

# **Technical Efficiency Analysis of Agricultural Production of BRIC Countries and the United States of America: A Copula-Based Meta-Frontier Approach**

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**Abstract.** This study used the Copula-Based Meta-Frontier Model (CMFM) to analyze agricultural production and technical efficiency (TE) of BRIC countries (i.e., Brazil, Russia, India and China) and the United States of America (USA) covering the period 1965–2013. Results revealed land was the most important driver in producing large amount of agricultural output of these countries. TE level of USA was high and stable and had increased from only 0.31 in 1965 to a highest level of 0.96 in 2006. Similarly, TE level of China also increased from nearly 0 in 1965 to a highest level of 0.97 in 2013. In contrast, TE in India reached its highest point of 0.59 in 1987 but then declined to almost 0 in 2013, which is puzzling. TE level of Brazil varied between 0.01 and 0.31. The TE in Russia was steady but at a quite low level which is close to 0. Both USA and China could focus on developing advanced technologies and methods to improve TE. On the other hand, Brazil and India should improve their productivity by enhancing mechanization and increasing the scale of operation. Finally, Russia could develop its production potential by producing suitable agriculture products and applying appropriate methods.