

1. Global Macro Team

The MANAGE team uses the GTAP data mostly (1) to define emission factors (GHG, air pollution), (2) to split where necessary activities and products in single country SAMS to further detail, for instance, to multiple power generation sectors. This is important for work related to Climate Change, including the highly visible Climate Change Development Reports (CCDRs). Additionally, a driver program allows to derive a data base including a SAM in MANAGE format from the GTAP Data Base. This option is however not used in on-going projects. The MANAGE team has contributed to the development of GTAP V11 by providing for a range of countries updated I-O tables. MANAGE will be soon becoming open-source and open-access, including its Graphical User Interface., the current version will be presented in the upcoming GTAP conference. The automated link to the GTAP Data Base will be one major argument for third parties to use MANAGE.

Since 2022, MTI-CGE also uses CGEBox as a multi-regional CGE drawing as its core on the GTAP standard model realized in GAMS in a range of project. CGEBox draws fully on the GTAP data base (GTAP-Power, CO2 and Non-CO2 emissions, GTAP-AEZ). Using CGEBox has allowed to analyze, for instance, establishing an ETS in the ASEAN region, net-zero pathways in the Romania CCDR while considering its integration in the EU ETS, or gas shortages in the EU following up the war on Ukraine. In the context of these projects, Marginal Abatement Cost Curves had been integrated into CGEBox. The on-going CCDRs using MANAGE and CGEBox will be published in summer.

The CCDRs the CGE team has contributed to or is currently contributing to: Romania, Cambodia, Uzbekistan, West-Banka and Gaza, Colombia, Dominican Republic, Ecuador, Republic of Congo, Ethiopia, Benin, India

Trainings:

KSA Decision Support Center, Royal Court: Series of in-person and online trainings

MTI Academies CGE Modelling Academy and Climate Academy

2. Global Trade and Regional Integration Team

AfCFTA

Projects

The Trade and Regional Integration Team of the World Bank uses the GTAP database to analyze the economic and poverty effects of the implementation of the African Continental Free Trade Area (AfCFTA). This is a multi-year program on which a series of incremental trade policy simulations have been implemented. Trade instruments under analysis include the reduction of tariffs and (ad-valorem equivalent) non-tariff barriers, reducing services trade restrictiveness, implementation of trade facilitation measures, impacts of greater integration, and increases in foreign direct investment flows.

Simulation is done using the ENVISAGE model. The GTAP database is complemented with the World Bank's Gender Disaggregated Labor Database and household survey data from the Global Income Distribution Dynamics model.

Publications:

This work has been summarized in two publications

Echandi, R., Maliszewska, M., & Steenbergen, V. (2022). *Making the Most of the African Continental Free Trade Area : Leveraging Trade and Foreign Direct Investment to Boost Growth and Reduce Poverty*. <https://openknowledge.worldbank.org/handle/10986/37623>

Single country notes, lending operations, and chapters in World Bank Country Economic Memorandums have been informed. The list of countries include: Rwanda (Trade Report), Tanzania (CEM Chapter), Uganda (Trade Chapter), Kenya (Trade Chapter), Cameroon (WB Lending Operation), Zambia (WB Lending Operation), among others in the pipeline.

Climate

1. GTAP Model and Data Base Usage

We rely on a multi-model assessment framework, which includes the TIMES Integrated Assessment Model (TIAM-WORLD) and global computable general equilibrium (CGE) model ENVISAGE. Using this suite of modeling tools, we analyze a set of exploratory climate mitigation scenarios. Our scenario framework, first, includes a development of the baseline (or reference) scenario pathway till 2050, within which we assume no targeted climate actions. We then impose mitigation scenarios on top of the baseline pathway, including nationally determined contributions (NDCs) and their interpretation post-2030, implementation of the set of more ambitious policies consistent with limiting global warming at or below 2°C, as well as CBAM implemented by the European Union. This usage of GTAP Models and database help the World Bank to comprehensively analyze the impacts of climate mitigation policies on developing countries' comparative advantages and restructuring global value chains.

We use the GTAP based emission intensity dataset to develop **CBAM exposure index** that identifies countries with a high degree of emission intensity and trade exposure under the EU CBAM, calculating the total potential cost burden of CBAM allowance purchases as a share of the total value of a country's exports in the covered sectors. Identifying the countries that stand to gain or lose their export competitiveness maintaining the status quo of production patterns, the World Bank helps developing countries to decarbonize and to maintain their export competitiveness.

2. Publications

The key publications include *Trade and Climate Change Report: Policy Consideration for developing countries* (forthcoming).

3. Presentations

On May 18, 2023, we presented our work mentioned above at the MTI Trade Academy. This purposes to share the knowledge with the staff about the toolkits that we developed based on GTAP modeling and databases in terms of trade and climate change.

Also, we presented our work at the meeting with our client (Brazil), focusing on the impact of mitigation policies on Brazil's comparative advantages and global value chains.

4. Special Reports

We prepared Trade and climate change background notes for Country Climate and Development Reports (CCDRs). Those background notes include analysis that utilized the GTAP models and databases. Countries include Cambodia, India, and Tunisia.