

A Review of Stochastic Cost Frontier Approach: Agricultural Farmers In Developing Countries

Phattarapong Malawal¹, Ke-Chung Peng²

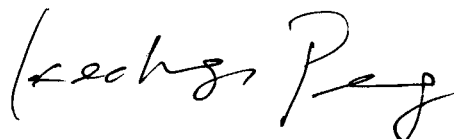
¹Department of Tropical Agriculture and International Cooperation, National Pingtung
University of Science and Technology, Pingtung 912, Taiwan

²Department of Agribusiness Management, National Pingtung University of Science
and Technology, Pingtung 912, Taiwan

Abstract

The stochastic frontier cost function approach demonstrated that farmers or households have some reasons to improve usage inputs cost. Previous studies using stochastic frontier analysis had evaluated and estimated household level cost efficiency to find factors effective for cost management in developing countries in particular situations. In this review, most of countries are staple food importers and want to achieve maximum utility in using their inputs for the resilience impact of future food security crises. The result of this review shows that usage of cost factors were lack of economy of scale for using inputs, overproduction and finding the positive effect on cost efficiency with the large farm size variable. The cost efficiency indicated the importance for policymakers and farmers in adapting to each situation. Moreover, developing countries, perceive these important cost efficiency factors may lead to the creation of strategies and technologies for the adaption of farmers, which are more sustainable options than subsidies and emergency funds.

Keywords: cost efficiency, stochastic frontier approach, cost, farm level, adaption



References

- Coelli, T. J., D. S. P. Rao., C. J. O'Donnell and G. E. Battese (2nd ed.). 2005. An Introduction to Efficiency and Productivity Analysis. *Springer*. New York.
- FAO. 2022. A Global Food Import Financing Facility (FIFF): Responding to soaring food import costs and addressing the needs of the most exposed [Online; cited May 2022.] Available from URL: <https://www.fao.org/3/cb9445en/cb9445en.pdf>
- Moradi, E., M. Pahlavani., A. Akbari., & H.M. Bashrabadi. 2013. Comparative Analysis of Stochastic Frontier Partially non-parametric and Stochastic Frontier Parametric Methods Case Study: Measuring Cost Efficiency in Wheat Production in Iran. *International Journal of Agricultural Management & Development*, 3(2): 123-130.
- Rahaman MS, Haque S, Sarkar MAR, Rahman MC, Reza MS, Islam MA, Siddique MAB. 2021. A cost efficiency analysis of boro rice production in Dinajpur district of Bangladesh. *Fundamental and Applied Agriculture*, 6(1): 67-77.
- Islam M.A. 2016. Comparative Advantage and Cost Efficiency of Rice-Producing Farms in Bangladesh: A Policy Analysis. *Journal of Rural Problems*, 52(3): 85-96.
- Siagian R. A., Soetjipto W. (2020). Cost Efficiency Of Rice Farming In Indonesia: Stochastic Frontier Approach. *Agricultural Socio-Economics Journal*, 20(1), 7-14.