

Chapter 14

Are Shocks to Energy Consumption per capita in Turkey Permanent or Temporary?

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ABSTRACT

Turkey achieved an average growth rate of five percent during 2003-2013. In the same period, annual average growth rate was four percent in primary energy consumption. This indicates the significance of energy consumption for economic growth. In this context, the energy sector is one of the most important areas in Turkey's national strategy documents. Geostrategic position of Turkey in terms of energy resources affects Turkey's energy policies and strategies. In this framework, the main purpose of the study is to analyze empirically the effects of shocks in the energy sector. In this context, the permanent or temporary effects of shocks on energy use were investigated for the period 1960-2012. According to the test results, shocks had permanent effects on the energy consumption in Turkey. Permanent effects of shocks on the energy use indicate the importance of strategic energy policies for Turkey.

INTRODUCTION

Shocks to energy consumption are important with respect to their impact on national economies. The vulnerability of especially energy dependent countries could be high. The existence of temporary or permanent impact of energy shocks is important for the sustainability of economic growth and consistent energy policies. Therefore, it is necessary to measure the impact of shocks to energy consumption. One of the basic problems of the researches conducted on shocks to energy consumption is the analyses on whether or not the energy consumption series include unit root. The analyses to be conducted in this respect will be an important determining factor of policies and strategies addressing the energy sector. Most importantly, the permanent nature (nonstationarity) of the shocks seen in energy consumption will make the problem even a more significant one for import-dependent countries.

The nature of the shocks to energy consumption for the countries in which there is a close relationship between especially the economic growth performance and energy consumption will have a close impact on the structure and development of other macroeconomic variables (Hasanow & Telatar, 2011). It is possible to discuss a comprehensive literature that investigates shocks to energy consumption from an empirical viewpoint. Narayan and Smyth (2007) investigated the effects of shocks in per capita energy consumption by using the single variable and panel data techniques for 182 countries for the period 1979-2000. The study indicated the shocks to energy consumption are temporary only for 56 countries according to single variable unit root tests, whereas the shocks to energy consumption with respect to panel data econometrics are permanent.

Hasan and Telatar (2011) investigated the effects of primary energy consumption shocks for 178 countries. The nonlinearity and structural break characteristics of the series have been considered to this end. They reached the conclusion that when the structural break and nonlinearity characteristics are considered in a significant portion of the countries investigated in the light of the data obtained, the shocks to energy consumption are temporary. Lean and Smyth (2014) investigated the effects of shocks to energy consumption according to different energy consumption types and energy resources focused on Malaysia. The unit root tests with two structural breaks were used in the study. In light of the findings obtained, they concluded that the effects of shocks changed between fifty to seventy percent with respect to energy consumption types and between twenty-five to fifty percent with respect to energy resources.

Hsu, Lee, and Lee (2008) investigated the effects of shocks to energy consumption with respect to different regions using panel data econometrics. The differences between five regions covering 84 countries for the period 1971-2003 have an impact on the shocks to energy consumption. The analyses conducted addressing the country groups set up according to level of income have also yielded similar results. Mishra, Sharma, and Smyth (2009) investigated the characteristics of per capita energy consumption in 13 Pacific Island countries for the period 1980-2005 using panel data econometrics techniques. In light of the findings obtained, they reached the conclusion that the effects of shocks to energy consumption in sixty percent of the countries investigated and in all of the panel data were temporary.

Turkey achieved an average growth rate of five percent during 2003-2013. In the same period, annual average growth rate was four percent in primary energy consumption. According to some official foresights, energy demand will continue to increase in the long run. Turkey is highly dependent on external energy resources. Turkey's energy dependence rate was 72 percent in 2014. The energy import cost was approximately US\$57 billion in 2014. In this framework, energy supply security has become a vital issue more than ever and the diversification of primary energy resources as well as strong and reliable energy projects are the major topics of today's agenda for Turkey.

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