



USDA Economic Research Service GTAP Consortium Agency Report 2020-2021

1. GTAP Model and Data Base Usage

USDA's Economic Research Service (ERS) uses resources from GTAP for both data and modeling purposes. The data support two computable general equilibrium (CGE) models used at ERS: MTED-GTAP is used for analysis of trade policy in the Market and Trade Economics Division; the Future Agricultural Resources Model (FARM) is used for long-term scenario analysis in the Resource and Rural Economics Division.

The MTED-GTAP model is based on the GTAP model in GEMPACK. The FARM model is based on GTAPinGAMS software published by Tom Rutherford. Both models have been extended in many ways depending on questions that were addressed.

2. Publications

Harmsen, M., E. Kriegler, D.P. van Vuuren, K.-I. van der Wijk, G. Luderer, R. Cui, O. Dessens, L. Drouet, J. Emmerling, J.F. Morris, F. Fosse, D. Fragkiadakis, K. Fragkiadakis, P. Fragkos, O. Fricko, S. Fujimori, D. Gernaat, C. Guivarch, G. Iyer, P. Karkatsoulis, I. Keppo, K. Keramidas, A. Köberle, P. Kolp, V. Krey, C. Krüger, F. Leblanc, S. Mittal, S. Paltsev, P. Rochedo, B.J. van Ruijven, R.D. Sands, F. Sano, J. Strefler, E. Vasquez Arroyo, K. Wada, B. Zakeri (2021) "Integrated assessment model diagnostics: key indicators and model evolution," *Environmental Research Letters*.

Muratori, M., N. Bauer, S. Rose, M. Wise, V. Daioglou, Y. Cui, E. Kato, M. Gidden, J. Strefler, S. Fujimori, R. Sands, D. van Vuuren, J. Weyant (2020) "EMF-33 Insights on Bioenergy with Carbon Capture and Storage (BECCS)." *Climatic Change*.

Beckman, J. 2021. "Reforming Market Access in Agricultural Trade: The Trade Facilitation Agreement and Tariff Removal." Economic Research Report 280.

Beckman, J., Munisamy, G., and K. Daugherty. 2021. "Options for ASEAN Trade Expansion: Within, Plus Three or Six, European Union or the United States?" *The World Economy*.

Jafari, Y., Himics, M., Britz, W., and J. Beckman. 2021. "It is all in the details: A bilateral approach for modelling trade agreements at the tariff line." *Canadian Journal of Agricultural Economics*.

Beckman, J., and A. Countryman. (2021). "The Importance of Agriculture in the Economy: Impacts from COVID-19." *American Journal of Agricultural Economics*.

Beckman, J., Baquedano, F., and Amanda Countryman. (2021). "The Impacts of COVID-19 on GDP, Food Prices, and Food Security." *Q Open*.

Beckman, J., Burfisher, M., Mitchell, L., and S. Arita. (2020). "Hidden Obstacles to Trade: The Case of the EU's Ban on Beef Hormones." *Journal of Policy Modeling*.

Beckman, J., Ivanic, M., Jelliffe, J., Baquedano, F., and S. Scott. 2020. "Economic and Food Security Impacts of Agricultural Input Reduction Under the European Union Green Deal's Farm to Fork and Biodiversity Strategies." Economic Brief Number 30.

3. Presentations

Sands, R.D. (2020) "Global Diets and Demand for Calories from Crops," 26th Asia-Pacific Integrated Modeling (AIM) International Workshop, National Institute for Environmental Studies, Tsukuba, Japan.

Sands, R.D. (2020) "Implications of land-based climate change mitigation for agricultural intensification," Integrated Assessment Modeling Consortium (IAMC) Annual Meeting, 1-4 December 2020. (poster – virtual meeting).

Jelliffe, J. (2020). Presented Farm to Fork study findings at the US Agricultural Export Development Council (USAEDC) annual workshop.

Beckman, J. (2021). Presented at the Farm Foundation event: Understanding the EU Farm to Fork Strategy and Its Implications for U.S. Agriculture.

Ivanic, M. (2021). Presented at the Farm Foundation event: Understanding the EU Farm to Fork Strategy and Its Implications for U.S. Agriculture.

Beckman, J. (2021). Presented at the Farm Foundation event: Trade and Climate Change conference.

Ivanic, M. (2021). Presented at the Farm Foundation event: Trade and Climate Change conference.

4. Special Reports

5. Projects

Agricultural Model Intercomparison and Improvement Project (AgMIP): Multi-Breadbasket Failures and Shocks to Food Systems. Columbia University provides expertise in crop process models; IFPRI will simulate food shocks using the IMPACT model; ERS will simulate food shocks in the FARM model.

6. Other Activities