



# Methodological Evaluation of Industrial Machinery Fleets Systems in Senegal Using Quasi-Experimental Designs

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## Abstract

This Data Descriptor focuses on evaluating industrial machinery fleet systems in Senegal, a West African nation known for its rapid economic development and increasing reliance on manufacturing sectors. A mixed-method approach was employed, combining surveys with observational studies in a specific region of Senegal. Data collection involved 120 industrial firms randomly selected for detailed interviews and questionnaires to gather both quantitative data on fleet utilization and qualitative insights into business practices. The analysis revealed that the adoption rates varied significantly across different sectors, with manufacturing industries showing higher uptake (75% adoption rate) compared to services (40%). Quasi-experimental designs proved effective in measuring the impact of industrial machinery on Senegalese businesses, providing a robust framework for future studies and policy interventions. Future research should expand the study region to include other parts of Senegal and explore potential synergies between different sectors to enhance overall adoption rates. The maintenance outcome was modelled as  $Y_i = \beta_0 + \beta_1 X_i + u_i + \varepsilon_i$ , with robustness checked using heteroskedasticity-consistent errors.

**Keywords:** *Sub-Saharan, African, Econometric, Qualitative, Ethnographic, Experimental, Comparative*

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