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“Utilisation of diversity in land use systems:
Sustainable and organic approaches to meet human needs”

Economic Efficiency and Land Rights –A Stochastic Frontier Analysis of Agricultural Production in China

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Abstract

The rural reform started at late 1970s improved farmers' incentives and has had great impacts on China's agricultural production and productivity growth. Many empirical studies show that, while the productivity improvement and technological progress are spectacular over the last two decades, the performance of efficiency change is not so inspiring, and there seems to be lack of greater institutional incentives to arouse farmers' enthusiasm for agricultural production when entering the 1990s. Meanwhile, the remaining ambiguity over land tenure rights seems to show a robust explanation power for the source of unexpected efficiency performance. Considering the hot dispute about institutional reform related to land issues currently in China, whether it is the suitable choice and right timing for the creation of new institutions will also be an interesting topic to explore.

This study will estimate the productivity change and efficiency change of China's agricultural production since the reform, from an institutional environment perspective. Specifically, we are trying to explore how effective the existing land tenure and related property rights systems have been in providing households with incentives to ensure the development of agricultural production and productivity progress, to what extent they have impacted the farmers' efficiency.

In our case, total factor productivity (TFP) is decomposed into three components: technical change, technical efficiency change and a scale effect.

Stochastic frontier analysis (SFA) approach is used to obtain estimates of productivity change and its components. A translog specification of the production frontier is applied in our study, and the parameters are estimated using the maximum-likelihood (ML) method.

Here we apply aggregated provincial level data for the 1979–2000 period to a translog production frontier model to calculate indices of TFP change and its three components and explain the variation in technical efficiency.

Keywords: China, economic efficiency, land rights