

Electricity Consumption and Economic Growth: A Long-Term Co-integrated Analysis for Turkey

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Abstract

Energy and especially electricity consumption is a variable that can be also considered as the indication of the social development as far as economic growth is concerned. Energy, as the input of the industry and other production branches, is an indication for the production increase; and also for consumption with regards to raising the living standards of the consumers. In literature with its situation, it is argued that the electricity consumption is included the mutual causality relation with the growth data in a long-term. As there are several empirical studies that support this hypothesis, in some economies, especially it may sometimes be concluded that the data of the energy utilization in the production area can negatively affect growth in the long-term. Therefore, the literature does not come to the agreed results for the relation between these two variables. In this study, the causality relations have been analyzed by dividing the electricity consumption into three categories; residential, industrial and others, based on the data of the Turkish economy. In the lights of the obtained findings, it is concluded that in long term, there is at most one long-term co-integrating vector between GDP and electricity consumed in residential and industrial areas and also two-way causality relation between GDP and electricity consumed in these sectors. In this case, electricity consumption can be considered as an indicator for both growth and social development.

Keywords: Economic growth, Electricity consumption, Industrial consumption, Residential consumption.

JEL Class.: C22, O40, O43.

1. Introduction

Whereas electricity is an economic value which is increasingly required for the improvement of human living conditions, some of the methods of generating power are at the center of critiques since they have reached the levels that threaten such human living conditions. Energy consumption has a wide literature in terms of both aspects. While industrial demand for energy is directly proportional to economic growth; consumer demand is directly proportional to economic development. Dhungel (2008) defines these two issues together as "national economic and social development". A similar point of view is expressed by Leung and Meisen (2005) that increase in power consumption ...

However, the studies made afterwards and those basic studies referred to almost in every studies can be shown as Akarca and Long (1980), Yu and Choi (1985), Erol and Yu (1988), Abosedra and Baghestani (1989; 1991), Hwang and Gum (1991, 1992), Cheng (1995), Masih and Masih (1997), Glasure and Lee (1997), Soytaş, Sarı and Özdemir (2001), Soytaş and Sarı (2003), Lee (2005), ... Joyeux and Ripple (2007), Joyeux and Ripple (2010) and different findings are obtained in many studies such as these due to the direction of causality in particular, the differences that may evolve out of different country and groups of countries and development levels of countries and their macroeconomic conjuncture .

2. Theory and Literature

In theory, increase in the amount of energy consumption in a closed economy, as well as the increases either in households or industrial sectors, can be considered as the indicators of economic and social development....

2.1. Energy Consumption.....