

GTAP Integrated Assessment Model (GTAP-IAM)

This paper presents the GTAP Integrated Assessment Model (GTAP-IAM) model which facilitates detailed modeling of economy, environment and climate change within the GTAP framework. GTAP-IAM extends the standard GTAP (Corong et. al, 2017) model by combining GTAP-E (Energy/emissions), GTAP-Power, GTAP-AEZ (Agro-Ecological Zone) and GTAP-RD (Recursive Dynamics) with marginal abatement cost curves for non-greenhouse gas emissions and a simple climate model linked to emission-related health impacts and damage functions. In this paper, we first present the theoretical structure of GTAP-IAM along with the associated GEMPACK model codes. Then, we use GTAP-IAM to understand how economic and demographic projections based on the Shared Socio-Economic Pathways (SSP) along with trade and environmental policies affect economic and environmental (i.e., greenhouse gas emissions, land use and climate change) outcomes over time.