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Agricultural Growth and Investment Options for Poverty Reduction in Malawi

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Agriculture employs three-quarters of the population of Malawi. It makes up more than forty percent of the economy and sixty percent of all exports. Yet productivity in agriculture—measured as the amount of output for a given amount of inputs—is considerably lower than it could be, given Malawi's agricultural resources. Efforts to expand the economy and reduce poverty must involve agriculture. Where should the Government of Malawi invest?

A recent study by the International Food Policy Research Institute (IFPRI) provides policy guidance regarding how much government expenditure is needed to stimulate agricultural growth, and how to prioritize potential areas of investment. The study employs a new, highly detailed model of the Malawi economy to assess the public resources that will be required to achieve development goals committed to by the government, such as the first Millennium Development Goal (MDG1), which seeks to halve the 1990 national poverty rate by the year 2015. The study's authors conclude that the goals of the Comprehensive Africa Agriculture Development Program (CAADP) constitute a reasonable use of government funds and will significantly improve the economic wellbeing of both rural and urban households in Malawi.

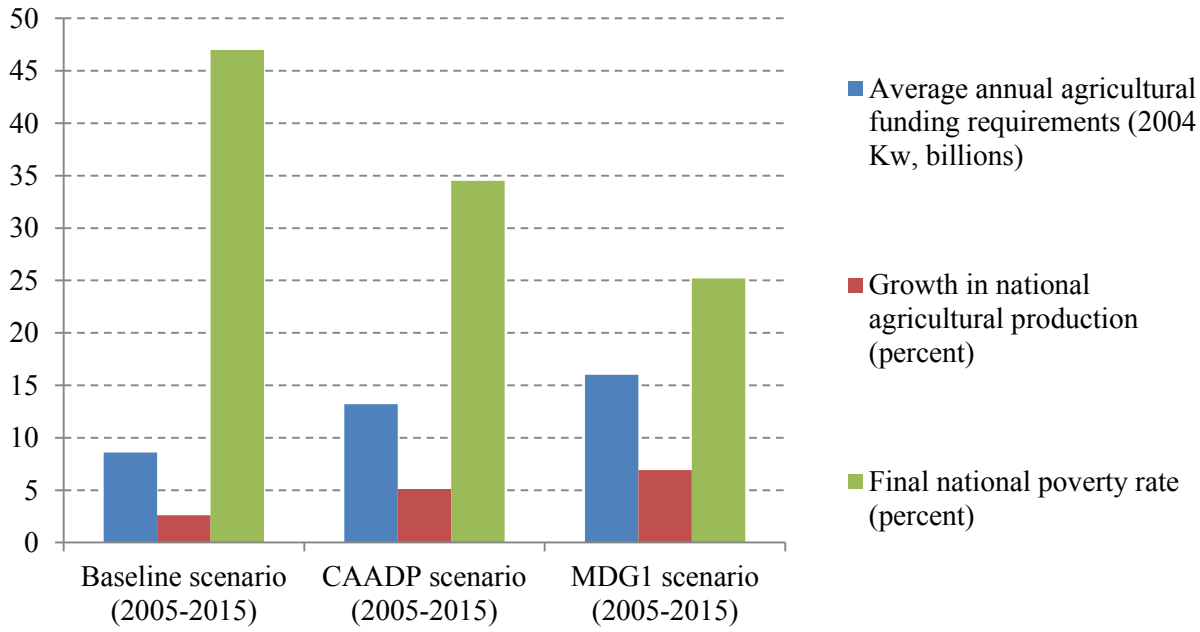
How much government investment is needed?

Malawi has experienced modest economic growth over the last decade and a half. Agricultural growth, however, has been inconsistent. As the Government of Malawi implements its Agricultural Development Plan (ADP), which is slated to begin in late 2009, it plans to incorporate recommendations from CAADP. One CAADP goal is to have the agricultural sector grow by six percent per year in value terms. To achieve this, CAADP estimates that at least ten percent of the annual national budget must be allocated to agriculture. The IFPRI study, however, finds that government spending on agriculture must grow by at least twenty percent per year to achieve six percent agricultural growth. By 2015, this expenditure would account for at least twenty-four percent of the national budget. The recommendations of CAADP, therefore, appear to be insufficient in Malawi to achieve the targeted growth in the agricultural sector.

Can poverty in Malawi be halved by 2015?

No. The IFPRI study indicates that achieving the MDG1 target of halving poverty by 2015 will require about 6.9 and 7.6 percent annual growth in agriculture and non-agriculture, respectively. Thus, implementing CAADP will not enable Malawi to reach the MDG1 poverty target. Nevertheless, pursuing the CAADP growth goal is still worthwhile: higher growth will help reverse the trend of increasing absolute numbers of people in poverty, which is due in large part to population growth. Under a "business-as usual" baseline, in which the Government of Malawi makes no major changes from current policy, overall GDP growth is expected to average 3.2 percent per year, a modest increase over the 2.8 percent growth rate from 1990 to 2005. In that case, the number of poor people is predicted to rise from 6.38 million in 2004 to 7.04 million by 2015. By contrast, under the CAADP and MDG1 scenarios, the numbers of poor people are predicted to fall to 5.17 and 3.78 million, respectively, despite continued population growth. Predictions regarding the associated agricultural funding requirements, growth in national agricultural production, and the national poverty rate are summarized in Figure 1. The overall message is that there can be clear reductions in poverty if investment in agriculture is stepped up.

Figure 1. Agricultural growth and poverty reduction



Source: Benin et al. (2008)

Who gains and loses from increased investment in agriculture?

The IFPRI economic model demonstrates that the effects of increased spending on agriculture are linked across regions and across sectors of the economy (see box). Increased spending on agriculture will not benefit rural households alone. Urban agriculturalists farm six percent of agricultural land in Malawi and thus will benefit from increased agricultural spending. There will also be consumption side benefits, in the form of lower prices for agricultural commodities. This will help non-farm households in urban and rural areas as well as farm households that are net buyers of agricultural goods. Furthermore, urban areas may benefit from a general increase in demand for goods and services due to agricultural growth.

Despite the above findings, the distribution and type of benefits depend on the household's location. The higher growth potential of certain export crops, such as tea and tobacco, and better market conditions in certain parts of the country may result in spatially uneven income growth and poverty reduction. In addition, the model predicts that rural poverty will decline by 13 percent under the CAADP scenario, while urban poverty is forecasted to decline by only six percent.

Where should government invest first?

What kinds of public investments hold most promise for achieving Malawi's growth and poverty reduction objectives? The IFPRI study suggests that allocation of government investments should be balanced among the different types of public goods and services, and across geographical areas, some of which have greater production potential than others. Malawi cannot rely solely on growth in maize or tobacco to reach the CAADP growth targets. Broader based growth, including growth in pulses and horticultural crops, is needed. The government also needs to maintain a balance between an emphasis on export crops versus food crops. Increases in export crops can cause the agricultural sector as a whole to grow more rapidly, but these crops are typically grown by households that are less poor. Food crops are less likely to rapidly increase overall growth of the agricultural sector, but tend to be grown by relatively poor, remote households and, therefore, can have a particularly strong impact on poverty.

A key criterion in determining the most effective investments is the extent to which the investment is sustainable. Recently, the Government of Malawi induced a rapid boost in productivity of some crops by subsidizing fertilizer.

To achieve long-run agricultural growth and rural poverty reduction, however, the government also needs to consider more permanent improvements such as:

Agricultural Research and Development (R&D): R&D funding in Malawi has been inconsistent and has declined over time (Figure 2). It is critical, however, because it can boost yields, for example, through development of improved seeds.

***Irrigation*:** Malawi has an irrigation potential of about 162,000 hectares, representing about seven percent of arable land; but only a little over two percent of arable land is currently under irrigation. The impacts of irrigation are well known. For example, it is widely maintained that the success of the Asian Green Revolution in the 1960s and 1970s was built on the rapid expansion of irrigated areas. Irrigation is thus another important channel for investment.

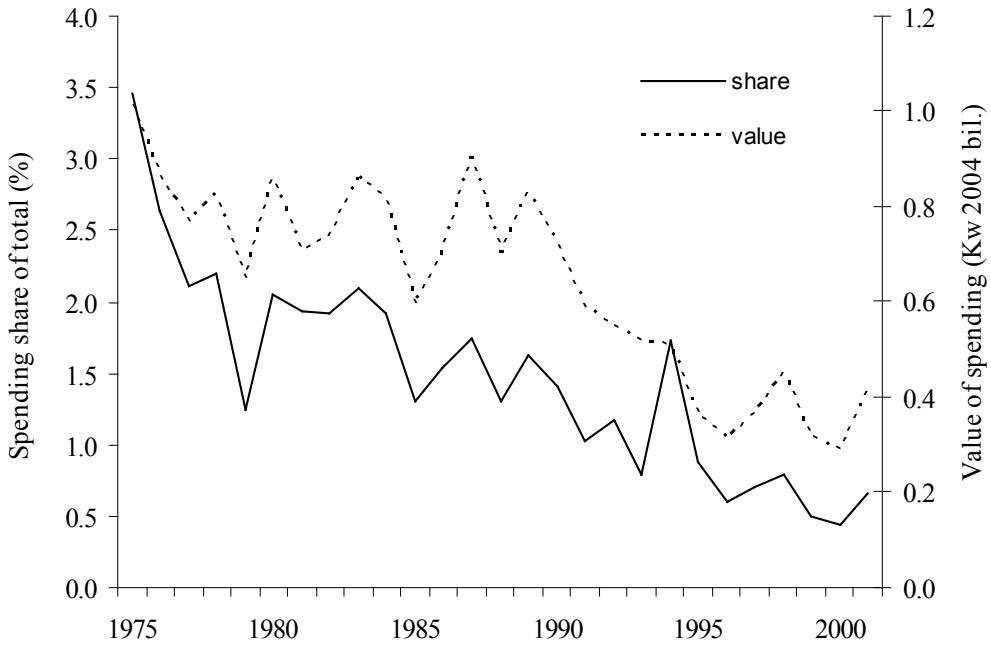
***Rural infrastructure*:** The inadequacy of the country's current infrastructure results in high costs of production. Investment in rural infrastructure such as feeder roads can have large poverty reduction effects.

In the long run, investments in these areas will ultimately give a much higher rate of return than short-term investments, such as fertilizer subsidies.

Conclusion

The Government of Malawi should try to achieve the CAADP target. This will not halve poverty, but can improve the well-being of both rural and urban households, substantially reducing Malawi's poverty incidence. Agricultural investments are a reasonable and practical use of government expenditures that will more than pay themselves back.

Figure 2. Government spending on agricultural R&D in Malawi



Source: Benin et al. (2008)

Box 1. Computable General Equilibrium Modeling

To quantify how much public agricultural spending is required to achieve the CAADP and the MDG1 growth targets in Malawi, the IFPRI authors first estimated the average annual growth rate in agricultural expenditure that historically has been required to achieve a particular growth rate in agriculture. These estimates were used in a new model of the Malawi economy to determine welfare and poverty effects. The model measures how prices, wages, and agricultural earnings change as government policies change and new technologies are introduced.

The model is of the computable general equilibrium (CGE) type, which means that it captures linkages across sectors with great detail. Because of such linkages, agricultural growth typically results in substantial overall growth in the economy. The CGE model also demonstrates how the increased growth potential for export crops may cause farm labor and capital to shift towards production on larger-scale farms, causing declines in production by other farm types. In this way, the model accounts for the tradeoffs that invariably have to be made in policy analysis: there are losers as well as winners from any policy change.

The IFPRI model acknowledges that there are finite resources in Malawi, and recognizes that increased government spending on one sector necessitates reduced spending on another. The model is recursive dynamic, which means that the effects of a policy change can be measured on a year-to-year basis. In particular, exogenous stock variables are updated each period based on inter-temporal behavior and the results from previous periods. The CGE model also captures regional heterogeneity. Rural agricultural production is disaggregated across Malawi's eight main agro-ecological regions. Urban agricultural production is grouped into a separate region to capture the importance and unique circumstances of urban agriculture.

The model was calibrated to a 2004 social accounting matrix (SAM) that provides information on demand and production for thirty-six economic sectors. Seventeen of these are in agriculture, and include commodities such as maize, rice, sorghum, millet, cassava, Irish potatoes, sweet potatoes, groundnuts, and horticultural products.

To make the model work, the IFPRI authors first calibrated the model to a "business-as-usual" baseline scenario drawing on production and GDP trends for agricultural and non-agricultural sub-sectors. The authors then "shocked" the model, asking questions such as: what if the government allocates at least 10 percent of budgetary resources to the agricultural sector? The model then solved for new equilibrium levels of prices, quantities, and incomes that are consistent with this change.

The Policy Note was prepared by Jeff Reimer from Oregon State University and Monica Fisher, and draws on Benin, S., Thurlow, J., Diao,X., McCool, C., and Simtowe, F. 2008. Agricultural Growth and Investment Options for Poverty Reduction in Malawi. Discussion Paper No. 794, International Food Policy Research Institute. The note also draws from ReSAKSS Issue Brief No. 11, "Achieving Agricultural Development and Economic Growth in Malawi: How CAADP can help," prepared by Melissa Lambert and Marcia MacNeil. The note is intended to promote discussion and has not been peer reviewed. Any opinions stated herein are those of the author(s) and do not necessarily reflect the policies or opinions of IFPRI.

The Malawi Strategy Support Program of the International Food Policy Research Institute (IFPRI) works closely with the government of Malawi and other development partners to provide information relevant for the design and implementation of Malawi's agricultural and rural development strategies.

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