# Cost Efficiency in an Indian Bank Branch Network: A Centralized Resource Allocation Model

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Title: COST EFFICIENCY IN AN INDIAN BANK BRANCH NETWORK: A CENTRALIZED RESOURCE ALLOCATION MODEL

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Abstract: In the present study we evaluate the overall cost efficiency of a network of branches of a single large public sector bank in India within the city of Calcutta using the data for the year 2012. Our objective is to determine the optimal number of branches within a postal district that could provide the observed amounts of banking services to the customers in that area at the minimum operating cost. Our DEA results show that there is an evidence of 'over-branching' and for the entire network reducing the total number of branches would be more cost efficient. However, there are numerous instances, where increasing the number of branches within a market area would be optimal.

Keywords: Cost Models; Efficiency; DEA; Banking

There exists a rich and voluminous literature on the measurement of efficiency in banking. Most of these studies have used the nonparametric Data Envelopment Analysis (DEA) approach although use of the alternative Stochastic Frontier Analysis (SFA) methodology is not entirely uncommon. Bank level data from different countries have been used to measure technical, scale, cost, or profit efficiencies. The major findings have been summarized from time to time in a number of surveys of the state of research on efficiency in banking (e.g., Berger and Humphrey(1997), Hughes and Mester (2008), and Fethi and Pasiouras (2010)). There are far fewer papers that have used a bank branch rather than the bank as a whole as the unit for evaluation. Given the difficulty in accessing branch level information which is usually confidential and not publicly available, scarcity of research at this disaggregated level is understandable.

Several studies have been published in the recent years, however, devoted to measurement of efficiency at the branch level. Sherman and Gold (1985) were the first to evaluate bank efficiency at the branch level using data from 14 branches of a US bank – that too at a time when using DEA to measure efficiency was itself a novelty. Some of the important papers on branch level efficiency that followed include Parkan (1987), Schaffnit, Rosen, and Paradi (1997), Cook and Habaou (2001), Paradi, Rouatt, and Zhu (2011),