



Technical Workshop on Policies for Promoting Investment in Agriculture

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KEY ISSUES IN PROMOTING INCREASED INVESTMENTS IN
AGRICULTURE

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1. Introduction

There is global concern about the challenge of financing agricultural development across the developing world at a time of increasing food prices and worsening food insecurity for many. Accelerated agricultural growth is not only needed to meet growing global demand for food and energy, but is also seen as the main pathway out of poverty for many poor people and countries. Global estimates of the amount of investment needed to achieve acceptable levels of agricultural growth in the developing world vary enormously, but far exceed the current trends in investment in agriculture by governments and donors. If the gap is to be filled, then key questions are (i) who is going to make the required investment; (ii) where the resources for the needed investments are going to come from; (iii) what are the policy options to make the resources flow at the appropriate segment of the agro-food value chain for accelerating agricultural growth; and (iv) what are the policy options for guiding these investments to enhance pro-poor outcomes?

In considering these questions, some important factors need to be considered. First, agricultural development depends on the simultaneous growth of agricultural production and the value chains to which it is linked. These value chains include a wide range of small and large scale activities that involve supplying farm inputs, processing, storing, distributing, wholesaling, retailing and exporting farm products, which we shall refer to collectively as “agroindustry”.¹ As countries develop, agricultural production increasingly has to be marketed and processed to supply rapidly urbanizing populations and industries. With rising incomes and urbanization, people also diversify their diets into a wider range of higher value foods, including fresh perishable foods and processed and pre-cooked foods. Farmers also gradually adopt more capital intensive methods of farming to supply these growing markets, and this tends to be associated with greater access to modern inputs like fertilizers, pesticides, improved seeds and machines. As the value chains between farmers and consumers with urbanisation, food wastage and spoilage also become more important, significantly reducing the share of food actually consumed, and raising important health and safety issues. Agroindustry plays an increasingly important role in all these areas and as countries develop, its value added share in the national economy soon overtakes that of primary agriculture. As such, growth in agricultural investment and production depends on sufficient complementary investment

¹ See J. H. Davis and R. A. Goldberg (1957), *A Concept of Agribusiness*, Harvard Business School, Boston. Or see: J. E. Austin (1983), *Agroindustrial project analysis*, EDI Series in Economic Development, The World Bank, Washington D.C.

in agroindustry, something that is often ignored in discussions about the investment needs of agriculture. Recent years have seen significant growth in private and corporate sector investments along value chains, and although farm level investments by large scale corporate players through the purchase or leasing of land in developing countries have attracted attention, the vast majority of this private sector investment is going into agroindustrial activity.

Second, it needs to be recognized that there are different types of investors operating in agriculture and its value chains, including family/household farmers, large commercial farmers, domestic corporate sector, trans-national corporations, sovereign funds, the public sector (international, regional, national and local governments) and donors, and they all have different objectives and roles. There is also a variety of sources of financing for investment, including savings/retained profits, credit (from formal/informal sources), equity financing, donations/grants, FDI and government revenues, and these sources are not equally accessible to investors.

Third, investment capital comes in many forms: financial capital, productive capital, fixed capital, working capital, as well as human capital, social capital and natural capital. Different forms of capital cannot simply be added together to determine the total amount of capital available. They overlap and complement each other and some forms of capital cannot be substituted for others. Moreover, different types of investors exercise varying degrees of control and ownership over these different types of capital, and at different stages along the value chains. This can lead to important complementarity and non-substitution relationships among investors. For example, family farm capital formation, which is essential for increasing agricultural production, depends on farmers' own investment of labour and financial resources, and this cannot be made by other investors. Likewise, there are certain areas where only the public sector can or will invest (e.g. rural roads and some types of agricultural research), and there are many stages of value chains that require private investment by agroindustrialists. Conflicting goals can arise between different types of investors leading to important tradeoffs that require public intervention to strike an appropriate balance between economic, social and financial costs and benefits. For example, agroindustrialists may target their value chain investments to serve larger farms, leading to the neglect of small farm interests.

The purpose of this paper is to explore these relationships more fully and to highlight some key issues that follow when contemplating policy interventions that can help leverage additional farmer and private agroindustrial investments for accelerating pro-poor agricultural growth.

2. The linkages between agriculture and agroindustry

Agriculture and agroindustry are linked through their demand for outputs and through their capital stocks and new investments. These linkages are developed below with the aid of some simple stylised relationships.

Agricultural output (Q_{ag}) depends on the amounts of direct inputs used (X_{Ag}) - labour, land, irrigation, seeds, feeds, and agrochemicals (fertilizers and pesticides), the choice of technology and management practice (Tech), the stocks of private capital held by farmers (K_{Ag}) and agroindustry (K_{AgIn}), the stock of public sector rural capital (K_{PubR}), and the farm size distribution (FSD). There may be other variables too but which do not need to be enumerated here.

$$Q_{ag} = f(X_{Ag}, Tech, K_{Ag}, K_{AgIn}, K_{PubR}, FSD)$$

On-farm capital includes productive trees, breeding animals, tools and machinery, buildings and storage facilities, land improvements including irrigation infrastructure, human capital, rural social capital, etc. The stock of private capital in agroindustry includes trading establishments, warehouses, cold storage, processing facilities, transport equipment, human capital, etc. Public sector rural capital includes rural roads, public irrigation structures, rural electrification, research stations, rural schools, health centres, etc. We note that in each case, the composition of the capital stock is important, not just the total value of the stock. In fact, several types of capital cannot be substituted for each other, e.g. human and land capital in agriculture.

Agroindustry output (Q_{ai}) depends on the amount of agricultural output (Q_{ag}), other direct inputs - including labour, fuel, purchased intermediaries, etc. (X_{AgIn}), the stock of private capital in agroindustry (K_{AgIn}), and the stock of public sector rural capital (K_{PubR}). Again, there may be other variables too but which do not need to be enumerated here.

$$Q_{ai} = f(Q_{ag}, X_{AgIn}, K_{AgIn}, K_{PubR})$$

Within these stylised relationships, agroindustry affects agricultural output through its supply of direct inputs, and its investment in agricultural R&D and hence the technologies available to farmers. It also provides the main marketing channels for farmers, and hence has an important bearing on the prices they receive and their value addition opportunities. In turn, the level of agricultural output and the technologies and management practices used by farmers determine the demand for farm inputs and marketing, storage and processing services.

The two sectors are also linked through their capital stocks. Farmers, for example, are not likely to invest much in building up their onfarm capital if they do not have adequate access to value chains to obtain key inputs and market their products. Similarly, agroindustrialists are unlikely to build up their capital stock if they do not have access to sufficiently capitalised and market oriented farmers to create viable markets for their own outputs. Private agroindustrial investments are often associated with the development or deepening of new kinds of value chains that redefine market opportunities for farmers, enhance consumer choice, increase the availability of modern inputs, transfer technologies, etc. These “institutional” aspects may be far more important than the actual dollar size of the agroindustrial capital stock in terms of their impact on agricultural investment and growth, and they can have an important bearing on the distributional consequences for small farms.

The public rural capital stock can be expected to be complementary to farm and agroindustrial outputs and capital formation. For example, the density of rural roads will directly affect the availability and cost of farm inputs like fertilizer, and the cost of transporting and marketing products, making increased agricultural and agroindustrial production more profitable and encouraging additional private on-farm and agroindustrial investments. Better roads can also improve access to schools and health facilities, leading to better educated and more entrepreneurial farmers who are likely to be more productive, invest more in improved technologies, and produce larger marketed surpluses. Public agricultural research can generate technologies that farmers are willing to adopt and agroindustrialists are willing to disseminate (e.g. improved seeds). Public investments in irrigation encourage greater on farm investment and can significantly increase farmer demand for modern inputs and marketing and processing services. Public sector investment helps condition not only the level but also the nature of private investment in agricultural value chains. For example, neglect of public investment to support smallholder farmers may result in unfair advantage for larger farms in linking to value chains, and thence indirectly to agroindustrial investments that are also biased towards large farms.

3. Investment and the sources of investment capital

The stock of on-farm capital (I_{ag}) increases over time through on-farm investment and we expect some of the more important determining factors are property rights and the rule of law (PR), the agricultural terms of trade (TOT), farmer savings (FSav), the availability of financial services (FinS), the stock of private capital in agroindustry (KAgIn), the stock of public sector rural capital (KPubR), and the farm size distribution (FSD).

$$I_{ag} = f(\text{PR}, \text{TOT}, \text{FSav}, \text{FinS}, \text{KAgIn}, \text{KPubR}, \text{FSD})$$

Secure property rights, effective rule of law, and favourable domestic terms of trade for agriculture are all required if farmers are to have incentive to make long term investments in fixed capital like land improvements or trees. Farmers must also have access to capital. Although own savings are often the dominant source of capital for on farm investment, access to financial services is important for mobilizing savings and financing lumpy investments, and formal sector lending becomes more important as farms become more capitalized and intensive. Farmers are also more likely to invest when they have good access to public rural infrastructure, and when local agroindustry and hence value chains are better developed. The farm size distribution matters because as countries develop, farms tend to get larger and an increasing share of production comes from larger scale units that are more capitalized and invest more per hectare than small farms.

The stock of private capital in agroindustry (I_{ai}) also increases over time through entrepreneur investment, and we expect some of the more important determining factors are the agricultural terms of trade (TOT), the farm size distribution (FSD), property rights and the rule of law (PR), the general business environment (BusEnv), own savings (ISav), the availability of financial services (FinS), the stock of public sector rural capital (KPubR), and the farm size distribution (FSD).

$$I_{ai} = f(\text{TOT, FSD, ISav, FinS, PR, BusEnv, KPubR, FSD})$$

Larger farms are often easier and less costly to service than small farms, hence some types of agroindustrial investment can be expected to increase as the farm size distribution becomes more concentrated in large holdings.

At low levels of economic development, the main source of funding for agricultural development comes from the public sector and farmers, but as development proceeds, other private sector players (agroindustrialists, banks, investment funds, etc.) assume increasingly important roles, and this opens up the diversity of funding sources available. Rural financial institutions also play an increasingly important role, helping to mobilise rural savings more generally for local investment, for tapping into urban and international supplies of capital, and providing finance for larger and longer term investments that cannot easily be funded from own savings. Private agroindustrial investments along value chains have increased significantly in recent years, and in some countries agroindustry has also become an important source of financing for agricultural production itself, as seen, for example, in contract farming arrangements, outgrower schemes, the provision of farm credit by some input suppliers, forward price contracts, and corporate farming.

The degree to which public investments complement and leverage private sector investments by farmers and agroindustrialists depends on their capacity and incentives to respond. This implies that public policies towards the agriculture and finance sectors can be as important as public investment itself in leveraging private sector investment. A well-developed rural financial sector can facilitate private savings, and mobilize capital more broadly within rural areas. Secure property rights and the rule of law are crucial for encouraging private on-farm investment, and together with an effective legal system to recognize and enforce contracts, play a critical role in determining the business environment for farm and private agribusiness investments. Agricultural pricing policies, input subsidies, and the level of government commitment to liberalized markets also greatly influence the types of farm and value chain investments that private investors are willing to engage in.

Recent data show the continuing importance of own savings for financing investments by most small rural operators, including smallholders². For example, less than 1% of farmers in Zambia and less than 2% of the rural population in Nigeria have access to formal credit³. In India, 45% of smallholders do not have a formal savings account and 69% do not have access to a formal credit account, while nearly 40% of farmers in Honduras, Nicaragua and Peru are credit-constrained⁴. At regional levels, the share of adults who do not have access to formal finance institutions is 65% in Latin America, 80% in Saharan Africa, and 58% in each of South and East Asia⁵. The negative effects of low farm savings is demonstrated by recent study from India which show that smallholders are now net dis-savers, and this has led to increased indebtedness and a decline in farm level capital formation in rural areas⁶. Even many large scale and corporate firms that operate in agricultural value chains depend to a remarkable degree on own funds for making investments⁷. This widespread dependence on own savings partly reflects past failures in delivering efficient financial services to small scale investors in rural areas, whether they be smallholder farmers or small scale agroindustrialists. It also highlights the need for policies that strengthen the availability of efficient rural financial services in rural areas, and of policies that improve incentives for rural savings.

² Collins, Daryl, Jonathan Morduch, Stuart Rutherford, and Orlanda Ruthven. 2009. *Portfolios of the Poor*. Princeton, NJ: Princeton University Press.

³ Meyer, Richard. 2011. "Subsidies as an Instrument in Agriculture Finance: A Review" *Joint Discussion Paper*, German Federal Ministry Of Economic Cooperation And Development (Bmz), Food And Agriculture Organization Of The United Nations (FAO), German Agency For International Cooperation (Giz), International Fund For Agriculture Development (IFAD), The World Bank, And United Nations Capital Development Fund (UNCDF).

⁴ AgriFin. 2010. *Program Strategy*. Agriculture Finance Support Facility, The World Bank, Washington, D.C.

⁵ Chaia, Alberto, Aparna Dalal, Tony Goland, Maria Jose Gonzalez, Jonathan Morduch, and Robert Schiff. 2009. "Half the world is unbanked." Framing Note, Financial Access Initiative and McKinsey & Company, New York

⁶ Report of the High Level Committee on Estimation of Saving and Investment, Ministry of Statistics and Programme Implementation, Government of India, New Delhi, 2009

⁷ Data recently collected by the World Bank from more than 32,000 private firms in 100 developed and developing countries, indicate that more than 60 percent of their investments are financed from own savings, while less than 20 percent are financed by bank loans.

4. Key policy issues for the workshop

The growing linkages between agriculture and agroindustry have several important implications for public policies and investment strategies for agriculture. Significant opportunities exist today for attracting greater private sector investment in agricultural value chains that can accelerate agricultural growth. As we have seen, some of this new investment might even extend into agricultural production itself (e.g. through contract farming arrangements and corporate farming). Some types of private sector capital can also substitute for, and hence reduce the need for, some types of public sector investments, (e.g. some types of agricultural research can be privatized, and increased private storage and distribution systems can reduce the need for public systems). On the other hand, as the private sector becomes more dominant in agricultural value chains, concerns arise about whether the ensuing patterns of agricultural growth will leave many smallholder farms behind, aggravating poverty and food security problems in rural areas. Given the urgent need to accelerate pro-poor agricultural growth around the developing world, and the difficulties in mobilising sufficient investment capital from government and donor sources, there is need for greater engagement with the private sector. The question is how best to do this so as to maximize the complementarities between public and private sector investment while avoiding the exclusion of smallholder farms.

In addressing these challenges, it needs to be recognised that the challenges and opportunities facing a country will differ according to its stage of economic transformation. The World Bank usefully distinguishes between agriculture-based, transforming and urbanized countries⁸. Agriculture based countries (much of Africa) have large shares of their work force in smallholder farming and are mainly engaged in the production of food staples (using labour intensive, low external input methods) and export crops. Local markets play a dominant role, and agroindustry plays a relatively small role, and mainly on the export side. In these countries the public sector still has to play important roles along value chains, especially for food staples, and while opportunities for engaging the private sector exist they are more limited. In transforming countries (much of Asia), small farms typically continue to dominate, but markets become more integrated and agroindustry grows rapidly, as do the domestic markets for processed and higher value foods. A difficult phase of transition begins in which farms need to begin to get larger, more capitalised and more diversified into higher value agriculture, and governments needs to withdraw from direct involvement in value chains (e.g. liberalise grain markets, privatise input supply systems) and focus

⁸ World Bank (2007), *World Development Report 2008. Agriculture for Development*, Washington D. C.

more on an enabling role. But insufficient exit opportunities from farming and political economy considerations typically slow the desired transition, making it more difficult to achieve the right balance between growth and poverty reduction in agriculture. In urbanized countries (parts of Latin America and Asia), farms invariably get bigger, more capitalised and more corporate, agroindustry plays a dominant role in highly integrated domestic and export value chains, and governments more readily revert to an enabling rather than a direct role in agricultural value chains.

Our analysis emphasises the importance of four sets of key questions that need to be addressed. These are enumerated below for discussion at the workshop.

1. What enables/motivates the small farmer to invest in agriculture?

This question is especially relevant for agrarian and transforming countries where small farms predominate. There are two parts to the question.

Given the importance of own savings for much small farm capital formation, what policies can encourage higher rural savings for on farm investment? Most small farms are highly diversified today, with important nonfarm sources of income deriving from off farm employment, rural nonfarm activity, and remittances from migrant workers. These income sources are often an important source of capital for on farm investment. Farmers can also save, a source of capital that might be increased by the presence of rural financial institutions that offer secure and interest earning savings accounts in rural areas. Such institutions also have the capacity to mobilise and pool rural savings more widely, making this available through credit. Many past attempts to build rural financial institutions and lines of agricultural credit for small farms have failed, and the search for innovative new approaches that work is still ongoing. But just what are the most promising approaches available today?

Even when farmers have access to capital, they may still not invest on farm if it is not profitable to do so. Studies have shown the importance of profitable business opportunities in terms of technologies and markets, secure property rights, risk management options, human capital, gender, etc. What are the best ways to overcome these constraints?

2. What kinds of public investment leverage the largest amounts of private investment in agriculture and agroindustry?

We have already discussed the potential complementary role of public and private investment, but whether or not this materialises depends on the kinds of public investments that are made. Many public investments in agricultural R&D, rural roads, electrification and education give high returns in terms of agricultural growth and poverty reduction and are highly complementary to private sector investments. However, in agrarian countries, governments often have to kick start agricultural intensification by investing directly in the provision of many agroindustrial services, such credit, improved seeds, fertiliser, and marketing services. These kinds of public investments and supporting policies can crowd out private sector development, and an important challenge for governments is letting go of these direct interventions as markets develop and the capacity of the private sector grows. This is proving to be a particular challenge for governments in many transforming countries in Asia where they are still locked into direct interventions in markets for food staples and the provision of heavily subsidised inputs (especially fertiliser and water) and credit. IFPRI research⁹ shows that the returns to different types of public investment in agriculture change with the stage of economic transformation, so governments need to adapt their investment priorities if they are to avoid declining returns per dollar spent, attract more private sector investment along value chains, and enhance the complementarity and hence the synergies between the two. This typically means a shift from direct public investment along value chains, to a focus on investing in the public goods that are not attractive to the private sector. But what does this mean exactly for countries at different stages of development?

3. What kinds of policies can attract more private sector investment along value chains, and how can these investments be made more small farm friendly?

We know that private sector investment in agroindustry increases as countries develop. A key driver is the increasing opportunity to make profits along value chains that feed increasingly urbanised populations, but realisation of this potential depends on such factors as a successfully growing agricultural sector, a favourable business environment, the rule of law, the liberalisation of markets, and public sector capital formation that provides complementary public goods. In agrarian and transforming countries, the value chains for higher value foods and export crops are typically the first to be successfully privatised, while governments continue to directly intervene in markets for food staples until much later when national food security issues are less pressing.

An important issue that needs greater consideration is how government policies can facilitate greater private sector participation, particularly during the early stages of market development when

⁹ Shenggen Fan (ed.). 2008. Public expenditure, growth and equity: Lessons from developing countries, Johns Hopkins University Press, Baltimore

the private sector may be discouraged by high set up costs and risks. Innovative approaches to public-private partnerships offer one solution, where the public sector might underwrite part of the risk (e.g. loan guarantees) or co-finance part of the cost of a private sector investment. New kinds of financing arrangements are also being tried that are designed to attract more private sector investment in developing value chains. For example, some donors now offer funding windows for private sector lending. One particularly innovative approach is the use of “pull” funding mechanisms that reward private investors ex post who successfully launch a sustainable market for a new input, technology or service. These are important developments but much still needs to be learnt. It is also important to hear more from the private sector as to what they think are the best solutions to these constraints.

Policies to attract more private sector investment need to be cognizant of the small farm problem: viz., how to ensure that small farmers do not get left behind as more of their markets become privatised and integrated? Small farms are at a major disadvantage in the market place compared to large farms because they are costly to serve on their own, and because they find it harder to meet the volume and credence requirements of more integrated markets. There is a lot of innovative work ongoing on how best to organize small farmers to overcome these constraints through effective collective action (e.g. by forming marketing cooperatives and through contract farming), but there is still much to learn about what works best in which types of countries and for what kinds of commodities.

5. What is the right role for private corporate sector investment in agriculture, including FDI?

The growth of private sector involvement along value chains has been driven in part by many small local players (e.g. a vast multitude of family run mills, agrostores, trading companies, etc.) but has also seen the growing penetration of large corporate players, including multinational companies, and direct foreign investment by hedge funds and sovereign wealth funds. This has raised new concerns about potential monopolistic practices (e.g. by multinational seed companies), exclusion of small farmers from high value chains, commodity and land speculation, and the eviction of small farmers from land acquired for corporate farming (“land grabbing”). Left to their own devices, some of these players may bring a sufficiently bad name to private sector involvement in agricultural value chains that some governments will backtrack on their liberalization and privatization programmes. Some corporate players have already established their own guidelines for socially responsible good practice, but is this something that should be formalized more widely to ensure all corporate investors comply?