

R&D content of intermediate inputs and Productivity in Indian industries

Topic: CGE models for Policy Analysis

Author: Chandrima SIKDAR

Co-Authors: Kakali MUKHOPADHYAY

R&D expenditure in India has doubled since 2007 and was estimated to be around USD \$40 billion in 2012. During this period, India's Gross Domestic Product grew from USD \$0.57 trillion to USD \$1.8 trillion. Total government and industrial spending in scientific and technological R&D has remained below 1% of total GDP for more than a decade which is far below the contributions made by the developed countries. According to forecasts, the gross spending in India on R&D should increase to US\$ 44 billion and account for 0.9 per cent of GDP by the end of 2014, as compared to US\$ 42 billion and 0.85 per cent, respectively, in the year 2013 (R and D statistics 2013, GOI 2013).

Against this backdrop, the present study does an econometric analysis to assess the impact of R & D content, both domestic and foreign, of intermediate inputs on the level of productivity Indian industries. Using data for three years- 2001, 2004 and 2007 the paper computes the elasticity of industry-level TFP with respect to the R&D content of intermediates for the different category of manufacturing sector such as high and low-R&D intensive industries. Though the results reported in the paper are based on econometric analysis yet the novelty of the paper lies in its usage of input output technique to assess the R&D content of inputs used in individual industries. The results show that much of the R&D stocks embodied in intermediates used by Indian industries have contributed to productivity growth in the industries. Particularly, noteworthy is the elasticity of industry level productivity in low R&D industries to changes in the R&D content of intermediates. Thus, innovation leading to increase in R&D stocks in these sectors can go a long way toward improving the productivity and livelihoods of people in India's vast labour intensive industrial sector and thereby contribute substantially in pursuing India's recent policy objective of inclusive innovation.