

REPOA Brief



Potential implications of public agricultural investment on economic outcomes in Tanzania

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Key Messages

Scaling up productivity-enhancing public investment in agriculture could raise Tanzania's agricultural growth rate above the CAADP target of 6 percent and move the country closer to the Agenda 10/30 target of 10 percent agricultural growth by 2030.

Public investment in irrigation, storage, mechanization, and related infrastructure generates economy-wide benefits through higher GDP growth, stronger exports, increased agro-processing activity, lower food prices, and reduced poverty.

While both borrowing- and tax-financed investments yield positive outcomes, the two financing mechanisms generate broadly similar gains in GDP, with domestic revenue mobilization producing slightly stronger long-term improvements in household welfare and poverty reduction.

Introduction

Despite substantial structural transformation over the past two decades, agriculture remains the backbone of Tanzania's economy. Between 2008 and 2019, Tanzania recorded an average annual GDP growth rate of approximately 6.5 percent, resulting in its reclassification to lower-middle-income status in 2020 (World Bank, 2023; NBS, 2023). Yet the agricultural sector, which supports more than half of the population, continues to face persistent productivity constraints. Agriculture accounts for about 54.9 percent of total employment (URT, 2025), supplies roughly 65 percent of industrial raw materials, and remains central to food security, poverty reduction, and rural livelihoods (NBS and OCGS, 2021; 2022).

Despite its strategic importance, agricultural growth averaged only 5.4 percent between 2016 and 2022 (URT, 2026), falling short of the 6 percent target established under the Comprehensive Africa Agriculture Development Programme (CAADP). Agricultural expansion has been driven largely by area cultivation rather than productivity improvements, although modest productivity is observed for some crops. Average total factor productivity growth remains below global benchmarks, while yields for many crops are estimated to be 20–30 percent below attainable levels (World Bank, 2022; URT, 2024).

To address these challenges, the Government of Tanzania launched the Agenda 10/30 Investment Roadmap, which seeks to achieve annual agricultural growth exceeding 10 percent by 2030 through strategic public and private investments. Planned investments totalling nearly TZS 34 trillion between 2024 and 2030 focus on irrigation, input access, storage infrastructure, commercialization, market

development, and youth engagement in agriculture (URT, 2024).

This policy brief assesses the potential economic and social impacts of these investments. Using a dynamic computable general equilibrium (CGE) model linked to a household-level microsimulation framework, it evaluates how productivity-enhancing public investments in agriculture affect growth, employment, trade, household welfare, and poverty reduction in Tanzania.

Methodology and Data

The analysis employs a recursive-dynamic Computable General Equilibrium (CGE) model integrated with a microsimulation framework to assess macroeconomic and household-level impacts of public investment in agriculture. The model is adapted from the Partnership for Economic Policy (PEP) framework and calibrated specifically for Tanzania's economic structure (Decaluwé et al., 2013).

The CGE model captures interactions among six representative agents: rural farm households, rural non-farm households, urban households, firms, government, and the rest of the world. Production is disaggregated into 56 sectors, of which 26 are agricultural sectors, including 18 crop subsectors. Public investment affects agricultural productivity through a Total Factor Productivity (TFP) channel, reflecting the impact of investments in irrigation, mechanization, storage facilities, and other productive infrastructure.

The model is calibrated using Tanzania's 2015 Social Accounting Matrix (SAM), developed by IFPRI (Randriamamonjy and Thurlow, 2017). Household welfare and poverty impacts are estimated using data from the nationally representative 2017/18 Household Budget Survey and Foster-Greer-Thorbecke poverty measures.

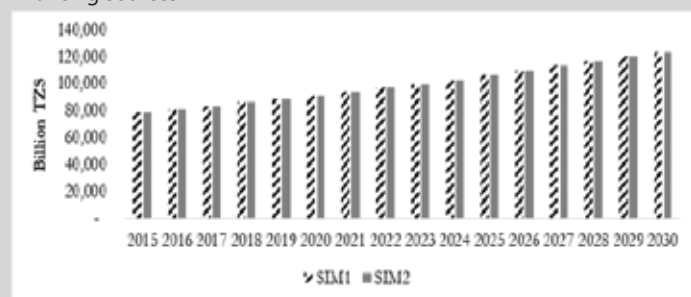
Two policy simulations are examined. The first finances **increased agricultural investment through government borrowing**, while the second finances **investment through indirect taxes**. Both scenarios simulate implementation of Agenda 10/30 public investments between 2024 and 2030, totalling approximately TZS 18.6 trillion in public resources directed toward productivity-enhancing agricultural infrastructure (URT, 2024). The simulations compare outcomes against a business-as-usual (BAU) baseline to determine impacts on economic growth, employment, trade, welfare, and poverty.

Findings

The analysis demonstrates that increased public investment in agriculture generates substantial positive effects across the Tanzanian economy. The benefits arise primarily through improvements in agricultural productivity, which stimulate production, incomes, trade, and household welfare while reducing poverty.

At the macroeconomic level, the simulations indicate that **public investment in productive agricultural infrastructure increases real GDP** relative to the baseline. GDP is approximately 0.67 percent higher than the baseline in 2025 and 0.79 percent higher by 2030 under both financing mechanisms. As shown in Figure 1, these percentage gains translate into steadily rising real GDP levels, measured in billion TZS, under both scenarios. Cumulatively, additional economic output generated between 2024 and 2030 is equivalent to approximately 4.6 percent of base-year GDP. These results confirm the strong multiplier effects associated with agricultural investment in economies where agriculture maintains significant linkages with manufacturing, trade, and services.

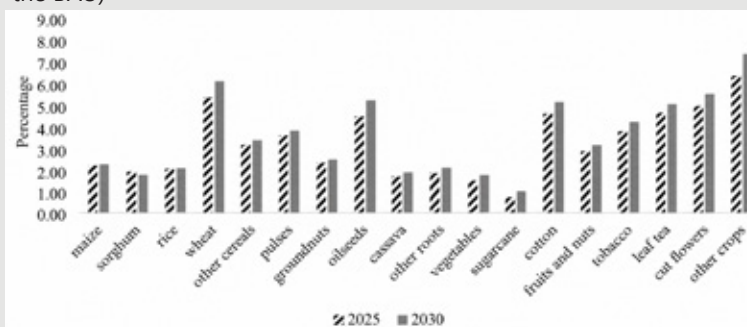
Figure 1: GDP in public investment scenarios under two alternative financing sources



Source: Authors' calculation

Sectoral impacts are particularly pronounced in crop production. Over the simulation period, the investment package raises crop-sector output by an average of 3.23 percent per year relative to the baseline (Figure 2), compared with an average increase of approximately 0.33 percent in manufacturing and services. When combined with existing growth trends, the interventions could elevate agricultural growth beyond the CAADP target of 6 percent and move Tanzania significantly closer to the Agenda 10/30 target of 10 percent annual growth.

Figure 2: Output of Agricultural Sectors under the public investment scenarios, 2025 and 2030 (%age of deviation from the BAU)



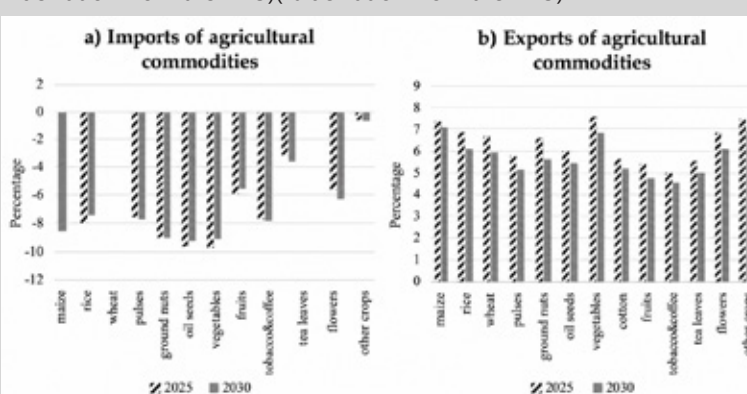
Source: Authors' calculation

The strongest gains are observed in capital-responsive and export-oriented crops such as maize, rice, oilseeds, cotton, coffee, tobacco, tea, flowers, fruits, nuts, and wheat. **Investments in irrigation systems, mechanization, storage facilities, and improved technologies enhance productivity while reducing post-harvest losses.** These investments also stimulate upstream and downstream sectors through stronger value-chain linkages.

Agro-processing industries emerge as major beneficiaries of agricultural expansion. Grain milling, animal feed production, and edible oil processing experience notable increases in output due to stronger demand for agricultural raw materials. Transportation, trade, energy, and logistics sectors also benefit from increased economic activity generated by agricultural growth.

Trade performance improves substantially under both financing scenarios (Figure 3). Agricultural exports rise significantly by both 2025 and 2030, particularly for maize, rice, oilseeds, vegetables, fruits, coffee, flowers, and related crops. Simultaneously, stronger domestic production reduces import dependence for several agricultural commodities. The results suggest that **agricultural investment strengthens Tanzania's external position by increasing export earnings while reducing food imports.** Wheat remains an exception because of the country's structural dependence on imported supplies.

Figure 3: Exports and imports under the public investment scenarios for the agricultural sector 2025 and 2030 (% deviation from the BAU)(% deviation from the BAU)



Source: Authors' calculation

Government revenues improve under both financing scenarios. By 2030, revenue from business income taxes increases by 0.56–0.60 percent, while revenue from household income taxes rises by 0.17–0.21 percent (Table 1). These gains reflect expanding economic activity and rising incomes. However, revenue from indirect taxes on products declines under SIM2, falling by 0.09 per cent in 2025 and 0.17 per cent in 2030. Although borrowing-financed investment increases public debt, the resulting growth expansion offsets part of the fiscal burden through higher tax collections.

Table 1: Impact on government revenue under both scenarios in 2025 and 2030 (%age deviation from the BAU)

Source of Government Revenue	SIM1		SIM2	
	short run 2025	long run 2030	short run 2025	long run 2030
Gov revenue from indirect taxes on products	0.34	0.43	-0.09	-0.17
Gov revenue from import duties	0.17	0.29	0.17	0.29
Gov revenue from business income taxes	0.46	0.56	0.49	0.60
Gov revenue from household income taxes	0.16	0.17	0.18	0.21

Source: Authors' calculation

Household welfare outcomes are equally encouraging. **Increased agricultural productivity lowers food prices and contributes to a reduction in the consumer price index** of about 1.5 percent relative to the BAU baseline (Table 2). Lower consumer prices strengthen household purchasing power, particularly among poorer households, which allocate a large share of their expenditure to food.

Table 2: Changes in the consumer price index under alternative financing scenarios, 2025 and 2030 (%age deviation from the BAU)

Macroeconomic aggregates	SIM1		SIM2	
	2025 short run	2030 long run	2025 short run	2030 long run
Consumer Price Index	-1.48	-1.47	-1.47	-1.49

Source: Authors' calculation

Urban households experience the largest gains, with real consumption approximately 1.6 percent higher than under the BAU, while rural non-farm households record increases of between 0.80 and 1.03 percent (Table 3). By contrast, rural farm households experience a slight decline in real consumption in 2025, followed by modest gains by 2030. This pattern suggests that the benefits of agricultural investment are distributed unevenly and may accrue primarily through lower consumer prices and the expansion of non-farm and urban activities rather than through immediate increases in farm household income. In some

agricultural subsectors, productivity gains and capital substitution reduce labour demand; however, employment expands in more productive activities, indicating a gradual reallocation of labour and supporting structural transformation.

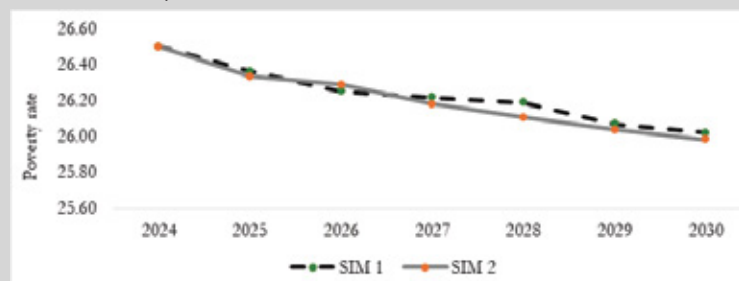
Table 3: Changes in households' real consumption budgets under alternative financing scenarios, 2025 and 2030 (%age deviation from the BAU)

Households type	SIM1	SIM2		
	2025 short run	2030 short run	2025 short run	2030 short run
Rural Farm Households	-0.10	0.07	-0.06	0.12
Rural Non-Farm Households	0.80	0.99	0.83	1.03
Urban Households	1.56	1.55	1.59	1.59

Source: Authors' calculation

Most importantly, **poverty declines under both investment strategies** (Figure 4). Average poverty rates fall by approximately 0.30 percent when investments are financed through borrowing and by 0.33 percent when financed through indirect taxes. These reductions are driven by lower food prices, higher household consumption, stronger economic growth, and expanding employment opportunities across agricultural value chains.

Figure 4: Exports and imports under the public investment scenarios for the agricultural sector 2025 and 2030 (% deviation from the BAU)



Source: Authors' calculation

Conclusion and Policy Recommendations

The evidence indicates that productivity-enhancing public investment in agriculture represents one of the most effective pathways for accelerating inclusive economic transformation in Tanzania. Investments envisioned under Agenda 10/30 generate broad-based benefits that extend far beyond the agricultural sector. The simulation results show that strategic investments in irrigation, mechanization, storage facilities, and related productive infrastructure can significantly increase agricultural output, stimulate agro-industrial development, strengthen exports, and improve household welfare. These investments also contribute to lower food prices and measurable reductions in poverty.

Importantly, agricultural growth creates powerful spillover effects across manufacturing and service sectors through value-chain linkages. The findings therefore reinforce the view that agriculture remains a critical engine of structural transformation, employment creation, and poverty reduction in Tanzania. Overall, achieving Agenda 10/30 objectives would require sustained public investment, effective implementation, and complementary policies that leverage private-sector participation and market integration.

To realise the forecasted gains, the brief recommended that collective efforts are needed to:

First, increase agricultural investment toward continental commitments

Tanzania should progressively raise agricultural budget allocations toward the 10 percent target established under the Maputo and Malabo Declarations, prioritizing productivity-enhancing infrastructure.

Second, prioritise irrigation and high-impact crop value chains

Investment should focus on irrigation systems, storage facilities, mechanization, and export-oriented crops such as maize, rice, oilseeds, horticulture, coffee, tea, and flowers where returns are highest.

Third, strengthen agro-processing and value-chain integration

Public investments should be complemented by measures to crowd in private investment in agro-processing, logistics, warehousing, cold-chain systems and market infrastructure. Stronger linkages between farmers, processors and domestic and export markets would help translate agricultural productivity gains into broader economic transformation.

Fourth, adopt fiscally sustainable financing mechanisms

While borrowing can support higher public investment, domestic resource mobilization through efficient taxation and stringer revenue administration may provide a more sustainable basis for long-term development.

Fifth, promote inclusive rural transformation

Complementary investments in extension services, rural roads, digital agriculture, financial services, and youth and women empowerment programmes are essential to maximize poverty reduction and ensure equitable distribution of benefits.

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