

Sound Toll Registers Online and the eighteenth century Baltic coffee commerce

The ‘Sound Toll Registers Online’² project of the University of Groningen is the subject of this article. Jan Willem Veluwenkamp and Maarten Draper discuss the history, aims and achievements of the project. The possibilities and prospects of this new source are illustrated by a case study on Baltic coffee trade.

The Sound Toll Registers

The documents we know today as the Sound Toll Registers are the records of the toll levied by the king of Denmark on the passage of ships through the Sound, the strait between Denmark and Sweden connecting the North and Baltic Seas. They are stored by the Danish National Archives. The more than 700 volumes of the STR that have been preserved – about sixty meters of shelf space – cover about 300 of the 360 years between 1497 and 1857, including a practically uninterrupted series from 1574 to 1857. They hold information on about 1.8 million passages. The Sound toll was introduced by the Danish king Erik VII in 1429. It was abolished in 1857 as a result of diplomatic pressure of the main maritime powers of that time, including the United Kingdom and the United States of America. For each individual passage, both westward and eastward, the STR contain the passage date, the name of the shipmaster, his place of residence, his port of departure and – from the mid-1660s – his port of destination, the composition of the cargo and the toll paid (see figure 1 for a typical STR entry).³

It is clear that 1.8 million entries like this provide an immense quantity of information about the shipmasters passing the Sound, the routes they sailed,

the cargoes of their ships and the tolls they paid. For that reason, the STR are well-known as one of the great serial sources of early modern history and the only one with rich and detailed information on European shipping and trade spanning a period of four centuries. Of course the STR may not be used without criticism. As always, the researcher must be aware of the limitations of the source.⁴ Firstly, there were alternative routes to the Baltic Sea countries, including the Little Belt and the Great Belt (the two other channels linking the Kattegat to the Baltic Sea), the over-land route, the sea route to Russia via the White Sea port of Archangel and from 1784 on the Schleswig-Holstein Canal.⁵ Secondly, there were fraud and exemptions.⁶ But these qualifications cannot alter the fact that the STR are a central source to social, economic and maritime history on all levels: global, European, national, regional, and local.⁷

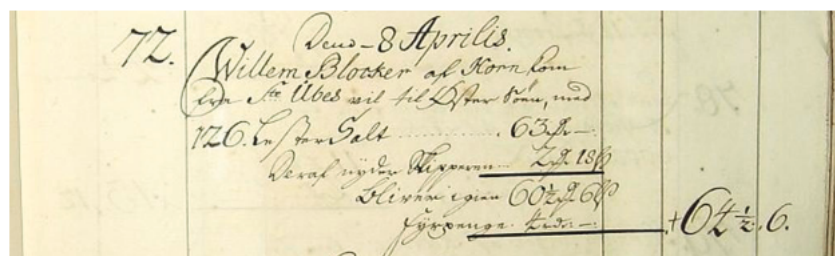


Figure 1. Entry from the Sound Toll Registers, 1734. Source: Danish National Archives, Copenhagen.

Transcription:

Dend 8 Aprilis
Willem Blocker af Horn kom
fra Ste Ubes vil til Østersøen, med

126 lester salt	63 rdr.
Deraf nijder skipperen 2 rdr. 18 s.	
Bliver igien	60 ½ rdr. 6 s.
Fjirpenge	4 rdr
	64 ½ 6

Translation:

The 8th of April
Willem Blocker of Hoorn, comes from
Setubal wants to sail to the Baltic Sea,
with
126 lasts of salt 63 rigsdaler
Thereof enjoys the shipmaster 2 rigs-
daler, 18 skilling
Remains 60,5 rigsdaler, 6 skilling
Beacon money 4 rigsdaler

64,5, 6

The Sound Toll Tables

Although the STR are widely acknowledged as a crucial source, their sheer volume and detail make them virtually impossible to handle, so that they are hardly used. As a partial solution to this problem, in the first half of the twentieth century, Nina E. Bang and Knut Korst have published an ample and monumental abridged version of the STR in the shape of seven large volumes containing summarizing tables – usually referred to as the Sound Toll Tables (STT).⁸ Ever since, these tables have been used in every major study of early modern European trade. Their enormous significance, however, should not conceal their shortcomings – which have been extensively discussed in the historiography.⁹ They only cover the years 1497-1783 and do not include the period 1784-1857. They present data only on a high level of aggregation; individual passages, shipmasters, and cargoes have disappeared from sight.¹⁰ They lack information on complete transport routes, as they do not include tables combining ports of departure and ports of destination, although the STR provides this information for every passage from 1669 on. They combine commodities in categories that in major cases are of no or little use. Striking examples involve the unlikely and senseless categories of ‘pepper, rice and sugar’ and ‘colonial commodities, subtropical fruit, dyes, commodities used in the tanning industry, drugs, etc.’¹¹

Sound Toll Registers Online

In the 1970s, Hans C. Johansen, looking for ways to improve the accessibility of the STR, created an electronic database with the detailed data of all Sound passages for the period 1784-1795. He presented his analysis of these data in a monograph in 1983.¹² In 2009 and 2010, George Welling reconstructed and edited Johansen’s database and made it accessible via the internet.¹³ Sound Toll Registers Online, presented in the present article, is in many ways the delayed continuation of Johansen’s pioneering effort.¹⁴ It is a relational-database set up to make the STR data instantaneously available via the internet.¹⁵ It includes for each passage – in principle and basically – the following information:

- the passage date
- the shipmaster’s name
- the shipmaster’s domicile

- the port of departure
- the port of destination (from the mid-1660's, when they first appear in the STR)
- the nature and quantity of the cargo
- the toll paid

The database is designed to enable all conceivable search actions, to allow the making of all conceivable cross tabs and to facilitate statistical analysis.¹⁶ For this purpose, the data are entered in four basic tables: passage, cargo, taxes and images. The passage table basically contains one record per passage including fields for the date and the shipmaster's name and domicile. It does not contain fields for the cargo and the ports of departure and destination, because many ships carried several commodities and the ports of departure and destination could differ per commodity. Accordingly, the cargo table contains a record for each commodity of each passage including fields for the commodity's ports of departure and destination and the tax paid per commodity. The separate taxes table contains fields for the tax, or, in many cases, the several taxes levied for the passage as such. The images table contains fields making the connection with the scans of the relevant folio of the original source. The four tables are connectable by a common identity field.

We have outsourced the entry of the data from the period 1633-1857 to 'Breed', the social workplace at Nijmegen. Volunteers will enter the data of the remaining circa 300.000 passages before 1633. Breed has entered the data in the original spelling of the STR and has delivered the data files to Tresoar. We have accepted the data after a quality check by random sample.¹⁷ A similar procedure will be followed during the continued data entry by volunteers.

After acceptance, Tresoar and RUG have followed a procedure of correcting, standardizing and categorizing the data. Correction to the degree of a flawless reproduction of the original data is impossible, but the quality is such that all queries will produce accurate results. Moreover, as the image of the original is available in the database, researchers may always check results.

Since there was no standard spelling in the centuries in which the STR were produced, the spelling variations of personal names, geographical names, commodity names, measures and weights are almost without limit. To facilitate the analysis of the data we standardize geographical names, commodity names and names of measures and weights, and we convert

the measures and weights to the metric system.¹⁸ All standard terms are entered in additional tables so that the original input is preserved. The categorization of geographical names (in regions) and commodity names (in groups of similar products) follows the same procedure. For the time being, the personal names – of the shipmasters – are not standardized, because the results would not yet be reliable. It is hard enough to standardize personal names occurring in one region, such as Frisia. In the case of the STR, which contains names of shipmasters from many places, regions and countries, names must be differently standardized depending on the place where the men lived. Perhaps this nut will be cracked at a later stage.

The data are entered into the database in the Danish language as used in the original source. As this might render the database hard to use for many, we are considering translating the standard terms into English. To facilitate the use of the database by a broad audience, we have added a user interface allowing many queries without knowledge of database applications.¹⁹

STRO is essentially an instrument of historical analysis. It is certainly a powerful instrument, but it has its limitations. We have tried to fit an organic historical source into a much more sterile database. To that extent STRO is an interpretation of the STR and not a direct copy or a source edition. The individual researcher must be aware of this when he or she makes use of it.

First and foremost, only the STR toll collection entries proper have been entered into the database. The large quantity of additional information the STR contain has been omitted. This information mainly involves the recurrent introductory, accounting and justifying texts of the toll officials. In addition, as the database has a strict format, the extra information the officials sometimes added could not be included. This information is diverse. It may involve an addressee of part of the cargo, a part of the cargo gone bad, or a ship having been stranded. To not completely lose sight of that information, a reference with no further details is put in the field 'opmerking bron' – 'remark on the source'. This reference usually is worded as 'stuk Deense tekst' – 'piece of Danish text'.

Even after such extra information has been included or excluded in this way, the database is not free of entry problems. The STR have developed organically over more than three and a half centuries, so that their form and precise content are not standard but vary from one period to the next. This means that all kinds of peculiarities must be dealt with to fit the content of the STR entries properly into the database.

Finally, despite all scrutiny that has been employed to maximize correct reproduction of the content of the STR entries, it is unavoidable that the database contains many small errors and perhaps a few omissions. Errors in the original spelling of geographical and product names and measures and weights will be largely overcome by their standardization. In other cases the user will have to rely on his critical mind and wit to avoid mistakes and errant interpretations.

The eighteenth century Baltic coffee commerce

In this section of the article an example is given of the possibilities the STRO offers. The case in point is a study into the trade of coffee in the Baltic area in the eighteenth century. First, the ideas about the coffee trade in the literature based on the STT are considered. Second, some of new findings based on data drawn from the STRO are presented. The implication of the new findings and possible new directions for further research are subsequently discussed.

Before the STRO became available it was virtually impossible to study the Baltic coffee trade. This was related to the fact that in the STT coffee was merged into the category 'colonial wares', together with sugar, cacao, and other products. Anyone who wished to research the flow of coffee through the Sound would have had to resort to the original registers, which would have been incredibly time-consuming, and was therefore never done. Hence, nothing has been published specifically on the coffee trade in the Baltic area yet. The historiography deals with colonial goods trade in general, only occasionally referring explicitly to coffee.

Most literature on Baltic trade deals with Baltic exports. The Baltic area in the early modern era is known as the supplier of bulk goods to the more advanced economies of Western Europe. Poland mainly exported cereals, Finland exported tar, Russia exported hemp and flax, and Sweden mainly exported iron. The Baltic area primarily imported salt, wine, herring, textiles, building materials, and precious metals. Precious metals were necessary to balance the trade, because Baltic exports outsized imports throughout the early modern era. From the sixteenth century onwards, colonial wares were added to the selection of goods that the Baltic area imported from Western Europe. At this time, Western Europe was opening up the world's oceans for trade and a portion of the exotic goods made it to the Baltic. Countries such as England and the Dutch Republic traded their 'new wares' for 'the

traditional wares' of their European trading partners, thus integrating the new overseas markets with the traditional European markets.

In the eighteenth century the Baltic trade of colonial products grew spectacularly. Whereas the trade was insignificant at the end of the seventeenth century, by the end of the eighteenth century 25,000-30,000 tons were imported yearly.²⁰ Based on Johansen's work, Jan de Vries estimates that in the 1780s the Baltic area consumed colonial wares at the European average. Of all the sugar that Europe imported, 5% passed through the Sound and of all the coffee that made its way to Europe, 8% followed this route. The colonial goods were mainly consumed in the cities of the region, in contrast to Western-Europe, where the consumption of colonial wares had spread to the countryside.²¹ The only author to publish specifically on Baltic colonial commodities trade, Klas Rönnbäck, writes that 'three ports around the Baltic Sea were responsible for a dominant share of the total volumes imported: Copenhagen; Stettin; and Petersburg. During the period 1775-1779, these three ports together accounted for 90% of all gross imports through the Sound.'²²

The literature is somewhat inconsistent about the role of the suppliers of colonial commodities to the Baltic Sea countries, the re-exporting states. Until the middle of the eighteenth century, the export of colonial wares to the Baltic is said to have been dominated by the Dutch Republic and Great Britain. After 1770, France replaced the Dutch Republic and Great Britain as the chief supplier of colonial goods. However, at the same time, Hamburg emerged as a re-exporter of French West-Indian colonial goods to the Baltic, a trade previously dominated by Amsterdam.²³ Apparently, France's colonial exports to the Baltic and Hamburg's export of French colonial products increased simultaneously. The Dutch share of the Baltic colonial goods market dwindled in the eighteenth century, despite the fact that the export of colonial products from the Dutch Republic to the Baltic still increased. The Dutch trade grew at a slower pace than French and British trade.²⁴

The STRO allows us to scrutinize to what extent the general story of the colonial wares applies to the trade of coffee. When this research was carried out (October-November 2013) the spellings of products, ports, and measures were not yet completely standardized, so some preparation was necessary before the data could be analyzed. By linking the STRO database to a number of standardizing tables and by doing some additional standardization the variation could be reduced.²⁵ This will no longer

be necessary when the standardization of the spellings of place names, products, and measures in the database will be completed. The last problem that remained to be solved was the fact that several measures were used to quantify shipments of coffee. *Pund* (22358 out of 24730) and *rigsdaler* (2003 out of 24730) were used most often. *Rigsdaler* was used before 1773, *pund* after 1772 and 361 shipments of coffee were recorded in other measures such as *lispund*, *sække*, or *eendeel*. We excluded the cargoes not recorded in *pund* or *rigsdaler* from the analysis. Because it was our aim to address the development of the Baltic coffee trade in the whole eighteenth century it was necessary to convert the *rigsdaler* observations into pounds. We have concluded that the rather simple conversion rate of ‘two *pund* = one *rigsdalers*’ can be applied. In the STRO two cargoes of coffee are recorded in pounds as well as in *rigsdalers*. Gerrit Marcus of Amsterdam, sailing from Molde to the Baltic on 07/07/1755, carried, amongst other things, 36 pounds of coffee beans worth (abbreviated to ‘w.’) 18 *rigsdalers*. And Simon Hillers of Bremen, sailing from Bremen to Libau on 5/10/1757, carried, amongst other things, 100 pounds of coffee worth (‘werdi’) 50 *rigsdalers*. Also, Martin Uebele researched the tolls paid on coffee and observed that the tariff on coffee shipments recorded in *rigsdaler* was around 1% and the tariff on shipments recorded in pounds was around 0,5%.²⁶ This supports the conversion rate mentioned above.

Once the data were prepared for analysis in this way, it was quite easy to produce some statistics on various aspects of the Baltic coffee trade. Four aspects will be discussed here: the total volume of the Baltic coffee import, the coffee export to the Baltic per country, the coffee import per city, and the share of the various countries in the shipping of the coffee. More detailed analysis of the data is possible, for example of the shipping on a specific route, but this would take up too much space.

The data on the total volume of coffee imported into the Baltic via the Sound (graph 1) in the eighteenth century suggest that coffee was ‘a latecomer’ amongst the colonial commodities. The total volume of the Baltic coffee import remained quite small until the 1770s. The first occasional and small shipments of coffee are mentioned in the STRO from 1709. Together these shipments amounted to less than 200 thousand pounds annually until 1753. By 1767 the annual import increased to more than 1 million pounds and from then on the trade took off. In just twenty years the volumes multiplied with a factor eight: from 1 million pounds in 1767 to 8 million pounds in 1785. In the 1790s the growth of the Baltic coffee

imports stalled, even dropping below the 3 million pounds mark. These figures contrast with the data on the colonial goods trade in general. W.S. Unger writes on the basis of the STT that the Baltic area already imported 2 million pounds of colonial goods in the 1640s, and that in 1739 more than 10 million pounds of colonial wares passed through the Sound.²⁷ In 1739 only 15 thousand pounds of coffee were imported; this implies that in 1739 coffee only amounted to 0.15% of the total import of colonial wares.

The statistics on the exporting countries (table 1) emphasize the importance of France as the primary supplier of coffee to the Baltic area. In the eighteenth century France supplied 62% (also counting the direct import from the French colony of St. Domingue on the West-Indian island of Hispaniola) of the coffee imported by the Baltic area via the Sound. In the starting years (1700-1720) of Baltic coffee trade the Dutch Republic and Great Britain were the suppliers. The volumes in this period were however very small. From the 1720s, when coffee imports became a matter of thousands of pounds, French exports dominated the market. The French share declined over time though: from 90% in the period 1721-1740 to 52% in the period 1781-1800. Dutch and British coffee exports grew steadily until 1780, but after 1780 the pattern changed: Dutch exports plummeted and British exports soared. The decline of French exports and the rise of British exports can be explained by the consequences of the War of the First Coalition (1792-1797). The war interrupted the supply of coffee from the French West Indies and the British – partially – filled this vacuum.

This overall picture has several striking aspects. Firstly, the magnitude of the direct exports of coffee from France to the Baltic is remarkable. As mentioned above, the prevailing idea in the historiography is that France only became a large player from 1770s onwards. The data presented here however show that France already ‘emancipated’ from the Dutch staple market as early as 1721-1740. Secondly, the insignificance of Hamburg as a supplier of coffee to the Baltic is notable. As far as the Baltic coffee trade is concerned, Hamburg cannot be considered as a rival entrepôt, because exports from the German North Sea coast (Hamburg and Bremen) never reached large proportions. We know from other sources that Hamburg indeed imported large volumes of coffee from France, but this coffee never made it through the Sound. This could mean two things: either Hamburg exported overland to the Baltic area, or it exported to different markets, for example in central Germany.²⁸ The same applies to the Dutch Republic. Dutch coffee imports increased over

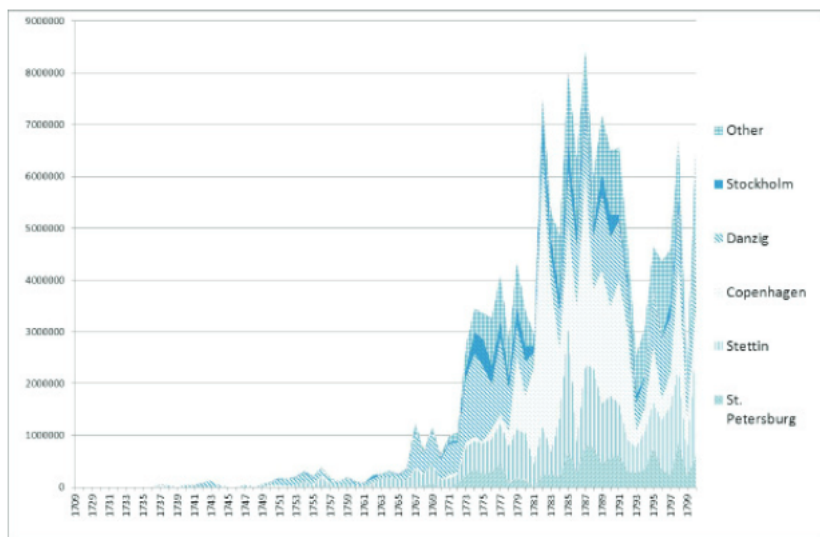
the eighteenth century, but the share of the Dutch in the Baltic market decreased. This supports the idea that the emphasis of Dutch trade shifted from the Baltic to the German hinterland in the eighteenth century.²⁹

Period	1700-1720		1721-1740		1741-1760	
Country	Pounds	%	Pounds	%	Pounds	%
France	0	0	188843	90	2027270	76
Great Britain	600	26	5992	3	90646	3
Dutch Republic	1748	74	13890	7	439160	16
Santo Domingo	0	0	0	0	0	0
United States	0	0	0	0	0	0
Germany (North Sea)	0	0	360	0	87998	3
Rest	0	0	440	0	21063	1
Tot	2348	100	209525	100	2666137	100
Share period		0		0		2

Period	1761-1780		1781-1800		1700-1800	
Country	Pounds	%	Pounds	%	Pounds	%
France	23539255	68	56472513	52	82227881	56
Great Britain	5452697	16	32066959	29	37616894	26
Dutch Republic	5009067	14	3299695	3	8763560	6
Santo Domingo	0	0	8537014	8	8537014	6
United States	0	0	5163070	5	5163070	4
Germany (North Sea)	665752	2	1294160	1	2048270	1
Rest	116518	0	2181176	2	2297697	2
Tot	34783289	100	1.09E+08	100	146654386	100
Share period		24		74		100

Table 1: Export of coffee to the Baltic in 20-year-periods (pounds and shares), 1700-1800. Source STRO.

The statistics on the main coffee importing cities (graph 1) principally illustrate that the data available in the STRO are not always easy to interpret. The volumes which the most important cities (St. Petersburg, Stettin, Copenhagen, Danzig, and Stockholm) imported seem to have followed a similar pattern, Copenhagen being the exception. The Danish capital imported significantly more coffee than the other cities in the 1780s, and its import volumes are more volatile. These observations suggest that that Copenhagen re-exported a large share of its import to the other Baltic destinations, something also mentioned in the literature.³⁰ The intra-Baltic



Graph 1: Coffee imports per city (pounds), 1700-1800. Sources: STRO.

traffic is however not documented in the STR. Furthermore, the import volumes of Stockholm stand out in the sense that in last quarter of the eighteenth century they display a decline, whereas the volumes of the other cities remained more or less stable. It would be too hasty to conclude on the basis of this observation that Swedish coffee imports declined. Imports may have partly shifted to Sweden's port outside the Baltic Sea – Gothenburg. Further research and additional sources are necessary before conclusions can be made on this issue.

The results on the shipping of coffee are somewhat surprising (table 2). Apparently, shipmasters from the Baltic area transported most of the coffee, not the shipmasters from Western Europe. The Dutch Republic to some extent lived up to its reputation as a seafaring nation by shipping as much coffee as it exported. To a lesser extent, the same is true for Great Britain, although this country shipped slightly less coffee than it exported. In contrast, French shipmasters played no role in the export of coffee to the Baltic from their ports. Shipmasters from Denmark and the Southern Baltic ports of Lübeck, Stettin, Danzig and Königsberg transported the most of the coffee.

The question arises how the Danish and Southern Baltic shipmasters acquired this business. Usually merchants employed shipmasters of their

own city, region, or country and therefore it is likely that merchants from the southern Baltic cities imported coffee from France and employed shipmasters from their own area. This fits in with the findings of the French historian Paul Butel, who observed that in the second half of the eighteenth century many German merchants indeed settled in Bordeaux, the most important port for the export of French colonial goods.³¹ In contrast, the Dutch merchant colony in this city withered in this period.³² This suggests that in the second half of the eighteenth century – the time when coffee became an important commodity of trade – merchants from Lübeck, Stettin, Danzig, and Königsberg established a foothold in the trade of their region with France, and operated quite independently of the intermediaries of Amsterdam and Hamburg. Possibly, the same could be said of Danish merchants.

Region	Pounds	%
South Baltic	54829753	37
Denmark	26393295	18
The Netherlands	19099852	13
England and Wales	11686735	8
Sweden and Finland	9160861	6
Norway	7833299	5
North America	5481820	4
Germany (North Sea)	4652930	3
Holstein	2019559	1
Russia	1330656	1
France	930691	1
Rest	3340195	2

Table 2: Shipping of coffee to the Baltic per region (pounds and shares), 1700-1800. Source: STRO.

This research also sheds a different light on the role of Amsterdam and Hamburg as intermediaries in the French-Baltic trade. As we have seen, the cities did not re-export a large share of the coffee that went to the Baltic in the eighteenth century. This does not necessarily mean that the two cities were irrelevant in this context. Amsterdam and Hamburg may have been important because they provided essential services for trade, such as credit, to the French merchants involved in the export. These services were crucial,

as France, in the words of the French historian Paul Butel, 'did not have direct relationships with the places beyond the Elbe'.³³ The nature of the intermediary role of Amsterdam and Hamburg changed. The cities did no longer operate as 'old fashioned staple markets' where goods were brought ashore or even from where the trade was directed. Instead, in the second half of the eighteenth century, they facilitated the contact between the parties involved in the trade. This aligns with the ideas put forward by Clé Lesger in his study of the rise of Amsterdam as the center of European trade.³⁴ Perhaps Hamburg competed with Amsterdam by offering the services for the (mainly German) merchants participating in the re-export of French colonial products, who had turned to Amsterdam for these services before.

Of course, further research is required to develop this idea and should be based on other sources than the STRO. In order to get a grasp of the decisions that led to the patterns described above, qualitative research into the workings of early modern trade ought to be done. That said, the scientific prospects of the STRO are clear. A rather small scale study of the trade of coffee through the Sound produces new evidence which ties into many related aspects of the history of early modern trade.

Conclusion

The Sound Toll Registers Online project is rare in its kind in the humanities. So far, 1.5 million entries covering the period 1633-1856 have been entered and made available online, and 300.000 passages dating from before 1633 will be added in the coming years. The STRO are an improvement compared to the Sound Toll Tables (STT) by Bang and Korst, because individual passages are preserved, the period 1784-1857 is included, and cargoes are uncategorized. Furthermore, the information is offered in the form of a database, which makes it easier to search for specific information and to analyze the data by using statistical methods.

The case study on the eighteenth century trade of coffee in the Baltic illustrates the advantages and possibilities of the STRO. It is impossible to study the trade of coffee based on the basis of the STT. In the STT, coffee was merged into the category of colonial wares and therefore untraceable, unless one would consult the original source. It turned out that the ideas based on the trade of colonial commodities do not fully apply to coffee. Coffee trade started quite late in the Baltic; France was much more important than the Dutch Republic and Great Britain from the time when coffee became a

significant commodity of trade; Hamburg apparently did not export large amounts of coffee to the Baltic through the Sound; and shipmasters from Denmark and the Southern Baltic cities of Lübeck, Stettin, Danzig and Königsberg shipped a significant share of the coffee that entered the Baltic Sea. These observations suggest that some of the prevailing ideas on the entrepôt function of Hamburg and Amsterdam ought to be changed. In the second half of the eighteenth century German and Danish merchants established direct trade links between France and their home markets. Amsterdam and Hamburg were rather unimportant for Baltic coffee trade in terms of export – together they re-exported less than 10% of the coffee that entered the Baltic in the eighteenth century – but perhaps the cities were important for the Baltic coffee trade for other reasons. The cities provided services to facilitate trade between France and the Baltic, and in this segment the cities competed with each other.

In conclusion, the STRO is a tool for historical research which is easy to use and ‘opens up’ one of the most valuable sources of early modern European history. As the STRO develops, becomes more widely known and is used more, the prevalent ideas on the wide range of topics will be refined. The STR are a source on which many prevailing ideas in economic and maritime history are based. Therefore the launch of the STRO is likely to make a large contribution to future research in these fields.

Notes

1. An earlier version of a part of this paper has been published as part of: Werner Scheltjens and Jan Willem Veluwenkamp, “Sound Toll Registers online. Introduction and first research examples,” *International Journal of Maritime History* XXIV, 1 (2012): 301-330.
2. Since 2009 the University of Groningen and Tresoar, the Frisian Historical and Literary Centre in Leeuwarden, are engaged in the realization of an electronic database for the complete Danish Sound Toll Registers (STR). This endeavor is funded by the Netherlands Organisation for Scientific Research (NWO), several Frisian cultural foundations, SNS-REAAL Fonds, the Samenwerkende Maritieme Fondsen, the University of Groningen and Tresoar. The Danish National Archives (Copenhagen), the Fryske Akademy (Leeuwarden) and the University of Leipzig provide scholarly advice and support. The database, Sound Toll Registers Online (STRO), is accessible via Internet (www.soundtoll.nl). Currently it covers the period 1633-1857 containing about 1.5 million passages. We intend to complete STRO by 2017. The final database will contain information on about 1.8 million ship passages. STRO is at the instant disposal of all – professional researchers, amateurs and any other interested party. Examples of its use are provided by the studies of colleagues

- participating in four STRO workshops and conferences held in 2010, 2012 and 2013. www.soundtoll.nl > research > workshops and papers.
3. Erik Gøbel, "The Sound Toll Registers Online Project, 1497-1857," *International Journal of Maritime History* XXII, 2 (2010): 305-324, 305-308.
 4. Gøbel, "The Sound Toll Registers," 319.
 5. Gøbel, "The Sound Toll Registers," 319-320; Pierre Jeannin, "Les comptes du Sund comme source pour la construction d'indices généraux de l'activité économique en Europe (XVIe-XVIIe siècle)," in *Marchands du Nord: Espaces et trafics à l'époque moderne*, ed. Pierre Jeannin (Paris: Presses de l'École Normale Supérieure, 1996): 1-62, 4-6, 12.
 6. Gøbel, "The Sound Toll Registers," 319-321; Jeannin, "Les comptes du Sund," 21, 33, 37-40; Milja van Tielhof, *The 'mother of all trades': The Baltic Grain Trade in Amsterdam from the late 16th to the early 19th century* (Leiden, Boston, Köln: Brill, 2002), 42.
 7. Jan Willem Veluwenkamp, "Sound Toll Registers: Concise source criticism" (2011), www.soundtoll.nl > about the project > Sound Toll Registers, 3.
 8. Nina Ellinger Bang and Knud Korst, *Tabeller over skibsfart og varetransport gennem Oeresund 1497-1783*, 7 volumes (Copenhagen and Leipzig: Gyldendal, Nordisk Forlag and Harrassowitz, 1906-1953).
 9. See, e.g., Gøbel, "The Sound Toll Registers"; Jeannin, "Les comptes du Sund."
 10. Gøbel, "The Sound Toll Registers," 321.
 11. Jeannin, "Les comptes du Sund," 9; Jeannin provides additional examples on page 10.
 12. Hans Christian Johansen, *Shipping and trade between the Baltic and Western Europe, 1784-95* (Odense: Odense University Press, 1983).
 13. <http://www.let.rug.nl/welling/sont/johansen.htm>.
 14. Jan Willem Veluwenkamp (University of Groningen) and Siem van der Woude (Tresoar) manage the project.
 15. www.soundtoll.nl. Andrys Stienstra and Inge de Vries (Tresoar) are the webeditors.
 16. George Welling (University of Groningen) and Frank Bosmans (Tresoar) have designed the database.
 17. Mark de Lannoy, Johan Steendam and Ubo Kooijinga (Tresoar) have carried out the checks.
 18. George Welling (University of Groningen) standardizes the geographical names. Werner Scheltjens (University of Leipzig) standardizes the commodity names and the names of measures and weights and converts the measures and weights to the metric system.
 19. Frank Bosmans (Tresoar) has produced the user interface.
 20. Klas Rönnbäck, 'An Early Modern Consumer Revolution in the Baltic?', *Scandinavian Journal of History*, Vol. 35, No. 2 (2010) 177-197, 179-180. Jan de Vries speaks of a 'ten-fold rise in the weight of all colonial goods entering the Baltic between 1700-9 and 1770-9'.
 21. Jan de Vries, *The Industrious Revolution* (New York: Cambridge University Press, 2008) 161.

22. Rönnbäck, 'Consumer Revolution', 182. Klas Rönnbäck, 'Balancing the Baltic trade: colonial commodities in the trade on the Baltic, 1773-1856', *Scandinavian Economic History Review*, Vol. 58, No. 3 (2010) 188-202.
23. Toshiaki Tamaki, 'Hamburg as a gateway' in: Leos Müller, Philipp Robinson Rössner, Toshiaki Tamaki (eds.), *The Rise of the Atlantic Economy and the North Sea/Baltic Trades, 1500-1800. Proceedings of the XVth World Economic History Congress* (Utrecht, Netherlands 2009) (Stuttgart : Steiner, 2011). Pierrick Pourchasse, 'The French Atlantic Economy and Northern Europe' in: Leos Müller, Philipp Robinson Rössner, Toshiaki Tamaki (eds.), *The Rise of the Atlantic Economy and the North Sea/Baltic Trades, 1500-1800. Proceedings of the XVth World Economic History Congress* (Utrecht, Netherlands 2009) (Stuttgart : Steiner, 2011). Douglas North, *From the North Sea to the Baltic: essays in commercial, monetary and agrarian history, 1500-1800* (Aldershot [etc.]: Variorum, 1996) 11.
24. Jan de Vries & Ad van der Woude, *Nederland 1500-1815. De eerste ronde van moderne economische groei* (Amsterdam: Balans, 1995) 556-559.
25. The list of spellings of coffee and coffee beans was provided to the first author by dr. Werner Scheltjens and is work in progress. To solve the problem of multiple spellings of placenames the first author used George Welling's database of place names. He standardized the limited number of spelling variations of measures and weights himself.
26. Martin Uebele, 'The Industrious Revolution and Early Modern Colonial Goods Trade - Evidence from the Soundtoll Online Database', Conference Paper, Leeuwarden, 24-25 October 2013. www.soundtoll.nl > research > workshops and papers.
27. W.S. Unger, 'Trade Through the Sound in the Seventeenth and Eighteenth Centuries', *The Economic History Review*, New Series, Vol. 12, No. 2 (1959), pp. 206-221, 212.
28. Uwe Pfister, 'Great divergence, consumer revolution and the reorganization of textile markets: Evidence from Hamburg's import trade, eighteenth century', mimeo, WWU Münster (2013).
29. De Vries & van der Woude, *Nederland 1500-1815*, 582. Although de Vries and van der Woude also believe that Hamburg threatened the Dutch staple market for colonial goods. Ibidem, 559.
30. Klas Rönnbäck, 'An Early Modern Consumer Revolution in the Baltic?', 182.
31. Paul Butel, 'France, the Antilles, and Europe in the seventeenth and eighteenth centuries. Revivals of foreign trade' in: James D. Tracy (ed.), *The Rise of Merchant Empires. Long-distance trade in the early World, 1350-1750* (Cambridge: University Press, 1999) 153-173, 166-167.
32. J.W. Veluwenkamp, 'International business communication patterns in the Dutch commercial system, 1500-1800' in: H. Cools, M. Keblusek en B. Noldus (ed.), *Your humble servant. Agents in early modern Europe* (Hilversum 2006) 121-134, 131.
33. Butel, 'France, the Antilles, and Europe', 165.
34. Clé Lesger, *Handel in Amsterdam ten tijde van de Opstand Koopliden, commerciële expansie en verandering in de ruimtelijke economie van de Nederlanden, ca. 1550-ca. 1630* (Hilversum 2001).