International Journal of Multidisciplinary Research and Growth Evaluation
ISSN: 2582-7138
Received: 15-10-2020; Accepted: 18-11-2020
www.allmultidisciplinaryjournal.com
Volume 1; Issue 5; November-December 2020; Page No. 19-20

The relationships between energy consumption and economic growth: A review of the literature

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Abstract
This paper reviews studies that observed the relationships between energy consumption and economic growth in different countries using panel and time-series models. The results showed that energy consumption significantly influenced economic growth, and shared causal relationship.

Keywords: Energy Consumption, Economic Growth, Panel Models, Time-Series Models

Introduction

Achampong (2018) examined the dynamic causal relationship between economic growth and energy consumption for 116 countries over the period 1990 – 2014 using panel vector auto regression and generalized method of moment. The results showed evidence of causal and significant relationship between energy consumption and economic growth.

Baz *et al*. (2019) [2] investigated the relationship between energy consumption and economic growth in Pakistan using non – linear autoregressive distributed lag approach and annual time – series data for the 1971 – 2014 period. The results showed evidence of positive causality between energy consumption and economic growth.

Chen *et al*. (2020) [6] examined the casual links between energy consumption and economic growth by employing a threshold model using a 103 countries sample over the 1995 – 2015 period. The results demonstrated that the impact of energy consumption on economic growth is positive and significant.

Gozgor *et al*. (2018) examined the impact of renewable and non-renewable energy consumption on economic growth in the panel data of 29 OECD countries over the period 1990 – 2013. The results showed that renewable and non-renewable energy consumption are positively associated with a higher rate of economic growth.

Khan *et al*. (2019) [2, 8] employed a seemingly unrelated regression over the period 1990 – 2017. The results suggested that energy consumption increased the levels of economic growth. Lin and Benjamin (2018) examined the interactions between energy consumption and economic growth using a panel dynamic ordinary least squares models for Mexico, Indonesia, Nigeria, and Turkey over the period 1990 – 2014. The results showed evidence of bidirectional causal relationships between energy consumption and economic growth.

Munir *et al*. (2020) [23] re-examined the relationship between energy consumption and economic growth for the ASEAN-5 countries over the 1980 – 2016 period. The results showed a unidirectional Granger causality running from economic growth to energy consumption for Malaysia, the Philippines, Singapore, Thailand, and Indonesia.

Raza *et al*. (2019) [24] examined the impact of energy consumption on economic growth in the USA using the wavelet technique over the 1973 – 2015 period. The result indicated that in the short, medium and long run, energy consumption had a positive influence over economic growth. Furthermore, the result of causality test showed that unidirectional causality running from energy consumption to economic growth was found.

Tao *et al*. (2020) [25] investigated the relationship between energy consumption and economic growth in China. The results showed that energy consumption increased the levels of economic growth in China.

Wasti and Zaidi (2020) [26] investigated the link between energy consumption and economic growth in Kuwait using annual time series data and ARDL approach for the period 1971 – 2017. The results showed a unidirectional causality running from energy consumption to economic growth. Wei *et al*. (2020) [27] investigated the relationship between energy consumption and economic growth in China using multiregional input-output model over the period 2002 - 2012. The results showed that energy consumption strengthened economic growth in China.

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