CEPII Trade Data: the *BACI* and *TUV* databases

Charlotte EMLINGER

*UN Comtrade Data Fair*

*September 25th*
The CEPII

• French research center in international economics
  – analyses on the world economy and its evolution
  – produces studies, research, databases
  – for academics, private and public decision-makers, international institutions, economists, civil society, the media

• Need of accurate, comprehensive and disaggregated trade statistics
  – UNSD Comtrade and Tariff Line databases as sources
  – Construction of two databases: BACI (trade values and quantities) and TUV (trade unit values)
  – Issues of discrepancies in trade’s declarations and missing quantities
  – Developed for internal use but accessible for external users
1. The BACI database: The issues of declarations in UN Comtrade

UN Comtrade information for the trade flow from $i$ to $j$ of the product $\text{hs6}$ the year $t$
1. The BACI database: The issues of declarations in UN Comtrade

UN Comtrade information for the trade flow from i to j of the product hs6 the year t

- Export reported by i
- Import reported by j

Issue 1: missing information
- some countries do not report at all (up to 170 reporting countries, 245 partners)
- some countries do not report some goods (confidentiality, product aggregation…)

⇒ only 43% of flows with double declarations (83% of world trade value)
1. The BACI database:
The issues of declarations in UN Comtrade

UN Comtrade information for the trade flow from i to j of the product hs6 the year t

Issue 2: **Differences in reporting of trade values and quantities**

(Difficulties in the identification of the actual trading partner, confidentiality, different reporting year, product misclassification…)
1. The BACI database: Comprehensive and reconciled trade values

UN Comtrade information for the trade flow from i to j of the product hs6 the year t

BACI: original procedure to reconcile flows reported by exporters and importers
1. The BACI database: Comprehensive and reconciled trade values

BACI Methodology

1. Estimation of **CIF/FOB ratio** using a gravity-type equation to compute FOB import values

2. Evaluation of the **reliability of each country’s reporting** (indicator of the reporting distance among partners, cleaned from geographical and sectoral specialization)

3. **Reconciliation of bilateral trade flows** reported twice, using reliability index as weights

➡ **BACI** : FOB bilateral trade values and quantities
- Large coverage of countries
- More reliable data
- Yearly update
- Available for subscribers to the UN Comtrade database
2. The Trade Unit Values database: Missing quantities treatment in Comtrade

Approximation of trade prices

Unit value \(_{ijhs6t}\) = \(\frac{\text{value}_{ijhs6t}}{\text{quantity}_{ijhs6t}}\)
2. The Trade Unit Values database: Missing quantities treatment in Comtrade

Approximation of trade prices

\[
\text{Unit value}_{ijhs6t} = \frac{\text{value}_{ijhs6t}}{\text{quantity}_{ijhs6t}}
\]

in UN Comtrade:

Computation of missing quantities using values and standard unit values (defined at the world level) to improve the coverage of the database

→ Reduce the dispersion of unit values and their reliability
2. The Trade Unit Values database:
Missing quantities treatment in Comtrade

\[
\text{Unit value}_{ijTLt} = \frac{\text{value}_{ijTLt}}{\text{quantity}_{ijTLt}}
\]

Trade Unit Values Database

- Use \textbf{raw tariff line data} to compute unit values at the highest level of disaggregation

- Only consider \textbf{reported quantities}
2. The Trade Unit Values database: Missing quantities treatment in Comtrade

Unit value \( ij_{\text{TLt}} \) = \( \frac{\text{value} \ ij_{\text{TLt}}}{\text{quantity} \ ij_{\text{TLt}}} \)

⇒ **TUV**: CIF and FOB bilateral trade unit values

- More reliable data, with higher dispersion
- Yearly update
- 200 countries, more than 5000 products (HS6-digit)
- Free, available on CEPII website
3. Trade Flows characterization and country profiles

→ BACI and TUV are used for other CEPII’s products

• The Trade Flow Characterization (TFC) database
  – Decomposition of trade flows into trade types (trade in differentiated or similar product) and price ranges (low, middle, high range)

• Country profiles
  – Interactive data of income level, comparative advantages, product quality range, trade protection … based on CEPII databases
  – Friendly-user illustrations and downloadable data
3. Trade Flows characterization and country profiles

France - 7.A. Exports

France - 6.B. Two-Way Trade

(c) CEPII, July 2017. Users are encouraged to quote and reproduce the material from the Country Profile for educational and non-profit purposes provided they mention the source and copyright. Citation: CEPII, “Country Profile”, Working paper (CEPII, W2016-62), June 2016.