

An analysis of the regional economic effects of changes productivity in the main Brazilian agricultural crops

Topic: Feedback Session 1a

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The long-term impacts of climate change on agricultural productivity using typically agronomic models are well documented. The existing estimates subsidize the complementary investigations, especially those of economic nature. Thus, the number of researches that seek to extend these impacts to economic variables has increased worldwide recently, given the relevance of this sector to the world economy (Brazil included) and especially due to food security issues involved for the next decades.

However, studies focusing on Brazil based on more regionalized data but linked to the rest of the world using dynamic computable general equilibrium (CGE) models are still very incipient. Therefore, this is precisely the gap that this paper intends to fill, offering a contribution to the debate. Knowing these changes and the consequences for the rest of the economy is essential to map the effects and to elaborate, if necessary, mitigating environmental and economic policies.

Thus, the objective of this paper is to analysis the regional economic effects of the estimated changes in average agricultural productivity for the coming decades using a dynamic CGE model, the PAEGDyn linked to GTAP, for the five major regions of Brazil and to others selected regions of the globe and for the main agricultural crops.

The PAEGDyn is a multi-regional dynamic recursive version of the static PAEG model built on the GTAPinGAMS. The General Economic Analysis of the Brazilian Economy Project (PAEG) is global, multiregional and multi-sector CGE model, constructed for analyzing the Brazilian economy in a regional way, but integrated with the world economy via the Global Trade Analysis Project (GTAP) model and database. Thus the data base includes inter-regional input-output tables with the main agricultural crops disaggregated. Preliminary results show the tropical regions will suffer economic losses vis-Ã-vis the temperate ones.