General introduction

EIGHTEENTH-CENTURY INTERNATIONAL TRADE STATISTICS
SOURCES AND METHODS[1]

Loïc Charles
Université de Paris 8 & INED

Guillaume Daudin
Université de Paris Dauphine & Sciences Po

Trade statistics provide unique sets of data on early modern economies. They can help explore their economic geography. They are of interest for economists interested in economic development and early globalization. They are crucial to understand the Industrial Revolution. Still, they have been under-utilized by economists and economic historians alike. This volume gives a detailed overview on the existing quantitative sources on European trade data, focusing on the eighteenth century. In the introduction we discuss the historiography of the use of early trade statistics in economic history and we present two recent projects conducted in France in this area: TOFLIT18 and RICardo. The volume includes twenty-three short essays that present the sources of European early trade statistics. Seven additional papers discuss the methodological issues of using early trade statistics and illustrate how these statistics can be mobilized to produce new insights on European economic history.

Keywords: administrative history, eighteenth century, international trade statistics, Europe, globalization, economic history.

The long eighteenth century is of special interest for economic historians, as it includes the event that founded the economic history of modern societies: the Industrial Revolution. Its genesis effectively goes back to sometime between 1750 and 1815, when Great Britain opened the era of the Great Divergence and escaped once and for all from the economic constraints of the Ancien Regime. The ongoing debate among economists and historians shows there is no agreement on the direct causes as to why Britain was the first industrial nation and why other countries lagged behind.[2] Current and past works have explored several hypotheses. The most traditional explanations have ascribed the causes to previous technological advances (Mantoux, 1905), the "agricultural revolution" (Bairoch, 1966, 1997) and the role of slavery (Williams, 1944). Recently, the debate has been largely renewed as researchers have emphasized the roles of: efficient institutions (Acemoglu, Johnson, & Robinson, 2001; D. C. North, 1973; Robinson, Acemoglu, & Johnson, 2005); the scientific revolution and the industrial enlightenment (Mokyr, 2004, 2010); privileged access to natural resources (such as coal and sugar), which relaxed the Malthusian trap (Pomeranz, 2000; Wrigley, 2010); an economy marked by high-wages and low-energy costs (Robert C. Allen, 2009); transforming attitudes toward work and consumption, (De Vries, 2008); the rise of bourgeois values (McCloskey, 2010); Social Darwinism (G. Clark, 2007); and, finally, the importance of the Royal Navy and the military successes of the British (Findlay & O'Rourke, 2007; O'Brien, 2011; Pomeranz, 2009).

1. Why are trade statistics important?

1.1. Understanding early modern economies

The explanations mentioned above acknowledge the mainly indirect role that international trade played through its contribution to good institutions (Robinson *et al.*, 2005) or to making Great Britain a high wage economy similar to the Netherlands (Allen,

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2. See, for example, the panel on the causes of the Industrial Revolution in the 2011 European Historical Economics Conference in Dublin. For a recent review of the literature, see (Allen, 2008; Various, 2008).

2003) However, with the exception of those who adopted Williams' thesis, the direct effects of foreign trade on the English eighteenth-century economy have been traditionally found to have limited importance (Roitman, Pétré-Grenouilleau, & Emmer, 2006). Yet, recently influential syntheses have reconsidered the importance of foreign trade. For Pomeranz, tropical agricultural goods have provided alternative sources for calories and raw materials and, as such, contributed significantly to England's escape from ecological constraints (Pomeranz, 2000). For Jan De Vries, tropical commodities and Asian-made industrial goods have created new consumption needs, which in turn have established strong incentives for English workers to increase their labor supply (De Vries, 2008). From the same evidence, Berg has emphasized the role of imported industrial goods in encouraging British manufacturers to develop new products and processes (Berg, 2002, 2004). More generally, as Allen and many others have argued, the inventions that were so important for the Industrial Revolution were not simply the consequences of the independent development of techniques and science. Relative factor prices and market size were also important in creating incentives for Research and Development (R&D) and in determining the R&D opportunities to be pursued. Both are linked to external trade.[3]

The importance of international trade for economic historians cannot be reduced to its role in the Industrial Revolution. It is also relevant for understanding the workings and transformations of early modern European economies. Goods that were traded and circulated at the international level occupied a special place. External trade provided European consumers with new goods (sugar, coffee, tea, Asian manufactures, etc.) and producers with new inputs (indigo, cotton, etc.). At the same time, it allowed regional specialization both in agricultural and industrial production by connecting these overseas markets to European regions that furnished non-local supplies such as meat, textiles, grains or wine. For a long time, researchers deemed international trade of little importance in a world where most economic activities were conducted outside the market. However, for economic historians that are mostly interested in explaining economic changes rather

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3. For a recent synthesis, see (O'Rourke, De La Escosura, & Daudin, 2010).

than the deeper social structure (the *civilisation matérielle*) of these economies, it is a good research strategy to study first those goods traded in the market.

Actually, As a whole, data on external trade give fundamental insights into the material culture of Early Modern Europe and its transformations in the eighteenth and early nineteenth centuries. Because such data measure flows rather than stocks, and they allow analyzing short- and medium-term variations of the economy, it is a "dynamic" complement to the more "static" vision offered by probate inventories studied by Daniel Roche and others (see Roche, 1989, 1997).

It is also relevant to stress that external trade flows have been the single macroeconomic data that early modern states have collected with the most care. Indeed, the first attempts at measuring foreign trade can be dated from the early seventeenth century. Later on in the century, several Italian states, such as the Republics of Genoa and Venice, began to systematically collect customs data to create balances of trade. England and Ireland followed and, from 1696 on, they collected a continuous series of data flows as reported in each of the kingdom's ports and released a yearly evaluation of the English balance of trade. Most of the continental states, such as France, copied these early examples, and by the end of the eighteenth-century most of them produced more or less comprehensive balances of trade (see *infra* table 2).

1.2. From the global to the local

Obviously, international trade data inform us about global relationships. More interestingly, they can also inform us about intranational data. The example of the French data is interesting, but the same could also be said about the Habsburg and British data. On the one hand, these data are of a macroeconomic nature: they can supplement the macroeconomic quantitative retrospective reconstructions that are available for a better understanding of the transformations of the economy. For example, they can be used to compare the relative revealed comparative advantages of one economy with those of other European countries. On the other hand, a significant part of the local data synthesized by the central bureau have been preserved in a number of cases (France, Habsburg Empire), and they can be used to better understand the economic

linkage between local/regional economies, international trade and the national economy. The existence of local data makes it possible to provide a rigorous framework for an economic analysis that links different geographical levels: international, national, regional, and local, as well as with individual actors.

Economic transformations in general and the Industrial Revolution in particular have traditionally been understood and theorized as a country-level phenomenon. However, both historians and economists have developed alternative points of view. In his classic book, Sydney Pollard suggested that the British Industrial Revolution was region- rather than nation-based (Pollard, 1981). This is coherent with the importance of local spillover effects discussed in the economic geography literature (Clark, Gertler, & Feldman, 2003). Yet, we lack a thorough study of the eighteenth and early nineteenth century sub-national continental geographical economy. As continental countries were often larger and more diverse than Britain (think of France and the Habsburg Empire), regional differences might be especially relevant for understanding the evolution of their economy and trade.

Moreover in most European countries, political and customs borders were not alike. Regarding trade statistics, the central administration treated some provinces as foreign countries, Alsace and Lorraine in the French case. This was also often the case for colonies who had a specific status and sets of customs taxes. In the case of France, despite not being in the customs union, most free ports (except Dunkirk) and some provinces were treated as domestic French trading partners. Taking into account this complexity will allow us to deepen our understanding of the specific impact on trade of political borders versus customs borders, especially as we might have the occasion to cross-check French external trade data with the statistics of other countries (especially Britain and the Austrian Netherlands). This strategy can be replicated for other European countries such as the Habsburg Empire.

1.3. Understanding development and globalization

Finally, a more comprehensive view of international trade in the early modern period is also of importance for economists, as it will deepen our understanding of economic development and transformation, as well as the determinants of international trade in general.

1. The way in which the low-growth economies of the pre-modern era transformed into sustained-growth economies is an important economic subject. The current economic understanding of this historical phenomenon is dominated by the unified growth theory (Galor, 2011), which has been partly constructed on the stylized facts provided by Great Britain's Industrial Revolution. We know much less about the evolution of the other European economies, yet their path to sustained economic growth was quite different from Great Britain's in terms of their share of agriculture, manufacturing, investment level and openness (Crafts, 1984). Thus, a better understanding of these economies will offer new materials to test existing theories of development and to conceive new ones.

2. Other than the COMTRADE data that begins with 1962, there is a lack of easily accessible merchandise and trade partner databases, and this impairs any research into the determinants of international trade. Pure bilateral databases starting in the 1870s are becoming more widely used (Jacks, Meissner, & Novy, 2011). RICardo, which starts in 1830, will be available soon. But the lack of a unified trade nomenclature before the twentieth century makes it difficult to establish a world trade database organized by goods. Even though no general database for eighteenth century trade exists, looking at country-level data should be fruitful as it allows eighteenth and nineteenth century international trade to be explained by exploring the relative role of differentiation in goods, production factor endowments and technological differences. It also allows further exploration of the role of trade costs during this period, as we can contrast their evolution for more or less bulky goods. Finally, this data can help us discriminate between existing theories of international trade and also provide economists with "stylized facts" to improve them.

Surprisingly, the huge sets of economic information collected by early modern states have not been studied systematically by historians and economists. Although several (and some of them very interesting) works of limited scope have been published, these rich sources on early modern economies have been underused. These works have concentrated primarily on English foreign trade and to a much lesser extent on French foreign trade.[4] Broadly speaking, their results are often too general and fragile to support

precise economic analysis and comparisons. Even worse, the location and scope of the original documents that still exist are not well-known. This situation, which our volume intends to change, can be ascribed to several causes, some of which are historiographical, and some others are linked with technical difficulties

2. This volume in context

2.1. Historiographical issues with trade statistics

With the exception of English trade statistics, very little research was conducted on historical trade statistics before the 1950s. On the one hand, the interwar period was dominated by the classical model of trade theory that was first presented by David Ricardo in his *Principles of Political Economy and Taxation* (1817); this was further developed by the Swedish historian and economist Eli Hecksher (1919) and his student Bertil Ohlin in his doctoral thesis published in 1933 (Heckscher, 1919; Heckscher & Ohlin, 1991; Ohlin, 1933; Ricardo, 1817). Moreover, national accounting systems were still in their infancy, and these two characteristics of the economic theory of the time combined to create a context in which balances of trade had little theoretical significance. On the other hand, there was no consensus on how to classify international trade. Indeed, one of the main areas of economic work concerning the late League of Nations involved creating an international standard for trade statistics that would allow including national trade statistics into a coherent whole. However, when the war broke out and swept away the League of Nations, the task remained uncompleted. It is only in 1950 that the United Nations and World Trade Organization released and used the first Standard International Trade Classification.

The development of economic history provides another context for understanding the lack of interest in early-modern trade statistics, especially in Europe and after 1945. Before 1945, economic history was mainly of a qualitative nature, and quantity-based analyses were scarce. Through the work of economic historians like François Simiand and Ernest Labrousse, it was only in France that

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4. To the point that English and French sources were used to measure trade of other countries, such as Germany (Kutz, 1974).

quantitative analysis and the construction of economic series become central to historians in the context of the development of the *Annales* School. Their interdisciplinary works combined a statistical analysis of past series, economic theory and qualitative analysis, all of which flourished in the 1930s and later.[5] However, the *Annales* School and Labrousse in particular favored price series over quantity series. For French *Annales* historians, series of production quantities and values were more liable to contain registration errors and frauds. Conversely, they found prices and especially *mercuriales* (grain market prices) to be much more reliable, since they were made public. They also believed they were much more representative of the social and economic relationships that structured Old Regime France. The consequence was that French trade statistics were systematically criticized and dismissed by French historians. In his comprehensive listing of French statistical sources, Bertrand Gille judges that the external trade statistics are among "the most consistent economic series" while also asserting that "the numbers produced are often fanciful" and "difficult to match" from one document to another (Gille, 1980). On the whole, only those French historians who studied French ports and their hinterland showed any interest in trade statistics (Butel, 1974; Carrière, 1973; Dardel, 1963). These historians were more interested in data on a local rather than a national level.

Although the field of economic history was quite different internationally than in France, the lack of interest in trade statistics was almost universal. In most countries, the focus of history departments was on social rather than on economic history *per se*. Like French historians, they usually preferred to recreate price series and demographic statistics rather external trade ones. England was a notable exception, as the pre-war publications on the English balance of trade (such as Clark, 1938) continued after World War II and thus created a wealth of printed records on English trade (Clark, 1938; Davis, 1954, 1969, 1979; Mitchell, 1962; Schumpeter, 1960). There is no equivalent for other countries during this period. For Sweden, a country with a strong and lively tradition in economic history, we also have a printed summary version of the

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5. On the statistical turn in French history, see (Borghetti, 2002). The works of Ernest Labrousse published in this period best illustrate this new paradigm (Labrousse, 1933, 1944).

balance of trade records (Statistika Centralbyran, 1972; Vallerö, 1969). A third exception is the United States, where the cliometric revolution took place in the 1950s and 1960s. This revolution gave birth to a new kind of economic history that was characterized by the systematic use of quantitative arguments, either in the form of general equilibrium or econometric models, and it made wide use of counterfactuals. Douglass North, one of the leaders of this "new economic history", released a comprehensive reconstruction of the US balance of payments from the time of Independence to the Civil War (D. North, 1960). However, most cliometric research on globalization or market integration focuses more on the analysis of prices than trade flows (O'Rourke & Williamson, 2002).

A partial explanation for the general disinterest of historians is that the necessary technology for making full use of the sources on trade statistics was simply not available even ten years ago. Given the sheer size of the sources for national trade, the collection and organization of trade statistics for early-modern states is a daunting task. Our experience with the French data shows the obvious achieved by using computers, digital photography and internet. The costs of collecting and centralizing all the trade data without these technologies would simply be enormous in terms of both time and money.[6] In its current version, our database comprises three hundred thousand observations, each with multiple items of information on geography, quantities or prices and values. When armed with only traditional technologies (paper, pencil and slide-rule), one must have a very large team and amount of time to use this information for addressing various research issues.

2.2. Creating research momentum

When we began to work on the French balance of trade statistics in the late 2000s, we were quickly convinced that such a project would very much benefit from being put into a European or even global perspective. Without a comparative perspective, we

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6. At the end of the 1950s, the historian Pierre Dardel contacted several regional and national French archives to collect as much information as possible on the French balance of trade, as well as more general information on French trade statistics. He ended up with very little, since most of the sources used in Dardel (1963) come from the French National Archives. With more resources, he could have visited archives and collected more, but that would have been a huge undertaking.

felt that we would run the risk of ending up with results that would have been rich in terms of description, but limited from a more interpretative and theoretical point of view. Furthermore, we believed that, by using mirror trade flows to check trade, our data could improve their credibility. Hence, we took the initiative to establish a pan-European research group devoted to the study of eighteenth-century trade statistics in 2009. This group now includes around 80 scholars from all around Europe. The group met twice in 2011 (Lille and London), in 2012 (Glasgow and Stellenbosch) and once in 2014 (Paris). It has a website that includes a mailing list and a repository of papers on the subject (listes.cru.fr/sympa/info/18c_trade_data). Since 2009, this network has engaged itself in exchanging information, coordinating research and building common tools that will help the study of trade in eighteenth century European countries within a common framework. This volume is a concrete result of its work.

Our first endeavor was to look for ways to develop multiple and similar projects on the balance of trade data in different countries, with the objective of making them compatible at some point in the future. That would have enabled us both to produce a detailed quantitative analysis of early-modern international trade, and to confront and cross-check the data from various countries. It would have provided a completely new source of information for evaluating the quality of the data produced by the different bureaus of balance of trade. It would have also allowed us to assess the importance of illicit trade and contraband, an issue that is still open to debate and very difficult to assess quantitatively. These objectives were at the core of the conference on "European External Trade Statistics, 1700-1830", which was organized in Lille in March 2011 and where several of the papers assembled here in the questionnaire section were first presented. During the discussions, it became clear that our initial objective was simply too ambitious to be completed in the foreseeable future. Several issues that came to the surface during the sessions show the range and the complexity of methodological problems that our project faced. First, it was obvious that the information available for each country was of a very different nature and quality (see *infra* Table 2 for details on individual countries). In some cases (e.g., England), the series were continuous or almost continuous, but in most cases (e.g., France)

they were not. Moreover, even when the series was more or less continuous, the nature of the information recorded often changed over time: sometimes it included values only, sometimes quantities only, and sometimes both. Last but not least, the political frontiers also changed over time in most European countries. Moreover, comparing one set of data to another made it clear that the data were constructed in different ways, with different purposes and by different means in each country. The disappointing conclusion was that it was currently impossible to employ the available sources for constructing a coherent set of data on European external trade.

Still, the general feeling of the participants was: 1) there was much more information on early-modern European balances of trade than expected; and 2) even if the aggregation of national data seemed to be a daunting task, it was an interesting and useful challenge.

The mixed results of the conference induced us to move into two directions. First, we decided to undertake a multi-country, comprehensive inventory of the sources. Hence, we sent each of the participants and other historians who could not attend a detailed questionnaire on the sources that existed for each early-modern European country. This questionnaire was set to collect information on the available sources, the institutional setting in which they were processed, and the methods for recording and computing. This was a necessary step before we could even dream of creating a usable database on Europe. This volume is the result of this work. Second, the conference encouraged each researcher to explore in more detail his or her respective set of national data, which in our case was that of France. In this way we could pinpoint the main issues and imagine ways to cope with problems such as missing prices, commodity classification, etc.

2.3. The French case: TOFLIT18

In 2012, we applied for funding for the project "Tools for the study of French External trade, 1716-1830" (TET18). This project was over-ambitious in that its objective was to collect data in parallel for France, Venice, the Austrian Netherlands and Sweden. It was also mainly a data-collecting exercise without a clear interpretative program. It was not funded.

In 2013, we applied successfully for the funding of another project called "Transformations of the French economy through the Lens of International Trade, 1716-1821" (TOFLIT18). This project aims at improving our knowledge of the pre-industrial French economy by using the statistics produced and collected by the French balance of trade administration. This is not a trivial task. The breadth of the data collected by the French state as well as their complexity made them more difficult to handle. Not only did the political and customs borders fail to coincide, they both changed during the eighteenth century. Moreover, it was much more complicated for economic historians to use the data, due to the significant evolution in customs legislation (the transformation of the *Exclusif*, free ports, etc.) as well as the fact that a great many of the sources were dispersed during the French Revolution. The data we use here are a representation created by administrative agents with limited resources and specific motivations. We need to understand enough of this creation process and of the motivations driving its actors so that we can control the bias they introduced. More generally, we need to check the data to ensure that they contain enough reliable information to be used safely as a guide to the past. Other objectives of the project are: to check the reliability of data (e.g., the importance of smuggling); more broadly, to account for the difficulties of fitting the realities of merchant activities into administrative categories (as shown in the study of goods in the merchant accounts); to create a reliable and stable list of goods and geographical entities; and to find a unified treatment for the pricing of goods.

Beyond these objectives, this project still seeks to compare the French trade data with other databases, specifically: the navigation databases NAVIGOCORPUS (http://navigocorpus.org/) and Sound-Toll Registers Online (http://www.soundtoll.nl/); other countries' trade databases (Great-Britain and the Austrian Netherlands); and the merchant activity databases at MARPROF (http://marprof. univ-paris1.fr/).

2.4. The nineteenth century: RICardo

Much more is known about international trade in the nineteenth century than in the eighteenth century. Some contributors to this volume have also participated in RICardo[7]. RICardo (RIC for

Research on International Commerce) is a database that documents bilateral trade flows around the world, mainly covering the period 1800/30 to 1938. For more than ten years now, the project has mobilized the skills and knowledge of economic historians, statisticians, developers and designers. The original concept for RICardo emerged in 2004 with the realization that all existing historical databases on bilateral trade suffer from various limitations. Either they provide values only for the total trade of various countries, or they cover the period after 1870, or they are limited to a selection of countries or regions. The starting point of the RICardo project was the discovery of a significant and neglected compilation of bilateral foreign trade data, the French *Extraits d'Avis Divers*, published between 1829 and 1839. Its exhumation prompted a search for all extant publications of commercial statistics from around the world that suggested a great part of archival material had not yet been incorporated into available compilations of world trade statistics. Through funding from the *Agence Nationale de la Recherche* and Sciences Po, we have built a large bilateral trade database. The outcome of this effort will be the RICardo website dedicated to visualizing bilateral and total trade within a period spanning from the early era of trade globalization to the eve of the Second World War.

The RICardo database assembles all obtainable quotations of bilateral imports and exports for the largest possible sample of countries. The current version of RICardo (v1) covers the period 1787-1938 with a total of 267 000 observations, of which 17 000 are missing or null flows[8] (1 observation = one annual bilateral export or import flow). Trade flows are not byproducts. Each trade flow links a reporting entity with a partner entity. Reporting entities consist of those entities which collected foreign trade statistics, while partner entities are trading partners they indicate; the two lists differ substantially because reporting entities are sovereign states which collect and publish their foreign trade figures, whereas partner entities listed in the reporting country's trade documents may be sovereign states or other kinds of entities, such as cities (mainly ports), regions, etc. A total of 1459 different RIC

7. Thank you to Béatrice Dedinger for allowing us to use her text.
8. Very sporadic information before 1830.

entities are thus identified and divided up into five types: 361 "city/part of", 93 "colonial area", 385 "country", 88 "geographical area", and 532 "group". The names of the entities, particularly of the "country" type, have been translated according to the lists established by the Correlates of War project.[9] Original trade flows in different currencies have been converted into current sterling pounds, meaning that the RICardo project also provides a valuable database of historical exchange rates.

Access to RICardo data will be made available through a website that should be launched in 2016. One of the main attractions is the creation of visualizations that provide the user with an instant and synthetic view of long-term trade relationships.

3. The questionnaires

3.1. An overview of the questionnaires

The twenty-three country questionnaires form the core of this special issue. They present detailed information on trade statistics and balances from twenty-seven areas. In Map 1: Coverage of the volume (excluding countries discussed in the "missing countries" section), one can see that altogether these areas cover most of the European territory. With the help of the existing secondary litera-ture, we were able to gather information on eight additional areas that we assembled in a specific section dedicated to "missing coun-tries". Out of these thirty-five countries, nine can be considered to have collected comprehensive balances of trade on a regular basis during the eighteenth century. These are Bavaria, England, France, Habsburg monarchy, Ireland, Scotland, Sweden, the United States and Venice. Nine others produced occasional balance of trade data: Genoa, Milan, Naples, Portugal, Spain, Poland, Prussia, Russia and Switzerland (Bern). Six others – Austrian Netherlands, Danzig, Hamburg, Norway, Sound Toll, and the United Provinces – recorded detailed trade flows, but this information was not framed into a balance of trade. Finally, only scattered data exist on the external trade of the remaining eleven countries: China, Denmark,

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9. www.correlatesofwar.org. The relevant database is: Correlates of War Project. 2011. "State System Membership List, v2011." Correlates of War 2 Project, Colonial/Dependency Contiguity Data, 1816-2002, Version 3.0.

Hanover, Japan, Livorno, Ottoman Empire, Papal States, Romanian Principalities, Sardinia, Spanish America and Württemberg. We have summarized this information in Table 1: Coverage of the volume and Map 2: Trade data availability.

Map 1. Coverage of the volume (excluding countries discussed in the "missing countries" section)


Covered in this volume outside the missing countries section
Not covered
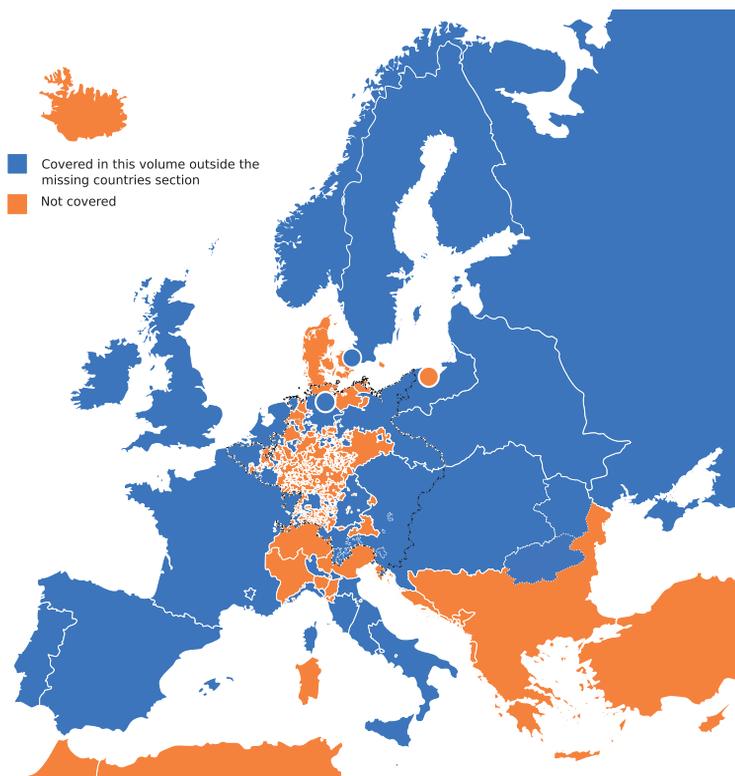
Table 1. Coverage of the volume

In the Questionnaires: 27 countries/areas In the "missing countries" section: 8 countries			
Regular balance of trade data	Occasional balance of trade	Detailed information on trade flows	Occasional data
9 countries	9 countries	6 countries	11 countries

Map 2. Trade data availability
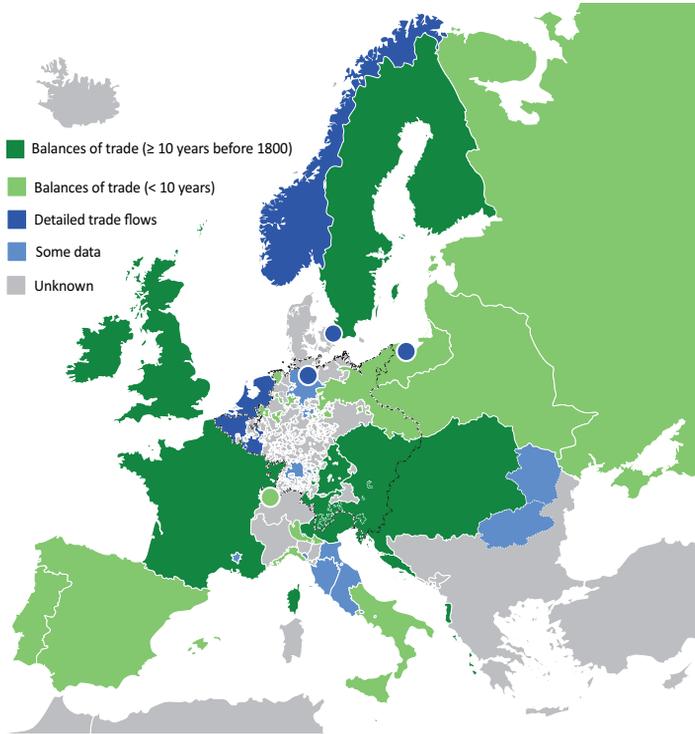
As can be seen from this map, it is in Germany that information on trade flows is almost completely lacking. With their intricate frontiers and their small administrative means, the small German states that composed most of the Holy Roman Empire were not in position to gather data on trade flows on a regular basis. Moreover, these states were governed by men trained in the cameralist tradition and were more interested in collecting information on the states' natural resources than on their commerce.[10] This was reinforced by the fact that only a small part of the state revenues were based on external customs taxes. The same applied to the Swiss cantons. Finally, as can be seen in Table 2: Summary of the questionnaires below, the quality of information given by the sources differs greatly from one geographical unit to another.

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10. On the ideology of eighteenth-century cameralism and its almost exclusive focus on the inventory of natural resources to increase the state's power, see (Tribe, 1998).

Taxes on trade are the bedrock of all the early trade statistics featured in this volume. These taxes required record keeping regardless of whether they were tolls (Sound), convoy duties (Hamburg, United Provinces), customs duties (almost everywhere). Records were necessary for checking what the agents on the ground were actually collecting, as for example in the case of legal disputes between them and taxpayers. The state also used the records to monitor firms or institutions that collected taxes in its stead. The importance of these taxes to the revenue of the state differs across countries. It is well-known that they represented a large share of the English state's income, while it was less important to states with large territories, such as France, Spain and especially the Austrian Empire. However, taxes on external trade represented a significant share of the revenue for most of the early-modern states. Furthermore, as international trade grew steadily during the entire eighteenth century, the return of taxes on trade increased in absolute value.

In a number of instances, records of taxes on trade proved very useful for reconstructing the pattern of trade flows entering and leaving one political space: Hamburg, Naples, the United Provinces, etc. Furthermore, even when those records have been lost, a simple list of customs tariffs can at least give a rough idea of the type of goods that were traded (see the questionnaires on Romanian principalities and Spanish America). However, records of taxes on trade are usually insufficient for reconstructing a comprehensive image of eighteenth-century trade flows, especially not one which allows a rigorous historical and quantitative analysis. First, they are unwieldy affairs that are difficult to transcribe into a useable form for quantitative economic historians, as demonstrated by the difficulties of the very ambitious project concerning the Sound or the Norwegian data. Second, they are often in bad shape. These masses of papers were either thrown away regularly (see the example of the Milanese statistics) or they did not survive historical calamities such as the French Revolution.[11] Third, the records of taxes on trade lack a significant amount of relevant information.

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11. The revolutionaries dissolved the *Ferme Générale*, the private firm that collected most of the French taxes, particularly the customs taxes. Such was the popular hatred for the *Ferme* that a public bonfire of its archives was organized.

Table 2. Summary of the questionnaires

Country/geogra-phical area	Period covered	Geographical scale	By partner?	By region?	Values?	Quantities?	Motivation?	Remarks	Page
Austrian Netherlands	1759-1791	Region	No	Yes	No	Yes	Policy making		p. 225
Bavaria	1765-1799	State	No	No	Yes	No	?	No breakdown by product	p. 186
China							Most useable data come from consular reports		p. 391
Denmark							Except for the Sound Toll registers, there does not seem to be much data		p. 393
Dantzig	1651-1815 ((with lapses)	Port	No	No	No	Yes	?		p. 393
United Kingdom	1697-1899	State	Yes	No	Yes	Yes	Policy making		p. 379
France	1714-1821 (-)	State	Yes	Yes (-)	Yes	Yes (-)	Policy making		p. 237
Genoa	16th century-1797	Port	No	No	Yes	Yes	Revenue management		p. 249
Habsburg	1720-1789 (regions) 1790-1918 (aggregate)	State and region	No	Yes	Yes	Yes	Policy making	Local up to 1776. State from 1776	p. 253
Hamburg	1728-1811	Port	No	No	No	Yes	Revenue management	Data do not cover all goods or partners	p. 265 + p. 180
Hannover							Not much data exist		p. 179
Ireland	1698-1829	Region	Yes	Yes	Yes	Yes	Policy making		p. 269
Japan							Some data in Dutch sources. The only Japanese 18th century sources are for internal trade		p. 391
Spanish America	1790-1830						Only partial information (mainly on exports)		p. 365
Livorno	1680-1845						Mostly navigation statistics (only imports)		p. 281
Milan	1762, 1766, 1767, 1769, 1778, 1790	State	Yes (-)	No	Yes (-)	Yes (-)	Customs duties reform	Balances published unofficially by state employees	p. 289
Naples	16th century-1809. BoT for 1771 and 1772	State	No	Yes	No	Yes	Revenue management	Published by private initiative	p. 275
Norway	1731-1828 (with lapses)	Port	Yes	Yes	Yes	Yes	Revenue management		p. 301

Country/geogra-phical area	Period covered	Geographical scale	By partner?	By region?	Values?	Quantities?	Motivation?	Remarks	Page
Papal states	**Not continuous**				Not much data exist				**p. 307**
Ottoman Ottoman Empire					Most useable data come from consular reports				**p. 392**
Poland	**1764-1767, 1786-1790**	State	Yes	Yes	Yes	Yes	Revenue manage-ment		**p. 311**
Portugal	**1776, 1777, 1783, 1787, 1789, 1796-1831**	State	Yes	Yes	Yes	Yes	Policy making		**p. 319**
Prussia	**1795-1796**	State	No	No	Yes	No	?		**p. 180**
Romanian	**18th century**				Not much data exist				**p. 335**
Russia	**1758-1766, 1802-1807**	State	Yes (-)	Yes	Yes	Yes	?		**p. 343**
Sardinia				No data seem to exist					**p. 393**
Scotland	**1707-1783**	Region	Yes	Yes	Yes	Yes	Policy making	Data continue well into the 19th c.	**p. 345**
Sound Toll	**1497-1857**	Strait	Yes	NA	No	Yes	Revenue manage-ment		**p. 137**
Spain	**1717-1827 (with huge lapses)**	State	Yes	No	No	Yes	Revenue manage-ment	Only colonial trade before the 1780s	**p. 355**
Sweden	**1739-1809**	State	Yes	No	Yes	Yes	Policy making	Local data exist	**p. 373**
Switzerland	**1785**	Region (Bern)	No	No	Yes	No	?	Published by an ad hoc private commission. Nothing on the rest of the country	**p. 392**
Netherlands	**1753, 1774, 1784-1793, 1796-1799, 1803-1809**	Mostly regio-nal, some state	Yes (-)	Yes	Yes (-)	Yes (-)	Policy making	Partial regional data before the 1800s	**p. 295**
United States	**1790-1819**	Federal state	Yes	No	Yes (-)	Yes	Policy making	No value for some imports	**p. 385**
Venice	**1713-1800**	State	Yes	Yes	Yes	Yes	Policy making		**p. 392**
Württemberg				Not much data exist					**p. 202**

Fraud and smuggling were not recorded and, furthermore, we know that in some case such (as the US and Hamburg) that data on tax-exempt trade was collected either badly or not at all. Even more problematic is the fact that prices were rarely recorded for goods subjected to quantity-based duties (known as, "specific duties").

Fortunately, a significant number of European countries attempted to gather data on trade and synthesize it into balances of trade. These statistical maps were usually realized at the national level, except in the case of the Habsburg Empire, where a large part of the economic administration – including the recording of external trade – was decentralized at the regional level. In some countries, balances of trade were computed for only a few years, at the initiative of either private individuals (Bern, Milan, and Naples) or the state (Spain, Poland, Prussia, and Russia). In other cases, they were more systematic long-term endeavors guided by the state (Austrian Netherlands, France, Habsburg Empire, Portugal, Sweden, United Kingdom, United States, and Venice). The rationale behind the making of these balances of trade varied. Private individuals created them either as a complement to the general description of a state (as in Naples) or as a contribution to ongoing policy debates (as in Milan). Hence, they were usually published or at least circulated widely at the time. Alternatively, the state used them mainly as an aid for policy making, especially in the context of negotiating international trade treatises. Consequently, they were neither printed nor circulated widely. In the latter case, the small number of copies produced meant that loss or dispersion of some of the original documents occurred in several cases, such as in Portugal and France. Still, even with these partial losses, they provide a much better starting point for reconstructing the pattern of international trade than the records of taxes on trade.

However, it must be said that balances of trade were not better than tax records in treating smuggling and fraud: as tax records were the basis for constructing the synthetic documents, any information missing in the former did not appear in the latter. Hence, tax-free imports were not listed in the United States balances of trade, and the United Kingdom synthesis used unchanging official prices for valuation. Likewise, the French synthesis did not include trade from the whole of France. Still, in some cases, extra data were

researched in order to complete the picture. The authors provided their estimates of missing prices (United States), and sometimes they even asked merchants to check their numbers (Milan). In some cases, the state put in place a complex circulation of data in order to obtain prices from the merchant community (France). In doing so, the French bureau for the balance of trade created sources that were both local and standardized. The central authorities in the Habsburg Monarchy used prices that were different from those of the local authorities, but we do not know much about the exact process. Finally, it must be noted that in the internal debate about the consequences of the Eden Treaty, the French bureau for the balance of trade provided estimates of smuggling and fraud in Anglo-French trade.

It is now time to delve deeper into the sources and to discuss some recurrent themes, which will allow us to better understand the way these sources may be used to reconstruct the pattern of eighteenth-century international trade.

3.2. Thematic issues:

3.2.1. Geography

The sources presented in the questionnaires concern various types of geopolitical units. Some cover a single port such as Hambourg or Dantzig. Others cover a region which was either an independent political unit such as Venice or part of a larger empire such as Austrian Flanders. Some others cover an empire or a nation (e.g., France, England).

 Local statistics are better for geographical analysis (e.g., gravity models), but as they are usually records of taxes on trade, they can be difficult to handle (too micro, no value/prices) and difficult to aggregate. National statistics are easier to use, but they usually bypass some of the information given in the local data.

Geography is also important when we consider whether or not a political/geographical unit includes a sizeable land frontier (from an economic point of view), as one would expect that smuggling is easier over land than sea as smuggler benefit from more flexibility in the choice of their itineraries.

3.2.2. Institutions

Although fiscal issues have been crucial in triggering the institutional will to measure interregional/international trade flows, there is a strong distinction between whether the data were collected by local or by national institutions. Data gathered at the various local levels may be aggregated and transformed in such a way that they would provide some sort of balance of trade for a port-region-nation. But they were not recorded for this reason; they were generally compiled for fiscal purposes.

Most of the states that set up a balance of trade administration throughout the eighteenth century were motivated by mercantilist objectives. This is self evident in the cases of England and France, the two great economic powers of the time; but Portugal, Prussia, Spain, Sweden and others also emulated these examples. Data produced at the national level were more coherent (units of measure, series, etc.), and the personnel who amassed them were probably more competent. Only the data compiled at the national level can truly be called balance of trade data.

3.2.3. Comparison

A major goal of our project is to motivate economic historians to create a common framework for measuring European international trade data. However, in order to compare the data from diverse sources and, better still, to create a common template, we ought to find a way to solve the issue of price. Indeed, in some statistics, prices are simply missing (Austrian Netherlands). In others they were set for long periods of time regardless of real prices (England). Sometimes several different prices coexisted, whether they were local or national prices (e.g., Habsburg Empire). To solve this conundrum, three issues should be addressed. One has to find a common measure between the different units of monetary accounts. They may be converted to grams of silver at par, thanks to existing knowledge of early modern currencies. It would be more difficult to do the same thing for the quantity units and try to reduce them to kilograms, meters and liters. Werner Scheltjens's paper on this issue is a good illustration of the difficulties underlying such an enterprise. The most difficult task would be to find a common procedure for calculating or recalculating prices in a way that is economically satisfactory. One possibility would be

to use one set of prices (e.g., Amsterdam prices) and calculate a premium that would include cost of freight and insurance, as computed from the existing prices, and to then impute the prices at other Atlantic ports. The equivalent could also be possible for the Mediterranean (perhaps by using Marseilles or Genoa prices). However, this leaves the issue of prices on land unresolved, as these areas are economically remote from the sea.

3.2.4. Economic issues

It is important to underline that the available dataset strongly constrains the scope of economic and historical issues that can be addressed . To take one extreme example, we have only a few balances of trade for the state of Milan, (1762, 1766-7, 1769, 1778 and 1790), each with different sets of information (e.g., only 1766-7 data have descriptions of countries of origin/destination). Overall, these documents provide an interesting snapshot of Milan's economy during the second part of the eighteenth century, but it is difficult to imagine that they could allow us to go much further.

One set of issues that seems quite promising regards geographical economics. This is especially relevant for datasets constructed by ports of trade (e.g., Norway). At the national level, bilateral comparisons may be quite informative. Although the comparison of large economies like France and England may be the first thing that comes to mind, pairs of smaller countries such as Portugal and Sweden may provide interesting insights as well. Bilateral comparisons combined with navigation data may facilitate a much more clear evaluation of the extent of smuggling and the impact of political events, such as wars or trade treaties.

When long time series are available, it would be quite interesting to compute indicators of trade specialization, such as the relative contribution to trade balance. This could provide a link to the theme of economic development.

Finally, the availability of trade statistics for many countries might allow using mirror trade flows to study the trade of missing sources. For example, we have very little information on trade by the Kingdom of Sardinia, whose economic center was in Piedmont. However, this country's situation could possibly be approximated by using trade information from France, Genoa and Milan.

3.2.5. What's next?

As noted by Hubert Escaith, one of the first international collaborations on trade statistics was to unify the different typologies of goods used by various countries. Like nineteenth-century statisticians, we believe that, in order to enable meaningful bilateral and/or multilateral comparisons, the first step would be to create a unified database for the names of goods, units of physical measures and monetary measures (the last one being simpler than the first two) in different datasets. Such a versatile database would allow the datasets to "communicate with each other".

Two approaches for this are possible. One, we can try a comprehensive approach by creating a database that includes the names of all the individual goods, their descriptions and translations into other European languages, with the same being done for physical/monetary units of measure. On the one hand, the advantage is obvious: we could coordinate the program with maritime history projects such as Navigocorpus. On the other hand, it is doubtful that this could be done in a reasonable amount of time: it would require a huge team of people from different backgrounds, which implies a large amount of coordination problems and difficulty. However, a limited version may be possible, for example, one that concentrates on creating the descriptions and translation tools necessary for comparisons. In that case, it is important that the work be done in a format that could be easily adapted to the most numerous possible types of research projects.

A second possibility is to focus on economic issues only. The database would then follow broad categories rather than individual goods, and it would not feature individual prices but the value of trade per category, as expressed in a common currency. In this approach, the issue of constituting categories (classifying individual goods and pricing them) could be delegated to "national teams", while coordination would be needed only to define categories and compare results. The two approaches are not mutually exclusive. The former should be considered as a long-term goal framed by a network of different national teams.

4. The papers

In addition to the twenty-three country questionnaires, this issue includes seven articles. Three are methodological, and four illustrate how the available data on external trade can be used to produce new results.

4.1. Methodological articles

The article by Hubert Escaith analyzes trade statistics in the *longue durée*. He argues that they are one of the oldest official statistics. For a long period of time, they remained closely linked to their original eighteenth-century purpose of informing the Prince about the amount of taxes collected by customs. Trade statistics experienced a profound transformation in the mid-twentieth century, when they were integrated into the national accounts that the state required for managing the economy. Escaith argues that we are currently experiencing another period of important changes. Trade statistics are going beyond the initial purpose of service to the state and becoming a tool for understanding the complex relationships that link various industries across different borders. To some extent, historians face a similar issue: how can we use trade data to answer historical questions about eighteenth-century economies and economic relations although they were not produced with that objective?

Returning to the actual manipulation of data, Jean-Pierre Dedieu and Silvia Marzagalli's article looks at the difficult question of the treatment of goods. In the context of ANR-funded projects from 2008 to 2011, they created Navigocorpus, an online database on shipping. This article deals with the way they have processed cargoes and explains the three possibilities their solution offers. First, one can query a field containing a standardized English translation of cargo items. Second, one can create their own classification categories in an "on-the-way coding field" according to the specific needs of their research. Finally, one can query a permanent coding which provides, through a codified string of characters, information on the raw material, elaboration process and use of the product. A few concrete examples illustrate these features.

The last methodological paper, by Béatrice Dedinger, conveys a message of hope to all people working with miscellaneous trade

sources She highlights that no deadlock is implied by the lack of useable German trade statistics for the period preceding German political unification. It is true that the documents published during the Zollverein period by the Central Bureau of the Zollverein, the *Statistische Uebersichten über Waaren- Verkehr und Zoll-Ertrag im Deutschen Zoll-Vereine für das Jahr* [...], provide neither prices nor trade flows in value, nor do they indicate countries of ultimate origin and destination. To overcome these imperfections, estimates of Zollverein trade statistics have been published in great numbers since 1842, but they are questionable as well. Nevertheless, the good quality of *Statistische Übersichten's* quantity data should make it possible to reconstruct consistent series of German trade according to totals, byproducts and values for the period 1834-1871. Even if the period covered by the paper is different from the focus of this issue, it is germane to the discussion on how to combine different data sources in an imaginative way that is on the mind of all those who try to work with early trade statistics.

4.2. Using external trade data: Preliminary findings

Considering the difficulty of working with some of our sources, it is fruitful to show how they can nevertheless be used to provide new insights into early-modern European trade. The last four papers of this issue show us that new trade data can indeed shed light on international relations and domestic evolutions.

The article by Maria Cristina Moreira, Jari Eloranta, Jari Ojala and Lauri Karvonen looks at the way smaller nations were able to carve out a niche in international trade during a politically turbulent period. By examining new sources in a comparative fashion, it provides new insights into bilateral relations between Sweden and Portugal. They were not equally dependent on their bilateral trade. The French Revolutionary and Napoleonic conflicts were a time of difficulties for both states, but there were also new opportunities that they continued to grab until having to adjust to the intense competition of nineteenth century globalization.

The article by Jeroen van der Vliet also discusses ways to combine sources for advancing knowledge, this time on the role that local merchants in Amsterdam played in eighteenth-century entrepot trade to and from the Baltic. The Sound Toll Registers show that the Dutch were driven out of the Baltic by the end of the

eighteenth century. Looking at the Amsterdam muster roll, it seems that a number of ships may have been Dutch in disguise.

Werner Scheltjens also uses the Sound Toll Registers to conduct a quantitative analysis of direct French imports to the Baltic for the period 1670-1850. On the methodological level, the main issue he addresses is in finding a way to aggregate various units of measure. The article brings to light structural changes in the volumes of the main product categories imported to the Baltic. He interprets these changes as the result of reconfiguring the role played by Russian and Prussian ports in the Baltic, the decline of Dutch commercial dominance and the emergence of modern structures for commercial exchange.

The final paper, by Ulrich Pfister, assembles indirect evidence from several sources to establish the patterns of international trade in eighteenth-century Germany. It computes the increase in German openness, the growing role of colonial goods in consumption and the importance of import substitution of cotton. The study of trade fits well in the author's larger project of reconstructing the German economy, whose growth seems to have resulted from increased use of seasonally underemployed labor to produce manufactures for export. This in turn contributed to the stabilization of per capita incomes in the face of declining marginal labor productivity in agriculture.

It is our wish that these papers and their innovative use of trade sources will be emulated in a way that deepens our understanding of various economies and their relationships during the eighteenth century. We hope also that the questionnaires will provide useful tools for that endeavor.

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PAPERS

PAST AND PRESENT ISSUES
IN TRADE STATISTICS
AN INSIDER'S VIEW

Hubert Escaith
World Trade Organization

Trade statistics are perhaps among the oldest official statistics alongside population censuses. Until very recently, trade statistics remained closely tied to their original eighteenth-century purpose of informing the Prince about taxes collected by customs officials; more recently in the mid-twentieth century, they came to serve also in establishing the National Accounts required by the State for managing the economy. Then the world economy became truly global. Trade statistics had to become trans-national and multi-dimensional if they were to be representative of the twenty-first century economic system. The methodology has matured in the 2010s; in the process, trade statistics have gone beyond their initial purpose of serving the State to become a tool for understanding the complex relationships linking various industries across different borders. The resulting information is increasingly used to assess not only the economic dimensions of trade but also its implications in terms of employment and the environment.

Keywords: administrative history, international trade statistics, globalization, economic history

This special issue discusses the "birth" of official statistics, and trade statistics are among the oldest official statistics available. This paper provides some perspective on how official public trade statisticians perceive the nature of their activities and their history. It also reflects on the current debates among official statisticians and how the changes in their practices and conceptions can inform our views on past statistics. The final section highlights the changes now taking place in the theory and practice of trade statistics.

e-mail: Hubert.Escaith@wto.org