

# Public expenditure for water facility and road transport infrastructure in Ethiopia: A comparison of impacts using an economy-wide model

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## Introduction

Ethiopian government is investing in a wide range of pro-poor sectors but the economic effects of public investment widely vary across sectors. With a limited public resource, public investment across sectors has to be prioritized based on their potential socio-economic contributions and/or economy-wide benefits.

## Objective

The objective of this study is to compare and explore the economy-wide returns of public expenditure on water facility and energy technology (such as improved cooking stoves) on the one hand and public expenditure on road infrastructure on the other hand.

**Figure 1: Water Tap** **Figure 2: Cooking stove** **Figure 3: Road infrastructure**



## Material and Methods

The source of data for this study is the 2005/06 updated Social Accounting Matrix (SAM) of Ethiopia. The analysis applies the STAGE Computable General Equilibrium (CGE) model developed by McDonald (2007).

This study analyses two policy scenarios;

**Scenario 1:** An increase in the total factor productivity (TFP) of water fetching and firewood collection activities due to public investment on water facility and energy infrastructure

**Scenario 2:** A decrease in the trade and transport margins due to public investment in road transport infrastructure.

## Results and Discussion

**Table 1: Simulated changes (%) in domestic production by sectors**

Sector	Scen1	Scen2
Agricultural	0.54	0.09
Industry	1.77	0.26
Service	0.13	0.78
Water fetching	18.89	12.53
Firewood collection	18.84	12.47
Leisure	2.37	1.64

- Freed labor and less margin increased domestic production
- Domestic production increases in both scenarios
- Production increase in scen1 is higher than scen2

**Table 2: Simulated changes (%) in household consumption (QCD)**

Commodities	Scen1	Scen2
HPHC food	0.73	0.25
HPHC non-food	3.97	0.58
Market food	0.25	0.16
Market non-food	0.91	1.04

- Labor reallocated to other sectors results in higher income and increase HH consumption.
- Lower margins makes marketed commodities relatively cheaper and hence household consumption increases

**Table 3: Real macroeconomic effects (% changes)**

Macro indicators	Scen1	Scen2
Investment	0.38	0.96
Import	0.08	0.10
GDP	1.54	0.18
Total domestic production	1.35	0.24

- Improved water facility, energy and road infrastructure creates economy-wide linkages and positively affects the macroeconomic indicators such as GDP, total domestic production, import, export

## Conclusions

- Public investment in water facility and access to improved stoves results relatively higher domestic production in most sectors, larger household consumption, improved household welfare and improves in the macro-economy as compared to public investment in road transport infrastructure.
- It is conducive to explore the potential economic contribution of public expenditure across the different pro-poor sectors before launching public investment in any specific sector.
- This will ensure limited public budgets are appropriately invested in the sector that can bring relatively highest economic-wide benefits to the wider society.