

**Appendix to:  
“Commodity Exports, Invisible Exports and Terms of Trade  
for the Middle Colonies, 1720 to 1775”**

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**Abstract**

This Appendix collects the data underlying new estimates of commodity exports, invisible exports and the impact of changes in the terms of trade on the exports of the colonies and states of the Middle Atlantic region between 1720 and 1800 and documents the methods used to construct estimates of these series from the data.

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Our estimates of exports from the Middle Colonies are comprised of three parts: base year values for 1768-72, extrapolation of the base year values backward to 1720, and a separate set of estimates constructed for the years after 1790.

James Shepherd compiled estimates of the value of colonial exports for the base years of 1768-1772 based on data collected in the American Inspector General's Ledgers. These records, which were compiled by the American Board of Customs, recorded the quantities of all commodities legally exported from and imported into 42 colonial port districts throughout the British North American mainland from January 5, 1768 through January 5, 1773. According to Shepherd and Walton (1972, p. 204) they "represent the only period for which we have data that purport to be a complete coverage of colonial overseas trade." Shepherd (1969) and Shepherd and Walton (1972) have provided extensive analysis of these data including compilation of estimates of the value of individual commodities exported from different ports and the aggregation of these data into broader geographic regions.

We begin by presenting in more detail what is known about commodity exports in the base years and our approach to estimating the value of exports in the base years. The second section describes our extrapolation procedures for the years prior to 1768. The third section describes the construction of estimates for 1790 and after. Commodity exports constituted only a portion of total regional exports in these years, however. Freight charges and other merchant services—so-called "invisible exports"—constituted another important source of export earnings. Although they are more difficult to measure than commodity exports, the magnitude of these earnings makes it essential to attempt to estimate them. In the fourth section we present the available evidence underlying our conjectures about the magnitude of invisible exports. In the fifth section we discuss changes in the terms of trade that influenced the purchasing power of regional export earnings. Finally we report the key export series.

### **The Base Year Value of Exports**

Table 1 reports the average annual value in pounds sterling of exports by source and destination between 1768 and 1772. New York and Pennsylvania were the primary sources of regional exports, accounting for fully 96.5% of the value of regional exports. Close to three-quarters of regional exports went to the West Indies or Southern Europe, while most of the rest was destined for Great Britain or Ireland. Trade with Africa was quite limited.

Table 2 documents the composition of the region's exports, showing the average quantity exported per year, and the value of these exports in pound sterling for the years 1768-1772 of selected commodities. In addition, it reports the average annual value of all exports from the two colonies (New York and Pennsylvania) that exported almost all of the region's exports. By far the most important regional export was bread and flour, which accounted for close to three fifths of regional export earnings. Adding unprocessed wheat, it is possible to account for about two thirds of total earnings. Including the other listed commodities we can account for almost all of regional export earnings. For Pennsylvania the enumerated commodities amounted to 95% of total export earnings, while for New York this figure was 89%. Given the greater volume of exports produced by Pennsylvania, the enumerated commodities accounted for 93% of total regional export earnings between 1768 and 1772.

As Table 2 makes clear, although the Middle Colonies produced a diverse array of exports, a relatively small subset of commodities accounted for the bulk of the value of exports in the base years. Indeed the ten commodities listed in table 2 make up well over 90 percent of export values in contemporary prices.

We revalued these exports in 1840 prices for use in extrapolating to other years. We used 1840 prices because we want a series that can eventually be linked to comparable series for the nineteenth century. Monthly quotations of the 1840 prices for all of these commodities, except flaxseed, are available in 1840 in Cole (1938). We collected price data for both Philadelphia and New York from this source, averaged the monthly values to create an annual figure, and then averaged across the two cities to get a single value for each commodity.

In constructing a constant price series of exports we are in effect allowing differences in relative prices to determine the relative importance of different commodities within our aggregate series. If relative prices are highly unstable than the choice of the base year that we use may substantially influence the resulting estimates. Fortunately, however, this does not appear to be the case here. Table 3 summarizes the 1840 price data and compares the relative prices that they imply to the 1768-1772 sterling values. Relative prices in the two years had a correlation coefficient of over 0.98.

To estimate the average annual value of exports between 1768 and 1772 in prices of 1840, we first calculated the value of those exports for which prices were available in 1840 by multiplying the average annual quantity of each commodity exported to each destination by its 1840 price, and summed these figures. Then, to account for commodities for which prices were not available, we inflated the resulting total by dividing by the share of priced exports in the total value of all exports. This process is summarized in Table 4, which shows that in 1840 prices exports had an average annual value of \$2.1 million from Philadelphia, and \$995 thousand from New York.

### **Extrapolation of base year values**

In contrast to the detailed picture of the Middle Colonies trade that can be constructed for the end of the colonial period it is hard to find comprehensive quantitative data for earlier years. During the eighteenth century naval officers in American ports compiled quarterly reports of all ships clearing and entering colonial ports along with details of the cargos they carried. While a large number of these naval officers' lists have been preserved, their coverage for most ports is spotty and incomplete.<sup>1</sup> A number of scholars have been able to piece together data on the quantities of exports of specific commodities from Philadelphia for scattered years, but these data are too sparse and inconsistent to allow a reconstruction of the volume of trade earlier in the century. Helen Klopfer's (1936) dissertation assembled data on exports of wheat, flour, bread, and corn

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<sup>1</sup> McCusker (2006) provides a good introduction to these data, but see also Price (1984). Louis Harper undertook the collection and systematic analysis of the data found in the naval officers list, but most of these data remains only partially accessible in the Harper archives located at the University of California, Davis.

for most years after 1760, but she was able to obtain only scattered observations for a few earlier years. Lydon (1967) reports data for a few years in the early 1730s, but these are not entirely consistent with those found in Klopfer's work. Shepherd and Williamson (1972, p. 170) summarized what can be gleaned about exports of bread and flour from New York from the Naval Officers lists analyzed by Louis Harper. Their tables indicate that with the exception of data for 1733-1735, there are only a few scattered years with usable data. There are no data in this source for Philadelphia, as the records from this port appear to have been destroyed at some point in the nineteenth century. Data for other ports are available only for scattered years, or for only one or two quarters in some years, making it difficult to construct consistent and complete records of colonial exports.<sup>2</sup>

Consequently it is necessary to infer changes in the volume of trade from other sources. The most complete data set is that for colonial exports to England. British customs inspectors compiled records of all arrivals in English and Welsh ports beginning in 1696 and Scottish ports beginning in 1740. These data were compiled at the time into annual ledgers listing the value of imports arriving from and exports leaving for different trading areas. Rather than using current prices, however, the compilers of these ledgers used a set of official values that reflected prices near the beginning of the eighteenth century. As a result these series are best interpreted as fixed-price indexes of the volume of trade (McCusker 2006, pp. 641-43).

To construct estimates of exports to Great Britain we first construct three-year centered moving averages of the value of English imports from New York and Philadelphia. We use a centered moving average because of time lags between departure from colonial ports and arrivals in England. Averaging also helps to smooth short-run fluctuations in the import series. We then use the year-to-year changes in this series to extrapolate the value of exports in the base years backward in time. Formally, our estimating equation can be expressed as

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<sup>2</sup> See Shepherd and Walton (1972, p. 167-75) for a compilation of some of these data and a discussion of what can be learned from them.

$$V_{jb}(t) = V_{jb}^* \left[ \sum_{T=1-t}^{t+1} \frac{I_j(T)}{3I_j^*} \right]$$

Where  $V_{jb}(t)$  is the value in 1840 prices of exports to Great Britain in year  $t$  from colony  $j$ ,  $V_{jb}^*$  is the base year value of exports to Great Britain from colony  $j$ ,  $I_j(t)$  is the constant price index of the value of imports into Britain from colony  $j$  in year  $t$ , and  $I_j^*$  denotes the base year values in constant price sterling.

This approach could not be used to estimate colonial exports to other destinations because the necessary annual data are not available. Instead we relied on changes in the outward tonnage clearing each of the major Middle Colony ports to extrapolate exports to these places. Even this method has its shortcomings as tonnage data are not available continuously. But as Tables 5 and 6 indicate, data on tonnage clearing both Philadelphia and New York are available for dates spanning much of the period from 1715 to 1772. The majority of these data have been compiled in *Historical Statistics of the United States*, but we have expanded the coverage of these data with additional information on tonnage from Philadelphia from 1720 to 1740 in Lydon (1967).

We use the tonnage data to construct an index of the volume of exports from each port to each destination and use this index to extrapolate the base year values for exports from each port to each destination in these benchmark years. The estimating formula is



Where  $V_{ji}(t)$  denotes the value of exports from colony  $j$  to destination  $i$  in year  $t$ ,  $T_{ji}(t)$  is tonnage clearing from colony  $j$  to destination  $i$  in year  $t$ , and  $V^*$  and  $T^*$  denote the average annual value of exports and tonnage clearing, respectively, in the base years. We then interpolated between benchmark years by assuming that tonnage, and hence the value of exports, to each destination changed at a constant annual rate equal to the rate of change between each set of benchmark values.

This approach assumes that the ratio of cargo values to tonnage remained constant over the period from 1720 through 1772. The validity of this assumption cannot be directly evaluated except in the case of exports to England. In this one case we can compare the value of colonial exports (the constant sterling value of English imports) to the tonnage clearing for Great Britain at various dates. We report these data in Table 7.

There is considerable year-to-year variability in the respective series making it difficult to discern a trend. If anything, however, based on a comparison of the average value per ton before 1735 and after 1768, the value per ton appears to have been falling over time. If this were true for other destinations then our assumption of constant value per ton would impart an upward bias to our estimates of the growth of exports over the period 1720-1772.

Having constructed both benchmark figures and an annual series from New York and Philadelphia to each destination, we sum exports for each port in each year across destinations and then combine the series for New York and Philadelphia. Finally, we adjust the resulting total to reflect the 3.5% of regional exports that originated in New Jersey and Delaware.

## **Exports after 1776**

### *Data availability*

Because of the disruption caused by the Revolution there are no reliable export statistics for the Middle Atlantic states until the 1790s. For the period from 1791 to 1809 we used data on the nominal value of exports by state in conjunction with an index of regional export prices to construct a series of exports in constant, 1840 prices.

Pitkin (1816) reported the value of foreign exports annually by state beginning in 1791. Beginning with data for 1803 he reported separately the value of re-exports and domestically produced exports from each state. Between 1791 and 1802 Pitkin reported the value of domestically produced exports only at the national level, and not by state.

From 1791 to 1795 domestically produced exports constituted more than 95 percent of total exports, but thereafter the share of re-exports increased substantially, so that by 1800 only about 30 percent of US exports were produced domestically. Thus it is necessary for us to adjust the available state totals to account for this difference.

### *Methodology*

Denote the value of domestically produced exports by  $D$ , total exports by  $X$ , the ratio of domestic to total exports in state  $j$  by  $\theta_j$ , and the ratio of domestic to total exports in the US by  $\theta$ . Then

$$D_j = \theta_j * X_j$$

Multiplying and dividing by  $\theta$ , and rearranging terms

$$D_i = (\theta_j/\theta) * \theta X_j$$

In other words the value of domestic exports for state  $j$  is equal to total exports times the national share of domestically produced exports, times the ratio of the state to the national shares of domestically produced exports.

For the period from 1791 to 1802 we do not know the value of  $(\theta_j/\theta)$ , so for each state we substitute the average value from 1803 through 1810. In the case of New Jersey, where  $(\theta_j/\theta) * \theta$  yields a value greater than 1 we assume that all exports were domestically produced.

This procedure allows us to construct estimates in prices of 1790-1809 of exports from each state in the Middle Atlantic. We then use an index of export prices to convert this figure to constant 1840 prices. Price data are more numerous for Philadelphia than for New York, so we use Philadelphia prices to construct our index. For periods when we were able to compare price movements in New York with those in Philadelphia, the indexes moved quite similarly.

### *Nominal and Real Export Values 1790-1808*

Table 8 reproduces Pitkin's data on the value of total and domestically produced exports from each state in the Middle Atlantic, along with figures for all states combined. Table 9 reports our estimates of domestically produced exports in current prices for each state and for the region over the entire period.

Table 10 reports data on individual commodity prices in Philadelphia and shows two export price indexes based on these data: one constructed as an weighted index of export commodity prices, the other as an unweighted index, where weights reflect the



relative shares of export value accounted for by each commodity in the period 1768-1772. In addition Table 10 reproduces McCusker's composite consumer price index for the US. Each index is set equal to 100 in 1840.

After 1800 all three price indices behave roughly the same. From 1791 to 1799, however, the composite commodity index behaves very differently from the two export price indices. While the export price data suggest that prices in the 1790s were higher on average than in the 1840s, the composite price index implies that the general price level was considerably lower in this period than in 1840. As a result, use of the composite index would yield higher real values in the early years of the 1790s, but slower growth of real exports over the decade.

The export price series seem more appropriate indices for deflating exports than the broader composite index, and the weighted series should be the better reflection of price trends for an aggregate series than the unweighted series. Thus, we used the weighted export price index to convert the current price series to one valued in prices of 1840. The resulting constant price export series is reported in Table 11

### **Invisible Exports**

An important feature of our estimates is the inclusion of invisible earnings in the export totals for the region. Table 12 summarizes estimates compiled by James F. Shepherd and Gary M. Walton (1969) for the years 1768-1772 of earnings from shipping and other services related to the Middle Colonies external trade. These data reveal that exports of shipping and other commercial services from the Middle Colonies were a major source of export earnings, generating income worth nearly 44 percent of the value of the region's commodity exports. These earnings were comprised mostly of freight earnings, which equaled 30.6 percent of commodity exports, with other invisible service income amounting to 13 percent of commodity exports. Earnings from these so-called "invisible" exports were highest in the trade with Great Britain and Ireland, where they reached nearly 50 percent of the value of commodity exports; and lowest in the trade with Southern Europe and the Wine Islands, where they amounted to 34 percent of the value of visible trade.

Given the importance of invisible earnings, it seemed imperative that we include estimates of their value in our measure of the trade sector. The addition of those values, even if estimated imprecisely, would improve considerably the overall level of earnings generated by the region's export sector. To the extent we can gauge changes in the importance of invisible earnings over time, however roughly, we will have a better sense of the extent to which this sector's earnings drove economic growth in the region.

### *Invisible Exports 1715-1776*

Invisible earnings depended on several things. At a point in time the invisible earnings that accrued to Middle colonists were a function of the earnings rate on each route (that is the ratio of invisible earnings to the value of the commodity exports), the volume of commodity exports on each route, and the share of tonnage engaged in the export trade owned by colonists in the region. The earnings accruing to Middle colonists would change over time as these variable changed.<sup>3</sup> While we have evidence on the changing importance of routes over time, our evidence on the earnings rate by route pertain to only the end of the colonial period. That is we do not know how the ratio of invisible to visible exports changed over time. Moreover, while we have some evidence on ownership shares, it is not sufficient to establish a precise picture of changes in those shares over time. Nevertheless, the evidence does suggest the broad outline of ownership shares over time.

Shepherd and Walton (1969, Table 3, pp. 99-100) present evidence on the average ownership shares for the period 1715-43 to 1763-65. For the Middle Colonies the evidence came entirely from New York and indicated that residents of the Middle Colonies owned 9 percent of the tonnage entering from Great Britain into the Northern colonies, and 1 to 2 percent of the tonnage entering into the South, and 2 percent of the clearances. Their shares were larger for the entrances from Southern Europe (15 percent into the Northern colonies) and the West Indies (14 percent into the Northern colonies, 1 percent into New England, 6 percent into the Lower South). Only in the latter region did

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<sup>3</sup> In our calculations we assumed that the earnings rate by route were the same for ships entering and clearing both Philadelphia and New York.

they own much of the tonnage clearing for any destination. In the trade with the West Indies, they owned 3 percent of tonnage clearing the Northern colonies, 1 percent clearing from New England, and 10 percent clearing from the Lower South. Although their figures are based on observations throughout the 18<sup>th</sup> century, Shepherd and Walton reported only the average values, suggesting that they did not find compelling evidence of a trend in ownership shares.<sup>4</sup>

On the other hand, the traditional story about the Middle colonies is one that features a growing role of colonial merchants in trans-Atlantic trade, which would suggest that the importance of invisible earnings was growing over time. The key questions are whether it did increase, and if so by how much. The upper bound of such growth would seem to be that implied by the data on ownership of tonnage registered in Philadelphia in 1726-29 and 1770-75, reproduced in Table 13. McCusker's figures indicate that the share owned by residents of the Middle Colonies grew from 57 percent at the earlier date to 83 percent by the latter date.<sup>4</sup> This increase implies an annual average rate of growth of the share of tonnage owned in the region of 0.83 percent. This rate of increase would seem to be the upper bound, as suggested by the following evidence.

The 0.83 percent rate we have inferred from McCusker's data is far higher than the rate of increase indicated by the rise in the shares of tonnage registered in Pennsylvania that were owned by residents of the Delaware Valley. According to Simeon Crowther (1973, Table 8, p. 100), that share rose from 68 percent in 1727 and 1730 to 76 percent in 1773-75, having peaked at 85 percent in 1754-57. McCusker and

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<sup>4</sup> This is our inference from their presentation of the data; they did not explicitly state that there was no trend.

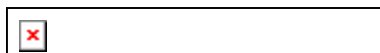
<sup>4</sup> In 1726-29, Philadelphia residents owned 47 percent of registered tonnage, while residents of Delaware and New Jersey owned another 7.5 percent. Residents of all other North American colonies owned another 2.8 percent. At the end of the colonial period Philadelphia residents owned 76.6 percent of registered tonnage, while New Jersey and Delaware residents owned another 3 percent. John J. McCusker (1972, p.154, Table 3). In our compilation of his statistics, we assigned the tonnage listed for other continental colonies to the Middle colonies total. We assumed it was owned by shippers in one of the Middle Colonies, most likely New York which was not identified separately in McCusker's data.

Crowther appear to have used the same source, so the discrepancy is hard to explain. The differences in shares are not very large at the end of the period, although McCusker's ending share of 83 percent for the period 1770-75 is higher than either of the two shares Crowther shows for the same time period: 82 percent for 1769-72 and 76 percent for 1773-75. On the other hand, McCusker's initial share of 57 percent for 1726-29 is fully 10 percentage points lower than Crowther's 68 percent for 1727 and 1730. Crowther's series has the advantage that it shows fuller coverage over the entire period, and thus might be a preferred series. In both cases, however, the figures pertain to registered tonnage, and do not reflect the intensity of usage of the tonnage or usage by route.

Gary Walton has presented evidence on the use of tonnage owned by Middle Colonists in trade with Barbados and Jamaica, which is summarized in Table 13. If one looks at only the trade between the Middle colonies and Barbados and Jamaica, there was a slight increase in the Middle Colonies' ownership share between the end of the 17th century and the end of the colonial period, but essentially no change between 1729-31 and the end of the colonial period (Walton 1968, Tables 3-7, pp. 372-81). Of the 7,366 tons that entered and cleared Barbados and Jamaica in the period 1697-98 to 1716, the Middle Colonies owned 5,428 tons or 74 percent. This share rose to 80 percent in the period 1729-31 to 1736, and then dipped slightly to 79 percent in 1764 and 1773. Overall the region's ownership share of shipping on this trade route rose by less than 10 percent over nearly the whole of the colonial period, but declined at an annual rate of 0.02 percent per year after 1729-31. On the other hand, if we look at the trade between Barbados and Jamaica and all destinations, the Middle Colonies' ownership share rose more noticeably, although after 1729-31 it did not increase quite as much as shown in the McCusker series, having risen at 0.75 percent per year.

Clearly more work is needed to reconcile these diverse pictures of ownership in order to gain a more secure estimate of the trend in ownership and its implications for earnings from the shipping trade. That, however, is future work. For now, it would seem the increase in the Middle Colonists' ownership share must have fallen somewhere between 0.0 percent per year, as implied by Shepherd and Walton, and 0.83 percent per year implied by McCusker. We have used the mid point of that range as the best estimate. Specifically, to estimate invisible earnings for the region we assume that  $S_j$ —

the ratio of invisible to visible earnings to each destination  $j$ —was the same for both New York and Philadelphia, equal to the regional value implied by Shepherd and Walton’s estimates for the end of the colonial period, and that the ratio had increased over time for the region at 0.4 percent per year. Thus our estimate of invisible earnings from colony  $i$ , to destination  $j$  in year  $t$  is



We then sum these destination specific estimates for New York and Philadelphia, and inflate them, as we did for the value of visible exports, to produce estimates for the region as a whole.

#### *Invisible Earnings 1790-1810*

In order to estimate invisible earnings for the period after 1790 we converted Douglass North’s estimate of freight earnings for the U.S. for 1790-1819 in current prices to a series valued in 1840 prices, and estimated the share of those earnings that accrued to the Middle Atlantic states. The data are shown in Appendix Table 14.

North (1960, Tables A-3 and B-2 and 1961, Table Q-VIII, p. 245) estimated his freight earnings as the product of earnings per ton and gross registered tonnage, where the latter figures were adjusted for the removal of ‘ghost tonnage.’ This stock figure was then multiplied by an ‘‘Activity Index’’ to gauge fluctuations in use; the index being equal to the gross registered tonnage divided by net tonnage entering US ports. The adjusted series on tonnage was then multiplied by a freight rate index in order to gauge changes in rates. Dollar values were obtained by weighting the adjusted series by an estimate of earnings per ton (\$50) in the base year of 1796-1800. Because the freight rate index captures changes in nominal rates over time, this calculation yields freight earnings in current prices.

To obtain the series in 1840 prices, we deflated the nominal net freight earnings by North’s Freight Rate Index which we had shifted to a base of 1840. We first shifted his index series running from 1815 to 1860 on a base of 1830 to a base of 1840, then extended that series back to 1790.

The Mid Atlantic share of the nation's freight earnings was estimated based on the region's share of registered tonnage employed in foreign trade (*New American State Papers, Commerce and Navigation*, vol.4 pp. 450-52). Those data were not available for 1790-92, or for 1809. This share was, however, quite stable over the period 1793-1808, and very close to the share of 29 percent implied by the data reported in Shepherd and Walton (1969, Tables 1, 6, 7). For 1791-92 we used the 1793 share of 29 percent, while for 1809 we assumed the region's share was 30 percent, the average share for the years 1806-1808.

These calculations yielded a 1790 value of gross freight earnings (in 1840 prices) for the U.S. of \$4.5 million (compared to North's estimate of 5.9 million in prices of 1796-1800). The Mid Atlantic share of net freight earnings (gross less foreign port charges) was estimated as 29 percent and amounted to \$1.05 million, a figure very much in line with our estimate of \$1.12 million average for 1768-72.

To incorporate other service income originating in foreign trade we inflated the earnings figures to include other service income earned in foreign trade using the ratio (0.43) of other service income to freight earnings implied by Shepherd and Walton's calculations for 1768-1772.

### **Terms of Trade**

To measure the terms of trade we construct an index of prices of major exports from the Middle Colonies and compare it to the Gilboy-Schumpeter index of British prices (Schumpeter 1938).

The Gilboy-Schumpeter index is reported for crop years, which are denoted by the year in which they begin. Thus the figure reported for 1699 is for prices beginning in October 1699 and running through September 1700. To convert these figures to calendar years we construct a weighted average, so that our calendar year 1700 data are computed as 0.75 times the Gilboy-Schumpeter estimate for 1699 plus 0.25 times the figure for 1700. Schumpeter (1938) reports two indexes, one for consumer goods and one for producer goods. We combine these into a single unweighted average.

For the colonial period we use data reported in McCusker (2006, Eg 251-259) to construct a weighted index of the prices of flour (.87), wheat (.10), and pork (.03)

between 1720 and 1775. To extend the series back to 1700 we use an index based on the prices of flour (.89) and wheat (.11). To extend the series forward after 1775 we use prices reported in Cole (1938) to construct a weighted average (weights in parentheses) of the prices of wheat (0.065), bread (0.358), flour (0.358), beef (0.014), pork (0.014), staves (0.043) and bar iron (0.034).

Table 15 reports the indexes of export and import prices and their ratio over the period 1700-1800, with the index set equal to 100 for the base years 1768-1772.

### **Middle Colony Exports**

In Table 16 we report all the key series described above: benchmark figures for commodity exports from New York and Pennsylvania, the annual series on commodity exports from New York, Pennsylvania, and the region, an annual series on invisible earnings for the region, and the terms of trade. We also report total exports (commodity exports plus invisible earnings) both with and without adjustment for changes in the terms of trade.

Appendix Table 1  
Average Annual Value of Exports by Colony of Origin and Destination, 1768-1772

Colony of Origin	Destination					Row Total
	Great Britain	Ireland	Southern Europe and Wine Islands	West Indies	Africa	
<i>Annual Average Value of Exports in Pounds Sterling, 1768-1772</i>						
New York	42,867	25,953	35,642	68,375	783	173,620
New Jersey	68	25	210	1,941		2,244
Pennsylvania	19,994	25,752	143,362	140,806	294	330,208
Delaware		3,590	12,489			16,079
Column Total	62,930	55,320	191,704	211,121	1,077	522,151
<i>Percentage of Exports Originating in Each Colony (column percentages)</i>						
New York	68.1	46.9	18.6	32.4	72.7	33.3
New Jersey	0.1	0.0	0.1	0.9	0.0	0.4
Pennsylvania	31.8	46.6	74.8	66.7	27.3	63.2
Delaware	0.0	6.5	6.5	0.0	0.0	3.1
Column Total	100.0	100.0	100.0	100.0	100.0	100.0
<i>Percentage of Exports Going to Each Destination (row percentages)</i>						
New York	24.7	14.9	20.5	39.4	0.5	100.0
New Jersey	3.0	1.1	9.4	86.5	0.0	100.0
Pennsylvania	6.1	7.8	43.4	42.6	0.1	100.0
Delaware	0.0	22.3	77.7	0.0	0.0	100.0
All 4 Colonies	12.1	10.6	36.7	40.4	0.2	100.0
<i>Value per Ton from Each Colony to Each Destination</i>						
New York	9.38	10.98	13.67	9.41	5.49	
Pennsylvania	5.64	7.40	15.66	10.49	10.51	
<i>Value per ton relatives</i>						
New York	1.00	1.17	1.46	1.00	0.59	
Pennsylvania	1.00	1.31	2.78	1.86	1.87	

Source: Shepherd (1969).



Appendix Table 2  
Annual Average Value of Exports of Specified Commodities from  
New York and Pennsylvania valued at Current and 1840 Prices, 1768-1772

Commodity	Units	Quantity	Current value	Percent of the value of all exports	Value in 1840 Prices
<b>New York Export Composition</b>					
Bread and Flour	tons	6,647	71,923	41.4	\$393,482
Beef and Pork	bbl	2,913	6,112	3.5	\$42,250
Flaxseed	bu	118,550	21,373	12.3	\$124,478
Grain--Indian corn	bu	67,704	7,018	4.0	\$36,929
Grain--Wheat	bu	65,210	12,669	7.3	\$69,449
Iron, bar	tons	767	11,538	6.6	\$59,891
Iron, pig	tons	922	4,591	2.6	\$30,143
Potash	tons	446	11,415	6.6	\$49,608
Wood Products, Staves and headings	1000s	2,420	7,252	4.2	\$79,009
Rum, American	gal	11,151	762	0.4	\$3,011
Value of Itemized Commodities			154,652	89.1	\$888,249
Value of All Commodity Exports			173,620	100.0	\$996,913
<b>Philadelphia Export Composition</b>					
Bread and Flour	tons	22,065	233,450	69.8	\$1,306,244
Beef and Pork	bbl	4,124	8,553	2.6	\$59,824
Flaxseed	bu	79,348	14,583	4.4	\$83,316
Grain--Indian corn	bu	103,860	10,199	3.1	\$56,650
Grain--Wheat	bu	124,360	24,003	7.2	\$132,443
Iron, bar	tons	324	4,759	1.4	\$25,338
Iron, pig	tons	1,019	5,058	1.5	\$33,320
Potash	tons	34	845	0.3	\$3,748
Wood Products, Staves and headings	1000s	5,051	14,997	4.5	\$164,881
Rum, American	gal	4,396	1,472	0.4	\$1,187
Value of Itemized Commodities			317,919	94.7	\$1,866,951
Value of All Commodity Exports			334,304	100.0	\$1,971,437
<b>Two Ports Combined</b>					
Bread and Flour		28,712	305,373	60.1	1,699,726
Beef and Pork		7,037	14,665	2.9	102,075
Flaxseed		197,899	35,956	7.1	207,794
Grain--Indian corn		171,564	17,217	3.4	93,579
Grain--Wheat		189,570	36,673	7.2	201,892
Iron, bar		1,091	16,296	3.2	85,228
Iron, pig		1,941	9,649	1.9	63,463
Potash		479	12,260	2.4	53,357
Wood Products, Staves and headings		7,471	22,249	4.4	243,890
Rum, American		15,547	2,234	0.4	4,198
Value of Itemized Commodities			472,571	93.0	2,755,201
Value of All Commodity Exports			507,924	100.0	2,968,350

Source: Shepherd (1969)

Appendix Table 3  
Comparison of Prices of Exported Commodities, 1768-72 and 1840

		1840 Prices		1768-72 prices	
		\$ s	Index	£ s	Index
flour	tons	59.20	100	10.55	100
Bread	tons	77.39	130.7		
beef	bbl	13.54	22.9	2.1	19.8
Pork	bbl	15.48	26.1		
Flaxseed	bu	1.05	1.8	0.2	1.8
Grain--Indian corn	bu	0.55	0.9	0.1	0.7
Grain--Wheat	bu	1.07	1.8	0.2	1.9
Iron, bar	tons	78.13	132.0	15.1	142.9
Iron, pig	tons	32.70	55.2	5.0	47.2
Potash	tons	111.33	188.1	25.1	237.6
Wood Products, Staves and headings	1000s	32.65	55.1	3.0	28.0

Notes and sources: Prices in 1768-1772, Shepherd (1969) ; prices in 1840, Cole (1938), Town and Rasmussen (1960, p, 310) for flaxseed. Sterling prices are calculated by dividing export values by quantities for each year and averaging. Shepherd (1969) used the price of flour to value bread and flour, and the price of beef to value beef and pork. All prices are expressed in terms of dollars or pounds sterling.

Appendix Table 4  
Average Annual Value of Exports by Destination, 1768-1772  
(Valued in Prices of 1840)

	Value of Itemized Commodities	Ratio: Total Exports to Itemized	Inflated value	Base Year Shipping Tonnage	Export Value per Ton (1840 prices)
<b>From Philadelphia to:</b>					
Great Britain	\$100,776	1.49	\$150,207	3,547	\$42.35
Ireland	\$161,659	1.03	\$166,509	3,481	\$47.84
So. Europe	\$808,523	1.01	\$813,343	9,152	\$88.87
West Indies	\$794,807	1.06	\$839,316	13,423	\$62.53
Africa	\$1,187	1.00	\$1,187	28	\$42.39
Total	\$1,866,952	1.06	\$1,970,561	29,631	\$66.50
<b>From New York to:</b>					
Great Britain	\$194,060	1.19	\$231,417	4,572	\$50.62
Ireland	\$151,346	1.04	\$157,400	2,363	\$66.61
So. Europe	\$184,201	1.07	\$196,633	2,607	\$75.42
West Indies	\$355,632	1.15	\$407,357	7,267	\$56.05
Africa	\$3,011	1.00	\$3,011	143	\$21.11
Total	\$888,250	1.12	\$995,817	16,952	\$58.74

Source: Shepherd, 1969 and Carter, et al, 2006. See text for discussion of the calculations underlying the figures in this table. Totals differ from Table 2 because of rounding.

Appendix Table 5  
Tonnage Clearing from Philadelphia to Specified Destinations  
at Benchmark Dates, 1720-1772

Date	Great Britain	Ireland	So. Europe & Wine Island	West Indies	Africa	Coastal
1720	520		270	2,190		1,210
1721	650		480	1,680		910
1722	560		420	1,770		930
1723	450		420	1,870		600
1724	290	140	660	2,300		650
1725	690		740	2,410		910
1726	990		1,110	3,570		610
1727	730	50	470	3,120		760
1728	1,150		790	2,480		1,130
1729	1,580		1,300	3,230		1,190
1730	1,170		790	4,280		1,410
1731	1,310	240	1,450	4,170		1,430
1732	620	620	830	2,930		1,140
1733	890	1,440	950	5,070		1,820
1734	1,400	1,460	2,130	4,160		1,880
1735	1,090	1,180	2,420	3,240		1,830
1736	790	1,690	2,100	2,750		1,630
1737	1,110	870	2,740	3,430		2,090
1738	780	1,060	1,690	3,590		2,460
1739	570	1,450	3,580	3,450		1,660
1750	1,136	2,491	1,739	12,682		7,204
1765	5,161		3,345	12,340		17,004
1766	1,830	4,830	4,455	14,053	300	10,834
1767	8,263		6,408	13,371		13,061
1768	4,134	3,482	7,255	12,119	-	8,116
1769	4,049	3,170	12,040	11,114	30	9,085
1770	3,208	4,791	10,940	14,043	-	12,370
1771	3,222	3,470	7,110	13,757	90	13,655
1772	3,123	2,491	8,415	16,081	20	12,872
Average Tonnage 1768-72	3,547	3,481	9,152	13,423	28	11,220

Source: 1720-1739 from Lydon (1967); other years from McCusker (2006, Eg 554-593).

Appendix Table 6  
Tonnage Clearing from New York to Specified Destinations  
at Benchmark Dates, 1715-1772

Date	Great Britain	Ireland	So. Europe & Wine Island	West Indies	Africa	Coastal
1715	1,461		630	3,790	40	1,406
1726	988		515	3,468		2,761
1727	1,030		465	4,309		2,138
1733	690	160	275	3,937		2,349
1734	645	160	475	2,881	60	1,959
1735	838	200	904	2,941		2,321
1739	795	820	1,040	4,431		2,451
1754	2,085	1,615	725	6,486	130	2,076
1763	2,079	1,460	1,000	7,657	70	2,450
1764	2,952	1,882	1,087	8,221	140	1,495
1765	5,165		1,592	7,825		2,988
1766	4,907		3,480	8,385		3,090
1767	5,588		3,820	6,697		3,770
1768	5,130	2,522	2,360	7,220	35	3,754
1769	3,955	2,515	3,278	5,628	205	9,068
1770	4,665	2,692	2,920	7,244	98	5,655
1771	4,830	2,476	2,029	7,996	115	4,968
1772	4,280	1,610	2,449	8,249	260	8,859
Tonnage 1768-72	4,572	2,363	2,607	7,267	143	6,461

McCusker (2006, Eg. 513-543).

Appendix Table 7  
Tonnage Clearing for and Value of Imports into Great Britain  
Benchmark Dates, 1715-1772

Year	From New York			Year	From Philadelphia		
	Tonnage clearing for Great Britain	Constant Sterling value of imports	Value per ton		Tonnage clearing for Great Britain	Constant Sterling value of imports	Value per ton
1715	1,461	24,366	16.7	1720	520	7,510	14.4
1726	988	31,633	32.0	1721	650	7,616	11.7
1727	1,030	30,355	29.5	1722	560	7,750	13.8
1733	690	12,115	17.6	1723	450	6,424	14.3
1734	645	13,696	21.2	1724	290	8,123	28.0
1735	838	15,802	18.9	1725	690	7,333	10.6
1739	795	18,728	23.6	1726	990	10,255	10.4
1754	2,085	35,090	16.8	1727	730	11,338	15.5
1763	2,079	55,523	26.7	1728	1150	11,829	10.3
1764	2,952	54,215	18.4	1729	1580	11,082	7.0
1765	5,165	58,559	11.3	1730	1170	10,267	8.8
1766	4,907	61,134	12.5	1731	1310	10,631	8.1
1767	5,588	71,852	12.9	1732	620	12,029	19.4
1768	5,130	74,001	14.4	1733	890	14,506	16.3
1769	3,955	76,821	19.4	1734	1400	18,971	13.6
1770	4,665	79,741	17.1	1735	1090	20,974	19.2
1771	4,830	82,821	17.1	1736	790	19,301	24.4
1772	4,280	84,943	19.8	1737	1110	15,967	14.4
				1738	780	11,750	15.1
				1739	570	11,700	20.5
				1750	1136	22,335	19.7
				1765	5161	29,419	5.7
				1766	1830	29,880	16.3
				1767	8263	41,299	5.0
				1768	4134	41,053	9.9
				1769	4049	37,875	9.4
				1770	3208	28,612	8.9
				1771	3222	29,619	9.2
				1772	3123	32,467	10.4
Average				Average			
1715-1735	942	21,328	22.6	1720-1739	867	11,768	14.8
1763-1772	4,355	69,961	17.0	1765-1772	4124	33,778	9.4

Notes and sources: Tonnage clearing, see Appendix Tables 5 and 6. Constant sterling value of imports, McCusker (2006, Eg 429-442; 443-460).

Appendix Table 8  
Total Exports and Domestically Produced Exports in Current Prices  
By State, 1791-1810

Year	New York	New Jersey	Pennsylvania	Delaware	United States
<i>Total Exports in Current Prices</i>					
1791	\$2,505,465	\$26,988	\$3,436,093	\$119,879	\$19,012,041
1792	\$2,535,790	\$23,406	\$3,820,662	\$133,972	\$20,753,098
1793	\$2,932,370	\$54,179	\$6,958,836	\$93,559	\$26,109,572
1794	\$5,442,183	\$58,154	\$6,643,092	\$207,985	\$33,026,233
1795	\$10,304,581	\$130,814	\$11,518,260	\$158,041	\$47,989,472
1796	\$12,208,027	\$59,227	\$17,513,866	\$201,142	\$67,064,097
1797	\$13,308,064	\$18,161	\$11,446,291	\$98,929	\$56,850,206
1798	\$14,300,892	\$61,877	\$8,915,463	\$183,727	\$61,527,097
1799	\$18,719,527	\$9,722	\$12,431,967	\$297,065	\$78,665,522
1800	\$14,045,079	\$2,289	\$11,949,679	\$418,695	\$70,971,780
1801	\$19,851,136	\$25,406	\$17,438,193	\$662,042	\$94,115,925
1802	\$13,792,276	\$26,227	\$12,677,475	\$440,504	\$72,483,160
1803	\$10,818,387	\$21,311	\$7,525,710	\$428,153	\$55,800,033
1804	\$16,081,281	\$24,829	\$11,030,157	\$697,396	\$77,699,074
1805	\$23,482,943	\$20,743	\$13,762,252	\$358,383	\$95,566,021
1806	\$21,762,845	\$33,867	\$17,574,702	\$500,106	\$101,536,963
1807	\$26,357,963	\$41,186	\$16,864,744	\$229,275	\$108,343,150
1808	\$5,606,058	\$20,799	\$4,013,330	\$108,735	\$22,430,960
1809	\$12,581,562	\$319,175	\$9,049,241	\$138,036	\$52,203,233
1810	\$17,242,330	\$430,267	\$10,993,398	\$120,342	\$66,757,970
<i>Domestically Produced Exports in Current Prices</i>					
1791					\$18,512,041
1792					\$19,753,098
1793					\$24,359,572
1794					\$32,376,233
1795					\$47,159,472
1796					\$40,764,097
1797					\$29,850,206
1798					\$28,527,097
1799					\$33,142,522
1800					\$21,840,780
1801					\$47,472,925
1802					\$36,708,160
1803	\$7,626,831	\$21,311	\$4,021,214	\$187,687	\$42,205,961
1804	\$7,501,096	\$24,829	\$4,178,713	\$180,081	\$41,467,477
1805	\$8,098,060	\$20,633	\$4,365,240	\$77,827	\$42,387,002
1806	\$8,053,076	\$26,504	\$3,765,313	\$125,787	\$43,503,727
1807	\$9,957,416	\$36,063	\$4,809,616	\$77,695	\$48,699,592
1808	\$2,362,438	\$12,511	\$1,066,527	\$38,052	\$9,433,546
1809	\$8,348,764	\$269,104	\$4,238,358	\$96,495	\$31,405,702
1810	\$10,928,573	\$392,798	\$4,751,634	\$79,988	\$42,366,675

Appendix Table 8 (continued)

Year	New York	New Jersey	Pennsylvania	Delaware	United States
<i>Ratio of Domestically Produced to Total Exports</i>					
1791					0.974
1792					0.952
1793					0.933
1794					0.980
1795					0.983
1796					0.608
1797					0.525
1798					0.464
1799					0.421
1800					0.308
1801					0.504
1802					0.506
1803	0.705	1.000	0.534	0.438	0.756
1804	0.466	1.000	0.379	0.258	0.534
1805	0.345	0.995	0.317	0.217	0.444
1806	0.370	0.783	0.214	0.252	0.428
1807	0.378	0.876	0.285	0.339	0.449
1808	0.421	0.602	0.266	0.350	0.421
1809	0.664	0.843	0.468	0.699	0.602
1810	0.634	0.913	0.432	0.665	0.635
average domestic share 1803-10	0.498	0.876	0.362	0.402	0.534

Source: Pitkin (1816).



Appendix Table 9  
Domestically Produced Exports by State, 1791 to 1810  
(in current prices)

Year	New York	New Jersey	Pennsylvania	Delaware	Region
1791	\$2,276,426	\$26,278	\$2,270,124	\$87,998	\$4,660,825
1792	\$2,252,191	\$22,278	\$2,467,459	\$96,132	\$4,838,060
1793	\$2,552,867	\$50,548	\$4,405,199	\$65,805	\$7,074,419
1794	\$4,978,288	\$57,009	\$4,418,721	\$153,710	\$9,607,728
1795	\$9,449,153	\$128,552	\$7,680,135	\$117,083	\$17,374,923
1796	\$6,924,251	\$36,000	\$7,223,186	\$92,171	\$14,275,608
1797	\$6,520,333	\$9,536	\$4,077,924	\$39,160	\$10,646,952
1798	\$6,187,196	\$28,689	\$2,804,750	\$64,219	\$9,084,854
1799	\$7,359,284	\$4,096	\$3,553,857	\$94,353	\$11,011,591
1800	\$4,033,167	\$704	\$2,495,156	\$97,136	\$6,626,164
1801	\$9,343,462	\$12,815	\$5,968,200	\$251,750	\$15,576,228
1802	\$6,517,800	\$13,282	\$4,356,295	\$168,181	\$11,055,558
1803	\$7,626,831	\$21,311	\$4,021,214	\$187,687	\$11,857,043
1804	\$7,501,096	\$24,829	\$4,178,713	\$180,081	\$11,884,719
1805	\$8,098,060	\$20,633	\$4,365,240	\$77,827	\$12,561,760
1806	\$8,053,076	\$26,504	\$3,765,313	\$125,787	\$11,970,680
1807	\$9,957,416	\$36,063	\$4,809,616	\$77,695	\$14,880,790
1808	\$2,362,438	\$12,511	\$1,066,527	\$38,052	\$3,479,528
1809	\$8,348,764	\$269,104	\$4,238,358	\$96,495	\$12,952,721
1810	\$10,928,573	\$392,798	\$4,751,634	\$79,988	\$16,152,993

Source: See appendix text for description of our calculations.

Appendix Table 10  
Commodity Prices in Philadelphia and Price Indexes, 1790 to 1809 and 1840

Unit	Wheat bu	Bread cwt	Flour cwt	Staves M	Beef bbl	Pork bbl	Bar Iron ton	Weighted sum	Price Indexes		
									Exports Weighted	Exports Unweighted	McCusker Composite CPI
1790	2.24	4.88	11.43	32.38	9.85	16.58	125.43	13.07	151.07	131.67	67.72
1791	1.65	3.65	8.70	32.38	12.53	19.28	133.02	11.90	138.71	136.06	67.62
1792	0.96	3.20	8.42	34.78	7.63	10.96	145.60	11.59	139.78	136.32	68.64
1793	1.12	3.64	10.27	55.20	11.17	13.89	85.81	10.75	134.93	117.59	70.58
1794	1.48	3.00	11.65	20.30	9.28	14.22	137.64	12.50	141.61	127.96	76.00
1795	2.78	6.96	14.21	62.90	22.94	27.57	155.25	17.46	207.68	189.39	84.78
1796	1.95	5.84	12.54	42.79	7.63	18.92	111.35	13.59	158.95	131.05	90.30
1797	1.35	5.76	8.91	40.33	11.17	18.88	110.63	12.03	141.99	127.65	81.21
1798	1.30	3.63	8.17	35.03	9.28	17.50	103.54	10.42	123.11	115.29	79.47
1799	1.30	6.17	9.65	30.42	7.63	14.63	101.02	11.70	134.97	111.34	89.27
1800	1.43	4.00	10.03	40.15	11.17	14.81	114.69	11.74	140.42	127.11	121.76
1801	1.84	4.68	10.40	40.00	9.28	20.08	118.92	12.58	147.60	132.92	136.16
1802	1.19	3.93	6.93	37.71	7.63	15.83	110.79	10.25	123.45	118.70	104.80
1803	1.13	3.17	6.85	46.71	11.17	16.79	100.00	9.74	121.05	119.66	98.57
1804	1.36	3.34	8.21	47.00	9.28	17.33	100.42	10.38	127.63	120.71	101.74
1805	1.95	4.25	10.07	47.00	7.63	17.38	107.83	11.81	142.72	127.14	118.28
1806	1.38	4.27	7.27	44.17	11.17	23.92	114.00	11.22	133.85	132.73	112.97
1807	1.31	4.49	7.12	45.00	9.28	19.17	116.67	11.09	134.53	130.86	110.93
1808	1.00	4.13	5.53	45.00	7.63	13.42	115.83	9.94	124.38	123.91	114.71
1809	1.25	4.33	6.86	44.04	11.17	16.25	112.50	10.63	130.07	126.59	125.84
1840	1.04	3.62	5.06	34.58	14.17	15.89	81.05	8.26	100.00	100.00	100.00

Notes and sources: Cole (1938) and McCusker (1999). The weights used in constructing the weighted index reflective the relative value of each commodity in total exports valued in current prices in 1768-1772. The weights are (in parentheses): wheat (0.083), bread (0.391), flour (0.391), staves (0.055), beef (0.018), pork (0.018), bar iron (0.044). According to Cole (1938) an M is 1200 staves, a barrel of beef weighed 225 lbs. and a barrel of pork weighed 217 lbs.

Appendix Table 11  
 Constant Price Estimates of Domestically Produced Exports by State, 1791-1809  
 (Prices of 1840)

Year	New York	New Jersey	Pennsylvania	Delaware	Region
1791	\$1,641,096	\$18,944	\$1,636,553	\$63,438	\$3,360,031
1792	\$1,611,279	\$15,938	\$1,765,288	\$68,775	\$3,461,281
1793	\$1,892,003	\$37,462	\$3,264,818	\$48,770	\$5,243,053
1794	\$3,515,526	\$40,258	\$3,120,376	\$108,545	\$6,784,706
1795	\$4,549,753	\$61,897	\$3,697,974	\$56,375	\$8,365,999
1796	\$4,356,304	\$22,649	\$4,544,375	\$57,988	\$8,981,317
1797	\$4,592,249	\$6,716	\$2,872,068	\$27,580	\$7,498,614
1798	\$5,025,924	\$23,305	\$2,278,328	\$52,166	\$7,379,723
1799	\$5,452,377	\$3,035	\$2,632,997	\$69,904	\$8,158,313
1800	\$2,872,121	\$502	\$1,776,864	\$69,173	\$4,718,660
1801	\$6,330,191	\$8,682	\$4,043,453	\$170,561	\$10,552,887
1802	\$5,279,779	\$10,759	\$3,528,840	\$136,236	\$8,955,614
1803	\$6,300,785	\$17,606	\$3,322,062	\$155,055	\$9,795,507
1804	\$5,877,181	\$19,454	\$3,274,062	\$141,095	\$9,311,791
1805	\$5,673,979	\$14,457	\$3,058,545	\$54,530	\$8,801,511
1806	\$6,016,408	\$19,801	\$2,813,044	\$93,975	\$8,943,228
1807	\$7,401,635	\$26,807	\$3,575,127	\$57,753	\$11,061,322
1808	\$1,899,365	\$10,059	\$857,472	\$30,593	\$2,797,489
1809	\$6,418,434	\$206,884	\$3,258,401	\$74,184	\$9,957,903
1810	\$1,641,096	\$18,944	\$1,636,553	\$63,438	\$3,360,031

Source: See Tables 8, 9, 10 and text.

Appendix Table 12  
Invisible Exports Earned by the Middle Colonies, by Destination, 1768-1772  
(current Sterling values)

	1768	1769	1770	1771	1772	Total	Destination Share
<i>Shipping Earnings</i>							
Great Britain and Ireland	61	57	59	66	55	298	34.3%
Southern Europe & Wine Islands	39	52	51	36	40	218	25.1%
West Indies	62	64	75	69	83	353	40.6%
Africa	0	0	0	0	0	0	0.0%
Total	162	173	185	171	178	869	
<i>Commodity Exports by destination</i>							
Great Britain and Ireland	164	129	148	136	114	691	24.3%
Southern Europe & Wine Islands	103	225	214	146	237	925	32.5%
West Indies	162	207	255	253	344	1221	43.0%
Africa	0	1	1	1	2	5	0.2%
Total	429	562	618	536	697	2842	
<i>Shipping earnings relative to Commodity Exports</i>							
Great Britain and Ireland	37.2%	44.2%	39.9%	48.5%	48.2%	43.1%	
Southern Europe & Wine Islands	37.9%	23.1%	23.8%	24.7%	16.9%	23.6%	
West Indies	38.3%	30.9%	29.4%	27.3%	24.1%	28.9%	
Africa		0.0%	0.0%	0.0%	0.0%	0.0%	
Total	37.8%	30.8%	29.9%	31.9%	25.5%	30.6%	
<i>Invisible earnings other than shipping</i>							
Great Britain and Ireland	11	9	10	9	8	47	12.7%
Southern Europe & Wine Islands	12	23	23	15	24	97	11.2%
West Indies	30	44	51	41	60	226	26.0%
Africa						0	0.0%
Total	53	76	84	65	92	370	
<i>Invisible earnings other than shipping relative to commodity exports</i>							
Great Britain and Ireland	6.7%	7.0%	6.8%	6.6%	7.0%	6.8%	
Southern Europe & Wine Islands	11.7%	10.2%	10.7%	10.3%	10.1%	10.5%	
West Indies	18.5%	21.3%	20.0%	16.2%	17.4%	18.5%	
Africa		0.0%	0.0%	0.0%	0.0%	0.0%	
Total	12.4%	13.5%	13.6%	12.1%	13.2%	13.0%	
<i>Total invisible earnings relative to commodity exports</i>							
Great Britain and Ireland	43.9%	51.2%	46.6%	55.1%	55.3%	49.9%	
Southern Europe & Wine Islands	49.5%	33.3%	34.6%	34.9%	27.0%	34.1%	
West Indies	56.8%	52.2%	49.4%	43.5%	41.6%	47.4%	
Africa	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Total	50.1%	44.3%	43.5%	44.0%	38.7%	43.6%	

Source: James F. Shepherd and Gary M. Walton, "Estimates of 'Invisible' Earnings in the Balance of Payments of the British North American Colonies, 1768-1772," JEH 29, no. 2 (June 1969), 230-63.

Appendix Table 13  
Middle Colonists' Ownership of Shipping Tonnage, 1700-1775

	Ownership of Tonnage Registered in Philadelphia (McCusker)		Ownership of Tonnage Registered in Pennsylvania (Crowther)		Ownership of Vessels engaged in Trading at Barbados and Jamaica (Walton)			
	Average Annual Tonnage Registered	Middle Colony Share	Tonnage Produced in Pennsylvania	Delaware Valley Share	Total Tonnage to and from the Middle colonies	Middle Colony Share	Total Tonnage to and from all Destinations	Middle Colony Share
1700					7,366	73.7%	85,485	4.2%
1726-29	2,140	57.3%						
1727 and 1730			1,871	68.0%				
1729-31 and 1736					5,512	79.9%	43,833	6.2%
1736-39			5,391	75.5%				
1742-45			4,620	73.6%				
1746-49			7,719	60.5%				
1750-53			9,295	73.7%				
1754-57			6,334	85.2%				
1758-61			8,219	74.9%				
1764 and 1773					7,397	79.2%	45,181	8.2%
1765-68			7,954	71.0%				
1769-72			8,704	82.2%				
1770-75	10,807	83.4%						
1773-75			10,267	75.9%				
<i>Average Annual Rates of Change</i>								
1700 to 1764 and 1773					0.006	0.106	-0.933	0.987
1726-30 to 1764-75	3.664	0.836	3.856	0.245				
1729-31 to 1764 and 73					0.767	-0.021	0.079	0.754

Notes: We have assumed that tonnage reported for other continental colonies' was owned by shippers in one of the Middle Colonies, most likely New York which was not shown separately in McCusker's data. We have used the year 1700 to represent the data reported by Crowther for 1685-88, 1697-98 and 1716. Crowther specified that his data are the shares for those whose residences were known, that some residents could have owned tonnage of vessels registered at other ports, and the figures exclude re-registrations. He did not report tonnage registered for the various time periods, but did report tonnage produced by year which we summed for the pertinent years to get the figures reported in this table.

Sources: John J. McCusker, "Sources of Investment Capital in the Colonial Philadelphia Shipping Industry," *JEH* 32, no. 1 (Mar. 1972), p. 154, Table 3; Simeon J. Crowther, "The Shipbuilding Output of the Delaware Valley, 1722-1776," *Proceedings of the American Philosophical Society*, Vol. 117, No.2 (April 10, 1973) pp.100-01, Tables 8 and 9; Gary Walton, 1968 *New Evidence of Colonial Commerce*, Tables 3-7, pp. 372-81

Appendix Table 14  
 Invisible Exports from the Middle Atlantic States, 1790 to 1808  
 (Millions of Dollars, 1840 Prices)

	<u>United States</u>		Share of Nation's Earnings	<u>Middle Atlantic</u>		Total Invisible Exports
	Gross Freight Earnings	Net Freight Earnings		Net Freight Earnings	Other Invisible Exports	
1790	4.51	3.61	0.29	1.05	0.45	1.50
1791	4.55	3.64	0.29	1.06	0.45	1.51
1792	5.32	4.26	0.29	1.23	0.53	1.77
1793	5.67	4.54	0.29	1.33	0.57	1.90
1794	6.61	5.29	0.32	1.70	0.73	2.43
1795	7.34	5.87	0.34	1.98	0.85	2.84
1796	8.52	6.82	0.34	2.33	1.00	3.33
1797	7.65	6.12	0.34	2.08	0.89	2.97
1798	6.62	5.29	0.33	1.76	0.76	2.52
1799	7.93	6.34	0.32	2.03	0.87	2.91
1800	8.58	6.86	0.29	2.01	0.87	2.88
1801	10.73	8.58	0.30	2.61	1.12	3.74
1802	10.12	8.09	0.26	2.13	0.91	3.04
1803	9.99	7.99	0.27	2.15	0.92	3.07
1804	10.61	8.49	0.34	2.85	1.23	4.08
1805	11.71	9.37	0.27	2.52	1.09	3.61
1806	13.22	10.58	0.28	3.01	1.29	4.30
1807	14.17	11.33	0.29	3.27	1.41	4.68
1808	6.75	5.40	0.32	1.70	0.73	2.44
1809	7.69	6.15	0.30	1.82	0.78	2.61

Sources and Notes: North, 1960. Tables A-3 and B-2, and 1961, Table Q-VIII. See the text for details of estimation.

Appendix Table 15  
 Terms of Trade for the States and Colonies of the Middle Atlantic, 1700-1800  
 (1768-1772=100)

Year	Price Indexes		Terms of Trade	Year	Price Indexes		Terms of Trade
	Export Prices	Import Prices			Export Prices	Import Prices	
1700	116.7	104.2	112.0	1747	58.4	88.0	66.4
1701	117.2	99.4	117.9	1748	88.5	91.1	97.2
1702	106.1	99.9	106.2	1749	95.1	92.1	103.3
1703	84.8	98.3	86.3	1750	75.9	89.6	84.8
1704	97.4	97.9	99.4	1751	72.3	86.5	83.6
1705	108.0	95.5	113.0	1752	76.6	85.8	89.3
1706	123.3	96.5	127.7	1753	74.7	85.6	87.2
1707	123.9	91.3	135.7	1754	81.1	89.1	91.0
1708	121.5	95.8	126.8	1755	79.6	90.8	87.7
1709	87.9	105.1	83.7	1756	74.3	93.8	79.2
1710	84.6	114.9	73.6	1757	66.1	101.0	65.4
1711	56.8	115.2	49.3	1758	71.1	101.7	69.9
1712	60.8	97.8	62.2	1759	84.7	99.4	85.2
1713	89.5	95.7	93.6	1760	87.0	98.4	88.4
1714	108.4	95.5	113.5	1761	86.3	96.7	89.3
1715	72.5	93.8	77.2	1762	97.7	97.8	100.0
1716	45.7	92.7	49.3	1763	99.1	100.1	99.0
1717	61.2	91.5	66.9	1764	76.3	100.7	75.8
1718	75.9	91.7	82.7	1765	79.3	101.6	78.1
1719	57.3	94.1	60.9	1766	87.4	102.2	85.5
1720	51.4	95.0	54.1	1767	99.9	102.7	97.3
1721	51.4	92.8	55.4	1768	98.6	100.1	98.5
1722	51.8	89.6	57.8	1769	88.3	94.9	93.0
1723	50.5	87.4	57.8	1770	92.1	96.9	95.1
1724	62.1	90.0	69.0	1771	102.5	101.2	101.3
1725	68.9	92.3	74.6	1772	118.5	106.8	110.9
1726	71.3	95.9	74.3	1773	110.9	107.4	103.2
1727	65.1	95.7	68.0	1774	105.7	105.6	100.1
1728	58.6	96.7	60.7	1775	89.9	105.0	85.6
1729	61.9	97.8	63.3				
1730	66.8	94.3	70.9	1784	209.2	115.0	181.9
1731	47.0	90.1	52.1	1785	127.9	113.0	113.1
1732	47.8	87.6	54.5	1786	119.4	114.4	104.4
1733	51.6	85.0	60.7	1787	108.4	113.6	95.4
1734	60.6	85.9	70.6	1788	97.3	114.6	84.9
1735	65.8	84.8	77.6	1789	107.6	111.8	96.3
1736	55.7	84.3	66.1	1790	142.8	114.0	125.3
1737	67.7	85.9	78.8	1791	110.1	113.5	97.0
1738	64.4	85.6	75.2	1792	106.1	117.8	90.0
1739	47.5	88.7	53.5	1793	127.6	125.5	101.7
1740	51.4	95.5	53.8	1794	145.2	128.0	113.5
1741	78.4	100.4	78.1	1795	228.8	136.0	168.2
1742	63.5	95.7	66.4	1796	261.8	144.1	181.7
1743	51.5	91.2	56.5	1797	200.4	141.2	141.9
1744	45.6	88.1	51.8	1798	172.9	138.5	124.8
1745	47.1	84.4	55.8	1799	211.8	151.0	140.3
1746	53.0	90.1	58.8	1800	208.9	180.4	115.8

Sources: Import price index is the Schumpeter-Gilboy Index (Schumpeter 1938). See text for description of the construction of the export price index.



Appendix Table 16  
 Estimates of Commodity Exports, Invisible Earnings, Terms of Trade and Adjusted Total Exports,  
 From the States and Colonies of the Middle Atlantic Region,  
 1715-1809  
 (in prices of 1840)

Year	<u>Commodity Exports by Colony and State</u>				<u>Estimates for the Middle Colonies</u>				
	Benchmark Estimates		Annual Estimates		Commodity Exports	Invisible Earnings	Total Exports	Terms of Trade	Adjusted Totals
	New York	Pennsylvania	New York	Pennsylvania					
1715	331,577		331,577						
1716			323,053						
1717			326,336						
1718			321,524						
1719			311,587						
1720		194,183	297,851	194,183	509,880	192,760	702,641	54.1	380,182
1721		181,426	295,929	181,426	494,668	180,108	674,776	55.4	373,729
1722		182,317	304,332	182,317	504,299	187,088	691,387	57.8	399,566
1723		182,696	307,294	182,696	507,762	189,527	697,289	57.8	403,167
1724		245,135	309,652	245,135	574,909	208,220	783,129	69.0	540,273
1725		248,925	317,320	248,925	586,783	211,403	798,186	74.6	595,808
1726	325,122	367,279	325,122	367,279	717,513	251,254	968,767	74.3	719,798
1727	364,778	289,450	364,778	289,450	677,956	259,953	937,909	68.0	638,093
1728		277,654	344,695	277,654	644,921	235,767	880,688	60.7	534,268
1729		366,567	324,678	366,567	716,316	246,823	963,138	63.3	609,832
1730		383,292	326,863	383,292	735,912	275,112	1,011,024	70.9	716,381
1731		448,158	323,599	448,158	799,747	277,639	1,077,387	52.1	561,832
1732		339,889	329,717	339,889	693,893	258,179	952,072	54.5	519,029
1733	287,268	534,559	287,268	534,559	851,634	318,827	1,170,461	60.7	710,404
1734	249,021	603,250	249,021	603,250	883,183	285,993	1,169,176	70.6	825,209
1735	292,254	566,972	292,254	566,972	890,390	276,118	1,166,508	77.6	904,862
1736		524,883	300,629	524,883	855,453	273,827	1,129,280	66.1	746,084
1737		570,294	324,861	570,294	927,622	281,727	1,209,349	78.8	952,530
1738		477,401	349,801	477,401	857,204	293,313	1,150,518	75.2	865,293

Appendix Table 16 (Continued)

Year	<u>Commodity Exports by Colony and States</u>		<u>Estimates for the Middle Colonies</u>						
	<u>Benchmark Estimates</u>		<u>Annual Estimates</u>		<u>Commodity Exports</u>	<u>Invisible Earnings</u>	<u>Total Exports</u>	<u>Terms of Trade</u>	<u>Adjusted Totals</u>
1739	435,828	655,047	435,828	655,047	1,130,441	337,907	1,468,349	53.5	786,238
1740			447,637	673,167	1,161,455	453,004	1,614,459	53.8	869,019
1741			450,246	688,999	1,180,564	465,526	1,646,091	78.1	1,286,159
1742			451,728	701,425	1,194,978	475,753	1,670,731	66.4	1,109,461
1743			453,375	713,200	1,208,886	485,551	1,694,437	56.5	957,613
1744			462,310	747,789	1,253,988	509,291	1,763,279	51.8	912,795
1745			465,048	795,806	1,306,584	536,342	1,842,926	55.8	1,027,533
1746			474,637	836,668	1,358,865	563,164	1,922,029	58.8	1,130,355
1747			482,489	894,188	1,426,608	596,985	2,023,593	66.4	1,344,031
1748			506,514	956,037	1,515,597	640,542	2,156,140	97.2	2,095,574
1749			536,823	1,064,865	1,659,781	709,642	2,369,423	103.3	2,448,227
1750		1,165,591	576,615	1,165,591	1,805,395	726,725	2,532,119	84.8	2,146,165
1751			604,472	1,198,258	1,868,115	810,937	2,679,052	83.6	2,239,539
1752			630,530	1,224,515	1,922,327	838,478	2,760,805	89.3	2,465,600
1753			627,397	1,246,068	1,941,414	849,653	2,791,067	87.2	2,433,255
1754	630,488		630,488	1,261,664	1,960,779	859,645	2,820,423	91.0	2,567,768
1755			612,221	1,247,171	1,926,831	845,356	2,772,187	87.7	2,430,508
1756			612,562	1,236,209	1,915,825	841,776	2,757,601	79.2	2,184,665
1757			607,031	1,234,019	1,907,824	839,512	2,747,336	65.4	1,797,289
1758			612,776	1,252,076	1,932,489	852,796	2,785,285	69.9	1,945,768
1759			622,965	1,280,068	1,972,055	873,259	2,845,315	85.2	2,424,067
1760			664,798	1,322,406	2,059,279	916,815	2,976,094	88.4	2,630,298
1761			709,597	1,362,411	2,147,159	960,928	3,108,087	89.3	2,774,786
1762			750,451	1,402,901	2,231,453	1,003,533	3,234,986	100.0	3,233,929
1763	764,628		764,628	1,417,090	2,260,847	1,019,510	3,280,357	99.0	3,246,770
1764	828,592		828,592	1,417,345	2,327,395	1,051,737	3,379,132	75.8	2,560,868
1765	728,784	1,420,819	728,784	1,420,819	2,227,567	888,445	3,116,013	78.1	2,432,163

Appendix Table 16 (Continued)

Year	<u>Commodity Exports by Colony and States</u>		<u>Annual Estimates</u>		<u>Estimates for the Middle Colonies</u>				
	<u>Benchmark Estimates</u>		<u>Annual Estimates</u>		<u>Commodity Exports</u>	<u>Invisible Earnings</u>	<u>Total Exports</u>	<u>Terms of Trade</u>	<u>Adjusted Totals</u>
1766	910,044	1,650,701	910,044	1,650,701	2,653,623	1,019,326	3,672,949	85.5	3,141,775
1767	872,206	1,787,223	872,206	1,787,223	2,755,885	990,648	3,746,533	97.3	3,644,576
1768	966,381	1,750,876	966,381	1,750,876	2,815,810	1,006,369	3,822,179	98.5	3,763,957
1769	957,695	2,085,558	957,695	2,085,558	3,153,630	952,780	4,106,410	93.0	3,819,168
1770	1,039,289	2,206,204	1,039,289	2,206,204	3,363,205	1,109,588	4,472,793	95.1	4,251,665
1771	1,009,161	1,793,030	1,009,161	1,793,030	2,903,825	1,069,557	3,973,381	101.3	4,024,648
1772	1,006,558	2,017,133	1,006,558	2,017,133	3,133,358	1,122,195	4,255,554	110.9	4,719,723
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1791	1,641,096	1,636,553	1,641,096	1,636,553	3,360,031	1,509,017	4,869,048	97.0	4,710,745
1792	1,611,279	1,765,288	1,611,279	1,765,288	3,461,281	1,765,769	5,227,050	90.0	4,475,161
1793	1,892,003	3,264,818	1,892,003	3,264,818	5,243,053	1,895,274	7,138,327	101.7	7,129,098
1794	3,515,526	3,120,376	3,515,526	3,120,376	6,784,706	2,432,297	9,217,002	113.5	9,850,966
1795	4,549,753	3,697,974	4,549,753	3,697,974	8,365,999	2,836,953	11,202,953	168.2	18,162,252
1796	4,356,304	4,544,375	4,356,304	4,544,375	8,981,317	3,329,006	12,310,323	181.7	21,476,847
1797	4,592,249	2,872,068	4,592,249	2,872,068	7,498,614	2,969,885	10,468,498	141.9	15,364,186
1798	5,025,924	2,278,328	5,025,924	2,278,328	7,379,723	2,518,156	9,897,879	124.8	12,918,947
1799	5,452,377	2,632,997	5,452,377	2,632,997	8,158,313	2,908,838	11,067,151	140.3	14,976,775
1800	2,872,121	1,776,864	2,872,121	1,776,864	4,718,660	2,877,167	7,595,826	115.8	8,832,002
1801	6,330,191	4,043,453	6,330,191	4,043,453	10,552,887	3,737,952	14,290,839		
1802	5,279,779	3,528,840	5,279,779	3,528,840	8,955,614	3,041,713	11,997,327		
1803	6,300,785	3,322,062	6,300,785	3,322,062	9,795,507	3,072,736	12,868,243		
1804	5,877,181	3,274,062	5,877,181	3,274,062	9,311,791	4,076,526	13,388,317		
1805	5,673,979	3,058,545	5,673,979	3,058,545	8,801,511	3,610,114	12,411,625		
1806	6,016,408	2,813,044	6,016,408	2,813,044	8,943,228	4,301,442	13,244,670		
1807	7,401,635	3,575,127	7,401,635	3,575,127	11,061,322	4,683,188	15,744,509		
1808	1,899,365	857,472	1,899,365	857,472	2,797,489	2,435,938	5,233,426		
1809	6,418,434	3,258,401	6,418,434	3,258,401	9,957,903	2,605,925	12,563,828		

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