

Non-Radial Directional Performance Measurement with Undesirable Outputs

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Abstract

The objective of this paper is to provide a more complete representation of the production technology to estimate comprehensive efficiency measures for OECD and non-OECD countries. A Russell directional distance function that appropriately credits the decision making unit not only for increase in desirable outputs but also for the decrease of undesirable outputs is derived from the proposed weighted Russell directional distance model. The method was applied to a panel of 99 countries from 1991–2003. This framework also decomposes the comprehensive efficiency measure into individual input/output components' inefficiency scores that are useful for policy making. The results reveal that the OECD countries perform better than the non-OECD countries in overall, goods, labor and capital efficiencies, but worse in bad and energy efficiencies

Keyword : data envelopment analysis, directional distance function, undesirable output, Russell