MEASURING THE ATLANTIC SLAVE TRADE: AN ASSESSMENT OF CURTIN AND ANSTEY

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The main historical problem which Curtin's *Census*¹ is intended to solve relates to the total number of slaves exported from Africa by way of the Atlantic slave trade during its entire period. Other related questions treated in the book include the proportionate contribution of specified African regions to the estimated total numbers exported; the distribution of the total numbers imported among the importing regions in the Atlantic; and the distribution of the total numbers exported and imported over time. The book is not based on primary data. It is the result of Professor Curtin's ingenious application of quantitative techniques to the figures in various published works. This exercise produced a total number of 9,566,000 slaves imported into all the importing regions in the Atlantic during the entire period of the slave trade. With all due caution it is stated that the 'book is not intended to be a definitive study, only a point of departure that will be modified in time as new research produces new data ...'² But after all the careful calculations Curtin concludes that 'it is extremely unlikely that the ultimate total will turn out to be less than 8,000,000 or more than 10,500,000',³ which gives a margin of error between +9.8 per cent and --16.4 per cent. In this paper it is proposed, first, to examine the quantitative methods and the data employed in producing the results of the *Census* in order to see whether this level of confidence is warranted, and, second, to examine Anstey's minor modifications to Curtin's work. New evidence will be introduced to suggest that both Curtin and Anstey have underestimated the volume of slave exports from Africa to the Americas.

I

The importing areas for which Professor Curtin made elaborate computations are the British West Indies (minus Jamaica), the French West

¹ Philip D. Curtin, *The Atlantic Slave Trade: A Census* (Madison, 1969). Throughout this paper the book is referred to as the *Census*. A part of the material upon which this paper is based was obtained during my postgraduate research in Britain from April 1969 to June 1971, under the University of Ibadan Scholarship. The other part was collected during a one-year stay in Britain made possible by an award of a Study Fellowship by Ahmadu Bello University, Zaria, Nigeria, and a Commonwealth Academic Staff Fellowship award by the Commonwealth Universities' Association. I am grateful to all these institutions for their generosity. The first draft of the paper was read for me with comments by Professor J. R. Gray of the School of Oriental and African Studies, University of London. However, whatever errors there may be in the paper are entirely mine.

² Curtin, *Census*, p. xviii.

³ Ibid., p. 87.
Indies, and Spanish America. For the rest, estimates were made by selecting preferred figures from among the several published estimates, plus some inferences from other data. A little over half of the estimated total number falls into this second category.

The essential element in the calculations for the French and British West Indies (excluding Jamaica) is Professor Curtin’s two-part formula. The first part is the compound interest formula expressed in its natural exponential and natural logarithmic forms. This helps to determine the annual compound growth rate of the slave population of a given colony, over a period of time, when slave population figures at the beginning and end of the period are available. If the annual rate of net natural decrease or increase among the slave population is also known, this can be used in the second part of the formula, together with the annual growth rate of the slave population, to produce the total number of slaves imported during the period.

While this formula may be quite helpful in solving the problem which the Census was intended to tackle, it is necessary to point out that it has some serious weaknesses. All the computations required by the formula employ only two slave population figures—the figure at the beginning and the figure at the end of the given period. While this poses no problem for compound interest calculations where year-to-year movements are uniform throughout, no matter how long the period of time, the same is not true for a slave population that was subject to considerable hazards (which may have had no regular pattern) affecting the year-to-year movement of the total population and import figures. As the Council and Assembly of Antigua noted in 1788, sporadic ravages made by epidemics of various kinds ‘frequently carry off so large a proportion of the whole number of slaves in this and other islands, that it requires many years before the deficiency can be repaired even by the vast numbers of Africans imported.’

By the very nature of the formula, it is incapable of providing

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4 Curtin, Census, 32, n. 26. In my own calculations I employed the more practical form of the compound interest formula. Using Curtin’s notations, this may be stated as follows:

\[(1+r)^t = N_t/N_0 \text{ or } \log_{10} (1+r) = \frac{t}{\log_{10} \left(\frac{N_t}{N_0}\right)}\]

where \(r\) is the annual average rate of growth of slave population,
\(t\) is the length in years of the given period,
\(N_0\) is the size of the slave population at the beginning of the period,
\(N_t\) is the size of the slave population at the end of the period.

This form of the formula gives the same results for \(r\) as those obtained by Curtin.

5 The second part of the formula is stated as follows: \(T = m/r (N_t - N_0)\) where \(T\) is the total number of slaves imported during the given period, and \(m\) is the annual rate of slave import. In the Census, \(T\) is given as ‘the average annual number’ of slaves imported during the given period. This is probably a misprint, because all the calculations in the book treat \(T\) as the total number of slaves imported during the given period. See Curtin, Census, 32, n. 26.

6 524, k. 14 (British Museum), Report of the Lords of the Committee of Council appointed for the consideration of all matters relating to Trade and Foreign Plantations (1789), part III, Antigua, A. No. 15.
a true estimate of slave imports over a very long period of time during which considerable random fluctuations occurred in the slave population and import figures. What is more, the terminal dates chosen for the calculations have so much weight that the very choice of terminal dates has a considerable influence on the results obtained. This point may be illustrated with Professor Curtin's calculations for Barbados. He assumed that the Jamaican annual rate of net natural decrease of 6.7 per cent for the period 1673–1702 prevailed in Barbados from 1645 to 1672. With this rate of natural decrease, and Barbadian population figures for 1645 and 1673, a total slave import of 56,800 was computed for the period 1645–73. If Professor Curtin had used the Barbadian population figures for 1645 and 1668, with his rate of natural decrease, he would have obtained a total slave import of 60,400 for the period 1645–68, which is five years shorter than the period he chose.

What is probably more serious than the inherent weaknesses of the formula is the quality of the data employed. In order that the formula may give a reasonably accurate estimate of slave imports for any given territory or colony there must be accurate slave population figures, and the annual rate of net natural decrease or increase among the slave population must be certainly known. For the British West Indian colonies, the slave population figures employed by Curtin turn out to be figures taken from tax rolls of the different colonies, being the number of slaves in each colony upon which tax was paid each year. In 1788, all the colonies were unanimous in their views about these tax returns—that they considerably understated the number of slaves actually living in the colonies in any given year. In November 1788, the Committee of the Jamaican House of Assembly reported that 'the number of negroes at this time actually living within this Island, is much greater than appears on the Tax Rolls . . . for in most parishes of the Island it is customary to exempt persons who have not more than six negroes from the payment of taxes on slaves, whereby many of the negroes (especially in the towns) are not given in to the different Vestries, and the Returns of a great many others are fraudulently concealed.' While the number on the tax roll is stated to be 210,894, the Committee estimated that the total number of negroes in the colony was 251,300. The agent of Jamaica in London, Stephen Fuller, stated a figure in the same vicinity, 255,700, broken down into 87,100 for Middlesex, 75,600 for Surrey, and 93,000 for Cornwall. For Barbados, while the tax returns show 47,025 as the slave population of the colony in 1748, Governor Grenville stated in that year that the real number of negroes in the colony was 68,000. These views were proved right when

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1 Curtin, Census, 58–9.
more reliable figures were provided by the first slave registration for Jamaica in 1817.\footnote{G. W. Roberts, The Population of Jamaica (New Haven, 1957), 5. By 1817 deaths still exceeded births among the slaves in Jamaica, so that the slave population figures for 1817 ought to have been much less than those for 1808. In fact, the former are higher than the latter. See Roberts, op. cit., Table 6, p. 39, for figures of births and deaths, 1820–9.}

As for the French West Indies, if the French colonies were as inefficient in their administration as the ancien régime in their mother country was at that time, then one should expect them to provide far less accurate slave population figures than the British Colonies. In fact, the slave owners in Saint-Domingue are said to have made the declaration of the number of their slaves for purposes of the ‘capitation des Nègres’ with considerable fraud.\footnote{Michel René, Hilliard D’Auberteuil, Considérations sur l’état présent de la Colonie française de Saint-Domingue (2 vols., vol. II, Paris 1777), 200.} It is not clear whether the French slave population figures were based on the tax returns, but contemporary writers gave figures much higher than those used in the Census. For example, according to Lucien Peytraud, a manuscript note of Moreau de Saint-Méry, c. 1780, shows that by this date Saint-Domingue already had a slave population of 452,000 and all the French West Indian colonies together had 673,400.\footnote{L. Peytraud, L’Esclavage aux Antilles françaises avant 1789 d’après des documents inédits des Archives Coloniales (Paris, 1897), 139.} The slave population of Saint-Domingue in 1779, as stated in the Census, is only 249,100.\footnote{Curtin, Census, Table 19, p. 79.}

The other important data required by the formula are the annual rates of net natural decrease or increase among the slave populations of the colonies. And here Professor Curtin has no hard data at all, and probably no one will ever have. He therefore had to resort to applying the computed rates of one colony for the slave import estimate of another. This method introduces into the calculation large areas of possible inaccuracy: if the slave import estimates employed are not correct then the rates computed will be inaccurate; if the population figures are wrong, the same will be true, particularly if the errors are not evenly spread over time; and if the assumption that death and birth rates in the different colonies were the same in comparable periods is false, the results obtained will also be incorrect.

It is generally known that during the slave trade and slavery period in all the West Indian islands, several factors—strange disease environment; the harsh conditions of slavery; very high ratio of male to female slaves in the plantations; sporadic visitation of epidemics; etc.—made a naturally growing slave population impossible. Several slaves died between the day their import was recorded in the custom houses and the day of sale.\footnote{A committee of Jamaican House of Assembly reported in 1788 that ‘from the examination of Mr. Lindo, it appears, that out of 7,873 Negroes consigned to him as a factor in the years 1786, 1787 and 1788, and reported at the Custom House, no less than 363 perished’ before the day of sale. (Report of the Lords of the Committee of Council . . ., part III, Jamaica.)} The
length of the slave's life, from the day he was taken to the plantation, was very short, a maximum of fifteen years, and from one-third to one-half of all newly imported slaves died in the first three years of their being introduced into the plantation—the seasoning period.\textsuperscript{16} Birth rates were very low and infant mortality rates were exceedingly high. The agent for Jamaica, Stephen Fuller, stated in 1788, that 'of the children born here [by the slaves] it has been remarked that one-third die of the Tetanus or locked jaw, before the 9th day from their birth and of those who survive this period one half too frequently perish by worms, or the yaws before they attain the age of five years.'\textsuperscript{17}

This was the general situation in all the islands, which may help one to form an impression of the demographic processes that prevailed in them. The effects of some of these factors on the slave populations of the islands may have been evenly distributed over a period of time. But the effects of others, such as epidemics, hurricanes, droughts, and other disasters, may have had no regular pattern. And, for that matter, their incidence and effects may not have been the same in different islands. On the other hand, these colonies may have differed in certain important respects. For example, a French planter in Saint-Domingue stated in 1776 that production costs in British colonies were very high because, among other things, the British planters did not work their slaves as hard as the French did, and also fed them better.\textsuperscript{18} On the basis of this evidence, the agent for Jamaica, Stephen Fuller, declared in 1788, that 'we have good reason to conclude that they [the French planters] require a larger proportion of imported Negroes, than our planters do, to keep up the stock [of slaves].'\textsuperscript{19}

When one comes to the actual rates of decrease employed in the Census for the different islands in different periods, the unsatisfactory state of affairs becomes obvious. The Jamaican rate employed for the Leeward islands in the period 1707–33 is 1.2 per cent.\textsuperscript{20} But in 1708, Governor Crew stated that in order to maintain intact the existing slave population in Barbados it required an annual import of 7 per cent of the existing stock.\textsuperscript{21} It is implausible that Barbados could have been so different from the Leeward islands by this time. The low rate of 1.9 per cent computed for Jamaica during the period 1776–1807 is rather disturbing, since this was a period of heavy slave losses in all the West Indian islands due to

\textsuperscript{16} This was the general view of contemporary writers in the New World. In his evidence before a committee of enquiry in 1788, James Ramsay summarized these views, citing Edward Long, Robertson, and Hilliard D'Auberteuil. \textit{British Parl. Papers, Accts. & Papers}, 1789, vol. 84, part III, Evidence of James Ramsay.

\textsuperscript{17} P.R.O., BT. 6/10, p. 25.

\textsuperscript{18} Hilliard D'Auberteuil, \textit{Considérations}, 1, 45.

\textsuperscript{19} BT. 6/10, pp. 95–6. There is some misprint here in the figure quoted from D'Auberteuil's book. The mortality rate among the slaves in Saint-Domingue as stated in D'Auberteuil's book is 1/15th p.a. of the whole slave population, not 1/5th as stated in the source referred to above.

\textsuperscript{20} Curtin, \textit{Census}, 63.

a series of disasters. The agent for Jamaica, Stephen Fuller, told a committee of enquiry that between 1780 and 1788, Jamaica was visited by six hurricanes.\textsuperscript{22}

whose devastations, not only brought ruin upon several flourishing estates, but occasioned epidemic diseases, and partial famines, destructive to many thousands of the Negro slaves. We cannot but express a wish, that enquiries may be directed in such a manner, as to procure full and authentic information of the mortality of slaves, and the loss of property which were caused by those successive calamities . . .

Again, the Council and Assembly of Antigua stated that in 1779 nearly a fourth or fifth part of all the slaves in the island died of the dysentery, 'in the year 1782 an epidemic of pleurisy, and in 1783 the measles, and in 1786 the chin-cough, carried off great numbers . . .'\textsuperscript{23} The cutting off of supplies from North America aggravated the difficulties of this period. The annual decrease rate of 1.9 per cent for this period is, therefore, far too low. This may mean that the Jamaican import estimates employed in the calculation are wrong or some other things may have gone wrong with the computation.

As for the application of the annual rates of natural decrease among the slaves in the British colonies to those in the French colonies, even if all the conditions affecting slave populations in both groups of islands were the same, the very fact that the rate of economic growth in the French West Indian islands in the eighteenth century, as indicated by the annual growth rate of their slave populations, was far greater than that of the British colonies, should make the rates of decrease among the slaves in the French colonies much higher. As Professor Curtin himself has observed, 'where economic growth was most rapid, and slave imports were greatest, population decrease from an excess of deaths over births tended to be most severe.'\textsuperscript{24}

The slave population of Saint-Domingue in 1681 was only 2,000,\textsuperscript{25} while that of Jamaica in 1673 (eight years earlier) was 9,500.\textsuperscript{26} But by 1791 the slave population of Saint-Domingue was 480,000 while that of Jamaica in 1789 was only 250,000. The rates of growth for both colonies in the appropriate periods are shown in Table 1, below.

\textsuperscript{22} P.R.O., Bt. 6/10, pp. 43-4.
\textsuperscript{23} Report of the Lords of the Committee of Council . . ., part III, Antigua, A. no. 15. The disasters of this period also affected the other European colonies. The French and the Spanish islands were said to have suffered more than the British islands. See the second report of the committee of Jamaican House of Assembly, 12 Nov. 1788, in Report of the Lords of the Committee of Council . . ., part III, Jamaica.

\textsuperscript{24} P. D. Curtin, 'Epidemiology and the Slave Trade', Political Science Quarterly, LXXXIII (1968), 215. This is so for many reasons. The massive imports during periods of rapid growth mean massive losses during the seasoning period. It also means a rapidly growing proportion of African-born slaves in the total slave population. Death rates among the former were usually very high, and birth rates among them very low.

\textsuperscript{25} Curtin, Census, Table 19, p. 78.
\textsuperscript{26} Curtin, Census, Table 14, p. 59.
Table 1

Annual Growth Rate of Slave Population in Jamaica and Saint-Domingue

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<th></th>
<th>Jamaica</th>
<th>Saint-Domingue</th>
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<td></td>
<td>per cent</td>
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<tr>
<td>1673–1729</td>
<td>3.7</td>
<td>7</td>
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<tr>
<td>1739–74</td>
<td>1.8</td>
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<tr>
<td>1778–89</td>
<td>1.8</td>
<td>5.5</td>
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Sources: Col. (1) computed from Curtin, Census, Table 14, p. 59. Col. (2) taken from Curtin, Census, Table 20, p. 79.

With these differing growth rates, Jamaican rates of natural decrease should be far too low for Saint-Domingue in the first and third periods, even if all other things were equal. Yet Professor Curtin applied Jamaican rates to Saint-Domingue in all the three periods.

What is more disturbing is that while, from the evidence, one expects that the slave population in the French colonies by the late 1780s should have taken more imported slaves per capita to produce than that in the British colonies during the same period, what one finds in the Census is exactly the opposite. According to the Census, it took a total import of about 1,200,000 slaves to produce a slave population of 346,900 in Barbados, Jamaica and the Leeward islands by 1787, while it took an import of only about 1,380,000 to produce a slave population of 620,900 in Saint-Domingue, Martinique and Guadeloupe by 1789—the slave population of the French colonies being almost twice that of the British colonies, while import estimates for both groups are about equal.27

Having completed his estimate of imports into the British West Indies, Professor Curtin compared his results with those of Stetson who employed a different method for his estimates. It was discovered that Stetson's import estimates are 12 per cent higher than those of the Census. This difference is then attributed to Stetson's use of Jamaican gross slave imports which were later employed by Stetson in the import estimate of the other British West Indian colonies.28 The argument that Stetson did not exclude re-exports in his Jamaican import estimates is a rather curious one. Stephen Fuller's figures employed in Curtin's estimates show that Jamaican net slave imports from 22 September 1702 to 1775, amounted to 360,622.29 But Stetson's import figure for Jamaica from 1701 to 1775,
as shown in the *Census*, is only 347,600,\(^{30}\) which is 13,022 slaves less than the net import figure contained in Fuller’s list for the same period, less two years. This argument is, therefore, not tenable.

For the estimate of imports into the French West Indian colonies, while Curtin’s estimate of imports into Saint-Domingue up to 1778 is only 526,100,\(^{31}\) a French planter in Saint-Domingue who had access to import records wrote in 1777 that the number of slaves imported into that colony from 1680 to 1777 was about 800,000.\(^{32}\) Comparing the size of the slave population of Saint-Domingue at this time with that of Jamaica of the same period, and taking along with that the slave imports into the latter, and considering the fact that the slave population of Saint-Domingue should take more imported slaves *per capita* to produce, this figure is quite convincing. With regard to the total imports of all the French West Indian colonies, Lucien Peytraud’s estimate of three million slaves\(^ {33}\) may be closer to the actual figure, considering the fact that at the time massive and regular imports into the French colonies ceased the size of their slave population was almost twice that of the British West Indian colonies of the same period.

The import estimates for the Spanish and Portuguese colonies may be compared with the reported slave populations of those colonies. While the British slave merchants were trying to defend their interests against the onslaught of the abolitionists they gathered relevant statistical data from all over Europe. Some of the raw data they collected have survived in their undiluted state.\(^ {34}\) Data obtained from their agents in Spain show that the census taken in Spanish America, ‘as usual by the clergy’, in 1796, put the total number of negroes in Mexico and Peru at 1,219,470, with Mexico having 679,842, and Peru 539,628.\(^ {35}\) Professor Ralph Davis, in his recent book, states that by 1650 there were nearly 500,000 negroes in Spanish America, mostly in the islands.\(^ {36}\) In view of these slave population figures, Professor Curtin’s figure of 925,100 slaves imported into all Spanish America up to 1807\(^ {37}\) must represent a considerable underestimate. As for Brazil, the first reliable census is said to have been taken in 1798, and

\(^{30}\) Curtin, *Census*, Table 39, p. 137.

\(^{31}\) Curtin, *Census*, Table 20, p. 79. There seems to be a misprint here. The period, ‘1730–88’, should, I think, read 1739–78.

\(^{32}\) Hilliard D’Auberteuil, *Considerations*, II, 63. Hilliard D’Auberteuil’s work was widely read in Britain by people interested in the subject of slave trade and slavery in the New World. It was described by Stephen Fuller, the agent for Jamaica, as the work of a ‘respectable planter’, the evidence, ‘entirely disinterested’, and its ‘veracity has never yet been impeached’. See evidence of Stephen Fuller, BT. 6/10, p. 83. The 2 volumes of D’Auberteuil’s book can be found in the British Museum, 278. f. 17.

\(^{33}\) Peytraud, *L’Esclavage*, 140.

\(^{34}\) T. 70/1585, Wm. Walton to George Case, Whitehaven, 19 Jan. 1805. Walton stated that ‘what I write is little more than a plain statement of facts with remarks thereon, which Dr. Bisset will be pleased to put into form and proper language to meet the public eye, adding or curtailing as he may think best’.

\(^{35}\) Ibid.


\(^{37}\) Curtin, *Census*, 35.
this showed that there were 1,988,000 negroes in that country by this time.\textsuperscript{38}

With an annual rate of net natural decrease of 5 per cent among the Brazilian slaves,\textsuperscript{39} it must have taken well over three million imported slaves to produce the Brazilian negro population of 1798. Hence, Professor Curtin’s figure of 2,401,400 slaves imported into Brazil from 1451 to 1810\textsuperscript{40} represents a serious underestimate. Thus, at this juncture, it must be said that the import estimates in the \textit{Census} need a drastic upward revision, far above the limits stated in the book.

II

For the export estimates, real data-based calculations, independent of import estimates, were made only for the British and French exports, with some highly suspect export estimates for the minor carriers. Portuguese export estimates were based on Goulart’s estimates from which estimates of imports into Portuguese America were taken. And we are told that Goulart’s estimates are less securely based ‘than the calculations based on French or English shipping data’.\textsuperscript{41} In fact, some of Goulart’s estimates are based on export figures recorded by Portuguese posts in Africa, which represent slave exports by ships sailing legally and paying taxes.\textsuperscript{42} The phenomenon of smuggling is generally noted by all studies of the slave trade of these areas. The fact that in the last quarter of the eighteenth century the government of Portuguese Angola got 88.1 per cent of its revenue from the export duty on slaves exported\textsuperscript{43} indicates that the duties were high enough to provide incentives for large-scale smuggling.

The export estimates of the British slave trade were made in the \textit{Census} by the use of three methods—translation of import estimates to export estimates, with allowance for expected loss in transit; export estimates based on the yearly value of British commodity exports to Africa; export estimates based on the number or tonnage of ships cleared out annually from ports in Britain to Africa. The weaknesses of the import estimates have already been demonstrated. There are also flaws in the results obtained in the \textit{Census} from the application of the second and third methods.

The ultimate source of the yearly values of commodity exports from Britain to the African coast to be found in various published works is the Inspector General’s Ledgers of Imports and Exports of Great Britain, which run from 1697 to 1780 under Customs 3, and continue under Customs 17 up to 1808.\textsuperscript{44} Any calculation of British slave exports based


\textsuperscript{39} P. D. Curtin, ‘\textit{Epidemiology},’ 214.

\textsuperscript{40} Curtin, \textit{Census}, Table 77, p. 268.

\textsuperscript{41} Ibid., 205.

\textsuperscript{42} Ibid., 207.

\textsuperscript{43} Jan Vansina, \textit{Kingdoms of the Savanna} (Madison, 1966), 184–5.

\textsuperscript{44} The several volumes of these records can be found in the Public Record Office, London. Microfilm copies of them are also available at the University of Ibadan Library.
on these figures of commodity exports will, of necessity, understate the quantity of slaves exported because, in the first place, a large proportion of the goods employed in the purchase of slaves on the African coast by British citizens were taken from ports outside Britain and were therefore not included in the Inspector General’s accounts; in the second place, the latter accounts have been found seriously to understate both the volume and value of goods exported from Britain to Africa and elsewhere.\footnote{See J. R. Harris, The Copper King: A Biography of Thomas Williams of Llanidan (Liverpool, 1964), 11, where Professor Harris shows the disparity between quantities of copper and copper products exported from Britain to the East Indies as shown by the books of the East India Company and the quantities recorded in the Inspector General’s ledgers. For the exports to the African coast, see J. E. Inikori, ‘English Trade to Guinea: A Study in the Impact of Foreign Trade on the English Economy, 1750–1807’ (Ph.D. Thesis, University of Ibadan, 1973), 88–104.}

In the first half of the eighteenth century English domestic industries could not produce sufficient quantities of all the assortment of goods, in their required qualities, needed for the slave trade. Nor was the English East India Company supplying the oriental goods needed for that trade in their required quantities and prices as did its counterparts on the continent. Hence, many of the goods needed for the slave trade could be got on the continent of Europe with better qualities and under better terms than in England. In Holland, for example, East Indian cottons were cheaper than in England; German linens were readily available; there were large stocks of firearms of the types most favoured on the African coast. Consequently, British slave ships went first to the continent, in particular, Holland, to collect various items of goods to make up their cargo, before proceeding to the African coast. This pattern of trade is very well documented by the records of Thomas Hall & Co. of London.\footnote{These records can be found among the Chancery Masters Exhibits in the P.R.O. London; see in particular, C. 103/130, C. 103/131, C. 103/132; also Conrad Gill, Merchants and Mariners of the 18th Century (London, 1961).}

Between 1732 and 1743 the firm carried on a very extensive slave trade, carrying about 1,000 slaves a year to the Americas. The partners had about eight ships permanently stationed on the African coast, with an agent in Holland whose duty it was to collect goods ready for the firm’s ships leaving England for Holland and from thence for the coast of Africa. One of the firm’s captains wrote to a senior member of the firm in August 1734, ‘I have examined Mr Bonnivere’s India goods and find them much inferior to the goods in Holland’.\footnote{C. 103/130, Capt. Pearce to Thomas Hall, London, 15 Aug. 1734.}

It would seem that as a general practice among all British slave traders at this time only one-quarter of all the oriental goods required for the trade was taken on board in Britain as a protection against British legislation. Thus, Thomas Hall was told in October, 1735:\footnote{C. 103/130, Capt. Pearce to Thomas Hall, Bristol, 15 Oct. 1735.}

Let me give you this memorandum for your government that all the ships which go to Holland and Guinea take on board at least 1/4 part of their India goods...
in London so that if they should have more goods than would purchase their number of slaves these goods so taken in London may be reserved to the last on the coast and returned (if there should be an over plus) on the ship and may either [be] sold publicly in the West Indies or brought home and lodged in the Custom house for another voyage whereas the Dutch goods returned on the ship, makes not only the goods, but ship and cargo liable to a forfeiture, as well in our plantations as in England.

When Captain George Hamilton went to the African coast in 1732 with the firm’s ship, the Argyle, of the ship’s cargo amounting to £2,854 10s, goods worth only £784 10s. were taken on board in England, the rest being taken in Holland.49

As the process of import substitution, both for the home market and for foreign goods re-exported, advanced in the second half of the eighteenth century, more goods of sufficiently high quality were produced in Britain for the slave trade. This may have led to a fall-off in the proportion of goods taken on board in continental ports. But the evidence shows that the amount continued to be quite large. In 1765, for example, Liverpool slave merchants complained that50

the East India Company for many years past have not had a sufficient quantity of sundry sorts of goods proper for the African trade, denominated Prohibited Piece Goods, etc. which has obliged your memorialists to send several ships to Holland for the same, the consequence of which is, a great sum of money is laid out there in buying other goods for assortments, as also, in the equipments of the ships which would otherwise have centred amongst the manufacturers and others in this kingdom.

As late as 1792, a correspondent of James Rogers & Co. of Bristol, wrote from Ostend (a port in continental Europe) that51

Considerable business is done from hence to Africa by vessels coming from England and loading here. We have been much in this line from your place and annexed you will find prices of commodities for that trade.... The London and Liverpool people find their interest in this market, in the African way and we shall be glad should you find any of our articles answer which we should imagine do very well.

Though relatively less important, some ships also went from ports in Britain to the Americas where they loaded large quantities of rum and tobacco and proceeded from thence to the coast of Africa to buy slaves. On the other hand, an important part of the price paid for slaves by the British traders is represented by the cost of freight, insurance and merchants’ profits. These are not included in the official accounts. When to

49 C. 103/132, Senserf & Son to Thomas Hall, Rotterdam, 19 Feb. 1732. The firm’s records contain other accounts for goods purchased in Holland for the slave trade.

50 T. 1/447/LA17, Memorial of the Merchants of Liverpool Trading to Africa to the Treasury, read 16 Mar. 1765.

all this is added official under-valuation and under-recording of commodities exported from Britain to the African coast, it should be clear that any calculation of British slave exports based on the value of commodity exports, without allowance for what has been said above, will of necessity greatly underestimate the quantity of the slaves exported.

As for the shipping-based estimates of the Census, these were affected by three factors which we shall consider one at a time. Firstly, the figures of ships annually cleared out from British ports to the African coast include only those vessels which went from ports in Britain directly to the African coast each year. Because of this very fact, these clearance figures have an inbuilt tendency to understate the volume of British shipping carrying slaves from Africa in any given year. Several British slave merchants had fixed establishments on the African coast, with a very large number of vessels, mostly small and medium size, employed in carrying slaves to the Americas and their activities were unknown to the Custom House in Britain. British slave ships were heavily involved in the slave trade of other European nations in various ways and the office of the Register General of Shipping had no means of keeping an accurate record of their movement. One can only give an impression of the volume of shipping involved in this form of trade. The delegates from Bristol to the enquiry of 1788 stated that between 1787 and 1788, eight British ships measuring 1,990 tons were involved in shipping slaves, on behalf of Spanish and French subjects, to Spanish and French America; six others carrying 2,400 slaves obtained French colours in France in order to benefit from the French bounties on slaves introduced into French America. Besides these, other British slave ships carried slaves to Spanish America under special contracts with the Spanish government. A document among the papers of Lord Hawkesbury shows that in the 1780s John Dawson of Liverpool had a contract with the Spanish government to supply a minimum of 3,000 slaves a year and he could supply as many as 7,000. It quotes James Jones of Bristol as saying that 'Mr. Tarleton & Co. have a similar contract with the Spaniards for an equal number', and that 'they purchase nearly 4/5ths of the slaves that are sold at Bonny and New Calabar'. John Dawson himself stated that he landed 12,000 slaves in the Spanish colonies between 1785 and 1788. In later years the magnitude

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52 Perhaps the largest of such establishments was Factory Point, belonging to Messrs. John and Thomas Hodgson, slave merchants in Liverpool, at the Iles de Los. There is an oil painting of a 'S.W. view' of this establishment in a ship's journal in the National Maritime Museum, Greenwich (see LOG/M/21MS53/035, Journal of a voyage from London to Africa on board the Sandown by Samuel Gamble, 1793-4). In 1790 there were 41 vessels (sloops, schooners and boats) employed on the coast by this establishment. In that year two vessels brought goods from England on freight for the establishment (see Brit. Parl. Papers, Accts. & Papers, 1790, vol. 87, no. 698 (8), pp. 500-12).

53 BM. Add. MSS. 38, 416 fols. 88-90. The names of these ships and their captains are stated. The private records of the merchants abound with evidence relating to the involvement of British shipping in the slave trade of continental Europe.

54 BM. Add. MSS. 38,416, folio 216.

of his Spanish contract increased, and by 1792 he had property worth £183,000 outstanding in Spanish America, being accumulated debts arising from his sale of slaves there.  

The second factor relates to the tonnage of shipping annually employed in the British slave trade in the eighteenth century. Just as the Inspector General's office employed fixed rates in valuing British exports and imports, so the office of the Register General of Shipping employed fixed figures of average tonnages of ships employed in each branch of British foreign trade in estimating total tonnages annually employed in each trade. This became a major source of understatement of the volume of British shipping as the average tonnages fixed at the turn of the seventeenth century came to fall far below current averages.  

In addition, ship owners and ship masters habitually under-declared the tonnage of their vessels. Robert Norris, a prominent Liverpool slave merchant, stated in 1789 that the tonnage of the British slave ships was reported to the custom houses at one-third or more below their real burthen. In fact, Thomas Irving, proclaimed the most efficient of the Inspectors General of imports and exports of Great Britain, generally added one-third to the shipping tonnages in order to eliminate the understatement arising from the above factors. It was only after the completion in 1789 of the registration of British ships, required by the Act of 1786, that the tonnage problem disappeared. Hence, shipping tonnage is a misleading measure of the volume of British slave exports before 1789, and this must affect the Census export estimate for the period 1777–87. For this reason, the calculations in this paper employ shipping tonnages only for the period 1789–1807.

It is not possible to state in exact quantitative terms the amount of understatement of British slave exports that may arise from the above factors. But what is probably more serious is that the shipping figures employed in the export estimates of the Census fall far short even of the officially recorded figures. We are told that by 1725 'Liverpool had not yet entered' the slave trade, so London and Bristol slave ships are taken as representing the total amount of British shipping in the trade at that time. In fact, in 1724, Liverpool had 18 ships carrying 3,710 slaves, and in 1725, 21 ships carrying 5,200 slaves. Earlier in the Census, it is

56 House of Commons Journals, vol. xlvii, 27 April 1792, pp. 742–3. Some or all of the slaving activities of British ships involved in the Spanish trade at this time may have escaped being recorded by the British Custom House, particularly in the last quarter of the eighteenth century when the merchants did all they could to escape from the stringent regulations imposed on the carrying of slaves by vessels clearing from British ports for that trade.
60 Curtin, Census, 147.
61 BM. Add. MSS. 22,675, fols. 41 and 42.
62 C.O. 388/25/S.44.
claimed that 'no ships at all sailed to Africa from Liverpool in 1794, and it is assumed that the same was true of other ports in this critical juncture in the Napoleonic Wars'. In fact, no less than 155 ships, measuring 29,473 tons, sailed from Britain to the African coast in 1794.

For the period 1750–1807 it is possible to show exactly the disparity between Curtin's shipping figures and those actually recorded by the office of the Register General of Shipping. Those for 1750–76 can be found in a bound volume of the Board of Trade records, entirely devoted to British African trade. These shipping accounts were sent to the Commissioners for Trade and Plantations by the Commissioners of Customs following a request by the former. They cover Liverpool and Bristol for the whole period. But for London and the other ports, the accounts cover 1757–76, leaving out 1750–56. This small gap is filled with a similar account in another volume of the Board of Trade records covering 1750–53, and figures for 1754–56 from the account by James Wallace.

For the period 1777–1807, Customs 17 in the P.R.O. shows the numbers and tonnages of ships annually cleared out from ports in Britain to the African coast. A list compiled from these accounts and published by Sir C. Whitworth can also be found among the Board of Trade records. These customs accounts thus provide a complete time series of British shipping to the African coast, as far as the officially recorded trade is concerned. These may be broken down as follows:

- 1750–76: 3,603 ships
- 1777–88: 1,133 ships
- 1789–1807: 628,844 tons

Out of these numbers and tonnages of ships a very small part was made up of ships carrying gum, dyestuffs, etc., directly to Britain from the coast. Of the 3,603 ships for the period 1750–76, Liverpool had a total of 1,899, out of which 51 did not go for any slaves. This represents 2.7 per cent of the Liverpool total. If one makes a generous allowance of 5 per cent for the other ports in the first period, and the same for all ports in the second and third periods, this should more than take care of the non-slave carriers. In fact, one way of bringing the estimates nearer to the actual magnitude is to assume that British slave-carrying ships which were not included in the official records, for the reasons given above, more than

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63 Curtin, Census, 135.
64 Customs 17/16, fol. 9.
65 BT. 6/3.
66 Ibid.; see Wm. Holy to Richard Cumberland, Custom House, London, 22 Mar. 1777; and Edward Stanley (Secretary to the Commissioners of the Customs) to Richard Cumberland, Custom House, London, 9 Apr. 1777.
67 BT. 6/7.
68 James Wallace, A General and Descriptive History of the Ancient and Present State of the Town of Liverpool (Liverpool, 1795), 255.
MEASURING THE ATLANTIC SLAVE TRADE

make up for the non-slave carriers, and so treat all the figures stated above as slave-carrying ships. We shall state the two results separately.

It will be seen that the numbers or tonnages of ships stated in the Census are far below those stated here. For the period 1750–76 the total number of ships stated in the Census is 2,726. Apart from what has been stated earlier, this very low number is due to two main factors. The first is that the estimates in the Census are limited to London, Bristol and Liverpool, while it is known that several other ports in Britain participated in the slave trade. It was only in July 1799 that an Act was passed limiting the trade to Liverpool, Bristol and London. The minor ports together sent

<table>
<thead>
<tr>
<th>Year</th>
<th>Export by vessels belonging to ports in Britain</th>
<th>Export by vessels belonging to ports in British America</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of vessels</td>
<td>Number of slaves</td>
</tr>
<tr>
<td></td>
<td>Number of slaves</td>
<td>Number of slaves per vessel</td>
</tr>
<tr>
<td>1755</td>
<td>12</td>
<td>2,670</td>
</tr>
<tr>
<td>1756</td>
<td>7</td>
<td>2,060</td>
</tr>
<tr>
<td>1757</td>
<td>5</td>
<td>1,780</td>
</tr>
<tr>
<td>1758</td>
<td>5</td>
<td>1,060</td>
</tr>
<tr>
<td>1759</td>
<td>18</td>
<td>4,550</td>
</tr>
<tr>
<td>1760</td>
<td>15</td>
<td>4,806</td>
</tr>
<tr>
<td>1761</td>
<td>12</td>
<td>2,602</td>
</tr>
<tr>
<td>1762</td>
<td>11</td>
<td>3,180</td>
</tr>
<tr>
<td>1763</td>
<td>11</td>
<td>3,110</td>
</tr>
<tr>
<td>1764</td>
<td>14</td>
<td>3,265</td>
</tr>
<tr>
<td>1765</td>
<td>10</td>
<td>2,310</td>
</tr>
<tr>
<td>1766</td>
<td>7</td>
<td>1,915</td>
</tr>
<tr>
<td>1767</td>
<td>11</td>
<td>2,602</td>
</tr>
<tr>
<td>1768</td>
<td>11</td>
<td>3,893</td>
</tr>
<tr>
<td>1775</td>
<td>18</td>
<td>5,690</td>
</tr>
</tbody>
</table>

| 15 years | 167 | 45,593 | 273 | 126 | 15,565 | 124 |

Sources: 1755–68: T. 70/1263. 'An Annual Register of the number of slaves exported from the Gold Coast of Africa from January 1755 to December 1768 inclusive', produced by the Governor of Cape Coast Castle. 1775: BT. 6/3, fol. 84. Both records are in the P.R.O., London.

70 Curtin, Census, 133–6.

no less than 205 vessels between 1757 and 1776. The second is that the average for 1750–3 used in the London estimate for 1750–76 produced an underestimate of almost 200 per cent.

The third factor which affected the shipping-based estimates of the Census relates to the mean number of slaves carried by British ships in the period 1750–76. The number employed in the Census is 248 slaves per ship for the whole period. Accounts of British ships carrying slaves from the Gold Coast kept by the British Governor and his officers on the Gold Coast state the names of the vessels, the ports to which they belong, their captains' names, and the number of slaves each vessel carried from the Gold Coast. These are shown in Table 2 and Table 3.

Table 3

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of vessels</th>
<th>Number of slaves</th>
<th>Number of slaves per vessel</th>
</tr>
</thead>
<tbody>
<tr>
<td>1778</td>
<td>8</td>
<td>3,304</td>
<td>413</td>
</tr>
<tr>
<td>1779</td>
<td>8</td>
<td>3,017</td>
<td>377</td>
</tr>
<tr>
<td>1780</td>
<td>3</td>
<td>1,800</td>
<td>600</td>
</tr>
<tr>
<td>1784</td>
<td>9</td>
<td>3,740</td>
<td>416</td>
</tr>
<tr>
<td>1785</td>
<td>8</td>
<td>3,618</td>
<td>452</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>15,479</td>
<td>430</td>
</tr>
</tbody>
</table>

Sources: 1778 T. 70/1535 Packet B No. 7 Departures from Cape Coast and Annamaboe.
1779 T. 70/1537 Arrivals and Departures from the Gold Coast, 1779.
1780 T. 70/1539 Robert Stubbs to Christopher Court, Annamaboe Fort, 28 Oct. 1780.
1784–5 T. 70/1552 List of ships arriving and departing the Gold Coast, May 1784 to May 1785.

Note: Vessels not belonging to ports in Britain have not been included.

The list in both Tables is not a comprehensive list of all British ships carrying slaves from the Gold Coast in the years stated. The British shipmasters were not obliged to report their arrival and departure to the British officials on the Gold Coast, so that the trade of some vessels may have been unrecorded. But the list may represent not less than 60 per cent

72 BT. 6/3, folios 153–89.
73 Curtin, Census, 133.
74 BT. 6/3, folios 153–89, for London shipping to the African coast.
75 Curtin, Census, 133–4.
of total British slave trade on the Gold Coast during the time stated, with the exception of 1780.

The evidence shows a regular regional variation in the mean number of slaves shipped by British vessels from each part of the African coast. In 1788 an experienced Bristol slave merchant stated that vessels to the Windward Coast were usually small, 100 to 200 tons, while at Bonny and New Calabar the vessels were usually from 200 to 250 tons, 'except those that have contracts, they are all larger.'77 A breakdown of Bristol vessels employed in the slave trade in 1749 shows the following regional variation.78

<table>
<thead>
<tr>
<th>African region</th>
<th>Number of vessels</th>
<th>Number of slaves</th>
<th>Number of slaves per vessel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold Coast</td>
<td>17</td>
<td>5,180</td>
<td>303</td>
</tr>
<tr>
<td>Benin, Bonny and Calabar</td>
<td>23</td>
<td>8,110</td>
<td>353</td>
</tr>
<tr>
<td>Angola</td>
<td>7</td>
<td>3,350</td>
<td>479</td>
</tr>
</tbody>
</table>

The Liverpool list for 1750–76 states the intended place of trade in Africa and the number of slaves each vessel intended to carry.79 A breakdown of this list shows the following regional variation in the mean number of slaves intended to be carried by ships trading to each region:

- Senegambia: 198, Bonny: 419
- Sierra Leone: 219, Old Calabar: 340
- Windward Coast: 212, New Calabar: 330
- Gold Coast: 288, Angola: 337
- Bight of Benin: 340

From all this evidence it should be clear that the Gold Coast mean number of slaves per vessel represents a conservative median when used for all British ships trading to all the regions. An alternative is to use the number of slaves landed by British vessels in the Americas whenever such evidence can be found. This, however, introduces a lot of unknowns into the estimate. One has to go into the problem of loss in transit. What is more, the evidence relating to ships landing slaves in British America does not distinguish ships belonging to ports in Britain from those belonging to West Indian and North American shippers. As one can see in Table 2 above, the slave ships trading from British America were usually very small. The inclusion of a large number of these vessels will produce a misleading mean number for vessels trading from ports in Britain with which the estimates are concerned. The Gold Coast mean number of slaves per ship is therefore employed in the estimate for the periods 1750–76 and 1777–88.80 For the period 1789–1807, the proportion of 1.6

77 BM. Add. MSS. 38,416 fols. 154–6, James Jones to Lord Hawkesbury, Bristol, 26 July 1788.
78 C.O. 388/45, part I, A List of Ships Employed in the Trade to Africa from the Port of Bristol the year 1749.
79 BT. 6/3.
80 The larger number of slaves per ship in the period 1777–88 is due to three main factors. Firstly, during the War of American Independence the number of ships going to the coast fell drastically. Consequently, slaves accumulated in the hands of traders on the
slaves per ton imposed by the Act of 1788 is used with the tonnages of that period. As stated earlier, the two results are as follows:

Table 4

<table>
<thead>
<tr>
<th>Period</th>
<th>(1) Assuming unrecorded ships more than make up for non-slave carriers</th>
<th>(2) Making allowance for non-slave carrying vessels</th>
</tr>
</thead>
<tbody>
<tr>
<td>1750–76</td>
<td>983,619</td>
<td>946,491</td>
</tr>
<tr>
<td>1777–88</td>
<td>487,190</td>
<td>462,680</td>
</tr>
<tr>
<td>1789–1807</td>
<td>1,006,150</td>
<td>955,843</td>
</tr>
<tr>
<td></td>
<td><strong>2,476,959</strong></td>
<td><strong>2,365,014</strong></td>
</tr>
</tbody>
</table>

For the same period the estimate in the *Census* gives a total British slave export of 1,616,100.81

III

The only estimate of the magnitude of the British slave trade which rivals the one we have just made is that recently made by Professor Roger Anstey for the period 1761–1807.82 Anstey's estimate produced a total number of 1,529,180 slaves exported by British slave merchants in this period.83 On the basis of this and some other evidence Professor Curtin made some minor revisions of his export estimate for the period 1761–1807.84 The disparity between our estimate and Anstey's arises from two main factors—our total number or tonnage of slave ships is much higher than that of Anstey; our mean cargo size or slaves-to-ton ratio is also unrecorded ships...  

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81 Curtin, *Census*, Table 41, p. 142.


83 Ibid., Table 4, p. 12. This figure has been revised slightly upward in Anstey's recent book, *The Atlantic Slave Trade and British Abolition 1760–1810* (London, 1975), 39. The new figure is 1,535,622.

higher than the one employed by Anstey. It is therefore necessary to explain these differences at some length.

While the use of Board of Trade records for the period 1750–76, and of Customs 17 for the period 1777–1807, provides a complete time series for the total number or tonnage of ships annually cleared out for Africa from England, there is a problem, as we stated earlier, of determining the volume of shipping involved annually in carrying African products directly to England, without carrying any slaves to the Americas at the same time. Even the office of the Register General of Shipping in London did not know for certain the number or tonnage of shipping yearly involved in this branch of the British African trade. The method which this office adopted was to treat all ships bringing African products to England as ships not involved in the slave trade. This method was shown in a statement made by the office of the Register General in 1806: 85

It not having been customary to distinguish such vessels as were intended to make voyages to Africa and the West Indies, from such as were merely intended to go to Africa and back, the number of the former has been ascertained, by deducting from the total Number cleared, such as returned direct from Africa to England, and assuming that the Rest were destined for Africa and the West Indies.

It will be shown shortly that what the office of the Register General usually thought to be ships which ‘returned direct from Africa to England’ actually included all ships carrying African products to England—that is, including all slave ships returning to England with the African products they carried as part cargo.

In trying to determine the volume of the direct African trade Anstey was faced with this kind of evidence, obviously emanating from the office of the Register General. 86 This evidence shows that from 1761 to 1770, 290 ships brought directly from Africa to England African products worth £451,150; in the 1771–80 period, 445 ships brought directly African products worth £682,099; and from 1781 to 1787, 193 ships brought in the same way African products worth £555,912. Anstey rightly argued that this list ‘gives a figure for the number of ships in the direct trade far higher than all the other evidence about the out and back trade warrants.’ 87 In order to resolve the issue Anstey had ‘to assume that the figures given for direct importation from Africa really relate to imports direct and in slave ships, and to assume that half of these by value came in slave ships as part cargo and half in out and back ships.’ 88 Customs 3 and Customs 17 make it absolutely clear that Anstey is right in his assumption that the figures given for direct importation from Africa actually relate to imports

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85 House of Lords Papers, Accounts & Papers, 1806, vii, no. 199. An account of the number of ships, their tonnage and men, which cleared from England for Africa and the West Indies, in the last ten years, distinguishing each year.
86 Anstey, ‘British Slave Trade’, 18, n. 44.
87 Ibid., p. 18, n. 44.
direct and in slave ships, for in those three periods the yearly figures of total imports from Africa to England add up exactly to the same amount as in Anstey's list, with a difference of only £2 for the first period.\footnote{\textit{Customs 3/61-80}; \textit{Customs 17/7-10}. These values are as follows:}

As to Anstey's second assumption, a substantial amount of evidence, both in merchants' private records\footnote{See in particular, Davenport Papers in the Raymond Richards Collection, University of Keele Library, Keele, U.K.} and in other places, suggests quite strongly that the proportion of imports from Africa to England carried in slave ships may have been more than half of the total. But Anstey's assumption may be taken as a minimum. On the basis of these assumptions, Anstey estimated that about five per cent of the capital outlay by all slave ships went to the purchase of African products as part cargo.\footnote{Anstey, 'British Slave Trade', 17-18; id., \textit{The Atlantic Slave Trade}, 45.} Since the amount is equal, under Anstey's assumptions, to that carried by non-slave ships, the shipping requirement for the latter should actually be less than five per cent of the total number of ships annually cleared out for Africa from England, particularly as the non-slave ships carried only African products.

This issue can be resolved by the use of some hard data. From 1750 to 1807, the years of highest imports into England from Africa, by value, were 1802 and 1804, the official values being £156,529 and £163,592, respectively.\footnote{\textit{Customs 17/24} & 26. The amount is very much smaller for other years.} In 1802 and 1804, the total weight of gum Senegal, gum Arabic, redwood, palm oil and ivory imported into England from Africa was 2,735 tons and 3,296 tons, respectively.\footnote{Ibid.} In those respective years, these products together made up 72.6 per cent and 81.1 per cent of total imports from Africa to England, by value. Under Anstey's assumptions, half of the total weight should have arrived in slave ships, so that non-slave ships carried 1,368 tons of gum, redwood, palm oil and ivory in 1802, and 1,648 tons of the same products in 1804. These represent 3.2 per cent and 4.7 per cent of the total tonnage cleared out for Africa from England in the respective years.\footnote{Since the ships returning directly from Africa to England in 1802 and 1804 were made up partly by ships cleared out in 1801 and 1802, 1803 and 1804, respectively, the mean for those group years form the base of the percentages calculated.} Thus, the five per cent deduction from the total number and tonnage of ships annually cleared out for Africa from England which we made for non-slave carrying vessels in our estimate is indirectly supported by Anstey's results, and strongly so by other direct evidence.

Now let us turn to the numbers and tonnage of slave ships computed by Anstey. For the decade 1761–70 Anstey does not specifically state the total number of slave ships but states the estimated number of slaves

\begin{tabular}{lll}
Period & Anstey's list & Customs 3 & Customs 17 \\
1761–70 & £451,150 & £451,152 \\
1771–80 & 682,099 & 682,099 \\
1781–7 & 555,912 & 555,912 \\
\end{tabular}
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exported. For the 1771-80 period, Anstey computed 1,074 slave ships which carried a total of 253,521 slaves. The difference between this number of slave ships and the total number of ships cleared out for Africa from England in this decade is 6.9 per cent, which is 1.9 per cent higher than our five per cent deduction for non-slave carrying vessels. For the 1781-90 period, Anstey's computed number of slave ships is 998, while the total number of ships cleared out for Africa from England is 1,255, a difference of 20.5 per cent, which is 15.5 per cent higher than our 5 per cent deduction for non-slave carrying vessels. For the 1791-1800 decade, Anstey's computed number of slave ships is 1,341, measuring 278,537 tons, while the total number of ships cleared out for Africa from England is 1,637 measuring 320,005 tons. Anstey's computed slave tonnage is 13 per cent less than the total clearance figures. This percentage is eight points higher than our five per cent deduction for non-slave carrying vessels. For the last period, 1801-7, Anstey's computed number of slave ships is 906, measuring 218,690 tons, while the total number of ships cleared out for Africa from England was 1,145 measuring 259,039 tons. Anstey's computed slave tonnage is 15.6 per cent less than the total clearance figure, and this is 10.6 per cent higher than our five per cent deduction for non-slave carrying vessels.

If the difference between Anstey's computed yearly number or tonnage of slave ships and the total yearly number or tonnage of ships cleared out for Africa from England is to be made up by the number or tonnage of non-slave carrying ships, then Anstey has made the same mistake for which he queried his source material earlier on. For example, following Anstey's assumption, which we accepted earlier as a minimum, at most only half of the 193 ships stated to have brought African products to England in the period 1781-7 could have been non-slave carrying vessels, say, 96. But the difference between Anstey's computed number of slave ships for the period 1781-7, and the total number of ships cleared out for Africa from England in that period is 147 ships.

As to the mean cargo size per ship or mean slaves to ton ratio, the basis for the figures we employed for the periods 1750-76 and 1777-88 is clearly shown above. The figures employed by Anstey for those periods are definitely far too low. For example, if 1,074 ships carried a total of 253,521 slaves in the period 1771-80, this works out at 236 slaves per ship.

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95 Anstey, 'British Slave Trade', 4-6.
96 Ibid., 6.
97 The total number of ships cleared is 1,121. See BT. 6/3 & Customs 17.
98 Anstey, 'British Slave Trade', Table 1, p. 8.
99 Customs 17/7-12.
100 Anstey, 'British Slave Trade', 7-10.
101 Customs 17/13-22.
103 Customs 17/23-29.
104 Anstey, 'British Slave Trade', 18, n. 44, to which reference was made above.
105 For Anstey's assumptions about 193 ships, see above; for Anstey's computed figures, see Anstey, 'British Slave Trade', Table 1, p. 8; for the total number of ships cleared out for Africa from England in the period 1781-7, see Customs 17/7-10. Anstey's computed figure is 674 and the total clearance is 821.
106 See above, pp. 211-12.
107 See Anstey, 'British Slave Trade', 6.
For the period 1781–90, the mean cargo size for Anstey’s 998 ships is 324 slaves. In the face of our evidence these mean cargoes are certainly far too low.

For the period 1789–1807, we employed the legally imposed ratio of 1.6 slaves to one measured ton. Professor Anstey used various ratios based on British West Indian import data. For example, Anstey computed the following slaves-landed-to-ton ratios for the following years:

<table>
<thead>
<tr>
<th>Year</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1796/97</td>
<td>1.37</td>
</tr>
<tr>
<td>1797/98</td>
<td>1.41</td>
</tr>
<tr>
<td>1798/99</td>
<td>1.47</td>
</tr>
<tr>
<td>1799/1800</td>
<td>1.33</td>
</tr>
<tr>
<td>1800/1801 (½ year)</td>
<td>1.21</td>
</tr>
</tbody>
</table>

He later computed the export ratios with the aid of various middle passage mortality rates.

The use of the British West Indian import data in this manner raises two issues. One is that with the introduction of Acts limiting the number of slaves to be carried per ton by British slave ships, the slave import data in the British West Indies are bound to be unreliable. Captains of slave ships may have carried more slaves than their ships were legally allowed in the hope that middle passage mortality would reduce the total to the permissible number, in which case the actual number of deaths in the middle passage would have to be under-recorded. This practice was discovered in the Portuguese and Brazilian slave trade in the years 1815–30 when treaties between Britain and Portugal restricted Portuguese and Brazilian slave ships to a maximum cargo size of five slaves for every two measured tons.

On the other hand, a slave ship captain who, on arrival in the British West Indies, found himself with more slaves than his vessel was legally allowed, could understate the number of slaves actually landed by purchasing the co-operation of the colonial customs officials. And from what we know of those officials, it does not seem to have been difficult to buy their co-operation. In fact, the way the log books of those slave ships were drawn up left considerable room for manipulation. The various regulating Acts after 1788 made it legally compulsory for surgeons of British slave ships to keep log books on the reception and shipment of slaves from the day the ship arrived on the African coast to the time the slaves were landed in the Americas. These log books were to be presented

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108 Ibid., Table 1, p. 8.
MEASURING THE ATLANTIC SLAVE TRADE

to the proper officers of the British colonial custom houses in the Americas for inspection and signature, and to be handed to the customs officials in Britain at the port of return as evidence of having obeyed, or otherwise, the regulating Acts. Five sections in the general form of the log books are of some interest:

1. number of slaves received from the ship's arrival on the coast until her departure;
2. number relanded;
3. number trans-shipped;
4. number died during the middle passage;
5. number on board on arrival in the Americas.

Sections 2, 3 and 4, provided the ships' captains and their surgeons with opportunities to 'adjust' the number of their slaves within or below the numbers allowed. As a last resort, under section 5, the captains could Understate the actual numbers on board so long as the co-operation of the colonial customs officials was secured. Thus, as one goes through the extracts from those log books112 one frequently comes across vessels like the Gipsey of Liverpool, measuring 174 tons, which cleared out for Africa on 14 March 1793, arrived Angola 3 June, received 539 slaves during her stay on the coast, 'relanded' 7, 'trans-shipped' 243, lost 17 in the middle passage, and landed 272.

The clerks who compiled the extracts from the log books often showed their suspicion of the way the entries in the log books were made. For the Hester of Bristol, measuring 190 tons, which went to the African coast in 1791, the clerks noted that the log book 'Gives an account of landing 232 which is more than the log book gives an account of receiving in Africa.'113 Again, for the Jemmy of Liverpool, measuring 150 tons, which went to the coast in 1792, the clerks noted, 'The log book gives no account of receiving any slaves but two. On her arrival in the West Indies it appears she has 226 slaves remaining on board.'114 The low figure of middle passage deaths reported in the British West Indies in the period 1789-1807 is suggestive. For example, in 1790, vessels measuring 16,469 tons landed 21,889 slaves in the British West Indies, and all the ships together are reported to have lost only 35 slaves in the middle passage.115 Thus, the slave-to-ton ratio computed from the British West Indian import data may be on the low side.

But what is obviously more important, Anstey made no allowance for much higher slave-to-ton ratios of British slave ships landing slaves in

112 House of Lords Record Office, Order Date 18 June 1799. This is what constitutes Anstey's 'Lords List A'; see Anstey, 'British Slave Trade', 7-9, n. 23.
113 House of Lords Record Office, Order Date 28 June 1799.
114 Ibid.
115 BM., British Parliamentary Papers, Accts. & Papers, 1792, vol. 93, no. 766. Number of vessels, their tonnage, arrived from Africa in the British West India Islands between 5 Jan. 1789 and 5 Jan. 1792, with the number of slaves imported therein, distinguishing each year . . .
foreign colonies. To be fair, Anstey actually took note of this fact, but chose not to weight it, for he says:

It is highly likely that the number of slaves per ton landed in foreign possessions (the direct foreign trade was about 25 per cent of the whole) was higher, since the Acts regulating numbers could not be enforced in this case. No weighting has, however, been given for this.\(^{116}\)

As a proof of the fact that British ships landing slaves in foreign possessions actually carried more slaves per ton, the case of the ship, *Vanguard*, belonging to John Ogle & Co. of Liverpool, may be used as an illustration.\(^{117}\) In 1803, the partners fitted out the ship for the purchase of slaves in Africa. But in order to evade the regulations imposed on British slave ships by the law of 1799\(^ {118}\) the ship was cleared out for a Spanish port 'in order to obtain the necessary papers and a licence to sail under Spanish colours' to Africa and the Americas. When the shipmaster failed to secure the necessary papers, the partners were compelled to send two additional ships to meet the *Vanguard* on the coast in order to be able to ship all the slaves for which the ship's cargo had been calculated, without breaking the British law on the proportion of slaves to tonnage.\(^ {119}\)

Taking this evidence into consideration, it is clear that our ratio of 1.6 slaves per ton for the period 1789–1807 is a closer approximation to reality than the ratios computed from British West Indian import data and applied by Anstey to the estimate for this period.

As to the proportion of the British slave trade unrecorded by the British official records, while Professor Anstey deals with its magnitude at some length, he fails completely to make any allowance for it in his estimate. He mentions\(^ {120}\)

the considerable evidence that, at a guess, 5 per cent of ships participating in the slave trade went unrecorded. For example well over this percentage of Liverpool ships employed in the slave trade in 1790, as listed by Norris, are not included in the port clearance lists for the year, or for 1789, or 1791, and this when not only the value of the ships but of the cargo is carefully itemized.

Anstey later discovered a large number of British slave ships among Dutch prizes taken by the British Navy during the Napoleonic Wars, and was compelled to raise the question as to 'the extent of the iceberg of which these cases were perhaps the tip.'\(^ {121}\)

On the whole, the substantial evidence on British slave ships carrying

\(^{116}\) Anstey, 'British Slave Trade', 9, n. 24. In fact, the slave merchants themselves often stated that the direct trade to foreign possessions constituted two-thirds of the whole British slave trade in the late eighteenth century.

\(^{117}\) P.R.O., C. 114/3, Pince v. Lumley.

\(^{118}\) 39 Geo. 3 Cap. 80, 12 July 1799, Public General Acts, British Museum.

\(^{119}\) The partners' original intention was to send only one, but the failure of the captain to secure arrangements for landing the slaves in a foreign possession made a second ship necessary.

\(^{120}\) Anstey, 'British Slave Trade', 5–6, n. 13.

slaves to and fro between the African coast and the Americas without touching ports in Britain, on British slave ships operating with ‘flags of convenience’, and so on, makes it abundantly clear that far more than ‘5 per cent’ of the British slave trade between 1750 and 1807 went unrecorded in the British official records. This is why we are inclined to regard column (1) of our Table 4, above, as closer to reality, although it may still be on the low side.

IV

When one comes to the French trade, the data base of the Census estimate is found to be far weaker than that for the British trade. The data relate only to the trade of Nantes, and this made it inevitable to employ a round-about method of calculation, introducing large areas of possible inaccuracy. In fact, even the data for the Nantes trade are not complete. Whenever slave export estimates are based on incomplete shipping data one is justified in expecting an underestimate. But by what degree, it is hard to say. For the twenty-year period 1761–80, the Census gives a total of 187,400 slaves imported into all French America by French traders. But a French planter in Saint-Domingue produced, for half of this period, 441 French ships which imported 129,237 slaves into Saint-Domingue alone from 1764 to 1773. He estimated that illegal imports into Saint-Domingue by non-French traders amounted to 24,000 slaves from 1767 to 1773, a period of six years. French exports from Central and East Africa seem to have been more seriously underestimated, for the planter in question stated that slaves from the Congo were the most numerous in Saint-Domingue, contrary to what the Census would lead one to expect. In general, it is difficult to reconcile the magnitude of the French trade as indicated in the Census with the evidence which one gleans from the letters of British merchants. For example, in October 1741, Captain George Hamilton wrote to his co-partners in England, ‘there are now on the Gold Coast and to Leeward near seventy sail French, chiefly large ships.’ Such a large number of French ships on the coast at a time is difficult to reconcile with the low estimates of the French trade in the first half of the eighteenth century to be found in the Census. On the other hand, there is a rather curious inconsistency in the French export estimates. The estimates were based on import data which gave a total French-carried import of 501,858 slaves from 1761 to 1792, reduced to an export figure

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122 See J. E. Inikori, ‘English Trade to Guinea’, ch. v, where this is treated in great detail.
123 Curtin, Census, 177–8.
125 Ibid., 69.
126 Ibid., II, 60. Peytraud estimates that between 3,000 and 4,000 slaves were yearly imported into Saint-Domingue by French traders from the Mozambique coast in the 1780s. (Peytraud, L’Esclavage, 139.)
127 Curtin, Census, Table 63, p. 211. This gives French export of 613,100 slaves from West Africa, as against only 356,000 from Central and East Africa in the years 1701–1810.
128 C. 103/130, Hamilton to Thomas Hall, Annamaboe, 30 Oct. 1741.
of 545,300, implying a loss in transit of 7.97 per cent for the whole period. But in comparing his export estimate with his import estimate for the period 1761–1810 Curtin reduced his total exports by the French, English and the minor carriers by 15 per cent loss in transit. This amounts to reducing his own import figures for the French trade by 7.6 per cent.

V

In conclusion it has to be said that in view of the nature of the methods of computation adopted in the Census and the nature of the data upon which they are based, the confident limits stated for the estimates are unwarranted and likely to mislead readers. The evidence relating to the size of the slave populations of the importing regions and to the demographic processes among the slaves suggests very strongly a substantial upward revision of the import estimates, especially those for Spanish, Portuguese and French America. Meaningful import estimates for the United States are yet to be made. As for the export estimates, the best calculations of the Census relate to the export estimates of the British slave trade from 1750 to 1807, being based on much fuller and sounder data than any other export estimates in the Census. The nature of the errors that have now been detected even in these reasonably good calculations points to the fact that unless complete shipping data are employed in the export estimates, with a proper allowance for any possible defects, the estimates will continue to be far below the actual numbers. If the slave import and export estimates are to be taken seriously an effort must be made to reduce the area of speculation. As Professor Mathias of Oxford said in his inaugural lecture in 1970, ‘The greater the degree of mathematical processing being applied to data the greater the premium upon knowing the reliability of the sources and the potential degree of error built into them.’ This is particularly true of the problem of measuring the Atlantic slave trade. The point has to be made, however, that the value of the Census does not lie entirely in the accuracy of the quantitative estimates. For the various

<table>
<thead>
<tr>
<th>Year</th>
<th>Import</th>
<th>Export</th>
</tr>
</thead>
<tbody>
<tr>
<td>1761–70</td>
<td>98,800</td>
<td>115,400</td>
</tr>
<tr>
<td>1771–80</td>
<td>88,600</td>
<td>98,800</td>
</tr>
<tr>
<td>1781–90</td>
<td>257,829</td>
<td>271,500</td>
</tr>
<tr>
<td>1791 and 1792</td>
<td>56,629</td>
<td>59,600</td>
</tr>
<tr>
<td></td>
<td>501,838</td>
<td>545,300</td>
</tr>
</tbody>
</table>

This gives a total loss in transit of 43,442 slaves which is 7.97 per cent of 545,300 slaves exported.

Curtin, Census, 177–9. The figures are as follows:

129 Curtin, Census, 177–9. The figures are as follows:

questions it raised, for bringing together some of the published material on the subject of slave trade and slavery, and for provoking serious quantitative studies of the various aspects of the subject, the Census is an important contribution in this field.

SUMMARY

The main historical problem to which Professor Curtin addressed himself in the Census relates to the total number of slaves imported from Africa into all the slave-importing Atlantic regions during the entire period of the Atlantic slave trade. The estimates of the Census put the total number at 9,566,000. It is conceded that the actual number may be either somewhat lower or higher. But Professor Curtin concludes that 'it is extremely unlikely that the ultimate total will turn out to be less than 8,000,000 or more than 10,500,000'. After examining Professor Curtin's methods of computation and the quality of the data employed, these confident limits were found to be unwarranted and misleading. The evidence relating to the size of the slave populations of the importing regions and to the demographic processes among the slaves suggests very strongly a substantial upward revision of the import estimates of the Census, especially those for Spanish, Portuguese and French America. An estimate of British slave exports from 1750 to 1807, on the basis of hitherto unused records, points to the fact that unless complete shipping data are employed in the slave export estimates the numbers computed will continue to be far below the actual numbers.

Editorial Note:

Since an earlier version of this article was presented as a conference paper and has been the subject of discussion among specialists interested in the topic, the Editors have invited Professors Curtin and Anstey to consider whether they wish to comment on the article; any comments they choose to offer will be published in a subsequent issue of this Journal.