A Tariff Analytical and Simulation Tool for Economists

Data updates and applications of TASTE

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Problem statement

219 million data at the HS6 tariff line level

Tariff line: 040510
Fat content by weight not exceeding 85%
Problem statement

219 million data at the HS6 tariff line level

Model level

Agricultural primary products
Agricultural processed products
Other primary sectors
Manufactures
Problem statement

• 219 million data at the HS6 tariff line level
• Trade policies are implemented at the tariff line level (HS6, HS8, HS10 or HS12)
• Models like GTAP run at a more aggregated level

Additional tools are needed
Outline

• Back ... to the future
• Updates of TASTE
• Applications
• Limitations
• Ideas for future developments
20 years back ...

- WTO-Negotiations
  - Bound and applied tariffs
  - Tiered tariff reduction formulas
    $\Rightarrow$ Need to make tariff cuts in the database

- 8 - 11 GB of data
  - Not harmonized (conversion in AVEs)
  - Too large to load into Excel or a text editor
    $\Rightarrow$ Need for additional programs
  - Institutions built their own programs to process the data
  - One run lasted several hours
15 years back ...

**SAS**

- HS6-digit tariff lines
- Aggregation
- New base data at model level

**SAS Scenario**

- HS6-digit tariff lines
- Tariff cuts
- Aggregation
- New tariff at model level

**GEMPACK**

- Implementation of the shock
TASTE advantages (Horridge and Laborde, 2006)

Easy to use
- Lowers entry barriers to run tariff scenarios
- Format of tariff changes can be directly used by the GTAP-model
- Includes pre-defined formulas

Fast
- Takes max. 5 minutes to apply tariff rules for 200 million data

Flexible
- Two methods of tariff aggregation: Trade weighted or reference group weighted
- Consideration of bound and applied tariff rates (MFN & Preferential)
TASTE advantages (Horridge and Laborde, 2006)

Additional uses of the MAcMap-ITC data

- Data of a GTAP sector can be viewed/extracted in more detail
- Sector splits
- Building of detailed models where trade is modelled at the HS6 or HS4 level for one or a few GTAP-sectors
Since 2008 ... many applications in the literature

- Analysis of the impacts of WTO negotiations
- Analysis of regional trade agreements
  - TPP, CETA, TTIP, ACP, JEFTA, ECOWAS
  - Cumulative FTA effects
  - EU-Enlargement (Croatia), BREXIT
- Trade war impacts
- Linking Partial and General Equilibrium Models
- Sector splits

→ Regular data updates are necessary!
Updates of TASTE

<table>
<thead>
<tr>
<th></th>
<th>GTAP6</th>
<th>GTAP7</th>
<th>GTAP8</th>
<th>GTAP9</th>
<th>GTAP10</th>
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<tbody>
<tr>
<td><strong>Base year</strong></td>
<td>2001</td>
<td>2004</td>
<td>2007</td>
<td>2011</td>
<td>2014</td>
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<td><strong>Data sources</strong></td>
<td>MAcMapHS6</td>
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<td>CEPII-IFPRI</td>
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<td><strong>Applied rates</strong></td>
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<tr>
<td><strong>Bound rates</strong></td>
<td>WTO-CEPII</td>
<td>WTO-CEPII</td>
<td>Dummy 10</td>
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<tr>
<td><strong>HS-Classification</strong></td>
<td>HS96</td>
<td>HS02</td>
<td>HS07</td>
<td>HS12</td>
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<tr>
<td><strong>Records in Million</strong></td>
<td>≈ 170</td>
<td>170</td>
<td>179</td>
<td>187</td>
<td>219</td>
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<tr>
<td><strong>HS-Categories (GTAP-sectors)</strong></td>
<td>5111 (57)</td>
<td>5113 (57)</td>
<td>5052 (57)</td>
<td>5205 (65)</td>
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<tr>
<td><strong>Country coverage (GTAP-regions)</strong></td>
<td>≈ 170 (87)</td>
<td>208 (113)</td>
<td>227 (129)</td>
<td>236 (140)</td>
<td>239 (141)</td>
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<tr>
<td><strong>Software</strong></td>
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<td>32-bit</td>
<td>32-bit</td>
<td>32-bit</td>
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</table>
Updating procedure of TASTE to a new version

- MAcMap data (ITC)
- GTAP Sectors
  - GTAP Regions
  - HS6 Sectors
  - HS4 Sectors
  - Original Regions
- GTAP trade flows (Scaling)
- Read1.exe
- Read2.exe
- MoreInfo0. dat – code data
- records.dat
- MoreInfo. dat – code data
- read2.har – scale factors
- AveBoundRate.txt
- Taste. exe

Source: Modified according to Laborde and Horridge (2010)
Applications
Example I: Import tariffs between China and the USA for selected agricultural products

Source: Own calculation, reference group weights
Example II: Thünen-Baseline
Agricultural tariff protection of the EU

Source: Janine Pelikan, Tatjana Döbeling and Florian Freund, 2018
Example II: Trade weighted tariffs for animal products: Japan-EU-FTA: Japan’s tariff to the EU in %

Source: Japan-EU-FTA Agreement (2017), Own calculations with the tariff analysis tool TASTE
For presentation: Weighted with reference groups. In the base year, the value equivalent of all tariff restrictions (plus quotas) is shown.
Example III:
Impact Analysis of CETA (trade weighted tariffs in %)

Source: Tatjana Döbeling and Janine Pelikan, 2020
Limitations of TASTE

- No analysis below the HS6 level is possible
- No facility to create own formulas
- No automatic feature that allows tariff reductions that are phased in over time

→ Limitations can be addressed by additional programs which are more complex but also more flexible.
Ideas for future developments of TASTE ...

- Integrate tariff reduction schedules of ITC into scenario files
- Integrate (some) NTBs:
  - Integrate options for tariff rate quotas
  - Quota module is currently developed at Thünen Institute
  - Differentiate between specific and ad valorem tariffs (data available)