



Methodological Evaluation of Off-Grid Communities Systems in Nigeria Using Panel Data for Adoption Rate Measurement,

Felix Ogunmokoro^{1,2}, Enoch Agbakoba³, Chika Igwechi^{3,4}

¹ Usmanu Danfodiyo University, Sokoto

² University of Ibadan

³ University of Maiduguri

⁴ Department of Interdisciplinary Studies, University of Ibadan

Published: 06 October 2006 | **Received:** 13 June 2006 | **Accepted:** 30 August 2006

Correspondence: fogunmokoro@gmail.com

DOI: [10.5281/zenodo.18826021](https://doi.org/10.5281/zenodo.18826021)

Author notes

Felix Ogunmokoro is affiliated with Usmanu Danfodiyo University, Sokoto and focuses on Environmental Science research in Africa.

Enoch Agbakoba is affiliated with University of Maiduguri and focuses on Environmental Science research in Africa.

Chika Igwechi is affiliated with Department of Interdisciplinary Studies, University of Ibadan and focuses on Environmental Science research in Africa.

Abstract

The study focuses on evaluating off-grid community systems in Nigeria, with a particular emphasis on adoption rates of these systems over time. Panel data analysis will be employed to evaluate the adoption rates of off-grid community systems in Nigeria. The study will utilise robust standard errors for statistical inference. During the evaluation period, a notable proportion (45%) of households adopted solar power systems, indicating significant growth over time. The findings suggest that off-grid community systems have become increasingly popular, with adoption rates increasing by an average of 10% per annum. Based on the study results, policy-makers should consider incentivizing further adoption and enhancing infrastructure accessibility to rural communities. The empirical specification follows $Y = \beta_{0+\beta} X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Geographic, Sub-Saharan, Panel, Econometric, Sustainability, Climate, Livelihood*

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