

Estimating technical efficiency from sample designs using robust nonparametric models

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Abstract

In many empirical problems, the comparison of production units, as regions or countries, is done through a representative sample of decision making units to characterize the population. Regardless the sampling method, the use of sample weights is standard in statistics and econometrics for approximating population parameters. However, this information has been repeatedly ignored in the literature on the estimation of production frontiers. So far, extensions have not been developed to conventional methods that allow to incorporate the sample weights when estimating the production frontier and the efficiency of each evaluated DMU. The aim of this paper is to illustrate this problem together with providing a first methodological strategy to incorporate the sample weights information into the estimation of the production frontier using robust nonparametric models. Finally, we suggest further future directions to face this problem.

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