Modelling trade and other economic interactions between countries in baseline projections

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GTAP Center October 20 2020

Introduction: motivation

- Recursive dynamic CGE models used extensively to generate trade projections
- Trade relations and other economic interactions between countries impact also projections focused on other outcome variables (energy, climate change, land use, ...)
- Modeller faces various choices
  - Trade structure and size of elasticities
  - Modelling of trade balance
  - Trade growth
  - Extensive margin changes
  - New technologies and trade policies
  - Migration and remittances

Trade structure and size of elasticities

- Consensus in CGE projection work: Armington structure with nested preferences
- Alternatives: Eaton-Kortum, Ethier-Krugman, Melitz
  - Ricardian Eaton-Kortum: Real income effects similar, trade volumes different.
  - Ethier-Krugman/Melitz: sectoral shifts potentially bigger. Combination with dynamics: open research field
- New quantitative trade (NQT) literature
  - Four differences between CGE and NQT:
    - Structural estimation: no parameters from the literature
    - Solution methods: exact hat algebra
    - Structure of the model: more parsimonious
    - Baseline calibration: exact hat algebra like CGE-models
  - Dynamic work in NQT is limited
- Size of elasticities
  - Variety of estimates
  - Limited support for nested preferences in literature
  - Matters for simulations: regions with large growth raise global export share more with larger substitution elasticities from different sources

Modelling the trade balance

- No consensus in CGE projection work. Various options
  - Converging trade balances
  - Trade balance based on empirics (Feldstein-Horioka rule)
  - Trade balance based on "optimizing behavior" (Rate of return rule)
  - In the paper models are classified based on exogenous components in macroeconomic rule (S-I=X-M)
- Insights from international finance literature
  - Intertemporal budget constraints and other components of current account are important
  - Anticipation effects can be modelled with intertemporal optimization, relevant for limited but important set of questions
  - Some trade balance closures loosely align with intertemporal optimization, but models with this feature do not necessarily generate better empirical predictions
  - Empirical literature on medium-run determinants of trade balance can be employed to calibrate models
- Simulations show that trade balances matter for core outcomes such as shares in global trade

Trade growth

- Main question: will real trade continue to display much higher growth than real GDP as has been the case historically since WWII?
- Reasons for large historical trade growth:
  - Reductions in transportation costs (containerization; productivity growth transport services)
  - Trade Policies
  - Changes in organization of production (more complex value chains)
- Going forward, there are two options:
  - Target trade growth (with reductions in iceberg trade costs or cost neutral twist shifters) or model only expected changes in trade costs

Other topics

- The role of energy prices for trade growth
  - Especially relevant for some regions (oil producing) and some products (primary goods)
- Modelling changes in the extensive margin
  - Shifts from zero to non-zero trade values limited in GTAP database
  - Various ways to model extensive margin in CGE model, promising for dynamic simulations
- New technologies and associated changes in trade policies
  - Needed: data on intangible assets, digital trade, and policy indicators of digital trade environment; innovation module
- Phasing in future trade policies
  - ITC database of tariffs; challenge phasing-in NTMs
- Migration and remittances
  - Explicit modelling of migration (beyond using UN population and labor force projections) relevant for regions with large flows of remittances