

Estimation of Total Factor Productivity of Paddy Sector in Sri Lanka

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Abstract

Agricultural sector in Sri Lanka contributes nearly 12 percent to the country's GDP and employs 33 percent of its labor force. Since the independence, there have been several attempts by successive governments to improve the productivity of the small farm paddy sector. These include the promotion of the use of high yielding varieties, subsidization of farm input supply, provision of credit facilities, and liberalization of both producer and consumer prices. Against this background, the objective of this study was to analyze regional differences in total factor productivity in the paddy sector. Tornqvist and Malmquist productivity indices for the period 2002-2008 were calculated using panel data on quantities and prices of outputs and inputs for seven districts, obtained from seasonal reports on cost of cultivation published by the Department of Agriculture. Paddy yield was considered as the output and fertilizer and labor were considered as inputs. Due to the non-availability of all reliable input price data, this study used data envelopment analysis to derive the Talmudist Productivity Index with area of cultivated land, fertilizer and labor as inputs. According to the results, Tornqvist Index for most of the districts over the study period is less than one, indicating that total factor productivity in paddy to be rather small. Based on the results of Malmquist Index, it was found that over the period, total factor productivity growth was positive and on average, technical efficiency change contributes by 0.6 percent to the total factor productivity growth of 0.5 percent, while pure technical efficiency change did not contribute to increase it.

Key words: Malmquist index; Tomqvist Index; panel data analysis; data envelopment analysis; agricultural policy