

Inter-Regional Variations in Labour Productivity in Indian Agriculture : A Simultaneous Equation Approach

S. Mahendra Dev
Shantanu Deshpande
Bandi Kamaiah

With the help of a simultaneous equation model this paper examines the factors influencing variations in the components of labour productivity in Indian agriculture across 53 NSS agro-climatic regions in three triennia viz., 1962-65, 1970-73 and 1975-78. The model is estimated separately for high and low labour productivity regions. The results show that cropping pattern, irrigation and percentage of area under rice crop were the dominant factors determining variations in yield, cropping intensity and man-land ratio respectively. However, the importance of these factors varied according as whether the region is a high or a low productivity region.

I. Introduction

It is now established that the living standards of agricultural labourers in India who form the largest segment of the country's rural poor depend upon, *inter alia*, the levels of labour productivity attained in agriculture [Mahendra Dev (1989)]. In India there are a few studies which analyzed labour productivity in agriculture [see Alagh *et al* (1978), Bhalla and Alagh (1983) and, Mahendra Dev (1989)] 1/. It is shown that there are considerable inter-regional variations in the levels of labour productivity in Indian agriculture. It is also shown that these levels varied across states and regions due to sharp variations in its constituent components-yield, cropping intensity and land-man ratio 2/.

The main objective of this paper is to examine the factors influencing variations in the above three components across 53 agro-climatic regions 3/ in different time periods covering pre and post-new technology periods. This analysis is carried out separately for high and low labour productivity regions. Our hypothesis is that the importance of different factors influencing the constituent components of labour productivity vary according to whether it is high or low labour productivity region. This may help a better understanding of the causes for inter-regional variations in labour productivity in Indian agriculture. It has been the practice in Indian studies to analyse variations in each of the components separately using Ordinary Least Squares (OLS) technique. The underlying assumption has been that the various components are not mutually inter-dependent. However, so long as these components reflect choice of the farmers or workers, they can not be treated as exogenous or mutually unrelated. From this standpoint therefore it may be argued that the use of OLS would not yield consistent estimates of the parameters. Hence it is desirable to use either the instrumental variable technique or a simultaneous equation setup. In this study,