Economic Cross-Inefficiency

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Abstract

Overall inefficiency measures were introduced in the literature for evaluating the economic performance of firms when reference prices are available. These references are usually observed market prices. Here we make the use of these measures for assessing economic performance of firms, adapting them to the context where the reference prices are the shadow prices of their competitors. This allows us to reinterpret the traditional cross-efficiency measure (Doyle and Green, 1994) as an average measure of Georgescu-Roegen's notion of "return to the dollar" (profitability) over the different reference (shadow) prices of other firms, and to extend the technical cross-efficiency evaluation with directional distance functions (Ruiz, 2013), to introduce the concept of Nerlovian cross-inefficiency (profit). Additionally, applying existing approaches for measuring economic performance, we derive new cross-efficiency measures, which allow extending the new economic cross-efficiency concept to alternative radial and non-radial measures (as the input, output, the generalized hyperbolic measure, the directional distance function assuming any reference directional vector, the weighted additive models, the Russell oriented measures and the Hölder distance functions).

Keywords: Overall Economic efficiency, Cross-efficiency, Data Envelopment Analysis.

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