

Ethiopia's Growth and Transformation Plan: A CGE Analysis of Alternative Financing Options

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The Growth and Transformation Plan (GTP) has set higher growth and investment targets than those of any of Ethiopia's earlier national plans and its implementation requires faster growth in total factor productivity and large-scale mobilization of domestic and foreign savings. We analyzed these GTP targets using a CGE (Computable General Equilibrium) model to assess the implications of the plan on macro- and microeconomic variables. We hereby focused on two financing options: increased domestic savings and increased foreign savings.

Based on its experience with the implementation of PASDEP, the Plan for Accelerated and Sustained Development to End Poverty, for 2005/06–2009/10, the Ethiopian government has formulated the next five-year plan, the Growth and Transformation Plan (GTP), for 2010/11–2014/15. The GTP is envisaged to sustain rapid and broad based economic growth and contributes to Ethiopia's goal of achieving the MDG targets by 2015 and becoming a middle-income economy by 2020–2023.

From PASDEP to GTP

During the time of PASDEP's implementation, substantial economic growth and significant progress on social and human development were achieved. Annual average GDP growth (11 percent) and average annual growth rates in the agricultural and service sectors (8.4 and 14.6 percent, respectively) exceeded plan targets. The public and private investments during the five years of PASDEP resulted in substantial increases in physical infrastructure and human capital that have laid a foundation for further growth and poverty reduction. However, the share of consumption expenditure at the end of the PASDEP was the same as the level in 2004/05, the share of gross capital formation (investment) in GDP declined slightly, and the domestic savings rate also remained unchanged from its low level in the plan period.

Two growth scenarios, medium and high, are considered in the GTP. Under the medium growth scenario, Ethiopia's economy is projected to grow at a rate of 11.2 percent, similar to the one attained during PASDEP. Under the high growth scenario, an annual average GDP growth rate of 14.9 percent is targeted. The basic assumption for the high growth scenario is the doubling of agricultural value added, by scaling up the productivity of farmers to the productivity levels of existing best or model farmers. The growth targets in the industry and service sectors in the high growth scenario are only slightly higher than in the medium growth case (see Table 1).

Table 1. GDP growth (%) – achieved under PASDEP and targets under GTP

	Achieved PASDEP	Target GTP Medium growth	Target GTP High growth
Agriculture	8.4	8.6	14.9
Industry	10.0	20.0	21.3
Services	14.6	10.6	12.8
Real GDP	11.0	11.2	14.9

Source: MOFED (2010).

Simulation assumptions

The GTP has set an ambitious investment plan and proposed ways of financing it, though details of the amount of financing from residents and non-residents are not specified. In this study, two options are considered as a means to ensure sufficient finances for investment targets: increased domestic household savings rates and increased foreign savings (through foreign loans or foreign direct investment). The analysis consists of five simulations. In the base scenario (BASE), we assume a continuation of the historical growth trends of 2005/06–2009/10 under PASDEP. The other four simulations model the medium and high growth scenarios of the GTP under the two different financing options: Medium Growth with Accelerated Domestic Savings (MAD), High Growth with Accelerated Domestic Savings (HAD), Medium Growth with Accelerated Foreign Savings (MAF), and High Growth with Accelerated Foreign Savings (HAF). The GTP simulations differ from the BASE one in terms of the assumptions in growth rates of total factor productivity (TFP), investment, government expenditure, tax rates, and the simulation-specific household savings rates or foreign savings growth rate (see Table 2).

Table 2. Model simulation specific assumptions

	BASE	MAD	HAD	MAF	HAF
Average TFP growth ^a	4.9	5.8	7.6	5.8	7.6
Investment growth ^a	11.5	12.6	22.8	12.6	22.8
Government consumption growth ^a	5.7	12.9	12.9	12.9	12.9
Tax as % of GDP growth ^b	3.0	7.5	7.5	7.5	7.5
Household savings rate growth ^a	4.0	21.8	31.1	4.0	4.0
Foreign savings rate growth ^a	6.0	6.0	6.0	22.1	31.0

Source: MOFED (2010) and simulated parameters.

Note: ^a in percent per year; ^b in percent. See text for explanation of different model scenarios.

If foreign savings continue growing at the historical trend rate, in order to finance the investment requirement of the GTP, the average household savings rate needs to grow substantially (MAD and HAD simulations). This means households' marginal propensity to save needs to reach 12.5 percent in 2014/15 in the medium case scenario from an average of 5.5 percent in 2014/15 in the base case. This is an ambitious target since savings rates in excess of 10 percent are rare worldwide. Alternatively, if there is no adjustment in households' propensity to save relative to past trends, additional finance needs to be mobilized through increased foreign borrowing/transfers (MAF and HAF simulations). Foreign savings would need to increase from

7.5 percent of GDP in 2014/15 in the base case to 14.8 percent of GDP in 2014/15 in the medium growth case.

The 4.9 percent annual TFP growth needed to continue the high GDP growth, as seen under PASDEP (2005/06–2009/10), into the future is very high as compared to those attained by other fast-growing economies such as India, China, or Indonesia. Achieving the GTP targets GDP growth rates requires even higher TFP growth: by 5.8 and 7.6 percent per year in the medium and high growth GTP scenarios, respectively. These very high TFP growth rates suggest that it may be very difficult to achieve the plan's growth targets even if levels of financing and investment are forthcoming.

Implications of GTP growth scenarios

There is essentially no difference in real GDP growth according to the source of financing. Increasing household savings rates, however, results in significantly lower consumption growth. The other major macroeconomic difference according to the source of financing is that increased foreign savings leads to a real exchange rate appreciation, and hence, export growth is considerably slowed. Government savings are higher in the high growth scenario than in the medium growth scenario under both financing options. However, the large investment demand still requires additional financing from household or foreign savings. Returns for all the factors increase significantly in all the scenarios, with generally higher returns when the investment is financed through foreign savings than through increased household savings.

The analysis shows that regardless of the financing strategy, there will be high real income growth for poor and non-poor under the GTP. Urban households will enjoy larger income increases than rural households. Note that if the economy continues with its performance as in the PASDEP period, income of rural households would increase faster than that of urban households. In addition, under the GTP, incomes of the non-poor increase faster than incomes of the poor under both financing options. Comparing across financing options, rural household incomes raise less in the increased household savings scenario (with the rural poor even having lower average income growth rate under MAD than under the baseline), while urban household incomes rise less in the increased foreign savings scenario (see Table 3).

Household's total expenditure increases significantly in all household groups in all simulations and financing alternatives. Total expenditure of the urban non-poor grows the fastest in the medium growth scenario of the GTP. In the high growth scenario of the GTP, on the other hand, expenditure of the rural non-poor grows more or less the fastest. As expected, under the domestic savings option the rate of increase in total household expenditure is lower in all

household groups than under the foreign financing alternative, as households are supposed to save more, at the expense of consumption. In this scenario the poor are spending even less than they would be able to with the continuation of the economic performance during the PASDEP.

Table 3. Simulation results – average annual growth rate of household incomes (percent)

	BASE	Increased domestic savings		Increased foreign savings	
		MAD	HAD	MAF	HAF
Rural	10.4	11.2	13.5	11.8	14.4
Rural poor	10.6	10.0	12.1	11.2	13.8
Rural non-poor	10.3	11.5	13.9	11.9	14.5
Urban	9.0	14.1	15.4	13.8	15.0
Urban poor	9.0	11.6	14.2	11.6	13.9
Urban non-poor	9.0	14.4	15.5	14.0	15.1

Source: Model simulations.

Note: See text for explanation of different model scenarios.

Conclusions

The Growth and Transformation Plan has set higher growth and investment targets than those of any of Ethiopia's earlier national plans. Its implementation requires faster growth in TFP and mobilization of huge savings both from domestic and foreign sources. To some extent, some of this TFP growth could be achieved through reduced underemployment. Nonetheless, it is not clear how these high TFP growth rates can be achieved, suggesting that the projected GDP growth outcomes are very optimistic. Meeting the financing requirements for the GTP will also be challenging given the large amount that needs to be mobilized, as compared to the low historical savings in Ethiopia. Achieving a high rate of domestic savings would require changes in macroeconomic policy, such as increases in tax rates or increases in interest rates (real interest rate on domestic deposits is currently negative) to encourage private savings.

This analysis shows that if the GTP investment and sectoral growth targets are achieved, real incomes of the poor and non-poor in Ethiopia would increase substantially. The base simulations indicate that real incomes of the poor rose under PASDEP from 2005/06 to 2010/11 and that these incomes would also rise if PASDEP growth continued. Under GTP, this real income growth would be accelerated, provided there is sufficient foreign savings or mobilization of domestic savings to achieve the targets. Nonetheless, the simulations also suggest that agricultural growth will still be crucial for raising incomes of Ethiopia's rural poor. Thus, investments that raise agricultural productivity will need to continue in order to ensure that the rural poor share in the substantial projected benefits that would result from achieving the high economic growth targets of the GTP.

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://essp.ifpri.info/> or <http://www.edri.org.et/>.

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