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THE ROLE OF EXPORTS IN THE ECONOMY OF COLONIAL NORTH AMERICA:
NEW ESTIMATES FOR THE MIDDLE COLONIES

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ABSTRACT

Economic historians of the eighteenth-century British mainland North American colonies have given considerable weight to the role of exports as a stimulus for economic growth. Yet their analyses have been handicapped by reliance on one or two time series to serve as indicators of broader changes rather than considering the export sector as a whole. Here we construct comprehensive export measures for the middle colonies. We find that aggregate exports did grow quickly but that this expansion failed to keep pace with population growth during much of the period under consideration. We argue this result challenges the export staples model on the role of foreign demand as a stimulus for economic growth. Instead, these results emphasize the impact of resource abundance and labor and capital scarcity as the defining characteristics of colonial economic growth.

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Most interpretations of colonial economic growth lean heavily on the performance of international exports. To some extent this comes out of necessity. “Almost the only data available for income estimates are hard external trade figures and estimates of population,” Jacob Price (1984, p. 19) noted. “Most conceivable methods of estimating income therefore are likely to make the internal production of goods and services vary with the population and leave external trade as the only independent variable besides population, hence the one that has to bear the full burden of accounting for any changes in per capita income.”

Many scholars have stressed the causal role that exports have played as the primary engine of economic growth for the colonies. According to the dominant theme found in textbooks as well as scholarly works, enterprising Europeans arrived in North America and through hard work and abundant land created a prosperous and burgeoning economy based on the export of agricultural staples.¹ The growth of external demand for colonial exports was the crucial factor determining the pace of colonial economic growth.²

In their magisterial summary of the literature, McCusker and Menard (1984) noted that “the idea that the export sector provides a useful point of departure for understanding the economy of early British America is not new to these pages. That the staples thesis fits neatly with many facts of the case and that it is valuable as an organizational device have long been recognized. But the role of trade transcended even the suggestions of that model.”³ Marc

¹ For example, Ratner, Soltow and Sylla (1993, p. 8) observed: “In the economy that evolved in the seventeenth and eighteenth centuries, staple commodities produced for export became the engine of growth as settlers capitalized on an abundance of resources and especially the fertility of the soil.”

² Shepherd and Walton (1972, pp. 20-21), for example, stated that “demand plays a crucial role in our analysis of colonial development...[by raising] the price of natural-resource intensive goods, thus attracting mobile factors to the natural resource-abundant colonies. This effect, in conjunction with learning by doing and the reduction of risks which lowered production costs, expanded markets for colonial exports and sustained colonial development.”

³ McCusker and Menard (1984, p. 71). Although they do not articulate the nature of the linkage

Egnal opened the door to the possibility that factors other than exports influenced economic growth, but exports were nonetheless the primary piece of evidence that he used to estimate the actual rate of growth.⁴ And, as he argued more recently, even while acknowledging the limitations of the staple thesis, “the export of primary products was the engine of growth for the colonial economy...[and] the nature of these exports shaped the pattern of regional development.” Egnal (1998, pp. 4-5)

Yet for all the interpretive weight that has been placed on the export sector, our understanding of export performance in the colonial period remains relatively incomplete. With the exception of recent work on exports from the Lower South (Mancall, Rosenbloom and Weiss 2008), most past scholars have relied on a rather impressionistic and incomplete analysis of trade performance by focusing on the rates of growth of one or two prominent commodities, colonial trade with Great Britain, or other fragmentary indicators of trading patterns, such as data on tonnage clearing various ports..⁵

between exports and colonial economic growth via the staple model, it appears that they have in mind the sort of model spelled out by Douglass North in his analysis of American economic growth in period after 1790. According to North, economic growth arose from the increased income that resulted from an increase in exports, the expansion of the domestic economy induced by that increased export income, and an increase in imports for consumption at very favorable terms of trade (North, 1961, p. 388).

⁴ Egnal (1975, p. 199) argued that per capita income increased between 1720 and 1775 because new techniques increased productivity, the terms of trade improved, and capital investment increased

⁵ In his analysis of Philadelphia’s commerce, Arthur Jensen (1963, p. 5) used the fact that total tonnage clearing Philadelphia increased from an annual average of 4,188 tons in the 1720s to 42,808 from 1768 to 1772 to argue that a number of contemporary observations about the rapid growth of Philadelphia’s trade were true. James Lyden, (1967, p. 401) looking at tonnage data from only the 1720s and 1730s, argued that “... the period after 1720 was one of very marked economic growth, at least for Pennsylvania.” In their summary of regional economic trends for the Middle Colonies, John J. McCusker and Russell R. Menard (1984, pp. 193-97) used shifts in the relative shares of tonnage bound for different destinations to illustrate differences in the development of the commercial communities in Philadelphia and other northern ports after 1750. They emphasized that while most of the growth for Boston and New York was in the coastal trade, much of the increased tonnage clearing Philadelphia was destined for the British Isles or other European ports. And, tonnage clearing for the West Indies and Southern Europe from Philadelphia was one of the quantitative indicators in Marc

The conclusions about the external trade of the Middle Colonies drawn by different scholars from these data are surprisingly divergent. Egnal (1998, pp. 47-50) offers a pessimistic assessment of the region's economic fortunes in the first half of the eighteenth century. "Lackluster sales of flour, bread, and other exports [before 1745]," he argued, "slowed northern growth. At the heart of the problem was the downturn in the British West Indies."⁶ In contrast, McCusker and Menard (1984, pp. 204-5) concluded that "the export sector showed significantly more life after 1720, particularly toward the end of the decade. Initially the gains owed little to the West Indian trade, then the largest Philadelphia market....Rather they were achieved in the sale of wheat, flour, and bread to southern Europe and Ireland, and through a strengthening coastal trade. These advances were considerable, and Philadelphia's external commerce, however measured, nearly tripled in size between 1720 and 1740."⁷ They go on to argue that export growth continued through the end of the colonial period. In their view the region's lackluster performance before 1720 and more rapid growth thereafter "seems a clear case of the export sector regulating the performance of the economy as a whole"

Egnal's (1998, p.49) account of economic trends in the northern colonies (i.e. the Middle colonies and New England).

⁶ It should be noted that not all of the data Egnal (1998) presents appears consistent with this conclusion. Per capita shipments of flour from Philadelphia did fall between 1728-32 and 1733-42. But tonnage clearing for the West Indies rose relatively steadily from the 1720s forward, dropping only briefly in the mid-1730s.

⁷ McCusker and Menard (1984, p. 204). They do not make clear the basis for these conclusions. The only source cited in this paragraph is for a 1741 quotation from John Reynall concerning the diverse destinations of Philadelphia's exports. Nonetheless, it would appear that their argument rests on a reading of the ship clearance data for the 1720-1739 period, as their conclusions about this period closely mirror those of Lyden (1967).

As these disparate assessments make clear, the lack of a comprehensive and continuous measure of the export sector's performance has contributed to a lack of consensus about the timing of its impact on the region's economy and the magnitude of that impact. Although most scholars seem to accept that exports influenced the region's development, they do not agree on whether this resulted in a sluggish, modest or robust rate of economic growth for the Middle Colonies. This divergence of opinion reflects in part the incompleteness of the evidence each scholar used. To date, no one has integrated all the tonnage data with the other evidence available about the external trade of the Middle Colonies.⁸

This paper presents new and more comprehensive measures of the overseas export performance for the Middle Colonies (New York, New Jersey, Pennsylvania, and Delaware) and compares them to similar measures for the Lower South. By combining the available data for the Middle Colonies in a manner that is based on an explicit theoretical framework we here present annual time series of total and per capita export volumes from c. 1700 to c. 1775.⁹ We also set the quantitative measures of trade in the context of the growth of the overall size of the colonial economy, providing a basis on which to interpret the growth of exports, something previous scholars often failed to do.

Our export series offers a new picture of the pace and timing of the Middle Colonies' external trade over the entire colonial period. Aggregate exports from the Middle Colonies

⁸ Most of this data is summarized in John McCusker's recent compilation of colonial trade statistics in *Historical Statistics of the United States* (2006), although McCusker chose not to include the data on tonnage compiled by Lyden (1967) from reports in several Philadelphia newspapers for 1720 to 1739.

⁹ A complete enumeration of regional trade should include coastal exports, but the methods used to construct a time series for coastal trade are sufficiently different that we leave them to a separate paper. We note, however, that inclusion of estimates of the region's trade with other mainland colonies does not appreciably alter the results we report here. We estimate that Middle Colony exports to other mainland colonies were in the range of approximately \$1 to \$2 per capita from the early 1700s through the end of the colonial period, and displayed little or no trend growth.

grew rapidly, increasing nearly 6-fold in real value between 1700 and the early 1770s. Despite the long-run growth of exports from the region, there were substantial cyclical variations in the volume of both aggregate and per capita exports over periods lasting up to 10 to 20 years. There were also significant shifts in the sources of regional exports, with Pennsylvania experiencing much more export growth from 1720 through the 1750s and then losing ground to New York.

The rapid growth of exports reflected the extensive demographic growth of the colonial population of the mid-Atlantic region in the eighteenth century. Although the region's exports grew substantially faster than population for brief periods, over the long-run exports did not keep pace with demographic change. Such a finding appears to be at odds with the notion, central to the staples thesis, that the expansion of foreign demand shaped colonial economic growth. We do not dispute the importance of exports as a source of foreign earnings that enabled colonists to afford imported luxuries and manufactured goods that they could not produce themselves. And it may still be the case that forward and backward linkages played a role in the development of increasingly sophisticated colonial economic institutions. But it appears that the importance of export earnings per person was stable or diminishing over the course of the eighteenth century. This observation suggests that the central features of the colonial economy were the transfer of natural resources from Native Americans to Euro-Americans and the resulting extensive growth of the colonial economy. These results suggest that more weight should be given to Malthusian forces rather than the role of exports as the most important determinants of economic success in the mainland colonies.¹⁰

¹⁰ See Smith (1980) for further discussion of the merits of the Malthusian perspective. Although

The Role of Exports in the Economy of the Middle Colonies

Although the Middle Colonies' exports were less valuable than such southern staples as tobacco, rice and indigo (see Table 1), the region's fertile soil and abundant water supported a productive agricultural sector that generated surpluses for export that figured prominently in the region's economy.¹¹ From the outset, the region's founders had assumed that maritime commerce was essential to provide goods that could not be produced locally. As a result, they searched for profitable exports (Jensen 1963, p. 2; McCusker and Menard 1984, p. 190). William Penn himself understood the need to situate cities on rivers draining towards the Atlantic. In addition to placing Philadelphia at the confluence of the Delaware and Schuylkill Rivers, which drained large portions of the northeastern portion of his patent, he planned a second city on the Susquehanna so that farmers in the middle of the colony would have access, via the Chesapeake, to the markets in the Atlantic basin. He also believed that a city along the Susquehanna would draw commerce from New York as well as from indigenous peoples, who would transport furs downstream.¹² Those who acquired large parcels of land in the middle and later decades of the century--such as the superintendent of

McCusker and Menard (1984) place much more emphasis on the staple export model, they do nonetheless acknowledge the relevance of Malthusian forces (ch. 1).

¹¹ Despite a wealth of material on the Middle Colonies there has been no comprehensive overview of the region's economic history. A number of studies have explored aspects of Philadelphia's trading relationships, but less work has been done on New York. Despite some recent studies of New York, discussions of the extent and growth of regional trade remain sketchy and impressionistic. McCusker and Menard (1984, pp. 191-93) cited a number of studies that traced the history of trade through Philadelphia, but reported that the literature on New York's trade was distinctly more limited, concluding that Harrington (1935) remained the best work on the subject of New York's trade. One recent addition to the literature is Matson (1998).

¹² On the placing of Philadelphia see Lemon (1972); on the planned second city see William Penn, "Some Proposals for a Second Settlement in the Province of Pennsylvania," originally written in 1690, in Mancall (1996, 39-40).

Indian Affairs Sir William Johnson who established a bustling estate along the upper reaches of the Susquehanna River, Samuel Wallis who became the most significant landlord in central Pennsylvania (with a base of operations at Muncy, near the confluence of the two branches of the Susquehanna), or William Cooper who busily promoted the development of his lands near Lake Otsego—recognized that the Middle Colonies had become desirable precisely because of the storied fertility of the lands there and the real prospects for new settlers to establish themselves (Mancall 1991; Taylor 1996).

Merchants in Philadelphia and New York actively sought markets for these products and took an increasingly active role in organizing regional trading patterns. As the century progressed regional markets expanded in response to growing demand for grain in Southern Europe and Great Britain, and merchants located in New York and even more so in Philadelphia expanded their role in managing regional trade, forging a complex and dynamic mercantile sector (McCusker and Menard 1984, pp. 194-97).

Residents of the Middle Colonies produced and exported a diverse array of products, but grain production, as Coxe recognized for the post-Revolutionary era, dominated the region's exports. At the end of the colonial period bread and flour together with wheat made up nearly two-thirds of the value of regional exports, but Indian corn, flaxseed, and beef and pork also made a noticeable contribution to regional exports (see Table 2).¹³ In addition to agricultural products the region also exported modest amounts of manufactures, including pig and bar iron as well as a variety of wood products, such as staves, headings and shingles.

¹³ The evidence in Table 3 comes from the American Inspector General's Reports which are discussed further below.

Together the ten enumerated products listed in Table 2 account for close to 90 percent of all exports from these two colonies.

New York and Pennsylvania dominated exports from the Middle Colonies in these years. Together they accounted for more than 96 percent of the value of regional exports (see Table 3). But most of these exports were not bound for Great Britain. Instead, more than three quarters of regional exports went either to the West Indies or Southern Europe. As a result, the volume of exports from New York and Pennsylvania to Britain provides an imperfect and distorted guide to the importance of trade in the region.

Measuring Colonial Exports

Virtually all of the quantitative evidence underlying discussions of the commodity exports of the thirteen mainland British colonies are derived from data collected by imperial officials. 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.¹⁴

British customs inspectors compiled similar records of all arrivals in English and Welsh ports beginning in 1696 and Scottish ports beginning in 1740. These data were

¹⁴ McCusker (2006) provides a good introduction to these data, but see also Price (1984). Louis Harper undertook the collection and systematic analysis of the naval officers list data, but much of this work remains only partially accessible in the Harper archives located at the University of California, Davis. Records for Charleston, in the Lower South, are relatively complete and have formed the basis for Clowse's (1971) analysis of trade from this port. On the other hand, no data have survived for Philadelphia, apparently because the records were lost in a fire at the British Public Records Office during 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. 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.

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).

The data collected by British customs inspectors (summarized in Table 4 and Figure 1) provide a convenient time-series of colonial exports to Britain, but do not provide evidence about colonial exports to other areas, a limitation which is especially important for analyzing the trade of the Middle Colonies which sent only a small fraction of their exports to British ports. The extent of this limitation is clear in data collected in the American Inspector General's Ledgers for 1768-1772. 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, 1772. According to Shepherd and Walton (1972, p. 204) these records "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. Table 1 summarizes data drawn from their work showing the breakdown of Colonial exports from different regions between shipments bound for Great Britain and those bound for other destinations. As this table makes clear, the bulk of southern exports were shipped to Britain, though a large fraction of these shipments were then re-exported to other European

destinations. In contrast, however, shipments from the Middle Colonies and New England to Great Britain made up only a small fraction of total exports from these regions.¹⁵

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 estimates for earlier years. 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 for most years after 1760, but before that she was able to obtain only scattered observations for a few years. Lyden (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.

As a result, most of the analysis of trading patterns in the region's major ports has relied on information on the tonnage of ships clearing for different destinations, which are available for a greater number of years.¹⁶ In Table 5 we report tonnage clearing Philadelphia and New York in all of the years for which we could find data. As this table makes clear,

¹⁵ The value of exports per capita from each region illustrate the greater importance of exports to the economies of the Chesapeake and Lower South. The regional differences are especially pronounced when expressed per free person, suggesting the role of slavery in providing a higher standard of living of the free population in the southern colonies than elsewhere.

¹⁶ See in particular, Jensen (1962), Lyden (1967), McCusker and Menard (1984), Egnal (1998).

tonnage data are available for a number of years at the beginning of the century and for a long stretch toward the end of the colonial period. Coverage in the middle years is somewhat sparse, but there are observations for scattered years. These data illustrate both the rapid growth in the volume of trade from the region and the shifting importance of different trading regions. Trade with the West Indies was the single largest element of ship clearances throughout the period, but its importance was diminishing in both New York and Philadelphia, while coastal trade with other mainland colonies, and shipments to Southern Europe were increasingly important. While trade with Great Britain initially accounted for about 15 to 20 percent of tonnage clearing both ports, it fell sharply in the 1720s and 1730s. The importance of exports to Britain began to rise in New York in the 1740s and in Philadelphia in the 1750s, reaching new highs in the late 1760s, especially in New York.

New Estimates of Middle Colonies Exports 1700-1772

We have employed all the available data on tonnage and on the value of that tonnage in trade to construct a set of estimates of export performance for the region spanning the years from 1700 to 1774. We begin by using data from the American Inspector-General's ledger tabulated by Shepherd (1969) to establish the annual average value of commodity exports in the years 1768-1772 from New York and Philadelphia to each of the five destination regions enumerated in Table 3.¹⁷ Because our goal is to integrate export estimates with estimates of regional income more generally, and to link these eighteenth century figures to those for the

¹⁷ To construct the base year values we used prices from Cole (1938) for eight of the region's leading exports—all those listed in Table 2 except flaxseed—for which there was no data. After aggregating these values we inflated the resulting total to reflect the share of unenumerated exports

nineteenth century, we value regional exports in 1840 prices.¹⁸ We use these base year values to calculate the average value per ton to each destination, and then we use the time series data on tonnage to extrapolate exports for each region backward in time.

Because the tonnage data are not available continuously we interpolated tonnage values for those years in which data are missing. To do this we first calculated the share of tonnage clearing each port for each destination, and interpolated linearly between the available years to fill in missing observations.¹⁹ Then we used the time series data on the official value of exports from each colony to Britain to calculate total tonnage for years when the tonnage data are missing. Since the export data to Britain are in value terms we derived tonnage by assuming that the value per ton was constant and equal to its value in the base years, 1768-1772.²⁰ Total tonnage then equals tonnage bound for Britain divided by the interpolated share of total tonnage clearing for Britain.

To obtain the regional total value of commodity exports in each year we sum the values clearing for each destination, then we combine the values for New York and Philadelphia, and inflate this total to account for exports from New Jersey and Delaware, on the assumption that the share of regional exports from these two colonies was constant and equal to its value in the base years.

¹⁸ Because the relative prices of different commodities affect their weight in the overall calculation shifts in relative prices could have an impact on the size of regional exports. In practice, however, relative commodity prices in 1840 were highly correlated with those in the 1770s, so the choice of base year prices has little impact on our estimates.

¹⁹ For the years prior to the earliest tonnage observations we assume that regional export shares were constant and equal to their average for the first 5 years of tonnage data for each port.

²⁰ The assumption of a constant value per ton appears reasonable based on data for the years when tonnage and the value of exports to Britain are both available. If anything the value per ton appears to have fallen slightly over time. If this were the case then the assumption of a constant value per ton would tend to impart an upward bias to the growth of exports.

In addition to the visible trade in commodities, the American colonies also produced a number of invisible service exports. These included earnings from goods carried on colonial owned ships as well as charges for other commercial services such as insurance and commissions. Based on estimates constructed by James F. Shepherd and Gary M. Walton (1969) for 1768-1772, exports of shipping and commercial services from the Middle Colonies generated income worth nearly 44 percent of the value of the region's commodity exports. Invisible earnings 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.

There are no data that would allow for direct estimates of invisible earnings for earlier dates. In light of the growing role of colonial merchants in trans-Atlantic trade it seems likely that the importance of invisible earnings was growing over time. For example, McCusker (1972) found that the share of tonnage registered in Philadelphia owned by residents of the Middle Colonies increased from about 55 percent in 1726-29 to approximately 80 percent by 1770-1775.²¹

These data are not adequate to estimate the impact of invisible earnings with any accuracy. Nonetheless, they provide a basis for examining the sensitivity of estimates based solely on commodity exports to the impact of including invisible earnings. We begin by assuming that the ratio of invisible to visible exports to each destination remained constant at its level in 1768-1772 and use these ratios along with our estimates of commodity exports by destination to construct a series of invisible earnings in each year. We then adjust this figure

²¹ In 1726-29, Philadelphia residents owned 47 percent of registered tonnage, while residents of Delaware and New Jersey owned another 7.5 percent. Resident 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.

to reflect the changes in ownership over time. To do this we assume that the share of tonnage owned within the region grew at a constant rate between the two dates covered by McCusker's data, and use this same rate to extrapolate the ownership series to earlier years.

Commodities formed the bulk of the region's exports, and estimates of their value may be more reliable than those for the export of services. In Table 6 we report our estimates of the value of regional commodity exports as well as exports from New York and Pennsylvania, the two colonies from which the bulk of regional exports were shipped. In addition the table also reports population estimates. Figure 2 compares the time series behavior of regional commodity exports to all destinations, commodity exports to Great Britain and regional population. Over the entire colonial period the growth of total exports is similar to the expansion in exports to Great Britain, but the timing of this growth is quite different. While exports to Great Britain grew slowly until the mid to late 1740s and then surged dramatically, total foreign exports grew strongly from the early 1720s through the mid-1750s, and then fluctuated without any long term trend over the next two decades. So it would appear that McCusker and Menard's description of the region's trade may have captured reasonably well the general state of affairs between 1720 and 1740 or 1750. Indeed, they may have been too modest in their claim that "Philadelphia's external commerce, however measured, nearly tripled in size between 1720 and 1740." Real exports from Philadelphia in 1740 were roughly six times larger than in 1720. New York did not fare quite so well, but nevertheless the region's exports in 1740 were at least four times what they had been in 1720. But their generally favorable view of the period minimizes the slowing of growth and short-term declines that occurred in the late 1720s and early 1730s. Further, their depiction of a lackluster performance before 1720 overlooked the doubling of exports that occurred between

1710 or thereabouts and the early 1720s. Moreover, if the export sector were regulating the performance of the economy, then they were subjecting the colonists to substantial variations in well-being over the entire period.

Our export estimates shed new light as well on differences in the fortunes of the region's two primary exporters as highlighted in Figure 3, which decomposes total regional exports by their source. At the beginning of the eighteenth century New York accounted for over half of regional exports, and this share increased over the first two decades as Pennsylvania's exports fell off to very low levels in the 1710s. After 1715, however, Pennsylvania's exports began to climb. While the value of New York's exports fluctuated with little trend, Pennsylvania's exports grew substantially through the 1750s, by which time nearly three quarters of regional exports came from this colony. After this point, however, Pennsylvania's exports stagnated while New York exports grew relatively strongly. Thus by the mid-1760s New York's exports accounted for close to 40 percent of regional exports.

From Figure 2 it is apparent that although regional commodity exports grew substantially during the colonial period they failed to keep pace with the growth of population over the long term. In Figure 4 we make the relationship between exports and population explicit by graphing commodity exports per capita. In Figure 4 we also examine the effect of including our estimates of invisible earnings by plotting the combined value of visible and invisible exports per capita. The first conclusion that emerges from this figure is that exports per capita varied considerably over time. Commodity exports varied between \$3 and \$8 per person from 1700 to 1730, then began to rise sharply, reaching a peak of \$12 per person in the early 1740s, falling back in the late 1740s and then rising to an even higher level in the early

1750s. Thereafter they fell sharply, dropping back into the \$3 to \$8 per capita range from 1755 through 1772.

Even including invisible earnings it is clear that the export sector constituted a relatively small component of the regional economy. While we do not have regional per capita income estimates for the Middle Colonies, Mancall and Weiss (1999, p. 26) have estimated that per capita incomes grew from around \$64 in 1700 to \$68 in 1770 (both years valued in 1840 prices). Thus regional exports peaked at a bit less than 20 percent of income, but were typically closer to 10 percent of regional product.

Adding invisible earnings does not substantially change the time pattern of these fluctuations, but it does produce a slight positive trend to the series. While the average value of commodity exports from 1755 to 1772 (\$4.80) was slightly lower than the average for 1700 to 1730 (\$5.05); total—visible and invisible—exports per capita were just a bit higher in the latter period than in the former one (\$6.85 versus \$6.51). Whether one looks at commodity exports or at total exports, there was substantial extensive growth, but there is little evidence of long-run growth in per capita terms. The more significant short-run fluctuations clearly must have played a role in regional economic well-being and contributed to economic and political tensions at times, but they could not have been a factor in producing any lasting economic growth.

So far our discussion has concentrated on the real value of exports. By abstracting from the effects of price changes we are able to identify changes in regional productivity that are the source of rising living standards. But prices matter. Changes in the terms of trade--shifts in the relative prices of exports to imports--are another avenue through which regional trade may have affected regional economic activity.

Over most of this period, British prices were quite stable, but the prices of Middle Colony exports fell from 1700 to 1720. Between 1720 and the early 1740s they fluctuated without any clear trend, and then began to rise again, recovering all of the ground they had lost from 1700 to 1720 by the time of the American Revolution. The impact of these movements on regional terms of trade is shown in Figure 5, where we plot the ratio of a weighted index of prices of major regional exports to the Schumpeter-Gilboy price index, which represents movements of prices in Great Britain, the primary source of the region's imports. The effect of these movements in relative prices was to magnify the rise in exports values in the early 1750s and to offset some of the subsequent drop in exports per capita in the late 1750s. But there is no longer run effect.

Comparative Perspective on Middle Colony Exports

A comparison of the export performance of the Middle Colonies to that of the Lower South sheds additional light on the distinctive role of external trade in each regional economy. The economy of the Lower South emerged during the eighteenth century as one of the best examples of staple export driven economic growth outside the West Indies, or so traditional accounts would have it.²² By focusing on the rapid growth of the rice and indigo trades of the Lower South, most scholars have concluded that standards of living for colonists in the region must have been rising rapidly. But the conventional view of the region's economic growth is flawed in at least two important ways. First, by focusing on the dominant exports at the end of the period, scholars have overstated the growth of regional exports. To some extent the rapid

²² See for example, McCusker and Menard, *The Economy of British America, 1607-1789*, ch. 8, and Egnal, *New World Economies*, pp. 4-5.

expansion of rice and indigo production in the colonial era was achieved by the transfer of resources from the production of other, less profitable, goods, including naval stores and deerskins. Second, and perhaps more importantly, most accounts have simply failed to note that the growth of exports was paralleled by an even faster growth of regional population. As a result, per capita export figures for the region fell over the colonial period rather than increasing (see Mancall, Rosenbloom and Weiss 2008).

Consistent with the larger role of export staples in the economy of the Lower South, exports per capita from the region were nearly twice as large as from the Middle Colonies, averaging around \$13 per person compared to an average of a bit more than \$6 per person in the Middle Colonies (see Figure 5). On the other hand, if account is taken of earnings from invisible exports, the difference in the size of the foreign sector between the two regions would be substantially diminished.

Despite the difference in the volume of exports between the two regions, in other respects they appear quite similar. Although aggregate exports from the Lower South grew at an average annual rate of 4.4 percent in the period 1712-1774, this was only slightly faster than the growth of regional population, and after 1730 population growth actually outpaced exports. Thus, after an initial burst of commercial expansion triggered by the widespread cultivation of rice, exports per capita from the Lower South followed a gradually declining trend. In the Middle Colonies, aggregate growth was somewhat slower, averaging 2.8 percent per year, but again it closely paralleled population growth. Thus in both regions it appears that export growth was primarily a reflection of extensive growth, and does not appear to have been a driver of economic development.

Conclusions

Colonial economic historians have given considerable weight to the role of exports as a stimulus for economic growth. In part this reflects the pragmatic fact that exports are one of the few areas of the colonial economy for which reasonably sound and extensive quantitative data are available. Yet, efforts to make use of these data have been handicapped by the way in which they have been used in previous research. Scholars have tended to focus on the behavior of one or two key commodities, taking them as indicators of broader changes without placing them in the context of the export sector as a whole or comparing them to changes in the overall scale of the colonial economy.

Evidence for the Middle Colonies presented here reveals that aggregate exports did grow quickly, but that this growth failed to keep pace with population growth during much of the period under consideration. Although the behavior of exports suggests that over shorter periods of a decade or two exports may have contributed to fluctuations in economic activity, the lack of a long-run trend seems inconsistent with the emphasis in the export staples model on the role of foreign demand as a stimulus for economic growth. At a minimum one would expect exports per capita to grow if such a model were applicable. It would seem that rather than focusing on the role of external demand as the chief factor in colonial economic growth, greater emphasis must be placed on the supply-side. This directs attention back to the Malthusian approach, which emphasizes the impact of resource abundance and labor and capital scarcity as the defining characteristics of colonial economic growth.

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Table 1

Value of Exports and Exports per Capita by Source and Destination, 1768-1772

Source	Exports To			Population	
	Great Britain	Elsewhere	Total	Free Whites	Total
New England	£76,975	£362,126	£439,101	565.7	581.1
Middle Colonies	£68,369	£458,176	£526,545	521	555.9
Chesapeake	£827,052	£219,831	£1,046,883	398.2	649.6
Lower South	£394,030	£157,919	£551,949	189.4	344.8

	Per Free White			Per person		
	Great Britain	Elsewhere	Total	Great Britain	Elsewhere	Total
New England	£0.14	£0.64	£0.78	£0.13	£0.62	£0.76
Middle Colonies	£0.13	£0.88	£1.01	£0.12	£0.82	£0.95
Chesapeake	£2.08	£0.55	£2.63	£1.27	£0.34	£1.61
Lower South	£2.08	£0.83	£2.91	£1.14	£0.46	£1.60

Source: McCusker and Menard (1984).

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	New York		Quantity	Philadelphia		Share of regional Exports
			Current Value	1840 Value		Current value	1840 Value	
Bread and Flour	tons	1,329	£14,385	\$78,696	4,413	£46,690	\$261,249	60.1%
Beef and Pork	bbl	583	£1,222	\$8,450	825	£1,711	\$11,965	2.9%
Flaxseed	bu	23,710	£4,275	NA	15,870	£2,917	NA	7.1%
Grain—Indian corn	bu	13,541	£1,404	\$7,386	20,772	£2,040	\$11,330	3.4%
Grain—Wheat	bu	13,042	£2,534	\$13,890	24,872	£4,801	\$26,489	7.2%
Iron, bar	tons	153	£2,308	\$11,978	65	£952	\$5,068	3.2%
Iron, pig	tons	184	£918	\$6,029	204	£1,012	\$6,664	1.9%
Potash	tons	89	£2,283	\$9,922	7	£169	\$750	2.4%
Wood Products, Staves and headings	1000s	484	£1,450	\$15,802	1,010	£2,999	\$32,976	4.4%
Rum, American	gal	2,230	£152	\$602	879	£294	\$237	0.4%
Value of enumerated products			£30,778	\$152,754		£63,289	\$356,727	92.6%
Total All products			£34,724	\$200,134		£66,861	\$395,062	100.0%

Sources: Shepherd (1969); Cole (1938).

Table 3
Average Annual Value in Current Prices of Middle Colony Exports by Source and Destination, 1768-1772

From	Great Britain	Ireland	Southern Europe and Wine Islands	West Indies	Africa	Row Total
New York	42,867.0	25,953.0	35,642.2	68,374.6	782.8	173,619.6
New Jersey	68.4	25.0	210.2	1,940.6		2,244.2
Pennsylvania	19,994.4	25,751.8	143,362.2	140,805.6	294.4	330,208.4
Delaware		3,589.8	12,489.2			16,079.0
Column Total	62,929.8	55,319.6	191,703.8	211,120.8	1,077.2	522,151.2
<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
	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
Total	12.1	10.6	36.7	40.4	0.2	100.0

Source: Shepherd (1969).

Table 4

Value of Imports into England and Scotland by Source at Benchmark Dates, 1700-1790

Year	Total	New England	New York	Pennsylvania	Virginia and Maryland	Carolina	Georgia
1700	395,070	41,486	17,567	4,608	317,351	14,058	0
1710	256,505	31,113	8,203	1,277	195,120	20,793	0
1720	575,824	49,269	16,836	7,929	439,054	62,736	0
1730	760,454	55,135	8,740	10,813	534,018	151,748	0
1740	770,562	74,690	21,498	15,643	390,032	267,775	924
1750	975,565	51,660	35,634	29,087	663,989	193,253	1,942
1760	1,150,493	39,808	34,366	22,846	859,038	182,237	12,198
1770	1,497,741	157,443	98,997	31,065	847,997	306,181	56,058
1780	98,247	2,232	67,840	8,699	15,296	1,929	2,251
1790	1,191,071	100,864	119,971	51,731	566,774	286,332	65,399
Average Annual Rates of Change							
1700-1770	1.92	1.92	2.50	2.76	1.41	4.50	
1700-1790	1.23	0.99	2.16	2.72	0.65	3.41	

Notes and Sources: McCusker (2006, series EG 429-42, 443-60). For 1740 and later the figures are the sum of separate figures for England and Wales and Scotland. Prior to that imports to Scotland are imputed on the assumption that they grew at the same rate as imports to England and Wales.

Table 5:
Tonnage Clearing From Philadelphia and New York, by Destination, 1715-1772

DATE	Great Britain	Ireland	From Philadelphia		Africa	Coastal	Great Britain	Ireland	From New York		Africa	Coastal
			Southern Europe & Wine Islands	West Indies					Southern Europe & Wine Islands	West Indies		
1715							1,461		630	3,790	40	1,406
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	988		515	3,468		2,761
1727	730	50	470	3,120		760	1,030		465	4,309		2,138
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	690	160	275	3,937		2,349
1734	1,400	1,460	2,130	4,160		1,880	645	160	475	2,881	60	1,959
1735	1,090	1,180	2,420	3,240		1,830	838	200	904	2,941		2,321
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	795	820	1,040	4,431		2,451
1750	1,136	2,491	1,739	12,682		7,204						

DATE	From Philadelphia						From New York					
	Great Britain	Ireland	Southern Europe & Wine Islands	West Indies	Africa	Coastal	Great Britain	Ireland	Southern Europe & Wine Islands	West Indies	Africa	Coastal
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	5,161		3,345	12,340		17,004	5,165		1,592	7,825		2,988
1766	1,830	4,830	4,455	14,053	300	10,834	4,907		3,480	8,385		3,090
1767	8,263		6,408	13,371		13,061	5,588		3,820	6,697		3,770
1768	4,134	3,482	7,255	12,119	0	8,116	5,130	2,522	2,360	7,220	35	3,754
1769	4,049	3,170	12,040	11,114	30	9,085	3,955	2,515	3,278	5,628	205	9,068
1770	3,208	4,791	10,940	14,043	0	12,370	4,665	2,692	2,920	7,244	98	5,655
1771	3,222	3,470	7,110	13,757	90	13,655	4,830	2,476	2,029	7,996	115	4,968
1772	3,123	2,491	8,415	16,081	20	12,872	4,280	1,610	2,449	8,249	260	8,859

Source: McCusker (2006); Lyden (1967).

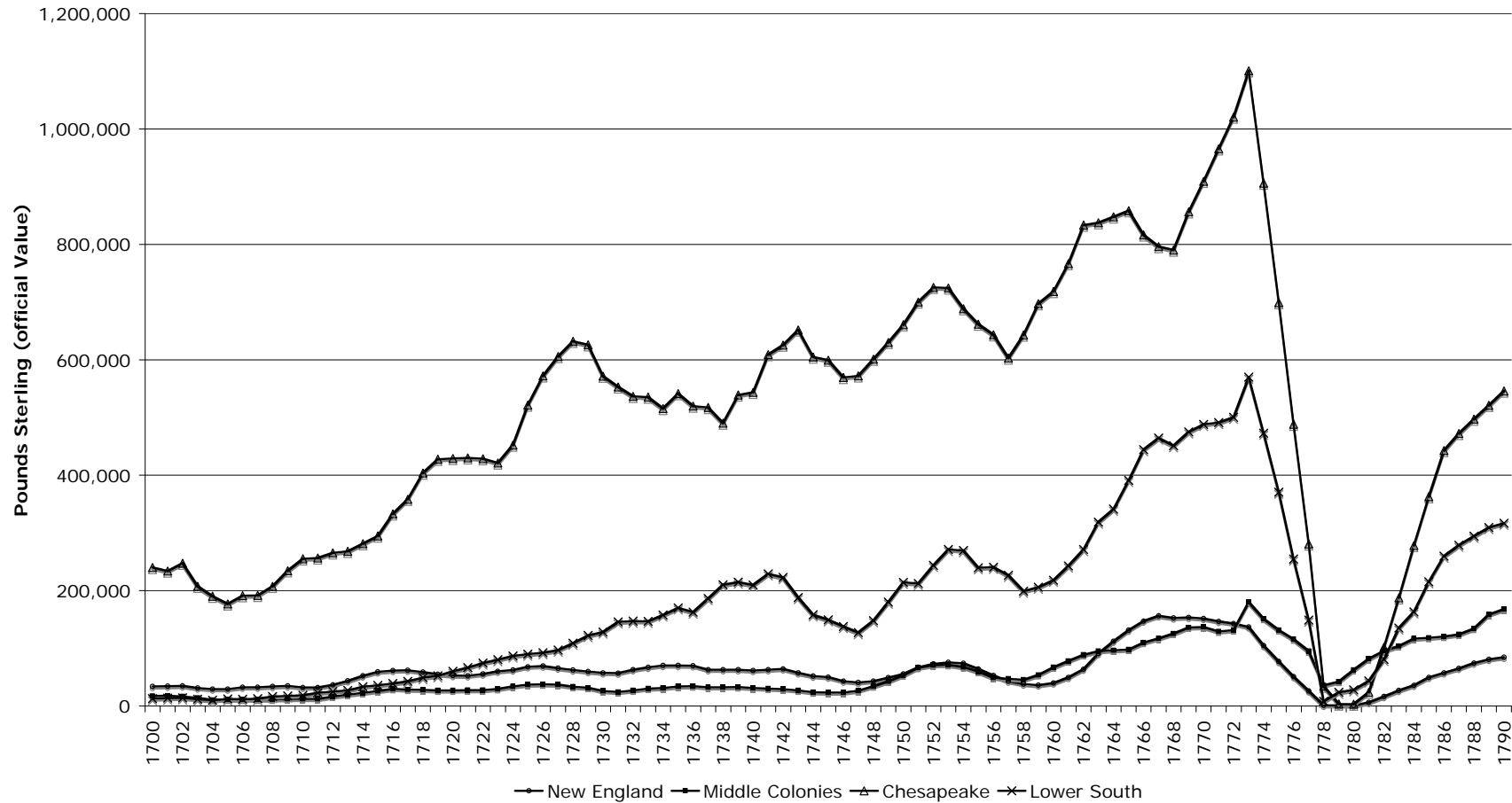
Table 6:
Exports from the Middle Colonies, 1700-1772
In Prices of 1840

Year	Exports (1840 Prices)			Population		
	New York	Philadelphia	Middle Colonies	New York	Pennsylvania	Middle Colonies
1700	\$257,348	\$172,997	\$445,954	19,107	17,950	53,537
1701	\$271,705	\$195,973	\$484,640	19,344	18,483	54,960
1702	\$116,684	\$155,615	\$282,174	19,584	19,037	56,420
1703	\$109,447	\$193,721	\$314,163	19,827	19,614	57,920
1704	\$154,406	\$91,229	\$254,544	20,074	20,215	59,459
1705	\$108,304	\$49,143	\$163,158	20,324	20,842	61,039
1706	\$41,737	\$158,055	\$207,038	20,577	21,497	62,661
1707	\$209,239	\$29,509	\$247,407	20,834	22,183	64,326
1708	\$158,903	\$79,591	\$247,144	21,094	22,902	66,036
1709	\$179,589	\$23,164	\$210,106	21,358	23,656	67,790
1710	\$120,170	\$47,942	\$174,210	21,625	24,450	69,592
1711	\$178,622	\$1,427	\$186,579	22,808	25,034	72,381
1712	\$182,621	\$55,225	\$246,473	24,057	25,632	75,281
1713	\$211,363	\$6,683	\$225,954	25,375	26,245	78,298
1714	\$436,703	\$99,976	\$556,144	26,767	26,872	81,435
1715	\$290,527	\$205,021	\$513,522	28,237	27,514	84,698
1716	\$303,846	\$194,959	\$516,897	29,789	28,171	88,092
1717	\$344,538	\$168,905	\$532,065	31,428	28,845	91,622
1718	\$390,085	\$209,789	\$621,631	33,159	29,534	95,294
1719	\$284,518	\$246,431	\$550,206	34,988	30,239	99,112
1720	\$248,920	\$312,952	\$582,251	36,919	30,962	103,084
1721	\$236,350	\$243,909	\$497,678	37,945	32,523	106,807
1722	\$309,497	\$237,531	\$566,869	39,001	34,182	110,664
1723	\$440,128	\$361,805	\$831,019	40,086	35,945	114,660
1724	\$341,048	\$350,549	\$716,681	41,202	37,818	118,801
1725	\$412,119	\$481,973	\$926,520	42,350	39,806	123,091
1726	\$649,250	\$247,549	\$929,325	43,530	41,916	127,536
1727	\$594,087	\$532,906	\$1,167,868	44,743	44,154	132,142
1728	\$415,017	\$408,193	\$853,067	45,991	46,526	136,914
1729	\$325,821	\$203,976	\$549,012	47,274	49,042	141,858
1730	\$189,265	\$393,901	\$604,317	48,594	51,707	146,981
1731	\$475,070	\$502,777	\$1,013,314	49,925	54,383	153,068
1732	\$228,833	\$482,729	\$737,370	51,291	57,197	159,407
1733	\$269,338	\$940,714	\$1,253,939	52,696	60,157	166,009
1734	\$338,930	\$938,880	\$1,324,155	54,139	63,269	172,884
1735	\$289,497	\$1,183,004	\$1,525,908	55,621	66,543	180,044
1736	\$404,005	\$1,400,345	\$1,869,793	57,144	69,987	187,501
1737	\$419,447	\$849,893	\$1,315,378	58,709	73,608	195,266
1738	\$450,391	\$789,287	\$1,284,641	60,317	77,417	203,353
1739	\$575,007	\$1,020,162	\$1,653,024	61,968	81,424	211,774
1740	\$635,472	\$1,868,950	\$2,595,256	63,665	85,637	220,545

Year	Exports			Population		
	New York	Philadelphia	Middle Colonies	New York	Pennsylvania	Middle Colonies
1741	\$594,943	\$2,109,468	\$2,802,498	64,862	88,551	227,166
1742	\$363,663	\$1,037,320	\$1,451,796	66,081	91,564	233,986
1743	\$387,469	\$1,154,594	\$1,597,992	67,323	94,679	241,011
1744	\$358,427	\$885,695	\$1,289,246	68,588	97,901	248,247
1745	\$334,085	\$1,190,637	\$1,580,023	69,877	101,232	255,700
1746	\$202,041	\$1,831,600	\$2,107,399	71,190	104,676	263,377
1747	\$330,630	\$439,050	\$797,596	72,529	108,238	271,284
1748	\$263,440	\$1,397,298	\$1,720,972	73,892	111,920	279,429
1749	\$483,160	\$1,665,056	\$2,226,131	75,281	115,728	287,818
1750	\$712,856	\$3,094,341	\$3,945,282	76,696	119,666	296,459
1751	\$822,593	\$2,272,888	\$3,207,752	80,013	124,907	307,541
1752	\$767,039	\$2,511,397	\$3,397,342	83,474	130,377	319,037
1753	\$928,085	\$2,871,566	\$3,937,463	87,085	136,086	330,963
1754	\$476,721	\$2,050,918	\$2,619,315	90,852	142,046	343,334
1755	\$508,356	\$1,957,261	\$2,555,043	94,782	148,267	356,168
1756	\$442,188	\$1,107,149	\$1,605,531	98,883	154,760	369,482
1757	\$356,982	\$715,432	\$1,111,310	103,161	161,537	383,294
1758	\$269,323	\$991,067	\$1,306,103	107,624	168,611	397,622
1759	\$415,404	\$958,341	\$1,423,570	112,280	175,996	412,485
1760	\$410,585	\$901,366	\$1,359,535	117,138	183,703	427,904
1761	\$959,501	\$1,441,283	\$2,487,859	121,042	188,684	439,250
1762	\$1,178,800	\$1,305,316	\$2,574,214	125,083	193,801	450,897
1763	\$1,080,844	\$1,222,879	\$2,387,277	129,264	199,056	462,852
1764	\$879,717	\$1,084,947	\$2,035,921	133,591	204,454	475,125
1765	\$619,491	\$705,186	\$1,372,723	138,069	209,998	487,723
1766	\$945,161	\$2,635,026	\$3,710,038	142,704	215,693	500,655
1767	\$742,486	\$1,022,003	\$1,828,486	147,500	221,541	513,930
1768	\$1,023,841	\$2,828,649	\$3,992,218	152,464	227,549	527,557
1769	\$1,039,921	\$1,536,416	\$2,669,779	157,602	233,719	541,545
1770	\$932,570	\$2,202,410	\$3,248,684	162,920	240,057	555,904
1771	\$1,196,084	\$1,995,186	\$3,307,015	167,128	247,616	570,696
1772	\$1,126,374	\$2,122,794	\$3,367,013	171,450	255,412	585,882

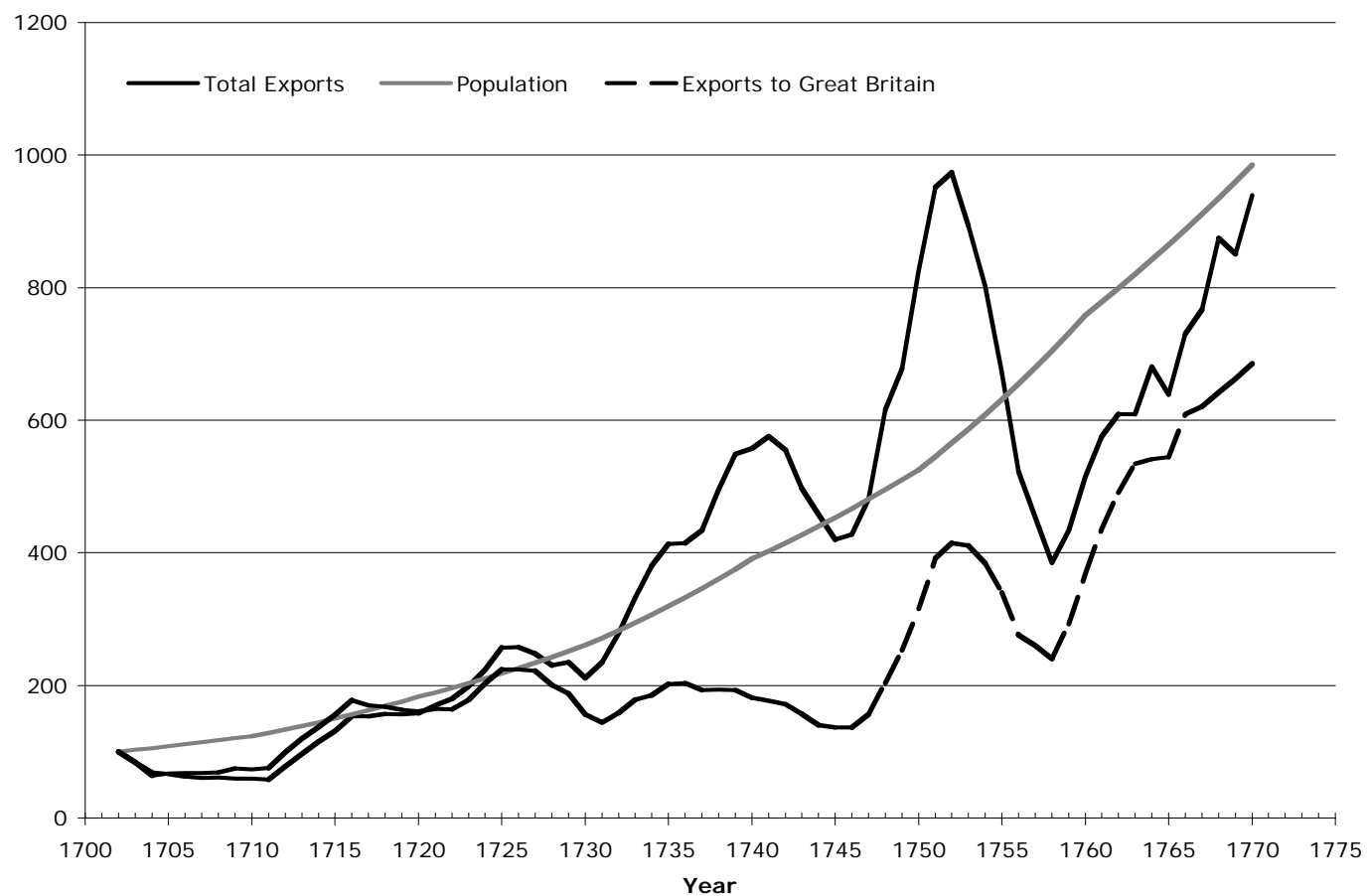
Source: Authors' estimates. See text for explanation.

Figure 1: Five Year Moving Average Value of Exports to Great Britain, by Colonial Region, 1700-1790



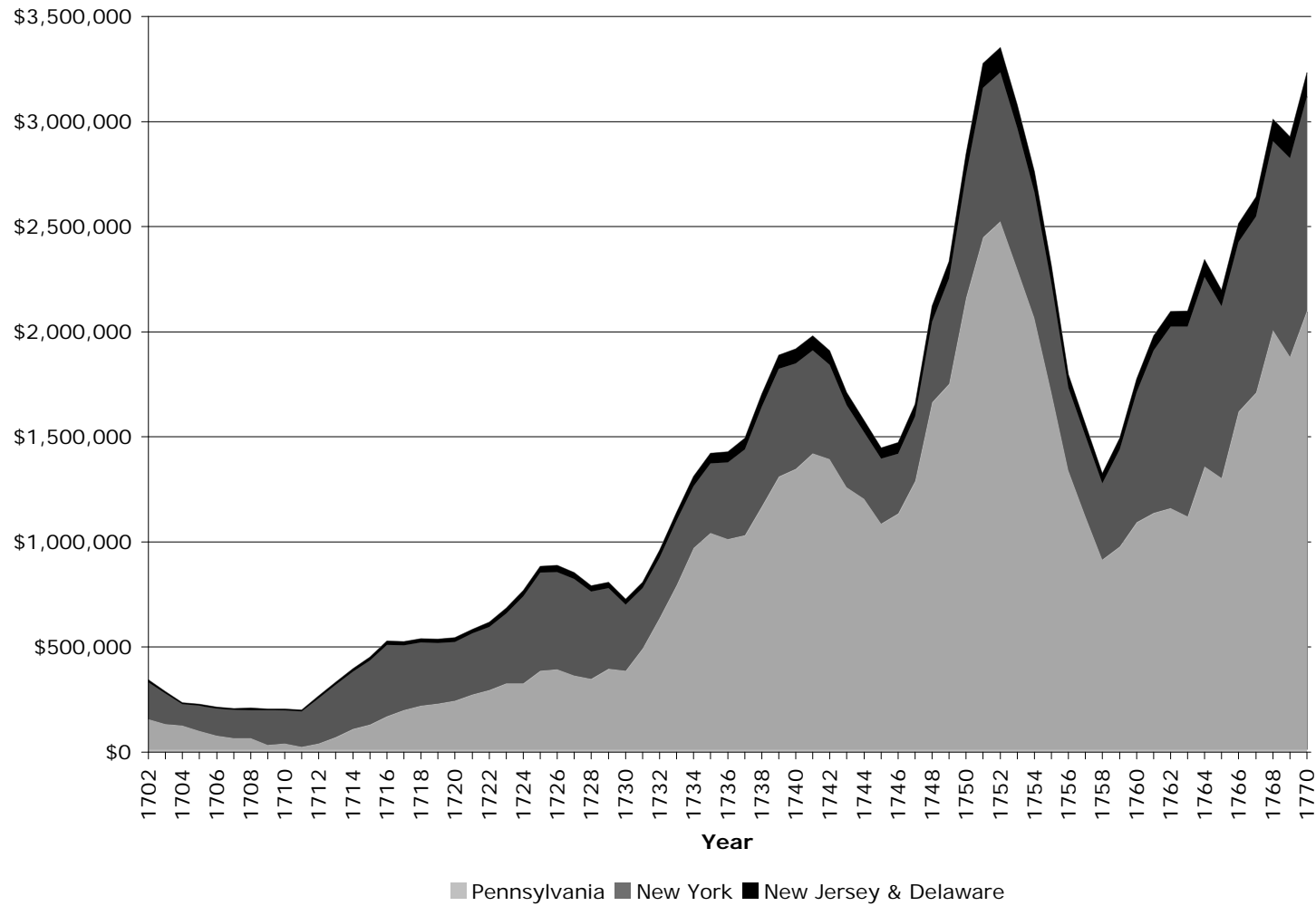
Source: McCusker (2006, series Eg 429-35).

Figure 2: Five Year Moving Average of Index Values of Middle Colony Exports, Exports to Great Britain, and Population, 1700-1772



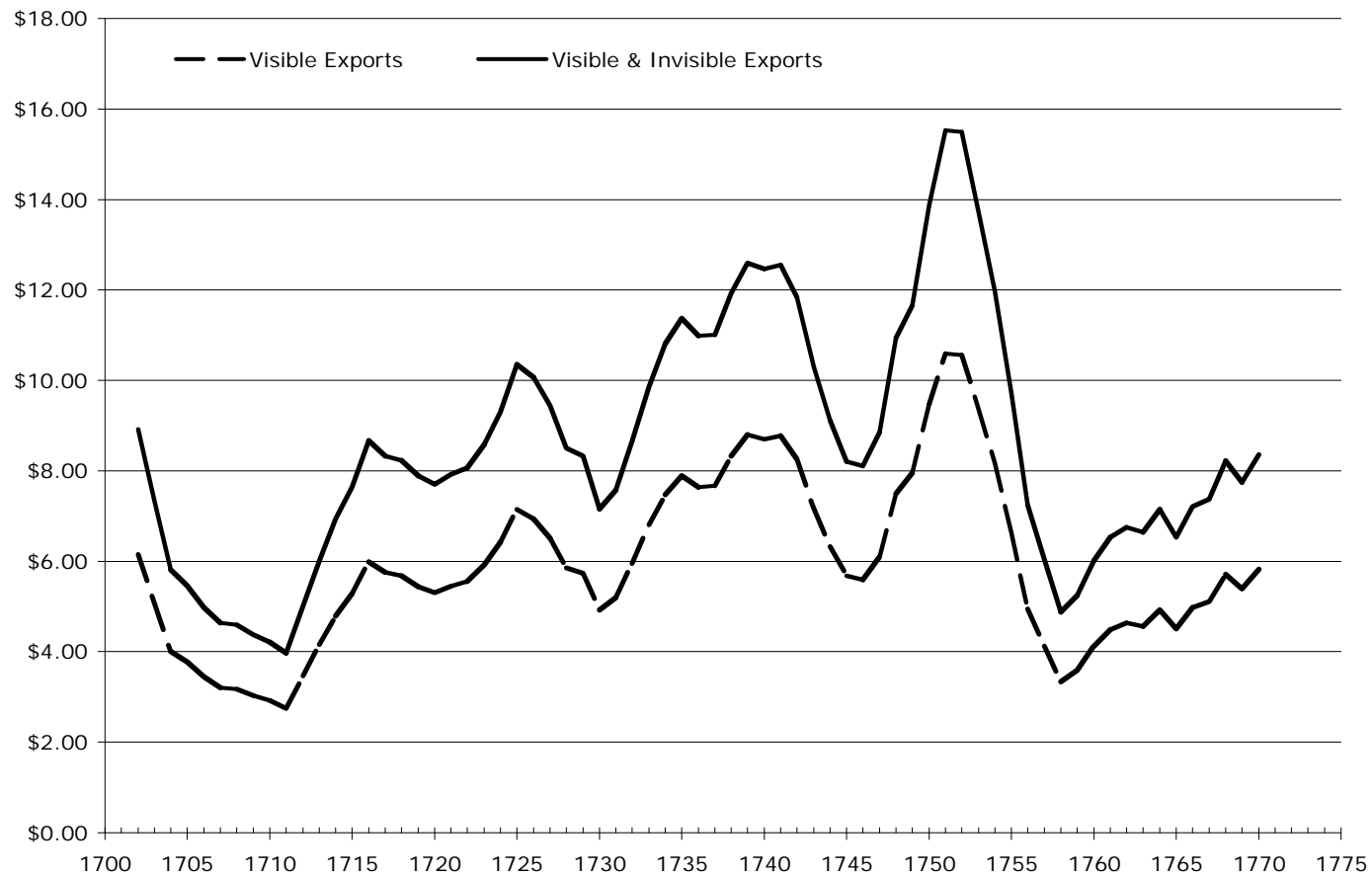
Notes and sources: Population is the sum of population in New York, New Jersey, Philadelphia, and Delaware. Data from McCusker (2006, series Eg 9-12), linearly interpolated between observations; Exports to Britain from McCusker (2006, series Eg 431-32), total exports based on authors' calculations as described in text.

Figure 3: Exports from the Middle Colonies, by source, 1700-1772



Source: Author's calculations, see text

Figure 4: Five Year Moving Average of Visible and Total Exports per capita from the Middle Colonies, 1700-1772



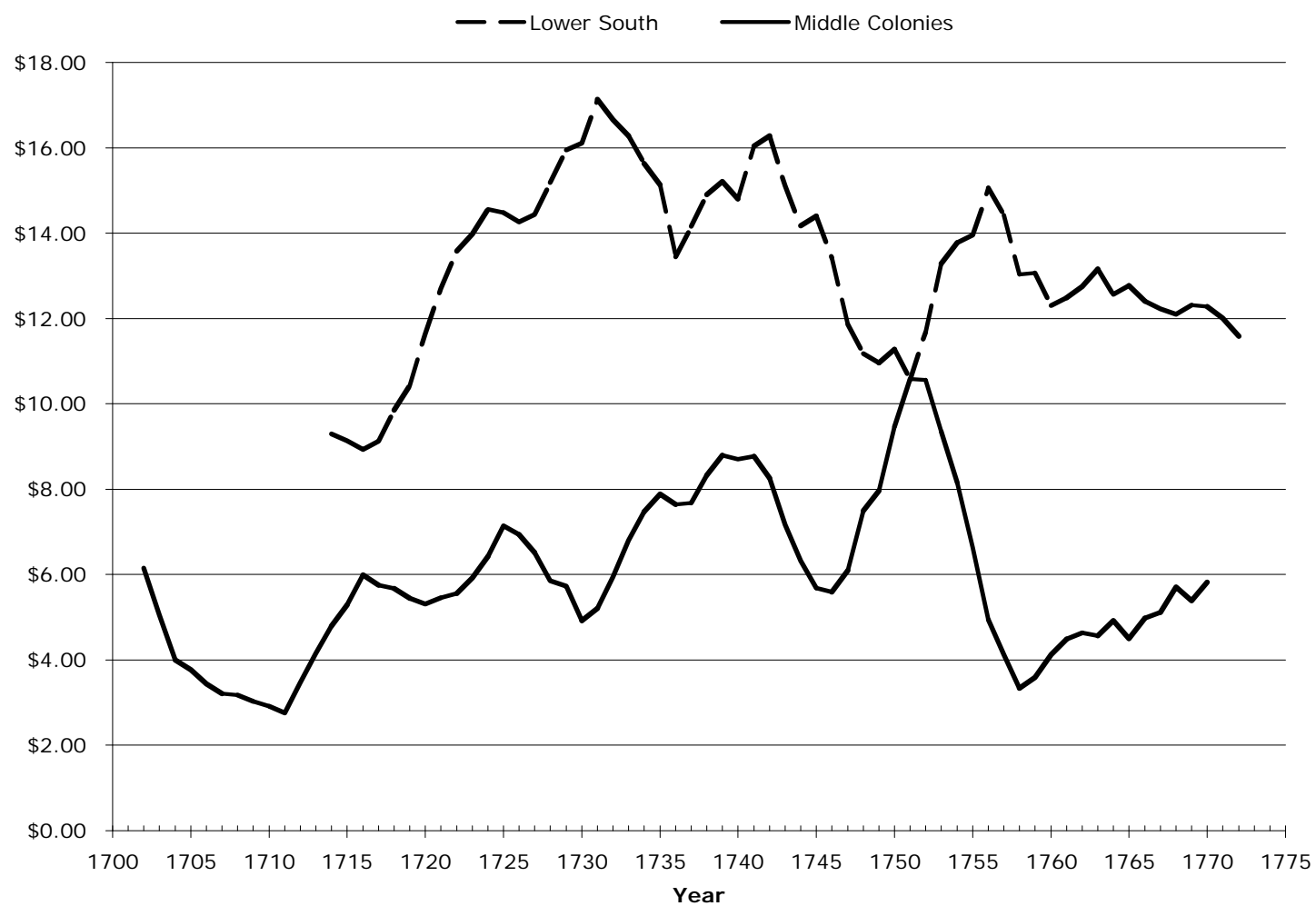
Source: see Figure 2.

Figure 5: Terms of Trade of the Middle Colonies



Notes and sources: Import prices are an average of the three series reported in Schumpeter (1938); Export prices are a weighted average (weights in parentheses) of flour (.87), wheat (.10), and pork (.03) between 1720 and 1775, and of flour (.89) and wheat (.11) before 1720. All price data from McCusker (2006. Eg 252, 257, 259).

Figure 6: Commodity Exports per capita from the Middle Colonies and the Lower South, 1700-1774



Source: Lower South from Mancall, Rosenbloom and Weiss (2008); see text for Middle Colonies derivation.