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WHAT KIND OF AGRICULTURAL STRATEGIES LEAD TO BROAD-BASED GROWTH: IMPLICATIONS FOR COUNTRY-LED AGRICULTURAL INVESTMENT PROGRAMS

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BACKGROUND: Country-led agricultural investment programs are a key mechanism for achieving the goals of the Feed the Future (FTF) strategy. The FTF strategy recognizes that agricultural growth must be inclusive to achieve poverty reduction and improved food security and nutrition outcomes.

Smallholder-led structural transformation is considered by most development economists to be the major pathway from a semi-subsistence agrarian society to a more prosperous, food secure, and diversified economy. Johnston and Kilby (1975) and Mellor (1976) first documented the structural transformation process in the regions of Asia where the Green Revolution later bloomed. The structural transformation process starts with broad-based agricultural growth, causing a build-up of purchasing power by millions of small farmers. These millions of farmers subsequently spend and re-cycle more money through the economy, igniting demand and employment growth in non-farm sectors, which in turn increases the demand for food and other farm products in a virtuous cycle in which the rural and urban labor forces provide a market for each other. As the demand for food and fiber products grows, private investment flows into the storage, transport, processing, and retailing stages of commodity value chains, further expanding employment and diversifying the economy. Over time, broad-based income growth causes the share of food in overall consumption to fall, leaving increased disposable income to fuel the development of non-farm sectors. As the demand for non-farm goods and services rise, the labor force responds by shifting gradually from the farm to non-farm sectors, the demand for education and job skills rises, and the

economy becomes increasingly diversified and urban. Rural households are *pulled* off the farm into viable non-farm activities, not *pushed* into low-paying desperation jobs in the towns due to poor prospects in agriculture.

The starting point of structural transformation is broad-based smallholder-led agricultural growth and commercialization. Mellor, Johnston and others clearly documented that “inclusive agricultural development” in Green Revolution Asia was crucial to structural transformation and poverty reduction. They contrasted the Asian experience with parts of Latin America, which also achieved agricultural growth, but not in an inclusive way. Latifundia estates expanded production impressively in many cases while millions of small peasant farms remained mired in poverty. A major lesson for Africa from these contrasting experiences of smallholder-led Asia and estate-led Latin America is that if we want growth to be inclusive it must address issues of rural poverty. And if we want agricultural growth to reduce poverty, it must be inclusive. For these reasons, there is no real alternative to a smallholder-led agricultural development strategy.

If this process of structural transformation, which has characterized the development pathways of Eastern Asia as well as Western Europe and North America, holds the brightest prospects for most developing countries, then we already have a very good idea of how the development process needs to happen. But do we know much about how to make it happen? Largely, yes we do! This brief draws on lessons learned from Asia as well as 25 years of USAID-funded applied food security research in Africa to identify key elements of

successful country-led transformation strategies (MSU Food Security Group 2009).¹

Private sector investment is crucial to economic growth. But the levels of private investment and the rate of poverty reduction over time will depend critically on achieving positive synergies between the private and public sectors. Two key strategies can therefore be used to create an effective public and private sector partnership to ignite smallholder-led agricultural development:

1. Public Programs and Investments to Support Smallholder Productivity Growth: Public investment in services, technologies, and institutions that are known to promote broad-based inclusive farm productivity growth, and 2. Creation of an enabling environment to encourage private investment in the various stages of commodity value chains so as to better enable smallholders to commercialize and link into markets.

Why is the state's role so important for the private sector, including smallholder farmers, to lead the transformation process effectively? Public policies and interventions, especially their predictability, have an overriding influence on the private sector's incentives and ability to invest and thrive. If governments define their roles clearly, implement their roles transparently and consistently, and use their scarce resources primarily to invest in public goods that provide new profitable opportunities to engage small-scale farmers into commodity value chains, then this approach will generate broad-based growth and drive private sector investment in support of smallholder agriculture, as it has in many parts of the world already. For these reasons, the focus of this brief is mainly on what the public sector can do in the first place to generate the incentives for system-wide private investment in staple food markets that lead to broad-based growth. Let's now consider the details of each of these two broad strategies.

PRIORITY PUBLIC INVESTMENTS:
Based on the weight of the research evidence,

¹ The research evidence in support of this conclusion is presented in the various research reports on the Food Security Group website, see: <http://www.aec.msu.edu/fs2/output/index.htm>

the following priority investments have major potential to improve the performance of food markets, enhance national food security, and reduce poverty. The relative importance and sequencing of investments requires country-specific analysis. Investment in human and organizational capacity and effectiveness is a common element in each of the following areas:

Crop Science Programs to Improve On-Farm Productivity: Research impact assessments from Africa and Asia show broadly consistent findings. Public investments in crop science – varietal research in particular – have very high payoffs to smallholder farm productivity and poverty reduction (Byerlee and Eicher 1997; Masters 2005). Varietal research also has an important role in helping smallholder and commercial farmers adapt to climate change. Because of large potential regional spillovers, effective regional coordination will be needed to maximize the impact of country investments.

Production and Marketing Training for Farmers: The weight of the research evidence indicates that improving farmer management skills to take advantage of on-shelf knowledge and technologies is crucial for raising smallholder productivity and promoting a more commercialized smallholder sector (EIU 2009; Haggblade, Kabwe, and Plerhoples 2011). This evidence underscores the major importance of strong public and private extension services to serve smallholder farmers. For example, research has identified practices to enhance soil fertility and soil organic matter. Conservation farming practices such as minimum tillage, ripping, and basins also appear to improve crop productivity and yield stability in the face of drought; these practices may hold great upside potential to achieve massive production gains because very few farmers currently use such technologies. For the most asset-poor smallholders, access to equipment and food/seasonal inputs for work may be necessary to break out of low productivity/low nutrition traps. Investments to improve farmers' marketing skills are also found to raise farmers' net income from crop sales (Jayne et al. 2010).

Road and Port Infrastructural Investment: As in Asia, research evidence from east Africa shows substantial benefits to smallholder

farmers from investments in road infrastructure (Dorosh, Dradri, and Haggblade 2010; Jin and Deininger 2008; Dercon et al. 2009). The highest per kilometer marketing costs are incurred between the farm gate and the nearest motorable road. The marketing cost associated with moving grain or fertilizer 25 km on a dirt path by bicycle is about the same as the cost to move the same product 500 km along a tarmac road. Public investment in improved road networks linking district towns to villages will improve smallholders' access to markets and their competitive position in the markets.

Programs to Encourage the Adoption of Grades and Standards: Failure to trade according to grades and standards significantly lowers farm household income and raises quality and safety concerns for consumers. Buying of grain with excessively high moisture levels by assembly traders is a major cause of mycotoxin contamination and high storage losses (Jayne et al. 2010). Wholesale traders and millers are likely to be the key to shifting the trading system toward adherence to clearly differentiated quality standards; this will happen when they see that their competitiveness in the region depends on it. Programs to encourage trading according to grades and standards will pay major dividends in the long run to both small-scale farmers and consumers.

Coming to Grips with the Problem of Limited Access to Productive Resources: Many smallholder farmers cannot participate in markets because they cannot produce any significant food surplus, at least given current farm technologies (Jayne et al. 2010). About 50% of the smallholder farm population in eastern and southern Africa have less than 1.2 hectares of land. The bottom 20% of rural agricultural households in the region is virtually landless, having access to 0.50 hectares or less. Population pressures and land constraints are becoming severe in many smallholder farming areas. Large amounts of potentially arable land remain underutilized and of low economic value because they have yet to receive the requisite public investment in physical infrastructure and facilities to attract migration and settlement of these areas (Jayne et al. 2010). In many parts of eastern and southern Africa, governments may be able to promote equitable access to land through a

coordinated strategy of investments in public goods and services. This would involve investments in infrastructure and services designed to link currently isolated areas with existing road and rail infrastructure, and allied investment in schools, health care facilities, electrification and water supply, and other public goods required to induce migration, settlement, and investment in these currently underutilized areas. Such investments would also help to reduce population pressures in areas of relatively good access and soils, many of which are being degraded due to declining fallows associated with population pressure. Over the long run, the growth in non-farm employment opportunities associated with structural transformation will pull the least productive and most asset-constrained smallholder farmers off the land and into more productive jobs.

POLICY ACTIONS TO PROMOTE AN ENABLING ENVIRONMENT THAT SUPPORTS SMALLHOLDER COMMERCIALIZATION:

A challenge in promoting small farmer productivity growth is that food markets are politically sensitive. Elections can be won or lost through policies that may provide short-term benefits but entail massive foregone productivity in the longer run. This problem is hardly unique to developing countries. Given that governments are likely to continue intervening in food markets; several guidelines might be followed to improve overall market performance:

Follow Clearly Defined and Transparent Rules for Triggering Government Intervention: Governments and private trading firms strategically interact in staple food markets – they respond to each other's actions and anticipated actions. The transition from *ad hoc* to clearly specified rules governing public sector interventions (regarding when, whether, and how governments will alter import tariff rates, issuance of licenses for import and export, marketing board purchase volumes and stock releases, and the prices at which the boards will buy and sell) will promote market predictability, and hence encourage greater international and local capital investment in agricultural value chains.

Institute Regular Government-Private Sector Consultations to Coordinate Decision Making: Effective coordination

between the private and public sector will require greater consultation and transparency between private and public marketing agents, especially with regard to changes in marketing board purchase and sale prices, import and export decisions, and stock release triggers. This will help to nurture trust and cooperation and avoid surprises.

Eliminate Export Bans and Import Tariffs on Trade within Regional Economic Communities: Governments occasionally ban food exports during periods of scarcity and high prices, ostensibly to protect their consumers, or place high tariffs on food imports, ostensibly to protect their producers. Unfortunately, this retards the development of both regional and domestic marketing systems and robs farmers from receiving potentially better prices. Informal traders can play a valuable role for both farmers and consumers by buying grain in surplus areas and making it available in deficit regions across the border (e.g., between Mozambique and Malawi; Zambia and DRC; Zambia to Zimbabwe; Uganda to Kenya, Mali to Niger, etc.).

Overcome Market Failures without Crowding out Private Investment: Market failures can occur because of lack of competition, excessive transactions costs, or lack of purchasing power. Local trade can more effectively meet the needs of low-income urban and rural consumers by making marketing boards' stocks accessible not to just large-scale millers but also to local small- and medium-scale millers and other market participants. One solution is for grain reserve agencies to hold regular auctions of grain stocks in different size lots to attract different sized traders. The system in several countries of channelling marketing boards' supplies to large millers starves informal markets, makes the structure of the milling and retailing stages of the system less competitive, and imposes major costs on urban consumers and grain-deficit smallholder farmers (Jayne et al. 2010). There has been a resurgence in recent years of targeted input subsidy programs aimed at overcoming credit constraints of the poorest farmers, and well-managed, rules-based marketing board operations to stabilize food prices within affordable ranges for poor consumers. There is a compelling case to be made for such interventions in theory, and under certain circumstances they have proven

their ability to raise food production and consumption, at least temporarily. But the empirical record of state interventions in this area is mixed as their popularity makes such interventions politically difficult to rein in, crowding out other crucial public investments with greater long-term impacts on poverty reduction and growth, undermining private investment in value chain development, and in some cases causing adverse macroeconomic effects (Minde et al. 2008).

On-The-Ground Monitoring of Program/Policy Implementation and Impact: Close monitoring of conditions in the field – crop conditions, livestock health, price movements, livelihood resilience to shocks, and so on – would provide the potential for quick feedback to policy makers regarding on-the-ground implementation of reform policies, and allow for mid-course corrections if activities are not conforming to expectations. Local research institutes could help policy makers more accurately understand the impacts of particular policies and programs. This will reduce the tendency to misidentify policy effects and thereby provide a more accurate empirical foundation for future discussions of food marketing and trade policy options.

CONCLUDING REMARKS: Without renewed attention to sustained agricultural productivity growth, most small farms in developing countries will become increasingly unviable economic and social units. Sustained agricultural productivity growth and poverty reduction will require progress on a number of fronts, most importantly increased public goods investments to agriculture; a policy environment that supports private investment in input, output, and financial markets and provision of key support services; a more level global trade policy environment; supportive donor programs; and improved governance. Subsidies, if they are focused, appropriately conceived, effectively implemented, and temporary, can play a complementary role but should not – based on both the Asian and African evidence presented here – be seen as the primary engine of growth. Most of these challenges can be met through country-led agricultural investment strategies that mobilize the political will to adopt the policies and public investments which substantial evidence demonstrates have the greatest chances of

driving sustainable pro-poor agricultural growth.

REFERENCES:

Byerlee, D. and C.K. Eicher (eds). 1997. *The Emerging Maize-based Revolution in Africa: The Role of Technologies, Institutions and Policies*. Boulder, CO: Lynne Rienner Publishers.

Dercon, S., D. Gilligan, J. Hoddinott, and T. Woldehanna. 2009. The Impact of Agricultural Extension and Roads on Poverty and Consumption Growth in Fifteen Ethiopian Villages. *American Journal of Agricultural Economics* 91.4: 1007–21.

Dorosh, P., S. Dradri, and S. Haggblade. 2009. Regional Trade, Government Policy, and Food Security: Recent Evidence from Zambia. *Food Policy* 34.4: 350-66.

Economist Intelligence Unit. 2008. *Lifting African and Asian Farmers out of Poverty: Assessing the Investment Needs*. Research report for the Bill and Melinda Gates Foundation. New York: The Economist Intelligence Unit.

Haggblade, S. S. Kabwe, and C. Plerhoples. 2011. *Productivity Impact of Conservation Farming on Smallholder Cotton Farmers in Zambia*. FSRP Working Paper No. 47. Lusaka, Zambia: Food Security Research Project.

Jayne, T.S., Nicole Mason, Robert Myers, Jake Ferris, David Mather, Margaret Beaver, Natalie Lenski, Antony Chapoto, and Duncan Boughton. 2010. *Patterns and Trends in Food Staples Markets in Eastern and Southern Africa: Toward the Identification of Priority Investments and Strategies for Developing Markets and Promoting Smallholder Productivity Growth*. MSU International Development Working Paper No. 104. E. Lansing: Michigan State University.

Jin, S. and K. Deininger. 2008. Key Constraints for Rural Non-Farm Activity in Tanzania: Combining Investment Climate and Household Surveys, *Journal of African Economies*, 18 (2): 319–361.

Johnston, B. F. and P. Kilby. 1975. *Agriculture and Structural Transformation: Economic Strategies in Late Developing Countries*. New York: Oxford University Press.

Masters, William A. 2005. Paying for Prosperity: How and Why to Invest in Agricultural Research and Development in Africa. *Journal of International Affairs* 58.2: 35-64.

Mellor, J. 1976. *The New Economics of Growth*. Ithaca, NY: Cornell University Press.

Minde, Isaac, T.S. Jayne, Eric Crawford, Joshua Ariga, and Jones Govereh. 2008. *Promoting Fertilizer Use in Africa: Current Issues and Empirical Evidence from Malawi, Zambia, and Kenya*. Working Paper No. 13. Pretoria, South Africa: Regional Strategic Analysis and Knowledge Support System.

MSU Food Security Group. 2009. *Lessons Learned from 25 Years of Food Security Research, Capacity-Building, and Outreach*. International Development Working Paper No. 101. East Lansing: Michigan State University.

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