

“The macroeconomics of intensive agriculture”, joint with Timo Boppart, Patrick Kiernan, and Hannes Malmberg.

Abstract:

Developing countries have a very large share of their populations in agriculture, at the same time as agricultural labor productivity is particularly low. We take a macroeconomic approach in order to examine the agricultural sector, and its importance for GDP, along the path of development. To this end, we collect systematic measures of inputs and outputs in agricultural production around the globe. Our data show massive capital deepening and intermediate-input intensification along the development path. These patterns are in line with neoclassical forces and can account for roughly two thirds of the agricultural labor productivity gap between the richest and the poorest countries. The effect is nonlinear: agricultural TFP is similar across middle- and high-income countries and the gap between their labor productivities is entirely accounted for by input intensification. Furthermore, we show that an aggregate agricultural production function, with input substitutabilities significantly above 1, accounts very well for our stylized facts on input quantity and price ratios. On the demand side, we document that a standard non-homothetic formulation captures the expenditure share of agriculture very well in the whole cross-section of countries. We embed the results in a closed economy general-equilibrium model with minimal distortions and show that non-agricultural TFP differences are more powerful than agricultural TFP differences in explaining income differences.