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Synopsis: Macroeconomic Factor Influence on Agricultural Program Sustainability in Kaduna State, Nigeria

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RESEARCH OVERVIEW

Prominent institutions within the global agricultural development community have advocated increases in public expenditures on programs that develop the agricultural sector in developing countries to help reach food security and poverty reduction goals. This has also been the case with the Comprehensive Africa Agriculture Development Program (CAADP) and relevant commitments by African Union leaders.

Public expenditures on agriculture in Nigeria has been a focus of research for the International Food Policy Research Institute (IFPRI). Some takeaways from this research are:

- Public expenditures in Nigeria on agriculture are low relative to other countries, and
- The importance of the agricultural sector in terms of levels of public funding allocated to agricultural programs varies across states.

Due to Nigeria's heavy reliance on the oil sector to fund government operations at all levels of government, states in Nigeria face important fiscal management challenges, especially during periods of change in key macroeconomic variables such as with global oil prices. Additionally, many state Ministries of Agriculture rely on donor funds for their programs. However, such donor-funded projects have operational timelines after which it is expected that state government entities will absorb the costs of facilitation and implementation or they are discontinued.

In this study, we measure the degree to which changes in key macroeconomic variables – global oil prices or donor funding levels – affect the fiscal conditions of the Kaduna Ministry of Agriculture and Forestry (KDMAF), and, thus, the likelihood of the Kaduna government to sustain agricultural programs following a fiscal shock.[1]

BACKGROUND

Recent studies by the International Monetary Fund analyzing the general fiscal management patterns of resource-rich African country governments, like Nigeria, show a general historical tendency for such governments to implement pro-cyclical fiscal policies such that they increase expenditures during periods when budget revenues increase, decreasing expenditures when revenues decrease. While this is understandable for developing country governments with many urgent needs for public funds, including investment in essential infrastructure, adoption of a generally more counter-cyclical fiscal policy approach would lessen the harmful effects of negative shocks on macroeconomic performance and allow the government to sustain expenditures on programs with long development periods, such as many within the agricultural sector, including research. Nigeria has had a mixed record for implementation of counter-cyclical fiscal policies over past decades. In recent years, the fiscal stance of the federal government has been decidedly pro-cyclical due to limited federal government savings.

OBJECTIVES

The objectives of this study are to:

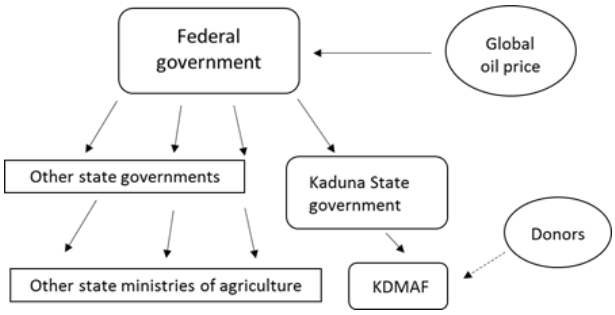
1) Estimate the relative degree to which federal and state government budget revenues co-move with global oil prices;
2) Estimate the degree to which state agricultural program funding adjusts with changes in global oil prices or reductions in donor funds; and,
3) Identify mechanisms that can facilitate continuation of agricultural programs when negative state government fiscal shocks occur.

[1] A detailed discussion of this research can be found in NSSP Working Paper 48, *Macroeconomic Factor Influence on Agricultural Program Sustainability in Kaduna State, Nigeria.* http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/131441

DATA AND METHODS

An intertemporal economic simulation model was developed to capture the hierarchical structure of financial resource flows within the Nigerian federal government system. A simplified portrayal of the system is shown in Figure 1. While this does not capture all flows between levels of government – there is some flow of funds from state to federal government – the arrows are representative of the dominant state, since most flows move from the federal government.

Figure 1: Stylized general flow of Nigerian public funds



The empirical model is meant to be representative of conditions in Kaduna in 2015. It is calibrated with federal and Kaduna government fiscal data and with household-level data from the Living Standards Measurement Survey – Integrated Surveys on Agriculture dataset for Nigeria. The model is designed such that the utility of all households in Kaduna state is maximized, with farm household utility being partly a function of government-provided inputs which influence farm production and net income. Thus, the model encompasses a mechanism through which there is incentive for government to devote funds to agriculture.

RESULTS

The correlation between the consolidated total revenues of the Nigerian government, which includes state and local government revenues, and the global oil price for the period 2000 to 2016 is 0.93. That for the Kaduna government total revenue and the global oil price is 0.52. However, the average share of Kaduna state government revenue provided by the federal government for the same period was 0.68. Additionally, the share of donor funds in the KDMAF budget for 2016 was 0.53. Thus, the Kaduna government relies for public funding significantly on the federal allocation, which is strongly influenced by global oil price movements, even as KDMAF depends greatly on donor funds for financing its operations.

The model simulation results show that a decline in the global oil price by 10 percent would reduce total two-year KDMAF expenditure levels on agricultural programs by an estimated 11 percent from current conditions. Additionally, a loss in donor funds by 20 percent translates into a reduction in agricultural program spending over a two-year period by 5 percent. The smaller effect of the reduction in donor funds arises because the revenue changes are much larger for oil price change scenarios. Moreover, the model structure allows the Kaduna government to buffer losses in donor funds through reallocation of funds to KDMAF rather than to other expenditures.

POLICY RECOMMENDATIONS

Two principal policy recommendations are drawn from this modeling exercise:

1) Improve cooperation between the Federal Ministry of Agriculture and Rural Development (FMARD) and KDMAF through establishment of a position or office within FMARD that tracks state Ministry projects and donor funding provision timelines; and
2) Establish a grant fund within FMARD that can provide temporary funds to KDMAF or other state Ministries during periods of poor funding, with the criteria for grant provision including alignment of KDMAF programs with FMARD short-run policy goals and long-run Nigerian agricultural sector development goals.

These institutional mechanisms would allow for sustaining funding of successful agricultural programs during periods of unfavorable macroeconomic conditions.

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