

Changing Gross Output Elasticities in the Energy Sector: A Comparative Study in the Economies of India and Pakistan in the I-O Framework

Topic: Energy input-output analysis II

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Energy is an important input of production of every economy. Its use has been day by day increasing and every economy has been becoming more and more dependent on it. From the demand side it is used by different industries as inputs in their production (called inter-industry demand) and by different final agents like individual consumers, government and export (called final demand) while from the supply side it uses as inputs the outputs of other industries (both endogenous and exogenous). The former corresponds to the output-distribution structure of the energy sector while the latter corresponds to its input-structure. With development both input and output-distribution structures of energy have been changing.

Energy has different components. Coal energy, gas energy, electricity energy and oil energy are distinguished. The energy sector has different sub-sectors like coal, oil, gas and electricity. These energy sub-sectors have different structures of input and output-distribution. Over time energy structures change, causing changes in the overall economic structure in general and the structures of different industries in particular.

In this paper an attempt has been made to quantitatively examine the nature and the extent of changes in the structures of energy in the economies of India (1993-2003) and Pakistan (1984-90).

The technique of structural decomposition in the I-O framework is used in analysis to isolate the effects of different sources responsible for changes in energy demand and supply and in turn the prime sources are identified. In addition to the decomposition of absolute changes, gross output elasticity with respect to the explanatory factors is estimated for different types of energy output and thereby demand laws are verified. Changes in output elasticity are also analyzed using a scheme of additive decomposition formulated by us. The prime factors influencing the output elasticities are thereby identified.