

Productivity changes in shipping in the Dutch Republic: the evidence from freight rates, 1550-1800

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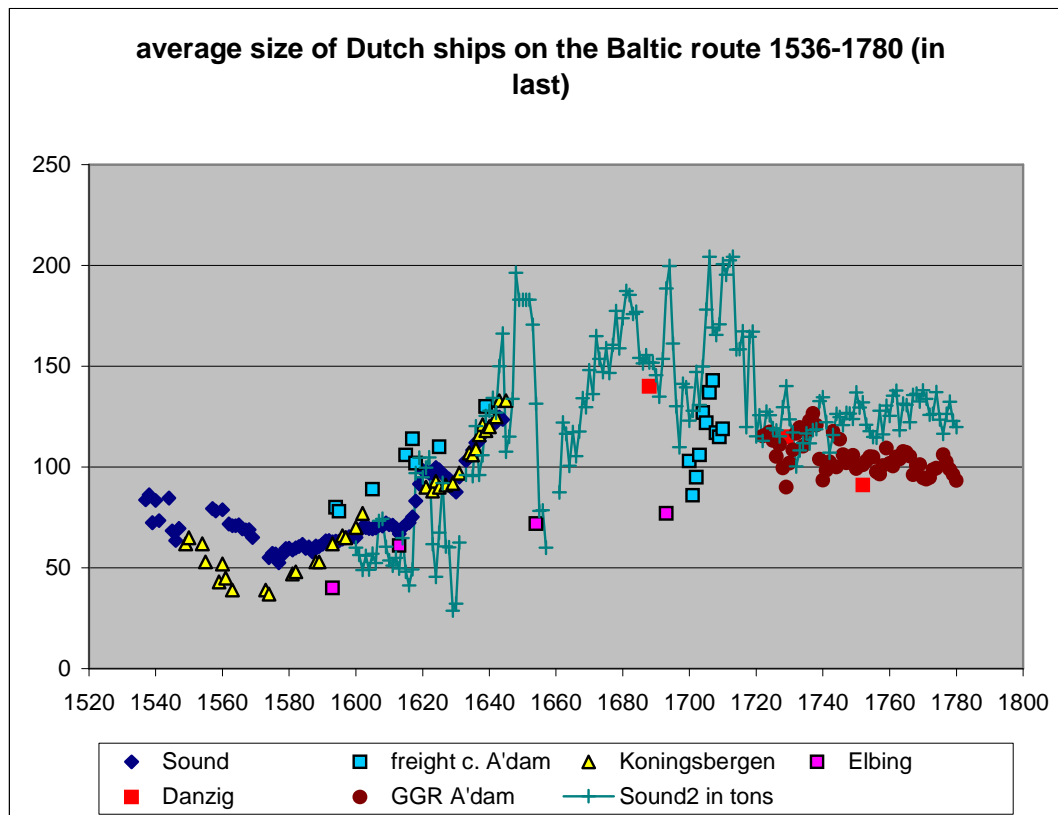
APPENDICES

APPENDIX A. RESULTS OF REGRESSIONS EXPLAINING THE VARIATION IN REAL FREIGHT RATES, 1547-1781

	Danzig	Danzig+	Danzig	Danzig+
N	91	179	91	179
Constant	204.15***	191.16***	201.62***	184.02***
Trend	-0.995***	-0.844***	-1.034***	-0.799***
Trend^2	0.0048***	0.0036***	0.0046***	0.0035***
Volume1	-0.0137**	-0.0163**	-0.0132**	-0.0165***
Volume2	-0.009	-0.0086	-0.0256*	-0.0121**
Size1	0.156	0.132	0.201	0.126
Size2	0.052	0.292	0.307*	0.372***
Voorbij1	-1.974***	-1.665***	-1.891***	-1.585***
Voorbij2	-1.497**	-0.913**	-1.651**	-1.037***
Ballast1	-0.158	0.31	-0.155	0.432
Ballast2	-1.498	-2.113**	-0.884	-1.973***
Warpre1648	1.921	-1.843	-	-
Warpost1648	37.6**	13.57	-	-
WarBrits	-	-	46.64*	18.66
R^2	0.59	0.42	0.58	0.42
F	9.33***	10.17***	10.02***	11.16***

***, **, *, significant at 1, 5 and 10 percent

APPENDIX B. SHIPS' CAPACITY



Sound: Calculated average capacity of Dutch ship passing the Sound 1537-1644. (Only) in this period all ships were classified in one of three categories: <30 last, 30-100 last, >100 last. A weighted average is calculated, assuming that ships in the first category averaged 20 last, in the second 65 last and in the third 130 last. Source: Bang and Korst, *Tabeller*.

Freight contracts Amsterdam: Average size of ships mentioned in Amsterdam freight contracts for Baltic voyages. As mentioned in the section on sources, freight contracts were not made for all voyages. The contracts overestimate average capacity for ships sailing on the Baltic possibly by 10-20 last. Data for 1700-1710 are calculated as weighted averages for three Baltic routes. Sources: 1594-1639: Christensen, *Dutch trade to the Baltic*; 1700-1710: Van Royen, 'The Dutch mercantile marine', 119-121: Baltic (1), (2) and (3).

Königsberg: Average capacity of Dutch ships registered in the *Pfundzollregister* in the port of Königsberg. Source: Horst Kempas, *Seeverkehr und Pfundzoll im Herzogtum Preussen* (Bonn 1964) 341. The importance of the changes in ships' sizes was discussed by Jeannin, who also published graphs showing these changes but not the original data: Jeannin, 'Le tonnage des navires'.

Elbing: calculated average lastage of Dutch ships registered in the *Pfundzollregister* in the port of Elbing. Averages are calculated for four periods: 1585-1600, 1601-1625, 1653-1655 and 1685-1700. The averages are located in the graph at 1593, 1613, 1654 and 1693 respectively. Source: J.Th. Lindblad, *Dutch entries in the pound-toll registers of Elbing 1585-1700*. Rijks Geschiedkundige Publicatiën Grote Serie 225 (The Hague 1995) 421.

Danzig: average capacity of Dutch ships registered in the port of Danzig in 1688, 1729 and 1752. Source: Vogel, 'Beiträge zur deutschen Seeschiffahrt', 129.

GGR: average size of ships arriving in Amsterdam from the Baltic, as registered in the *Galjoetsgeldregisters*. This concerns the lastage of the ships or SL (*scheepslasten*) converted in (real) capacity of the ships using the formula developed by De Buck and Lindblad (1,21 SL + 13,7). Sources: De Buck and Lindblad, 'De scheepvaart en handel uit de Oostzee', 558-559; P. de Buck and J.Th. Lindblad, 'Navigatie en negotie. De galjoetsgeldregisters als bron van onderzoek naar de geschiedenis van de Oostzeehandel in de achttiende eeuw', *Tijdschrift voor Zeegeschiedenis* 9 (1990) 27-48, 35.

Sound2: the average volume of the most important commodities on board Dutch ships as registered in the Sound Toll Tables, converted in tons. Source: Bang and Korst, *Tabeller*.

APPENDIX C. YEARS OF WAR

In the regression analysis a dummy is used for war years to establish the influence of politics on freight rates. The following years have been considered as years in which Dutch Baltic trade was disturbed for political reasons: 1510-1514, 1522-1523, 1532-1533, 1536, 1542-1543, 1557, 1568-1577, 1585-1608, 1621-1646, 1652-1653, 1655-1656, 1658-1659, 1665-1667, 1672-1678, 1689-1697, 1702-1713, 1781-1783, 1795-1801. When peace conditions returned in the first months of a given year (as in February 1578 or April 1654), the shipping season was considered to be undisturbed.

In the first half of the sixteenth century Dutch Baltic trade was often endangered, mostly as a consequence of war with Lübeck or Denmark. Trade was disturbed in the following years: 1510-1514, 1522-1523, 1532-1533, 1536, and 1542-1543.¹

During the sixth Habsburg-Valois war (1557-1559) Dutch shipping to the Baltic was bothered by privateers who received their commission from the French king and operated from East Friesland. In 1557 merchant ships were convoyed on their way to and from the Sound with war ships.²

In the years 1568-1572, during the prelude to the Dutch Revolt, overseas trade was disturbed by the *Watergeuzen* or Beggars, who were living in exile and were deprived of their fortunes and normal means of existence. They took merchant ships, for instance a big fleet arriving from the Baltic with grain in the autumn of 1569.³ From 1572 onwards the biggest part of the province of Holland sided with the Beggars, except for Amsterdam which remained loyal to the Habsburg landlord and had to pay a huge price for this politically

¹ Louis Sicking, *Neptune and the Netherlands. State, Economy and War at Sea in the Renaissance* (Leiden/Boston 2004) 210, 216, 223-225, 233-237 (in 1536 a ban on trade was announced in the Netherlands in view of a war with Denmark; 3 May 1537 a truce was signed), 238.

² Sicking, *Neptune and the Netherlands*, 280-285.

³ J.C.A. de Meij, *De watergeuzen en de Nederlanden 1568-1572* (Amsterdam/London 1972) 26-27.

isolated position. Trade and shipping were made almost impossible by an economic blockade by the Beggars and this only changed when Amsterdam joined the Revolt in February 1578.⁴ After that date, trade recovered rapidly. Spain did not yet disturb the overseas trade of the rebels; until 1585, ships from the rebellious provinces could even visit Spanish and Portuguese ports.⁵

From 1585 privateers were operating from Dunkirk, trying to take Dutch ships. They mostly operated in and around the Channel, harming the fishing fleet and the merchant fleet from the ports in the Maas estuary and Zeeland but they also operated further north and endangered the fleets sailing to Norway, the White Sea and the Baltic. The Dunkirk privateers were active until the Twelve Years' Truce which started in April 1609. After the end of the Truce in April 1621 they resumed their activities. In 1646 Dunkirk was conquered by the French and privateering practically came to a standstill.⁶ In 1647 and 1648 peace treaties were signed putting an end to the war with Spain.

During the second part of the Dutch Revolt, Baltic trade was also damaged by the Swedish aspirations to control large parts of the southern Baltic shores. From 1626-1629 the Swedes blockaded the port of Danzig which made trade to that port difficult and in some years even impossible.⁷ During the Danish-Swedish War (1643-1645) convoys accompanied the merchant fleet to the Sound in 1644 and in 1645 a big fleet of war ships not only secured the voyage to the Sound but also stayed in the Sound the whole summer.⁸

In the third quarter of the 17th century, Baltic trade was disturbed during the three Anglo-Dutch Wars, more specifically in the years 1652-1653 (the peace treaty was ratified in April 1654), 1665-1667 (peace treaty in July 1667) and 1672-1673 (peace treaty signed in February 1674).⁹

In the third quarter of the seventeenth century Baltic trade was also threatened by the Swedish-Polish War (1655-1660). Dutch war ships were sent to the Sound or as far as Danzig in 1655, 1656, 1658 and 1659. They convoyed the merchant fleet or even waged battle with Sweden.¹⁰

After the war with England had ended the war with France, also begun in 1672, continued until. Efficient French privateering, mostly organised from Dunkirk, endangered Dutch merchant ships almost everywhere, from the Mediterranean to the North Sea. When the Scandinavian kingdoms choose sides in the conflict, shipping within the Baltic was endangered as well and the Republic sent squadrons to Denmark in 1675, 1676 and 1677.¹¹ The seas were safe again after the peace of Nijmegen, concluded in August 1678.

Soon after the Nine Years' War (1688-1697) had begun, Baltic trade was under threat from the Dunkirk privateers. From 1689, merchants and shipowners asked for convoys to protect ships en goods. The peace of Rijswijk ended the war in September 1797.¹²

In May 1702, the War of the Spanish Succession broke out in which the Republic and England were part of a Grand Alliance against France, Spain and their allies. During this war

⁴ Maarten Hell, 'De Oude Geuzen en de Opstand. Politiek en lokaal bestuur in tijd van oorlog en expansie 1578-1650', in: Willem Frijhoff and Maarten Prak eds, *Geschiedenis van Amsterdam 1578-1650. Centrum van de wereld* (Amsterdam 2004) 241-298, 260.

⁵ Unger, 'Scheepvaart in de noordelijke Nederlanden', 122; Victor Enthoven, *Zeeland en de opkomst van de Republiek. Handel en strijd in de Scheldedelta c. 1550-1621* (Leiden 1996) 79.

⁶ Jaap R. Bruijn, *Varend verleden. De Nederlandse oorlogsvloot in de zeventiende en achttiende eeuw* (Amsterdam 1998) 33, 38.

⁷ Van Tielhof, *The 'mother of all trades'*, 48.

⁸ Francis J. Bowman, 'Dutch diplomacy and the Baltic grain trade, 1600-1660', *Pacific Historical Review* V (1936) 337-348, 345; Israel, *Nederland*, 158-159.

⁹ J.R. Jones, *The Anglo-Dutch War of the seventeenth century* (New York 1996) ix.

¹⁰ Bowman, 'Dutch diplomacy', 346-347; Israel, *Nederland*, 223-225.

¹¹ Bruijn, *Varend verleden*, 118-120.

¹² Van Tielhof, *The 'mother of all trades'*, 234.

which ended only in 1713 with the peace of Utrecht, most of the European sea routes were unsafe for Dutch shipping. Shipping to the White Sea, Norway, England, Portugal and the Baltic was only allowed when sailing in convoy.¹³

From 1710 onwards trade was also hampered by the Great Northern War (1700-1721) between Sweden and a coalition of Russia, Poland and Denmark. During this war -or better: series of conflicts- Sweden lost much of the territories it had originally controlled around the southern and eastern Baltic shores. For most of the war the Republic tried to stay out of the conflicts in the Baltic,¹⁴ but from 1710 onwards, Dutch shipping was nevertheless hindered by the war. Sweden lost Riga, Reval and Sint Petersburg to Russia in 1710 and forbade all shipping to these ports, including that by neutral ships. In 1714 well over 50 Dutch merchant ships were seized.¹⁵ In 1715, 1716 and 1718 convoys had to be organised to protect the merchant fleet, and although the Republic went back to a policy of strict neutrality in 1719-1721 confiscations and privateering continued.¹⁶ The Peace of Nystad ended the war in September 1721. Nevertheless, the years 1713-1721, when the War of the Spanish Succession was finished and only the Great Northern War was disturbing Dutch shipping, were not labelled as years of war as then the regression fitted better.¹⁷

During the Russian-Swedish war in 1741-1743 Swedish corsairs attacked neutral Dutch merchant ships and convoys were organised in 1742 en 1743.¹⁸ In the war of the Austrian Succession the Dutch Republic was neutral until the French attack of 1747, but during the whole second part of the war (1744-1748) the belligerents France, Spain and England held up ships and confiscated ships and goods. To limit the damage convoys were organised to many routes including the Baltic in 1745, 1746 and 1748. Peace negotiations resulted in a truce in April 1748 but the news was not spread immediately everywhere and ships sailing to the Baltic were still accompanied by convoy ships in spring and summer 1748.¹⁹ The years 1741-1748 were nevertheless not labelled as years of war, because then the regression yielded better results.

African corsairs were a nuisance for Dutch shipping at the end of the 17th and in the 18th century but they normally operated in the Mediterranean, the Atlantic and the Channel. Shipping to the Baltic and other northern regions was in most years almost or wholly undisturbed.²⁰

In the Seven Years' War (1756-1763) the Dutch Republic was neutral. Ships sailing to France and Spain were hindered by Englishmen suspecting contrabande in 1756-1759, but Baltic trade was undisturbed.²¹

During the Fourth Anglo-Dutch War (1780-1784) Dutch ships were attacked by British war ships and privateers in many places, also within the Baltic Sea.²² Warfare stopped with the negotiations in Versailles in September 1783 while the war formally ended in 1784.

¹³ Van Royen, *Zeevarenden*, 62, 65.

¹⁴ Right in the beginning the Republic interfered with the purpose of safeguarding the peace, but it remained without noticeable harm for the merchant fleet. In 1700, a Dutch-English squadron was sent to the Sound to force Denmark to retreat from the coalition. This goal was met in august 1700. Bruijn, *Varend verleden*, 125. There was no open warfare between the battle of Narva in 1700 and 1708, and in 1708 and 1709 the war was mainly fought on land. Van Royen, *Zeevarenden*, 61-62.

¹⁵ A.A. van der Houwen, 'De Directie Oostersche Handel en reederijen en het Oostzee-eskader van 1715', *Tijdschrift voor Zeegechiedenis* 9 (1990) 77-88, 78.

¹⁶ J.R. Bruijn, *De admiraliteit van Amsterdam in rustige jaren 1713-1751* (Amsterdam/Haarlem 1970) 14-18.

¹⁷ Having more data would probably change the picture: freight rates for the Baltic 1710-1721 are lacking.

¹⁸ Bruijn, *De admiraliteit van Amsterdam*, 19.

¹⁹ Bruijn, *De admiraliteit van Amsterdam*, 34-37.

²⁰ Bruijn, *Varend verleden*, 120-121, 187-189, 194.

²¹ Bruijn, *Varend verleden*, 196.

²² J. Thomas Lindblad, *Sweden's trade with the Dutch Republic 1738-1795* (Assen 1982) 22.

At the end of the 18th century trade suffered from the wars in the wake of the French Revolution. The War of the First Coalition which broke out in 1793 and in which England, the Republic and Spain were allies against France, did not yet do much harm to shipping in the North Sea and the Baltic. This changed after the French invasion of the Netherlands in 1794-1795 and the ensuing war with England. The Baltic trade temporarily recovered in 1802 when the peace of Amiens was signed.²³

²³ J.A. Faber, 'Shipping to the Netherlands during a turbulent period 1784-1810', in: W.G. Heeres et. al. eds, *From Dunkirk to Danzig. Shipping and trade in the North Sea and the Baltic, 1350-1850* (Hilversum 1988) 95-106, 102, 105.