0.0867 suggests speed of adjustments is fairly very small and would take time to return to its equilibrium position. While the error correction coefficient in case of Japan is equal to -1.0183, and also statistically significant showing that convergence is more elastic. The study suggests that although Japan, Italy, USA, France are more industrially advanced countries as production is mostly based on industries. The income generated on the basis of the energy consumption in their industries may be used as forced savings to further boost the economy that will definitely affects their growth performance positively in the long run. The reliability and validity of the estimations results are confirmed by the diagnostics tests.

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1. Introduction

The savings and income play a vital role in the development of any economy. The industrialized nations are predominantly depending on the income and savings. The economic theories have more emphasized the role of savings and investment in the economy that economic growth heavily depends on saving and investment. Harrod-Domar growth model emphasized the role of economic growth of a country mostly depends on incremental capital-output ratio, savings rates or and investment. The higher saving rates in any country implies positive economic growth and thus raising per capita income. The empirical evidences from the literature strongly support the rate of savings to achieve a higher level of per capita income. The industrialized nations mostly emphasized on saving and reinvestment which improves the per capita income and thus improving the standard of living. Most of the studies have been conducted in the past about the saving rates and economic growth. It is argued in the literature that the country's whose economy is developing, at the same time the rate of savings is also increased. Thus it was observed that savings and economic growth are strongly correlated. They further argued that the rapid economic developing countries have a positive impact on economic growth and thus contributing to the rise per capita income. But on the other hand the countries whose savings rate is very low results in steady development. The rest of the article is organized as follows. Section 2 highlights brief literature review. Section 3 elucidates the data and model specification. Section 4 explains econometric methodology. Section 5 outlines the empirical results. Finally section 6 concludes.

2. Brief Literature Review

Sheng et al. (2015) has argued in his study about the global imbalances from the perspective of savings and inequality. The causal study was conducted in order to find the impact of income inequality on the economic performance on one hand while on the other hand the causality relationship between savings imbalances and economic stability. It was observed that the savings and inequality was correlated positively. However at the same time the relationship becomes negative when the household who cannot save a part of their income borrows savers funds for consumption. The findings of the study were to reduce the income inequality to mitigate global imbalance. Another study was conducted in order to find the impact of households' savings in the Indian economy. The domestic savings promotes the capital accumulation which in turn helps in contributing to achieve a high economic growth. The estimated results revealed that the house hold savings in India is having statistically significant relationship with GDP, dependency ratios, interest rates, and inflation both in long-run and short-run(Samantaraya & Patra, 2014). The studies conducted by Hufner & Koske (2010) on G7 countries to empirically explain the household savings rates with implication for Germany. They analyzed whether the factors common to other industrial countries can better help to explain the behavior of savings for the German house hold. They argued that income development, real interest rate, inflation are influencing in most countries. Besides these factors they found the stocks prices were influencing the household savings rate positively after 1990. The results of the study suggested that the equilibrium saving rate has moved upward because of the decline in the stock prices. Edwards et al. (1996) conducted a study based on the savings of the Latin Americans that they were so low. The study was conducted by using the data from 36 different countries. A difference in public and private savings were made in such that the latter were determined endogenously by the economic and political variables. The most important element contributing to the public and private savings was the growth per capita income. The political instability was considered as the main reason of having low public savings in these countries. The savings of the Latin Americans are low because of the magnitude of their factors rather than the structural differences. AbuAl-Foul et al. (2010) empirically examined the relationship between real gross domestic savings and real gross domestic product in Tunisia and Morocco by using ARDL. The findings revealed that a long run relationship exists between the variables while no log run relationship was found in Tunisia. The bidirectional causality between economic growth and saving growth was found in Morocco, but a unidirectional causality was found from saving growth to economic growth. Sirisankanan et al.(2015) studied the consumption soothing mechanism of the Thai agricultural households.