Accepted Manuscript

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PII: S0378-4371(18)30528-4
DOI: https://doi.org/10.1016/j.physa.2018.04.100
Reference: PHYSA 19532

To appear in: *Physica A*

Received date : 14 March 2018
Revised date : 25 April 2018

Please cite this article as: T.C. Silva, B.M. Tabak, D.O. Cajueiro, M.V.B. Dias, Adequacy of deterministic and parametric frontiers to analyze the efficiency of Indian commercial banks, *Physica A* (2018), https://doi.org/10.1016/j.physa.2018.04.100

Adequacy of deterministic and parametric frontiers to analyze the efficiency of Indian commercial banks☆

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Abstract

This study applies data envelopment analysis and the stochastic frontier approach to a sample of Indian commercial banks to discuss the inconsistencies between these models. We find that DEA average efficiency scores are, in general, lower than those from the SFA model. However, both models indicate similar trends on efficiency scores over the years, which we state is more relevant than efficiency levels themselves. We also find that the rank correlation between these efficiency scores is low. This means that the application of only one frontier model may yield misleading conclusions. We point out that a thorough consideration of the suitability of a deterministic or a parametric frontier to the framework in analysis should guide the choice between the application of parametric or non-parametric methodologies.

Keywords: Bank efficiency, Stochastic frontier approach, Data envelopment analysis
JEL Classification Numbers: G21, G28

1. Introduction

We discuss the adequacy of parametric and non-parametric methodologies in the study of efficiency of financial institutions. To this end, we investigate the consistency between data envelopment analysis and the stochastic frontier approach. We apply both methodologies to a sample of Indian banks and point out the inconsistencies between their results.

The comparison of empirical results produced by DEA and SFA is still uncommon in bank efficiency literature. To analyze individual results given by each methodology, we follow Bauer et al. (1998) and

☆Thiago C. Silva (Grant no. 302808/2015-9) and Benjamin M. Tabak (Grant no. 305427/2014-8) gratefully acknowledge financial support from the CNPq foundation.

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