

COST STRUCTURE, EFFICIENCY MODELING AND REGULATION OF PUBLIC UTILITIES IN LATIN AMERICA: Implications for effective regulation in LDCs

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ABSTRACT

This paper initially explains the concepts of efficiency in all its forms: productive, allocative and dynamic or rate of technological change (total factor productivity) and the importance of its contribution to economic growth. Subsequently, it describes the existing methodologies for estimating efficiency, especially the modern techniques for the estimation of productive and dynamic efficiency through the uses of linear programming methods such as DEA (Data Envelopment Analysis). Then it proceeds to show the two existing approaches in determining the cost structures, economies of scale and productive efficiency. The first approach called “inductive or statistical” is preferred by economists and the second approach, the “deductive or engineering” approach is normally used by engineers. Finally this papers analyses the limited application of these techniques to the regulatory process and/or reform of the public utilities in Latin America. Thus, it concludes that the lack of efficiency studies and applications of regulatory models with incentives in the regulatory process and/or reform of public utilities in Latin America is due mainly to the following factors: (i) lack of human capital in the regulatory agencies; (ii) in some cases lack of knowledge about the existing techniques and computational programs; (iii) hurried sectoral reform; (iv) lack of interest to regulate effectively given the influence of interest-group as a result of the high level of rent-seeking activities. It also concludes that the application of both approaches (deductive-inductive), jointly, or complementarily can help create models of efficient public utilities or parameters of efficiency. This will facilitate the regulatory functions in solving many common problems and situations in least developed countries, such as the problem of asymmetric information and the high levels of free-riding and rent-reeking activities. It is recommended that engineers specialized in efficiency and economists with expertise in regulation of public utilities work together in the process of sectoral reform (privatization), mainly in the development of models and/or parameters of efficiency based on the inductive-deductive approaches. In doing so, the regulatory efforts of regulators of public utilities will improve. Finally, it is also recommended that less developed countries set forth on a path of greater investment in the creation of human capital, which will create incentives for the application of existing techniques in estimating efficiency. Thus, a more efficient regulation could be expected, which would imply a reduction in the cost of regulation of public utilities and can lead to a social welfare improvement in the long-run.