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Interstate Analysis of the Decomposition of Total Factor Productivity Growth in the Organized Manufacturing Industries in India: A Stochastic Frontier Approach

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According to the conventional 'Solow' residual approach or index number approach, the concept of technological progress and total factor productivity growth (TFPG) are used synonymously and TFPG is shown by solely shifting the production possibility frontier. But recent development of TFP estimation acknowledges that along with technological progress, changes in technical efficiency, economic scale effect and changes in allocative efficiency also contribute to productivity growth. The study applies a stochastic frontier production approach to decompose the sources of TFPG of the total organized manufacturing industries in fifteen major industrialized states in India as well as in all-India into four afore-mentioned components during the period from 1981-1982 to 2010-2011, during the entire period, during the pre-reform period (1981-1982 to 1990-1991) and post-reform period (1991-1992 to 2010-2011), and also during two different decades of the post-reform period, i.e., 1991-1992 to 2000-2001 and 2001-2002 to 2010-2011. According to the estimated results, technological progress (TP) is the main contributor to the TFPG of the organized manufacturing from 1981-1982 to 2010-2011. But the TFPG declined during the post-reform period which is accounted for by the decline in TP.

I Introduction

Total factor productivity growth (TFPG) can be defined as the residual of output growth after the contributions of inputs, labour and capital are subtracted from total output growth. Most of the studies relating to productivity growth in Indian manufacturing sector measured TFPG as a residual of the "Solow" growth accounting (1957) or used index number approach to measure TFPG. This approach is based on the assumption that the economies are producing along the production possibility frontier with full technical efficiency (i.e., it does not allow inefficiency). Further under this approach, technological progress is

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