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> That from the encreasing luxury of our Country [i.e. Britain], the advance of the sugar keeps pace with the advance upon the Slaves.[1]

British overseas trade grew substantially during the eighteenth century. Data derived from customs records indicate that the official value of British exports (excluding re-exports) rose almost sixfold over the century while imports increased over fivefold. The growth of trade was by no means steady and was frequently disrupted by war, but it accelerated distinctly over the course of the century; the annual level of trade rose by 0.8 percent before 1740, by 1.7 percent between 1740 and 1770, and by 2.6 percent thereafter. Overall, overseas trade grew faster than either British population or total output. Per capita imports and exports thus increased significantly during the century, and a rising share of British output, especially industrial output, was exported. It has been estimated that exports' share of output doubled over the century, rising from 7 or 8 percent at the beginning to 16 or 17 percent at the end. Exports' share of industrial production is calculated to have grown from one fifth to one third during the same period.[2]

Although there appears to be widespread agreement about the general contours of British overseas trade and its share of British output, there is little consensus about either the causes of the growth of trade or its relationship to British industrialization. Some historians have regarded the expansion of demand for Brit-

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1 Thomas Melvil to the Company of Merchants Trading to Africa, 17 Mar. 1755, Cape Coast Castle, Public Record Office (PRO), C.O. 388/46, Ee 59.

2 Phyllis Deane and William A. Cole, *British Economic Growth, 1688–1959* (Cambridge, 1967), 46; Roderick Floud and Donald McCloskey (eds.), *The Economic History of Britain since 1700*, (Cambridge, 1981), I, 38–39, 89.

ish goods overseas as stemming from essentially autonomous developments abroad, whereas others, notably Deane and Cole, have argued that the growth of British exports, particularly after 1745, was primarily a consequence of the British demand for imports, the resulting expansion of purchasing power abroad filtering back to British exporters by means of a network of colonial trading connections. Similarly, the extent and timing of the expansion of British exports, notably after 1783, has led some scholars to attribute to overseas trade a major role in causing British industrialization, whereas McCloskey and Thomas have recently concluded that "the horsepower of trade as an engine of growth seems [to have been] low" in the century or so before 1860. Historians resident in Western industrialized nations are generally divided in their explanations of the growth of eighteenth-century British exports and in their assessment of exports' impact on the Industrial Revolution.[3]

Caribbean-based historians, by contrast, have generally been much more united in attributing to British overseas trade—particularly the slave trade and related trades in plantation staples—a positive and substantial role in fostering British industrialization. Williams, the major exponent of this view, claimed that profits from the triangular or slave trade "fertilized the entire productive system of the country." Despite recent demonstrations that the slave trade was probably less profitable than Williams alleged and could not carry the weight of responsibility for financing British industrialization that he assumed, his views continue to influence the debate over the origins of British industrial growth during the eighteenth century. In part at least, this influence arises from the fact that Williams presented his argument in broad and sweeping terms, and failed, for instance, to indicate clearly whether he was referring to profits from the slave trade alone or from the combined triangular and bilateral colonial trades. Furthermore, he frequently neglected to locate precisely in time and place the connections that he believed existed between the slave trade, associated plantation trades, and British industrial development.[4]

3 Timothy J. Hatton, John S. Lyons, and Stephen E. Satchell, "Eighteenth Century British Trade: Homespun or Empire Made," *Explorations in Economic History,* XX (1983), 164; Deane and Cole, *Economic Growth,* 83; Cole, "Factors in Demand, 1700–80," in Floud and McCloskey, *Economic History,* I, 42–44; McCloskey and Robert P. Thomas, "Overseas Trade and Empire, 1700–1860," in *ibid.,* 102.

4 Eric Williams, *Capitalism and Slavery* (London, 1964; orig. pub. 1944), 105. See, e.g.,

This article investigates these possible connections during the period 1748 to 1776. The investigation ranges outside the question of the relationship of profits from the slave trade and British industrial investment to which several scholars have addressed themselves and seeks instead to explore the impact of Caribbean slave economies and their related trades upon the growth of markets for British industrial output. An examination of market connections among the slave trade, plantation agriculture, and British industry during the third quarter of the eighteenth century is particularly revealing, for available evidence now indicates that there occurred at this time both a substantial rise in the level of British slave trading activity and colonial sugar production on the one hand, and a marked acceleration in the rate of growth of British industrial production on the other. I argue that these developments were not unrelated but that their relationship was more complex than Williams indicated. In particular, the slave trade and slavery should be viewed not as some peculiar promoter of industrial expansion and change in Britain, but rather as integral though subordinate components of a growing north Atlantic economy, the expansion of which was largely dictated by forces from within British society, notably rising consumer demand for colonial staples such as sugar. Rising British sugar imports in turn created enhanced export opportunities for British manufacturers in colonial and African markets and thereby made a significant contribution, as Deane and Cole have argued, to the acceleration in the rate of growth of British industrial output in the middle of the eighteenth century.

During the last fifteen years historians have made major advances in their efforts to ascertain the general volume and temporal distribution of the eighteenth-century British slave trade. Published estimates have suggested that British traders may have carried between 2.5 and 3.7 million slaves from Africa between

Roger Anstey, *The Atlantic Slave Trade and British Abolition* (London, 1975), 38–57; Thomas and Richard N. Bean, "The Fishers of Men: The Profits of the Slave Trade," *Journal of Economic History,* XXXIV (1974), 885–914. The debate over profitability still continues however. See Joseph E. Inikori, "Market Structure and the Profits of the British African Trade in the Late Eighteenth Century," *ibid.,* XLI (1981), 745–776, and the comment by Bruce L. Anderson and Richardson, with a rejoinder by Inikori in *ibid.,* XLIII (1983), 713–729. Compare Williams' comment in *Capitalism and Slavery,* 5, with his comments on 52 and 105. See also, *ibid.,* 51–84.

1701 and 1807, with the most recent survey carried out by Lovejoy suggesting a figure of just over 2.8 million. Although there remains much scope for disagreement about the overall size of the British trade after 1701, all estimates indicate that it grew substantially over the course of the century, reaching its peak after 1783. The most widely accepted figures indicate that annual shipments of slaves by the British probably tripled over the eighteenth century, rising from 12,000 to 14,000 before 1720 to around 42,000 during the 1790s.[5]

Currently published estimates of the British trade are invariably constructed on decadal bases and have only limited usefulness for exploring in detail the relationship between the slave trade and economic change in Britain, Africa, and the Americas. For such purposes estimates of the annual levels of the trade are needed. Using new sources of shipping data, I have been able to produce such estimates for the period 1698 to 1807. As yet unpublished, these estimates largely confirm the overall rate of expansion of the trade suggested by most other historians. But they also indicate that expansion was far from smooth. It was largely confined in fact to two main periods: the 1720s and early 1730s and the third quarter of the century. The increase in British slaving during the latter period was especially marked, as annual British shipments of slaves from the African coast in peacetime rose from an estimated 25,800 between 1749 and 1755 to 43,500 between 1763 and 1775. During these last years, British vessels carried more slaves from Africa than in any previous or subsequent period of thirteen consecutive years. The British slave trade may therefore have reached its peak before, not after the American Revolution as most recent scholars have suggested.[6]

Irrespective of whether the British slave trade peaked before 1776 or not, its substantial expansion over the third quarter of the century requires explanation. A detailed investigation of the matter is impossible here, but the evidence suggests that the

5 See Paul E. Lovejoy, "The Volume of the Atlantic Slave Trade: A Synthesis," *Journal of African History,* XXIII (1982), 474–501, for a summary of recent estimates. The annual figures here are based on estimates contained in Philip D. Curtin, *The Atlantic Slave Trade: A Census* (Madison, 1969), 150; Anstey, "The British Slave Trade 1751–1807: A Comment," *Journal of African History,* XVII (1976), 606–607; Seymour Drescher, *Econocide: British Slavery in the Era of Abolition* (Pittsburgh, 1977), 205–213; Lovejoy, "Synthesis."

6 Copies of my tables are available on request. The next highest thirteen-year total in the number of slaves carried was 1783 to 1795.

expansion of the trade owed little to improvements in commercial conditions in West Africa. In comparison with earlier years, the costs of procuring slaves on the coast probably rose significantly after 1750 as dealers in West Africa were unable to accommodate an acceleration in the growth of international demand for slaves within existing cost and price schedules. Data compiled by Bean reveal that the average current price for adult male slaves at the coast increased by some 25 percent between 1748 and 1775 or from £13.9 in 1748 to 1757 to £17.5 in 1768 to 1775. Furthermore, procuring slaves even at these rising prices required British traders to accept mounting shipping costs. My own estimates, based on Bristol and Liverpool shipping data, indicate that the average time spent by British vessels slaving on the coast lengthened considerably during the third quarter of the century and that daily loading rates of slaves at times fell to historically low levels, thereby raising average shipping costs per slave purchased.[7]

Faced with rising expenses in West Africa, British merchants continued in the slave trade because they either anticipated equivalent cost savings on other sections of the slaving voyage or expected proportionately higher prices for slaves in the New World. How much scope there was for achieving economies on mid-eighteenth-century slaving voyages is difficult to assess, but the introduction of new payments mechanisms for slaves in the Caribbean and elsewhere around mid-century and the use of copper sheathing from the 1770s onward to protect the hulls of slave ships from attack by toredo worms—a practice pioneered by the Royal Navy—were both cost-saving innovations. Innovations of this sort, however, took time to introduce and brought uncertain and essentially long-term benefits.[8]

Failing immediate short-term cost-cutting opportunities, merchants had to rely on higher prices for slaves in the New World in order to offset the upward pressure on costs in West Africa after 1748. They were not disappointed. Published data

7 See Ben T. Wattenberg (ed.), *The Statistical History of the United States from Colonial Times to the Present* (New York, 1976), 1174. These estimates are presented in Richardson, "The Efficiency of English Slave Trading in West Africa during the Eighteenth Century: Estimates and Implications," unpub. ms. (1981).

8 Gareth Rees, "Copper Sheathing: An Example of Technological Diffusion in the English Merchant Fleet," *Journal of Transport History,* II (1972), 85–94; Henry A. Gemery and Jan S. Hogendorn, "Technological Change, Slavery and the Slave Trade," in Clive Dewey and Anthony G. Hopkins (eds.), *The Imperial Impact* (London, 1978), 257–258.

indicate that during the first half of the eighteenth century the average current price for adult male slaves in British America varied between £23 and £27, but then rose to £31.9 between 1748 and 1757, to £35.0 between 1758 and 1767, and to £40.7 between 1768 and 1775. A rise of some 27.6 percent between 1748 and 1775, this matched the rise in slave prices in West Africa over the same period and created a rate of mark-up on prices between the coast and the New World after 1748 that was even higher than that prevailing during the previous period of expansion in the trade in the 1720s and early 1730s. Expansion and success in the British slave trade between 1748 and 1776 thus appears to have rested primarily on the buoyancy of markets for slaves in the Caribbean and other parts of British America.[9]

Various factors influenced the demand for slaves in British America; these included the inability of slaves to maintain their numbers through natural reproduction, particularly in the Caribbean, and the regular extension of credit by British merchants to New World planters to assist them in purchasing slaves. However, the main determinant of demand for slaves was the level of income that planters derived from the production and sale of basic staples such as sugar, tobacco, rice, and indigo. Although the number of slaves sold by the British to planters in North American mainland colonies such as Virginia and South Carolina was sometimes considerable, the central markets for British slavers before and after 1776 were in the sugar islands of the Caribbean. Sugar exports constituted the largest single component of British Caribbean planter incomes, and it was revenue from this crop that essentially shaped demand conditions for British slavers between 1748 and 1776.[10]

Detailed evidence about Caribbean planters' incomes is, unfortunately, relatively sparse, but information about the volume and prices of sugar shipped annually to Britain from the islands during the eighteenth century is readily available. From this information it is possible to calculate the gross annual revenues received by planters from sugar exports to Britain. Some sugar

9 Wattenberg (ed.), *Statistical History,* 1174. Mark-ups were 129% and 132% in 1748–1757 and 1768–1775 compared to 94% in 1728–1732 and 101% in 1723–1727. *Ibid.,* 1174.

10 On the role of credit, see Jacob M. Price, *Capital and Credit in British Overseas Trade: the View from the Chesapeake 1700–1776* (Cambridge, Mass., 1980). Curtin, *Census,* 140.

was shipped from the islands to markets other than Britain, notably the British North American colonies, but most of the sugar produced in the islands was shipped initially to the mother country; up to 20 percent was re-exported to Ireland and the European Continent. Gross receipts from sugar shipments to Britain offer a clear indication of the total revenues accruing to planters from their sugar exports. Gross receipts provide an imperfect measure of net incomes from sugar sales, but it is reasonable to assume that variations in such receipts over time probably reflect both the short-term fluctuations in planters' fortunes and long-term trends in their net incomes.[11]

Detailed estimates of gross annual receipts accruing to Jamaican planters from sugar shipments to Britain from 1748 to 1775, together with figures on retained annual slave imports into the island, are set out in Table 1. Estimates of the gross revenues received from shipments to Britain by all British Caribbean planters for various periods between 1713 and 1775 are provided in Table 2.

It appears from Table 1 that there existed a direct but lagged relationship between changes in Jamaican planters' gross receipts from sugar shipments to Britain between 1748 and 1775 and the number of imported slaves retained in the island. Excluding war years when trading conditions were uncertain, annual variations in Jamaican revenues from sugar were generally reflected one year later by similar variations in retained slave imports during seventeen of the twenty peacetime years between 1748 and 1775.

11 See John R. Ward, "The Profitability of Sugar Planting in the British West Indies, 1650–1834," *Economic History Review,* XXXI (1978), 197–213, on planter profits. Richard B. Sheridan, *Sugar and Slavery: An Economic History of the British West Indies 1623–1775* (Baltimore, 1974), 22, 32–34, 493–497. The sugar trade statistics provided by Sheridan refer to England and Wales only before 1755 but include Scotland thereafter. Throughout this article I refer to Britain in describing trade figures even when, as in my present discussion of sugar imports or my later discussion of British exports generally, the data relate to England and Wales. As far as sugar imports or British-produced exports are concerned, trade statistics for England and Wales are close approximations to British trade in this period. Available statistics on Scottish trade after 1755 reveal that less than 4% of British sugar imports entered through Scottish ports before 1776 and that less than 5% of total British-produced exports were dispatched from Scotland. Henry Hamilton, *An Economic History of Scotland in the Eighteenth Century* (Oxford, 1963), 414, 419. The omission of Scottish figures from the trade statistics used in this article does not affect the trends suggested by such statistics.

Table 1 Gross Revenues from Sugar Exports to Britain and Retained Slave Imports in Jamaica, 1748–1775

YEAR	SUGAR REVENUES £000	RETAINED SLAVE IMPORTS
1748	688	8004
1749	603	4730
1750	561	2866
1751	569	4127
1752	586	5079
1753	718	6759
1754	702	7959
1755	836	12125
1756	777	9264
1757	754	6992
1758	922	2994
1759	1015	4531
1760	1622	5205
1761	1556	5838
1762	1020	6047
1763	994	8497
1764	1104	7574
1765	1001	6945
1766	1070	9536
1767	1234	2873
1768	1278	5465
1769	1210	3155
1770	1350	5988
1771	1294	3512
1772	1264	4355
1773	1501	8876
1774	1856	15937
1775	1618	7663

NOTE: Sugar revenues relate to the gross proceeds from sales in England for the year *prior* to that stated.
SOURCES: Sugar prices: Sheridan, *Sugar and Slavery,* 496–497. Sugar imports from Jamaica: Noel Deerr, *History of Sugar* (London, 1949), I, 193–202. Slave imports: PRO, C.O. 137/38, Hh, 3, 4.

Since the time interval between the dispatch of slaving voyages from British ports and their arrival in the New World was nine to twelve months by the mid-eighteenth century, this twelve-month lag between Jamaican planters' receipts from sugar and their purchase of slaves suggests a high degree of supply responsiveness among British slavers to shifts in Jamaican demand for slaves during the third quarter of the eighteenth century.[12]

An inspection of Table 2 shows that gross annual receipts by Caribbean planters from their total shipments of sugar to Britain rose by some 237 percent between 1713 and 1775, from £959,000 per annum between 1713 and 1716 to £3,235,000 between 1771 to 1775. However, the growth in receipts was by no means steady and was affected by different factors over time. Revenues actually fell after 1716 largely as a result of falling sugar prices, but then rose steadily during the 1720s as shipments of sugar increased markedly and prices stabilized. Declining re-export markets and a collapse in London sugar prices brought about another fall in planter revenues during the early 1730s; they remained below the levels of 1726 to 1730 through the rest of the decade. Sugar prices began to recover in the late 1730s and the 1740s, however, and, despite a doubling in the quantities of sugar shipped to Britain

Table 2 Average Annual Gross Revenues from Sugar Shipments to Britain from the Caribbean, 1713–1775

	AVERAGE GROSS PROCEEDS (£000 PER ANNUM)	SUGAR PRICE INDEX (1713–16 BASE)	CONSUMER PRICE INDEX (1713–16 BASE)
1713–16	959.1	100	100
1721–25	805.6	72	94
1726–30	1049.3	74	98
1731–35	824.8	60	88
1736–40	965.1	75	91
1741–45	1209.5	95	93
1746–50	1479.9	103	93
1751–55	1675.1	105	90
1756–60	2652.1	120	101
1761–65	2617.2	108	98
1766–70	2952.1	110	104
1771–75	3234.8	108	114

SOURCES: Sugar imports: Elizabeth B. Schumpeter, *English Overseas Trade Statistics 1697–1808* (Oxford, 1960), 52–56. Sugar prices: Sheridan, *Sugar and Slavery*, 496–497. Consumer prices: Brian R. Mitchell and Deane, *Abstract of British Historical Statistics* (Cambridge, 1962), 468–469.

12 Richardson, "Efficiency of English Slave Trading." A similar responsiveness of slave supply to changes in planter revenues was apparent in South Carolina after 1748. *Idem*, "The Volume and Pattern of the English Slave Trade to South Carolina before 1776," unpub. ms. (1983).

during the third quarter of the century, these higher sugar prices were sustained through to the American Revolution. During this quarter century, prices of muscovado sugar on the London market only occasionally fell below 33 shillings per cwt., and were usually 40 percent or more higher than they had been in the two decades before 1740. Based in part on a revival in re-exports of sugar after 1748, notably to Ireland, this sustained recovery in sugar prices was due primarily to the buoyancy of the domestic sugar market in Britain. Despite substantially increased imports, the price of muscovado sugar appears to have risen relative to the prices of other consumer goods in Britain during the third quarter of the century. At the same time, the share of British imports coming from the Caribbean rose significantly from 20.9 percent by value between 1748 and 1752 to 28.7 percent between 1773 and 1777. Growing British sugar consumption thus provided the foundation for the silver age of sugar between 1763 and 1775 and the associated rapid expansion in British slaving activity.[13]

Statistics on population and retained sugar imports indicate that sugar consumption per head in Britain rose from 6.5 lbs around 1710 to 23.2 lbs in the early 1770s. By this latter date, per capita sugar consumption in Britain was several times higher than in continental Europe. Explanations for the growth of British sugar consumption and its divergence from continental levels have largely focused upon changes in taste and diet, particularly the growth of tea and coffee drinking in Britain during the eighteenth century. Apparently confined in the seventeenth century to the wealthier strata of British society, tea drinking in particular became widespread in the eighteenth century. Thus contemporary writers often mentioned the growing habit of taking tea with sugar among even the poorest sections of British society.[14]

That increased tea drinking was probably a major factor in extending the market for sugar in eighteenth-century Britain is not to be denied, but available statistics indicate that the increase in sugar consumption in Britain was not steady and may have

13 Sheridan, *Sugar and Slavery,* 32; Drescher, *Econocide,* 22. For the use of the phrase "silver age of sugar" to describe the period 1763 to 1775, see Richard Pares, "Merchants and Planters," *Economic History Review,* Suppl. 4 (1960), 40.

14 Sugar consumption figures are based on Sheridan, *Sugar and Slavery,* 493–495; Floud and McCloskey, *Economic History,* I, 21. Sheridan, *Sugar and Slavery,* 18–35.

also been influenced by other factors. Close examination of import figures and population estimates shows that per capita sugar consumption increased markedly during the second and third decades of the century and again between 1750 and 1775 but remained relatively static during the intervening period. This leveling out of sugar consumption per head between 1730 and 1750 may have been more apparent than real, reflecting weaknesses in customs records; the period from 1730 to 1750 is thought to have been one in which smuggling, for instance, was particularly rife. However, smuggling was associated more with spirits, tea, and tobacco than muscovado sugar, and it is unlikely that the variations in the rate of growth of British per capita sugar consumption in the half century before 1775 can be attributed to deficiencies in trade statistics.[15]

Available price data suggest that the growth of sugar consumption in Britain during the two decades before 1730 stemmed essentially from improved efficiency in supplying the product. With 1713 to 1716 as a base, the wholesale price of muscovado on the London market fell by over 30 percent between 1713 and 1730 while the fall in price of consumer goods generally was less than 10 percent. From the mid-1730s onward, however, sugar prices rose relative to other prices. Despite substantial increases in sugar imports after 1750, wholesale prices on the London sugar market were some 5 to 20 percent higher than the 1713 to 1716 base throughout most of the third quarter of the century, whereas prices of consumer goods in general, but particularly consumer goods other than cereals, remained below or near to the 1713 to 1716 base until about 1770. In contrast to the period before 1730, the growth of sugar consumption between 1748 and 1776 was essentially the result of rises in incomes or changes in consumer preferences rather than improvements on the supply side.[16]

15 The exact figures of consumption per head are: 1731, 15.7 lbs; 1741, 13.9 lbs; 1751, 15.0 lbs; 1761, 18.0 lbs. Consumption in each year is the average of 5 years centering on the year specified. Cole, "Trends in Eighteenth-Century Smuggling," *Economic History Review*, X (1958), 395–410. On tobacco, see Robert C. Nash, "The English and Scottish Tobacco Trade in the Seventeenth and Eighteenth Centuries: Legal and Illegal Trade," *ibid.*, XXXV (1982), 354–372.

16 Sugar prices based on Sheridan, *Sugar and Slavery*, 496–497; consumer goods on the Schumpeter-Gilboy index as reprinted in Mitchell and Deane, *Abstract of British Historical Statistics*, 468–469. By 1770, the exclusion of cereals from the consumer goods price index lowered the consumer goods index by around 10%.

This last suggestion raises some interesting problems, for most recent studies of eighteenth-century British output and income have indicated that, largely because of changes in the relative growth rates of population and agricultural output and productivity, per capita real incomes in Britain probably rose faster in the half century before 1760 than during the ensuing two decades. In particular, it has been suggested that per capita real incomes may have grown relatively quickly between 1730 and 1750—the era of the so-called "Agricultural Depression"—when unusually low grain prices are alleged to have stimulated consumption of non-agricultural goods, notably manufactures. Recent work has cast doubt on the extent of the depression in British agriculture at this time, however, and its assumed impact on consumer demand and British economic growth may thus have been exaggerated.[17]

Nevertheless, available evidence still points toward a distinct slowing down in the rise of real per capita income nationally around 1760 as the growth rate of agricultural output slackened, grain prices rose both absolutely and relatively, and Britain became periodically a marginal net importer of grain instead of a regular grain exporter. Furthermore, an analysis of data on British wage rates and prices between 1750 and 1792 has led Flinn to conclude that "it would be a brave historian who would assert that real wages were advancing in this period." In view of such evidence, the fact that per capita sugar consumption in Britain appears to have increased by around 50 percent between 1750 and 1775 is especially intriguing.[18]

17 Nicholas F. R. Crafts, "British Economic Growth, 1700–1831: A Review of the Evidence," *Economic History Review,* XXXVI (1983), 177–199; Arthur H. John, "Agricultural Productivity and Economic Growth in England, 1700–1760," *Journal of Economic History,* XXV (1965), 19–35; John V. Beckett, "Regional Variation and the Agricultural Depression, 1730–1750," *Economic History Review,* XXXV (1982), 35–52.

18 On trends in grain exports see John, "English Agricultural Improvement and Grain Exports, 1660–1765," in Donald C. Coleman and John (eds.), *Trade, Government and Economy in Pre-Industrial England* (London, 1972), 45–67; Walter E. Minchinton (ed.), *The Growth of English Overseas Trade in the Seventeenth and Eighteenth Centuries* (London, 1969), 63. See also R. V. Jackson, "Growth and Deceleration in English Agriculture, 1660–1790," *Economic History Review,* XXXVIII (1985), 333–351. Michael W. Flinn, "Trends in Real Wages, 1750–1850," *ibid.,* XXVII (1974), 408. See also Peter H. Lindert and Jeffrey G. Williamson, "English Workers' Living Standards During the Industrial Revolution: A New Look," *ibid.,* XXXVI (1983), 1–25, which includes wage data on the period 1755 to 1781. Their data indicate some squeezing of real adult male earnings between these benchmark dates.

Pending further detailed research, any explanation of rising British sugar consumption after 1750 must be regarded as speculative, but two reasons suggest themselves. The first relates to regional variations in income growth and the second to changes in the supply and relative price of beverages, notably beer and tea, after 1750.

Frequent references by early eighteenth-century writers to the growth of new consumption habits among working families and the poor have led historians to exaggerate the extent to which a national market for sugar developed in Britain before the mid-eighteenth century. Despite some transport improvements in the century or so after 1660, Britain continued to exhibit considerable regional diversity in terms of social structure, labor markets, and levels of prosperity and wealth before 1750. As a result the rate at which consumption patterns changed almost certainly varied significantly from one area of the country to another. Comments by eighteenth-century writers about changing habits of consumption should therefore be approached cautiously, for, as Gilboy reminded us, "most of the writers were Londoners, writing either consciously or sub-consciously about London or other growing towns."[19]

Although data on local or regional levels of sugar consumption are presently unavailable, sugar consumption per head probably was higher in London and its surrounding area than in other regions during the first half of the eighteenth century. London was, after all, the center of the British tea and sugar trades and also had a large servant population who were "the chief intermediaries between their masters and the lower classes in spreading standards of conspicuous consumption." Furthermore, available data indicate that, throughout the eighteenth century, money wages of laborers and craftsmen were higher in London than elsewhere, and moreover that the differential was greatest during the first half of the century. Such evidence suggests that general trends in Britain's sugar consumption up to 1750 were determined largely by economic and social conditions in the nation's capital.[20]

However, there are signs that, by the middle of the century, sugar consumption was growing among even the poorest mem-

19 See Sheridan, *Sugar and Slavery,* 18–35; Elizabeth W. Gilboy, *Wages in Eighteenth-Century England* (Cambridge, Mass., 1934), 240.
20 *Ibid.,* 235, 219–227.

bers of society in areas some distance from London. Contemporary writers referred also to the wider use of meat, tea, and sugar in northern working-class diets. Such dietary changes were made possible by relative improvements in real wages after 1750 in industrializing counties such as Lancashire. Recent studies have revealed that, although real wages nationally may not have improved significantly between 1750 and 1790, wages in Lancashire and perhaps other industrializing areas rose markedly, reflecting a growing demand for labor as industrial and urban expansion gathered pace. Thus, between 1750 and 1792, money wages of Lancashire laborers and building craftsmen rose by some 64 percent and 40 percent respectively, whereas Kentish laborers' wages rose by just under 20 percent and London laborers' wages by under 4 percent. Even allowing for price increases, Lancashire workers seem to have made notable gains in real terms after 1750 and, by narrowing the gap in wage levels that existed between themselves and their counterparts in the southeast before 1750, were able to share more fully in the consumption of products that the latter had enjoyed for almost half a century. Increases in per capita sugar consumption after 1750 may thus reflect the emergence of a national market in sugar brought about by dietary changes in industrializing regions experiencing rising prosperity during the third quarter of the eighteenth century.[21]

Rising sugar consumption after 1750 may also have stemmed from shifts in the relative elasticities of supply of tea and more traditional British beverages such as beer and ale. Official statistics on eighteenth-century British tea imports are notoriously unreliable because tea was invariably subject to such high import duties that it was regularly smuggled into Britain on a large scale. Research has suggested, however, that lower duties introduced in 1745 probably reduced levels of tea smuggling during the ensuing

21 Jonathan D. Chambers, "The Vale of Trent, 1670–1800," *Economic History Review*, Suppl. 3 (1957), 24; Thomas Percival, "Observations on the State of the Population of Manchester, and other Adjacent Parts, 1773–74," in Bernard Benjamin (ed.), *Population and Disease in Early Industrial England* (Farnborough, Hants., 1973), 43–45; Soame Jenyns, *Thoughts on the Causes and Consequences of the Present High Price of Provisions* (London, 1767), 10–12; G. Nick von Tunzelmann, "Trends in Real Wages, 1750–1850, Revisited," *Economic History Review*, XXXII (1979), 39; Gilboy, *Wages*, 220–221. A sharp deterioration in real wage rates for building craftsmen in London took place in the 1750s and 1760s. See L. D. Schwarz, "The Standard of Living in the Long Run: London, 1700–1860," *Economic History Review*, XXXVIII (1985), 24–41.

quarter century or so. Trends in legal imports may thus reasonably closely reflect patterns of British tea consumption in the twenty years after 1748.[22]

Total legal imports and consumption per head both increased substantially during this period. Recorded tea imports per annum rose by some 123 percent between 1748 and 1767, or from just over 3 million to almost 7 million pounds. As a result per capita tea consumption doubled. During the same period, market prices for tea, including duty, fell by nearly 10 percent while real prices fell by over 15 percent. Even allowing for the possibility of diminishing levels of smuggling between 1748 and 1767, tea supplies in Britain were highly elastic during the third quarter of the eighteenth century.[23]

Any attempt to assess the elasticity of beer and ale supplies over the same period is complicated by two factors. First, retail prices for traditional alcoholic beverages such as beer, ale, and porter were subject to official control during the eighteenth century and often remained fixed for lengthy periods. Information on the price of beer in differing localities is unavailable, but if we extrapolate from information on the price of porter, the staple beer drunk in the London metropolitan area from the 1720s on, retail prices of strong beer and ale may have risen by around 15 percent between 1748 and 1776, or from 3d to 3½d per quart pot, largely as a consequence of an increase in the duty on beer in 1761.[24]

Second, although detailed figures on the annual English output of beer throughout the eighteenth century are readily available, they derive essentially from the excise duties levied on beer sales and as a result almost certainly underestimate actual beer production. The most thorough investigation of the eighteenth-century brewing industry has concluded, nevertheless, that despite the onerous levels of duty on beer, which amounted at times to over 50 percent of all other costs, the excise returns "are more

22 Cole, "Eighteenth-Century Smuggling."

23 Tea imports from Schumpeter, *English Overseas Trade Statistics,* 60–61; population estimates from Floud and McCloskey, *Economic History,* I, 21. Cole, "Eighteenth-Century Smuggling," Table 1.

24 Peter Mathias, *The Brewing Industry in England* (Cambridge, 1959), 109–113, 546. Thomas S. Ashton, *Economic Fluctuations in England 1700–1800* (Oxford, 1959), 65, notes a high level of price elasticity of demand for beer.

reliable as a guide to actual production over a series of years than most other eighteenth-century statistics."[25]

From these returns it appears that, after experiencing either modest growth or, at worst, stability up to the 1740s, per capita beer production in England declined moderately, if somewhat irregularly, during the ensuing thirty years before the American Revolution. Attributable in part to the rising price competitiveness of tea, this decline may also have been caused by the impact of harvest failures and generally rising barley and malt prices on brewers' costs and profits after 1750. Faced with increasing raw material costs and deterred by custom and official restriction from raising retail prices to cover them, many brewers, particularly the smaller victualling brewers, experienced an erosion of profit margins during the third quarter of the century. As a result they were obliged either to adulterate their product by watering it down and using additives to simulate alcoholic strength, which ultimately damaged the reputation of their product, or to cease production altogether, thereby increasing opportunities for alternative beverages. By constraining the growth of beer production, the failure of grain supplies to match increases in British population after 1750 may thus directly have assisted tea and its associate, sugar, in improving their share of the expanding British market for food and drink.[26]

Variations in regional wage movements and shifts in the relative prices of beverages in Britain may have enhanced economic opportunities for Caribbean planters between 1748 and 1776. The 50 percent rise in per capita sugar consumption in Britain in this period is, however, greater than might be predicted by known income or price elasticities of demand for agricultural products at this time; other factors must have contributed to the

25 Mathias, *Brewing*, 345.

26 *Ibid.*, 542–543 for beer output statistics. According to Crafts' calculations, beer output fell in the 1760s, whereas output of most major industries experienced accelerated growth compared to 1700–1760. See Crafts, "British Economic Growth," 181. The problems confronting the brewing industry after 1750 may have affected the relative numbers of common and victualling brewers. See Mathias, *Brewing*, 542–543. For trends in Scottish and Yorkshire brewing at this time, see Ian Donnachie, *A History of the Brewing Industry in Scotland* (Edinburgh, 1979), 16–37; Eric Sigsworth, *The Brewing Trade during the Industrial Revolution: the Case of Yorkshire* (York, 1967). The potential of tea as a substitute for alcoholic beverages was noted by Gilbert Blane, writing in the early nineteenth century; see Mary D. George, *London Life in the Eighteenth Century* (London, 1925), 339.

sharp increase in sugar consumption. It is possible, for instance, that greater resort to non-alcoholic beverages reflected public reaction to the excesses associated with the gin age. One should not overlook, either, the contemporary comments about the spread of tea drinking among the laboring population or the more recent evidence produced by historians that the number of families with "middling" incomes of £50 to £400 per annum grew from 15 to 25 percent of the English population between 1750 and 1780.[27]

Why this increase in the number of middle-income families took place at this time, when agricultural prices generally were rising, is still uncertain, but the increase provided a major impetus to the growth of the home market for British industrial products during the third quarter of the eighteenth century. Such families, headed by merchants, wealthy tradesmen, clergymen, members of the legal and other professions, and government servants, were substantial consumers of imported beverages and sugar, being classified, for instance, by Joseph Massie in 1760 among those who "drink Tea or Coffee in the Morning" or even "Tea, Coffee, or Chocolate, Morning and Afternoon." As consumers not only of home-produced manufactures but also of slave-grown products such as sugar, such families, in conjunction with Caribbean planters and slave merchants, played a prominent part in promoting the economic growth and expansion of the north Atlantic world after 1748.[28]

Recent studies of eighteenth-century British output have indicated that, despite an overall deceleration in the growth rate of total

27 Income and price elasticities are discussed in Jackson, "Growth and Deceleration," 333–351; Crafts, "Income Elasticities of Demand and the Release of Labour by Agriculture during the British Industrial Revolution," *Journal of European Economic History,* IX (1980), 153–168. On the spread of tea drinking, see Mathias, *The Transformation of England* (London, 1979), 162; Floud and McCloskey, *Economic History,* I, 58; Jonas Hanway, *A Journal of an Eight Days Journey. . . . with an Essay on Tea* (London, 1755), II, 274–275. Hanway believed that 25,000 hogheads of sugar or some 29 to 35% of British sugar imports a year "are supposed to be expended with tea" (II, 151). Neil McKendrick, John Brewer, and John H. Plumb, *The Birth of a Consumer Society* (London, 1982), 24.

28 David E. C. Eversley, "The Home Market and Economic Growth in England, 1750–80," in Eric L. Jones and Gordon E. Mingay (eds.), *Land, Labour and Population in the Industrial Revolution* (London, 1967), 206–259. Lindert and Williamson, "Revising England's Social Tables 1688–1812," *Explorations in Economic History,* XIX (1982), 349–399; Mathias, "The Social Structure in the Eighteenth Century: A Calculation by Joseph Massie," *Economic History Review,* X (1957–58), 30–45.

output between 1760 and 1780, industrial output increased faster during this period than during the previous sixty years. As a result, growth rates of agriculture and industry, which had largely moved in harmony before 1760, diverged sharply during the following two decades. It is estimated that industrial output rose annually by 0.7 percent before 1760, by 1.5 percent between 1760 and 1780, and by 2.1 percent between 1780 and 1801. Annual growth rates for agriculture were 0.6 percent, 0.1 percent and 0.8 percent respectively.[29]

The flimsiness and unreliability of eighteenth-century statistics and the arbitrary nature of the periods chosen for investigation make one hesitant about accepting these estimates too uncritically, but there is little doubt that the growth rate of British industrial output rose discernibly and diverged perceptibly from that of agriculture during the third quarter of the century. To what extent was this acceleration in industrial growth based on exports and, more specifically, on the purchasing power generated in the Caribbean by rising British sugar imports after 1748?

The debate among historians about the relationship of exports to Britain's industrial expansion during the eighteenth century has to date largely centered on the period after 1783. Despite suggestions by Williams, for instance, that the expansion of eighteenth-century British manufacturing was encouraged substantially by the markets created by the slave trade and Caribbean sugar production, recent work has suggested that British industrial growth before 1780 was largely based on the home market. The importance of the home market has been particularly stressed by Eversley, who pointed not only to the importance of the growth of income of certain middle-income social groups in Britain between 1750 and 1780, but also to the modest rate of growth of British-produced exports and the low ratio of exports to total output in Britain before 1783.[30]

That the home market remained buoyant and British exports in general grew relatively modestly before 1783 is undeniable. The expansion of sugar imports between 1748 and 1776 is itself testimony to rising incomes and changing consumer tastes in Britain at this time. Furthermore, customs statistics indicate that,

29 Crafts, "British Economic Growth," 187.

30 For Williams' views, see his *Capitalism and Slavery,* 65–84. Eversley, "Home Market," 206–259.

in official values, average annual home-produced exports from Britain rose from £7.22 million between 1745 and 1749 to £10.05 million between 1770 and 1774 or by 39.3 percent. This modest increase in exports was no greater than that achieved during the thirty years prior to 1745, particularly when one takes demographic changes into account. Thus, again in official values, exports per capita rose from £0.86 between 1715 and 1719 to £1.11 between 1745 and 1749 and to £1.26 between 1770 and 1774. Overall, the ratio of exports to output in Britain failed to rise sharply after 1750 or to exceed more than 13 percent of total output before 1783.[31]

The recent discovery that trends in industrial and agricultural output diverged sharply around 1760, however, raises some doubts about an explanation of market expansion for Britain's industrial output based almost wholly on home demand. Furthermore, an analysis of export demand which is based primarily on aggregate trade and output figures and neglects to examine the changing composition of British exports after 1748 and their relationship to the shifting regional balance of Britain's manufacturing base is misleading and too pessimistic about the contribution of exports to Britain's industrial performance between 1750 and 1780. Investigation of the connections between exports and growth and structural change in British industry after 1750 requires one to distinguish exports of industrial goods from other goods and, within the group of industrially based exports, to distinguish more traditional exports such as woolens and worsteds, which were already experiencing relative decline by 1750, from new and emerging exports such as cotton and linen textiles.

A division of home-produced exports from Britain between 1745 and 1774 is given in Table 3. Two important characteristics of exports in this period are highlighted by this table. First, exports of non-industrial goods, primarily grain and fish, which together regularly contributed 15 percent of British home-produced exports before 1750, declined both relatively and even absolutely over the third quarter of the century, thereby lowering the overall rate of growth of total domestically produced exports. Whereas total home-produced exports rose by only 39.3 percent

31 Schumpeter, *Trade Statistics,* 15. The ratio of exports to industrial output, however, increased in this period. See Floud and McCloskey, *Economic History,* I, 40.

Table 3 Average Annual Domestically Produced British Exports, 1745–1774, Distinguishing Corn, Fish, and Woolens from All Other Exports

	ALL EXPORTS £000	CORN & FISH £000	WOOLENS £000	OTHER EXPORTS[a] £000
1745–49	7,217	1,132	4,477	1,608
1750–54	8,705	1,370	5,023	2,312
1755–59	8,793	570	5,591	2,632
1760–64	10,448	1,056	5,623	3,769
1765–69	9,639	173	5,267	4,199
1770–74	10,030	93	5,395	4,542

a Other exports consisted overwhelmingly of industrial goods.

SOURCE: Schumpeter, *Overseas Trade Statistics,* 19–22, 25, 37–39; John, "English Agricultural Improvement," 64; Minchinton, *English Overseas Trade,* 63.

between 1745–1749 and 1770–1774, exports of industrial products rose by 63.2 percent, or from £6.09 million annually to £9.94 million.

Second, among exports of industrial goods, woolen and worsted exports grew very slowly between 1750 and 1775, despite the fact that the rising West Riding branch of the industry increased its exports substantially during the third quarter of the century. Official statistics indicate that annual exports of woolens and worsteds rose by less than 21 percent or some £918,000 between 1745–1749 and 1770–1774, with Yorkshire contributing the lion's share of this increase. By comparison, exports of other industrial goods during the same period rose in official values by 182.5 percent or by £2.93 million annually. Notably fast rates of growth were attained by coal, wrought iron, copper and brass, and linen and cotton textiles, all of which achieved increased exports of up to 290 percent by value during the quarter century after 1749, thereby raising their share of domestically produced British exports from 8.5 percent in 1745–1749 to 20.2 percent in 1770–1774.[32]

Symbolic of the changing regional balance of Britain's industrial base in the mid-eighteenth century, each of these growing sectors of British industry, with the exception of coal, exported an increasing share of its output up to 1776 and beyond. Series

32 Richard G. Wilson, *Gentlemen Merchants* (Manchester, 1971), 41–42; Schumpeter, *Trade Statistics*, 21–22, 25.

of production statistics for eighteenth-century British industries are rare and in most cases of doubtful reliability. Estimating the output of particular British industries at any stage during the eighteenth century is thus extremely difficult. Nevertheless, available information indicates that most of the growing export industries had developed significant export markets by 1750 and that their ratio of exports to output rose further between 1750 and 1775. Wilson's study of Leeds' clothiers, for instance, shows that the West Riding's expanding share of British woolen and worsted output during the eighteenth century arose essentially from its successful penetration of export markets, particularly during the 1720s and 1730s and again after 1760. Available data suggest that about 40 percent of the area's output of woolens went abroad around 1700 but, by 1771/72, when a detailed and apparently reliable census of the Yorkshire industry was made, 72.3 percent of the region's estimated output of woolens, valued at £3.5 million, was exported; over 90 percent of the area's staple product, broad cloth, was sold abroad.[33]

Output estimates for other prominent export industries after 1750 are even more sketchy than those for West Riding woolens, but they too suggest an increasing dependence on exports in general after 1750. For example, estimates of British pig-iron output together with imports of bar iron indicate that supplies of raw materials to wrought iron manufacturers may have risen by 70 percent during the third quarter of the century, whereas wrought iron exports increased by 141 percent during the same period. Similar calculations reveal that exports of linen and cotton textiles rose at least twice as fast as the raw materials available to manufacturers in the same period. Only in the case of copper and brass did export markets fail to absorb a rising proportion of the industry's output between 1750 and 1775, but available figures suggest that exports still took as much as 40 percent of British copper and brass production on the eve of the American Revolution.[34]

33 Wilson, *Gentlemen Merchants*, 41–42, 51–52.

34 For pig iron output, see Philip Riden, "The Output of the British Iron Industry before 1870," *Economic History Review*, XXX (1977), 442–459. Bar iron imports and wrought iron exports from Schumpeter, *Trade Statistics*. Much bar iron was re-exported; therefore these calculations may understate the importance of export growth after 1750. Estimates of linen and cotton exports are based on data from Schumpeter, *Trade Statistics*. Calcula-

For each of these industries—wrought iron, copper and brass, cotton and linen textiles, and even Yorkshire woolens—export success during the third quarter of the century lay essentially in African and American markets. Detailed information on the proportion of Yorkshire woolens exported to different markets overseas is unavailable, but the most recent work on the industry indicates that its expansion depended heavily on North American markets from about 1760 onward. Fuller information about export markets for the other industries mentioned above shows that dependence on America and Africa as export markets was also pronounced in most instances by 1750; in the case of wrought copper, for instance, over 80 percent of its admittedly small exports in 1750 went to Africa and America. Almost invariably, however, sales to these markets rose both absolutely and proportionally, in some cases markedly, between 1750 and the early 1770s. Excluding Yorkshire woolens, each of the industries dispatched at least 70 percent of its exports to America and Africa by the 1770s, a notable achievement given the considerably enhanced level of exports produced by each of them between 1750 and 1775.[35]

The combined effect of this increased dependence of most leading growth sectors of British exports upon African and American markets was closely reflected in the overall distribution of English exports after 1750. Several historians, most notably Davis, have noted that links with non-European economies exerted a growing influence on the pattern of British overseas trade during the eighteenth century. Africa and America's share of British exports rose from less than 10 percent of total exports at the beginning of the century to almost 40 percent at the end. Closer examination of the trade figures reveals, however, that the shift in this distribution of British exports toward Africa and America largely occurred between 1748 and 1776. Up to 1747 exports to Africa and America fluctuated between 12 and 15

tions by Durie suggest that the share of Scottish produced linen that was exported rose from 18% between 1748 and 1752 to around 30% between 1768 and 1777. Alistair J. Durie, "The Markets for Scottish Linen, 1730–1775," *Scottish Historical Review*, LII (1973), 38. A rising proportion of these exports was directed through English ports. On copper and brass, see John R. Harris, *The Copper King* (Liverpool, 1964), 12.

35 Wilson, *Gentlemen Merchants*, 50; Schumpeter, *Trade Statistics*, 63–69; Alfred P. Wadsworth and Julia de L. Mann, *The Cotton Trade and Industrial Lancashire 1600–1780* (Manchester, 1931), 145–169; Durie, "Scottish Linen," 41–42.

percent of total exports, including re-exports, but then rose dramatically over the third quarter of the century, reaching 35 percent of the early 1770s.[36]

Underpinned by the changing regional distribution of traditional British industries such as woolens and worsteds and by the displacement of exports of primary goods such as grain and fish by goods from relatively recently established manufacturing industries located in the northwest and midlands of England as well as west-central Scotland, this decisive shift in the general direction of exports was essentially responsible for sustaining the overall growth of British exports between 1748 and 1775. Almost two thirds of the increase in recorded British exports during the third quarter of the century can be accounted for by rising sales in Africa and America, the remaining third being attributable largely to increased sales, notably of re-exported colonial produce, to Ireland. Such changes suggest that, although at the national level home demand may have played a preponderant role in sustaining growth after 1750, exports to Africa and America were at least a capable handmaiden in promoting further expansion in Britain's emerging industrial regions before 1775.

Various factors contributed to the growth of exports from Britain to Africa and the New World between 1748 and 1775. These included the continuing expansion of tobacco and rice exports from the southern mainland colonies and the development of supplementary, subsidized staples such as indigo; the expansion of North American food exports to southern Europe as British grain exports dwindled and cereal prices nudged upward in European markets; and the impact of the Seven Years' War on British government expenditure in the Americas.[37]

The most important single factor, however, was rising Caribbean purchasing power stemming from mounting sugar sales to Britain. As receipts from these sales rose, West Indian purchases of labor, provisions, packing and building materials, and con-

36 Ralph Davis, "English Foreign Trade, 1770–1774," *Economic History Review*, XV (1962), 285–303; Mitchell and Deane, *Abstract*, 309–310. Schumpeter, *Trade Statistics*, 17, Table V, also contains a breakdown of destinations of exports but seems defective for the period 1771–1775. Drescher, *Econocide*, 23, presents data on the shifts in the destinations of exports from England from 1713 onward but fails to comment on the marked change in the destination of exports between 1750 and 1775.

37 For the impact of the Seven Years' War on exports from England to America, see Davis, "Foreign Trade," 296.

sumer goods generally increased substantially after 1748, reinforcing and stimulating in the process trading connections between various sectors of the nascent Atlantic economy. Data on changes in West Indian incomes and expenditure at this time are unfortunately lacking, but Table 2 shows that gross receipts from British West Indian sugar exports to Britain rose from just under £1.5 million annually between 1746 and 1750 to nearly £3.25 annually between 1771 and 1775 or by about 117 percent.

Rising West Indian proceeds from sugar sales had a direct impact on exports from Britain to the Caribbean and, as planters expanded their purchases of slaves from British slave traders, on exports from Britain to Africa also. Customs records reveal that the official value of average annual exports from Britain to the West Indies rose from £732,000 between 1746 and 1750 to £1,353,000 between 1771 and 1775, and that exports to Africa rose over the same period from £180,000 to £775,000 per annum. Annual exports from Britain to the Caribbean and Africa thus rose by just over £1.2 million over the third quarter of the century, a figure equivalent to 27.5 percent of the total increase in annual recorded British exports during the same period. It may be argued that these export data understate the full impact of Caribbean purchases of slaves on exports to Africa. They exclude British goods ultimately bound for Africa which were carried by the small number of British slave ships which first visited continental, notably Dutch, ports in order to complete their cargoes of African trade goods before proceeding to the coast for slaves. Such ships naturally cleared customs from Britain for continental destinations rather than for African ports. At the same time, however, about 5 percent of British vessels clearing for Africa were non-slavers and around 10 percent of British slavers sold their slaves purchased in Africa in non-Caribbean, mainly North American, markets. Overall, available export data provide as accurate a picture of the increases in British exports to the West Indies and Africa after 1748 as eighteenth-century trade statistics permit.[38]

In addition to their direct impact on British exports, rising Caribbean expenditures from 1748 on had more indirect effects on British trade. Two effects in particular are worth stressing.

38 Schumpeter, *Trade Statistics*, 17. Details of the proportion of slaves sold in non-Caribbean markets are to be found in my unpublished ms., "The Volume and Pattern of the English Slave Trade to South Carolina before 1776" (1983), 3.

First, exports from Britain to Africa especially consisted not only of home-produced goods but also of foreign, notably East India, goods. Trade between Britain and the East Indies grew substantially over the third quarter of the eighteenth century, with imports from the East Indies rising from some £960,000 per annum between 1746 and 1750 to £1,750,000 between 1771 and 1775 and annual exports to the area rising from £520,000 to £910,000 during the same period. The expansion of British trade with Africa after 1748 provided an important stimulus to trade with the East, for available data suggest that some 25 percent of exports from Britain to Africa comprised East Indian produce at this time. The growth of Britain's trade with Africa therefore may have boosted East Indian purchasing power by as much as £150,000 per annum between 1748 and 1776. Assuming this increased income was spent wholly on purchasing imports from Britain, such a sum was equivalent to almost one third of the growth of exports from Britain to the East Indies and represented 3.4 percent of the growth of total annual exports from Britain between 1748 and 1776.[39]

Second, Caribbean planters purchased increased quantities of foodstuffs, packaging, and building materials, largely from Ireland and the mainland colonies, and in the words of one contemporary, George Walker, agent for Barbados, "in proportion to their dependence on North America and upon Ireland, they enable North America and Ireland to trade with Great Britain."[40]

Calculating the effect of Irish and North American sales to the West Indies on their own purchases of British goods is more problematical than Walker assumed, however, for detailed information about the level of Irish and North American trade with the Caribbean over any length of time is presently lacking. In the case of Ireland, published trade statistics show that Irish exports generally experienced a significant and largely sustained rise from about £1.25 million in 1740 to almost £3.2 million in 1770. Imports also rose strongly during the same period from £850,000 to

39 Schumpeter, *Trade Statistics*, 17–18; Richardson, "West African Consumption Patterns and their Influence on the Eighteenth-Century English Slave Trade," in Gemery and Hogendorn (eds.), *The Uncommon Market: Essays in the Economic History of the Atlantic Slave Trade* (New York, 1979), 306–307. East India goods comprised up to 85% of foreign goods re-exported from England to Africa.

40 Cited in Sheridan, *Sugar and Slavery*, 475.

over £2.5 million. Founded primarily on expanding sales of linen to Britain, some of which was then re-exported to the American mainland colonies, Irish exports were given a further boost from the 1740s onward by growing sales of provisions, particularly salt beef, pork, and butter. According to one authority, the markets for beef arose mainly from the slave populations of West Indian plantations and the victualling of ships engaged in colonial voyages.[41]

Although recent research has indicated that consumption of beef and other Irish provisions by the slave population of the New World probably was very small, sales of Irish provisions in the British Caribbean rose markedly during the third quarter of the century, reflecting buoyant demand among the white population of the islands. Figures produced by Nash show that exports of provisions from Ireland to the Americas rose from an annual average of £129,000 Irish between 1748 and 1752 to £213,000 Irish between 1773 and 1777, the bulk of these sales taking place in the Caribbean.[42]

Such sales allowed Ireland to create a favorable trade surplus with the Caribbean averaging about £161,000 (Irish) per annum between 1773 and 1777. However, this surplus was more apparent than real, for most of Ireland's export trade to the Caribbean was carried on in British-owned vessels to which Irish shippers were obliged to pay freight and other charges. In any case, exports to the Caribbean constituted less than 10 percent of Ireland's total exports in the early 1770s and the superficial surplus on its dealings with the region between 1773 and 1777 was no more than 12 percent of its recorded exports to Britain in 1771.[43]

By comparison with linens, which constituted some 70 percent of Irish exports to Britain in the period from 1740 to 1770, Irish earnings from sales of provisions to the British West Indies could at best have contributed only marginally to advancing sales of British products in Ireland before 1776. Indeed, in view of the

41 Louis M. Cullen, *An Economic History of Ireland since 1660* (London, 1972), 55.

42 Nash, "Irish Atlantic Trade in the Seventeenth and Eighteenth Centuries," *William and Mary Quarterly,* XLII (1985), 330–341. The £ (sterling) exchanged for between £1.07 and £1.12 (Irish) during the eighteenth century.

43 *Ibid.,* 339. Another calculation which suggests a trade surplus of £142,000 per annum in 1772–1774 can be found in Sheridan, *Sugar and Slavery,* 470. See Cullen, *Anglo-Irish Trade 1660–1800* (Manchester 1968), 45, for Irish exports to England.

fact that re-exported colonial goods constituted over half of Britain's exports to Ireland after 1750, it is probable that Irish linen exports to Britain did more to sustain markets in Ireland for Caribbean goods than sales of Irish provisions to the Caribbean bolstered Britain's exports of home-produced goods to Ireland.

British exporters perhaps derived greater benefits from North American sales of produce to the Caribbean. Hard statistical information about the scale of American mainland dealings with the British sugar islands is largely confined to the years 1768 to 1772. Shepherd and Walton have calculated that the current value of North American exports to the British West Indies averaged £710,000 annually between 1768 and 1772; imports from the islands averaged £684,000 annually during the same period, yielding an average annual surplus on trade of £26,000 in favor of the mainland. This small surplus on commodity trade was supplemented by sales in the islands of slaves purchased by mainland colonists in West Africa and, even more significantly, by mainland earnings from shipping, insurance, and commissions associated with their Caribbean transactions. Mainland exports to Africa which provide one indication of the value of their Caribbean sales of slaves averaged £21,000 a year from 1768 to 1772; earnings from shipping and invisibles associated with Caribbean trade, such as insurance and commissions, have been estimated to have averaged no less than £323,000 and £137,000, respectively, during the same five years.[44]

If these other earnings are added to the small trade surplus, it appears that North Americans achieved an overall balance of payments surplus of some £507,000 annually on their business with the Caribbean between 1768 and 1772. The bulk of this surplus accrued to colonies north of the Delaware, which also accumulated the largest trade deficits with Britain. The official value of annual exports from the thirteen colonies to Britain averaged £1.69 million between 1768 and 1772; their annual imports from Britain averaged £2.83 million. Surpluses on Caribbean trade were thus vital to the mainland colonies, allowing

44 James F. Shepherd and Gary M. Walton, *Shipping, Maritime Trade and the Economic Development of Colonial North America* (Cambridge, 1972), 128, 134, 223–226, 227, 229–230.

them to pay for almost 18 percent of their recorded imports from Britain around 1770.[45]

In the absence of detailed trade and shipping data for earlier periods, it is difficult to assess the contribution of surpluses on Caribbean transactions to mainland purchases of imports from Britain in 1750. However, the level of Caribbean sugar revenues and slave purchases during the 1750s and 1760s, together with the evidence of sharply rising foodstuff exports to the islands from several of the major mainland colonies after 1748, point to a rapid growth in mainland trade and shipping activity with the Caribbean during the third quarter of the century, and therefore to much lower levels of exports from North America to the islands around 1750. Estimates by Shepherd and Walton, based on admittedly flimsy information, suggest that mainland exports to the sugar islands were probably no greater than £200,000 a year in the 1750s, or less than one third of the level reached around 1770. If we apply this tentative figure to the period 1748 to 1752 and also assume that the ratio of mainland commodity exports to their realized surplus on total dealings with the Caribbean was the same in this period as twenty years later, then Caribbean transactions would have yielded a sum of £143,000 annually to North America between 1748 and 1752, a figure equivalent to 11 percent of its average annual imports from Britain in those same years. Comparison of this estimated surplus with that between 1768 and 1772 suggests that, during the intervening twenty years, North American mainland surpluses on exchanges with the West Indies grew by £364,000 per annum. During the same period the official value of average annual mainland imports from Britain rose by £1.53 million to £2.83 million. Surpluses derived from Caribbean trade appear to have paid for almost a quarter of the increased imports that North Americans bought from Britain between 1750 and 1770.[46]

These crude calculations, based essentially on British trade with Africa, the West Indies, and the East Indies, and on North

45 Price, "New Times Series for Scotland's and Britain's Trade with the Thirteen Colonies and States, 1740 to 1791," *William and Mary Quarterly,* XXXII (1975), 322–325.
46 On grain exports see, for instance, David Klingaman, "The Significance of Grain in the Development of the Tobacco Colonies," *Journal of Economic History,* XXIX (1969), 268–278; Geoffrey Gilbert, "The Role of Breadstuffs in American Trade, 1770–1790," *Explorations in Economic History,* XIV (1977), 378–388. Shepherd and Walton, *Shipping,* 174; Price, "Time Series," 322–325.

American trade with the islands, suggest that the growth of Caribbean purchasing power may, directly and indirectly, have increased total exports from Britain by almost £1.75 million per annum between the late 1740s and the early 1770s. As total annual exports from Britain rose by some £5.0 million over the same period, West Indian demand may have accounted for some 35 percent of the growth in total British exports during these years.

In common with British exports generally, however, exports to the West Indies, Africa, and North America in particular comprised both domestically produced and re-exported goods. Trade statistics indicate that the share of re-exports in total exports from Britain rose from 32 to 36 percent over the third quarter of the century. They also suggest that, although re-exports constituted only a small proportion of Britain's exports to the East Indies, averaging less than 10 percent, their share of Britain's exports to Africa was close to the national figure. Compared to the African trade, re-exports comprised a lower proportion of Britain's exports to the Caribbean and North America, but still provided some 20 percent of exports to these areas in the third quarter of the century. Deducting appropriate proportions from British exports to Africa, the West Indies, and North America to account for re-exports leaves a figure of £1.33 million as the estimated increase in domestically produced exports from Britain arising from Caribbean-generated demands in the quarter century before the American Revolution. As total home-produced exports from Britain increased by no more than £2.8 million annually during the same period, West Indian demands, directly and indirectly, may have been responsible for almost half of the growth of Britain's domestically produced exports between 1748 and 1776.[47]

Impressive though such a figure is, its real significance lies in its relationship to British industrial expansion in the third quarter of the eighteenth century. Available trade statistics suggest that some 95 percent of home-produced exports from Britain to Africa, the East Indies, and the New World consisted of manufactured goods after 1748. Caribbean-related demands, therefore, stimulated the growth of British industrial output by some £1.26 million during the third quarter of the eighteenth century. De-

47 Schumpeter, *Trade Statistics,* 15–16; Davis, "Foreign Trade," 300–303; Shepherd and Walton, *Shipping,* 235; Richardson, "West African Consumption," 306–307.

tailed figures on British industrial production from 1750 to 1775 are unavailable, but according to Cole's estimates, England's annual industrial output rose by some £10.8 million from the late 1740s to the early 1770s, or from £25.9 million to £36.7 million. Using these figures, it appears that Caribbean-based demands may have accounted for 12 percent of the growth of English industrial output in the quarter century before 1776. Furthermore, the indications are that a similar proportion of the increased output between 1750 and 1775 of Scotland's leading industry, linen, was sold in Caribbean markets. Although West Indian and related trades provided a more modest stimulus to the growth of British industrial production than Williams imagined, they nevertheless played a more prominent part in fostering industrial changes and export growth in Britain during the third quarter of the eighteenth century than most historians have assumed.[48]

This article, by examining the relationships between the slave trade, Caribbean sugar, and British economic growth from 1748 to 1776, shows that these relationships were more complex than Williams suggested. Concentrating essentially on eighteenth-century British capital accumulation, Williams perceived of profits from the slave trade and the slave-based plantation regime of the West Indies as providing a powerful exogenous input into British industrial growth. For him British economic growth, to borrow a phrase from a more recent distinguished historian in this field, was "chiefly from without inwards."[49]

It is the contention of this article that an approach which first draws a sharp distinction between external and internal promoters of change and then seeks to give primacy to one, in Williams' case an external one, is particularly artificial in Britain's case. It fails to appreciate the essential interweaving and mutual reinforcement of internal and external forces of change that occurred in eighteenth-century Britain. In the process of linking internal and

48 Davis, "Foreign Trade," 300–303. Data on industrial output are provided by Cole in Floud and McCloskey, *Economic History,* I, 40. Cole's figures relate to England and Wales, not just England. In estimating output for the late 1740s I have averaged Cole's figures for 1745 and 1750 and for the early 1770s have averaged his figures for 1770 and 1775. On Scottish linens, see Durie, "Scottish Linen," 30, 38. I assumed that one quarter of Scottish linen exports were sold in the West Indies in this period. *Ibid.,* 41–42.
49 Sheridan, *Sugar and Slavery,* 475.

external stimuli to structural change and industrial expansion, increases in British sugar consumption in the third quarter of the eighteenth century may have played an important role. In their efforts to satisfy these demands, which arose ultimately from changes in British agriculture, incomes, and consumer tastes, Caribbean planters and their slaves created additional opportunities after 1748 for manufacturers and their employees in Britain's emerging industrial regions. In forging more closely than previously a pattern of interdependence between industrial Lancashire, Yorkshire, the English Midlands, and west-central Scotland on the one hand, and American slavery on the other, British sugar imports after 1748 had a substantial long-term influence in shaping social and economic conditions on both sides of the Atlantic over the next century or so.[50]

50 Williams, to be fair, recognized that internal factors may have been important in determining British industrialization, but he failed to discuss them. See Williams, *Capitalism and Slavery,* 105–106.