

Implications of Accelerated Agricultural Growth in Ethiopia

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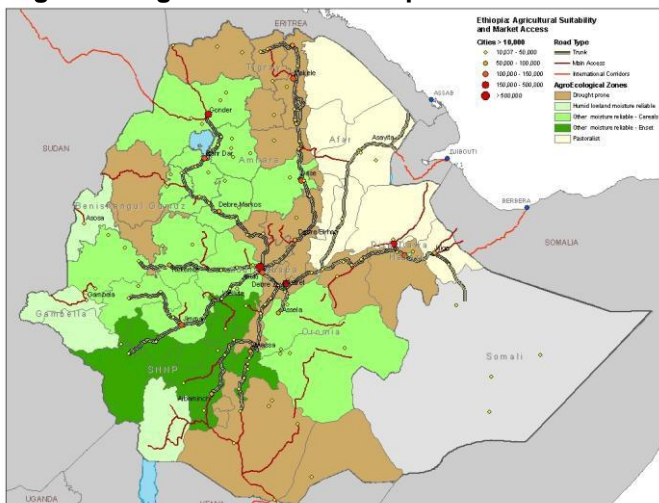
This paper provides details of the analysis done for Ethiopia's background study for its implementation of the Comprehensive Africa Agriculture Development Programme (CAADP). The analysis provides an assessment of agricultural growth options utilizing a new computable general equilibrium (CGE) model for Ethiopia based on data from the EDRI 2004/05 Ethiopia Social Accounting Matrix (SAM). The CGE model results indicate that if Ethiopia can meet its targets for crop yields and livestock productivity, then it should be possible to reach and sustain the six percent agricultural growth target during 2006-2015.

Implications of Accelerated Agricultural Growth on Household Incomes and Poverty in Ethiopia

Ethiopia's national development strategy, A Plan for Accelerated and Sustained Development to End Poverty for 2005/06 to 2009/10 (PASDEP) places a major emphasis on achieving high rates of agricultural and overall economic growth. Consistent with the PASDEP, Ethiopia is also in the process of implementing the Comprehensive Africa Agriculture Development Programme (CAADP) together with other African governments. As part of CAADP, the country has committed itself to meeting targets of devoting at least 10 percent of public expenditures to agriculture and to achieving a 6 percent growth rate in agricultural GDP. Ethiopia has already met these targets in recent years. The challenge remains, however, to continue to devote these public resources and to achieve high growth rates through 2015.

This paper analyzes agricultural growth options that can support high levels of agricultural development using a new computable general equilibrium (CGE) model for Ethiopia based on data from the EDRI 2004/05 Ethiopia Social Accounting Matrix (SAM), an internally consistent data base covering production, incomes, household consumption, investment and trade. The SAM includes 4 agro-ecological zones and disaggregates households into poor and non-poor based on per capita expenditure distribution reflected in the 2004/05 Household Income Expenditure and Consumption (HICE) survey.

Agro-ecological Zones in Ethiopia

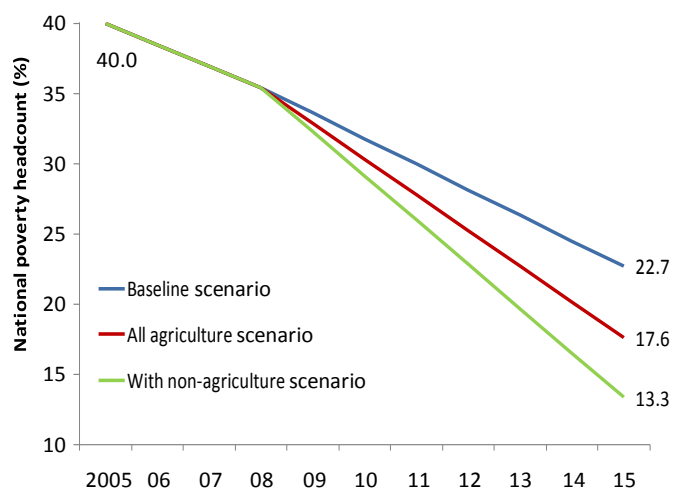


Five different scenarios were designed for this analysis. In Scenarios 1-3 we target specific groups of crops or agricultural sub-sectors. Simulation 1 models increased productivity of cereals (with the productivity increases varying by cereal and by agro-ecological zones). Simulation 2 models increases in productivity of export-oriented crops along with the productivity increases in cereals of simulation 1. Simulation 3 adds increased productivity of livestock and simulation 4 models increased productivity growth in all agricultural sub-sectors, including fisheries and forestry sub-sectors. This is equivalent to a 'CAADP' scenario, since it captures all possible sources of additional agricultural growth. Finally, in the 'non-agriculture' scenario (Simulation 5), we accelerate economic growth in not just the agricultural sector, but in non-agriculture as well.

Under the 'All Agriculture' scenario, agricultural growth accelerates to six percent per year for the period 2002-2008 (i.e., 2009-2015) (see Table 3). This is driven by a strong expansion in cereals production. For example, wheat production increases from about four million tons under the Baseline scenario to over six million tons under the 'All Agriculture' scenario. Similarly large expansions of coffee production are also achieved under this accelerated scenario. Thus, even though the additional growth required for other crops is less pronounced, the achievement of the six percent agricultural growth target remains ambitious. Livestock growth would also have to more than double from an annual average growth rate of 2.9 percent per year under the Baseline scenario to 6.0 percent under the 'All Agriculture' scenario. However, despite these challenges, the model simulations indicate that if the crop yield and livestock productivity targets can be achieved by 2015, then Ethiopia will be able to achieve and sustain the six percent agricultural growth target set forth by CAADP. Even though these yield targets are below the maximum potential yields identified by agricultural field trials, they are still ambitious given the short timeframe of the CAADP initiative (i.e. seven years).

Rapid agricultural growth also has major benefits for the poor. Achieving agricultural growth of six percent per year would reduce national poverty to 18.4 percent by 2015, lifting an additional 3.7 million people out of poverty compared to a base simulation using medium term growth rates.

Ethiopia: Simulated Changes in National Poverty under Alternative Growth Scenarios



Most households are expected to benefit from faster agricultural growth. However, some agro-ecological zones that grow higher-value cereals and export-oriented crops and which are better situated to larger urban markets (e.g., the rainfall sufficient highlands) stand to gain more than other parts of the country. Both rural and urban households benefit from faster agricultural growth (and thereby overall economic growth), as rural producers benefit from increased agricultural productivity and incomes, while net purchasers of food in both rural and urban areas benefit from moderate declines in real food prices.

Ethiopia Model Simulation Results: Agricultural GDP Growth and Poverty

	Baseline	Cereals	All Agriculture	Including Non-Agriculture
National				
Agricultural GDP	4.02	4.84	6.20	6.32
Poverty	22.67	20.28	18.36	12.46
Humid Cereals				
Agricultural GDP	4.05	5.15	6.33	6.46
Poverty	20.71	18.48	17.35	12.12
Humid Enset				
Agricultural GDP	3.70	4.16	5.48	5.52
Poverty	30.15	27.66	24.41	15.05
Drought Prone				
Agricultural GDP	4.42	5.13	6.11	6.22
Poverty	33.13	29.43	27.08	17.77
Large Urban Centers				
Poverty	8.57	7.55	6.41	5.18

Composition of agricultural growth matters, though. Additional growth driven by cereals has larger impacts on poverty reduction, because these crops already constitute a large share of rural incomes and so can contribute substantially to achieving broad-based agricultural growth. Yield improvements in these crops not only benefit farm households directly, by increasing incomes from agricultural production, but also by allowing farmers to diversify their land allocation towards other higher-value crops. Increased productivity of cereals that reduces real cereal prices is also effective at raising rural real incomes and reducing poverty, especially amongst the poorest households. Thus, high priority should be afforded to improving cereals yields and opening market opportunities for upstream processing to reduce demand constraints.

This research note is intended to promote discussion; it has not been formally peer reviewed but has been reviewed by at least one internal and/or external reviewer.

The Ethiopia Strategy Support Program of the International Food Policy Research Institute (IFPRI) works closely with the government of Ethiopia, and other development partners to provide information relevant for the design and implementation of Ethiopia's agricultural and rural development strategies. For more information, see <http://www.ifpri.org/book-757/ourwork/program/ethiopia-strategy-support-program> or <http://www.edri.org.et/>.

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