

Analysis of bilateral trade flows between France and Hamburg between 1750 and 1789

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- The purpose of my work is to analyse the bilateral trade data between France and Hamburg in the period 1750-1789
- In order to do so I am using both a German and a French dataset
- All the work on the categorization and cleaning of data has been performed by ALEXANDER AUBURG who has worked on the data before me

Figures on French dataset (1)

- 3407 bilateral aggregate flows between 1750 and 1789
- Figures for France also included exports from *Ports Francs* (Dunkerque, Lorient ou Bayonne and Franche-Comté) and only excluded Alsace-Lorraine and Trois Evechés
- In the French dataset Hamburg does not appear as a destination per se but as part of a broader geographical scope defined "North"
- In the French dataset prices are given *Free on Board*

Figures on French dataset (2)

- Value expressed in *Livres Tournois* and available for the years 1750, 1752, 1754, 1756-1761, 1767, 1769-1772 1774-1777, 1780, 1782 and 1787-1789
- Quantities expressed in different unit of measure and available for the years 1750, 1771, 1772, 1774-1777, 1780, 1782 and 1787
- 868 different goods are found in the dataset only 4 of which appear more than 31 times:
 - Bordeaux wine
 - Indigo
 - Saffron
 - Eau de vie

Figures on German dataset (1)

- 1609 observations of aggregate exports flows between 1733 and 1798
- The data come from the Hamburg import toll register, so that any good on which the toll was levied was tracked
- However not all the goods were subject to tolls:
 - Only goods coming into the cities were liable to pay tolls
 - Coal and Grain were exempted
 - Most likely also dyestuff was not registered

Figures on German dataset (2)

- Values expressed in *Mark Banco* for the years 1736-1740, 1742, 1747, 1753, 1755, 1756, 1760, 1762, 1763, 1769, 1770, 1771, 1773, 1776, 1781-92, 1794, 1795, 1797 and 1798
- Quantities were estimated using the import price index of Hamburg for the goods of interest (value over price)
- 43 categories of goods + 1 category “unclassified” (all goods in the German dataset that cannot be match with French goods)

Matching goods and categories

- 39 categories were created where we categorize both French and German goods
- A problem arises because German data are aggregated and ONLY 166 over 868 different French goods could be match to those 39 categories.
- Fortunately those 166 goods represents 96% (97% according to the German source) of total value of trade
- In terms of quantity this category represents 40% but data are not accurate because they have been estimated for the German side
- Raw material represents the biggest share of what cannot be classified

Issues with units of measures - Quantities

- Units of measure were not coherent even within the kingdom of France
 - The 48 quantity units found were first adjusted basing on geography and good type. *Tonneaux* became *Tonneaux de Nantes* and *Muids* became *Muids de Vin*
 - They are then converted into kilograms, liters, meters, pieces, or containers (1178 quantities converted in kilograms, 126 in pieces, 16 in containers, 11 in meters and 5 in liters)
- German quantities are not present in the dataset and were estimated
 - They were expressed in *livres de Hambourg*, *Fass*, *Last*, *Oxhoft*, *Viertel* or *livres de bateau* and then converted in kilograms
- As a consequence, only quantities convertible into kilograms could be compared (fortunately most of the dataset)

- To make *Mark Banco* and *Livres Tournois* comparable we peg them to the value of grams of fine silver
- *Livres Tournois* were very stable during most of the period and 4.505 grams of fine silver were equivalent to 1 *Livre Tournois*
- German *Mark Banco* was way more unstable and the values are reported in the table below

Mark Banco - Conversion table

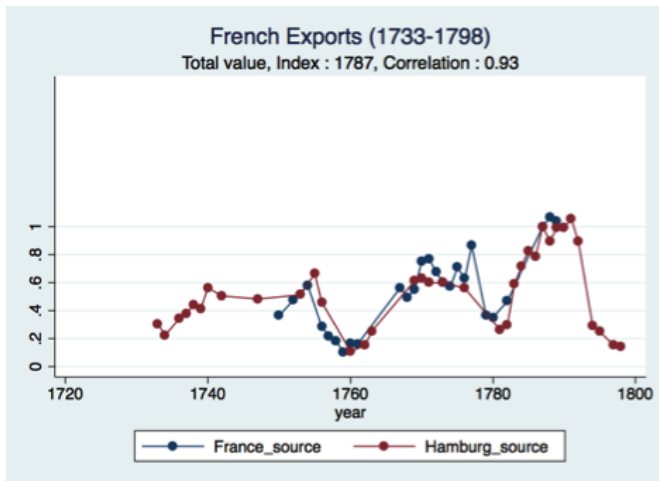
| Year | Value | Year | Value | Year | Value |
|---------|-------------|------|-------------|-----------|-------------|
| 1733-35 | 8.35052681 | 1753 | 8.169172287 | 1767 | 7.91285038 |
| 1736 | 8.190038681 | 1754 | 8.223044395 | 1768 | 8.217023849 |
| 1737 | 8.403144836 | 1755 | 8.248731613 | 1769 | 8.288331032 |
| 1738 | 8.412593842 | 1756 | 8.013137817 | 1770 | 8.431554794 |
| 1739 | 8.396857262 | 1757 | 7.782524109 | 1771 | 8.450602531 |
| 1740 | 8.350000381 | 1758 | 7.608406544 | 1772-74 | 8.441067696 |
| 1741 | 8.286800385 | 1759 | 7.384372234 | 1775 | 8.436308861 |
| 1742-46 | 8.276105881 | 1760 | 8.010278702 | 1776 | 8.425225258 |
| 1747 | 8.194523811 | 1761 | 8.29598999 | 1777 | 8.444243431 |
| 1748 | 8.135121346 | 1762 | 8.270007133 | 1778 | 8.436308861 |
| 1749 | 8.188544273 | 1763 | 8.239647865 | 1779-1780 | 8.425225258 |
| 1750 | 8.350000381 | 1764 | 8.469736099 | 1781 | 8.425225258 |
| 1751 | 8.342241287 | 1765 | 8.36868 | 1783-1798 | 8.463348389 |
| 1752 | 8.265439034 | 1766 | 7.994585991 | | |

Alexander broke down the analysis into three dimensions:

- **Sum of yearly exports** for the years available in both datasets
- Composition of export at **sector level** for all years and for common years only (using Standard International Classification)
- Composition of exports at **product level** for all years and for common years only

- Each of the three above mentioned analysis can be done both on values and quantities
- They can be done aggregate on all the years or by looking at the longitudinal evolution of data
- Given the lack of precision of figures on German quantities and the missing data for some years I will focus mainly on longitudinal evolution of export value

Aggregate export value - Longitudinal evolution



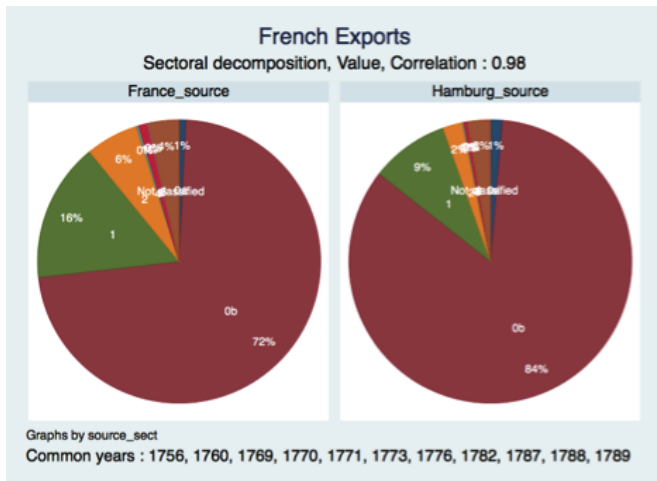
Aggregate export value - Longitudinal evolution

- Correlation is quite high but:
- The aggregate exports value in the German dataset accounts for 38.9% of what is recorded in the French dataset (very similar result if we compare aggregate export value year by year, for common years)

→ The different geographical scope overestimate French exports

- Noticeable discrepancies in export value coincide with war periods, even though both sources report a sharp decrease in export
- We have to take into account the fact that the definition of "North" changed during this period

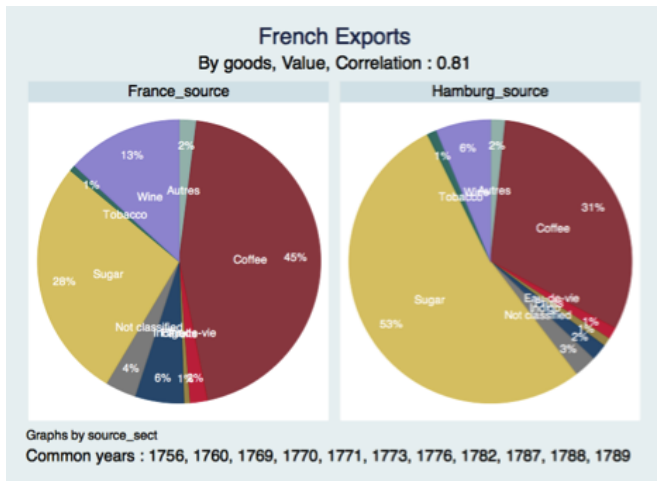
Comparison per sector



Comparison per sector

- The main sectors are:
 - Exotic foodstuff
 - Beverages and Tobacco
 - Raw material
 - Unclassified goods
 - European foodstuff
- The decomposition by sector is not exactly the same according to the two sources however the correlation stays high
- If we do the same looking at the whole period the results are very similar
- Looking at the longitudinal evolution does not yield the same satisfactory results

Comparison per product



Comparison per product

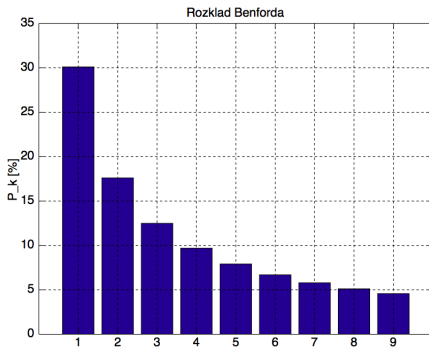
- For any kind of analysis the main products are:
 - sugar
 - coffee
 - wine
- If we do the same looking at the whole period the results are very similar
- Once again, longitudinal evolution does not yield the same satisfactory results
- For this reason I am going to break down the analysis into four smaller dimensions and analyse them separately:
 - Minor products for which nearly no trade was recorded
 - Products with substantially higher exports figures in the French datasets
 - Products with substantially higher exports figures in the German datasets
 - The remaining product for which correlation is quite high

Correlation - Simple regression

- Correlation:
 - Alexander has tested correlation on the data and it is indeed quite high, especially for what concerns values
 - However I do not think this the best method to deal with the problem so I am going to use other statistical tools
- Simple regression
 - I wanted to regress one trade flow against the other and I am expecting a slope close to one and an intercept close to zero
 - I can test both slope and intercept with statistical tests

Benford's law

"Benford's law, also called the first-digit law, is a phenomenological law about the frequency distribution of leading digits in many real-life sets of numerical data. The law states that in many naturally occurring collections of numbers the small digits occur disproportionately often as leading significant digits"



Exogeneous shocks on trade

- Seven years war 1756-1763
- American Revolutionary War 1775-1783
- Repeal of interruption of commerce with Hamburg 1769
- Trade liberalization in 1780

Seven Year War (1)

- It took place between 1756 and 1763
 - It was the first war on a world scale
 - Two big coalitions were fighting each other: one led by France and the other led by Prussia and Great Britain but also the colonies were involved
- **The war had an impact on trade of both European and colonial products**

Seven Year War (2)

- From the analysis Alexander did, we can see a major change in the composition of exports in that period
- Major sources of exports (coffee, sugar and indigo) experience a dramatic decrease
- The export share of wine increases (also in absolute term)
- Share of unclassified products also increases

American Revolutionary War

- It took place between 1775 and 1783
- As for the case of the Seven Year War, it was involving French colonies and thus impacting the trade through Europe as well
- The impact on trade was very similar to those of the Seven Year War

I will look into:

- Year by year decrease/increase of export during the wars and try to relate them to positive or negative happenings for France during the conflicts (possible correlation with expectations?)
- Fluctuations of prices of wine, whose export increased in both wars, broken down into different kinds of wine
- Evolution of exports towards North compared to other destinations

- Repeal of interruption of commerce with Hamburg 1769
- Trade liberalization in 1780

→ I want to analyze the difference between the two treaties in detail and their different impact on export

Conclusion

- I will check with statistical methods the reliability of the data
- I will analyze the impact of wars on trade
- I will look into the consequences of different treaties

Thank you for your attention

Allocations of costs to buyer/seller according to Incoterms 2010 [\[edit \]](#)

| Incoterm 2010 | Export customs declaration | Carriage to port of export | Unloading of truck in port of export | Loading on vessel/airplane in port of export | Carriage (Sea/Air) to port of import | Insurance | Unloading in port of import | Loading on truck in port of import | Carriage to place of destination | Import customs clearance | Import duties and taxes |
|---------------|----------------------------|----------------------------|--------------------------------------|--|--------------------------------------|--------------|-----------------------------|------------------------------------|----------------------------------|--------------------------|-------------------------|
| EXW | Buyer | Buyer | Buyer | Buyer | Buyer | Buyer | Buyer | Buyer | Buyer | Buyer | Buyer |
| FCA | Seller | Seller | Buyer | Buyer | Buyer | Buyer | Buyer | Buyer | Buyer | Buyer | Buyer |
| FAS | Seller | Seller | Seller | Buyer | Buyer | Buyer | Buyer | Buyer | Buyer | Buyer | Buyer |
| FOB | Seller | Seller | Seller | Seller | Buyer | Buyer | Buyer | Buyer | Buyer | Buyer | Buyer |
| CPT | Seller | Seller | Seller | Seller | Seller | Buyer | Seller | Buyer/Seller | Seller | Buyer | Buyer |
| CFR(CNF) | Seller | Seller | Seller | Seller | Seller | Buyer | Buyer/Seller | Buyer | Buyer | Buyer | Buyer |
| CIF | Seller | Seller | Seller | Seller | Seller | Seller | Buyer/Seller | Buyer | Buyer | Buyer | Buyer |
| CIP | Seller | Seller | Seller | Seller | Seller | Seller | Seller | Buyer/Seller | Seller | Buyer | Buyer |
| DAT | Seller | Seller | Seller | Seller | Seller | Seller/Buyer | Seller | Buyer | Buyer | Buyer | Buyer |
| DAP | Seller | Seller | Seller | Seller | Seller | Seller/Buyer | Seller | Seller | Seller | Buyer | Buyer |
| DDP | Seller | Seller | Seller | Seller | Seller | Seller/Buyer | Seller | Seller | Seller | Seller | Seller |

Evolution of the countries included in the label "North"

- Prior to 1733, the "Nord" was a general category that included all trade with locations situated north of the Low Countries on the European continent
- In 1733, the category "Danemark" was created and encompassed modern Denmark and Norway
- In 1734, "Suède" was detached from the "Nord" to form a specific geographical unit (equivalent to our modern Sweden, Finland, and a small piece of land in Western Pomerania)
- In 1744, the "Nord" was further disaggregated when the category "Russie" was created
- In 1780, the category "Nord" disappeared and was replaced by three new geographical entities: "Royaume de Prusse", "Les villes Hansèatiques" and "L'Allemagne et la Pologne"

Standard International Classification

| | | | |
|-----|-----------------------|-----|-----------------------------------|
| 0: | Foodstuff. various | 6: | Manufactured goods. by material |
| 0a: | Foodstuff. European | 6a: | Manufactured goods. linen |
| 0b: | Foodstuff. Exotic | 6b: | Manufactured goods. linen |
| 1: | Beverages and tobacco | 6d: | Manufactured goods. linen |
| 2: | Raw materials | 7: | Machinery and transport goods |
| 3: | Fuels | 8: | Miscellaneous Manufactured. goods |
| 4: | Oils | 9: | Other (Including Weapons) |
| 5: | Chemicals | 9a: | Species |