



Methodological Evaluation of Process-Control Systems in Ghana Using Difference-in-Differences for Yield Improvement Analysis

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Abstract

Process-control systems are widely used in various industries to improve efficiency and quality. A difference-in-differences (DiD) regression analysis was applied to assess the impact of implemented process-control measures on crop yields over time. The DiD model revealed an average increase of 15% in yield across treated and control groups, with a confidence interval of [10%, 20%]. Process-control systems significantly contributed to yield improvement in Ghanaian agricultural settings. Further research should explore long-term sustainability and scalability of these interventions. process-control systems, difference-in-differences, yield improvement, agricultural productivity, DiD model The maintenance outcome was modelled as $Y_i = \beta_0 + \beta_1 X_i + u_i + \epsilon_i$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Sub-Saharan, Ghanaian, econometrics, productivity, intervention analysis, randomized controlled trials, yield gap assessment*

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