

Compartion A Review Of Causality Between Energy Consumption And Economic Growth

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Abstract

All production and many Consumption activities involve energy as an essential input. It is a cri critical Source of economic growth, industrialization, and urbanization. For the proper functioning of an economy, energy is necessary and Vital. When analysing the existing Literature regarding the Causal nexus between economic growth and energy, consumption, there exist four different hypotheses, such as growth hypothesis, Conservation hypothesis, Feedback hypothesis. Finding the relationship between these two variables is essential in order to formulate energy-efficient policies. according to the needs of the needs of the nation that will ultimately Lead economic growth. The results of the Literature prove that in order to help the government to Come up with a stable energy policy. Causal nexus should analyse and the Limitations which are existing in the present studies should be solved.

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I. Introduction

Since independence, high and sustainable economic growth has been an issue of Concern for the policymakers makers of the Libyan economy. Several studies have emphasised on the focal role of the agriculture and industry Linkages, industrialisation and development of the Service Sector, in the growth of the economy.

Although these policy initiatives of the initiatives have benefited sustainability of the economy in numerous ways, there is still a rising Concern about the sust economic growth potentials of the economy high ecor due to the increasing significance of the issue of environmental protection. The main target of every nation is to attain sustainable and stable le economic growth; this 1; this will happen only with the integration of many sectors in economy, and energy is one such significant factor that function of is necessary for the proper is avital nation an economy. Energy is Factor in the raising the standard of Livin of people and there by the development of nations. Can be used both for Commercial Energy as well are also the World. As the as non-Commercial purposes. Libya is the Tenth energy Consumer in fastest growing as well as the second-largest populous nation, energy needs. proliferating. Data from various sources pointed out that primary energy Consumption got more more than doubled between 1993 and 2011.

Energy demand in rural and urban areas is rise. The maximum on a a steady intensive sector is maximum energy-intensive the industrial sector accounting for about about 56% of total energy insumption. Per Capita Consumption of energy showed CACR of 2.54% for the period 2011-2017 and 2018-2019 Libyan energy basket has a mix of all the resources a available, including renewable sources.

The Largest energy source is Coal, Followed by petroleum and traditional biomass. As per the energy statics, in the case of crude oil and Natural Gas, during the period 2008-2009 to 2017-2018, the production increased by 0.63% (-) 0.06% where as Consumption increased by 4.59% & 4.82%.

According to the 2011 Census, about one-Fourth of the population Lacking access to electricity and energy security.

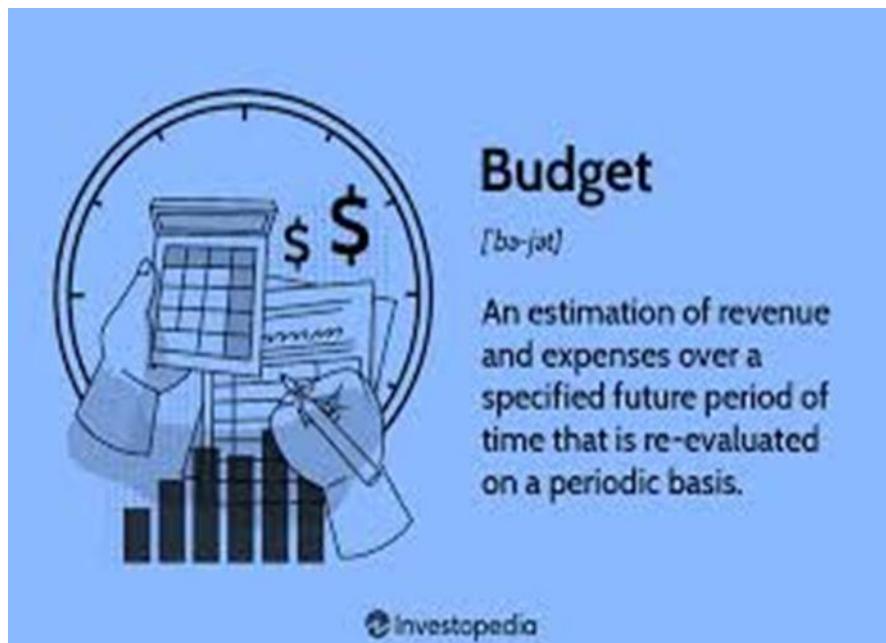
So the country is relying on important for a Considerable amount of its energy use. particulary for crude petrolem. During 2008-2009 to 2017-2018, imports of the Coal increased at a CAGR of 13.11%, Natural Gas and Crude Oil at CAGR of 9.44% and 5.20% respectively, and imports of petroleum products increased at CAGR of 6.67% as shown in figur. 2

The wide disparity in energy use pottern the haves have-nots. between and have-nots, urban and rural and men and Women are also Cause of Concern. Energy a availability to the population is very poor in Libya. Nation's share with the world population is 17%, but it's shares gas, oil, and Coal reserves, Libya energy policy mainly focused on Securing adequate energy resources to meet the growing demands of it's economy. By keeping main agenda as eradication of poverty.

National Energy policy are:

- Access at affordable policy
- Improved security and independence.

- Greater sustainability
- Economic growth.



II. Review Of Literature

The Causal nexus between economic growth and energy Consumption Can trace from the following hypotheses:

- 1) Unidirectional Causality from economic growth to energy Consumption (The Conservation hy hypothesis).
- 2) Unidirectional, Causality from energy consumption to economic growth (The growth hypothesis).
- 3) Bi-directional, causality from energy Consumption to economic growth (The Feedback hypothesis).



The Conservation Hypothesis

This hypothesis focuses on the unidirectional growth to energy Causality from economic Consumption.

The Validation of this hypothesis in a Country implies that a country may implement energy Conservation policies without hurting its economic growth.

This hypothesis also indicates that the economy is Least energy-dependent.

Kraft and kraft (1978) Studied studied the Causality between economic growth and energy Consumption in the US during the period 19447-1974.

With the help of Sims Cause Causality test. it proves that there exists a unidirectional. relationship from the GNP to energy Consumption investigated the nexus Yu and choi (1985) investigated between energy Consumption and economic growth using the Granger Causality test for Five Countries as the US, UK, Korea, Poland and the philippines 1980 - 1976 and prove the existance of Unidirectional Causal. for the period Causality from GDP to energy Consumption in those Countries This study also Concluded with the acceptance of the growth hypothesis.

A recent study by Tsani (2010). in the Greece has also given the Context of Greece Same results.

The study, Conducted using the Toda Yourmmote Causality test.

III. Conclusion

The importance and vitality of the topice Can detect from the growing number of literature that has Coming up from 1970 onwards.

However, there exist some limitations in Literature has and research gaps.

Most of the existing Concentrated on bivariate analysis, rather than multivariate analysis, by omitting many of the influencing factors. So in order to have an efficient and accurate result, more factors should include in the study, For example. the population Contributes a significant role in the energy Consumptin of the nation. so the inclusion of this factor will gives better results. In the Context of global Commitments twards enviromental protect significant reducing the emission is a duty that e every nation has to take up. Since the energy sector is a major Contributor to the emission of pollutants. it is better to consider Carbon emission as a representing Variable. Another gap that exists in the current literature is the failure to Look after the intensity or magnitude of the causality between economic growth and energy Consumption.

Most of the existing studies are using the same methods with the same Variables but different periods. It results in the generation of more Conflicting results for the same nation. Future research must sort out these Limitations.

References

- [1]. Akarca, A.T., Long, TV (1980) On The Relationship Between Energy And GNP.
- [2]. Apergis, Nicholas And Payne, James E. (2009) "Co2 Emissions, Energy Usage, And Output In Central America, "Energy Energy Policy"!'
- [3]. Cheng B.S. And Lai, TW (1997) An Investigation Of Co-Integration And Tween Energy Consumphan Causality Between And Economic Act In Eaiwan
- [4]. Fatai, K, L. Oxley And FG Scrimgeour (2003). Modeling And Forecasting The Demand For Electricity In "Comparison Of Alternative Approaches. Electricity In New Zealand. A
- [5]. Masih, A.M.M. And Mash. R. (1996) "Energy Consumption, Real Income And Temporal Causality. Results From A Multi-Country. Study Based On Cointegration And Error.