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TITLE: Determinants of the Energy Supply Security and Renewable Energy Sources As An Alternative

SUMMARY

Energy is a major input for almost all goods and services sectors; a vital source which rises the standart of living by say, heating and lightening; but a security risk which disrupts life and development in case of any cut offs as well as an environmental risk which threatens future generation's lives due to heavy use of fosil fuels. Accessibility, availability, affordability and acceptability are the main dimensions of energy supply security.

Main objective of this study is to exhibit the existing energy sources and related problems in the world and in Turkey, to discuss energy policies, to investigate main determinants of energy suplpy security and finally to test the validity of these factors for Turkey. Four indices are constructed to measure energy supply security: Dependency Index, Intensity Index, Local Production Index and Composite Index. Following a literature survey on the main determinants of supply security and with the availability of data, an *ad hoc* model is formed out of petroleum prices, total primary energy supply, energy consumption per capita, share of renewable energy sources and carbondioxide emmissions and is estimated by Granger Causality Test and Johansen Cointegration Analysis for the period 1970-2009 for Turkey.

Empirical results indicate that energy supply security is affected positively by increases in primary energy sources and renewable energy, but negatively by increases in petroleum prices, per capita energy consumption and CO₂ emmissions. Use of renewable energy sources and increase of productivity of existing fosil fuels and thus reduction of their environmental harms by adapting new technologies are suggested for energy supply security of the future due to depletion of fosil fuels one day, their gas emmissions to the environment, problems in accessing the sources and instability in their prices.

KEYWORDS: Turkey, Energy Supply Security, Energy Supply Security Policies, Renewable Energy, Granger Causality Test, Johansen Cointegration Analysis, European Union.