



Methodological Assessment and Yield Improvement in Ethiopian Manufacturing Plants: A Panel Data Review

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Abstract

Manufacturing plants in Ethiopia have been identified as pivotal for economic growth. However, there is a need to evaluate their performance and identify areas for improvement. A comprehensive search of academic databases was conducted, focusing on studies that utilised panel data analysis. Studies were assessed based on their methodologies and results. Panel data from 15 studies showed a median increase in yield by 20%, with significant variability across different sectors and regions. The reviewed studies suggest that improved methodological approaches can lead to higher yield improvements, particularly when using robust standard errors for inference. Manufacturing plants should adopt more rigorous panel data analysis techniques to enhance their yields and contribute to Ethiopia's economic development. The empirical specification follows $Y = \beta_{0+\beta}^{-} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African agriculture, econometrics, productivity analysis, stochastic frontier analysis, panel data, agricultural efficiency, yield gap assessment*

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