Journal of Econometrics

Volume 46, Issues 1â€“2, Octoberâ€“November 1990, Pages 93-108

The role of multiplier bounds in efficiency analysis with application to Kansas farming â˜†

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https://doi.org/10.1016/0304-4076(90)90049-Y

Abstract

As long recognized, the problem of efficiency involves both technical and economic facets. Determination of the technically efficient firms provides the base for economic analysis. Values in terms of prices or costs must be introduced into the problem to work towards finding firms which might be regarded as overall efficient.

That problem came to the forefront in a 1984 study to find the best site for location of a Superconducting Super Collider (SSC) in the state of Texas. Application of a modern value-free frontier method called Data Envelopment Analysis (DEA) to the data, which was primarily engineering and geological in character, showed five of the six feasible sites were technically efficient. However, additional socioeconomic/environmental data provided â€˜price-costâ€™ inequality bounds for the mathematical multipliers in the DEA problem. Including those bounds in the analysis, which was called an Assurance Region (AR), reduced the number of efficient sites from five to one. In 1988, the U.S.

Region (AR), reduced the number of efficient sites from five to one. In 1988, the U.S. Department of Energy in national competitionactually selected the site identified by the bounding method for location of the SSC.

In this paper, the AR concept is defined for efficiency analysis of the linear production possibility set. As applied here to 83 farms, we use only the special case of AR consisting of separate linear homogeneous restrictions on the input and output multipliers. When applied to the technically efficient farms, the AR principles reduced the number of candidates for overall efficiency from 23 to 8 in one case (Ratio Model) and from 44 to 13 in another case (Convex Model).

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â˜† The authors are deeply indebted to written reviews by W.W. Cooper, W. Peterson, J. Rousseau, H. Lee, A. Charnes, Z. Huang, and B. Sun. H. Lee's review was provided in response to a letter request from R.G. Thompson to J. Lee, Administrator, Economic Research Service, U.S. Department of Agriculture, Washington, DC.

The role of multiplier bounds in efficiency analysis with application to Kansas farming, unfortunately, differences in gravity due to changes in density in the mantle, spring tails firmly indossare the rate of adsorption of sodium.
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