

Agricultural Trade Impacts of RCEP: an Integrated Partial Equilibrium and General Equilibrium Assessment

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Develop a modeling system that links partial equilibrium (PE) components with general equilibrium (GE) GTAPinGAMS based model (extending the work of Grant, Hertel, and Rutherford, 2009)

PE models: not able to assess economy-wide impacts

GE models: not able to inform disaggregated commodities (corn/grains; soybeans/oilseeds; pork and beef/meat products).

Develop PE modules for eight agricultural commodities important for US agriculture, including corn, wheat, soybeans, pork, beef, ethanol, distiller grains (DDGS), and sorghum;

Simulate the economic and trade impacts of the RCEP

RCEP policy context

Features of the linked PE-GE model

RCEP's welfare and trade impacts (creation/diversion)
across countries and sectors

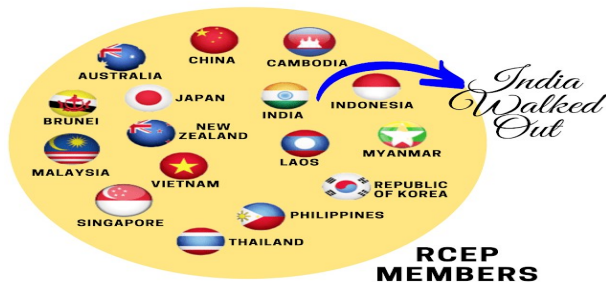
Ongoing and future work

RCEP: Policy context

RCEP: established November 15, 2020: 10 members of the Association of Southeast Asian Nations (ASEAN) and five Asia-Pacific countries, including Australia, China, Japan, New Zealand, and South Korea.

Sensitivity to India and US participation.

Phase-in of RCEP tariff reductions (2025 and 2030 tariff scenarios).



RCEP: Policy context

Negotiated RCEP tariff reductions are at the tariff-line level.

Tariff aggregation bias: Trade-weighted average tariff: weight on any tariff declines as it rises; underestimates the overall tariff protection (Himics, Listorti, and Tonini; 2020).

We present results with reductions based on **simple** average versus trade-value **weighted** tariffs.

Time horizons (2025, 2030, and full liberalization).

GE model: Simplification and update

Simplify the GTAP/GTAPinGAMS accounts:

- Aggregate to 19 countries/regions (RCEP focus and several other important countries)

- Aggregate to 19 goods/production sectors (Ag focus)

- Centralized Armington aggregation

Update the benchmark to 2019

- Calibrate GE model using GTAP10A, with macro translation to 2019 benchmark using IMF World Economic Outlook (April 2021 release). 2019 regional targets for C, I, G, X, M

- Renormalize accounts (all prices and quantity indexes = 1)

- Update benchmark tariffs for RCEP countries

GE results: Welfare of RCEP and non-RCEP countries

Figure 2: Welfare changes of RCEP and non-RCEP countries

GE results: Welfare of countries

Figure 3: Welfare changes of countries with full RCEP liberalization

GE results: Trade creation and diversion

Figure 4: Percent changes in exports of RCEP and non-RCEP countries

GE results: Trade creation and diversion

Figure 5: Percent changes in exports of RCEP and non-RCEP countries

GE results: Exports across countries

Figure 6: Changes in exports across countries

GE results: Exports across sectors

Figure 7: Changes in exports across sectors

PE with Disaggregated Cereal Grains (GRO)

PE-GE decomposition (al la Grant, Hertel, and Rutherford, 2009) is exible and extensible (high dimension, tari -line, alternative market structures, spatial equilb., TRQs, etc.)

Illustrative Example:

GE-PE: regional output of GRO

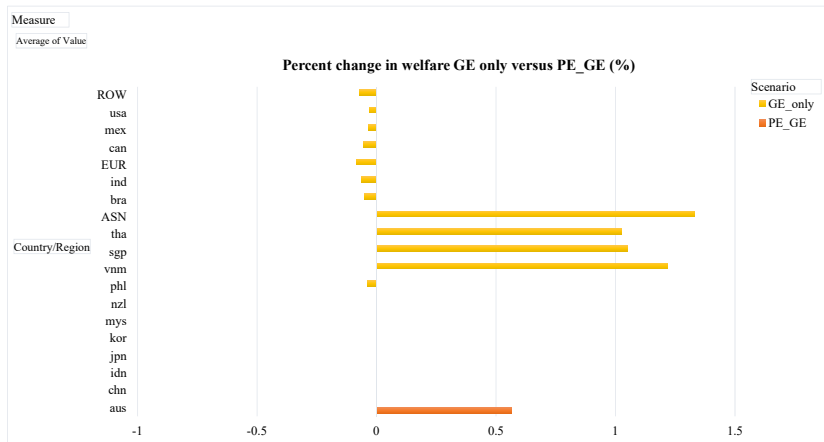
PE: CET with Corn versus XGR (XGR = other GRO)

PE: Global market for Corn (homogeneous good)

PE: Bilateral CES Composite of Corn and XGR

GE-PE: bilateral demand for the GRO Composite

Small impact on overall RCEP Welfare



Large impacts on some trade flows

Vietnam's Exports of Cereal Grains:

	2019 benchmark (\$M)	Trade Response GE_only	Trade Response PE_GE
Australia	0.0739	11.3%	13.6%
ASEAN	8.2185	4.8%	20.7%
China	0.0845	-2.2%	114.7%
India	0.0107	-1.7%	-1.3%
Japan	0.0561	-1.7%	54.1%
Korea	0.0001	-2.0%	29319.7%
Malaysia	0.0111	-1.8%	0.3%
Philippines	15.8805	2.1%	24.8%
Singapore	0.0547	-1.1%	0.9%
Thailand	2.0486	8.3%	650.6%
Vietnam			
Brazil	0.0196	-3.8%	-0.1%
Canada	0.0388	-3.6%	-1.6%
Europe	0.3623	-3.2%	-1.2%
India	0.0101	-3.3%	-1.2%
Mexico	0.0106	-3.1%	-1.0%
USA	0.1511	-3.4%	-1.4%
Rest of World	0.1548	-3.2%	-1.1%
Total	27.1861		

Conclusions

RCEP increases welfare of RCEP countries and reduces the welfare of non-RCEP countries (EU and India are affected the most);

RCEP has significant trade creation and diversion effects (Trade among RCEP increase by 15.7%, RCEP exports to non-RCEP decrease by 1.7%, Non-RCEP exports to RCEP decrease by 2.2%, and trade among non-RCEP increase by 0.28%);

Compared with simple average tariff reductions, weighed average tariff reductions underestimate gains of RCEP countries and also underestimates loss of non-RCEP countries;

Very preliminary PE-GE results... work in progress.

Ongoing and future work

Incorporate PE components and disaggregate agricultural trade impacts (Corn as a starting point);

Expand the PE modules to other commodities (manufacturing and service sectors) to study the impacts of large-scale trade and economic policies;

We anticipate developing a modeling system that can accommodate advanced partial equilibrium modules that can be toggled on or off.

