

In Search of a Strategy: Revisiting Agriculture-led Growth in Ethiopia

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Summary and action points

The background to this study was a request to explore the scope and constraints on further growth and commercialization of Ethiopian agriculture, with an emphasis on the main food staples in the country, teff, wheat, maize, barley and sorghum. The context is unprecedented growth in agricultural GDP, large increases in reported areas cultivated and yields in recent times but also, most recently, rapid food price increases.

Agriculture is the key sector in the government's development strategy. Furthermore, cereals are the main food staple, crucial for real wages in the rest of the economy and, in a landlocked economy, they are best understood as a commodity that is not internationally tradable. The implication is that the study of production growth has to be understood within the context of the overall economy, leading us to consider also the underlying question of the role of agriculture in growth in general, and its implications for the process of fostering growth in agriculture.

The government strategy, as reflected in ADLI, and its recent articulation in PASDEP, conceptualizes the overall growth process to start essentially in agriculture and cereal production, with production growth leading to more marketed surplus, more demand for non-agricultural commodities and a release of labour for urban and non-agricultural development. In our work, we have questioned some of the premises of this strategy, both on conceptual/theoretical grounds as based on the recent experience from Ethiopia and elsewhere in the world. However, we found a key premise in ADLI, the need to boost cereal production, to be correct. We qualify this premise nevertheless that in order to feed into overall growth, it requires a commensurate effort focusing on the growth process outside agriculture. Furthermore, a narrow focus on production is counterproductive in the medium run, requiring more focus on the value of production and on returns to agriculture across the value chain.

Our work has led to the identification of a number of action points, which should assist in prioritizing further government effort in agriculture.

Action point 1: We urgently need a process of validation of the data on cereal production, area cultivated and yields.

The figures on recent agricultural performance are impressive: doubling of cereal output in the last ten years, 44% more land cultivated with cereals and 40% higher yield in the same period. In the last five years, 12% more cereal production *per year*, yield growth of 6 percent per year and area growth of 5% per year. The same data sources show no evidence of intensification of agriculture: no increase in fertilizer use per farmer or per hectare, no significantly more irrigation, and expanding but still relatively small areas under the extension programme. Ethiopian yields have grown faster than recorded elsewhere, even compared to the green revolution in India, China or Vietnam. If the data are correct, this is the fastest green revolution in history, and its mechanisms should be analyzed. If any of the data, such as the area expansion data, are not correct, then this has huge implications for policy, as it would suggest that food production is considerably lower than reported. If the yield growth is due to the extension efforts, then careful evaluations could pin down lessons learned, as they would be immensely important for other parts of the country and beyond.

Action point 2: The science to promote productivity growth via improved seeds requires more support.

It has commonly been assumed that there are huge gains in yields to be obtained using existing packages of inputs such as fertilizer and seeds. For example, it has been commonplace to quote evidence from the Sasakawa Global 2000 work suggesting that yields could increase threefold from using packages of improved seed, fertilizer and extension. The PASDEP projected a 120% gain in average cereal yields in Ethiopia in five years. It is well known that only for wheat and maize can significant gains be obtained via improved or hybrid seeds; the improvements available for other crops, not least teff, remain limited. Focusing on the most promising crop, maize, the systematic review by Anchala et al. (2001) showed that on farmer demonstration plots, the yield gains from improved or hybrid seeds under traditional practices were about 20% compared to traditional seeds; under improved practices (such as in terms of fertilizer use and cultivation practices) the gains from improved seeds were 50% compared to traditional seeds. These percentage gains on offer are substantially lower than what was on offer during the Green Revolution in South or East Asia.

Progress on seeds is not only hindered by science; the agro-ecological diversity of Ethiopia makes development of suitably adapted varieties costly and difficult for the small but competent crop science community in Ethiopia. But in terms of international scientific attention, Ethiopia is seriously marginalised. It would be timely to encourage high-profile international investments in relevant crop research, including in the field of biotechnology. Partnerships with international private sector partners should not be ignored, and taking a lead

from recent progress in vaccine development and other medical research, it is possible to design research arrangements that create incentives for research and development, without any subsequent dependence on multinational firms.

Action point 3: The input packages available need to be rebalanced away from too much attention to fertilizer.

Using properly combined input packages (including improved seeds, improved practices and fertilizer), substantial yield gains are available for Ethiopia, provided they can be made suitable for particular localities. For example, near crop research stations, a doubling of maize yields on farmer demonstration plots has been proven feasible from using such packages relative to traditional seed and practices. In practice, fertilizer has been strongly promoted without sufficient available improved seeds. For example, fertilizer use has moved near 40% of land area cultivated with cereals, but improved seeds only cover less than 5%. Further fertilizer expansion is bound to be constrained: while yield gains are relatively substantial especially for wheat and maize (typically at best about 50%), for other crops such as teff they are far more limited. Furthermore, these gains only materialize when combined with the adoption of optimal farm management practices in weeding, timing of planting and seed rates; otherwise, gains are typically far less. Most importantly, as fertilizer is expensive, economic returns are very low and likely to be negative for a large share of farmers not using it at present. Fertilizer expansion should not be expected or promoted unless as part of a complete package with seeds and general improved practices.

Action point 4: The seed multiplication system is failing Ethiopian farmers and urgently needs to be reformed and expanded.

Even if seeds alone do not offer the massive scope for yield gains, they are central to the input packages currently promoted. The inability to scale up the multiplication system is striking. Given the difficulties for quality control, on-farm multiplication systems are unlikely to substitute for the larger scale systems required. Incentives for commercial farms to expand seed production are essential.

Action point 5: The extension system needs a systematic evaluation of its contribution to increased yields.

In recent year, the extension system has been developed into a large-scale demand-driven system of advice to farmers. It may well have contributed to the recent increased yields. However, it has not been subject of systematic data collection for evaluation, compared to other key elements of policy making in Ethiopia, such as the PSNP. A careful quantitative

evaluation focusing on yield effects may provide essential evidence on how yields can be improved further.

Action point 6: Policies related to food markets should focus on reducing transactions costs between urban and rural areas to reduce the gap between urban cereal prices and farmgate prices.

While cereal markets are reasonably well integrated, transactions costs remain high, contributing to farmers receiving a relatively low share of cereal prices (often estimated between 30 and 60%). Sufficiently high farmgate prices remain essential to offer the economic returns necessary for farmers to adopt new technologies and improved varieties, but as growth would be affected by high consumer prices, reducing transactions costs is key to retain these incentives. As road infrastructure has improved considerably, key areas of attention include transport and the (vertical) integration of the marketing chain.

Action point 7: Urban income growth is important to sustain a process of commercialization of cereal production and the overall transformation of agriculture.

World cereal prices are only important for cereal production at the margin, as transactions costs to the border result in a huge gap between import and export parity prices, i.e. the gap between the wholesale price above which imports would be profitable and the wholesale price below which exports would be profitable. As export parity prices are very low, a sufficient growth in urban demand for food remains essential to avoid that any further yield expansion results in low output prices that would in turn make innovation and investment in agriculture unprofitable. The experience of the effects of the bumper maize harvest in 2001/02 when prices collapsed to very low, (and for farmers) unprofitable levels, remains a relevant warning for the future development of cereal production. The key lesson is that without expansion of agricultural demand, progress in the transformation of agriculture is bound to be constrained. At the same time, reducing transactions costs for importing and exporting cereals, via improvements in transport and marketing would improve export parity prices and reduce import parity prices, therefore improving farmers' incentives while reducing urban food price pressure.

Action point 8: As part of a roadmap to better functioning private sector market institutions, the contestability of fertilizer markets, seed markets and transport markets needs to be mapped and improved.

During our review of the state of different factor markets, we noted that all key markets in principle allowed entry by private sector firms. The presence of several agents owned or linked to the state should then not necessarily be a problem. Overall, only few firms were found to be active in the fertilizer and seed markets, and in markets such as long haul transport. Again,

none of this ought to be a problem as long as these markets are contestable: i.e. where a private entrepreneur could enter these markets to capture any excess profits or efficiency gains if they were present. In practice, many of the incumbent firms, either from the public or private sector, are offered substantial benefits that would not be on offer to any new entrants to these markets. Also, specific rules offer further advantages to assist these incumbent firms. Examples are credit arrangements for fertilizer imports, the organisation of fertilizer supply or the conditions for entry into the seed market. These rules and benefits are often reasonable solutions to specific current problems in the provision of these inputs, but may well undermine the medium term development of private market institutions, as they leave these markets non-contestable. In the short run, it would be essential to map the various regulations and benefits existing in these and other markets to understand the incentives they give for the development of mature, contestable markets.

Action point 9: Land certification is likely to offer considerable improvements in terms of tenure security, but it now requires steps to ensure the consolidation of the system.

Emerging evidence suggest that land certification has positive impacts. For cereal and other annual crop areas it is likely to offer a considerable improvement over earlier arrangements. However, to ensure that the system offers longer term security, measures need to be taken to ensure the consolidation of the system everywhere and the development of land registry systems.

Action point 10: With the demise of the previous input credit system, innovative initiatives are required to ensure the development of functioning rural credit markets, focusing on the reinsurance of the exposure of MFIs or other plausible entrants.

The input credit in operation previously, in which the regional state budget provided collateral for input loans, has proved to be untenable and is being dismantled. However, a new system still has to emerge. For farmers, input credit is crucial as their working capital is typically limited. There are, however, good reasons why private rural credit markets do not easily develop, not least in areas dependent on high risk, rainfed agriculture. The key reason is that as poor weather events tend to affect a large number of policy holders, banking in such conditions is highly risky as default rates are highly covariate. As input credit is crucial, pilot programmes on different options for insurance of farmers' credit and reinsurance of loan portfolios in rural settings are then urgently required.