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.
• 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
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
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)
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 matched to those 39 categories.

Fortunately those 166 goods represent 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 Banko* 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

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<th>Year</th>
<th>Value</th>
<th>Year</th>
<th>Value</th>
<th>Year</th>
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<td>1779-1780</td>
<td>8.425225258</td>
</tr>
<tr>
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<td>8.469736099</td>
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</table>
Reliability of data

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
Reliability of data

- 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

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

French Exports
Sectoral decomposition, Value, Correlation : 0.98

France_source

Hamburg_source

Common years : 1756, 1760, 1769, 1770, 1771, 1773, 1776, 1782, 1787, 1788, 1789
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

French Exports
By goods, Value, Correlation : 0.81

<table>
<thead>
<tr>
<th>France_source</th>
<th>Hamburg_source</th>
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</thead>
<tbody>
<tr>
<td>Coffee 45%</td>
<td>Coffee 31%</td>
</tr>
<tr>
<td>Sugar 28%</td>
<td>Sugar 53%</td>
</tr>
<tr>
<td>Tobacco 4%</td>
<td>Not classified 2%</td>
</tr>
<tr>
<td>Autres 13%</td>
<td>Autres 1%</td>
</tr>
<tr>
<td>Not classified 6%</td>
<td>Not classified 1%</td>
</tr>
<tr>
<td>Inhabitie-vie 2%</td>
<td>Inhabitie-vie 3%</td>
</tr>
<tr>
<td>Wine 1%</td>
<td>Tobacco 6%</td>
</tr>
</tbody>
</table>

Graphs by source_sect
Common years : 1756, 1760, 1769, 1770, 1771, 1773, 1776, 1782, 1787, 1788, 1789

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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:  
- 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, 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
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
Further Analysis

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
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
## Appendix

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

<table>
<thead>
<tr>
<th>Incoterm 2010</th>
<th>Export customs declaration</th>
<th>Carriage to port of export</th>
<th>Unloading of truck in port of export</th>
<th>Loading on vessel/airplane in port of export</th>
<th>Carriage (Sea/Air) to port of import</th>
<th>Insurance</th>
<th>Unloading in port of import</th>
<th>Loading on truck in port of import</th>
<th>Carriage to place of destination</th>
<th>Import customs clearance</th>
<th>Import duties and taxes</th>
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</thead>
<tbody>
<tr>
<td>EXW</td>
<td>Buyer</td>
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</tbody>
</table>
Appendix

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”.

- 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”.

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### Standard International Classification

<table>
<thead>
<tr>
<th>0:</th>
<th>Foodstuff. various</th>
<th>6:</th>
<th>Manufactured goods. by material</th>
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<td>Manufactured goods. linen</td>
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<tr>
<td>0b:</td>
<td>Foodstuff. Exotic</td>
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<td>Beverages and tobacco</td>
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<td>2:</td>
<td>Raw materials</td>
<td>7:</td>
<td>Machinery and transport goods</td>
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<tr>
<td>3:</td>
<td>Fuels</td>
<td>8:</td>
<td>Miscellaneous Manufactured. goods</td>
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<td>4:</td>
<td>Oils</td>
<td>9:</td>
<td>Other (Including Weapons)</td>
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<tr>
<td>5:</td>
<td>Chemicals</td>
<td>9a:</td>
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