

Quantifying the Impacts of Policies to Increase Agricultural Efficiency

Phatthariya Nualyai *, Worawut Phaphimolwat ⁱ

Researcher, Institute of Future Studies for Development (IFD) ⁱ

ABSTRACT

Thailand's agricultural sector is vital to the national economy, supplying both domestic and global markets. It faces challenges from economic transformation and climate change, which affect its development prospects. This study quantifies the ex-ante impacts of policies aimed at increasing agricultural efficiency to provide insights for evaluating broader agricultural policy effects on economic growth, stability, employment, poverty, income distribution, and the environment. A Computable General Equilibrium (CGE) model integrated with a household microsimulation model is employed for analysis. The results of this study show the impacts of policies to increase agricultural efficiency. 1) Production: Policies enhancing productivity, reducing inputs, limiting imported inputs, or adjusting capital-to-labor ratios can boost yields and efficiency. Farmers respond when incentives are clear, but oversupply, price drops, reduced profits, or resistance to new technologies, and perceived risks. 2) Factors of Production: Enhancing the productivity of labor, capital, and land contributes to higher GDP, trade expansion, and in some cases increased employment; however, the gains often accrue to skilled or large-scale farmers, while smallholders risk exclusion. Expanding the supply of labor or land may depress wages and exacerbate inequality. Raising the capital–labor ratio stimulates GDP and exports, but although mechanization improves productivity, it may also lead to rural unemployment and widen disparities if smallholders lack access to capital. 3) Logistics: Enhancing transportation and distribution efficiency increases GDP, consumption, wages, and reduces poverty and inequality, while promoting inclusive growth and lowering CO₂ emissions. Risks include overproduction, market concentration, and sector-specific disparities.

Keywords: Computable General Equilibrium Model, Productivity, Factors of Production, Transportation Efficiency, Distribution Efficiency