

FOREIGN TRADE OF THE DUTCH REPUBLIC
IN THE SEVENTEENTH CENTURY*

by

*J. Thomas Lindblad**1. Introduction*

There is something strange about the foreign trade of the Dutch Republic during its Golden Age, the seventeenth century. All agree that successful performance in foreign trade lay at the very core of the affluence enjoyed and the power exercised by the Republic at this time. Indeed, the heavy concentration on commerce continued to form a unique feature of Dutch economy in centuries to come, a feature which has been applied to explain why industrialization was so slow in coming to the Netherlands and even why the Dutch resented the decolonization of Indonesia so much.¹ Yet our knowledge of what Dutch foreign trade actually looked like during the seventeenth century remains uncertain and vague for want of a good statistical base. We cannot rely on detailed documentation such as is (with all its shortcomings) available for the nineteenth and twentieth centuries. Specifications of exports and imports are only given for an occasional year and port.² In short, we are asked to believe in the supremacy of Dutch foreign trade during the seventeenth century, within the economy of the Republic and also compared to other trade, without being able to support the argument with hard figures.

This contribution has a threefold aim. We start out with a review of the recent historiography on the foreign trade performance of the seventeenth-century Republic, including Israel's monumental monograph on the worldwide primacy of Dutch trade.³ We then proceed to explore the analytical potentials of the sole running series of quantitative data available, the so-called *convooien en licenten* (revenues from export and import duties levied by the States-General throughout the time of the Republic). In that context we will also touch very briefly upon the Mediterranean and Asiatic branches of trade. Finally, we will take a closer look at trade with the Baltic region, the branch of trade that is traditionally held to have constituted the backbone of Dutch commercial success during the Golden Age. The most relevant statistical information is brought together in two appendices. It must be stressed, however, that limitations of space and paucity of precise data preclude a final assessment or full treatment of this large and intriguing topic. What this article offers is an impression of the current state of scholarship, thus also conveying an invitation for others to follow.

2. Rise and fall of a trading nation

The spectacular emergence of the Northern Netherlands as a dynamic force in the European economy shortly after independence impressed contemporaries and later historians alike, but few satisfactory explanations for this phenomenon ensued. Can we trace it all back to a comparative advantage in terms of geographical location and a lead in maritime technology, the latter being exemplified by the famous *fluitschip* of 1595? Or, more generally, was Dutch economic success in the seventeenth century merely the exception confirming the rule: a growth path made possible by stagnation elsewhere? Van Zanden rightly stresses that our inquiry ought to be addressed to the roots and causes of the transition from backwardness to growth between the sixteenth and seventeenth centuries.⁴ But in order to do so we need to properly understand the strengths and weaknesses of Dutch commerce that determined both the ascendancy and the decline of the Republic as a trading nation. We will look at both conventional wisdom as laid down in handbooks, and the provocative conception presented by Israel.

Surveys of Dutch foreign trade during the seventeenth century have been incorporated into handbooks on several occasions since 1960: in Van Dillen's *Van rijkdom en regenten* (1970), and in the relevant volumes of the *Maritieme Geschiedenis der Nederlanden* (1977) and the *Algemene Geschiedenis der Nederlanden [AGN]* (1979-1980).⁵ A

striking common denominator of these surveys is purely procedural. More general comments are invariably supplemented by a rundown of trade by region, starting out with the Baltic and moving on via Norway, northern Russia and eastern Friesland to England, France, the Iberian peninsula, Italy and the Levant within Europe while considering the East and West Indies separately. This familiar scheme facilitates a neat presentation of research results, but it may also add a degree of fragmentation that obscures our view of the system as a whole. This matter has more implications than appears on the surface. Did the Dutch trading system resemble a business enterprise consisting of relatively independent branches, or should we view it as a coherent entity with a common base but shifting priorities over time? The approach chosen here leans towards the latter alternative, stressing aggregates above branches, while giving separate treatment to what is believed to reveal the mainstream of development, namely the Baltic trade.

Another aspect of the surveys with repercussions beyond presentation alone concerns the time periods chosen for arranging the information. Bruijn adheres to the overall setup of the *Maritieme Geschiedenis der Nederlanden* in treating the seventeenth century as one congruous whole. This contrasts with the earlier Van Dillen survey and the later AGN surveys, which both break off in 1650, the latter even to the point of switching authors: from Klompmaker to Klein. But this similarity between the two is rather superficial. Van Dillen's chronology is based on his observation of a general shift in Dutch economic development from growth before 1650 to consolidation and stagnation afterwards. The setup of the AGN surveys, however, reflects the great importance attached by the editors of the AGN to Braudel's *renversement de la tendance séculaire* about 1650, i.e. from long-run expansion to secular contraction in the European economy at large.⁶ In conjunction, these two strategies of presentation reinforce the argument that there was expansion in Dutch trade precisely because of the lack of expansion in the trade of other countries.

Van Dillen depicts the period of 1580-1650 as one of gradual and balanced economic growth based on the ascendancy of Amsterdam as an international staple market. Foreign trade profited from structural advantages, such as the complementarity between supply and demand in the Baltic and southwestern Europe, fostering the well-known exchange of grains from the north for salt and other consumer goods from the south. Lack of protection in England and France offered an opportunity for the Republic to take full advantage of its lead. After 1650 precisely the previous growth factors turned into their opposites, thus causing consolidation at a lower level than during the first half of the century. There was less complementarity between northeast and southwest, whereas British and French protectionism grew. A special position within the trading system is reserved by Van Dillen for the Dutch East India Company (*Verenigde Oostindische Compagnie*, or VOC), which he views as a major innovation in business organization capable of safeguarding the supply of those colonial commodities for which European demand was increasing. Here the expansion during the first half of the seventeenth century continued throughout the second half.⁷ Such a conception, with its loosely structured suggestions towards explanation, remains too much on the level of description to satisfy the present-day observer.

Bruijn stresses the comparative advantage of the Dutch commercial fleet on account of its attractive freight rates and use of multi-purpose vessels. Freedom of competition and a minimum of State interference shaped an ideal climate for capitalizing on the competitive advantages enjoyed by Dutch merchants. Rapid expansion went on, according to Bruijn, up to 1680 (or 1670). The subsequent stagnation is ascribed to both the rise of protectionism among the competitors and the deteriorating supply and demand conditions in the vital grain trade from about 1650. This combination of disadvantages applied especially to the trade on the Mediterranean, where British and French merchants started to squeeze out their Dutch rivals in a diminishing market.⁸ Bruijn's emphasis on maritime matters easily hinders us from viewing the Dutch trading system as above all an economic organism.

Klompmaker is particularly interested in relations among merchants operating on the international stage. In his opinion, links through migrants abroad and skills in negotiating deals or cooperating with others explain much of the success of Dutch trade during the first half of the seventeenth century. Times were unsafe and hazardous, and only the staple market at Amsterdam could offer both price stability and continuous ample supplies. In virtually all branches of European trade, the Dutch cultivated their early lead and gained where others failed to try. It was a multilateral system of trading relations, which at first even proved quite resistant to emerging protectionism in England and France.⁹ Klompmaker's conception suffers from a lack of systematic focus that would have facilitated a thorough insight into the causes and effects of Dutch success in international trade.

Klein is intrigued by the process of transition from rapid growth to stagnation and eventual decline in the economy of the Dutch Republic. After 1650 economic expansion came to a halt, giving way to a striking stability and apparent calmness. In fact, Klein argues that no fundamental change of decisive importance took place in the Dutch trading system between 1650 and the end of the Republic in 1795. Baltic trade remained at the apex, complemented as it was by trade with England, France and Spain; Norway, northern Russia and the Mediterranean constituted extensions of lesser consequence.¹⁰ Klein's conception is heavily influenced by the shadow thrown by the

eighteenth-century Republic and the discussion about its decline. This does not make for a close linking-up with Klompmaker's contribution which, incidentally, was published one year later.

Gaastra describes the continuous expansion of VOC trade during the seventeenth century, between Europe and Asia as well as between Asian destinations. His account underscores the deviating path chosen by the VOC as compared to the foreign trade of the Republic in general during the seventeenth century: a more persistent expansionary trend, more reliance on monopolies, more Government interference, a less balanced exchange of commodities.¹¹ The fate of the Dutch West Indian Company (*Westindische Compagnie*, or WIC), however, was less fortunate with persisting competitive losses in American and African waters. British rivals moved in, and by the third quarter of the seventeenth century the WIC had effectively been reduced from being a business enterprise to merely administering distant branch offices.¹²

Israel has stirred up considerable commotion among Dutch economic historians with his novel vision of the trading system of the Republic during the Golden Age. He emphatically rejects the idea that the rise and fall of the Dutch Republic as a superior trading nation was inexorably linked up with Braudel's *renversement de la tendance séculaire* about 1650. By implication he also rejects the primacy of bulk trade over 'rich' trades, i.e. the decisive role played by Baltic grain as compared to luxury consumer goods from either southern Europe or Asia. Israel presents a sequence of seven phases of changing fortune in the Dutch position in world trade. We are especially concerned here with the second through fifth phases: the boom during the truce with Spain (1609-1621), the classic phase of Dutch predominance (1621-1647), the zenith according to Israel (1647-1672) and, finally, the consolidation beyond the zenith (1672-1700). Each phase is demarcated by political change, especially in the relationship between the Republic and Spain. In stark contrast to most conventional historiography, Israel assigns a key role to the State in the advancement and protection of Dutch commercial interests abroad.¹³ Israel's conception may be viewed as a frontal attack on Braudelian tradition and a plea for the restoration of the political argument in explaining economic history.

While acknowledging Israel's great expertise and boldness in constructing a grand design, critics have been less than convinced by the main thrust of his argument. Van Zanden disputes Israel's interpretation of the available statistical material and does not accept a trend in trade determined by political events. Noordegraaf concedes that Israel poses the right questions but regrets that polemic aims ('Braudelophobia') lead him astray from treating these questions in a constructive fashion.¹⁴ Elsewhere, I have myself attempted to isolate the structural components of Israel's argumentation, adding supplementary information on two individual branches of Baltic trade (Sweden and Elbing). My conclusion is that the time is not yet ripe for a re-interpretation of the importance of bulk trade of the kind proposed by Israel.¹⁵ The near future will without doubt produce new insights emanating from a critical examination of Israel's conception; in that sense alone, Israel has made a lasting contribution to Dutch historiography.

Modern historiography on the foreign trade of the Dutch Republic in the seventeenth century has suffered from a lack of empirical research. Studies based on primary or statistical material have been distressingly scarce. Highest priority has been assigned to reiterating the familiar contours of expansion and consolidation in Dutch commerce by branch, trade outside Europe being the only area subjected to a more penetrating scrutiny. Israel's intervention is, however controversial, and therefore highly welcome. The following may serve as a set of suggestions for how to make faster progress in this field using available and well-known sources.

3. A troublesome source and long-run trends

The *convooiën en licenten* have a dubious reputation among students of the Golden Age, being alternately acclaimed as the single most important statistical source of the era or discarded as virtually useless because of their lack of consistency and reliability. Yet this aggregation of revenues from export and import duties does represent a unique combination of an uninterrupted time series running throughout the century and a singularly wide coverage of activities related to foreign trade. Thus, even if not ideal, this series possesses qualities that become important precisely because of the want of other primary sources on the foreign trade of the Republic. The *convooiën en licenten* offer the only Dutch base for a systematic quantitative analysis of the Republic's foreign trade in the seventeenth century. Of course, the weaknesses and limitations of the source should also be taken into account. We will discuss in due order the quality of the source and the main conclusions to be derived from it. The two themes are interrelated.

The *convooiën en licenten* were introduced into historiography in 1908 by Becht, who explained how the duties were levied and listed the main figures. The revenues reflect aggregate turnover in exports and imports combined, and can thus be used as a proxy for the general trend in the development of the Republic's foreign trade over time. Becht also indicated some of the problems associated with the use of this source. The tariffs were reduced somewhat in 1609 but restored at the old level in 1625 and revised again in 1651 and 1655. Prior to 1674 the source

includes only overseas trade. Payments by the VOC and WIC are not included from 1683, and there is danger of contamination in the figures with other duties such as the so-called *derde verhoging* (the additional, one-third increase levied from 1651).¹⁶

In 1948 Westermann offered a critical analysis of the *convooien en licenten*, especially with regard to the Admiralty of Amsterdam, the foremost of the five admiralties responsible for collecting these duties. According to Westermann, the revenues have to be corrected for tariff revisions in order to become comparable over time. Revenues before 1626 and after 1650 must be raised by about one-third. In fact, upward corrections are carried out only for 1624-1625 and 1651-1680, since Westermann's alternative tables run from 1624 and since the *derde verhoging* – coincidentally of the same magnitude – is allegedly included in Becht's figures for later years. Van Dillen, however, who edited Westermann's article for posthumous publication, remains critical of the corrections for the years 1651-1680, since the tariff rate revisions of 1651 do not unambiguously indicate a correction of 33% and also because the *derde verhoging*, as Westermann apparently knew, in fact amounted to less than one-third (22%).¹⁷

Van Dillen remains apprehensive, barely making use of these data in his survey of Dutch commerce during the seventeenth (and eighteenth) century. While admitting that these statistics are of some significance, he emphasizes the omissions as well as the possibility of widespread fraudulent practices. His example was followed by Bruijn and Klompmaker, who both consider the *convooien en licenten* exclusively in connection with the various fiscal burdens imposed by the Dutch authorities on foreign trade in the seventeenth century.¹⁸

Recent years have witnessed a certain revival of the *convooien en licenten* as a valuable source for the history of foreign trade, not only for the eighteenth century but also for the seventeenth century. Klein cautiously applies this series for sketching the global upward trend prior to 1650, but refrains from using it for the second half of the seventeenth century. He accepts Westermann's corrections for Amsterdam and stresses relative change by relying not only on index numbers instead of absolute figures but also on a graphic representation of five-year moving averages. Van Zanden goes one step further, identifying this source as the most important statistical series for the seventeenth century. He renders a graph of absolute figures for the period 1621-1650, complete with interpolations for missing years but without Westermann's corrections.¹⁹

The issue of whether or not to correct Becht's original figures has been discussed seriously in recent years only by Nusteling and Israel. These two authors reach widely differing conclusions. Nusteling prefers to return to the situation prior to Westermann and his corrections, whereas Israel goes one step further than Westermann in elaborating the reconstructions of the original time series.²⁰

Nusteling concedes that discontinuity does present a serious problem in the *convooien en licenten* but views this as caused by changes not so much in tariff rates as in the troublesome matter of evasion. Nusteling argues that the net result of the various changes in tariff rates around 1651 was virtually neutral: levies for *convooien en licenten* were reduced by 25% whereas the newly introduced *derde verhoging* was effectively of about the same magnitude. According to Nusteling, the real problem lies in the variation of the scope for evasion over time, which in turn was dependent upon both actual practices at collection and the prevailing general price level. Nusteling suggests that collectors at the admiralty of Amsterdam normally permitted an evasion rate of about 30%. This is evident from the fact that revenues from the *convooien en licenten* increased by far more than expected at the time of the temporary abolition of the *derde verhoging* between 1681 and 1685, i.e. the collectors sought compensation for forgone revenue in restricting evasion. At the same time there was less propensity on the part of merchants to cooperate when market prices fell, thus causing an increase in effective tariff rates.²¹ The changing conditions of collection impair comparability over time but fail to provide a sufficient basis for reconstructions. Such is Nusteling's argument.

Israel, on the contrary, argues that reconstructions are vital to our use of the *convooien en licenten* series. In fact we need to modify Westermann's corrections. In the first place, the higher tariffs were in force during a slightly different period, 1621-1648 instead of 1626-1651, which implies upward revisions for 1649-1650 but not for 1621-1625. Besides, Westermann's correction percentage (33%) is too low and should ideally be raised to 60% on account of the higher tariff level. However, in the actual presentation of his data, Israel restricts himself to the years after 1640 and Westermann's lower correction percentage, which means that significant differences arise only for the years 1649 and 1650.²² In a critical commentary, Van Zanden discards Israel's case for more corrections as mere 'juggling', and asserts that the corrections are not necessary when it comes to assessing Israel's argument on the global trend in foreign trade prior to 1650.²³

The discussion about the quality of the *convooien en licenten* as a consistent time series derives its importance from the difference in trends as inferred from the uncorrected versus corrected versions of the series. Becht depicts a continuous increase in revenue for the Republic as a whole before 1650, followed first by a decline below the level of the 1620s, then by such a substantial recovery that we may speak of a general enlargement of the turnover of Dutch foreign trade up to 1700. The downward and upward shifts during the second half of the seventeenth century are smoothed out by Westermann's corrections, at any rate as far as Amsterdam is concerned, but this does not prevent

Van Dillen from stressing the high level still prevailing for the international staple market towards the end of the seventeenth century.²⁴ It thus appears that Westermann's corrections, whether justified or not, contributed to the appreciation of a fundamental division of the seventeenth century into two phases of development: expansion up to 1650 and consolidation or contraction afterwards.

Continuous expansion culminating in a peak in 1648-1651 forms the major observation inferred by Klein from the (corrected) *convooien en licenten*. This is corroborated by Nusteling, who applies the uncorrected data as well, and also draws on supporting evidence from supplementary sources.²⁵ Yet this is precisely the point at which Israel disagrees profoundly with his Dutch colleagues. According to Israel, the higher correction factor (60% rather than one-third) produces the decisive shift from his third phase, the one of 'prolonged stagnation' from 1621 to 1647, to his fourth phase, the zenith in Dutch commerce, i.e. 1647-1672.²⁶ It thus appears that the very perception of development in Dutch foreign trade during the seventeenth century hinges upon the extent of correction of the *convooien en licenten*. Did the long-run trend, around 1650, turn from expansion to stagnation, or from stagnation to expansion?

At this point it appears wise to retrace our steps and return to the original series as presented by Becht. The discussion over the years about the *convooien en licenten* has shown how hazardous or even arbitrary corrections and modifications of the original figures can be. This is the undercurrent of Van Dillen's commentary while editing Westermann's text and also the sentiment expressed more recently by both Nusteling and Van Zanden. It is also substantiated by comparison of actual tariff rates at different points in time. Two examples may suffice. The levy on imports of rye was 1.0% in 1609, 0.8% in 1625, 0.5% in 1651 and 0.9% in 1655. The levy on exports of wheat amounted to 3.9% in both 1625 and 1651, but 5.4% in 1655.²⁷ Even if we concede that grains were exceptionally little affected by tariff revisions, such changes in tariff rate levels do not offer sufficient justification for elaborate modifications of revenue figures. In other words, the grounds for correction remain slippery. Moreover, the very fact that other products might have been more affected by tariff revisions is not the same as to say that these products formed such a large proportion of the total as to justify corrections with implications for all commodities.²⁸ As long as we cannot ascertain that tariff rates for major commodities were substantially altered for a protracted period of time, the safest solution is to stick to Becht's original, uncorrected data while keeping in mind that comparability over time might be constrained, in particular because of variations in the rate of evasion.

An entirely different matter with respect to the *convooien en licenten* concerns the years for which revenues from at least one admiralty are missing; this obviously precludes the calculation of an aggregate for the Republic as a whole. The lack of data from Amsterdam for the years 1600-1613 forces us to choose 1614 as the point of departure for the time series. Out of the subsequent 87 years (1614-1700) there are 43 years with data lacking for one or more admiralties, most frequently Zeeland (e.g. 1676-1700). Following Van Zanden, priority is here given to the construction of a continuous time series above corrections because of changes in tariff rate levels.²⁹

A procedure was designed to estimate aggregates for years with blanks for individual admiralties. The share of the admiralty or cluster of admiralties in question was assumed to be the same as the average share during the ten closest years with complete data. This average is used to calculate a multiplier by which the aggregate of the non-missing admiralties must be raised in order to get the reconstructed total for all. As an example let us consider the years 1639 and 1640, which have data from all admiralties except Rotterdam (*Maze*). In this case the base period comprises the years 1631, 1633-1634 and 1641-1647, with a share of Rotterdam in the known total of 22.5%, which in turn warrants the aggregate for 1639 and 1640 to be raised by 1.29.³⁰ The final time series thus combines aggregates cited by Becht and the reconstructed totals (Appendix I).³¹

The global trend in aggregate revenue from *convooien en licenten* during the seventeenth century may be split into three segments: a continuous expansion up to the 1640s, continuous decline throughout the 1650s, 1660s and 1670s and, finally, a recovery from 1680 onwards (Appendix I). The average of the 1640s exceeded the level of 1614/20 by almost 60%, whereas the average of the 1690s was more than twice the level of the 1670s. Early peaks were reached in 1642/43 and 1648 at 2.8 million guilders, whereas the true nadir fell at less than one million guilders in 1672/73. Only from 1687 did aggregate revenue on occasion exceed the peaks of the 1640s, e.g. in 1698/99 with the highest point of the century, more than three million guilders. It is unlikely that such dramatic shifts in magnitude can be ascribed to changing tariff rates alone. We may infer that the three-phased trend of expansion, contraction and recovery globally reflects the development of foreign trade in the Dutch Republic.

The expansion leading up to the peak of the 1640s was rather sluggish, with revenues falling back to slightly lower levels on several occasions, notably in the years 1625/28 and towards 1640. Yet the pace of expansion quickened, as illustrated by impressive rates of increase: 16% between 1614 and 1620 (six years), 27% between 1620 and 1630 (ten years), and 28% between 1630 and 1640. The aggregate remained quite stable at an impressive level for several years after 1641, declining significantly only from 1649. This impression of protracted expansion reinforces Van Zanden's conclusion about this period and is difficult to reconcile with the 'profound stagnation' cited by Israel.³²

The contraction from the 1650s to the 1670s can obviously be linked to warfare and emerging protectionism in Europe. The shadow of three Anglo-Dutch wars is manifest in the abysmally low aggregates for 1652/53, 1665/67 and 1672/73, whereas the unimpressive levels in 1657/59 and 1674/80 probably reflect disturbed conditions of commerce in the Baltic in particular.³³ Even if the effects of protectionism in England and France are not easily quantified or related to the turnover of trade, it is not accidental that the long-run tendency towards contraction coincides with the introduction of the British navigation acts and discriminatory tariff increases in French ports.³⁴ This does not appear to justify an epithet such as 'zenith' for this phase of development in Dutch foreign trade.³⁵

The recovery began immediately in 1681 and gained momentum in the second half of the 1680s.³⁶ There was marked decline to a more moderate level during the wartime years around 1690 and also in 1696/97, but the rest of the decade displayed all signs of a successful recovery, especially after the peace treaty of Rijswijk in 1697. Too little is known about actual trade movements to venture upon a detailed examination of causes and effects. Suffice it to say that the dynamism of Dutch foreign trade had not yet succumbed by the end of the seventeenth century. It was a time of consolidation rather than stagnation.

The pattern of regional participation among the five admiralties in the foreign trade of the Republic remained strikingly stable throughout the seventeenth century. The share of the admiralty of Amsterdam oscillated around one-half, whereas Rotterdam (*Maze*) and Zeeland with about 20% each took turns in claiming second rank. This remained very much the same during the phases of expansion and contraction. The recovery from 1680, however, was supported by a rising share for Amsterdam matched by a decline for both Rotterdam and West Friesland. The least significant portion in the total, a mere 2 to 3%, was held by the admiralty of Friesland, ranking even lower than West Friesland. Such a stable pattern offers few clues for identifying structural shifts in foreign trade associated with regional specialization.

The cohesion in development over time between the five admiralties appears to have been more pronounced during the period of expansion than during the subsequent contraction or recovery. Prior to 1650 a statistically significant link can be established between revenues in each admiralty to revenues of at least one other admiralty. Yet the number of such links varies considerably, with West Friesland being connected to all other admiralties and Friesland only to one (West Friesland). Zeeland scores almost as high on this account as West Friesland (links with all but Friesland), whereas Amsterdam and Rotterdam both occupy intermediary position, each with two links to other admiralties.³⁷ This testifies to the solid geographical basis of expansion of foreign trade in the Dutch Republic during the first half of the seventeenth century.

The main use of the *convoaien en licenten* lies in the possibilities of identifying main trends in the turnover of Dutch foreign trade. It is, however, also possible to contrast aggregate revenues with occasional spot data on the global order of magnitude of foreign trade in the Republic. For 1636, Bruijn reports an estimated aggregate value of 30 million guilders for imports from European ports, i.e. excluding both the Levant and Asia.³⁸ Assuming for the sake of argument that total exports were of the same order of magnitude, we arrive at an estimate of total turnover of some 60 million guilders. The latter figure may be confronted with our reconstructed total of revenues from *convoaien en licenten* for 1636: 2.5 million guilders, which in turn would imply an average tariff of less than 4%. In view of other evidence, such a tariff level is not improbable.³⁹ Yet it is too shaky a basis for a full-fledged projection of aggregate turnover from the *convoaien en licenten*.

When precise statistics are scarce and uncertainties abound, it is wise to turn from absolute magnitudes to relative proportions, not only in terms of changes over time but also with respect to the importance of the various branches of foreign trade in comparison with each other. According to the breakdown in the 1636 estimate cited by Bruijn, 70% of all imports from European sources originated in three leading regions: the Baltic (40%), France (30%) and the British Isles (30%).⁴⁰ This substantiates the claim of the Baltic as the alleged 'mother-trade' (*moedernegotie*) and compels us to consider other branches of trade within a comparative perspective. As indicated above, the question of relative importance among the branches of trade has recently caused some controversy, with Israel asserting that the emphasis in Dutch trade shifted from bulk to 'rich' trade, i.e. from the Baltic in particular to the Mediterranean and Asia.⁴¹

Changing political constellations played a key role in determining the development of Dutch trade with the Mediterranean, with the major breakthrough taking place during the truce of 1609-1621 and the momentum of expansion being regained after 1648. The political factor thus formed a necessary, but not sufficient, precondition for rapid expansion next to the essential complementarity in terms of commodities supplied and demanded. Israel shows how the improvement of the political situation after 1609 coincided with a shift in the exchange of goods: from grains for salt, to spices and naval stores for silver and silk. And even though the Spanish embargo starting in 1621 was frequently evaded, Dutch merchants lost their lead over their English rivals in particular, which eventually produced the Anglo-Dutch division characteristic of the Mediterranean market at mid-century.⁴²

Within the Mediterranean branch of trade it is customary to distinguish between the Iberian peninsula, Italy and the Levant. Silver from Spanish America was to an appreciable extent disseminated throughout northern Europe via shipping between Seville or Cadiz on the one hand and Amsterdam on the other. This enhanced the dependency on international politics and enabled Amsterdam to emerge as a world market for bullion.⁴³ Portuguese salt traditionally smoothed trade with other regions, notably the Baltic. The export surplus with respect to Italy buying large quantities of grains contrasted neatly with the deficit in the Levant supplying high-valued textiles.⁴⁴ This all contributed to make the Mediterranean an exceptionally dynamic branch of Dutch trade in the seventeenth century.

Regrettably, however, statistics on the Mediterranean branch of trade are notoriously poor, amounting to little more than series of numbers of ships and fragmented invoice values.⁴⁵ For comparative purposes we can merely note that the Mediterranean supplied 10% of European imports entering the Republic in 1636, a figure excluding the Levant and applying to the alleged nadir of Dutch-Mediterranean commerce during the Golden Age.⁴⁶

The spectacular success of VOC trade in the seventeenth century has fascinated contemporary observers and later historians alike, but the tendency in the literature is to treat the VOC in isolation from the trading system of the Republic at large. Much attention has focused on the position of the VOC within Asian trade or the significance of the VOC as a business enterprise. The traditional perception advanced by Van Leur that the VOC was both marginal and backward within the Asian context is largely rejected today. Recent research has highlighted the sizeable involvement of the VOC in intra-Asiatic trade as well as the modern traits of this firm, the world's first truly multinational corporation. A major achievement in this regard was the systematic analysis of VOC accounts presented by De Korte in 1984.⁴⁷

The process of expansion resulted above all from the elaboration of the trading network of the VOC in Asia. This was marked by a succession of new establishments and military conquests, e.g. Batavia 1619, Banda 1622, Deshima and Malakka 1641, Amboina and Ceylon 1656, Macassar 1667, Bantam 1684. The volume of shipping increased rapidly, from about 100 vessels per year before 1620 to a stable level of 230 ships on average per year from the 1660s. Spices traditionally formed the most important produce brought by the VOC to Europe, and this changed only slowly in the direction of high-valued textiles and metals. For the late 1660s Gaastra estimates that spices, especially pepper, made up almost 60% of total deliveries to the Amsterdam Chamber of the VOC, the largest of the constituent Chambers and alone responsible for about one-half of VOC turnover.⁴⁸

The aggregate value of colonial produce leaving VOC establishments in Asia for the Republic tripled between the 1620s and 1680s, from 1.5 to 4.5 million guilders on average per year.⁴⁹ Yet this probably grossly understates the true value of VOC shipments, as these figures are based on invoice values at the point of departure in Asia. The sales value at the auctions in Amsterdam were substantially higher, especially for spices, for which the VOC monopolized supply. A better representation is given by aggregate turnover figures running from 1641. Average annual turnover climbed from 8 million to almost 13 million guilders between the 1640s and the 1690s. This continuous expansion enabled the VOC to make substantial profits, in particular during the 1660s, when net profits corresponded to about 15% of total turnover. According to estimates by De Korte, cumulative profits during the period 1613-1692 reached 34 million guilders.⁵⁰

The significance of the VOC as compared to other branches of Dutch trade at the time is difficult to assess. The long voyages to distant destinations easily appeal more to the imagination than routine departures to the Baltic, but must not lead us too far astray. We know that the VOC enterprise offered employment to almost 8,000 individuals in the 1620s, a number which was to surpass 20,000 in the first decade of the eighteenth century.⁵¹ De Korte's turnover estimates for the 1640s, adjusted for the probable rate of increase since the 1630s, when confronted with the 1636 total for European imports, suggests a VOC share of 18% in aggregate imports or 9% in presumed combined imports and exports of the Republic.⁵² In addition there were obviously considerable spin-off effects of the VOC branch into other trade on account of the re-exports of spices in particular. In a less tangible way the VOC as an institution is also likely to have contributed substantially in terms of innovations in business organization and management.

Yet the Asiatic branch of trade with its continuous expansion did not mirror the long-run general trend in Dutch trade at large. This also holds true for the Mediterranean branch, with its different sequence of phases of development as determined by political conditions. The main trend in Dutch trade at large, as inferred above from the *convooien en licenten*, was one of expansion, contraction and recovery. To explore this trend more carefully we must turn to the Baltic branch of trade, the alleged *moedernegotie* of the Dutch Republic in the seventeenth century.

4. *The Baltic; or, structure versus competition*

It was the Dutch statesman Johan de Witt who in 1671 officially reaffirmed that trade with the Baltic region formed the foundation and backbone of the Republic's commerce.⁵³ This axiom was incorporated into Dutch historiography and remained largely undisputed until Israel appeared on the stage claiming that Dutch primacy in world trade grew increasingly dependent on 'rich' non-Baltic trade instead of relying on bulk shipments from the Baltic. According to Israel, this became especially apparent during the fourth phase of primacy (1647-1672), when contraction in Baltic trade coincided with a zenith for Dutch commerce at large.⁵⁴ The key role played by the Baltic branch, in our appreciation of what Dutch foreign trade in the seventeenth century looked like, certainly justifies special treatment of this region. In examining Baltic trade we shall rely primarily on the Sound Toll data, based on registration at the point of collection of duties paid by ships passing through the Danish Sound, the gateway to the Baltic. Although other (non-Dutch) sources on Baltic trade for this period do exist, the Sound Toll data form the only source possessing both a general geographical coverage – as they are not limited to individual countries or ports – and a continuity extending throughout the seventeenth century.⁵⁵

The publication of the Sound Toll tables, appearing between 1906 and 1983, evoked both euphoria and scepticism among historians dealing with trade in northern Europe.⁵⁶ Some acclaimed the tables as a source of immense value, with virtually every column constituting a separate chapter of European economic history.⁵⁷ Others, however, lamented that the published tables were not only error-prone but also unnecessarily inaccessible because of cutting off the direct link between eastbound and westbound journeys of individual ships as entered in the original registers. Lengthy discussions ensued about the designation of nationality in the source, the so-called *hjemsted*, referring to either ship or skipper, and also on the extent to which registration was evaded.⁵⁸ Without entering into these discussions, we merely confirm that our interest lies in the exclusive bilateral exchange between the Republic and the Baltic, as well as in the wider scope of Dutch participation in the trade between the Baltic and third countries. Precisely the latter aspect can be explored by referring to shipping and trade as defined by nationalities of ships or skippers. With respect to the matter of fraudulence, we can do little more than observe that inspection routines in the Sound were tightened in 1618 and that no viable correction procedures have been developed in the literature.

The most accessible part of the Sound Toll tables contains the shipping movements, and this also forms the basis for much global analysis. We may thus observe how the average number of Dutch ships passing through the Danish Sound in either direction each year increased to an early peak of 3,400 in the 1610s, only to decline to 2,300 by the 1640s and less than 1,200 in the 1670s, whereas the Dutch percentage in the Baltic total followed a similar path: a peak at 70% in the 1610s and a decline to some 60% by the 1640s and even less than 50% in the 1670s and 1690s.⁵⁹ In a similar vein Israel is induced to speak of a spectacular boom during the 1610s followed by consolidation at a respectable, but reduced level between 1620 and 1650 and decline in the 1650s and 1660s.⁶⁰ Yet, as has been amply demonstrated in the literature, the size and capacity of the ships increased substantially in the seventeenth century, which renders an indicator such as sheer numbers of ships unreliable, if not misleading.⁶¹

A better measure, albeit more difficult to handle, uses the volumes of goods transported as aggregated by 'Dutch' nationality (whatever that may mean) and by Dutch port of origin or destination. With such an approach, however, a number of methodological or technical problems have to be tackled. One problem concerns the selection of the most important commodities which, in the absence of value figures, necessarily contains a subjective element. Another problem refers to the consistency of the statistics over time, as procedures of aggregation were changed for years after 1661: overall totals for all trading partners are no longer given, whereas totals for Dutch destinations of westbound trade can be inferred from supplementary specifications, which was not possible for the preceding period. A third matter concerns whether or not to combine the volume figures from the Sound Toll tables with price data from other sources in order to calculate percentages by product in the total, thus identifying possible changes in the commodity composition of trade.

The literature teaches us that Dutch trade with the Baltic was dominated by a handful of key commodities: salt, herring, wine, textiles and assorted colonial goods in the eastbound direction, and various grains (rye, wheat and other grains), wood and iron on return voyages to the west.⁶² Concentration on these ten commodities, five for each direction of trade, appears all the more sensible because it includes goods in both bulk and 'rich' trades. Salt, herring, wine, grains and wood are counted as 'bulk' whereas the 'rich' trades covered textiles, colonial goods and iron.⁶³ The attempt to achieve consistency throughout the entire century compels us to calculate aggregates of all trade by product whenever missing (i.e. from 1661) but makes it less urgent to reconstruct the proportion of westbound trade destined for the Republic, which would in fact be possible only from 1669.⁶⁴ By implication, the percentage share of the strictly bilateral exchange between Dutch ports and the Baltic region is only available for the eastbound direction. This limitation is, however, less severe than it may appear, since the Dutch share in westbound exports from the Baltic was about the same as the share of Dutch skippers in total westbound trade, at any rate during the 1670s and 1680s.⁶⁵ Finally, no effort is made to link volume data with unit prices, since our selection

covers only part of the total and since our concern is with the general development over time rather than with relations across commodities.⁶⁶

Our data (Appendix II)⁶⁷ may be considered against the background of the general impression developed in the literature. According to this view, the Dutch enjoyed a virtually uncontested position in eastbound transports of salt, herring and wine (Rhine rather than French), whereas in textiles and colonial goods much effort had to be put into rivalry with the British before sizeable slices of the market could be secured. The westbound grain trade experienced a few early peaks, in the 1610s and 1640s, but declined after 1650, which in turn was not fully compensated by an ever higher Dutch share in the total. At the same time the Dutch also lost ground to the British in westbound transports of wood and iron.⁶⁸ In this conception, eastbound trade was above all affected by restructuring, whereas westbound trade was marked by a tendency towards decline.

In eastbound trade on the Baltic we differentiate between the commodities for which the Republic traditionally possessed a comparative advantage – salt, herring and wine – on the one hand, and on the other hand newly emerging goods for which such an advantage had to be acquired – textiles and colonial goods. For each category of eastbound commodities we shall look at the interplay between absolute and relative change, i.e. between volume developments and the Dutch share in the total.

Salt, herring and wine all experienced an expansion towards an early peak, either in the 1620s (wine) or in the 1640s (salt and herring).⁶⁹ The subsequent decline of the volume of Dutch transports only came to a halt after several decades, in the 1680s, when it gave way to a recovery of limited magnitude and duration. The lowest level, which was during the 1660s for wine and in the 1670s for the other two, corresponded at best to 40-45% of the one-time peak level (salt and wine) and at worst to barely more than 20% (herring). In all three cases the decline in Dutch transports was more rapid than for aggregate imports entering the Baltic. As a result, the Dutch share in transported volumes was considerably lower after mid-century than before. This applied especially to wine, where the Dutch-controlled portion dropped below one-half as early as the 1670s, a fate which salt and herring only met with in the 1690s.⁷⁰

The fact that absolute decline was accompanied by relative decline in Dutch shipments of salt, herring and wine tells us that the Republic suffered not only from putting high stakes in losing branches but also from intensified competition. There were two types of contractive tendencies at work independently of one another, which in turn explains why the highest Dutch share in the total fails to coincide with the peak level in absolute terms – the highest relative level was reached as early as in the 1610s for salt and wine but only in the 1650s for herring. The next step is to assess the relative importance of the structural and competitive tendencies towards contraction.

The structural tendency towards contraction was especially strong for salt and herring. For both products the peak level of total Baltic imports coincided with the peak for Dutch transports, i.e. in the 1640s. In both cases total transports varied from year to year in very much the same fashion as Dutch transports, which is only logical with a relative decline of limited dimensions. Significantly, the two products differ in one crucial respect: the extent to which Dutch transports from the Baltic originated in Dutch ports. Virtually all herring shipped by the Dutch was indeed Dutch herring, whereas only an unimpressive portion of salt shipments, one-quarter at the most, had ever been loaded at quayside in the Republic. As a consequence Dutch salt shipments varied in a very different fashion as compared to Dutch salt exports to the Baltic.⁷¹ This suggests that the structural tendency towards contraction in the salt and herring trade may be linked to a saturation of demand in the east rather than to shifts in supply in the west.

Structural factors probably played a less prominent role in the wine trade. Although total Baltic imports increased markedly during the 1620s when Dutch transports reached a peak, the true peak level for the aggregate was in the 1690s. Moreover, Dutch transports stuck to roughly the same path as actual Dutch exports, but both deviated markedly from overall imports.⁷² The Republic's position in the Baltic wine trade was apparently dependent on the capability to export wines which had been imported into the Republic in the first place. This made the Republic highly vulnerable to discriminatory measures, as became all too apparent at the time of rising protectionism, especially from French quarters.

Textiles and colonial goods present a different trend in the eastbound trade of the Republic with the Baltic.⁷³ There was a continuous and at times even spectacular expansion, leading up to a peak level of Dutch transports by the 1680s. For textiles this level corresponded to three times the level of the 1610s, whereas Dutch transports of colonial goods almost doubled between the 1630s and the 1680s. The share of Dutch transports increased dramatically during the early phase of introduction of these commodities in the Baltic market. This process appears to have been completed by the 1640s, when Dutch skippers accounted for more than 90% of shipments of colonial goods and almost 60% of shipments of textiles, levels that remained unsurpassed for the rest of the century. Later, the Dutch share in both branches of trade fell, eventually touching one-half by the 1690s even for colonial goods.

For textiles and colonial goods, structural and competitive tendencies pointed in opposite directions, with demand in the Baltic for these commodities rising continuously and competition among European suppliers getting tougher. The

relative decline in the face of absolute expansion is only to be explained by setbacks in the rivalry with England and France in particular. This was more pronounced for colonial goods than for textiles, which in turn demonstrates how the success of the VOC in Asiatic trade secured an initial lead that the Republic was unable to maintain in the long run.

Competitive capacity in Dutch transportation of textiles and colonial goods to the Baltic was above all determined by the possibilities of supplying these goods from the staple market at Amsterdam. Dutch transports and actual exports from the Republic were virtually identical for these 'new' products and this formed an important deviation from past experience. British and French rivalry, aided by protectionist measures, precluded Dutch transports of these commodities from ports outside the Republic. Competition also meant that annual variations in Dutch transports or exports coincided with variations in the Baltic aggregate to a less than perfect degree.⁷⁴ These brief observations confirm the emphasis, in the literature, on competition with respect to shipments of textiles and colonial goods to the Baltic.

The issue of the declining grain trade on the Baltic, with all its repercussions for the development of the Republic's foreign trade at large, was introduced into Dutch historiography by Faber in the 1960s and has remained at the centre of discussion ever since.⁷⁵ Faber relies on Sound Toll data and asserts that both total shipments and Dutch shipments of grains (rye, wheat and other grains) were markedly lower during the second half of the seventeenth century as compared to the first half. According to Faber's estimates, total annual grain shipments from the Baltic averaged 68,500 lasts before 1650 and 55,800 lasts after 1650. Using Unger's excerpts from the Sound Toll tables, he also estimates average Dutch transports of grains to have exceeded 50,000 lasts before 1650 and grain shipments alone to have claimed about one-half of total cargo-carrying capacity both before and after 1650.⁷⁶ Direct access to the Sound Toll data on westbound transport enables us both to review this general hypothesis and to more thoroughly scrutinize fluctuations over time in the Dutch grain trade.

Both total and Dutch shipments of grains from the Baltic at first increased dramatically, reaching impressive peaks in 1608, 1618/21, 1641/44 and 1649. The subsequent decline was both long and steep, whereas the recovery only occasionally touched one-time peak levels, e.g. in 1681/85 (Appendix II). Aggregate shipments did indeed fall, from an average in excess of 65,000 lasts per year before 1650 to some 55,000 lasts in the second half of the century. Also Faber's average for Dutch shipments prior to 1650, 50,000 lasts, is confirmed by these calculations. Interestingly, however, the annual average of Dutch grain shipments during the second half of the century, which remains unspecified in the literature, now turns out to be as much as 45,000 lasts, i.e. barely lower than the 50,000 lasts for the first half.⁷⁷ In other words, during the second half of the seventeenth century the Dutch share of the Baltic grain trade declined by considerably less than total Baltic grain trade.

There was obviously a strong relationship between total and Dutch shipments of Baltic grain. Annual variations largely coincided, more so for wheat than for rye, both in the first and in the second half of the century.⁷⁸ The Dutch share in the total was high, mostly three-quarters or more for rye and occasionally even exceeding 90% for wheat and lesser grains. The peaks of 1618/21 and 1681/85 saw a very high average Dutch share in rye shipments at 85-87%, whereas the peaks of the 1640s apparently were accompanied by more competition and a smaller Dutch portion in the expansion. The less steep decline after 1650 of Dutch shipments, as opposed to the aggregate, implied a slight increase in the Dutch share, from 78.5% on average during the first half of the century to 82% in the second half.

The juxtaposition of structural and competitive factors of change can also be discerned in Dutch participation in the Baltic grain trade. The overall tendency towards contraction after 1650, which has rightly been associated above all with changing demand and supply conditions on the vital southern European market,⁷⁹ may be labelled both structural and exogenous with respect to the development of Dutch foreign trade. But this tendency was partly offset by a competitive tendency towards expansion, with the Dutch not only retaining their share of the market but also expanding it somewhat. The net result was a smaller decline of Dutch transports as compared to total transports.

But competition and structure interacted in yet another fashion. In the course of the seventeenth century an important shift took place in the commodity composition of westbound Baltic grain exports. The traditional predominance of rye gave way to a more balanced range, with sizeable portions of wheat and lesser grains as well. This can be illustrated by the average share of rye, wheat and lesser grains in Dutch shipments during the first and second half of the century. Rye fell from 76% to 59%, whereas wheat gained from 15% to 23%, with lesser grains accounting for the rest, 9% and 18% respectively. It is tempting to suggest that this change in the composition of Dutch grain transports in the direction of more variety explains part of the success in terms of competition.

Wood and iron both rose from insignificance to prominence in the course of the seventeenth century, thus contributing to the broadening of the range of export products offered by the Baltic region.⁸⁰ Within the Baltic this shift in the commodity composition of westbound trade resulted partly from a more pronounced role being played by Sweden and Finland, alongside the traditionally first-ranking exporters in the southeastern part of the region, namely

Poland and East Prussia. The Dutch share in the 'new' trade was initially very high, which without doubt is related to the intimate economic ties between the Republic and Sweden during the first half of the century in particular.⁸¹ But after the 1650s increasing Swedish assertiveness, if not protectionism, and more English competition soon caused an erosion of the Dutch share in this part of Baltic trade.

The structural tendency towards expansion for both wood and iron rested upon a successive enlargement of supply to meet the ever larger demand in England in particular. In fact the true dimensions of this expansion are not visible in the Sound Toll tables, since Swedish ships enjoyed exemption from payment of duties in the Sound (except in wartime) from 1645, i.e. precisely when a Swedish mercantile fleet was built up. Total shipments of Swedish bar iron as registered in the Danish Sound stayed far below iron exports as registered in Stockholm in, for instance, 1661 and 1674-1680, or aggregate export production of iron in Sweden as known for 1694.⁸² Significantly the two spectacular peaks in Dutch shipments of Swedish iron in the seventeenth century occurred in 1657 and 1678, both years in which Sweden was at war with Denmark.

The structural expansionary tendency was counteracted by a competitive tendency towards contraction in transportation of both wood and iron. The Dutch share in total known westbound shipments of iron through the Sound fell from one-half or more in the 1620s and 1630s to a mere one-quarter in the 1680s and 1690s. The relative decline amidst the overall absolute expansion was less pronounced in the wood trade, with the Dutch share falling from two-thirds in the 1620s to one-half in the 1670s or 1690s. The difference between wood and iron in this respect may also be inferred from variations in absolute levels. Dutch shipments of wood continued to rise, albeit at a slower pace than for the Baltic as a whole, whereas Dutch iron transports in the 1680s and 1690s were a far cry from the levels which had prevailed in the 1640s and early 1650s (leaving aside the wartime decade of the 1670s). The degree of cohesion between annual variations in total and Dutch shipments grew higher in wood than in iron.⁸³

The interplay between structural and competitive forces in the Dutch trade on the Baltic in the seventeenth century brought about dynamic change with widening product ranges and differential paces of expansion, a rather different impression from the one advanced by Israel.⁸⁴ General prospects deteriorated for traditional products (salt, herring, wine, grains), whereas competition increased in 'new' branches (textiles, colonial goods, iron, wood). Dutch merchants were at times successful in meeting foreign competition, notably in grains, but less so when protectionism turned the scale, as it did for wine, colonial goods and iron in particular.

5. Conclusion

The Golden Age of the Dutch Republic in the seventeenth century does not easily lose its fascination among admirers and critics alike. It was the time when the small, young Dutch nation achieved stunning economic success and a pivotal position in world trade. Much is yet to be done in historical research before we can gain a full understanding of Dutch foreign trade at the time, how it grew and how it succumbed. This contribution reviews trends in recent historiography and suggests directions for a quantitative analysis on both a global level and the level of a specific branch of trade, the Baltic.

The paradigm of general expansion up to 1650 followed by consolidation or stagnation is firmly rooted in contemporary handbooks, with continuous expansion in Asiatic trade via the VOC forming the exception confirming the rule. The only serious challenger of conventional wisdom with respect to the unsurpassed peak of the 1640s and the primacy of Baltic or bulk trade is Israel. Yet so far Israel has not succeeded in convincing his Dutch colleagues by his view of a zenith at a later date and a growing predominance of 'rich' trades over bulk.

Our preliminary analysis of the sole source reflecting turnover at a very high level of aggregation, the *convooien en licenten*, suggests a three-tiered pattern of change in Dutch foreign trade during the seventeenth century: expansion up to the peak of the 1640s, subsequent contraction, and a recovery only from the 1680s. This interpretation rests upon a decision to reconstruct aggregates only for years with incomplete data and to refrain from applying corrective factors. It is, however, unlikely that such corrections, inevitably containing an arbitrary element, would alter the main trends profoundly.

Our scrutiny of Dutch trade with the Baltic reveals a more dynamic pattern than has often been appreciated in the literature. Product ranges were widened and competition stiffened. Structural and competitive components can be isolated in long-run change, with the Dutch Republic at times retaining its strong position in declining trades (salt, herring) or having to settle for a smaller share in expanding trades (colonial goods, iron). Dutch shipments of grains from the Baltic after 1650 declined considerably less, in fact hardly at all, as compared to total shipments. The problem of the declining grain trade was a structural matter, not a question of more competition, and appears to have been overstated in the literature, at any rate as far as the Republic goes. The Baltic trade, it must still be said, was the mainstay of Dutch foreign trade during the seventeenth century.

Appendix I

Aggregate revenues of 'convoeien en licenten' 1614-1700

(thousands of guilders)

1614	1319	1643	2828	1672	686
1615	1295	1644	2562	1673	821
1616	1366	1645	2375	1674	1406
1617	1361	1646	2513	1675	1433
1618	1471	1647	2705	1676	1326
1619	1458	1648	2796	1677	1511
1620	1529	1649	2206	1678	1681
1621	1680	1650	2363	1679	1490
1622	1852	1651	2146	1680	1451
1623	1985	1652	1524	1681	1935
1624	1992	1653	1150	1682	1903
1625	1533	1654	1707	1683	1865
1626	1422	1655	1701	1684	1853
1627	1525	1656	1945	1685	2278
1628	1676	1657	1687	1686	2427
1629	1911	1658	1665	1687	2750
1630	1936	1659	1757	1688	2878
1631	2077	1660	2048	1689	2317
1632	1893	1661	1801	1690	2257
1633	2012	1662	1803	1691	2633
1634	2209	1663	1872	1692	2689
1635	2331	1664	1519	1693	2928
1636	2484	1665	953	1694	2585
1637	2613	1666	1072	1695	2802
1638	2446	1667	1306	1696	2250
1639	2439	1668	1998	1697	2384
1640	2472	1669	1675	1698	3323
1641	2697	1670	1658	1699	3170
1642	2792	1671	1630	1700	2697

Source: H.E. Becht, *Statistische gegevens betreffende de handelsomzet van de Republiek der Vereenigde Nederlanden gedurende de 17e eeuw (1579-1715)* (The Hague 1908) Table I [= appendix]. Aggregates were reconstructed for the years 1614/20, 1632, 1635/40 and 1672/1700.

Appendix II

Transports of main commodities through the Danish Sound 1600-1700

(annual averages per decade)

Eastbound

	Salt (lasts) Dutch	(lasts) Total	Herring (pipes) Dutch	Wine Total	Dutch	Total
1601/10	17356	27022	7877	9211	4587	9093
1611/20	22953	25849	8059	9308	6440	7611
1621/30	23115	28124	6774	8397	8313	10028
1631/40	19631	25002	6737	8752	5413	7436
1641/49	25695	31748	8465	10210	4625	7482
1654/57	20209	26583	4998	5583	4493	6548
1661/70	14902	18978	2554	2879	3177	4872
1671/80	12031	25799	1906	2966	3625	9080
1681/90	17891	25162	2940	3867	5007	10232
1691/1700	9406	21215	1736	3224	2329	12195

	Textiles (pieces) Dutch	Colonial goods (thous. pounds) Total	Dutch	Total
1601/10	6467	39133	23	48
1611/20	13830	45833	42	70
1621/30	30497	65292	172	283
1631/40	38091	77724	1322	1440
1641/49	36871	65429	1809	2001
1654/57	19348	34958	1184	1495
1661/70	19563	35781	1507	1819
1671/80	21750	40109	1687	2797
1681/90	40887	64018	2362	3996
1691/1700	21882	42166	1913	4280

Westbound

	Rye		Wheat		Other grains	
	(lasts) Dutch	(lasts) Total	(lasts) Dutch	Total	Dutch	Total
1601/10	34834	46646	3451	5286	1436	1845
1611/20	47288	55883	6302	7345	3507	3864
1621/30	27422	34775	4180	5214	3150	3703
1631/40	32970	45298	9129	10254	6838	8091
1641/49	46003	64345	16089	18179	9838	11211
1654/57	30796	38641	9485	10257	2896	3147
1661/70	21618	26010	7724	8106	6575	7575
1671/80	23192	28021	9449	10059	6524	8351
1681/90	37281	44561	16406	17420	16304	19295
1691/1700	24019	33230	7660	11464	5860	9280

	Wood (thous. pieces)		Iron (shippounds)	
	Dutch	Total	Dutch	Total
1601/10	19	30	1026	7089
1611/20	36	46	1211	3157
1621/30	45	65	8947	15051
1631/40	28	62	16088	31963
1641/49	39	81	21844	53776
1654/57	20	45	22415	48614

1661/70	264	370	17673	31117
1671/80	291	509	22979	71483
1681/90	667	846	8039	32230
1691/1700	435	879	3352	17086

Source: N.E. Bang & K. Korst, *Tabeller over skibsfart og varetransport gennem Oresund 1497-1660* (Copenhagen 1906-1933) Vol. II:A [1922]; N.E. Bang & K. Korst, *Tabeller over skibsfart og varetransport gennem Oresund 1661-1783 og gennem Store Bælt 1701-1748* (Copenhagen 1930-1953) Vol. II:1 [1949].

NOTES

*.. Translation: ###

1.. Cf. J. de Vries, 'The decline and rise of the Dutch economy, 1675-1900', G. Saxonhouse & G. Wright (eds), *Technique, spirit and form in the making of modern economies; Essays in honor of William N. Parker* (Greenwich 1984) 149-189; R.T. Griffiths, *Achterlijk, achter of anders?; Aspecten van de economische ontwikkeling van Nederland in de 19e eeuw* (Amsterdam 1980); H. Baudet, 'Nederland en de rang van Denemarken', *Bijdragen en Mededelingen betreffende de Geschiedenis der Nederlanden* 90 (1975) 430-443.

2.. Cf. J.Th. Lindblad & J.L. van Zanden, 'De buitenlandse handel van Nederland, 1872-1913', *Economisch- en Sociaal-Historisch Jaarboek* 52 (1989) 231-269; H. Brugmans (ed.), 'Statistiek van den in- en uitvoer van Amsterdam, 1 oct. 1667 - 30 Sept. 1668', *Bijdragen en Mededelingen van het Historisch Genootschap* 19 (1898) 125-183; N.W. Posthumus, 'Statistiek van den in- en uitvoer van Rotterdam en Dordrecht in het jaar 1680', *Bijdragen en Mededelingen van het Historisch Genootschap* 34 (1913) 529-537.

3.. J.I. Israel, *Dutch primacy in world trade, 1585-1740* (Oxford 1989). A Dutch translation appeared as: *Nederland als centrum van de wereldhandel, 1585-1740* (Franeker 1991). For a recent interesting contribution in a slightly different vein, see: H.P.H. Nusteling, 'Strijd om de commerciële suprematie in de zeventiende en achttiende eeuw', *NEHA-Bulletin* 6 (1992) 5-23.

4.. J.L. van Zanden, 'The Dutch economic history of the period 1500-1940; A review of the present state of affairs', *Economic and Social History in the Netherlands* 1 (1989) 9-29, in particular 15.

5.. J.G. van Dillen, *Van rijkdom en regenten; Handboek tot de economische en sociale geschiedenis van Nederland tijdens de Republiek* (Den Haag 1970) 37-174, 332-386; J.R. Bruijn, 'De vaart in Europa' and F.S. Gaastra & P.C. Emmer, 'De vaart buiten Europa', L.M. Akveld, S. Hart & W.J. van Hoboken (eds) *Maritieme geschiedenis der Nederlanden* (Bussum 1977) II: 200-241, 242-288; H. Klomp maker, 'Handel, geld- en bankwezen in de Noordelijke Nederlanden 1580-1650', *Algemene geschiedenis der Nederlanden* (Haarlem 1980) VII: 98-127; P.W. Klein, 'Handel, geld- en bankwezen in de Noordelijke Nederlanden 1650-1795', *Algemene geschiedenis der Nederlanden* (Haarlem 1979) VIII: 160-184. See further: J.R. Bruijn, 'Scheepvaart in de Noordelijke Nederlanden 1580-1650', *Algemene geschiedenis der Nederlanden* (Haarlem 1980) VII: 137-155; J.R. Bruijn, 'Scheepvaart in de Noordelijke Nederlanden 1650-1800', *Algemene geschiedenis der Nederlanden* (Haarlem 1979) VIII: 209-238; F.S. Gaastra, *De geschiedenis van de VOC* (Haarlem 1982, ###²) 98-135. For a brief overview see: P.W. Klein, 'De zeventiende

- eeuw (1585-1700)', J.H. van Stuijvenberg (ed.), *De economische geschiedenis van Nederland* (Groningen 1977) 79-118, in particular 101-106.
- 6.. A.M. van der Woude, 'De 'Nieuwe Geschiedenis' in een nieuwe gedaante', *Algemene geschiedenis der Nederlanden* (Haarlem 1980) V: 9-35, in particular 23-24.
- 7.. Van Dillen, *Van rijkdom en regenten*, 36-37, 54-56, 90, 98, 113, 128, 331, 340-341, 350-352, 363, 377, 499-500.
- 8.. Bruijn, 'De vaart in Europa', 201-205, 209-211, 217-218, 238. Cp. Bruijn, 'Scheepvaart 1580-1650', 137-138, 141-143; Bruijn, 'Scheepvaart 1650-1800', 218, 227-228.
- 9.. Klompmaker, 'Handel, geld- en bankwezen 1580-1650', 99-101, 103, 106, 118-119.
- 10.. Klein, 'Handel, geld- en bankwezen 1580-1650', 160, 162-163, 174-175. Cf. Klein, 'De zeventiende eeuw', 118.
- 11.. Gaastra, *De geschiedenis van de VOC*, 98-135. Cf. F.S. Gaastra, 'De VOC in Azië tot 1680', *Algemene geschiedenis der Nederlanden* (Haarlem 1980) VII: 173-219.
- 12.. E. van den Boogaart, 'De Nederlandse expansie in het Atlantisch gebied 1590-1674', *Algemene geschiedenis der Nederlanden* (Haarlem 1980) VII: 220-254.
- 13.. Israel, *Dutch primacy*, 8-11, 405-415. Cf. J.I. Israel, 'The 'New History' versus 'traditional history' in interpreting Dutch world trade primacy', *Bijdragen en Mededelingen betreffende de Geschiedenis der Nederlanden* 106 (1991) 469-479.
- 14.. J.L. van Zanden, 'De 'nieuwe visie' van Israel', *Bijdragen en Mededelingen betreffende de Geschiedenis der Nederlanden* 106 (1991) 451-457; L. Noordegraaf, 'Vooruit en achteruit in de handelsgeschiedenis van de Republiek', *Bijdragen en Mededelingen betreffende de Geschiedenis der Nederlanden* 106 (1991) 458-468.
- 15.. J.Th. Lindblad, 'Structuur en conjunctuur in de handel van de Republiek in de zeventiende eeuw; Zweden en Elbing als voorbeelden', *Leidschrift* 8 (1992) [forthcoming].
- 16.. H.E. Becht, *Statistische gegevens betreffende den handelsomzet van de Republiek der Vereenigde Nederlanden gedurende de 17e eeuw (1579-1715)* (Den Haag 1908) 85-93, 192, III-V, VIII.
- 17.. J.C. Westermann, 'Statistische gegevens over de handel van Amsterdam in de zeventiende eeuw', *Tijdschrift voor Geschiedenis* 61 (1948) 3-15, in particular 6-9. Comments by J.G. van Dillen are inserted on p. 10-11. An additional complication is that the *derde verhoging* was abolished in 1681 but reinstated in 1685. Westermann's argument that the increase because of the *derde verhoging* makes an upward correction superfluous thus only applies from 1685, not from 1681. It appears that no correction is applied to the years 1681-1685 since the total burden of levies was then reduced, but that is strictly speaking beside the point as the whole exercise concerns the level of *convooiën en licenten* apart from other levies.
- 18.. Van Dillen, *Van rijkdom en regenten*, 279-281, 506-508; Bruijn, 'De vaart in Europa', 207; Klompmaker, 'Handel, geld- en bankwezen 1580-1650', 104. On smuggling and fraud, cf. J. de Vries, 'De ontduiking der convooiën en licenten in de Republiek tijdens de achttiende eeuw', *Tijdschrift voor Geschiedenis* 71 (1958) 349-361.
- 19.. Klein, 'Handel, geld- en bankwezen 1580-1650', 161; Van Zanden, 'De 'nieuwe visie?', 453, 457. Van Zanden's graph is based on: M.C. 't Hart, *In quest for funds; Warfare and state formation in the Netherlands 1600-1650* (Leiden 1989) 209-213. For the eighteenth century, cf. J. de Vries, *De economische achteruitgang der Republiek in de achttiende eeuw* (Amsterdam 1959) 20-24, 185-193.
- 20.. H.P.H. Nusteling, *Welvaart en werkgelegenheid in Amsterdam 1540-1860; Een relaas over demografie, economie en sociale politiek van een wereldstad* (Amsterdam 1985) 86-92; Israel, *Dutch primacy*, 280-283.
- 21.. Nusteling, *Welvaart en werkgelegenheid*, 88-89.
- 22.. Israel, *Dutch primacy*, 280-281; Israel, 'The 'New History'', 470. Israel incorrectly refers to Westermann's correction percentage as 30%. Israel's figures for Amsterdam deviate slightly from those given by Westermann for the years 1640-1648, which may possibly be explained by a confusion between the admiralty of Amsterdam and the office of the same name within that admiralty.
- 23.. Van Zanden, 'De 'nieuwe visie?', 453-454. Van Zanden cites an increase for the admiralty of Rotterdam of 64.5% between 1621 and 1647 which, however, is misread (as 1621/46) by Israel in the latter's reply to Van Zanden's criticism. Cf. Israel, 'The 'New History'', 470 n. 4.
- 24.. Becht, *Statistische gegevens*, 204-205; Westermann, 'Statistische gegevens', 13; Van Dillen, *Van rijkdom en regenten*, 507.
- 25.. Klein, 'Handel, geld- en bankwezen 1580-1650' 161; Nusteling, *Welvaart en werkgelegenheid*, 89-92.
- 26.. Israel, *Dutch primacy*, 282.
- 27.. Calculated on the basis of tariff and price data in respectively: Becht, *Statistische gegevens*, 97-104; N.W. Posthumus, *Nederlandse prijsgeschiedenis I: Goederenprijzen op de beurs van Amsterdam 1585-1914* (Leiden 1943) 4-8, 19-23. Israel's citations of tariffs for these commodities do not always coincide exactly with those presented by Becht, as the two authors rely on different versions of the tariff lists in the *Groot Placaet-Boeck*. Cf. Israel, *Dutch primacy*, 282.
- 28.. Cf. Israel, *Dutch primacy*, 281.
- 29.. Van Zanden, 'De 'nieuwe visie?', 454 n. 4. No details are given for the procedure of interpolation.
- 30.. The share of the missing admiralty equals the difference between the reconstructed total (after application of the multiplier) and the known total based on non-missing admiralties, e.g. (1.29-1) is 22.5% of 1.29. Twelve different multipliers, one for each constellation of missing admiralties, are applied. The multipliers vary from 1.07 in 1674-1675, when only the admiralty of West Friesland (including the Noorderkwartier) is missing, to 1.71 in 1679-1680 when all but Amsterdam and Friesland are missing.
- 31.. Becht, *Statistische gegevens*, table I [= appendix]. The totals for 1642 and 1667 have been corrected, as Becht renders them 400,000 too low and 100,000 too high respectively.
- 32.. Van Zanden, 'De 'nieuwe visie?', 454; Israel, *Dutch primacy*, 279.
- 33.. Cp. F. Snapper, *Oorlogsinvloeden op de overzeese handel van Holland, 1551-1719* (Amsterdam 1959).
- 34.. See also: Bruijn, 'De vaart in Europa', 212, 227-230; Klein, 'Handel, geld- en bankwezen 1580-1650' 171-172.
- 35.. Cf. Israel, *Dutch primacy*, 279.
- 36.. A word of caution is required with respect to the increase for the Admiralty of Amsterdam by about one-third between 1684 and 1685 alone as the statistics does not permit exclusion of the *derde verhoging* and the Orisontse tol in the latter year. Cf. Becht, *Statistische gegevens*, VIII. The increase in the Amsterdam aggregate did, however, continue also after 1685, e.g. by 27% between 1685 and 1687. The higher level was apparently not the result of registration alone.
- 37.. Statistically significant coefficients of correlation ($R > c. 0.7$) between revenues from *convooiën en licenten* calculated for the period 1600/50: West Friesland with: Friesland: 0.87, Amsterdam: 0.77, Rotterdam: 0.73, Zeeland: 0.69; Zeeland with: Amsterdam: 0.82, Rotterdam: 0.72. Coefficients are only calculated for years for which revenue by admiralty was known.
- 38.. Bruijn, 'De vaart in Europa', 213. Cf. Klompmaker, 'Handel, geld- en bankwezen 1580-1650', 112.
- 39.. Cp. Van Dillen, *Van rijkdom en regenten*, 334; De Vries, *De economische achteruitgang*, 22.

- 40.. Bruijn, 'De vaart in Europa', 213.
- 41.. Israel, *Dutch primacy*, 213, 281-282.
- 42.. J.E. Israel, 'The phases of the Dutch straatvaart (1590-1713); A chapter in the economic history of the Mediterranean', *Tijdschrift voor Geschiedenis* 99 (1986) 1-30, in particular 5-10, 21-22; Israel, *Dutch primacy*, 97-101, 124-140, 224-236. See further: J.E. Israel, *The Dutch Republic and the Hispanic world, 1606-1661* (Oxford 1982).
- 43.. For some interesting estimates of the volume of Dutch re-exports of Spanish bullion to Asia and the Baltic, see: A. Attman, *American bullion in the European world trade 1600-1800* (Gothenburg 1986) 79-91.
- 44.. Klein, 'Handel, geld- en bankwezen 1580-1650', 173-174.
- 45.. Israel, *Dutch primacy*, 93, 99, 129, 205, 232, 316, 318.
- 46.. Bruijn, 'De vaart in Europa', 213.
- 47.. Cf. J.Th. Lindblad, 'The economic history of colonial Indonesia; An historiographical survey', *Economic and Social History in the Netherlands* 1 (1989) 31-47, in particular 32-34; J.P. de Korte, *De jaarlijkse financiële verantwoording in de VOC* (Leiden 1984).
- 48.. Gaastra, *De geschiedenis van de VOC*, 35-60, 105, 122-123.
- 49.. Gaastra, 'De VOC in Azië tot 1680', 213; Gaastra, *De geschiedenis van de VOC*, 125. It is assumed that figures given in these tables are totals per decade.
- 50.. De Korte, *De jaarlijkse financiële verantwoording*, 31, 44, 50. Cf. Gaastra, 'De VOC in Azië tot 1680', 219.
- 51.. Gaastra, 'De VOC in Azië tot 1680', 200-201; F.S. Gaastra, 'De VOC in Azië 1680-1795', *Algemene geschiedenis der Nederlanden* (Haarlem 1980) IX: 427-464, in particular 443. See also: Gaastra, *De geschiedenis van de VOC*, 75, 77.
- 52.. De Korte, *De jaarlijkse financiële verantwoording*, 54; Bruijn, 'De vaart in Europa', 213. De Korte's decadal average for the 1640s is lowered by 15% so as to assure comparability with the data for the 1630s. The subsequent value of VOC trade is added to the total for European ports only in order to arrive at a proper aggregate for all foreign imports (except from the Levant). Total exports of the Republic are assumed to be of the same order of magnitude as total imports. It must be stressed that the entire procedure is highly tentative.
- 53.. Van Dillen, *Van rijkdom en regenten*, 39.
- 54.. Israel, *Dutch primacy*, 10-11, 213.
- 55.. On supplementary Baltic sources, cf. Klomp maker, 'Handel, geld- en bankwezen 1580-1650', 108; Lindblad, 'Structuur en conjunctuur'.
- 56.. N.E. Bang & K. Korst, *Tabeller over skibsfart og varetransport gennem Oresund 1497-1660* (Copenhagen 1906-1933); N.E. Bang & K. Korst, *Tabeller over skibsfart og varetransport gennem Oresund 1661-1783 og gennem Store Baelt 1701-1748* (Copenhagen 1930-1953); H.C. Johansen, *Shipping and trade between the Baltic area and Western Europe 1784-1795* (Odense 1983).
- 57.. W.S. Unger, 'De publikatie der Sonttabellen voltooid', *Tijdschrift voor Geschiedenis* 71 (1958) 147-205, in particular 187. Unger quotes one of the editors of the Sound Toll tables, Nina Ellinger Bang, who in 1924 became the very first female Cabinet member in the world. Cf. P. Jeannin, 'Les comptes du Sund comme source pour la construction d'indices généraux de l'activité économique en Europe (XVIe-XVIIIe siècle)', *Revue historique* 2331 (1964) 55-102, 307-340.
- 58.. Cf. A.E. Christensen, *Dutch trade to the Baltic around 1600* (Copenhagen 1941) 356-358. Cf. Van Dillen, *Van rijkdom en regenten*, 41-44, 53; Unger, 'De publikatie der Sonttabellen', 147-148. The possibility of consulting the original registers on microfilm, instead of relying exclusively on the published tables, has recently been created at the Netherlands Economic History Archive (NEHA) at Amsterdam. Cf. P.C. van Royen, 'De Sonttolregisters op microfilm', *NEHA-Bulletin* 4 (1990) 126-127.
- 59.. Bruijn, 'De vaart in Europa', 217. Also: Bruijn, 'Scheepvaart 1580-1650', 146; Bruijn, 'Scheepvaart 1650-1800', 221; Unger, 'De publikatie der Sonttabellen', 150.
- 60.. Israel, *Dutch primacy*, 93-95, 142, 214.
- 61.. Christensen, *Dutch trade*, 345-346; Snapper, *Oorlogsinvloeden*, 305-306; Van Dillen, *Van rijkdom en regenten*, 43; Bruijn, 'De vaart in Europa', 217; Israel, *Dutch primacy*, 215; Van Zanden, 'De ?nieuwe visie?', 454.
- 62.. Cf. W.S. Unger, 'De Sonttabellen', *Tijdschrift voor Geschiedenis* 41 (1926) 137-155, in particular 150-155; Unger, 'De publikatie der Sonttabellen', 188-205; Bruijn, 'De vaart in Europa', 219.
- 63.. Cf. Israel, *Dutch primacy*, 86-95, 406-410; Israel, 'The ?New History?', 477.
- 64.. Cf. Unger, 'De publikatie der Sonttabellen', 152.
- 65.. Two examples may suffice. The average share of Dutch destinations and Dutch skippers in total exports of rye from the Baltic was as follows: 1671/80: 82.7% and 79.1%, 1681/90: 83.6 and 84.2%, 1691/1700: 72.2% and 84.2%. The average share of Dutch destinations and Dutch skippers in total wood exports was: 1671/80: 53.2% and 51.9, 1681/90: 78.5% and 76.9%, 1691/1700: 67.5% and 70.8. Based on data in: Unger, 'De publikatie', 197-203.
- 66.. For a different approach with respect to the eighteenth century, cf. P. de Buck & J.Th. Lindblad, 'De scheepvaart en handel uit de Oostzee op Amsterdam en de Republiek, 1722-1780', *Tijdschrift voor Geschiedenis* 96 (1983) 536-562.
- 67.. The Sound Toll tables contain no data on trade with the Republic for the years 1632, 1634, 1646, 1650-1653 and 1658-1660.
- 68.. Unger, 'De Sonttabellen', 142-145, 148; Unger, 'De publikatie der Sonttabellen', 154-166, 168-176; Bruijn, 'De vaart in Europa', 217-220; Klomp maker, 'Handel, geld- en bankwezen 1580-1650', 106-108; Klein, 'Handel, geld- en bankwezen', 168-169. See also: Van Dillen, *Van rijkdom en regenten*, 47-58, 334.
- 69.. Wine is here represented by an aggregation of Rhine and French wines based on the following conversions: 1 pipe = 0.5 barrel = 2 hogsheads = 3.24 aums. Cf. Unger, 'De publikatie der Sonttabellen', 158 n. 38.
- 70.. Average share of Dutch transports in total eastbound volume calculated over 1600/57 and 1661/1700 respectively: salt: 78% and 59%, herring: 83% and 71%, wine: 70% and 39%.
- 71.. Coefficients of correlation between Dutch transports on the one hand and total transports and Dutch exports on the other calculated for the years 1600/1700: salt: 0.85 and 0.51, herring: 0.99 and 0.99. The statistical link between Dutch transports and exports of salt is even weaker when calculated only for the period 1661/1700: 0.24.
- 72.. Coefficients of correlation between Dutch transports of wine on the one hand and total transports and exports from the Republic on the other calculated for the years 1600/1700: 0.45 and 0.87. The coefficient between Dutch exports and total transports of wine is 0.52.
- 73.. Textiles form aggregations of *Vaevede* stoffer, expressed in pieces and including not only wool but also linen, cotton and silk. Under the broad label 'Colonial goods' we find a

staggering variety of the most heterogeneous commodities aggregated by weight (pounds).

74.. Coefficients of correlation between Dutch transports and total Baltic imports of textiles and colonial goods calculated for the period 1600/1700: 0.86 and 0.90. The coefficient with exports from the Republic is 0.99 in both cases.

75.. J.A. Faber, 'Het probleem van de dalende graanaanvoer uit de Oostzeelanden in de tweede helft van de zeventiende eeuw', *AAG Bijdragen* 9 (1963) 3-28; also: J.A. Faber, 'The decline of the Baltic grain trade in the second half of the seventeenth century', W.G. Heeres *et al.* (eds), *From Dunkirk to Danzig; Shipping and trade in the North Sea and the Baltic 1350-1850* (Hilversum 1988) 31-51.

76.. Faber, 'The decline', 35, 40. See also: Van Dillen, *Van rijkdom en regenten*, 337.

77.. Cp. Unger, 'De publikatie der Sonttabellen', 167-168; Faber, 'The decline', 36-37; Bruijn, 'De vaart in Europa', 218.

78.. Coefficients of correlation between Dutch transports and total transports calculated for the period 1600/1700: rye: 0.83, wheat: 0.97, other grains: 0.98. Calculations for the periods 1600/57 and 1661/1700 separately produce only minute deviations from these coefficients.

79.. Faber, 'Het probleem', 44-49.

80.. Figures for wood are not comparable between the periods before 1657 and after 1661 because of an incomplete presentation of the data in the published tables prior to 1657.

81.. See further: J.Th. Lindblad, 'Evidence of Dutch-Swedish trade in the 17th century', J.Ph.S. Lemmink & J.S.A.M. van Koningsbrugge (eds), *Baltic affairs; Relations between the Netherlands and northeastern Europe 1500-1800* (Nijmegen 1990) 205-228.

82.. Cf. B. Boëthius & E.F. Heckscher, *Svensk handelsstatistik 1637-1737* (Stockholm 1938) 662, 704-707, 740-742.

83.. Coefficients of correlation between total and Dutch shipments from the Baltic are as follows: iron (over 1600/1700): 0.77, wood: 1600/1657: 0.75, 1661/1700: 0.94. It is recalled that data on wood are not comparable for the years before 1657 and after 1661.

84.. Israel, *Dutch primacy*, 140-142, 213-217, 302-303.