Early trade statistics:
What are they and why do we care

Comparing Trade Flows between Portugal and Scandinavia:
Methodological Lessons Arising from the Use of Multiple Sources

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Paris, OFCDE, 23rd May 2014
Portugal, the Sound and Sweden
Figure 3. Overall Trade Volume via the Danish Sound, Based on the Number of Passages, 1634-1857.

Sources: STR.
Main Sources

• Sound Toll Registers (STR)
• Swedish Board of Trade (SBT)
• Portuguese Balances of Trade (BoT)
STR Source

- provides abundant information on the trade going into and leaving Northern Europe
- Some studies about STR
  - Eli F. Heckscher (1942)
  - J. Dow (1964)
  - Sven-Erik Åström (1965 and 1988)
SBT Source

• The Swedish foreign trade statistics were based on the efficiency of the collecting of customs duties.

• In Sweden, the first time that the state collected statistics about foreign trade was in 1637, however until 1738 the statistics remained fragmented.

• From 1738 onwards, Board of Trade started to gather yearly trade statistics in summarizing tables.

• The reporting convention remained uniform until 1814.

• Swedish Board of trade collected various different statistical series:
  – foreign trade and shipping (Series 1, 2, 4 and 5)
  – balance of trade accounts (Serie 3).
Main goals

• to evaluate the usefulness and reliability of the STR data in most of the 18th century, mainly by comparing the data with similar datasets arising from Portuguese and Swedish national archives and data collections

• to provide some preliminary analysis of the aggregate trade flows and cargoes.
Studies of early modern trade

- focused on warfare and fiscal developments
- Philip Hoffman – Prices, Military Revolution, Western Europe's Comparative Advantage in Violence
- Lance Davis and Stanley Engerman – *Naval Blockades in Peace and War: An Economic History since 1750*
- David Bell - *The First Total War: Napoleon's Europe and the Birth of Warfare as We Know It*
- Kevin O'Rourke – *The Worldwide Economic Impact of the French Revolutionary and Napoleonic Wars, 1793-1815*
- Cristina Moreira and Jari Eloranta – *Importance of «weak» states during conflicts: Portuguese trade with the United States during the Revolutionary and Napoleonic wars*
Different ways to use STR

• to study early modern trade in detail or on the aggregate
• to isolate specific products and trade routes
• to establish trade patterns between various nations or groups of nations, and to compare with other datasets.
STR

• trade in the early modern period was mainly about bulk cargoes
• STR Online provides a great analytical tool for these focus on comparing all bulk trade between Sweden and Portugal from 1738 to 1800
• By using two alternative datasets for comparison, the Swedish Board of Trade Statistics (SBT) and the Portuguese General Balance of Trade (PBT), we are able to reassess the match between the Swedish and the Portuguese customs records.
Reliability of the STR – perspectives from Sweden and Portugal

• we compiled a database covering the years 1738-1800.
• Product observations:
  
  STR: 16,450
  SBT: 4,911
  BoT: 325

• Exports from Sweden to Portugal were divided into six groups:

  • iron
  • steel
  • copper
  • timber
  • tar
  • pitch

• exports from Portugal to Sweden were placed into four product groups:

  • salt
  • wine
  • sugar
  • fruits
Portuguese Sources

• 1776, 1777, 1783, 1787, 1789, 1796-1800
• According to Adrien Balbi, the balances of trade for the years 1775, 1780 and 1790 were also produced, however they were either lost or destroyed:
• “Ayant entre les mains (...) les bilans du commerce du Portugal des années 1775, 1880, 1790 et ceux de 1796 à 1820 si savamment rédigés par M. le chevalier Mauricio José Teixeira de Moraes (...)”.
• For further details see Lille presentation (March, 2011) and Early Trade Statistics questionnaire
Comparing STR and SBT with Bot

- The main concern was the units used in the original sources.
- In the STR, the amount (barrels, lasts etc.) and customs duties were given for every product.
- The volume of each cargo and commodity was given during the period in the STR.
- In the SBT, the amounts of all major products are reported using volume units and values are also reported.
- The STR duties had a specific rate and the customs payment ratio did not change during the period we observed.
- The comparative analysis between Swedish and Portuguese data was based on comparing the export and import shares.
Bulk cargo volumes between STR and SBT

• The development of eighteenth century long-distance metal exports from Sweden looks similar whether one uses the STR or the SBT.
• The t-test clearly confirmed the same phenomenon
• There was no substantial difference in the bulk cargo volumes between the STR and SBT datasets.
• In the Swedish exports to Portugal, tar can be evaluated as the most reliable product in the STR and SBT.
• Timber trade differed a lot between the STR and SBT
• The STR and Swedish Board of Trade records of Swedish-Portuguese trade were unanimous when it came to most of the trade in bulk products
Analysing Swedish exports to Portugal

Figure 1. Volume of Timber Exports from Sweden to Portugal, 1738-1800

Sources: STR and SBT
Analysing Portuguese exports to Sweden

• When analysing the Portuguese exports to Sweden, the different units used in the STR and the BoT meant that the comparison was not as easy as with the Swedish export products.

• There is a clear correlation between the STR and SBT data on salt imports from Portugal

• Regarding wine imports reveal a clear systematic difference
Analysing Portuguese exports to Sweden

Figure 2. Wine Exports from Portugal to Sweden, 1738-1800

Sources: STR and SBT
Analysing Sugar and Copper trade

• more differences emerged from the analysis of the less frequently traded products, namely sugar and copper
• there were several years in the STR without any mention of sugar or copper trade, while the SBT data indicated that this trade took place during these missing years as well
Portuguese and the Sound datasets

• There are notable differences, but also clear similarities between the STR and the Portuguese BoT

• We suggest that some of the differences can be explained by different bookkeeping methods

• In general, similar export and import products can be found in the Portuguese custom records and the Sound Toll Registers.
Portuguese and the Sound datasets

• When comparing the Portuguese and the STR datasets, the national differences in the compilation of these trade records were notable.

• E.g.: the trade with Pomerania (discriminated in the Swedish and aggregated with Sweden in the Portuguese sources)

• When comparing the STR to the BoT, the same products can be found
Portuguese and the Sound datasets

Why Portuguese data systematically indicated larger shares of timber and grain and smaller shares in iron and steel?

• **different customs practices** - in the Portuguese data, the shares were value-based, while in the STR the shares were more informative about the trade volumes. The differences could indicate that the STR customs were not an optimal measure to analyse the product values.

• a large share of steel and iron cargoes would have in most cases gone to the Netherlands or Britain, while timber cargoes would have reached Portugal as noted in the Sound material.

• In the Portuguese data only Swedish vessels would have been registered, and not the foreign vessels also participating in this bilateral trade.
Trade flows between Scandinavia and Portugal: overall trade patterns

• Both Sweden and Portugal were states that have to be taken into account in this time period, with Portugal having a more extensive overseas empire.

• In the eighteenth century, economic relations between Sweden and Portugal were extensive.

• In Southern Europe Portugal was the most important trading partner for Sweden (the oldest Swedish consulate – 1641 – was located in Lisbon).

• During the 18th century, Portugal was the most important salt exporter for Sweden.

• For Sweden it was salt and for Portugal naval stores that were considered strategic products.

• In the 1720s, over 50 per cent of Swedish board export went to Portugal.

• In the mid-1750s a quarter of Setubal’s salt went directly to Sweden.
Geographical distribution

- In both countries the trade between Sweden and Portugal was highly focused both geographically and in terms of the variety of products.
- In Sweden, 65 per cent of this trade was carried to and from Stockholm.
- In Portugal Swedish trade focused on the Lisbon area (Lisbon and Setúbal).
- Most commonly vessels sailed first to Lisbon to sell their iron cargo and then visited Setubal to purchase salt cargo for the return journey.
Limitations to this study

• the records are more complete on the Swedish side, and the Napoleonic conflicts did not have an equally overwhelming impact on them.
• the issues of measurement and conversion are quite challenging in this type of study
• it is not necessarily very telling in itself to look at bilateral trade flows. Most nations are engaged in multilateral trade networks, and the study of such networks holds great promise.
• Here we are simply providing a starting point for the study of early modern Swedish and Portuguese trade.
Final remarks

• The Sound Toll Registers form a massive database that can be used to augment studies of early modern trade.
• The registers do provide quite accurate information on trade
• The records align themselves fairly well with national data sources.
• The continuous trade flows of salt and naval stores between Sweden and Portugal shows that these countries were fairly bound together.
• The pattern of trade between these two countries indicates that they were not equally dependent on their bilateral trade, and that the products traded varied over time.
• For Portugal, the aggregate trade tended to develop in a cyclical form, whereas the Swedish trade with Portugal peaked in the middle of the 18th century.
How to measure trade structure?
Volumes or values?
**Volumes (tonnage)**

- **Advantages**
  - Easily available
  - Ability to measure performance
    - Tonnage/km
    - Men/tonnage
  - Precise

- **Disadvantages**
  - Comparability:
    - e.g. mass volumes vs. capacity or pieces)

**Values**

- **Advantages**
  - Comparability

- **Disadvantages**
  - ”market price”?
  - Time series, price fluctuations, inflation
Stockholms hamn vid 1700-talets mitt
(Kopparst. efter Chapman.)
How to measure trade structure? Volumes or values?

Example: Swedish exports to Portugal
Source: Swedish Board of Trade Statistics 1738

<table>
<thead>
<tr>
<th>In volume (tonnages)</th>
<th>In value (trade balance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron and steel</td>
<td>84 %</td>
</tr>
<tr>
<td>Timber and tar</td>
<td>14 %</td>
</tr>
<tr>
<td>Others</td>
<td>2 %</td>
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**Swedish exports to Portugal 1807 (value)**

<table>
<thead>
<tr>
<th>Swedish statistics</th>
<th>Portuguese statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>83 % Iron and steel</td>
<td>75 % Iron and steel</td>
</tr>
<tr>
<td>13 % Timber and tar</td>
<td>21 % Timber</td>
</tr>
<tr>
<td>4 % Others</td>
<td>4 % Others (tar)</td>
</tr>
</tbody>
</table>

How to measure trade structure? Volumes or values?

Example: Swedish exports to Portugal
Swedish Board of Trade statistics 1738

<table>
<thead>
<tr>
<th>In volume (tonnage)</th>
<th>In value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salt</td>
<td>99 %</td>
</tr>
<tr>
<td>Wine, fruits, luxury</td>
<td>1 %</td>
</tr>
<tr>
<td>Others</td>
<td>8 %</td>
</tr>
</tbody>
</table>
Portuguese exports to Sweden 1807 (value)

Swedish statistics
45 % salt
14 % wine and spirits
14 % raw materials
13 % sugar
14 % others

Portuguese statistics
46 % salt
17 % wine and spirits
16 % sugar
21 % raw materials + others
What really matters when measuring the trade?

Both

The linkage between export prices and import prices:

1750s: 5-6 barrels of tar equal to 1 barrel of salt
1780s: 1 barrel of tar equal to 1 barrel of salt