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Rural Road Infrastructure & School Meal Expansion as Indirect Solutions to Vote-Buying in Nigeria

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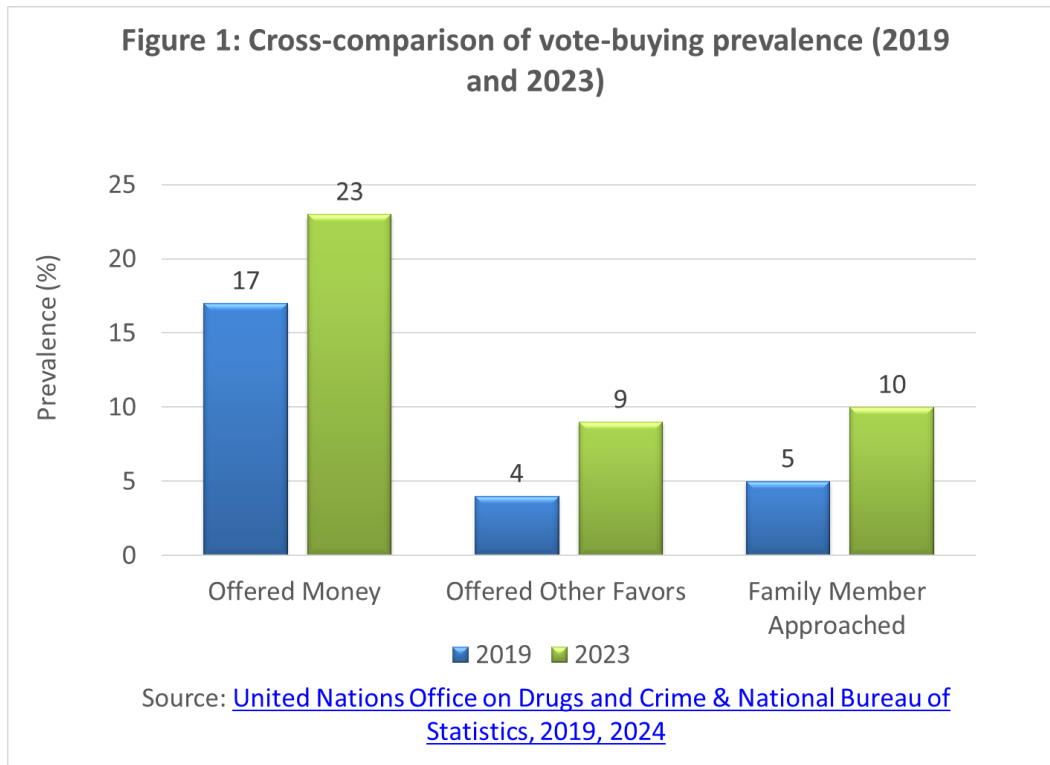
SUMMARY

This brief evaluates the rationale and burden of vote-buying in Nigeria, which is primarily caused by poverty and corrupt politicians. Main targets are youth and low-income, illiterate people. Two potential solutions - School Meal Program Expansion and Rural Road Infrastructure - are discussed in detail with a primary goal of political feasibility in a hostile environment. Using existing literature and Excel for the cost-benefit analysis, both solutions can reduce vote-buying by reducing poverty. They also have overall positive economic and social impacts. However, expanding school meals is recommended due to cheaper costs, greater benefits, faster break-even time, and more immediate, visible impact that will attract politicians. The brief also recommended oversight and international pressure to reduce corruption risks.

PROBLEM DEFINITION

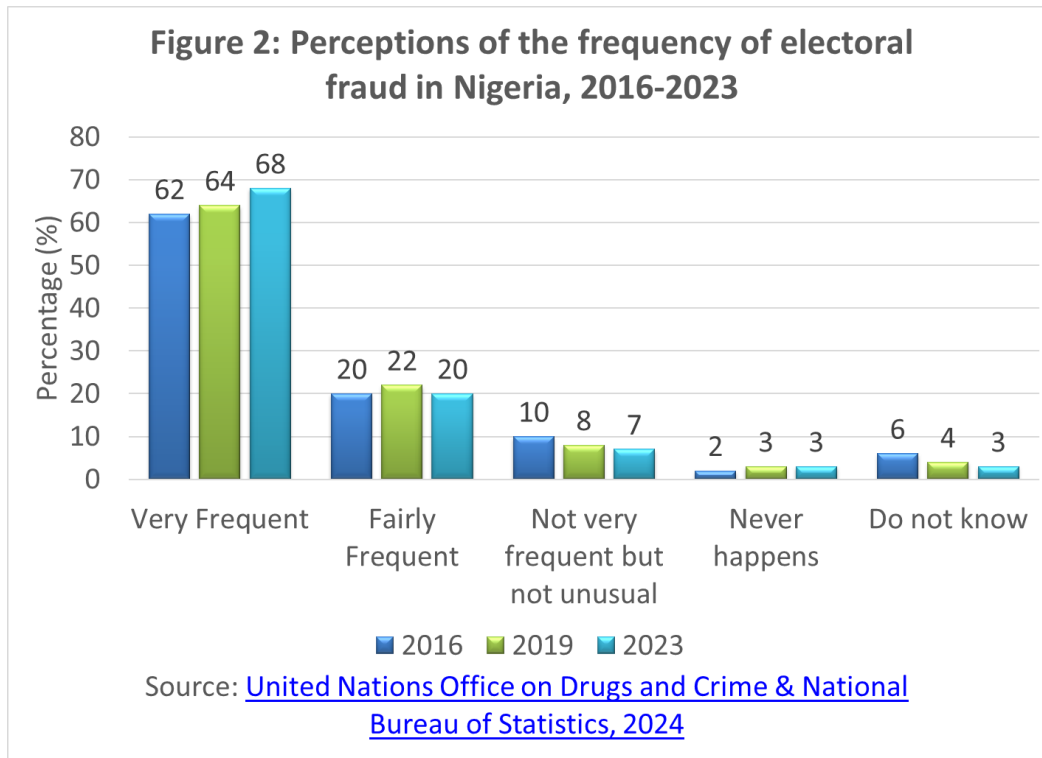
Nigerian elections feature vote-buying, which contributes to challenges to democratization. Vote-buying is “the offer of financial/material inducements to voters by candidates or political parties during an election campaign period or on election day in exchange for electoral support” (1). This exists with other forms of electoral fraud, such as ballot box snatching, result alteration, and overvoting, and emerged when the fourth republic began in 1999 (2). Vote-buying is deeply entrenched in the electoral framework and has established nicknames such as ‘vote and cook soup’, ‘stomach infrastructure’, and ‘see and buy’ (2,3). Vote-buying ranges from cash at the polling booth, sharing branded clothes and kerosene, and funding birthday parties to induce voters (4,5). Local community and traditional leaders can act as party agents (4). They compel their constituents to vote for a certain party by manipulating social influence.

The burden of vote-buying has increased over time, according to a cross-comparison of the national corruption surveys done after the 2019 and 2023 general elections (6,7). There was an overall increase in the burden of vote-buying between the two elections, shown in Figure 1. Furthermore, 40% of voters who offered money or favors in the 2023 election voted for the candidate who bought their votes.



Politicians are incentivized to buy votes rather than invest in social expenditures. Vote-buying invests voters in their success. Additionally, they find it inefficient to implement policies that would lessen voter poverty since it is cheaper to exchange with low-income groups and maintain the status quo (8,9). Vote-buying also enables candidates to withdraw offers and punish voters if they lose or the voters renege on their support (9).

Vote-buying contributes to multiple problems in the country. First, it undermines democracy and the integrity of the electoral process (5). Politicians are elected according to their willingness to buy votes, which not only sidelines honest ones with lean pockets, but causes people to lose faith in electoral institutions. Perception of electoral fraud is a strong indicator of this problem. The overall prevalence of voters who believed elections in Nigeria are frequently and fairly frequently fraudulent, increased over 12 years - 82% in 2016, 86% in 2019, and 88% in 2023. Figure 2 shows the breakdown of this trend (7).



In addition, leaders are not elected based on competence and thus can underperform while in office with no consequences (10). Voters are less likely to hold them accountable for their actions. There is also a positive association between increased vote-buying and corruption (10). Thus, the effects of bad governance would be felt by both vote and non-vote sellers.

Finally, there is underinvestment in public goods and social protection. Vote-buying has a negative, statistically significant relationship with the quality of public health and education services (11). This aligns with the deliberate nature of vote-buying discussed earlier (9). Government intervention is important because it reinforces poverty, low economic development, and national growth.

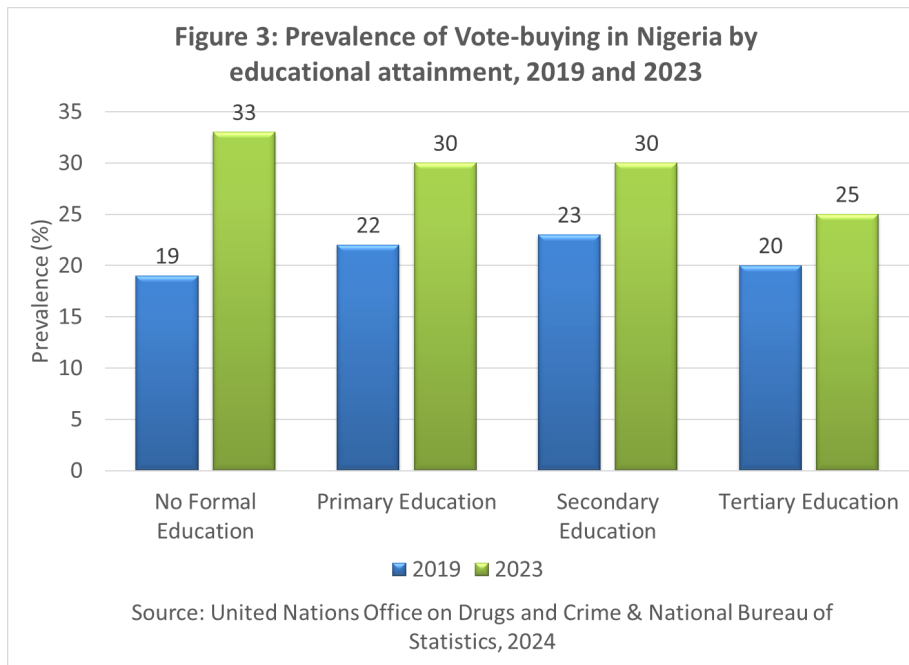
STAKEHOLDERS AND GOVERNMENT INTERVENTION

High poverty rates and low political will facilitate vote buying (4,8). Primary targets are youth and low-income, illiterate people, who are vulnerable to exploitation (3). Low social protection expenditure and law enforcement's failure to enforce existing electoral laws worsen this situation (2,12). Other stakeholders include political parties, which can determine whether their candidates buy votes, and election observer groups (13).

Without government intervention, people's lives are negatively affected, and honest politicians without the money to buy votes are excluded. Due to the nature of this problem, direct government intervention is unlikely, and feasible policy solutions will require indirect actions.

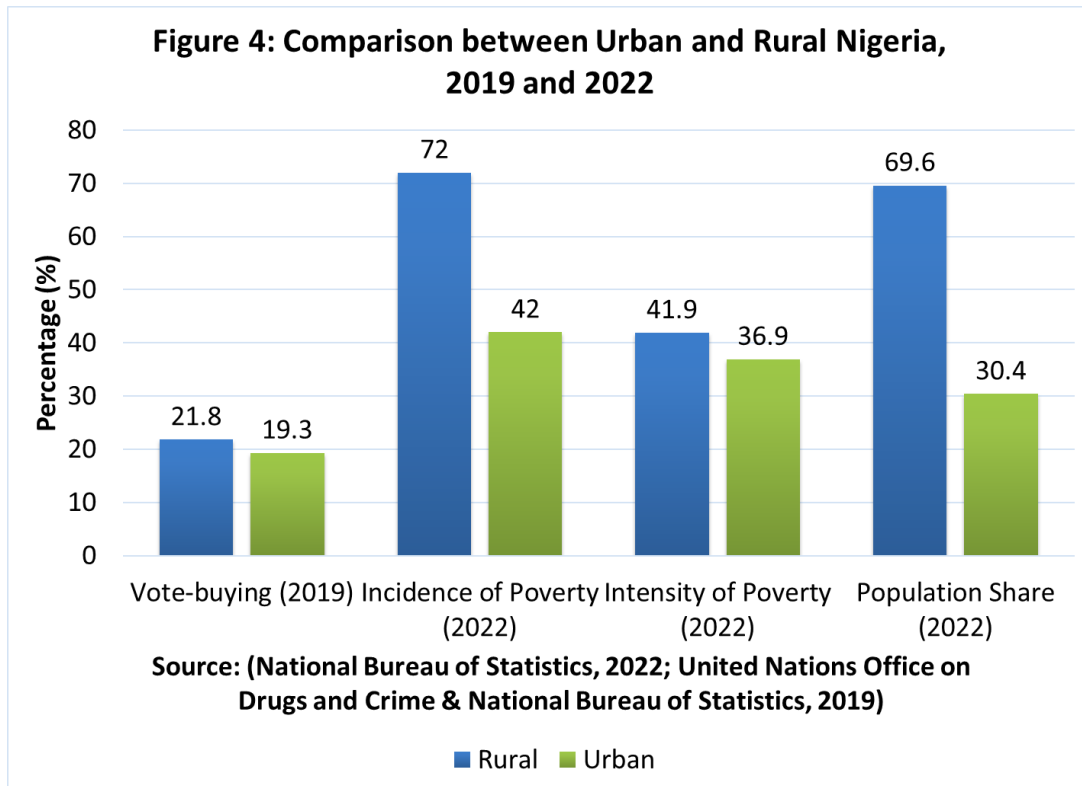
CAUSES AND SOLUTIONS

Analyzing the 2019 and 2024 survey results will help us to understand the causes and address them indirectly. Figure 3 shows that vote-buying decreases with educational attainment, consistent with the existing literature (2–4,7).



Higher educational attainment also lowers vote-selling (14). Thus, policy should target raising school enrollment and attendance levels. Data should be collected on dollar costs due to the improved quality of any existing program and benefits - the amount lost to vote-buying, and social benefits.

In addition, there is a higher prevalence of vote-buying and poverty in rural areas, which has a positive relationship (8). Figure 4 highlights the comparison between urban and rural Nigeria.



In addition, 70% of rural dwellers produce 90% of Nigeria's food output (15). Converting this information into policy would require collecting data on the benefits: contribution of agriculture to the GDP, the amount lost to vote-buying, other social benefits, income accrued from, and costs due to solving a significant source of agricultural burden.

All data collected would be from the surveys, budget analysis reports, and peer-reviewed research. It will be input into Excel spreadsheets and developed into graphs for cross-comparison.

ALTERNATIVE SOLUTIONS

As mentioned previously, the nature of vote-buying requires indirect solutions to ensure political feasibility.

Two alternatives fit this criteria: expanding the National Homegrown School Feeding Program (NHSFP) and improving rural road infrastructure. Evidence exists that poverty positively correlates with vote buying (8). Thus, these policies target poverty reduction to reduce vote-buying. Poverty reduction happens when people approach or cross the poverty income threshold post-intervention.

I. School Meal Programs

The Nigerian government currently oversees the NHSFP, which feeds approximately 9 million public primary school students (16). This alternative expands the program to include all primary and secondary public school students.

School meal programs have the greatest impact on low-income children and families. They primarily reduce the rich-poor income gap by increasing family savings due to the transferred lunch costs. In 2017, the United States prevented 1.2 million people, including 772,000 children, from falling into

poverty (17). Additionally, students from low-income backgrounds have greater access to healthy meals they would not usually have, reducing child insecurity (18). Long-term economic benefits are also more likely to reduce the short-term appeal of vote-buying. Swedish students exposed to school meal programs had a 3 percent higher lifetime income than their unexposed peers, with those from low-income households having a 6 percent higher lifetime income (19). These evidences underscore this policy's potential.

Family income levels before and after program expansion, the current national poverty income threshold, the new number of beneficiaries, the cost per food plate, the national cost of a healthy diet, and peer-reviewed research that references the relationship between poverty reduction and vote-buying are required to test the hypothesis: NHSFP expansion will reduce economic vulnerability and cause less reliance on vote-buying.

However, school infrastructure could be strained further by increased enrollment post-expansion. The existing literature indicates that while school meal programs improved student enrollment and performance, additional infrastructure was needed to accommodate the increased enrollment (20–22). Thus, school meal expansion must account for this in its costs.

II. Rural Road Infrastructure (RRI)

Improving Nigeria's rural roads can reduce poverty and reliance on vote-buying (23). Rural dwellers are more likely to be poor and, therefore, more likely to be targeted for buying votes. Thus, it is important to consider policies that focus on them, who are the majority of the Nigerian population (from Figure 4), and are primarily involved in agriculture. Considering the breakdown, there are exactly 40.2 million rural households in Nigeria, and 91 percent of them produce crops, which is important when assessing the policy benefits.

Evidence shows that improved rural roads increase rural household income, reducing poverty and the susceptibility to vote-buying. Improving roads by 10% leads to a 2.2% income increase (24), and this alternative would have to account for the upper bounds of this cost, which would be allocations for total reconstruction i.e 100% road improvement. In addition, the literature supports that better roads raise income by increasing the land owned per rural household by 0.314 ha (25). Farmers will also have more savings due to lowered agricultural input prices. The hypothesis is that improved rural infrastructure will increase rural households' disposable income and, therefore, reduce dependence on vote-buying incentives.

Determining whether this mechanism would work as intended requires studies on the relationships between rural road infrastructure and increased income, land ownership, and input savings, as discussed above. In addition, income data - current income per household, poverty threshold income, income per additional hectare of farmland - as well as overall demand for agricultural inputs, will help to gauge whether poverty is being reduced.

However, the tense ethnic landscape in Nigeria could lead to a backlash if infrastructure projects appear regionally biased. Thus, this alternative would require readily incurring costs to rehabilitate all rural roads in the country i.e equitable distribution.

ALTERNATIVE ASSESSMENT

I. School meal programs

Expanding meals to all public primary and secondary school students and adjusting for current COHDs will increase school enrollment by approximately 5.5 million and total program costs by \$5.7bn

(16,26–28). Accounting for additional infrastructure construction will raise costs by roughly \$379M (29,30). Summarily, the total policy cost is \$6.28bn. This figure reflects the real costs of producing healthy meals and additional infrastructure, unlike the current program's spending.

Program expansion results in annual savings of \$497.64 per household, doubling annual income, and reducing poverty by 131.6% for families with enrolled students (26,27,31–34). Families can lower meal expenses and divert resources to other pressing needs. In turn, vote-buying will reduce by 30.3%, leading to additional savings of \$9.97M i.e lower vote-buying dollars collected (8,35–38). With 11.9 million households with enrolled children of the target age, it will take 1.06 years to break even, given direct costs and benefits (27,31,32).

Furthermore, given the net graduation rate of 1.56 million students, it will take 11 years to eliminate out-of-school children (27,32,39). However, while school meals reduce poverty and expand school access, they will also need to anticipate other enrollment barriers, such as child labor and early marriage.

In addition, GDP increases with school enrollment and the total number of schools (40). Greater enrollment and school infrastructure raise national GDP by \$50.7M and \$19.2M, respectively, for a total of \$69.9M (16,27,30,41). Poverty reduction due to program expansion also has a staggered, direct effect on GDP and corruption over two years post-implementation (42). GDP will increase by \$11bn, and corruption will reduce by \$8.56bn (41,43).

Under the current program, students consume 60 million eggs and 80 tonnes of fish weekly (44). Expansion will raise annual consumption by 603 million eggs and 8043 tonnes of fish, further stimulating the economy, local agricultural production, and leading to better nutritional and health outcomes for the new beneficiaries (16,27). Figures 5-7 visualize primary costs and benefits. Additional charts are available in Appendix A. An Excel Sheet with detailed calculations is available upon request.

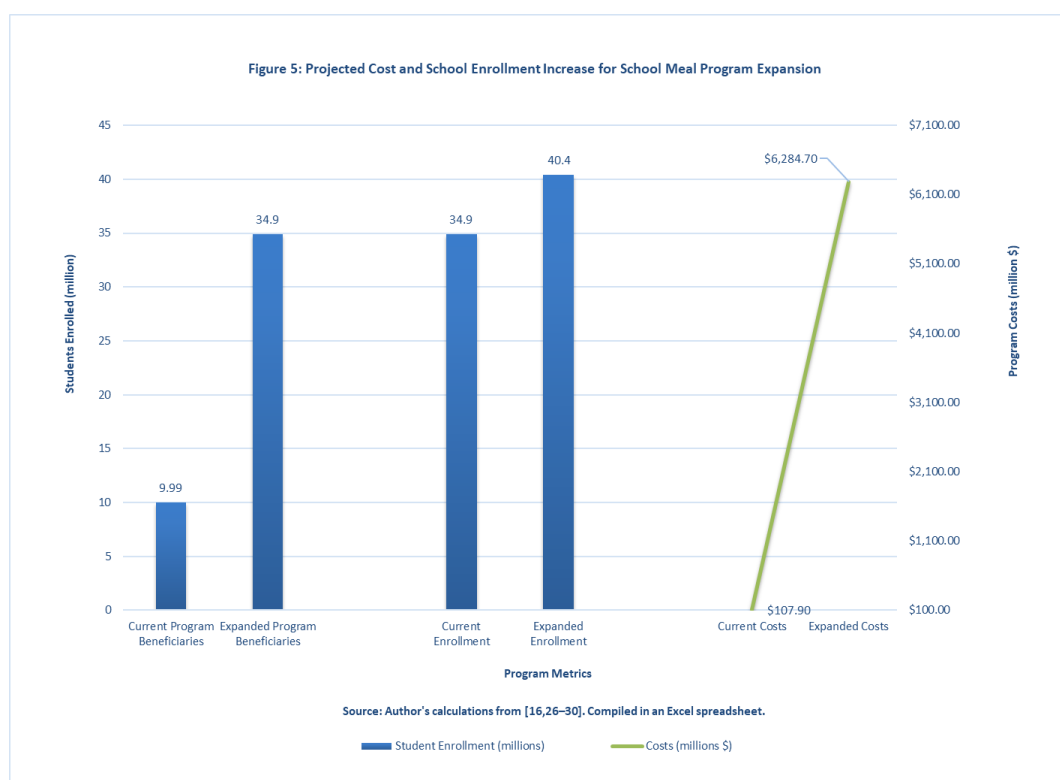


Figure 6: Impact of School Meal Program Expansion on Household Income

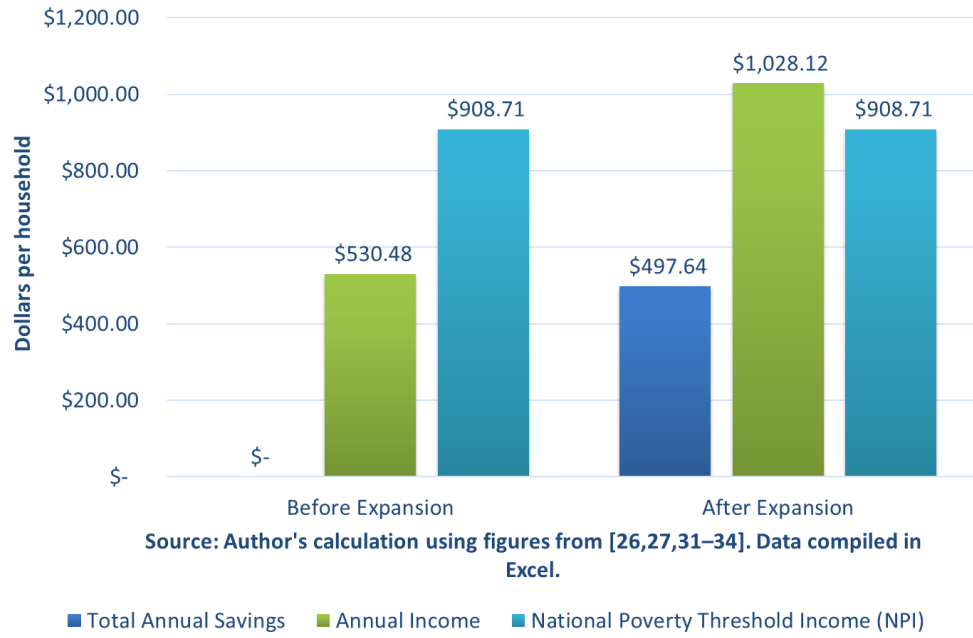
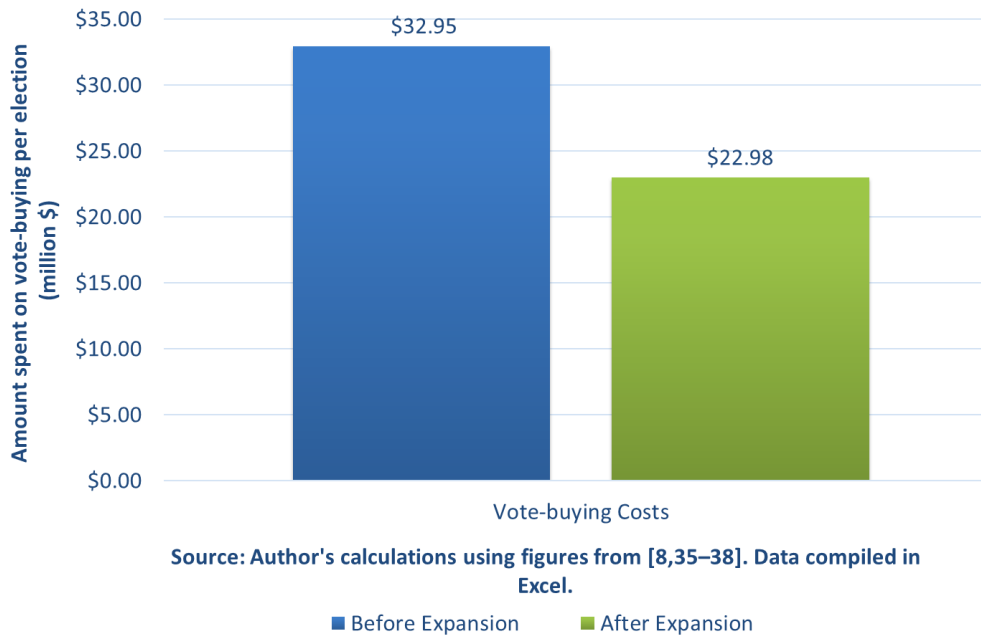


Figure 7: Vote-Buying Costs before and after School Meal Program Expansion

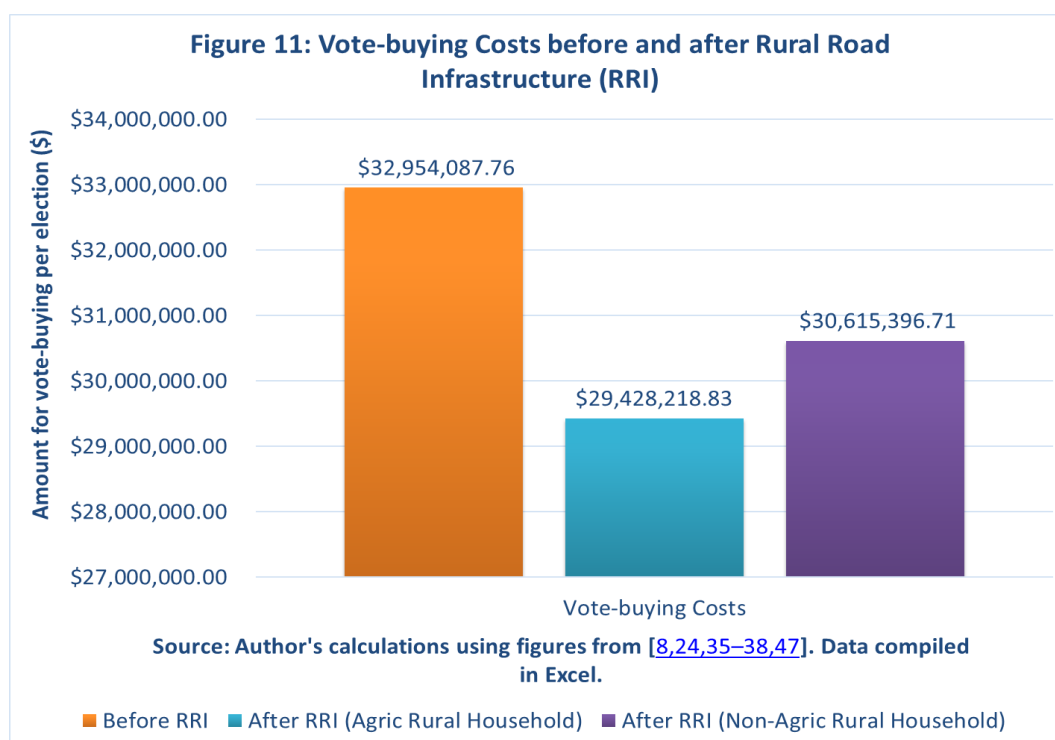


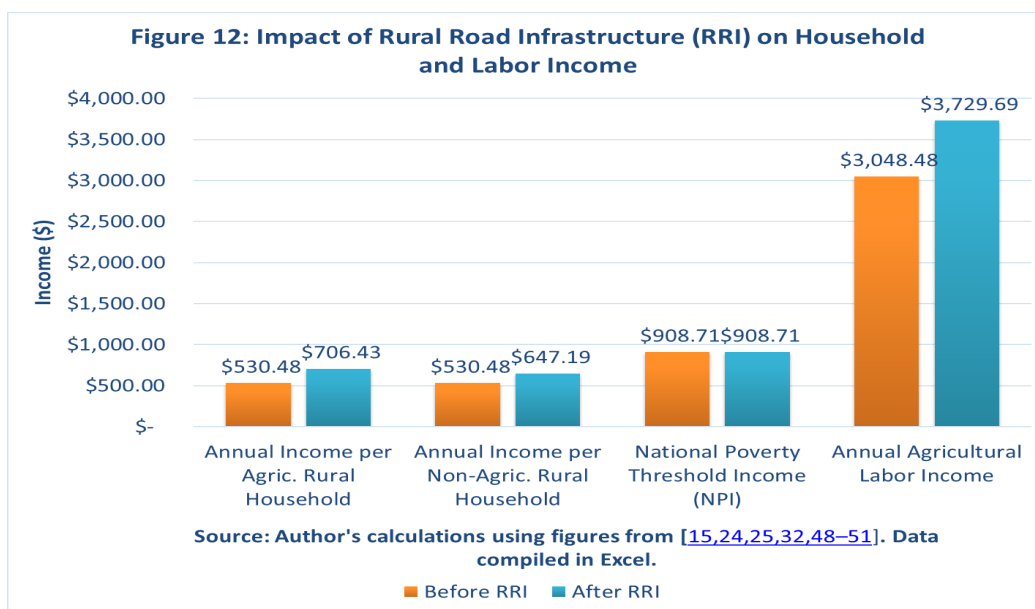
The expansion of the school meal program will support gender equality. Across 32 Sub-Saharan countries, school meals increased female enrollment by 12% (44,45). 3 in 10 young Nigerian women are married in childhood, and a secondary school education in Sub-Saharan Africa lowers girl child marriage by 64% (44,46).

Taxpayers without children in public primary and secondary schools bear the direct costs. However, they also indirectly benefit from lower vote-buying rates, corruption, and increased GDP.

II. Rural Road Infrastructure (RRI)

Improving rural roads would be costly. Combining data on road construction costs in Sub-Saharan Africa (\$0.2M/km) with the total length of bad rural roads in Nigeria yields construction costs of \$34.8bn and maintenance costs of \$5.22bn (23,47). Based on the data collected, overall income per agricultural and non-agricultural rural household will rise by \$175.95 and \$116.71, respectively (15,24,25,32,48–51). Agricultural and non-agricultural household poverty will be reduced by 47% and 31%, respectively. In turn, vote-buying reduces by 10.7% and 7%, respectively. Figures 11 and 12 show these benefits.





With 40.2 million rural households (91% of which are agricultural), it will take 5.83 years to break even, given direct costs and benefits (48).

Rural Road Infrastructure has indirect benefits. Annual agricultural labor wages increase by \$681.21 (24,32,51). Agricultural GDP also increases by \$21.5M due to increased productivity (24,41,52). The staggered effect of poverty reduction on GDP and corruption means that, 2 years post-implementation, overall GDP will increase by \$1.2bn and corruption will decrease by \$3bn (41-43). Graphs visualizing this information are in Appendix A.

Better rural roads also have qualitative outcomes. They positively affect the distribution of public facilities, e.g., education, healthcare, and water supply, thereby fostering sustainable rural development and improving life outcomes for rural dwellers in Nigeria (53,54).

Urban taxpayers primarily bear costs as they are not the direct beneficiaries of RRI - rural taxpayers. However, they indirectly benefit from reduced corruption and increased agricultural productivity and GDP, since 90% of food output is produced in rural areas.

RECOMMENDATIONS

Expanding School Meal Programs is recommended based on the cost-benefit analysis. Costs are lower than those of road infrastructure, and the poverty and vote-buying reduction effects are over twice those of RRI. Notably, income changes attributed to both policies reflect economic realities such as income inequality, inflation, and a weak Naira (Nigerian currency), unlike GDP per capita. In addition, expanding school meals has a better overall economic effect, i.e, greater GDP growth and reduced corruption, as well as a shorter break-even time.

Road infrastructure supports sustainable rural development but requires a longer implementation timeline, unlike school meals, which offer an immediate, visible impact. Not only does the latter appeal to the rural and urban electorate, but the political advantages of its visibility e.g electoral loyalty, legacy, positive image, etc., raise political feasibility.

Clear returns on investment reduce the probability of budget misappropriation and allocate limited resources. However, there might be a need for anti-corruption oversight and potential external

pressure from the international community or civil society organizations to achieve optimal results. These can also mitigate corruption that will occur due to the increased money in circulation (42).

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APPENDIX A: Additional Charts

Figure 8: School Meal Program Expansion Direct Effect on GDP

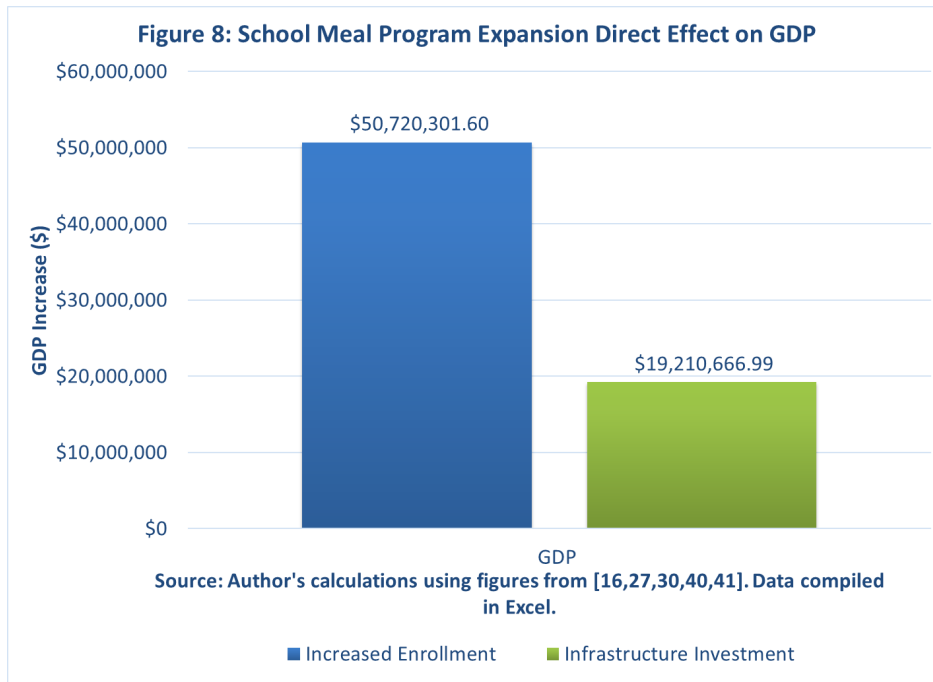


Figure 9: Poverty Reduction Effect of Program Expansion on GDP and Corruption

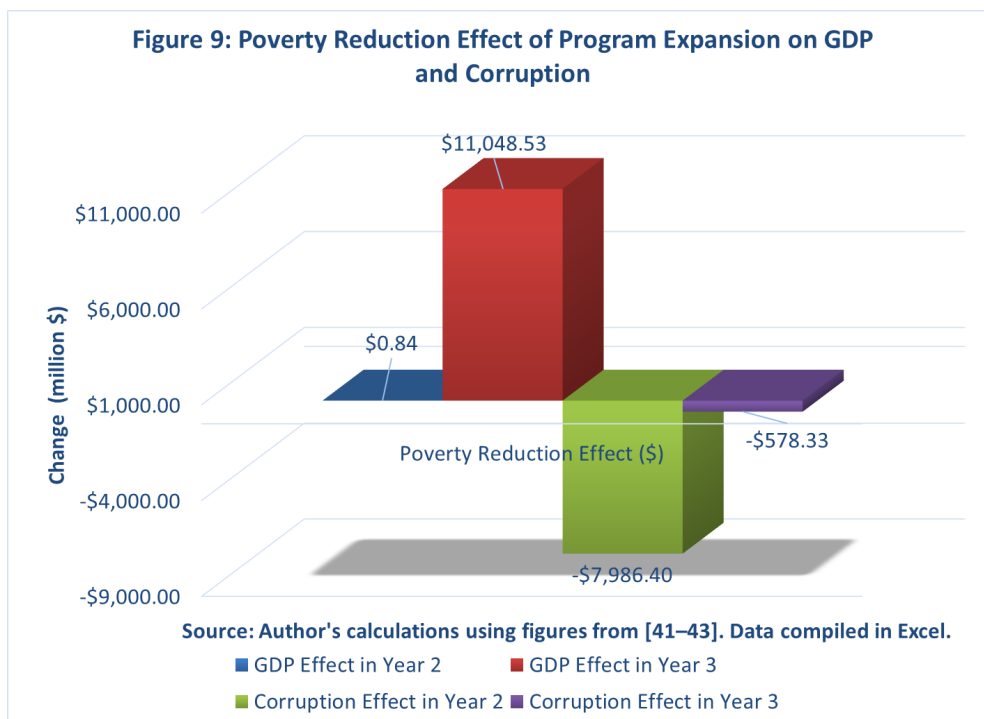


Figure 10: Agricultural Consumption Before and After School Meal Program Expansion

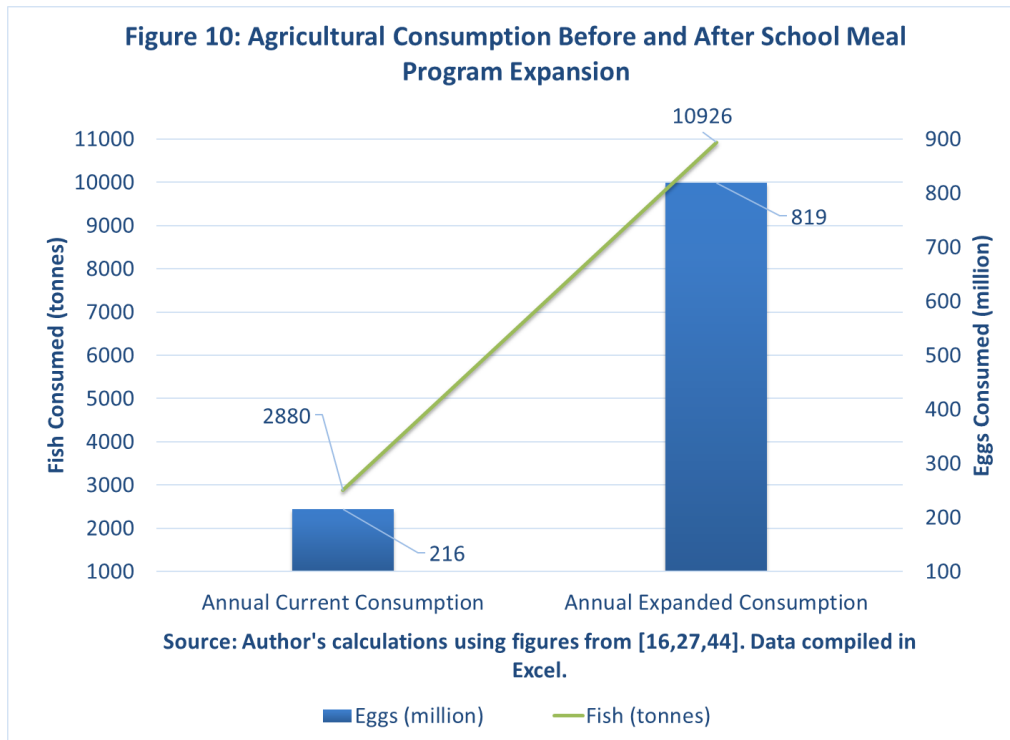


Figure 13: Poverty Reduction Effect of Rural Road Infrastructure on GDP and Corruption

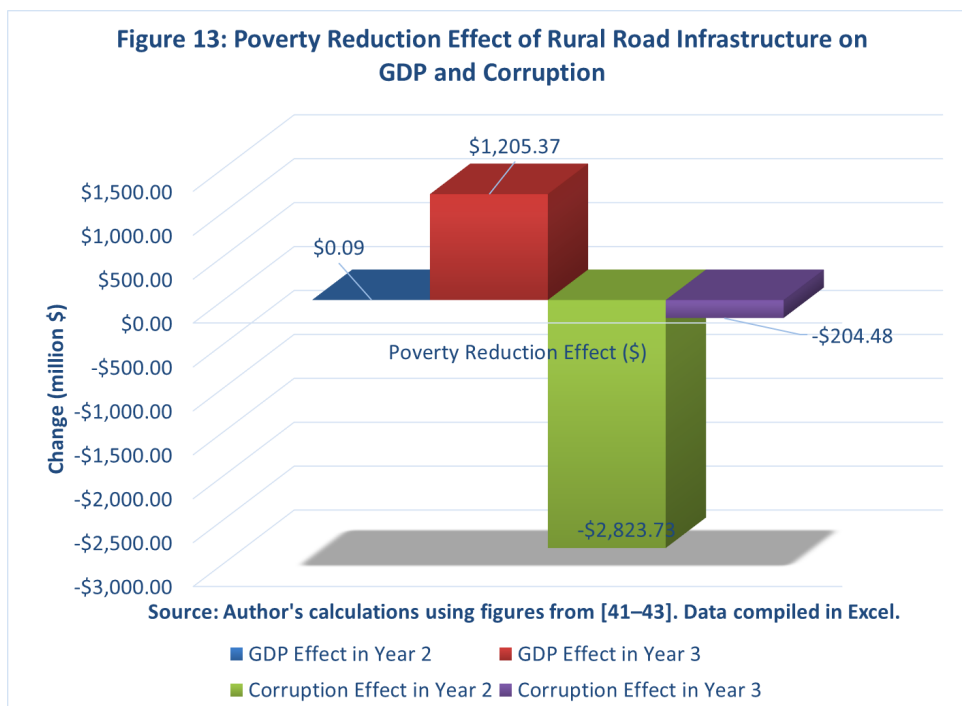
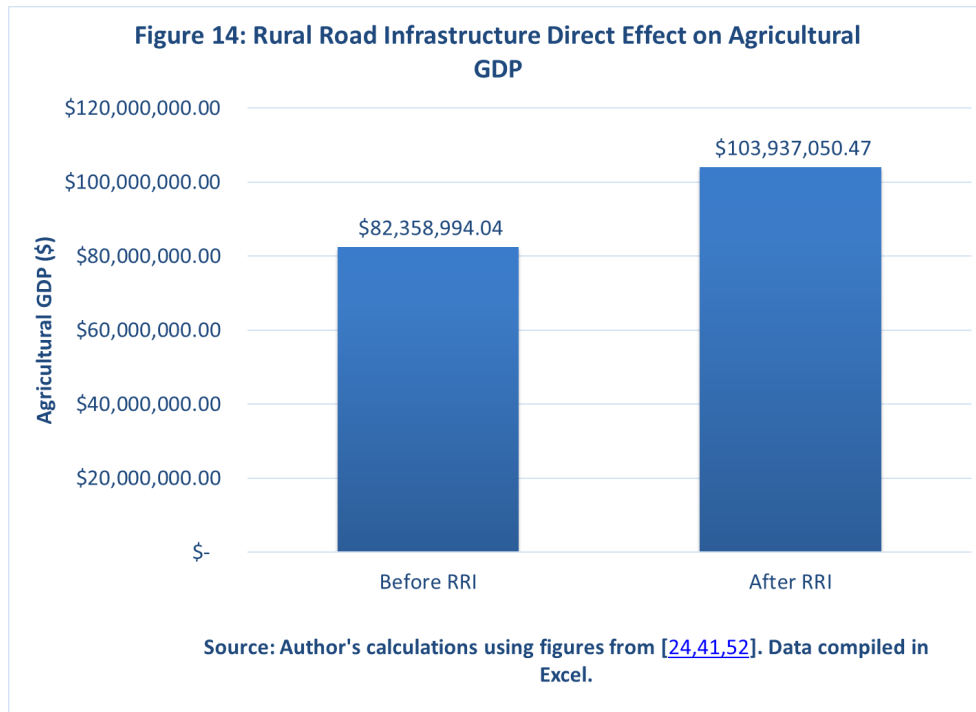


Figure 14: Rural Road Infrastructure Direct Effect on Agricultural GDP



APPENDIX B: Detailed Sources

- Excel Sheet with detailed calculations available upon request

School Meal Programs

1. Direct Effects on GDP
 - TPS and enrollment paper (Regression Coefficient): (40)
 - Current GDP (2023): (41)
 - Total Students Enrolled (Public Primary and Secondary 2020/21): (27)
 - Total Students Fed: (16)
 - Total schools (Public Primary and Secondary Schools 2020/21): (30)
2. Projected Cost and School Enrollment Increase
 - COHD (September 2024): (26)
 - Total Students Enrolled (Public Primary and Secondary 2020/21): (27)
 - Old students Fed: (16)
 - Old Cost per plate (100 naira): (55)
 - Total schools (Public Primary and Secondary Schools 2020/21): (30)
 - Paper on Costs of Classroom Construction: (29)
3. Agricultural Consumption
 - Current Consumption: (44)
 - Total Students Fed: (16)

Total Students Enrolled (Public Primary and Secondary 2020/21): (27)

4. Vote buying costs

Vote Buying Amount Spent: (35–38)

Poverty and vote-buying Paper (Regression Coefficient): (8)

5. Impact on household income

COHD (September 2024): (26)

TFR: (31)

Total Students Enrolled (Public Primary and Secondary 2020/21): (27)

Total children of Student Age in the Population: (32)

Average RHI (Rural Household Income): (33)

NPT income: (34)

6. Poverty reduction

Same as impact

Corruption Costs: (43)

Poverty on GDP and Corruption Paper (Regression Coefficient): (42)

Current GDP (2023): (41)

7. Years to eradicate out-of-school children

Total children of Student Age in the Population: (32)

Total Students Enrolled (Public Primary and Secondary 2020/21): (27)

School Enrollment Increase (see number 2)

WAEC statistics - Total Students Graduating in 2021: (39)

8. Total Households with enrolled children in Public Primary and Secondary Schools

TFR: (31)

Total Students Enrolled (Public Primary and Secondary 2020/21): (27)

Total children of Student Age in the Population: (32)

Rural Road Infrastructure (RRI)

9. Baseline Income Increase

Average RHI: (33)

Road Increase Income Paper: (24)

Number of Rural Households: (48)

10. Income from land

Land increase paper: (24)

Income per land increase: (25)

Number of Rural Households: (48)

Number of Agricultural Households: (48)

11. Savings due to Increased Input Price
 - Rural dwellers produce 90 percent of output: (15)
 - Arable land in Nigeria: (50)
 - Fertilizer kg. ha per year: (49)
 - Paper of price change with roads: (24)
 12. Increased wage income
 - Working age population: (32), (56)
 - Employed population: (56)
 - Informal Agricultural Labor Force: (56)
 - Wages Before and After: (24)
 13. Improved Agric GDP
 - Current GDP (2023): (41)
 - Agriculture's Contribution to GDP (2023): (52)
 - Road improvement and agricultural productivity paper: (24)
 14. Rural Road Infrastructure Costs
 - Bad rural roads in Nigeria: (23)
 - Costs of road construction per km: (47)
- Tool:
- Inflation Calculator: (57)