A New Analysis of Labour Productivity

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Author: Takashi YAGI

The aim of this paper is to explain a new method to measure labour productivities of two different countries by using the Sraffaâ€™s standard net product and the standard productivity index. We will incorporate the Sraffa system into a price system of I-O analysis. In a system with no fixed capital, the wage curve (the wageâ€“profit relationship) of the Sraffa system will become linear if the standard net product is adopted as standard. Then distribution can be analyzed in a clear relationship. The standard net product or standard income is defined by the eigenvector of the input coefficient matrix and is a hypothetical notion of income. The standard productivity index is defined by using Sraffaâ€™s standard net product in a system with no fixed capital(see Yagi[1998], [2012] etc.). It can be considered as a social or average labour productivity of the system. One of the important properties of the standard productivity index is that the data for calculating the standard productivity index is very few: the input coefficient matrixes, labour input coefficient vectors, and the total labours of different systems (different periods), because it is defined by using eigenvectors of input coefficient matrixes. On the other hand, non-competitive Input-Output tables are the system with profits for fixed capital and imports, depreciation, and net indirect tax. By applying the Sraffaâ€™s standard commodity and my standard productivity index to the actual I-O system, we can analyze labour productivity based on technical difference of different countries and with no effect of differences in demand composition. In a simple system with no fixed capital the standard productivity index enables us to measure the changes in labour productivity. But in a system with profit for fixed capital and others, it is necessary to introduce a notion of surplus rate in addition to the calculation of the standard productivity indexes. This is one of the results of our new method of Sraffian social accounting. In order to test our model to make an international and intertemporal comparison of labour productivity, we will apply our model to the Japan-US Input Output Tables and show a calculation result.