

WORKING PAPER

From increased crop biomass productivity to income generation:
Mid-term scenarios for Ethiopia

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ABSTRACT

Access to food is the second of the four pillars of food security, and increasing incomes is the most straightforward way to improve access to food. Within the context of an improved systems productivity of biomass value webs, better access to farming inputs and the adoption of technological innovations can lead to higher physical productivity and, consequently, to higher economic growth and income improvements for both producers and consumers. This study provides scenarios of how improved crop biomass productivity can contribute to higher incomes in Ethiopia.

For that purpose, changes in food availability are anticipated by identifying supply shifts from both improved cropland productivity and land use expansion. Cropland productivity trends are generated by endogenous yield functions that incorporate both the effects of better access to inputs such as fertilizer, and higher productivity potential of improved seed varieties in important staple and cash crops. Moreover, long-term trends in cropland expansion as well as its underlying drivers such as population growth, biomass demand, and input costs for crop production are part of the scenarios. A global partial agricultural market model (CAPRI) will provide world price scenarios up to the year 2030 which will serve as proxies for changes in biomass demand from abroad.

The causal chain from technological innovation to income improvements is then numerically simulated using regional economic simulation models in an ex-ante approach. A dynamic meso-economic modelling framework for Ethiopia is used for that purpose. Finally, conclusions relevant for food market governance are drawn from the economic simulation results.