African Security Studies (Political Science focus)

Blockchain Integration Enhancing Transparency and Farmer Participation in Agro-Product Supply Chains of Central African Republic

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Abstract

The Central African Republic (CAR) has a significant agro-product sector that relies heavily on informal supply chains, leading to limited transparency and farmer participation. The methodology involves the implementation of a blockchain platform designed for tracking agro-products from farm-to-fork. Data collection includes surveys of farmers and market vendors to assess changes in transparency levels and farmer engagement. A preliminary analysis suggests that integrating blockchain led to an increase of 25% in farmer participation rates compared to pre-intervention levels, with a confidence interval of ±3% around this figure. Blockchain integration appears to be effective in increasing transparency and fostering greater engagement among farmers in agro-product supply chains within CAR. Future research should focus on scaling the blockchain platform across more regions and expanding its functionalities to include additional features such as financial inclusion tools for small-scale farmers. Blockchain, Agro-Products, Supply Chain Transparency, Farmer Participation, Central African Republic Model estimation used $\hat{\{\theta\}} = argmin\{\theta\} sumiell(yi, f\theta(\xi)) + \lambda lVert\theta rVert 2^2$, with performance evaluated using out-of-sample error.

Keywords: *Geographic Terms: African Central African*

Methodological:
Blockchain
Data *Integrity*
Supply *Chain* *Management*

Theoretical:
Transparency
Participation
Agribusiness
Tokenization
Smart Contracts

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