

# Efficiency Assessment of Indian Textile Units Using Data Envelopment and Regression Analysis

Chetan A. Jhaveri<sup>1</sup>  
Gunjan Sood<sup>2</sup>  
Riya Shah<sup>3</sup>

## Abstract

Firms are always in the pursuit of improving their performance. Optimum utilization of resources and the eradication of sources of inadequacies result in improved performance and production for manufacturing firms. Improved performance and production lead to increased efficiency for the firms. In this study, data envelopment analysis was used to evaluate the efficiency using financial data of 11 years of all the 13 S&P BSE 500 listed textile firms. Consistent with the relevant literature, three inputs (power, fuel, & water charges ; compensation to employees ; and raw materials, stores, & spares) and one output (profit before tax) were selected. Additionally, outcomes from the DEA analysis were used to perform the regression analysis. Out of the 13 units analyzed for efficiency, two textile units were found to be operating efficiently. The results of the regression analysis showed that an increase in employee compensation will lead to an increase in profit since the increase in the compensation helps to increase motivation from job satisfaction. Besides adding value to the efficiency assessment literature, the research findings of this study also provide meaningful business insights for the practitioners for improving productivity performance by finding the core action area in resource planning decisions.

**Keywords :** productivity-performance, efficiency, benchmarking, data-envelopment-analysis, regression analysis

**JEL Classification :** C61, C67, D24, L25, L6

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Production and performance are equally important and hold immense significance for the manufacturing firms (Kang et al., 2018). Production competence is considered to be extremely domineering and vital by the manufacturing firms for improving their performance. To achieve the goal of overall performance enhancement by the manufacturing firms, firms need to ensure that the business strategies and production strategies should be aligned with each other, and manufacturing practices should continuously sustain the performance (Al-Surmi et al., 2020).

There are several ways to gauge the performance of the firms. One of the ways of assessing the performance is by adjudging the competitiveness of a firm (Bockholt et al., 2020). Firms always strive to maintain and improve

<sup>1</sup> Assistant Professor, Operations Management and Quantitative Techniques Area, Institute of Management, Nirma University, S G Highway, Ahmedabad – 382 481, Gujarat. (Email : chetan@nirmauni.ac.in) ; ORCID iD : <https://orcid.org/0000-0002-6361-7468>

<sup>2</sup> Assistant Professor (Corresponding Author), Operations Management and Quantitative Techniques Area, United World School of Business, Karnavati University, Gandhi Nagar – 382 422, Gujarat. (Email : gunjansood@nirmauni.ac.in) ; ORCID iD : 0000-0001-9970-4734

<sup>3</sup> Research Scholar, Institute of Management, Nirma University, S G Highway, Ahmedabad – 382 481, Gujarat. (Email : riyashah@nirmauni.ac.in) ; ORCID iD : 0000-0001-8303-2363

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