Methodological Evaluation of Manufacturing Plants Systems in Rwanda Using Quasi-Experimental Design to Measure Adoption Rates

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Abstract

This study focuses on evaluating manufacturing plants in Rwanda to understand their adoption rates of sustainable agricultural systems. A quasi-experimental design will be employed using regression discontinuity analysis (RDA) as the primary statistical model. The study will collect data from a sample of manufacturing plants across Rwanda, focusing on their operational practices and sustainability measures. The preliminary findings suggest that there is a significant variation in adoption rates among different types of agricultural systems, with some technologies showing higher uptake than others. This quasi-experimental design provides a robust framework for understanding the dynamics of technology adoption in manufacturing plants within Rwanda's agricultural sector. Future research should consider expanding the sample size and conducting longitudinal studies to assess long-term effects of these systems on Rwandan manufacturers' operations. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African geography, adoption rates, econometrics, experimental design, agricultural systems, regression analysis, quasi-experimental methods*

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