

MEASURING TOTAL FACTOR PRODUCTIVITY CHANGE FOR AGRICULTURAL COOPERATIVES IN JAPAN: A NONPARAMETRIC MALMQUIST INDICES APPROACH

by

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Journal of Rural Cooperation, 36(2), 2008:101-114

Abstract

The purpose of this paper is to analyze the productivity change for agricultural cooperatives in Japan measured by nonparametric output-oriented Malmquist indices of total factor productivity. The productivity change is decomposed into technical change and technical efficiency change. Linear programming techniques are used to calculate the productivity change using a panel data set for 49 agricultural cooperatives located in the paddy-field region of Hokkaido in Japan over the period 1982-1991. The results suggest that the pattern of TFP changes tends to be driven more by improvements in technical efficiency rather than technical progress.

Key words: agricultural cooperatives, Japan, Malmquist indices, technical change, technical efficiency, TFP