Future Agricultures

Briefing

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Intensification of Smallholder Agriculture in Ethiopia

The prevailing orthodoxy is to see the problem of smallholder agriculture in Ethiopia strictly as a technical and resource related problem. This view identifies the low level of agricultural productivity as the key problem. In response, the government of Ethiopia has since the mid-1990s, implemented a high-profile, national technology-led extension programme. But has this worked, and what are the limitations of such a strategy?

The Smallholder Intensification Programme

The Ethiopian government's development strategy centres on 'Agricultural Development Led Industrialization'. A 'green revolution'-like intensification of smallholder agriculture was seen as key. Policymakers assumed that significant productivity growth could be easily achieved by improving farmers' access to technologies which would narrow the yield gap. Researchers identified crop technology packages that could make a huge difference. They indicated that maize yield, for instance, can be increased from current farmers' yields of 1.6 tonnes/ha to 4.7 tonnes/ha, if farmers used the right type and amount of improved seed varieties, fertilizers and other recommended practices. The 'Participatory Agricultural Demonstration Training Extension System' (PADETES) thus aimed to attain yield improvements at a national level, based on the much touted experience of the Sasakawa Global 2000 programme. The strategy was a technology-based, supply-driven intensification which consisted of enhanced supply and promotion of improved seeds, fertilizers, on-farm demonstrations of improved farm practices and technologies, improved credit supply for the purchase of inputs and close follow up of farmers' extension plots

Adoption of Farm Technologies

The new system has given prominent attention to the role of chemical fertilizer in ensuring food security, echoing the more recent arguments of Pedro Sanchez and Jeff Sachs as part of the MDG-focused Millennium Programme. According to ministry figures, fertilizer use grew by 39% between 1994 and 2003, and the use of improved seeds also increased dramatically. Similarly, during the same period, the value of farm credit rose from 8.1 million to 150.2 million birr, and the number of farmers participated in the extension programme rose from 31,256 to 3,731,217.

Farmers are innovating around the simple extension package provided, but the flexibility to do so is constrained by the programme. For example, in Wolayta in southern Ethiopia farmers were very keen to make use of fertilizers in their dryland outfields, but not at the rates recommended. They observed that applying such amounts when rainfall is low and management limited because of other labour demands is potentially damaging to the crop and certainly uneconomic. Instead, farmers are keen to make use of lower amounts of fertilizer through focused application which maximizes nutrient uptake to individual plants through spot application, which requires a lesser overall amount (and so cost) than blanket application as is recommended in the government package.

Such local-level patterns of farming practice do not appear in the generic, national-level assessments so often quoted. However, recognising patterns of farmer innovation – and the wider conditions under which technology adoption is facilitated – needs to be taken more seriously in the design and implementation of technology-led programmes aimed at agricultural intensification.

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Production and Food Security

Despite such limitations, national staple grain production has steadily improved over the past decade. As farmers adopted new technology packages (at least partially) and the weather cooperated (which it did until 2001, and continue since 2003/04), cereal output in the late 1990s averaged 10 million metric tonnes a year, 4 million more than in the 1980s. However, rather than technology adoption, the major factor behind this improvement is expansion of cultivated area. Between 1989-90 and 2003-04, grain production has registered a growth of 74%, with yield growing by only 18% and area cultivated by 51%. Therefore intensification of smallholder agriculture, which is important to effect durable productivity enhancement, which activates the process of commercialization and generate wider growth, is a long way away.

This recent recovery in grain production has reduced the degree at which the level of national food security deteriorates, a key policy objective. However, it has not been sufficiently high to reverse the negative trend overall. The level of per capita production, for instance, has declined by about 20 kilogrammes between 1979-80 and 2004-05, if we compare the two best agricultural years before and after the implementation of the recent smallholder intensification programme.

Farm Income and Poverty

A recent impact assessment found that the smallholder intensification programme has slightly enhanced farm incomes. The average participating farmer produced 260 kilogrammes more grain (equivalent to a net income of Birr 134) than the average non-participant farmer on a single hectare of land. But, even for these relatively richer, participating farmers, this level of incremental income is low compared to the level recommended for sustainable smallholder intensification (i.e. a net return of twice the cost of new inputs), making widespread adoption unlikely on a sustained basis. The level of improvement is neither sufficient to induce a sustainable input adoption, nor to bring any notable changes to the lives of peasants, particularly poorer ones.

Interlocking constraints: going beyond the technical fix

The package approach of the smallholder intensification programme, offered a simple solution for a complex setting. That it did not work in some places for some farmers is perhaps not a surprise. A more targeted approach, focusing on different agroecological conditions, different crop/livestock specialisations and different levels of capital and labour intensification makes more sense.

Policy makers should give as much emphasis to incentives and affordability of modern inputs as to their efforts to ensure availability of technologies. Non-technical issues are just as important. The wider innovation system, encompassing technology delivery, marketing, and wider institutional and policy issues – most notably land - must be looked at more comprehensively, if productivity boosts in grain staples is to create the wider growth effects in the economy, with advantages for poorer and richer farmers alike.

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