Farming and Value Chains - WIDE Discussion Brief No.2 of 5[1]

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Key messages from the WIDE evidence

- Generally, enhanced farming and road infrastructure has facilitated and increased the market participation of smallholders.
- In some of the 20 WIDE communities poor and seasonal internal roads and bridges restricted access to markets, particularly as farmers often sell and traders buy at the farm gate.
- The shift to higher-value products has mainly been associated with the increasing use of irrigation in the rural communities.
- Carefully examining the enabling environment is vital to understand the factors determining the participation of farmers in the farming value chain. There is substantial evidence that land and other assets matter.
- Richer farmers with more land are more likely to successfully participate in the farming value chain, while there is less/no participation by poorer farmers, many of whom lack access to credit, inputs and extension advice. This has increased inequality and quasi class formation.
- There is therefore a need to explore policies to improve the ability of poor rural people to participate in growth processes.
- Only in a few of the WIDE communities did cooperatives enhance their members' participation in the value chain; most showed no or little impact due to overall poor management; cooperatives were generally not effective in output marketing or value-adding production.
- Cooperatives are very important for poor farmers since it allows them to achieve economies of scale in supplies and to reduce transaction costs. The WIDE 3 findings indicate that the entry rules to join the group and the quality of management of the group structure are critical to the success of producer cooperatives.

[1] WIDE is an independent longitudinal study of 20 rural communities in Ethiopia over 20 years. A map is provided at the end of the brief. The brief is using WIDE3 evidence to bring policy and implementation questions and possible implications to the attention of policymakers, with the aim of contributing to current debates on key issues through discussions with government, donors, and other stakeholders. Acknowledgement should be made of (1) the time and dedication of the research officers and supervisors who over the years made the data on which the brief draws, (2) the various funders who financed the research phases, and (3) the time and interest of senior Government officials, with whom the brief was discussed at a High Level Discussion Forum in March 2014, convened by the Ethiopian Development Research Institute (EDRI). The brief does not represent the views of EDRI, the Government of Ethiopia, or the financing Development Partners. The other Discussion Briefs and other research products are available at http://ethiopiawide.net/.

Introduction

In the context of most developing countries economy, the value chain approach provides the basic understanding needed for designing and implementing policies to support smallholder farmers market participation. Agricultural value chains are organizational schemes that support smallholder farmers to add value to their produces at each production, processing and marketing steps. More precisely, the farming value chain involves gradual improvements in processes that range from decisions on the crop type to produce to transformation and marketing and hence eventually to greater income and enhanced employment opportunities.

There is a virtuous circle between improvements in the value chain (through improved input supply, building capacity and forming groups, and strengthened marketing of agricultural products) and enhanced productivity. Agricultural productivity growth has been at the centre of Ethiopia's development policies since the country initiated the Agricultural Development Led Industrialization strategy (ADLI) in 1994/95. Commensurately, Ethiopia has consistently allocated more than 10 % of its public spending to raise agriculture productivity for more than a decade (World Bank 2010a). There now appears to be a broad consensus on the fact that the government's strong focus on agriculture has started to pay off in terms of greater agricultural productivity (with ensuing effects on higher economic growth and poverty reduction). Given the substantial current and future role of the agricultural sector in Ethiopia, a vibrant value chain that builds and further strengthens these productivity gains by providing quality inputs and outputs is an indispensable enabler to sustained economic and social development of the country.

In principle, with a clear plan of action and an effective performance management process of development interventions, Ethiopia is in a strong position to transform its economy and achieve its vision of being a middle income country by 2025. There is, however, limited understanding of what actually happens at the community level when government and aid funded development interventions are rolled out in rural communities, and why sustainable growth processes are established in some contexts but not in others. Moreover little is known about the nature and effectiveness of institutional systems and actors in enabling smallholders' inclusion in the farming value chain in rural communities. The WIDE research, which has carefully studied the socio-economic circumstances of 20 rural communities in different parts of Ethiopia, partly addresses this knowledge gap and among others, contributes to enrich our understanding of the dynamics in farming value chains. It is important to note that the WIDE communities characterize basic features and patterns of major agricultural livelihood systems in the country.

Based on a number of WIDE 3 community level reports and documents, the core part of this brief presents an analytic review of the shared constraints impeding farming (non livestock) value chain growth and attempts to analyse the institutional framework involved at various stages of the farming value chain. Further, this brief looks at sources of differential agricultural growth in rural communities. Differential growth processes within and across communities can be immediate outcomes of differences in initial endowment and potential of the respective communities. However, differentials in availability of farming technologies, marketing practices as well as institutional circumstances are also critically important in deriving differential outcomes. This brief does not argue for particular or alternative policies but presents lessons drawn from the WIDE 3 research and points out possible implications from the findings for policies and policy implementation.

Diagnosing Constraints

Smallholder farming is characterized by a wide range of circumstances across rural communities in Ethiopia. The WIDE 3 research clearly shows that the 20 rural communities covered under the study share common farming value chain features while also showing visible variances within and across communities. There are several layers of heterogeneity: for instance in preferences of individual farmers (for example, subsistence farming vs. commercial farming), as well as at community level, in the presence or absence of other non-agricultural income and employment sources and in the level of risks linked with the diverse agro-ecologies. An important manifestation of diversity is the type and reach of markets by smallholder farmers. Across the WIDE communities smallholder farmers have a spectrum of potential market targets, ranging from the traditional cash crops markets to domestic or export markets for non-traditional high value crops. A market in the WIDE 3 communities denotes a physical market, where big traders sell to city traders; middle traders sell to big traders; small traders sell to middle or big traders or consumers; farmers sell to consumers or higher-level traders.

Development interventions aimed at enhancing value addition will be more successful in an environment where the agricultural sector is properly linked with the non-farm sector. On the supply side, the diffusion of improved inputs such as fertilizer, irrigation and seed is important for farming value chain growth. Moreover, it is often argued that returns to fertilizer are high only when applied in combination with enhanced seed varieties. From a productivity improvement point of view, it is therefore important to examine whether fertilizer application in the WIDE 3 rural communities is combined with improved seed use. Technology adoption alone, however, does not lead to enhanced production without a parallel expansion in market opportunities, which entails better access to markets and higher prices.

From an institutional perspective, the diagnosis in this brief focuses on the farming input supply system; the output marketing system; and the role of cooperatives in the 20 WIDE sites. For Ethiopia to attain its agricultural development objectives, improving the effectiveness of these three key systems is indispensable.

Input Supply System - Fertilizers and Seed, Irrigation

The use of modern agricultural inputs is an important factor that contributed to raising crop productivity and overall agricultural production in most of the WIDE sites. Additionally, improvements in infrastructure, such as feeder and main roads, have enhanced the returns from the application of modern agricultural inputs by enabling inputs to be more easily transported and expanding access to national and international markets. The government places high priority in making modern agricultural inputs, particularly fertilizer and improved seed, more available to farmers. The next section describes the patterns of agricultural inputs adoption by farmers in the 20 sites studied by WIDE 3.

Fertilizers & Seeds

Investing in better-quality seeds and fertilizers that enhances farm productivity would allow farmers to introduce their surplus to the market. This would provide the groundwork for the emergence of value-adding businesses. In Ethiopia fertilizer markets have traditionally been controlled by the government. In the more recent past, the government has implemented a number of policy changes facilitating the participation of non-government actors in the importation and distribution of inputs,

with an expressed focus on the cooperative sector participation. Beginning from 2008, the fertiliser importation process is being carried exclusively by the Agricultural Inputs Supply Enterprise (AISE), and distribution is taken up by cooperative unions and their branch cooperatives.

WIDE 3 studies show that overall, smallholder farmers' productivity depended on a host of factors including the overall input and output system, input and output prices, weather conditions, pest and disease burdens, and implementation of policy interventions. The research suggests that among these factors, the number of farmers who use fertilisers had significantly increased in most sites, due to both greater awareness created by the extension system and perceived declining soil fertility. It further shows that a number of factors determine fertilizer use in these communities and that, perhaps not surprisingly, the determinants of fertilizer use are heterogeneous within and across the communities. At the individual level, previous fertilizer use experience of the household head is a good predictor of fertilizer use. Patterns are not clear with regard to age and education level: for instance, successful (model) farmers most likely to use fertilisers are often not young. Farm size and soil quality/fertility directly influence decision-making and amounts of fertilizer used. Indirect but crucial factors in fertiliser use are access to market, and to credit.

Perceptions of fertiliser suitability also greatly matter. The WIDE 3 findings clearly confirm that not all locally available fertilisers were suitable for the soil types and climates across and within communities. Yet in some communities, some households were made to purchase and apply fertilizer types which they knew were not compatible with their soil type (and in some cases this was acknowledged by the DAs), sometimes on a credit basis. In some cases productivity of traditional crops had increased even with the application of such inappropriate fertilizer types, which was attributed to the accompanying extension services that enhanced other farming practices, such as planting techniques – or better weather conditions. In a number of communities there was nonetheless resentment of the practice of forced use of fertilizers.

Indeed the WIDE 3 reports show that few households in all the farming sites found the prevailing price of fertilizer expensive and difficult to afford, partly owing to limited access to cash. Those who could afford fertilizers were also concerned about the risk of low profitability given the fertiliser high price on the one hand and on the other, erratic weather conditions which could lead to low outputs. This, of course, cannot be seen separately from the problem of access to credit. In the presence of non-mitigated uncertainty and risk, both credit supply and credit take-up tend to be lower than they would be in more secure contexts. Demand for credit can substantially improve if farmers can be insured against possible losses from technology failure (for example lower yield due to mismatch between fertilizer and soil type or poor seed quality as is discussed below) and weather shocks. While improving access to credit is important, it alone cannot encourage greater take-up or credit demand. Price subsidies are often used to promote increased use of fertilizers but the empirical evidence on their impact on farm productivity appears to be highly mixed. There should be careful study of the possibility of designing and implementing risk management techniques such as crop and weather insurances, to mitigate the effect of risks and risk perceptions on fertilizer adoption.

The WIDE 3 reports suggest that in a number of cases improved seeds contributed to improvements in agricultural productivity. The studies also show encouraging improvements in the availability of quality seeds over time. However as in the case of fertilizers, not all available seeds were suitable for the soil and climate types within and across the rural communities. Improved availability was also not widespread and was found only in some communities. Moreover even when improved seeds

were more available, distribution appeared to be skewed towards the wealthier segment of the community as for fertiliser. As such, steady supply of seeds suitable for the local agro ecology is observed to be one of the main challenges in expanding the use of improved seeds across and within communities.

Despite some resistance within the WIDE 3 communities, the application of pesticides for preventing and treating diseases and pests has also increased. A major problem with respect to the use of pesticides is their limited supply and price volatility.

However, in the communities where farmers had access to improved fertilizers, seeds and pesticides and when the weather was reasonably good, these farmers enjoyed substantial gains in farm production and productivity. Complementary public investments in the form of improvements in infrastructure such as roads, electricity and mobile phone had also significantly contributed to these gains. In some communities, the combination of improved fertilizer, seed and pesticide adoption and increasing reach of infrastructural facilities led to the export of cash crops in much greater quantities than used to be the case a decade ago.

That said, poor farmers appear to be largely excluded out of the input supply system - including seeds and fertilizer as well as credit and financial services. There was evidence that farming extension services often focused on those with land as well as sufficient capital and labour to afford new technologies such as improved seeds; while the majority of households with smaller farms, who generally are poor in cash income, also had less access to extension services and credit and were therefore less likely to apply enhanced inputs. This is not to dispute the fact that the extension system has in general enhanced the wealth of rural households in these communities. The benefits, however, appear to be unevenly divided between resource-rich and –poor farmers. While supply side factors such access to extension services could partly explain this disparity, the differences arising from individual farmer's idiosyncrasies, such as commitment to work and ability, cannot be underestimated.

Irrigation

The WIDE 3 research documents that higher agricultural incomes were linked to agricultural productivity rises, food price inflation, improved road access to markets, and in some cases diversification and/or specialization into higher-value products. In connection with this, a major observation is the increasingly important role that irrigation played in augmenting agricultural productivity in many of the WIDE rural communities.

The irrigation schemes were of varying significance in the communities; they involved a multiplicity of technologies and their reach depended on annual rain patterns. The communities' demand for irrigation was very high compared with availability, and the lack of focus on irrigation at the wereda level emerged as a key constraint. For instance, all the eight stage 2 (food insecure) communities reported that the most important "missing" investments were in irrigation, in addition to internal feeder roads and bridges. In one site, for instance, when farmers asked the wereda to invest in micro-irrigation kebele officials explained that the wereda had no budget because of the prioritization of health and education pushed by government and donors.

That said, there were also considerable differences among farmers in terms of income level reportedly gained from irrigation. When there were wereda interventions aimed at promoting irrigation they were often unequally accessible among categories of households. Access to irrigable

land was a first factor as typically only part of the kebele farming land could be irrigated. Wealth also mattered, especially when group formation was required to pool resources to purchase irrigation equipment such as pumping units and pipes. Moreover, inequities in water distribution due to mismanagement by irrigation committees at the kebele level emerged as a serious problem in many sites, reportedly preventing a number of households from making the gains expected from irrigation.

A clear distinction is observed between sites that are peri-urban or on main roads and integrated with services, and those which are more remote and less integrated. However even in the more remote sites where irrigation offered opportunities, many of those with access to irrigation had prospered more rapidly and wealth distinctions had therefore increased. Inequalities have been growing even faster in the less remote areas, leading to elites controlling trade and to quasi class formation. Farming elites have become differentiated through better productive resources, quality and some luxury consumer goods, and improved access to health and education services (including private). WIDE 3 also suggests that trade has been a major factor of differentiation; with many richer farmers also engaging in trade.

This trend is compounded by other factors. For instance in the integrated sites, the proximity of or easier access to urban centres also offer opportunities for the poor, landless, youth and women,. In the communities where irrigation was being undertaken at scale, the irrigation schemes had also created off-farm opportunities for those with no direct access to irrigated farming, including the rural youth who often have limited job opportunities outside of the agricultural sector (see Policy Brief 3 for the discussion of work creation for rural youth). However, in many communities the perception was that opportunities for poorer people did not match those available to the richer people.

The foregoing discussion of constraints in the input supply system points to a trend of visible and widening inequality between richer and poorer farming households. The WIDE 3 findings suggest that significant productivity gains notwithstanding, the focus of the input supply system has sometimes inadvertently excluded the poor, women and to some extent the youth. The trend is more pronounced in the sites where opportunities for trade, sale of cash crops and diversification of livelihoods have created room for entrepreneurial activity and for elite formation. These observations suggest that existing and future development interventions should attempt if possible to reverse, or at least not to reinforce, the economic exclusion of segments of the society when implementing useful public project, such as irrigation schemes. Understanding the constraints faced by different groups of the society and its implications for both access and adoption will help define more appropriate criteria for support which are better tailored towards the needs of the poor and vulnerable.

The role of cooperatives

WIDE 3 findings suggest that across the 20 communities, smallholders' reliance on local agricultural cooperatives has increased over the past two decades. The studies also point out that membership in existing agricultural cooperatives has expanded and this is more significant than the formation of new cooperatives. This progress has not been steady across and within the communities and types of cooperatives. The research suggests asymmetrical cooperative formation in relation to proximity to urban centers, such that there are cooperatives in areas where access to markets is not a key constraint whereas farmers in remote areas where access to markets is more difficult tend to also

have poor access to cooperatives. The agricultural cooperatives found in the WIDE communities predominantly focused on input provision and, to a lesser extent, credit. In contrast, the use of cooperatives in crop marketing services by farmers was reported to be minimal. There were also few value-adding/production cooperatives except in some of the coffee growing communities (and in the livestock product sector, not studied in this brief).

In many of the WIDE 3 communities, agricultural cooperatives reportedly failed or offered sub-optimal services. It was reported that cooperatives wanting to set up businesses often had wide-ranging problems. For instance, for these cooperatives to engage in fertilizer distribution as a viable aspect of their business, the revenues they generate should sustain the business. With adequate revenues from fertilizer distribution activities, cooperatives could ensure that they have properly trained staff and strong management to better promote fertilizer use among local farmers, thereby increasing fertilizer adoption rates. Currently, however, many of the cooperatives seemed not to have sufficient margins from fertilizer transactions that could guarantee their survival, let alone their growth.

In a number of cases those types of problems were compounded by malpractices. Generally, poor management and weak follow-up were major obstacles to the effectiveness of cooperatives.

Output marketing systems

Agricultural cooperatives are intended to assume a dominant role in efforts to develop the farming value chain growth on the output marketing side. For instance, Ethiopia's Sustainable Development and Poverty Reduction Program(SDPRD, FDRE 2002, 43) states the government's desire "to organize, strengthen and diversify autonomous cooperatives to provide better marketing services and serve as a bridge between small holders and the non-farming private sector."

WIDE 3 has gathered substantial evidence on the crop production and marketing patterns, showing that in most of the 20 communities, a greater proportion of cash crops (including cereals, pulses, oilseeds, coffee, chat, onions, potatoes, vegetables and eucalyptus) are being produced and marketed. This was found to be the case even in most of the Stage 2 food insecure/drought-prone communities. The research also shows that most of crop sale transactions in the WIDE communities occur at the local market place or farm of the small holder. In most sites, the preponderant majority of transactions are carried out through sales to private traders followed by direct sales to consumer. In terms of market shares sales to or through cooperatives are relatively minimal, with varying degrees across and within the communities, and are limited to very few crops such as coffee.

The research also shows that smaller farmers producing smaller surpluses or selling to meet immediate consumption needs (a group which includes many but not all female-headed households) were most likely to sell their products outside of formally organized marketing channels. In contrast, farmers with larger landholdings or accessing more land and producing larger surpluses were more likely to want to access more organized marketing channels. Cooperatives were one option available to them, but competing with local and also non-local traders coming to the communities to export the local products directly. On the whole, most crop marketing was run by private traders and other private sector agents.

It is noteworthy that, while this may have changed in the latest studied communities, up until Stage 2 (studied in 2011) the shift to production of higher-value crops such as onions, peppers, spices,

sesame, *chat,* coffee, and eucalyptus was mainly farmer-led. In general, the WIDE research suggests that a majority of farmers see the changes in agricultural markets in a relatively favorable light. In particular, they reported higher demand and better availability of agricultural market information over time. This suggests that the level of competition and choice in agricultural markets has been improving over the past two decades. However, the WIDE 3 studies also show that crop prices were sometimes volatile and in some communities, market power appeared to be concentrated in the hands of a few traders. Farmers, as a result, may end up with narrow profit margins and occasionally with losses.

Intensifying the role of cooperatives in output marketing may well be desirable to increase farmers' bargaining power. This would, however, require much enhanced capacity, financial strength and improved technical and management skills in the cooperatives. To be seen as useful in output marketing, cooperatives should be able to open up new market opportunities for their members. In addition, improved cooperative performance in supplying quality fertilizer and improved seeds might help build up farmers' confidence in the ability of cooperatives to handle crop marketing.

Concluding Remarks

Ethiopia has placed major emphasis on pro-poor growth, to be achieved mainly through greater progress in productivity of smallholder farming and the increasing commercialization of agriculture. This has been the cornerstone of development plans such as PASDEP and GTP. However, developing strategies is one thing; implementing them through action is often more challenging. The WIDE 3 research shows that similar development interventions can produce highly differentiated growth outcomes across and within communities. This leads one to ask how to find effective ways to improve the ability of the poor to participate in growth generating processes in very different environments.

The WIDE 3 findings suggest that the policies to promote improved inputs through the input supply system have generally had positive impacts. However, agricultural value chains operate with a multiplicity of actors, and a key challenge is therefore to ensure that the chains will benefit the poor. The significance of this challenge is clearly illustrated by the WIDE 3 studies, which found that value chains in the WIDE communities typically favoured better-off farmers, while poorer actors in the chain could easily get squeezed out.

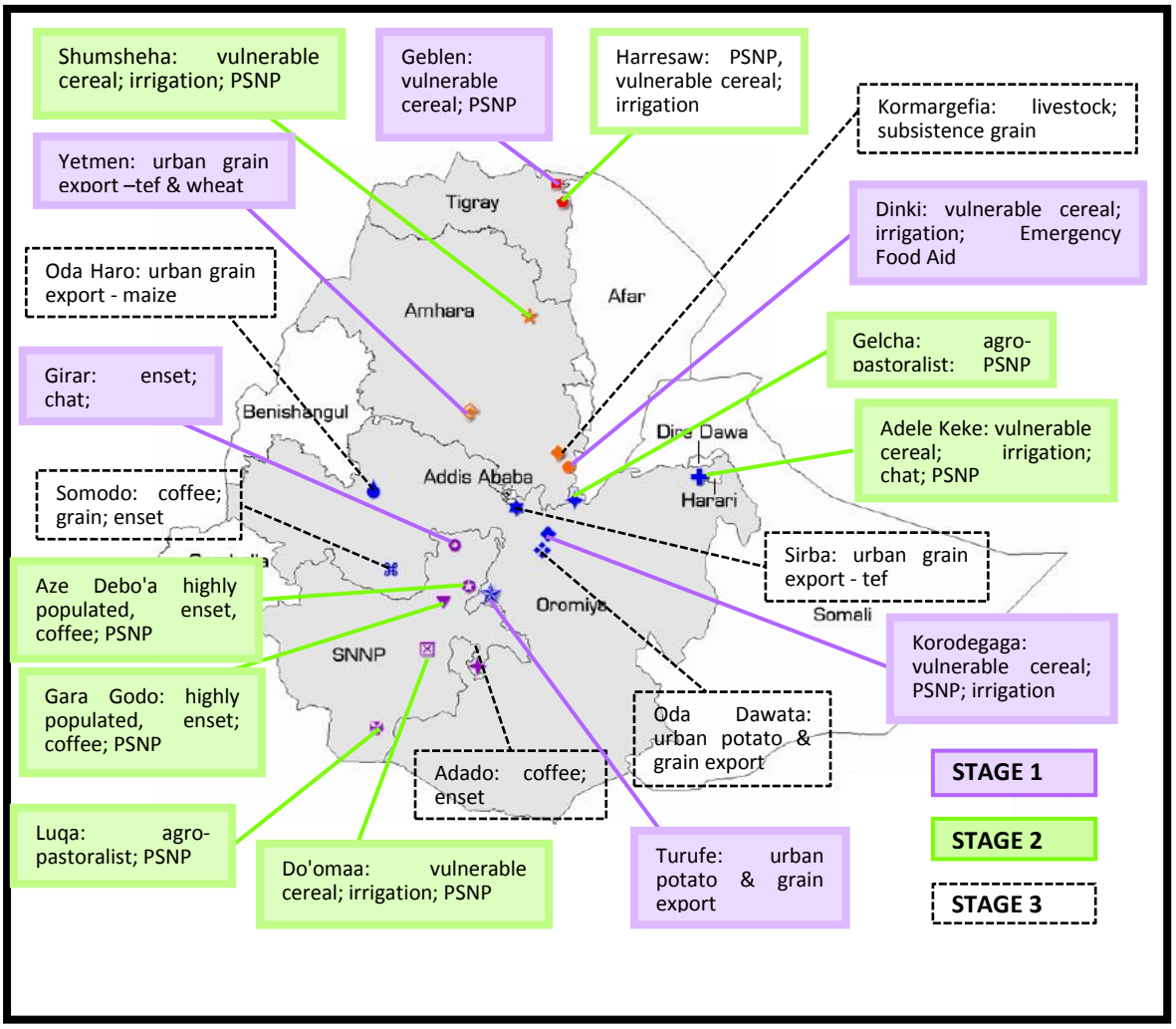
This is not in any way to suggest that the largely public nature of the input supply system is inefficient. On the contrary, government involvement is critical in situations where smallholders have poor access to markets and asymmetrical access to inputs. Additionally, in economies where market institutions are undeveloped policies encouraging private investment in market-based systems are exceedingly important. The growing participation of the private sector can potentially help in the smooth functioning of the agricultural input supply system. Yet we feel that a rethinking of methodologies might also be useful: a nuanced understanding of the context-specific complex issues involved, evidence-based analysis and policy recommendations and continuous debate on alternatives and options are all critical to tackle the issue of more equitable access to farming value chains. Evidently, inequality is often an inevitable outcome of growth processes. The extension system is, for example, designed to promote wealth creation, but there is no guarantee that the wealth created would be evenly distributed. Therefore, simultaneously enhancing community social protection and mitigating exclusion risks deserves attention.

In this regard one key lesson that can be drawn from the WIDE 3 studies is the importance of examining the sources and structure of growth by applying growth diagnostics framework. This requires an in-depth study of the major constraints to growth and the need to institutionalize the policy design processes to furnish it with essential flexibility demanded in the face of rapidly changing and localized constraints. Moreover, the disparity in growth outcomes leads one to think about the redistribution agenda – both as a moral response and as an efficiency-enhancing strategy focusing on the structure and nature of growth itself so that the marginalized poor people can also benefit from it. Promoting participation of poor people, or the restructuring of value chains to enable this to happen is often essential to ensure that the rural poor can benefit from growth.

WIDE 3 suggests that it is not possible or even desirable to quantify all direct and indirect effects of all constraints on reforms and investment efforts aimed at pro-poor growth – in all the different contexts in Ethiopia. Instead, removing layers of constraints and improving value chains in rural communities crucially rests on the design of polices that are flexible enough to account for contrasts in local contexts, while fostering cooperation between policy implementers and beneficiaries. Value chain analysis focused on the local contexts can be a powerful tool in this respect.

Reference map: The 20 WIDE communities

The 20 WIDE communities are examples of the major types of agro-ecological systems found in the four central regions of the country.



Research and Publication Information:

Research:

WIDE is a longitudinal study of 20 rural communities in Ethiopia over 20 years. WIDE1 produced 15 village profiles from 15 communities, selected by Addis Ababa University Economics Department and the International Food Policy Research Institute in the early 1990s, representing different agro-ecological types. (See: the Centre for the Study of African Economies, 1994: www.csae.ox.ac.uk/evstudies).

Three cash crop communities were added and in 2003 WIDE2 added two pastoralist sites during the Wellbeing in Developing Countries/University of Bath study (www.welldev.org.uk).

WIDE3 returned to the 20 communities in three stages. Stage 1 in 2010 involved six communities that had been studied in-depth in WIDE2; stage 2 in 2011-12 included eight drought prone communities; stage 3 in 2013 studied the remaining six growth potential sites.

Community situation reports have been produced for all 20 sites over three research stages. Rapid briefing notes have been shared with an electronic work net of interested organisations and individuals. Key findings have been presented to key government stakeholders through the support of the Ethiopian Development Research Institute (EDRI) at workshops and through meetings with ministers, as well as to donors and international organisations.

Publication Information:

This is one of five briefs produced based on the WIDE3 data and commissioned by the World Bank. This brief has been written by Girum Abebe and Eden Teklay, Ethiopian Development Research Institute (EDRI) and Economic Policy Analysis Unit (EPAU Addis Ababa, Ethiopia, P.O.BOX 2479.

Three of these briefs have been produced by the Economic Policy Analysis Unit (EPAU) of the Ethiopian Development Research Institute (EDRI) on:

- Unlocking agricultural growth
- Farming and value chains
- Job creation for the rural youth

Two briefs have been produced by independent consultants on:

- Equitable service delivery
- Models and realities of transformation.

Disclaimer:

These five briefs, drawing on the WIDE 3 evidence, have been produced to bring policy and implementation questions and possible implications to the attention of policymakers, with the aim of contributing to current debates on the key issues addressed through engaging in discussions with government and the donors. They do not necessarily represent the views of the World Bank, the financing donors or the WIDE research team.

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