FIGARO
Full International and Global Accounts for Research in Input-Output analysis

The EU Inter-country Supply, Use and Input-Output Tables

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Outline

1. Background
2. Methodological framework (FIGARO)
3. Integration with global OECD ICIO tables
4. Next steps
1. Background

• Based on National Accounts framework

• Build up on available data from National Accounts dimension (national SUIOTs) and trade statistics

• Standards: ESA 2010, NACE Rev 2 (ISIC 4), CPC/CPA

• EU (28 MS) Inter-country SUIOTs + United States

• Eurostat (C5, G2, G5, E2) regular production with support from DG JRC + EU part of OECD global ICIO database

• Link to labour and capital productivity, environmental accounts and business statistics extensions
2. Methodological framework (FIGARO)

  - ✓ Transparency
  - ✓ Modularity
  - ✓ Collaboration and collective ownership
  - ✓ Long-term horizon

[Concepts adapted to the EU version]
2. Methodological framework (FIGARO)

- **Roadmap to FIGARO:**
  1. Preparing **national SUIOTs**
  2. Creating a coherent view of **EU bilateral trade statistics**
  3. **Aligning** the balanced view of trade with **National Accounts** estimates
  4. **Domestic vs. national concepts:** Purchases by non-residents and residents' expenditures abroad
  5. Integrating the balanced view of trade with national SUTs – **EU- International SUTs**
  6. The construction of **EU-ICIO tables**
2. Methodological framework (1/9)

Preparing National SUIOTs:

- **National SUTs (pp, bp, dom/imp, A64)** - Good practices guidelines, Eurostat and DG JRC (2013) and available official data

- **National IOTs (dom/imp, A64)** – Models B for product x product IOTs and Model D for industry x industry IOTs; and available official data – but wait until the final stage of constructing ICIO
2. Methodological framework (2/9)

Creating coherent view of EU bilateral trade:

- Trade in goods (merchandise trade)
  - EU COMEXT: Country of consignment/origin
  - UN COMTRADE: Country of origin + Re-exports
  - OECD-ESTAT integration of extra-EU trade
  - Trade asymmetries:
    - Reasons: cif/fob; time lag between exp/imp; re-exports; transit trade; unallocated and/or unclassified trade...
    - Reconciliation: *Symmetry index* (weights = % of each country's total trade that approximately match mirror trade flows) + *Manual ad-hoc adjustments*
  - Statistical vs. Analytical tables (Steering Comm. Nov 16)
2. Methodological framework (3/9)

Creating coherent view of EU bilateral trade:

- CIF/FOB estimations (by product, partner)
  - Miao and Fortanier (2017) – explicit model with NSIs estimates and UN COMTRADE;
  - FIGARO (2017) – implicit model with COMEXT data 1995-2015 (lack of available data: only FI, DE, SK)
  - Gravity model based on: distance; GDP of reporter and partner countries; oil price; insurance costs (median unit value); contiguity; (opt) FE for product, partner and time
  - Data sources: COMEXT (imports and exports, EUR/kg – HS-4 digit); CEPII (distance and contiguity); World Bank (GDP p/c); US Energy Information Administration
2. Methodological framework (4/9)

- **Trade in services**
  - Only financial flows observable – modes of supply
  - EBOPS items and confidentiality issues
  - BPM6-EBOPS2010 and STEC wherever available
  - Total Services (S200) complete; gaps in sub-items:
    - Top-down approach from: structural info over time; simple derivations; mirror data; linear interpolations; moving averages...
    - Gravity models for specific items: Travel services (SD); Use of IPRs (SH); Audio-visual and related services category (SK)
  - Trade asymmetries (BOPWG, October 2016) + Index
  - Conversion tables EBOPS-> CPA/CPC – RACE method
2. Methodological framework (5/9)

**Aligning with National Accounts**

- Goods sent abroad for processing: not accounted any more as gross exports and gross imports in ESA2010
- Merchanting activities: trade data should reflect merchanting margins applied by the merchanting country included in the amounts paid by importer country
- Re-exports; re-exports should be separated from domestic exports in trade statistics; countries may report only net trade in NAs;
- Unobserved trade; attributed to the difference between:
  - Balanced view of trade (incl. adjustments for merchanting)
  - SUTs/NAs (incl. changes for re-exports and goods sent abroad for processing)
2. Methodological framework (6/9)

**Aligning with National Accounts**

- **Unobserved trade;** reduce as much as possible this difference by a transparent conversion matrix that reallocates differences across products in a way that it preserves each country's total imports by industry and partner (Ahmad, 2017)

- **Discrepancy item**
  - What remains = "discrepancy item"
  - Either leave it aside (statistical approach) or allocating it bi-proportionally (GRAS) throughout the matrix (analytical approach)
  - Comparison of resulting balanced trade with SUTs pp -> Feedback loops, still possible...
2. Methodological framework (7/9)

**Domestic/national concepts in consumption**

- Direct purchases abroad by residents (imp) and direct purchases in the domestic territory by non-residents (exp) usually in NAs = lump-sum figure

- Tourism Satellite Accounts + common spending patterns across tourists = used to split balanced view of "travel services" (EBOPS) into "goods" and "pure services" + geographical allocation using balanced view of trade + proportional allocation of remaining difference with NA
2. Methodological framework (8/9)

**Construction of EU International SUTs:**

- Trade values of the national SUTs are respected (by industry and reporting country)
- Although later changed possibly due to revision of NAs
- **Exports** by product and reporter country split across trading partners using balanced bilateral trade data
- Split **across users** with info from STEC, TEC and import use tables
- Further adjustments to **match national imports** by industry and reporter country from national SUTs
- **SUTs bp** available, including TTM and TLS tables (2010)
2. Methodological framework (9/9)

Construction of EU-ICIO:

- Based on the previously estimated EU International SUTs
- Product by product; final demand components unchanged + Model B (industry technology) + Constrained by official IO tables, wherever available
- Industry by industry; value added components unchanged + Model D (fixed product sales structure) + Constrained by official IO tables, wherever available
- Models B and D must not be applied to the full EU International SUTs
3. Integration with OECD ICIO

- **MoU (2016-2020) – Schedule**
  - **2017:** Finalize FIGARO EU-IC-SUIOTs (2010) as consistent as possible with the OECD + dissemination/revision strategies + agreement on process and methodology for balanced bilateral trade database
  - **2018:** Full integration for 2010 (FIGARO and OECD-ICIO)
  - **2019:** Construction of annual time series (2011-14)
  - **2020:** Construction of time series (2010-15) + revisions
4. Achieved so far and ahead...

• As of May 2017,
  • All national **SUTs** pp, bp collected, estimated, validated
  • **IT** infrastructure implemented to store database
  • **CIF-FOB** margins estimated
  • Estimation of **missing services trade** (SD, SH, SK)
  • Work in progress on the compilation of the balanced view of the **EU bilateral trade**, including trade asymmetries
  • Work in progress on the process development to **align** the balanced view of **bilateral trade with NA** and integration with OECD ICIO tables
  • Work in progress on the **FIGARO environmental** accounts
Thank you for your attention!!

The FIGARO Project

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