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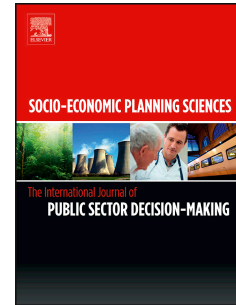
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## SHORT AND LONG-RUN COST EFFICIENCY IN INDIAN PUBLIC BUS COMPANIES USING DATA ENVELOPMENT ANALYSIS

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### Abstract

A key possible limitation of DEA models based on physical inputs and outputs is that for an inefficient firm reduction in some or all inputs may be recommended. Often, however, it may be desirable for an inefficient firm to increase some less expensive inputs while reducing the use of relatively expensive inputs. Hence, when market price data is available it is advisable to use the cost variant of DEA. Also, it is possible to determine variable cost efficiency in the short run when some inputs cannot be varied. Such inputs are referred to as “quasi-fixed” inputs. In this paper, we examine short and long term efficiencies of select bus companies in India known as State Transport Undertakings (STUs) over a period of 10 years. Fleet strength has been used as the quasi-fixed input. It is possible to ascertain, through a comparison of shadow price of the quasi-fixed input, vis-à-vis its market price, as to whether the quantity of this input is sub-optimally small or large. It is found that by adopting efficiency enhancing practices, STUs can cumulatively reduce their operating costs to the extent of 9123.35 million dollars. Also the tendency to minimize costs is found to be declining over time. In the short run some STUs are found to operate with a suboptimally low fleet size.

### Keywords

DEA; cost efficiency; quasi-fixed input; short-run; long-run; public bus companies

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