Overseas Trade and the Decline of Privateering

Henning Hillmann
University of Mannheim

Christina Gathmann
University of Mannheim

This Draft: October 2010

Abstract

Using novel quantitative historical data on 2,483 British privateering cruises, we show that state-licensed commerce raiding by merchants was not only a popular and potentially flourishing business, but also effective in harming enemy trade during the long eighteenth century (1688-1815). Why, then, did privateering merchants gradually turn away from the enterprise, despite their success? We provide systematic evidence that the expansion of overseas trade and ensuing decline in the revenues of commerce raiding facilitated the decline of British privateering and the transition to a full public provision of sea power by the Royal Navy by the end of the Napoleonic War.

Correspondence: Henning Hillmann, hillmann@uni-mannheim.de, Department of Sociology, School of Social Sciences, University of Mannheim; Christina Gathmann, cgathmann@uni-mannheim.de, Department of Economics, University of Mannheim. Financial support from the National Science Foundation (SES-0550848) and the Stanford OTL Research Incentive Fund is gratefully acknowledged. We wish to thank participants at the All-UC Economic History conference, American Economic Association Annual Meeting, Cliometrics Society Annual Meeting, MIT-Harvard Economic Sociology Seminar, Stanford's SCANCOR and Social Science History workshops, and the World Congress of Economic History in Utrecht as well as the anonymous *JEH* reviewers for their valuable comments. We are also grateful to Emily Erikson for sharing data on the East India Company. Denis Trapido, Laure Negiar, Jackie Hwang, Andrew Parker and Diana Peng contributed excellent research assistance. All remaining errors are our own.

1 Introduction

Social science historians have long recognized that the growing intensity of wars among the emerging states of early modern Europe gave rise to a military revolution such that demand for land and naval forces increased significantly (Brewer 1988; Downing 1993; Glete 1993; Tilly 1992). Much of this literature takes for granted that states provided the means necessary for warfare, and for sea power in particular. Following the overseas expansion of the previous two centuries, sea power, the equipment and deployment of effective naval forces, was among the essential means for Europe's rising nation states to pursue their interests in interstate competition (Bromley and Ryan 1971; Harding 1999; Rodger 2004a). Some previous studies explicitly acknowledge the existence of private ships of war (Anderson and Gifford 1991; Starkey 1990a; Swanson 1991); but that maritime warfare and the protection of merchant trade were primarily a matter of state governments remains largely unquestioned. And yet, the historical evidence suggests numerous cases where the leading maritime powers of early modern Europe – Britain, France, and the United Provinces – did rely extensively on private forces in interstate competition (Andrews 1964; Bromley 1987; Lunsford 2005; Thomson 1994).[1] Privateering arguably was the most illustrious form of such private naval forces from Elizabethan times to the Napoleonic Wars.[2]

Our empirical focus is on the seminal "Second Hundred Years' War" (1689 to 1815) that pitted Britain and France against each other in one of the first series of conflicts fought on a worldwide scale (Crouzet 1996).[3] Privateering in this long eighteenth century consisted of state-licensed commerce raiding that was highly regulated and confined to wartime. A contemporary legal source defines privateering as "the expeditions of private individuals during war, who, being provided with

[1] Especially before the eighteenth century, one of the main reasons for the emerging European nation-states to rely on private naval forces was their limited ability to finance state-run navies of their own (Bonney 1995, 1999).

[2] Privateering was not formally abolished until the declaration of Paris in 1856, which ended the Crimean War – a conflict, in which neither Britain nor France issued any letters of marque. See Martens (1801) and Stark (1897) on its historical origins and legal foundations.

[3] While Spain was involved in several of the conflicts within our period of interest, evidence from prize sentence records reveals that it played a far less prominent role than France: the share of Spanish prizes captured by British privateers is small (less than 12 percent) compared to the share of French prizes (almost 70 percent). Likewise, relative to France, the volume of Spain's overseas imports was substantially lower (Cuenca-Estaban 2008), and relative to Britain, Spain's trade share declined just as much as France's toward the end of the eighteenth century.

a special permission from one of the belligerent powers, fit out at their own expence, one or more vessels, with the principal design of attacking the enemy, and preventing neutral subjects or friends from carrying on with the enemy a commerce regarded as illicit" (Martens 1801, p.1). An example of a commission (letter of marque) in the appendix details the practicalities of authorizing and organizing privateering cruises. Upon returning from successful commerce raids, privateers had to declare their captures before the prize court of their sovereign's admiralty for adjudication. Once the court had assessed the evidence and pronounced the "said Ship (...) her Tackle Apparrel and Furniture and the Goods taken therein (...) to be adjudged and condemned as and for good and lawful Prize"[4], the privateering promoters and commander could reap the proceeds from selling the seized ship and its cargo. The privateer's crew were paid their agreed upon portion of the proceeds. Privateers thus differed from mere pirates to the extent that maritime law and the rather strict regulations of their sovereign's admiralty bound their predatory activities (Martens 1801; Stark 1897).

With the increasing competition among the rising nation-states of early modern Europe, privateering was ideally suited to serve a state's economic and political interests. Central to the mercantilist doctrine of the time was the idea that a country's economic wealth stems primarily from a balance of trade that favors exports over imports. This view combined with an economic nationalism that perceived the overall volume of world trade as limited and commercial expansion as a zero-sum game wherein states gained a competitive advantage if they increased their trade at the expense of other countries' shares (Mokyr 2009). In such a mercantilist world, privateering proved to be a forceful instrument of naval warfare because it effectively undermined an opponent's much-needed in-flow of resources (Swanson 1991).

The historical evidence clearly documents that privateering enterprise offered an efficient and effective instrument for state governments to harm and sometimes even disrupt their enemies'

[4]This exemplary quote is taken from the prize sentence of "a certain Spanish Ship called the San Caetano" that was "taken by a private Ship of War called the Constantine", adjudged and condemned in February 1740 (HCA 34/31). The phrasing is typical of other prize sentences collected in the Admiralty Court records.

trade. In addition to professional navy forces, privateers were thus of significant strategic value to states in maritime warfare. Likewise, our findings and prior anecdotal evidence (Starkey 1990a; Swanson 1991) reveal that the business of prize-taking was attractive for the individual merchant elites who organized and sponsored it. Consequently, as a national strategy, privateering both opened up promising business opportunities to merchant elites during wars and contributed to the economic and political power of states at little additional cost for their governments.[5] Despite these benefits, the golden age of privateering came to an end during the French Revolutionary and Napoleonic Wars (1793-1815), at least on the British side.

The central substantive question of this article, then, is why privateering as an instrument of sea power declined so dramatically in Britain and eventually gave way to the exclusive reliance on state-funded navies. The usual answer is to point to the state itself and its improved fiscal capacity, which eventually enabled the emergence of a professional navy (Bonney 1995, 1999; Brewer 1988; Rodger 2004a). With these insights in mind, it is tempting to interpret privateering solely as an instrument of government policy, its ebb and flow driven by the state's demand for and control of naval forces. With the growing professionalization of naval forces and strategy, so the argument implies, the navy simply became better at performing the tasks of maritime warfare than merchant privateers. Consequently, the navy crowded out privateering over time. Such an interpretation seems misleading to us. On the supply side, merchants had to embrace privateering just as much as governments encouraged it. Hence, we argue that the decline of privateering had as much to do with changes in the maritime economy and in the economic organization of merchant enterprises as with the concerns of the state's sea power. Our central argument is that the decline of privateering was a long-term trend wherein the increasing profitability of overseas trade over time, aided by the increasing ability of the Royal Navy to protect trade routes, significantly increased the opportunity costs of privateering toward the end of the eighteenth century.

[5]Here we do not mean to imply that opportunity costs arising from privateering did not exist. In particular, privateering diverted skilled manpower away from the Royal Navy (Rodger 1986). We address the competition for able seamen between the Navy, merchantmen and privateers in more detail in a later section below.

The British case is ideally suited to study the role of privateering and its decline.[6] First, during the period we consider (1689-1815), Britain emerged as the world's leading sea power and trading nation, a dominance that would last well into the twentieth century (Rodger 2004a). Second, privateering was a popular activity among British merchants, many of them prominent members in their towns. Finally, the quality of archival and published sources on privateering ventures, merchant trade and the organization of naval forces enables a quantitative analysis of the empirical implications of our argument.

We draw on unique quantitative data on the incidence and organization of 2,483 privateering cruises between 1689 and 1815 that we collected from British archival sources. With few exceptions (e.g. Bromley 1987), previous studies are either limited to aggregate or anecdotal data, or not suited for systematic comparative analysis over such a long period (Crowhurst 1977, 1989; Starkey 1990a; Swanson 1991; Thomson 1994). In contrast, our data consist of a ten percent random sample of all commissioned privateering cruises in this period, including systematic information on the vessels, their crew and weaponry, as well as the number and origin of prize ships they seized. We complement this information with a large set of prize values of British privateers that we assembled from primary and secondary sources. We further supplement the data with quantitative information on British and French trade as well as the strength of the British and French navies, all collected from published sources (see table A.1).

The empirical analysis supports the mechanism outlined in our argument. We offer quantitative evidence that privateering was systematically related to the volume of potential prize ships and the legal trade opportunities for British merchants during wars. We then document that, despite its popularity and effectiveness, commerce raiding activities in Bristol and Britain at large experienced a marked decline during the French Revolutionary and Napoleonic Wars. This decline of British

[6] An attempt to consider privateering in other historical settings at the same level of empirical detail as we do in the British case is beyond the scope of the present article. Recent studies of other historical contexts include Bromley (1987), Lespagnol (1990), Villiers (1991) on the French case, Baetens (1976), Bruijn (1978), Lunsford (2005) on Dutch and Flemish privateers, Kert (1997), Lydon (1970), Swanson (1991) on American colonial and Canadian privateers, and Starkey, van Eyck van Heslinga, and de Moor (1997) for a comparative collection.

privateering in the late eighteenth century coincided with a significant expansion of overseas trade both in absolute terms and relative to Britain's main adversary France (on Spain, see note 3 above). Over the same period, expected revenues from privateering declined sharply, largely because the probability of seizing a prize ship fell from 50 percent in the American Revolutionary War to 10 percent in the Napoleonic Wars. We identify one important mechanism responsible for this development: the increased security of trade routes, especially those traditionally infested with pirates and privateers. We provide evidence that the rising strength of the Royal Navy and its presence in overseas ports reduced the chance of capture by enemy privateers or pirates after 1784, but not before. Finally, we show that expanding trade opportunities and the reduced gains from commerce raiding account for more than 60 percent of the decline in privateering activity over our sample period.

The contribution of this article, then, is twofold. First, we employ new quantitative data on privateering enterprises over a 130-year period to document the popularity and effectiveness of British privateering over the course of the long eighteenth century. While we are not the first to highlight the effectiveness of commerce raiding (Andrews 1964; Lydon 1970; Starkey 1990a; Swanson 1991), previous studies are often restricted to evidence on a shorter time period (Swanson 1991; Andrews 1964) or to a particular port in the American colonies (Lydon 1970). More generally, we present quantitative evidence of the determinants of privateering that allows us to move beyond the largely qualitative analyses that previous historical studies had to rely on. Second, drawing on this systematic evidence, we also move beyond accounts of the strategic value and imperfections of privateering in naval warfare. Instead, we identify an economic mechanism whereby the increase of relative overseas trade opportunities facilitated the decline of British privateering by the end of the eighteenth century.

2 Organization and Regulation of Privateering in Britain

Privateering was primarily a business enterprise, undertaken by the merchant community.[7] The authorization of privateers by state governments was a legal prerequisite. But it was the merchantry that shouldered the financial backing and organization of commerce raiding cruises. Here the available anecdotal and systematic evidence offers some fairly nuanced images of those who promoted privateering enterprises. The business was usually locally organized such that the undertakers who financed Channel Island privateering voyages were also predominantly residents of Guernsey or Jersey, and not, say, London. Likewise, financial backing for privateering ships fitted out in Bristol or Liverpool typically came from merchant promoters in these two ports (Meyer 1981; Powell 1930; Williams [1897] 2004). The historical evidence suggests that undertakers came from across all ranks of the merchant community, and few barriers to entry seem to have existed. For new entrants into the London merchant community, such as the Glaswegian transatlantic trader Richard Oswald in the 1740s, profits from their privateering ventures provided substantial start-up capital early in their careers (Hancock 1995). Privateering also attracted established members of eminent merchant elite families in the City of London, Bristol, Liverpool and other ports (Starkey 1990a; Morgan 1993). Our quantitative individual-level information from the exemplary port of Bristol reveals that about 80 percent of the leading transatlantic slave, sugar and tobacco traders in Bristol organized and invested in privateering voyages during our period of interest (Powell 1930; Morgan 1993; PRO HCA 26/1-104; see table 6). Additional sources show that, occasionally, shareholders in privateering partnerships even included such prominent members of the nobility and political officeholders as the Dukes of Bedford, Northumberland, and Shrewsbury, the Lord Mayor of London, the Lord Chancellor, or the First Lord of the Admiralty (Meyer 1981, p.267; Starkey 1990a, p.67).

[7] Especially in the English case, privateering also played an influential ideological role as an expression of a distinct "English myth of sea power" (Rodger 2004b). This myth had its origins in folk-memories of Elizabethan naval exploits against the Catholic powers, which combined radical protestant zeal and the patriotic defense of English liberties with images of immense private profits to be gained from raids of Spanish shipping (Andrews 1964).

The merchant owners typically formed partnerships for fitting out vessels for privateering cruises. The letter of marque declarations identified the names and residence of the shareholders in the partnership as in the case of the *George*, sent out in the Seven Years' War, where "George Kippen , Archd. Ingram, John Glasford & Arthur Connell of Glasgow Merchants are the Principal Owners and Setters out of the said Ship" (PRO HCA 26/11). The owning merchants were responsible for bearing all fitting costs, including those for victualing the crew, typically for the length of six to seven months (PRO HCA 26/1-104).[8] To illustrate, the twelve owners of the 400 ton *Southwell* privateer that sailed from Bristol with 24 carriage guns and 200 men for a slightly shorter cruise of four months in 1746 shared the fitting costs of £ 1,887 17s. 6d. (Powell 1930, pp. 166-67, 366-67). The costs for the *Enterprise* of Liverpool in 1779 were similar at £ 2,033 13s. $8\frac{1}{2}$d. Its ten owners divided the total costs according to their holdings in the partnership: one 3/16 share, four 2/16 shares, and five 1/16 shares (Williams [1897] 2004, pp. 18-19; Pares 1938, p.10).

Not all privateering vessels set out with the primary aim of commerce raiding. Two broad types of commissioned enterprises can be distinguished (Starkey 1990a, pp.33-55). Private men-of-war constituted the first type. They specialized in the business of seizing enemy prize ships and their cargo. Private men-of-war had their origin in the auxiliary private forces of the early European navies. Compared to regular trade ships of the same size, their ships had a heavier frame to support the larger number of guns. In addition, private men-of-war required a larger crew than merchantmen to operate the guns and to sail a prize ship into a nearby port, if necessary. Additional costs for outfitting the ship and victualling a larger crew were in part offset because wages were uncommon on genuine private ships of war. The share in captured prizes was the main attraction for crew members on board of private men-of-war (of course, the exact share one could expect depended on the overall size of the crew). Smaller private men-of-war with fewer guns such as the Channel Islands privateers primarily chased the coastal traders of nearby France.

[8] One should bear in mind that letter of marque declarations were legal documents, and the actual length of a given cruise could differ from the stated duration.

The larger "deep-water" vessels of 500 tons and more carried a substantial weaponry and cruised along the routes of long-distance trades. Their targets were the rich East Indiamen and French and Spanish convoys returning from the West Indies.

The second type of privateering ventures consisted of armed merchant vessels, so-called letter of marque ships, whose primary objective was trade, whereas prize-taking was only a secondary aim. Their origins may be traced back to the right of taking reprisals for the unlawful loss of cargo to subjects of foreign sovereigns and to the custom of arming merchant vessels for self-defense against pirates (Pares 1938, pp.2-3). A letter of marque ship also boasted more armament than a merchant ship and always a larger crew to man a potential prize. Because letter of marque ships paid seamen's wages, the larger crewsize raised their costs relative to regular merchant ships (Rodger 1986, pp.128-30).[9] In addition, preying on prizes lengthened a voyage and increased the risk of damage or loss of the ship if, for example, a potential prize fought back or the privateer encountered enemy naval forces. One reason for obtaining letters of marque despite the increased risk was that only a valid commission entitled the crew and owners of a merchantman to the prize money should the opportunity to seize a lawful prize ship arise during their trading voyage.

The owners of both types typically appointed the captain, based primarily on reputation. Captain John Engledue of the *Southwell* was hired because of "our great opinion of your Courage and Conduct, together with the recommendations of your Former Owners" (Williams [1897] 2004, p.355). The captain was then responsible for assembling an able crew. The division of prizes into shares between owners, officers, and crew varied considerably, and, in contrast to France, no regulation by the British government seems to have existed (Pares 1938, p.8). Anecdotal evidence from privateering ventures with various crew sizes shows that prize values were often divided equally between the owners and the crew, but the balance could shift depending on whether or not wages were paid (Starkey 1990a, p. 306; see also Benjamin and Macaulay 2001). The owners

[9]Benjamin and Macaulay (2001) examined a sample of contracts between owners and crews of 50 private ships of war and eight armed merchantmen. They report that all 50 privateers offered prize shares to their crews, but no wages. The eight armed merchantmen offered both prize shares and wages.

then further divided their part according to their holdings in the partnership. The case of the *Royal Family* privateers illustrates that the principal owners sometimes took an additional five percent for their role as managers of the enterprise and another five percent of the seamen's shares for acting as their agents (Pares 1938, p.8). Rodger (1986, p.128) reports evidence from various articles of agreement between owners and crew during the Seven Years' War that suggests that the privateer's commander commonly received eight percent of the prize value, while the remaining 32 percent were divided between officers (eight to twelve shares each), able seamen (one to two shares each), and boys (a quarter to one share each).

The captains received lengthy orders from the owners that regulated expected behavior on board and the proceedings of prize taking during the privateering campaign. As the case of the *Southwell* documents again, one part of the instructions was intended to keep good order among crew and officers, including punishments for mutiny and disobedience, and to ensure that crew members were well acquainted with the care and use of all weaponry. The other part instructed the captain to position his ship in a rather specific location – "from the Lattitude 49 00 N. to the Lattitude 45" and "as near the French Coast as wind, weather and the safety of your ship will admit" so that he "will have a greater probability of taking the Ships of our Enemies, and also of retaking their Prizes" (Powell 1930, p. 356). The *Southwell*'s captain was instructed to inspect neutral shipping from and to French and Spanish ports, and to seize them if sufficient evidence against them was found. If the prize ship carried "money, Jewels, Plate or such Valuables" , these goods were to be taken on board the privateer. Concerning such valuables, the privateer's commander was further instructed by the owners that, "in case you meet one of our Men of War bound home, put the same on board such, sending us bill of Loading for the same" (Powell 1930, p.356). The captain was also reminded that any prize ship that was sent into port had to have a sufficient number of the captured crew on board so that a condemnation could be obtained from the Admiralty court. To secure a safe passage into port, the captain was to put an adequate number of his own crew on the prize ship, under the command of one of his experienced officers.

In contrast, the owners recommended to ransom prize ships of smaller value so that reducing the number of crew on the privateer could be avoided.[10] In any case, the captain had to ensure that the clerk of the *Southwell* kept "a just and regular account of all transactions on board our Privateer" (Powell 1930, p.357). In general, the owners expected the privateer to bring all prizes into the home port (Bristol). Should the use of other ports become necessary, the captain was instructed to seek the assistance of the owners' agents in each port. If it became unavoidable to bring a French or Spanish prize ship into a neutral port, the captain was reminded to ask the local authorities to certify the number of crew captured so that the privateer could later obtain "the Bounty of £5 a head" from the British officials (Powell 1930, p.357). Finally, to increase the chances of prize-taking, the owners encouraged their captain to join forces with other British privateers they might meet at sea as long as the latter are "of equal or superior (not less) force than ours" (Powell 1930, p.358). All jointly captured prizes were to be divided according to a sharing agreement among the participating privateers. These detailed instructions, acknowledged and signed by the captain and the owners, thus demonstrate that privateers could not roam the seas as they pleased. They also reveal once again the extent to which the business interests of the merchant owners dictated the privateering campaigns they financed.

In addition to the owners' instructions, the captain also had to comply with the official instructions set forth by the Admiralty. These regulations reflected the Government's interest in controlling the operations of privateers and in furthering their contribution to the war effort. What distinguished privateers from mere pirates was their legal authorization by their own government to seize or destroy enemy shipping during wartime and to intercept contraband shipping and smuggling by neutral or allied vessels. Commissions for letter of marque ships or private man-of-war were granted to applicants by the High Court of Admiralty upon the declaration by the captain and owners.[11] "Bail with Sureties" in the amount of £ 3,000 for a vessel with 150 or

[10] For a more detailed illustration, Marsden (1916, pp.222-24) prints the text of a ransom bill for the French ship *St. Nichola*, which "was taken prize by the Ambuscade of Bristol, a private man of war" in 1711.

[11] Pares (1938, p.46) notes that in the mid-eighteenth century the courts were apparently more discretionary in their granting of commissions to small privateers (under 100 tons, 10 guns, and 40 men), as public opinion held

more men and £ 1,500 for smaller crews was required to ensure the good conduct according to the government's instructions to privateers (PRO HCA26/27, article 20; Meyer 1981, p.259; Starkey 1990a, p.24). The sort of conduct the government expected was specified in the instructions to privateers issued by the Crown at the beginning of hostilities. For instance, the November 1761 instructions for commissioned commanders against France during the Seven Years' War declared who was to be respected as neutrals or allies, what counted as lawful prizes, and prescribed the procedures for their adjudication in the Admiralty court (articles 1-7). But they also instructed privateers in military matters such as to "use their best endeavours and give aid and succour" to British and allied ships "found in Distress by being in fight" (article 8), and to forward to the Admiralty "whatever else shall occur unto them, or be discovered and declared unto them or found out by them by Examination of or Conference with any Mariners (...) concerning the Designs of the Enemy (article 11) (PRO HCA26/27). In the instance of severe and outrageous misconduct, the privateer's commission could be revoked, the sureties forfeited, and the crew and owners held responsible for any reparations to be paid (Pares 1938, pp. 46-47).

All commissioned privateers and letter of marque ships were expected to bring their captures and three or four members of the prize ship's crew as witnesses into English ports to have the goods judged as fair prizes by the High Court of Admiralty. Sufficient documentary evidence had to be provided to demonstrate that the prize was indeed lawful and the rights of neutral and allied ships engaged in legal trade were not harmed (Pares 1938, pp.108-32). Once condemned as legal prizes, and in the absence of other claimants, the valuables could be liquidated and the resulting revenues distributed among the owners, officers and crew of the privateer. With the Act of 1708, the Admiralty relinquished its right to a tenth share of the prize. Further incentives besides the right to the full prize money were the granting of gun-money and head-money in order to encourage privateers to engage enemy ships of war and privateers rather than just weakly armed merchantmen (Pares 1938, p.15).

---

them primarily responsible for causing outrages against neutral shipping.

Taking ransoms and presenting the ransom bills to the Admiralty court offered an alternative to bringing the prize ships into port directly after each capture. The practice enabled privateers to avoid placing a prize crew on each captured vessel, which would otherwise hinder them to continue their cruise. Taking ransoms encouraged the concealment and embezzlement of prizes, and tended to further undermine the rights of neutrals who rather accepted the ransom instead of trying to get their ship and cargo released from the Admiralty court. Consequently, the British government sought to limit ransom-taking as early as 1744 (Marsden 1916, p.430), declared the ransoming of neutral vessels a capital offence in the Privateers Act of 1759, and eventually outlawed it entirely by the time of the American Revolutionary War (Pares 1938, pp.19-25; Starkey 1990a, pp.25-26).[12]

3 Data and Descriptive Evidence

3.1 Data Sources

To analyze the business of commerce raiding empirically, we have collected a new data set on British privateering from primary sources (see table A.1 in the appendix). Our first data set is a ten percent sample ($N = 2,483$) of all letters of marque granted by the Court of Admiralty in Britain between 1689 and 1815 (PRO HCA25 and HCA26).[13] While letters of marque could also be obtained in the British colonies (Kert 1997; Lydon 1970; Swanson 1991), our analysis focuses on commerce raiding that was launched from ports on the British Isles. During war times, these commissions allowed British merchants to raid enemy trade ships for an average duration of 7.6 months. Figure A.1 and its transcript in the appendix illustrate the letter of marque declarations

[12] Whatever impact it had on the profitability of privateering, the prohibition of ransoming applied equally during both the American Revolutionary War (1775-83) and the French Revolutionary and Napoleonic Wars (1793-1815). Because ransoming was outlawed in both periods and the decline of privateering occurred after 1783, there is little evidence to suggest that the prohibition accounts for this change in privateering behavior. Likewise, if the prohibition of ransoming did indeed have a direct negative impact on the profitability and scale of privateering, then it should already be reflected in the behavior of privateers during the 1775-83 war. But in fact, our evidence shows that more British commissions were issued and more privateering vessels were launched during the American Revolutionary War than in any other war within the 1689-1815 period.

[13] We pulled all available volumes of the HCA 25 and 26 series, and selected every tenth entry within each volume. The procedure yields a ten percent random sample of all issued commissions.

that form our primary data base. The declarations specify the ship owner(s), the captain in charge, the ship name as well as detailed characteristics of the ship including the home port, tonnage, crew size and number and types of guns on board. We also know the exact date when each letter of marque was issued as well as the number of months the privateer was victualled for. As a commission is a legal document, it does not necessarily imply that a privateering ship actually left port to capture prizes. The letters of marque thus provide an upper bound on the scale of British privateering activity.[14]

Our second data set is a census of all surviving prize ship records in the Court of Admiralty between 1689 and 1815 (PRO HCA 34). These prize sentence data contain the name of the captured ship and its master, the port the prize was taken to, and the date of the court sentence. We also know the name of the captor ship, its home port, and the name of the captain. Because the names of the captor ship and its captain are known, we can merge the prize ship information to our sample of British privateers.[15]

Our data from the letter of marque declarations and prize accounts do not distinguish consistently between "Private Ships of War" and "Ships employed in Trade". In a given bound volume of letter of marque declarations, such detailed labeling appears only in the very first letter of marque and is absent in subsequent declarations. Volumes of declarations recorded in the early nineteenth century often identify letter of marque ships, but do not offer the same detail for genuine private ships of war. The opposite is the case in several volumes of the second half of the eighteenth century. Consequently, we cannot unambiguously classify declared vessels into private men-of-war

[14] Likewise, owners had to apply for a new commission whenever the captain or owner of a ship changed. However, the actual number of trips undertaken can be over- or underestimated since privateers might have undertaken multiple trips using the same commission.

[15] The records on prize accounts contain two potential sources of inconsistencies: prior to 1777, only the sentences of common condemnation are collected. After 1777, the records also include interlocutory decrees and final sentences of disputed claims. We followed Starkey (1990a) and eliminated interlocutory decrees from out data. The second inconsistency is that prizes brought to and condemned in the colonial Vice Admiralty Courts are, with few exceptions, not contained in the PRO, HCA 34 series. This omission may lead us to underestimate the actual number of prizes caught by British-based privateers. However, Vice Admiralty Courts operated throughout our period. If anything, the most serious omissions pertain to the American Revolutionary War, precisely the one period when privateering was most popular anyway (table 2). It is thus unlikely that the omission of cases adjudicated at the Vice Admiralty Courts is primarily responsible for the decline in prizes caught by British privateers at the end of the eighteenth century that we document below.

or letter of marque ships. We will return to this question in our empirical analysis below.

The prize sentence data we collected do not contain values of prizes. But with our third data set we are able to add further information on the gross values of seized prize ships and their cargo from a variety of primary and secondary sources (see table A.1).[16] The set of prize values ($N = 1,080$) we collected spans the whole time period from 1689 to 1815. As prize values were not systematically recorded in the Court of Admiralty, our data are likely not a representative sample of the values of prizes caught by British privateers. We therefore need to interpret them with the necessary caution. It is, however, reassuring that the time pattern of prize values in our data matches the time pattern of prize values observed by others for Channel Islands' (Bromley 1987; Hill 1999; Jamieson 1986; Meyer 1981; Meyer 1983) and colonial privateers (Lydon 1970; Swanson 1991). Note also that we cannot merge the prize values to our sample of individual privateering ships because the captor ships cannot be unambiguously identified in the prize value records. Instead, we use averages in each war to assess the evolution of revenues from privateering.[17]

We complement these unique archival data with information compiled from multiple secondary sources listed in table A.1. An alternative measure of potential proceeds from privateering considers the volume of French trade, Britain's main adversary. We compiled time series of total French imports and exports from Chabert (1945), Jeulin (1929), Mitchell (2003), Romano (1957) and Tarrade (1972) and converted them to Pounds Sterling using exchange rates reported in McCusker (1978) and Schneider et al. (1991).

To measure the opportunity costs of private men-of-war, we assembled several measures of

[16] Specifically, HCA 4 and HCA 30 contain appraisements of prize ships and their cargo. We also coded data from the prize papers in HCA 45 and HCA 42, which contain values of prize ships and their cargo from prize appeals. Owners of captured ships and cargo could file appeals to have their property returned to them if it was unlawfully seized. Finally, we added information from accounts of sales for ship and cargo from HCA 49, C 104, C 114 and additional secondary sources (see our online data appendix for details).

[17] Our prize data provide rich information on the substantial revenues of commerce raiding. They do not necessarily inform us about the profitability of prize taking. Unfortunately, information on the costs of privateering voyages are difficult to obtain. The most important cost components were the fixed costs for outfitting the ship and for victuals (plus wage costs on a letter of marque ship). In addition, owners of letter of marque ships had to pay for port charges, insurance and other small expenses (Davis 1962). The existing evidence suggests that costs were quite similar for privateering and merchant ships. Our rough calculation of variable costs (wages and victualling costs for a typical voyage length taken from Davis 1962), shows that revenues from privateering exceeded its costs in all wars.

legal trade opportunities. We use annual time series of total British imports, exports and re-exports (official values) for the period from 1700 to 1815 in Mitchell (1976). An alternative trade measure is the number of slave voyages by ships registered in Britain from Eltis et al. (2008). For Bristol, we use data provided in Morgan (1993). These data include the number of slave ships clearing for Africa from Bristol (1699-1807), the value of trade in slaves and sugar (1728-1800), and the value of tobacco imported to Bristol (1722-1791). To analyze the decision problem of privateers we would ideally like to compare the monetary returns of privateering cruises directly with profits from regular trade ventures for individual merchants. In the absence of comprehensive information for individual merchants, we compare average expected revenues from privateering to revenues and profits in the slave trade (Anstey 1975; Rawley and Behrendt 2005) and the sugar trade (Richardson 1987; Ward 1978). We supplement our sample of British privateers with data from the port of Bristol. For most of our period of interest, Bristol was the prime slave trading port and second only to London in its overall significance for British overseas trade (Eltis et al. 2008; Morgan 1993). For privateering ventures, we coded the complete list of individual Bristolian privateers who were active between 1699 and 1812 from Powell (1930). We merged this information to data on trading activities of Bristol merchants described in more detail below. Like the broader British sample, the Bristol data contain detailed characteristics of the privateering ship, the names of its owner(s) and captain, and the date the commission was issued. For each privateering ship, we also know the number of prize ships taken and the date of capture.

Finally, to assess the risks involved in merchant trade and privateering, we also control for the strength of naval forces of Britain and its main rivals, France, Spain and the Netherlands. For that purpose, we coded the number and total tonnage of ships in their navy service between 1689 and 1815 from Glete (1993).

Table 1 presents summary statistics for the variables used in the empirical analysis. We collapsed our data on trade activities and navy forces into annual observations. Also, we aggregated individual commissions and characteristics from our broader British sample of privateers into

annual observations. In contrast, the information on Bristol privateers is for the individual ship or voyage in a given year.

3.2 Popularity and Effectiveness of Privateering

The scale of privateering during the late seventeenth and eighteenth century wars was immense. In the recurrent conflicts between the two major powers, Britain and France, the British admiralty issued about 25,000 letters of marque between 1689 and 1815 (PRO HCA 26), while French privateers captured over 7,000 British merchant ships in 1702-12 alone (Bromley 1987). Economic and social historians have long noted the scale and popularity of privateering enterprise in the long eighteenth century (Bromley 1987; Crowhurst 1977, 1989; Lydon 1970; Meyer 1981, 1983, 1986; Starkey 1990a; Swanson 1991). The evidence from our longitudinal and quantitative data lends further support to this observation. The first two columns in table 2 document the scale of privateering in Britain at large. Columns 1 and 2 list the number of privateering commissions issued and number of vessels engaged in privateering. Column 3 reports the number of privateering vessels relative to the number of ships in the merchant marine. Columns 4 and 5 present a local view of privateering, showing the same measures for the exemplary port of Bristol, which was second only to London with respect to its privateering activity. The results document that privateering was indeed a popular business enterprise among British merchants during periods of war. Across all wars, the number of Bristol privateers accounted for an average of 15 percent of all overseas trade ships entering Bristol during periods of war. However, columns 3 and 5 also show that the popularity of privateering relative to trade declined remarkably after the American Revolutionary War, 1775-83.

The findings in table 2 do not tell us whether privateering was also effective in disrupting the enemy's inflow of resources on a national scale, as desired by mercantilist policies (Mokyr 2009; Swanson 1991). For much of our period of interest, France was Britain's main opponent. Table 3 therefore provides selected data on the volume of French overseas trade during the series of

conflicts between 1689 and 1783. Because consistent French trade statistics for this period are notoriously difficult to obtain, the reported values should be treated as estimates (for sources, see notes to table 3).

In particular, for a comparison with the number of prizes seized by British privateers, reliable data on the total number of ships in the French merchant fleet are difficult to locate for all years. However, considerably reliable data are available for Nantes, which was a premier port of France's overseas commerce, especially for the Atlantic triangular trade in slaves, sugar, and tobacco (Meyer 1969; Price 1973). Using comparative French trade statistics for 1730, 1753, 1766, and 1776, we calculate that Nantes accounted for about 10 percent of the total of French overseas trade (Dardel 1963). The first column in table 3 shows the number of merchant vessels fitted out in the exemplary port of Nantes. Using our data on the number of prizes seized by British privateers (PRO HCA 34), column 2 in table 3 reports estimates of the fraction of all French merchant ships captured (again, calculated under the assumption that Nantes made up about 10 percent of the entire French overseas trade and launched a corresponding number of merchant ships). This fraction varied considerably over time. Yet, the results suggest that British privateers intercepted on average about 21 percent of all French merchant ships during periods of war.[18]

Given that a sizeable fraction of merchant vessels was caught, does this also translate into a large monetary loss of French revenues from trade? To address this question, we rely on estimates of the total value of prize goods (Schumpeter 1960). Column 3 reports the revenues from France's overall overseas trade during a selected number of conflicts for which sufficient data are available. Using the total value of British prize goods in each war period, column 4 presents estimates of the fraction of French trade in these periods that fell prey to British privateers. The results suggest

[18] Our interest here is not in the total volume of colonial goods reaching France in the eighteenth century. Our purpose is primarily to document how effective British privateers were in capturing that part of enemy shipping that was available to them as legal prey. French vessels that colonial traders held back in their ports to await safer opportunities did not sail, and thus were not potential prey for British privateers. However, enemy prizes that British privateers seized directly in their colonial ports are included in our prize sentence data. Likewise, French merchants certainly relied on clandestine trade using vessels under neutral flag. British privateers had to respect the rights of neutrals, unless they suspected them to carry enemy trade goods. Privateers were instructed to seize such neutral vessels, and their captures are also included in our prize sentence data.

that British privateers intercepted on average nine percent of French overseas trade during the wars of 1744-48, 1756-63, and 1778-1783. The overall conclusion, then, is that British privateering was indeed effective and substantially reduced trade on French merchant vessels, and therefore taxable income for the French government to finance wars.

4 Empirical Results

4.1 What determined the Scope of British Privateering?

We now show that economic considerations were important determinants of the scale and scope of privateering. Recall that the majority of investors in privateering ventures were merchants who engaged in diverse trades during peace. In case of a military conflict, a merchant had to decide whether to continue his regular trade, to abandon trade in favor of sponsoring private ships of war, or to combine trading and privateering by fitting out a letter of marque vessel.

As it is difficult to distinguish private men-of-war and letter of marque vessels in the data, we will analyze the overall scope of privateering ventures for now. Irrespective of the specific type of commerce raiding, their incentives would have increased when more potential prizes were at sea. A priori, it is less clear how those who were active in privateering responded to opportunities in regular trade. Better trading opportunities during war should have discouraged the outfitting of private men-of-war, but might have encouraged the sponsoring of letter of marque ships. However, more trade opportunities also imposed costs on letter of marque ships: they carried more guns than regular trade ships, and therefore could carry less cargo. Likewise, commerce raiding prolonged the duration of voyages and increased the risk of losing the ship (and its cargo) in an encounter with enemy forces. Finally, letter of marque ships were more heavily manned and incurred higher labor costs than regular trade ships. Consequently, growing opportunities for regular trade increased the opportunity costs for letter of marque ships, and therefore contributed to an overall decrease in privateering activity.

To test our argument empirically, table 4 reports to what extent privateering in Bristol (1699-1815) and Britain at large (1689-1815) related to economic incentives and the strength of naval forces in Britain and elsewhere. The dependent variable is the number of privateering vessels in each year of war. We expect the scale of privateering to increase with the proceeds from commerce raiding and to decrease with its opportunity costs. We expect the size of navies to be negatively correlated with privateering because the Royal Navy competed with privateers for prizes and enemy navies should have deterred British privateering. To measure the potential gains from privateering, we use the volume of French trade, the number of slave voyages originating from France and the average prize value in a given year. The opportunity costs of privateering are measured by the total value of British trade or, alternatively, by the number of slave voyages undertaken by ships registered in Britain. The strength of naval forces is measured by the total number of vessels in the service of the Royal Navy and the navies of Britain's main adversaries (France, Spain and the Dutch Republic).

All specifications include a linear and quadratic time trend to adjust for changes in world trade and the naval balance between the major powers. We also add the fraction of a year that Britain was at war to control for the intensity of conflict. To address serial correlation in the dependent variable we include a lagged dependent variable. The last row in table 4 shows the Durbin-Watson statistic for autocorrelation. In each specification, the test statistic has a value close to two, indicating the absence of residual autocorrelation.

Our results confirm that the scale of privateering increased with the volume of French trade and declined with British trade during war. The latter result indicates that merchant trade was a substitute activity for British privateers (and vice-versa). This pattern is evident for private men-of-war who engaged in commerce raiding but not in trade. However, it also suggests that letter of marque ships faced opportunity costs of regular trade (although they were probably lower than for private ships of war). The results further show that a larger Royal Navy reduced privateering activity: each additional Royal Navy ship reduced the number of privateering vessels

by about 0.25. In contrast, the naval strength of Britain's main adversaries (France, Spain and the Netherlands) had apparently little deterrence effect on British privateers.

That privateering is systematically related to economic opportunities also emerges from our data on Bristol privateering (columns 4 to 6 in table 4). Here, our measure of opportunity costs is the number of slave ships leaving Bristol for Africa. For the potential benefits from privateering, we use France's total trade volume, the number of slave voyages from France and the average value of prizes captured.[19] We find the same pattern for Bristol as for Britain at large: privateering activity increased with its expected revenues and declined with regular trade opportunities. To evaluate the magnitude of these effects, consider the specification for British privateers in column 3. An increase in British trade by one standard deviation would have decreased privateering by 17.5 licenses or 47 percent per year.[20] Hence, opportunity costs had a substantial effect on the scope of privateering and once again illustrate the role business interests played for commerce raiding.

An alternative margin to evaluate privateering is to consider its outcome directly, i.e. the number of prize ships reported in the Admiralty Court records.[21] The advantage of this measure is that it captures the extent to which the observable success of some privateers created an important incentive for other merchants to undertake privateering ventures as well. Consequently, the regressions in table 5 use the number of prizes seized by British and Bristol privateers as the dependent variable. In addition to the controls used in table 4, we also include the ship's tonnage, number of guns and crew size. Again, the estimates include a lagged dependent variable to account for serial correlation.

As before, the volume of French trade had a strong and significant positive effect on the

[19] We include our trade variables separately rather than jointly in the regression because they cover different time periods. Further, the estimates for Bristol privateers are weighted by the number of ships with a license in a given year.

[20] The standard deviation in British trade is 38.4 (in 1,000 Pounds Sterling). Hence, the effect is 0.455*38.4 = 17.47 . The average number of privateering licenses during wars was 37.23. Hence, 17.47/37.23 = 0.469.

[21] Alternatively, one could estimate the probability of success (number of prizes divided by the number of letters of marque issued). We do not use this dependent variable because letters of marque and prize declarations for the same privateer were rarely recorded in the same year.

success of privateering. Better trade opportunities for British merchants during war had a negative effect on the number of prizes taken. Variation in ship tonnage, weaponry or crew size was not systematically related to the success of privateering ventures. A larger Royal Navy reduced the number of prizes seized by Bristol privateers, reflecting their ongoing competition for prizes.

4.2 Decline of Privateering in Britain

Despite its popularity, privateering activity in Britain declined at the end of the eighteenth century. The absolute numbers of privateering commissions and vessels reported in table 2 (columns 1 and 2) document that privateering in Britain became less popular in the French Revolutionary and Napoleonic Wars (1793-1815) than during the American Revolutionary War (1775-83).[22] However, these absolute numbers do not take into account that the size of the British merchant fleet increased substantially during the eighteenth century. For example, 7,076 merchant ships were active in 1765; in 1803, this number had almost tripled to 18,068 (Usher 1928). Once we also consider the growing merchant fleet (column 3 in table 2), the decline in privateering over the course of the eighteenth century becomes even more pronounced: during the War of the Spanish Succession (1702-13), the number of privateers equaled 41 percent of the vessels in the merchant marine. The share decreased slightly to 36 percent during the American Revolutionary War (1775-83), but then dropped to 18 percent and eventually to just 9 percent during the French Revolutionary and Napoleonic Wars (1793-1815).

To illustrate the declining pattern, figure 1 plots the scale of privateering, locally for Bristol and for Britain at large. While we observe some fluctuation, the scale of privateering shows a clear downward trend for both Bristol and Britain in the long run, especially after the American

[22] The large number of commissions granted between 1793 and 1815 (column 1 in table 2) reflects in part the expanding number of Britain's opponents. Some were forced by Napoleon into the Continental Blockade, while others (Denmark and Norway) joined voluntarily after being attacked by the British. The 1812 war against the United States added American merchant ships to the targets of British privateers. Because each commission specified the enemy countries whose shipping could be legally seized by British privateers, a new commission was necessary every time the set of opponents changed. In contrast, the number of vessels (column 2 in table 2) does not suffer from such an inflation of commissions and clearly shows that privateering activity declined after the American Revolutionary War.

Revolutionary War. Hence, commerce raiding declined relative to the number of merchant ships that could potentially be fitted out as privateersmen. And particularly important, the decline in privateering was strongest after 1783.

The decline in privateering enterprise is also evident in our sample of individual merchants from Bristol. To compare the importance of privateering and trade activities, we assembled data on overseas trade investments of Bristol merchants. Specifically, we collected the names of Bristol's merchant elite and their revenues from trade in three key commodities: tobacco, sugar and slaves (Morgan 1993; Richardson 1985). After merging this information with our data on Bristol privateers, we have information on 111 members of Bristol's merchant elite engaged in regular commerce, privateering, or both activities (89 of the 111 elite Bristolians did both). We complemented these data with information on slave voyages sponsored by leading Bristol merchants. From the Trans-Atlantic slave trade database (Eltis et al. 2008) we extracted all slave voyages that departed from Bristol between 1698 and 1807. These data include the year of the voyage and a list of all owners and captains. We merged this information to our data on privateering using the names of slave ship owners. The resulting second dataset contains information on 505 Bristol investors in the slave trade, 42 percent of whom were also privateers.

The first data set covers a broader set of trade activities while the second includes the population of Bristol merchants engaged in the slave trade. Both sets contain the years when a merchant first and last engaged in trading activities as well as the first and last year he sponsored commerce raiding ventures. Using the sequencing of both activities, this information allows us to document whether privateering became less popular among Bristol merchants. The top rows of table 6 show that privateering was indeed a highly popular activity among the older generation of Bristol merchants. Eighty-three percent of the merchant elite and 44 percent of all slave traders who traded prior to 1780 (the height of the American Revolutionary War) took out letters of marque (row 2 in table 6). The percentages were substantially lower among later merchants who started their trading activities in or after 1780. Here, only 60 percent of the merchant elite and merely 28 per-

cent of all slave traders participated in privateering ventures (row 3). The decline is statistically significant in both cases.

If commerce raiding truly became less attractive then we should observe that Bristol merchants turned away from privateering toward regular trades. To consider this change, we first calculated the fraction of merchant privateers who ceased to apply for letters of marque but continued their regular trade activities. The results in table 6 (row 4) reveal that 67 percent of the merchant elite and almost 40 percent of slave traders in Bristol gave up privateering in favor of trade.[23] We further considered whether or not those who started out as privateers stopped taking out letters of marque and turned to any of the three trades instead. We find that between 55 and 70 percent of former privateers eventually specialized in trade (row 5). The reverse pattern, merchants who gave up regular trade in favor of privateering, was far less common (see row 6 in table 6).

4.3 Rising Opportunity Costs and Declining Revenues

What developments, then, may explain this decline of privateering in Britain? We argue that rising opportunity costs from trade, combined with a decrease in expected revenues from privateering, reduced incentives to engage in commerce raiding (for private man-of-war and letter of marque ships) and resulted in the observed decline at the end of the eighteenth century.

The eighteenth century, especially in its latter half, saw an unprecedented increase in international trade. By the beginning of the nineteenth century, Britain's international trade grew at an annual rate of three percent, three times faster than a century earlier (Deane and Cole 1969). This growth was largely driven by overseas expansion, especially the exchange of valuable goods with the colonies. The percentage of imports coming from overseas destinations (North America, the West Indies and Asia) into Britain grew substantially from 33.6 percent in 1700 to 58.5 percent in 1816 (Davis 1979).

British trade expansion could have reduced incentives for privateering only if it grew faster

[23] The evidence in table 6 suggests that privateering activities fell *relative* to merchant trade in Bristol. The decline can thus not be explained by the commercial demise of Bristol compared to, for example, Liverpool (Morgan 1993).

than the trade of states whose merchant ships were the primary targets for British privateers. If the commerce of Britain's adversaries expanded just as much, they would have provided more targets and possibly higher profits for privateers. While reliable trade statistics for countries other than Britain are difficult to obtain for the eighteenth century, the available evidence supports this conjecture. British trade did expand greatly not only in absolute value but also in comparison to France, Britain's main opponent in the eighteenth century.[24] Figure 2 traces the evolution of British trade over our sample period. The thick line documents that British trade (the sum of imports, exports and reexports) was growing continuously during the eighteenth century and rapidly so after the American Revolutionary War. The thinner line traces British trade relative to French trade over the same period. Between 1700 and 1784, Britain's trade share shows a long-term decline from 70 percent to 45 percent (see Crouzet [1966]1990 for a similar observation).[25] After 1783, the trend is completely reversed: Britain's trade share jumped to over 80 percent at the end of the century. Additional support that British trade expanded relative to France during the Revolutionary and Napoleonic Wars comes from evidence on trade disruption during these two conflicts: "What is particularly noticeable in the French case is the enormous decline in trade between the eve of the Revolution, 1787-9, and the first post-Revolutionary year for which we have data, 1797. Export volumes in the latter year were a mere 36 percent of their pre-Revolution level; import volumes had declined by 55 percent. This collapse was largely due to the collapse in trade with France's overseas colonies, particularly Santo Domingo" (O'Rourke 2006, p.127).[26]

To show further that incentives for regular trade increased relative to commerce raiding, we would ideally like to compare the profits from trade and privateering for individual merchants.

[24] A comparison to the available evidence on Spanish trade reveals virtually the same pattern as for the British-French comparison, namely a clear decline of the Spanish trade share and a corresponding rise of the British share after the American Revolutionary War.

[25] French trade peaked around 1760 and declined after the Seven Years' War when France lost most of its American and East Indian colonies.

[26] We find corroborating evidence that the disruption of British trade was lower during conflicts in the late eighteenth century than in earlier wars. British trade actually expanded during the French Revolutionary War relative to the two years preceding the conflict. With the onset of the Napoleonic War imports fell by about 10 percent and overall trade by 32 percent, yet this decline was still substantially less severe than the trade disruption caused by the American Revolutionary War. We find the same pattern if we focus on quantities of tradeable goods (sugar, coffee, tobacco and tea) that are particularly salient for the expected profits of British merchant venturers.

Absent sufficiently large numbers of such comprehensive business accounts, we relate average proceeds from overseas trades to revenues from privateering. Table 7 shows that revenues and profits in the slave and sugar trade rose continuously over the course of the eighteenth century. The only exception is the period just before the abolition of the slave trade in Britain in 1807 when profits from slave trading are somewhat lower than in previous years. Rising profits from trade (in table 7) coincided with declining revenues from privateering as seen in table 8. In line with our earlier observation that French trade fell dramatically, we find that the probability of catching a prize during a given war decreased sharply for British privateers from 1793 onward. The average probability, calculated as the total number of prizes divided by the total number of privateering commissions in a given war, fell from 73 percent in the 1702-13 war to less than 10 percent at the end of the eighteenth century (as table 8 reveals, the pattern is similar if we divide prizes by the number of privateering vessels). Likewise, the median value of prizes condemned in the Admiralty Court declined over the same period.[27] The expected revenue of a privateering commission declined from the peak of £4,924 during the Seven Years' War to just £237 during the Napoleonic War (all prize values are deflated using 1700 as the base year).

Does the decline in revenues also imply that commerce raiding became less profitable compared to regular trade? Commerce raiding would have remained profitable if the costs for undertaking privateering cruises did in fact decline, and even more so if they declined at a faster rate than the costs for fitting out merchant ships. The evidence on outfitting and running costs is scarce, but the existing data suggest that expenditures for hull, mast, sails and yards were quite similar for privateering and regular trade ships and were rising throughout the eighteenth century (see

[27] Ideally, we would calculate privateering revenues per year or per cruise, and compare these estimates to known revenues from regular trade per year or per voyage. Unfortunately, the quality of the available data has its limits: it is difficult to determine the number of actual cruises undertaken per year or with the same commission. Similarly, our prize values are unlikely to be a random sample of the universe of prize values adjudicated in the Admiralty Court. Given these limits, the best we can do is to calculate the average probability of capturing a prize and then relate it to the median value of a prize (conditional on a capture). The lack of information on actual cruises undertaken undermines our inferences only if the number of cruises per commission declined systematically over time. Similarly, our potentially nonrandom sample of prize values undermines our inferences only if it led us to systematically sample smaller prize values in the later period. In both scenarios, we would underestimate the average revenues from privateering at the end of the eighteenth century. To the best our knowledge, there is no evidence for such a systematic shift in the number of cruises per commission or the value of prizes over time.

Bromley 1987; Lydon 1970; Powell 1930; Starkey 1990a and Williams [1897]2004 for privateering ships and Davis 1962; MacGregor 1985; Shepherd and McGregor 1972 for trade ships).[28] Victualling costs for seamen were also rising by 60 percent between 1720 and 1775 alone (Shepherd and Walton 1972, pp.70), and then again after 1800 (Ville 1984). On letter of marque ships, wages for seamen more than doubled (from 62s to 133s per month and man) between the Seven Years' War and the French Revolutionary and Napoleonic Wars (Davis 1962). Although crew sizes fell in the first half of the eighteenth century (on both trade and privateering ships), we find little change in the number of seamen on board of privateers in Britain and Bristol after 1750 (Shepherd and Walton 1972 for trade ships; PRO, HCA 26 for privateering ships). Hence, the data suggest that both outfitting costs for the vessel and labor costs for privateering voyages were actually rising at the end of the eighteenth century and in the early nineteenth century.

Further, the costs of undertaking privateering voyages would have to decline faster than the costs of organizing merchant trade to reverse our conclusion that revenues from commerce raiding declined relative to trade revenues. However, the available evidence suggests that the fixed costs for the ship (outfitting, repair and insurance) and the variable costs per man (wages and victualling) were comparable for regular trade and privateering ships (see the references in the previous paragraph). To the extent that costs have risen and at roughly similar rates for both regular trade and privateering, a decline in privateering revenues relative to trade revenues also implies a decline in the profitability of privateers relative to merchant trade.

4.4 Trade and Private-Men-of-War versus Letter of Marque Ships

Increasing overseas trade did not affect all types of privateering ventures in the same way. Growing trade opportunities clearly reduced incentives for merchants who fitted out private ships-of-war, whose primary source of revenue was prize-taking. But this development might have affected letter

[28] While insurance rates were falling, they made up only a small fraction of the overall costs incurred in organizing overseas trade voyages (Shepherd and Walton 1972 on colonial shipping; Ward 1978 on sugar trade in the British West Indies).

of marque ships somewhat less because their sponsors and crew were attracted to both trade and prize-taking. Consequently, rising trade opportunities may have been responsible for the demise of private men-of-war, but they did not necessarily imply a similar decline of letter of marque ships.

Ideally, we would like to trace the relative importance of private men-of-war among all British privateering vessels over our time period. Unfortunately, as mentioned in our data section, we cannot unambiguously identify letter of marque ships and private men-of-war in the original letter of marque declarations (PRO, HCA 25 and 26). Starkey (1990a), however, outlined an approach to distinguish between types of privateering vessels based on their tonnage and crew size. The first type refers to local private men-of-war that were typically small because they operated mostly in the Channel to capture French coastal traders or ships returning from overseas voyages. Starkey subsumes all vessels under 100 tons and with a ton-per-man ratio of 2.5 or less under these local privateers. The second type consists of larger vessels that sailed overseas in search for prey. These deepwater private men-of-war are identified as vessels of 100 tons and above, and manned with a ton-per-man ratio of 2.5 or less, or, alternatively, as vessels with a crew size of 100 or more, but excluding all vessels operated by the East India Company (see Starkey, 1990a, page 294).

The classification certainly has limitations, but it provides a consistent method to distinguish private men-of-war from letter of marque ships. In what follows, we thus use Starkey's approach to identify private men-of-war and classify all remaining vessels listed in our commission data (PRO, HCA 25 and 26) as letter of marque ships. Table 9 shows the number of private men-war over subsequent wars and their relative importance in the privateering fleet (see Starkey 1990c).

We find a strong decline in private men-of-war compared to the total number of privateering vessels at the end of the eighteenth century. Whereas private men-of-war made up 30 percent of the privateering fleet in the American Revolutionary War, their share declined to 12 percent in the French Revolutionary War and to 9.7 percent in the Napoleonic War (table 9, column 2).[29]

[29] Similarly, Buel (1998, pp. 104, 321) notes that American merchants shifted their investments from private ships of war to letter-of-marque ships by 1779. One reason was that such a dual mission increased returns for both crew and merchants; another that it reduced the costs of manning and insurance compared to mere merchantmen. For our purposes, Buel's results are limited as he considers only American colonial privateers during a short three-year

One may suspect that the predominance of armed merchant ships carrying letters of marque over genuine private ships-of-war toward the end of the eighteenth century may be evidence against our inference that relative trade opportunities brought about the demise of privateering. However, the faster decline of private men-of-war ships relative to letter of marque ships does indicate an increasing preference for trade – which supports precisely our argument that increasing trade opportunities changed the decision-making of privateering merchants.

The second important pattern emerging from table 9 is that the share of letter of marque ships also declined substantially toward the end of the eighteenth century (table 9, column 4; see table 2, column 3).[30] Whereas 28 percent of all merchant vessels took out a letter of marque for commerce raiding during the American Revolutionary War, that share declined to 16 percent during the French Revolutionary War and further to 8 percent during the Napoleonic War.

This declining pattern for letter of marque ships is consistent with our argument that opportunity costs of commerce raiding rose even for letter of marque ships. One important factor was the time cost of commerce raiding. The search for potential prizes prolonged the voyage time of letter of marque ships relative to specialized trade ships. Longer trip duration in turn increased the ship's running costs (e.g. for insurance) and possibly forego revenues from an additional voyage. An even more important component were manning costs, which made up more than one-third of the total costs (Davis 1962). Privateers carried a substantially larger crew than trade ships in order to board a potential prize ship and steer it the privateer's home port. Since seamen's wages and victualling costs grew substantially over the course of the eighteenth century (see our previous section), costs for manning a letter of marque ship increased as well. Hence, rising manning costs together with declining proceeds from commerce raiding would have also decreased incentives to take out a letter of marque for regular trading voyages. One reason to still obtain a letter of marque was that such commissioned vessels were exempt from sailing in convoys during

period (June 1777 – April 1780).

[30] We calculate the percent of letter of marque ships by dividing the number of letter of marque ships (=total privateering vessels - private men-of-war vessels) by the number of merchant vessels net of private men-of-war vessels (multiplied by 100).

the Napoleonic War, which may have given them a substantial market advantage over competitors that specialized in trade.

Overall, our evidence shows that there is a strong association between the rising attractiveness of trade and the documented decline in privateering activities after 1783. Do the expansion of trade opportunities and the declining proceeds from prize taking account for the observed reduction in British privateering at the end of the eighteenth century? In our data, the number of privateering vessels per war declined from 80 vessels between 1760 and 1783 to 40 vessels between 1784 and 1815. Using the regression results in table 4 (column 1), the decrease in French trade and the increase in British trade over this same period together account for 54 percent of the actual decline in privateering ventures in Britain after 1783.[31]

5 Alternative Explanations

5.1 Trade Protection and Productivity

Our central argument is that opportunities in trade expanded prior to the decline in British privateering. The rapid growth in valuable overseas trade (see figure 2) clearly precedes the decline in privateering which occurred only after the American Revolutionary War (see figure 1).[32] Similarly, the rapid expansion of British trade relative to its main adversary France had already begun at the end of the American Revolutionary War when British privateers were still very active in commerce raiding. Our argument thus seems to contradict North (1968) and Shepherd and Walton (1972) who pointed to the reduction in piracy and privateering as an important source of productivity growth in Britain's shipping industry during the eighteenth century. Specifically, they argue that the seas were freed of piracy and privateers in the first half of the eighteenth century.

[31] The increase in British trade in turn accounts for 34 percent of this decline. Britain's trade increased between 1783 and 1815 from 24.57 to 99.53 (measured as the sum of imports and exports in 1,000 tons). Hence, -0.455*(99.53-24.57)= 0.341. Similarly, French trade account for 19.5 percent of this decline (2.026*(18.35-27.96) = 0.195).

[32] The value of imports from overseas destinations (e.g. tea, coffee, tobacco and sugar) accounted for more than 50 percent of all trade for the first time in 1772/73 (Deane and Cole 1969; Davis 1979).

Shepherd and Walton (1972) provide evidence that coastal trade routes in colonial America, for example, were secured by naval forces around 1740. In their view, better trade protection was the prime reason for the productivity growth in the shipping industry they observed for the first half of the eighteenth century.

A closer look however reveals that the two stories complement rather than contradict each other. First, North, Shepherd and Walton focus on the external threats of pirates and enemy privateers to British merchant trade. We, in contrast, focus on the incentives for British merchants to sponsor their own privateering cruises against Britain's enemies. Second, the two arguments also differ in their timing of events. Whereas North, Shepherd and Walton study the role of trade protection for shipping productivity before 1750, we focus on trade expansion after about 1780 and its effect on British privateering thereafter.

In fact, more secure trade routes as highlighted by North, Shepherd and Walton might have been one factor for the trade expansion we observe after 1780.[33] However, we argue that trade protection along some overseas routes was not yet fully effective by 1750 (see also Menard 1991). Even after 1750, British slave ships, for example, still faced a nine percent higher probability of being captured or sunk through enemy action during periods of war (when privateers were preying for prizes) than during periods of peace (Eltis et al. 2008). This result seems less surprising if we take into account that the slave trade was particularly vulnerable to pirates and privateers in the West Indies and the coast of Africa.

Table 10 provides further support for our argument that only after 1750 did trade protection fully improve. The table considers whether or not the Royal Navy was associated with a lower risk of capture for British slave ships. The dependent variable is the number of British slave ships that were taken or sunk by enemy action during three periods: 1689-1748, 1749-1783 and 1784-1815. The reported coefficients are marginal effects from a probit model. The first three columns show

[33]Identifying the causes of Britain's trade expansion, which triggered the decline in privateering, is beyond the scope of this paper. Several other explanations have been proposed ranging from rising internal demand in Britain (O'Rourke and Williamson 2002) and the Atlantic colonies (Davis 1969) to declining import prices because of better market organization in Britain and the colonies (Menard 1991).

that the Royal Navy did indeed become more effective over time in protecting British slave ships from being taken by the enemy. While there is no relationship between the size of the Royal Navy and the probability of being captured before 1749, the relationship is significantly negative after 1749 and especially after 1784. The estimates suggest that an increase in navy size by ten ships (one-fifth of a standard deviation) reduced the probability of being caught by 6.3 percent in the period 1784-1815.

Certainly, the correlation between risk of capture and navy size could be an artifact of other developments correlated with navy growth. However, columns 4 to 6 show that ship losses due to natural hazards (e.g. storms), and thus due to events not systematically related to enemy raids, were unrelated to the size of the Royal Navy in all three periods. This test suggests that it was indeed the strength of the Royal Navy that made Britain's slave trade more secure after 1784. A lower risk of capture reduced the expected costs for slave traders and hence increased their profitability, yet, pace North, Shepherd and Walton, it did so well after 1750. We also find evidence that British ships engaged in the slave trade or owned by the East India Company still carried guns after 1750. That ships were still equipped with guns indicates that trade routes were either not entirely secure, or that these same merchant ships were employed as letter of marque vessels during periods of conflict. While guns and guns-per-man declined prior to 1750 (in line with North, Shepherd and Walton), both indicators also continue to fall in the second half of the eighteenth century (results are available upon request). Hence, a reduction of piracy and privateering as identified by North, Shepherd and Walton is one plausible mechanism why trade expanded and reduced incentives to engage in commerce raiding. In our view, however, this process was not complete by 1750 and continued well until the end of the eighteenth century.

5.2 Competition with the Royal Navy

Other factors beyond increasing trade opportunities may have contributed to the decline of privateering. One particularly important alternative cause may have been the competition between

privateering merchants and the Royal Navy. Here the counter-argument suggests that the decline of privateering was a result of political pressures imposed by the navy interest in order to curb this competition. These political pressures, so the counter-argument continues, limited privateering enterprise to such an extent that it lost its profitability, and consequently its attraction for the merchantry (Pares 1938, pp. 33-42; Starkey 1990a, pp. 259-65).

However, there seems to be little conclusive evidence that lobbying by the naval interest gained enough support from the political authorities to have a direct negative impact on privateering (Baugh 1965). Politics certainly mattered in the competition with privateers. Yet, the more important challenge to our argument is that it was not growing trade opportunities that led to the decline of privateering, but rather the improved effectiveness and professionalization of the Royal Navy that crowded privateers out of the market (Harding 1999; Rodger 2004a).

We first turn to the competition for able seamen. Solving the manning problem was a perennial issue for the Royal Navy (Baugh 1965; Bromley 1974; Pares 1937; Rodger 1986). The continued reliance on press gangs alone attests the difficulty the Royal Navy often had in recruiting adequate crew numbers for their ships. Competition by privateers that lured seamen away with promises of lucrative prize cruises certainly did not help.[34] For instance, Starkey (1990a, p.262) notes that, in the years of war 1744, 1757, and 1781, between 11 and 14 percent of the maritime workforce was employed on privateering vessels. One important reason for the absorption of seamen was that service on privateering ships was often more attractive than on navy men-of-war: the duration and destination of a privateering cruise were fixed; its sailors were free to leave upon its completion; and, depending on the size of the privateer's crew and the value of their prey, shares of prizes could be much greater than those one could expect on naval ships (Pares 1937; 1938, pp. 39-40; Benjamin 2009).

[34]Rodger (1986, pp.128-30) suggests that promises of glittering prizes rarely matched the actual experience of privateersmen. He argues that seamen were considerably better off on the Navy's warships than on privateers once wages and costs for victuals and medical treatment are considered. However, if Rodger is correct, and service in the Navy was indeed preferable to privateering cruises, then there is little ground for the counter-argument that the decline of privateering was an outcome of the Navy interest's efforts to eliminate competitors for able seamen.

That privateers drained manpower from the Royal Navy therefore cannot be denied.[35] Thus, the critical question for our argument is: did the demand for seamen become so severe toward the end of the eighteenth century that it led the Royal Navy to curb the recruitment of seamen by privateers to such an extent that it accounts for the observed decline in privateering relative to trade opportunities. To address this question, table 11 compares levels of seamen enlisted in the Royal Navy with those employed on merchant and privateering vessels over successive periods of war between 1739 and 1815.

Information on manning in the Royal Navy comes from the 1859 Hardwicke Commission as listed in Rodger (2004a, pp. 636-39). The data series include annual numbers of officers and men in the naval service that were entered on a ship's books. We estimate the corresponding number of seamen in the merchant fleet from the seamen's sixpences as documented by Davis (1956) and Starkey (1990b). A royal act of 1696 required every seaman employed in the coasting trade, long-distance fisheries, and foreign trades to contribute sixpence per month of his wage to support the Greenwich Hospital for disabled seamen. The sixpence accounts can thus be read as annual records of employment in the merchant marine (Davis demonstrates that seamen generally did not evade these contributions). The reason we begin our comparison with the War of the Austrian Succession and not earlier is that privateering crews were exempt from payment before 1746 (Davis 1956, p.329). The number of seamen employed in the merchant fleet as calculated from sixpence accounts also contains the number of seamen employed on private men-of-war (and not just genuine merchantmen and letter of marque vessels), whose primary goal was commerce raiding and not regular trade. To separate manning levels in trade from employment in commerce raiding, we use Starkey's definition of private men-of-war (see our earlier discussion above).

Table 11 shows two noteworthy patterns in manning levels. If the navy's manning problem

[35] Some historians have instead suggested that privateers helped to expand the labor market for seamen by mobilizing and training landsmen for maritime service (Harding 1999, p.141). The instructions to privateers issued by the Admiralty during the Seven Years' War required "that one third of the whole company of every such Ship or Vessel ... shall be Landsmen" (PRO HCA 26/27, article 12). Of course, one could also interpret this regulation as an attempt to relieve the navy from facing competition for able seamen.

was indeed responsible for the decline of privateering then we should observe that the manning requirement of the Royal Navy relative to the merchant fleet (including and excluding private men-of-war) increased substantially during the 1793-1815 wars, compared to earlier conflicts.[36] This was not the case. Certainly, the number of seamen enlisted in the Royal Navy increased more than threefold, from 425,825 men in the 1739-48 period to 1,606,611 in 1803-1815 (column 1). But so did the number of merchant and privateering seamen: from 255,792 to 1,429,951 men between the same two periods (column 3). Most important, the ratio of average navy over average merchant and privateering crew numbers did not rise systematically over time. It did indeed grow from 1.90 in 1739-48 to 2.12 in 1756-63 (column 8). But this was a peak in relative enlistment that was never reached again. The ratio fell to 1.71 during the American Revolutionary War (1775-83), then rose again to 1.96 during the French Revolutionary War (1793-1802), and finally became much more balanced again (1.12) during the Napoleonic War (1803-15).

The second pattern that emerges from table 11 is that overall employment in the merchant fleet grew, but plummeted for private ships of war that specialized in commerce raiding. For example, the number of seamen on private men-of-war fell from a monthly peak of 19,465 in the American Revolutionary War to 3,273 in the Napoleonic War (table 11, column 5). The decline of employment on private men-of-war is also evident in average employment levels (table 11, column 6). This pattern suggests that specialized commerce raiding became much less attractive relative to regular trade or voyages of letter of marque ships during the French Revolutionary and Napoleonic Wars (see also Section 4.4 above).

Hence, much of the evidence from both enlistment sources (the Hardwicke Commission and the Greenwich sixpences) indicates that the navy interest was not successful in curbing the recruitment of seamen by merchant ships and privateers. We do not find a systematic increase in

[36] One should be careful when interpreting these manning levels. We are not suggesting that the merchant fleet is the same as the privateering fleet. We are merely considering to what extent the navy's manning problem worsened compared to its competitors for able sailors. And these competitors included genuine merchantmen, but also letter of marque ships and private men-of-war. Further, our inferences presuppose that the number of seamen enlisted in the Royal Navy does in fact reflect its manning requirement. Unfortunately, it is notoriously difficult to measure proper levels of the actual need for seamen.

the Royal Navy's manning level *relative to* the competing merchant and privateering fleets that was substantial enough to account for the observed decline in privateering toward the end of the eighteenth century.

While the competition for seamen does not seem to explain the decline of privateering, it may still be possible that the professionalization of the Royal Navy in general was responsible for the observed decline. The argument that the Royal Navy crowded out privateers rests on the assumption that privateers and naval forces were substitutes for each other. Overlaps in the activities (e.g. prize-taking) of navy vessels and privateers certainly existed (Starkey 1990a, pp.259-65). But the historical record also suggests specialization. In contrast to navy men-of-war, privateers were poorly equipped for attacking enemy warships or even large Spanish register ships (joining forces as in the *Royal Family* privateering fleet seems to have been the exception). Likewise, as privateers preferred to operate individually in the pursuit of prizes, and as monitoring their actions was difficult, they were of limited use for commercial blockades or convoying trade ships, two of the central services performed by the navy (Pares 1938, pp.18-32).

Despite these caveats, is there any indication that the navy simply became better at performing the tasks of maritime warfare, and prize-taking in particular, compared to privateers (Harding 1999, pp.55-56)?[37] Two additional pieces of evidence speak against the interpretation that the growth and professionalization of the Royal Navy alone led to the demise of privateering. First, our results suggest that trade is a first-order determinant of privateering in Britain. The estimates in table 4 (column 1) provide a basis to compare the role of trade to the direct crowding out

[37]Unfortunately, the available data do not permit us to compare the number of prizes captured by the Royal Navy and privateers consistently over time. Two main sources for the number of prizes taken by British privateers between 1689 and 1815 exist: PRO, HCA 30 rests on lists prepared for the Customs Commissioners and PRO, HCA 34 entails the Admiralty Court prize sentences. The two series reveal very similar numbers and provide a consistent time series of prizes captured by privateersmen. However, we do not have similar data for the Royal Navy over the same period. Starkey (1990a) reports the number of prizes seized by the Royal Navy based on PRO, HCA 34, but only for the period 1702-1785. Further, Norman (1887) documented the number of French prizes taken by the Royal Navy and published in the London Gazette, a prominent outlet for official regulations and news at the time. Yet, Norman focused exclusively on prize action against France. Hill (1988) and Benjamin (2009) rely on the PRO, HCA 2/300 series to reconstruct the number of Navy prizes between 1793 and 1815. However, their source appears to include all prize actions of Royal Navy warships, including types of prizes (e.g. those condemned in colonial courts or captured warships) that are not consistently included in our HCA 34 records. Hence, the numbers from the PRO, HCA 2/300 series are likely to be larger than the corresponding numbers in the PRO, HCA 34 series.

by the Royal Navy. As discussed above, the rise in British trade and the decline in French trade together explain 54 percent of the decline in British privateering activity between 1783 and 1815. In comparison, the growth of the Royal Navy accounts for just 16 percent of the decline in privateering within the same period.[38]

Second, we find strong evidence that the level of activities (in table 9) and employment (in table 11) for private ships of war declined strongly, both in absolute terms and relative to letter of marque ships. Consequently, if the professionalization of the Royal Navy was indeed primarily responsible for the demise of privateering, then it remains puzzling why the Royal Navy successfully crowded out private men-of-war but not letter of marque ships as well. Instead, the declining employment share in specialized commerce raiding, together with employment growth in regular trade (see table 11) supports our argument: namely, that rising trade opportunities and declining proceeds from commerce raiding, and hence economic mechanisms made privateering in Britain less attractive. This reduction in incentives was especially salient for investors in private men-of-war cruises because they relinquished trade revenues in their quest for prizes.

6 Conclusion

To conclude, the historical evidence in support of the argument that a more professional navy substituted privateers over time is not conclusive. We certainly do not mean to suggest that advances in the technology, organization and financing of the Royal Navy did not happen (Rodger 2004a). For instance, it is well documented that the navy expanded its arsenal of smaller vessels after 1805. This development may well have dealt the final blow to privateering (Benjamin 2009). But our findings suggest that the important decline of privateering enterprise occurred before 1805, namely just after the American Revolutionary War. Our results further show that this decline was systematically related to a significant increase in overseas trading opportunities. The

[38] The number of ships in the Royal Navy grew from 278 to 338 vessels between 1783 and 1815. The estimate of the effect of Royal Navy growth on privateering activity in column 1 of table 4 is -0.244. Hence, -0.244*(338.3-278) = 0.158.

mechanism we stress in this article is that the expansion of British trade, both in absolute terms and relative to French trade (on Spain, see note 3 below), increased the opportunity costs for those who remained wedded to privateering and did not specialize in long-distance trades. The Royal Navy played its own critical part in this development because of its rising effectiveness in protecting overseas trade.

Some historians likewise question the argument that competition with the navy and the privateers' strategic ineffectiveness in maritime warfare were primarily responsible for their decline. For the government, it was not so much a question of how privateering could be contained, but rather how state navies and privateers could be combined into an effective attacking force (Harding 1999). The important general point here is that much has been made of the strategic military role of privateers for a state's sea power, while the existing evidence indicates that the mercantile classes who invested in privateering ventures did so primarily in pursuit of business interests. As Daniel Baugh (1965, p.15) put it, "war conceived as war for trade and profit is little more than a business enterprise." Our findings thus support the view that the decline of privateering had just as much to do with changes in the maritime economy and in the economic organization of merchant enterprises as with concerns of the state's sea power.

References

[1] Anderson, G.M., and A. Gifford (1991), "Privateering and the Private Production of Naval Power", *Cato Journal*, 11, 99-122.

[2] Andrews, Kenneth R. (1964), *Elizabethan Privateering. English Privateering During the Spanish War, 1585-1603*. Cambridge: Cambridge University Press.

[3] Anstey, Roger (1975), *The Atlantic Slave Trade and British Abolition, 1760-1810*. Atlantic Highlands, N.J.: Humanities Press.

[4] Baetens, R. (1978), "The Organization and Effects of Flemish Privateering in the Seventeenth Century," *Acta Historiae Neerlandicae,* 9, 48-75.

[5] Baugh, Daniel (1965), *British Naval Administration in the Age of Walpole*, Princeton, NJ: Princeton University Press.

[6] Benjamin, Daniel K. (2009), "Golden Harvest: The British Naval Prize System, 1793-1815." Mimeo, Department of Economics, Clemson University.

[7] Benjamin, Daniel K., and Dendy S. Macaulay (2001), "Private Warfare in the Age of Sail." Mimeo, Department of Economics, Clemson University.

[8] Boulle, Pierre (1974), "Patterns of French Colonial Trade and the Seven Years' War," *Histoire Sociale–Social History,* 7, 48-86.

[9] Bonney, Richard, ed. (1995), *Economic Systems and State Finance*, Oxford: Oxford University Press.

[10] Bonney, Richard, ed. (1999), *The Rise of the Fiscal State in Europe, c.1200-1815*, Oxford: Oxford University Press.

[11] Brewer, John (1988), *The Sinews of Power. War, Money, and the English State, 1688-1783.* Cambridge: Harvard University Press.

[12] Bromley, John S. (1974), *The Manning of the Royal Navy: Selected Public Pamphlets, 1693–1873.* Navy Records Society, London.

[13] Bromley, John S. (1987), *Corsairs and Navies, 1660-1760*, London: Hambledon Press.

[14] Bromley, John S., and A. N. Ryan (1971), "Armies and Navies: 3. Navies," Pp. 790-833 in The New Cambridge Modern History, Vol. VI: The Rise of Great Britain and Russia, 1688-1715/25, edited by Jean S. Bromley. Cambridge: Cambridge University Press.

[15] Bruijn, Jaap R. (1978), "Dutch Privateering during the Second and Third Anglo-Dutch Wars," *Acta Historiae Neerlandicae,* 11, 79-93.

[16] Buel, Richard (1998), *In Irons: Britain's Naval Supremacy and the American Revolutionary Economy.* New Haven: Yale University Press.

[17] Chabert, Albert (1945), "Essai sur le mouvement des prix en France de 1798 à 1820," Paris: Librairie des Médicis.

[18] Crouzet, François [1966](1990), "Angleterre et France au XVIII siècle: essai d'analyse comparée de deux croissances économiques," *Annales E.S.C.*, 21, 254-92.

[19] Crouzet, François (1996), "The Second Hundred Years War: Some Reflections," French History 10(4): 432-50.

[20] Crowhurst, Patrick (1977), *The Defense of British Trade, 1689-1815.* Folkerstone: Dawson & Sons.

[21] Crowhurst, Patrick (1989), *The French War on Trade: Privateering, 1793-1815.* Hants: Aldershot.

[22] Cuenca-Esteban, J. (2008), "Statistics of Spain's Colonial Trade, 1747-1820: New Estimates and Comparisons with Great Britain," *Revista de Historia Economica*, 26, 323-54.

[23] Dardel, Pierre (1963), *Navires et marchandises dans les ports de Rouen et du Havre au XVIIIe siècle*. Paris: S. E. V. P. E. N.

[24] Davis, Ralph (1957), "Seamen's Sixpences: An Index of Commercial Activity, 1697-1828," *Economica*, 23, 328-43.

[25] Davis, Ralph (1962), *The Rise of the English Shipping Industry*, London: MacMillan.

[26] Davis, Ralph (1969), "English Foreign Trade, 1700-1775," in: *The Growth of English Overseas Trade in the Seventeenth and Eighteenth Century*, edited by William E. Minchinton, London: Methuen & Co.

[27] Davis, Ralph (1979), *The Industrial Revolution and British Overseas Trade*. Leicester: Leicester University Press.

[28] Deane, Phyllis, and W.A. Cole (1969), *British Economic Growth, 1688-1959*. Cambridge: Cambridge University Press.

[29] Downing, Brian M. (1993), *Military Revolution and Political Change: Origins of Democracy and Autocracy in Early Modern Europe.* Princeton: Princeton University Press.

[30] Eltis, David, Stephen Berent, David Richardson and Herbert S. Klein (2008), *The Trans-Atlantic Slave Trade: A Database on CD-ROM*. Cambridge: Cambridge University Press.

[31] Erikson, Emily and Peter Bearman (2006), "Malfeasance and the Foundations for Global Trade: The Structure of English Trade in the East Indies 1601-1833," *American Journal of Sociology*, 112, 195-230.

[32] Farrington, Anthony (1999), *Catalogue of East India Company Ships' Journals and Logs, 1600–1834*. London: British Library.

[33] Glete, Jan (1993), *Navies and Nations: Warships, Navies and State Building in Europe and America, 1500-1860*. Stockholm: Almqvist and Wiksell International.

[34] Hancock, David (1995), *Citizens of the World: London Merchants and the Integration of the British Atlantic Community, 1735-1785*. Cambridge: Cambridge University Press.

[35] Harding, Richard (1999), *Seapower and Naval Warfare from 1650-1830*. London: UCL Press.

[36] Haudrère, Philippe (1989), *La Compagnie Française des Indes au XVIIIe siècle (1719-1795)*. Paris: Librairie de l'Inde.

[37] Hill, Richard (1999), *Prizes of War: Prize Law and the Royal Navy in the Napoleonic Wars 1793-1815*, London: Sutton.

[38] Jamieson, A.G. ed. (1986), *A People of the Sea: The Maritime History of the Channel Islands*, New York: Methuen.

[39] Jeulin, Paul (1929), *L'évolution du port de Nantes, organisation et trafic depuis les origines*. Paris: Les Presses universitaires de France.

[40] Kert, Faye Margaret (1997), *Prize and Prejudice: Privateering and Naval Prize in Atlantic Canada in the War of 1812*. Research in Maritime History, No. 11. St. John's, Newfoundland: International Maritime Economic History Association.

[41] Lespagnol, André (1990), *Messieurs de Saint-Malo. Une élite négociante au temps de Louis XIV*. Saint-Malo: Editions l'Ancre de Marine.

[42] Levy, Jack S., and Clifton T. Morgan (1994), *Great Powers War 1495-1815.* New Brunswick and Houston: Jack S. Levy and T. Clifton Morgan [producers], 1989. Ann Arbor: Inter-university Consortium for Political and Social Research [distributor].

[43] Lunsford, Virginia West (2005), *Piracy and Privateering the Golden Age Netherlands*. New York: Palgrave MacMillan.

[44] Lydon, James G. (1970), *Pirates, Privateers, and Profits*. Upper Saddle River, N.J.: Gregg Press.

[45] MacGregor, David (1985), "Merchant Sailing Ships 1775-1815, Sovereignty of Sail." Cambridge: Cambridge University Press.

[46] Marsden, R.G., ed. (1916), *Documents Relating to Law and Custom of the Sea, vol. II: A.D. 1649-1767.* Navy Records Society, vol. 50.

[47] Martens, Georg Friedrich de (1801), *An Essay on Privateers, Captures, and Particularly on Recaptures According to the Laws, Treaties, and Usages of the Maritime Powers of Europe. Trans. Thomas Hartwell Horne*. London: E. and R. Brooke etc.

[48] McCusker, John J. (1978), *Money and Exchange in Europe and America, 1600-1775: A Handbook*. Chapel Hill: University of North Carolina Press.

[49] Menard, Russell R. (1991), "Transport Costs and Long-Range Trade, 1300-1800: Was there a European 'Transport Revolution' in the Early Modern Era?" in: *The Political Economy of Merchant Empires*, edited by James Tracy, Cambridge: Cambridge University Press.

[50] Meyer, Jean (1969), *L'armement Nantais dans la deuxième moitié du XVIIIe siècle*. Paris: S.E.V.P.E.N.

[51] Meyer, William R. (1981): "English Privateering in the War of 1688-1697," *Mariner's Mirror*, 67, 259-72.

[52] Meyer, William R. (1983), "English Privateering in the War of Spanish Succession, 1703-1713," *Mariner's Mirror*, 69, 435-46.

[53] Meyer, William R. (1986), "The Channel Island Privateers, 1793-1815, in: *People of the Sea: the Maritime History of the Channel Islands*, edited by Alan G. Jamieson, London & New York: Methuen.

[54] Mitchell, Brian R. (1976), *Abstract of British Historical Statistics*. Cambridge: Cambridge University Press.

[55] Mitchell, Brian R. (2003), *International Historical Statistics: Europe, 1750-2000*. New York: Palgrave Macmillan.

[56] Mokyr, Joel (2009), *The Enlightened Economy: An Economic History of Britain, 1700-1850*. New Haven and London: Yale University Press.

[57] Morgan, Kenneth (1993), *Bristol and the Atlantic Trade in the Eighteenth Century*. Cambridge: Cambridge University Press.

[58] Norman, C. A. (1887), *The Corsairs of France*, London: Sampson Low, Marston, Searl and Rivingston.

[59] North, Douglass (1968), "Sources of Productivity Change in Ocean Shipping, 1600-1850," *Journal of Political Economy*, 76, 953-70.

[60] O'Rourke, Kevin H. (2006), "The Worldwide Economic Impact of the French Revolutionary and Napoleonic Wars, 1793-1815," *Journal of Global History*, 1, 123-149.

[61] O'Rourke, Kevin H. and Jeffrey G. Williamson (2002), "After Columbus: Explaining Europe's Overseas Trade Boom, 1500-1800," *Journal of Economic History*, 62, 417-456.

[62] Pares, Richard (1937), "The Manning of the Royal Navy in the West Indies 1702-63," Transactions of the Royal Historical Society 4th series, 20: 31-60.

[63] Pares, Richard (1938), *Colonial Blockade and Neutral Rights, 1739-1763*, Oxford: Clarendon Press.

[64] Powell, J. W. Damer (1930), *Bristol Privateers and Ships of War*. Bristol: J. W. Arrowsmith.

[65] Price, Jacob M (1973), *France and the Chesapeake: A History of the French Tobacco Monopoly, 1674-1791, and of its Relationship to the British and American Tobacco Trades. Vol. II*, Ann Arbor: University of Michigan Press.

[66] Public Record Office (PRO) HCA 25/ 203-207: High Court of Admiralty: Prize Court: Warrants, Bonds and Bails for Letters of Marque.

[67] Public Record Office (PRO) HCA 26/ 1-104: High Court of Admiralty: Prize Court: Registers of Declarations for Letters of Marque.

[68] Public Record Office (PRO) HCA 30/ 561-562, 774, 777, 779: High Court of Admiralty, and Supreme Court of Judicature, High Court of Justice, Probate, Divorce and Admiralty Division: Admiralty Miscellanea.

[69] Public Record Office (PRO) HCA 32/ 1834: High Court of Admiralty: Prize Court: Papers.

[70] Public Record Office (PRO) HCA 34/ 1-22, 30-57, 59, 61-65: High Court of Admiralty: Prize Court: Sentences and Interlocutories.

[71] Public Record Office (PRO) HCA 45/ 1-65: High Court of Appeals for Prizes: Case Books.

[72] Public Record Office (PRO) HCA 49/ 31(8): High Court of Admiralty: Vice-Admiralty Courts: Proceedings.

[73] Rawley, James A. and Stephen D. Behrendt (2005), *Transatlantic Slave Trade: A History*, University of Nebraska Press.

[74] Richardson, David (1985), *The Bristol Slave Traders: A Collective Portrait*, Bristol: Bristol Branch of the Historical Association.

[75] Richardson, David (1987), "The Slave Trade, Sugar, and British Economic Growth, 1748-1776," *Journal of Interdisciplinary History*, 17, 739-69.

[76] Rodger, N.A.M. (1986), *The Wooden World: An Anatomy of the Georgian Navy*. New York: W.W. Norton.

[77] Rodger, N.A.M. (2004a), *Command of the Ocean: A Naval History of Britain, 1649-1815*. New York: W.W. Norton.

[78] Rodger, N.A.M. (2004b), "Queen Elizabeth and the Myth of Sea-Power in English History," *Transactions of the Royal Historical Society*, 14, 153-74.

[79] Romano, Ruggiero (1957), "Documenti e prime considerazioni alla "Balance du commerce" della Francia dal 1716 al 1780," in: *Studi in onore di Armando Sapori*, Milan: Istituto Editoriale Cisalpino.

[80] Schneider, Jürgen, Oskar Schwarzer, and Friedrich Zellfelder (1991), *Währungen der Welt I. Europäische und nordamerikanische Devisenkurse, 1777-1914, Volume 2*. Stuttgart: F. Steiner.

[81] Schumpeter, Elizabeth B. (1960), *English Overseas Trade Statistics, 1697-1808*. Oxford: Clarendon Press.

[82] Shepherd, James F. and Gary Walton (1972), *Shipping, Maritime Trade and the Economic Development of Colonial North America*, Cambridge: Cambridge University Press.

[83] Stark, Francis R. [1897] (2002), *The Abolition of Privateering and the Declaration of Paris*, Honolulu: University Press of the Pacific.

[84] Starkey, David J. (1990a), *British Privateering Enterprise in the Eighteenth Century*. Exeter: University of Exeter Press.

[85] Starkey, David J. (1990b), "War and the Market for Seafarers in Britain," in: *Shipping and Trade 1750-1950: Essays in International Maritime Economic History*, edited by L.R. Fischer and H.W. Nordvik, Pontefract: Lofthouse Pulibations.

[86] Starkey, D. (1990c), "A Restless Spirit: British Privateering Enterprise, 1739-1815," in: *Pirates and Privateers*, edited by D.J. Starkey, E.S. van Eyck van Heslinga and J.A. de Moor, Exeter: University of Exeter Press.

[87] Starkey, David J., E.S. van Eyck van Heslinga, and J.A. de Moor, eds. (1997), *Pirates and Privateers: New Perspectives on the War on Trade in the Eighteenth and Nineteenth Centuries*. Exeter: University of Exeter Press.

[88] Swanson, Carl E. (1991), *Predators and Prizes: American Privateering and Imperial Warfare 1739-1748.* Columbia: University of South Carolina Press.

[89] Tarade, Jean (1972), *Le commerce colonial de la France à la fin de l'Ancien Régime.* Paris: P.U.F.

[90] Thomson, Janice E. (1994), *Mercenaries, Pirates, and Sovereigns: State-Building and Extraterritorial Violence in Early Modern Europe.* Princeton: Princeton University Press.

[91] Tilly, Charles (1992), *Coercion, Capital, and European States, AD 990-1992.* Cambridge and Oxford: Blackwell.

[92] Timewell, H.C. (1970), "Guernsey Privateers," *Mariner's Mirror*, 56, 2, 199-218.

[93] Usher, Abbott P. (1928), "The Growth of English Shipping, 1572-1922," *Quarterly Journal of Economics*, 42, 465-78.

[94] Ville, Simon (1984), "Size and Profitability of English Colliers in the Eighteenth Century: A Reappraisal," *Business History Review*, 58, 103-120.

[95] Villiers, Patrick (1991), *Marine royale, corsaires et trafic dans l'Atlantique de Louis XIV à Louis XVI.* Dunkirk: Société dunkerquoise d'histoire et d'archéologie.

[96] Ward, John R. (1978), "The Profitability of Sugar Planting in the British West Indies, 1650-1834," *Economic History Review*, 31,2, 197-213.

[97] Williams, Gomer ([1897]2004), *History of the Liverpool Privateers and Letters of Marque with an Account of the Liverpool Slave Trade, 1744-1812.* Montreal and Kingston: McGill-Queen's University Press.

A Transcript of an Exemplary Letter of Marque (PRO HCA 26/11)

13th November 1759

Appeared personally Daniel Henriod of the Parish of St. Margaret's Lothbury London Merchant on behalf of Captain John McLean now at Glasgow and produced a Warrant from the Right Honourable the Lords Commissioners for Executing the Office of Lord High Admiral of Great Britain and Ireland, &c. for the granting of a Commission or Letter of Marque to him the said Captain John McLean and in pursuance of His Majesty's Instructions to Privateers made the following Declaration to wit That this the said John McLean his Ship is called the George That she is a Square Stern with Three Masts and is of the Burthen of about one hundred and fifty Tons That the said John McLean goeth Commander of her That she carries Ten Carriage Guns Each carrying Shot of Six Pounds Weight and Six Swivel Guns And belonging to the Port of Glasgow Twenty four Men Twenty four Small Arms Twenty four Cutlasses Four Barrels of Powder Fourty eight Rounds of great Shot and about Three hundred weight of small Shot That the said Ship is

Victualled for Six Months has Two Suits of Sails Three Anchors Three Cables and about Five hundred Weight of spare Cordage That Patrick Mackenzie goes Lieutenant Alexander Mackmurdo. Gunner Thomas James Boatswain Robert Mason Carpenter James Robertson Cook and John Wright Surgeon of the Said Ship And that George Kippen , Archd. Ingram, John Glasford & Arthur Connell of Glasgow Merchants are the Principal Owners and Setters out of the said Ship.

On the same Day
This Declaration was made
Before Me

Thos. Bever
Surrogate.

Daniel Henriod

Table 1: Summary Statistics

	Unit	Observations	Mean	Std. Dev.	Minimum	Maximum
Data on privateering:						
Number of British letters of marque	Year	66	37.62	46.69	1	228
Number of prizes caught by British privateers	Year	65	52.55	70.81	0	349
Tonnage of British privateers	Year	65	286.88	184.90	56	1373
Number of guns on board British privateers	Year	66	15.54	3.57	8	26
Crew size of British privateers	Year	63	50.89	15.33	25	120
Value of prize ship and cargo recorded (in£)	Year	91	9197.46	16418.16	81	125000
Number of Bristol letters of marque	Ship	1210	52.97	37.56	0	133
Fraction of Bristol privateers taking a prize	Ship	1210	0.44	0.50	0	1
Tonnage of Bristol privateers	Ship	1114	218.85	107.93	30	600
Guns on board Bristol privateers	Ship	1095	17.24	6.46	2	36
Crew size of Bristol privateers	Ship	1049	91.88	70.79	6	340
Data on Foreign Trade:						
Value of British foreign trade (in 1,000£)	Year	121	36475		8362	151100
Number of slave ships leaving Bristol	Year	109	15.12	8.15	1	48
Value of French trade (in 1,000£)	Year	116	18775	10518	4945	46743
Tonnage of British slave ships	Voyage	5710	152.75	93.51	12	600
Number of guns on board British slave ships	Voyage	2790	6.69	4.19	0	28
Crew size of British slave ships	Voyage	4286	30.65	11.60	2	164
Data on Navies:						
Number of ships in Royal Navy	Year	153	214.97	84.53	29	398
Number of ships in enemy navies	Year	141	231.45	72.78	136	406
Fraction of year Britain at war	Year	132	0.47	0.48	0	1

Notes: The first column indicates whether a variable varies over time (year) or at the individual ship level. Information on letters of marque for Britain and Bristol are available for war years only. In contrast, prize values are recorded for years of conflict and a few surrounding years. Enemy navies are all ships maintained by France, Spain and the United Provinces. Value of Bristol imports (1728-1791) comprises imports of sugar, tobacco and slaves into Bristol. Total French trade is calculated as the sum of imports and exports.

Sources: see table A1.

Table 2: Popularity of Privateering in England (before 1707) and Great Britain (from 1707)

War Period	Popularity of Privateering				
	British Commissions (1)	British Vessels (2)	% British Trade Ships (3)	Bristol Vessels (4)	% Bristol Trade Ships (5)
1689-1697	490	406	18.2		
1702-1713	1,607	1,343	40.9	157	35.0
1739-1748	1,587	1,191	16.5	132	27.7
1756-1763	2,105	1,679	23.3	253	55.8
1775-1783	7,340	2,676	35.5	203	44.8
1793-1802	4,613	1,795	17.9	61	10.6
1803-1815	5,613	1,810	8.9	33	10.5

Notes: Column (1) shows the number of letters of marque issued by the Court of Admiralty for Britain at large, while column (2) reports the number of vessels that took out a letter of marque. Column (3) reports the number of privateering vessels as a percentage of the number of British merchant ships. Column (4) counts the number of Bristol privateering vessels. Column (5) reports the number of Bristol privateering vessels relative to the number of merchant vessels entering Bristol from transatlantic destinations.

Sources: For privateering data, PRO HCA 26 (see table A1 for data sources), Meyer (1981; 1983) and Starkey (1990a); for Bristol privateering vessels, Powell (1930); for trade ships in Britain, Usher (1928); for Bristol trade ships, Morgan (1993).

Table 3: Impact of British Privateering on French Trade

War Period	Number of Merchant Vessels		French Trade Revenues (£)	
	Nantes	% French ships captured	Overseas Trade	% Captured
	(1)	(2)	(3)	(4)
1689-1697	300	43.8		
1702-1713	473	19.6		
1744-1748	436	5.1	13,500,000	15.8
1756-1763	306	12.5	19,026,087	5.4
1778-1783	552	23.4	28,060,870	6.1

Notes: column (1) counts the number of merchant ships leaving the port of Nantes. Column (2) lists the fraction of French trade vessels captured by British privateers. The fraction is based on the number of French prizes reported in the Admiralty Court records, divided by the size of the French merchant fleet. The size of the French merchant fleet is estimated based on the assumption that Nantes made up about 10 percent of all French trade (Dardel 1963). French overseas trade revenues in column (3) are converted from livres turnois, using the exchange rate of 1 pound sterling = 23 livre tournois (Haudrere 1989). Column (4) estimates the percentage of French colonial imports captured by British privateers, using our data on selected values of cargo and ships captured by British privateers.

Sources : For Nantes merchant ships, Meyer (1969); for French prizes captured by British privateers, PRO HCA34; for total value of prize goods, Schumpeter (1960); for French Colonial and overseas trade, Boulle (1974) and Tarade (1972).

Table 4: Supply of Privateering Vessels, 1689-1815

	British Privateering (1689-1815)			Bristol Privateering (1699-1812)		
	(1)	(2)	(3)	(4)	(5)	(6)
Number of Privateering Vessels (T-1)	0.431	0.438	0.506	0.293	0.262	0.223
	(0.140)***	(0.163)**	(0.173)***	(0.091)***	(0.088)***	(0.098)**
French foreign trade (in £1,000)/1000	2.026			0.326		
	(0.624)***			(0.160)*		
Number of slave ships from France		0.383			0.130	
		(0.110)***			(0.041)***	
Average value of prize ship (in £1,000)			0.098			0.085
			(0.054)			(0.038)**
British foreign trade (in £1,000)/1000	-0.455	-0.441	-0.455			
	(0.165)***	(0.168)**	(0.192)**			
Number of slave ships clearing for Africa from Bristol				-0.227	-0.227	-0.248
				(0.112)*	(0.126)*	(0.143)*
Number of ships in Royal Navy	-0.244	-0.257	-0.262	-0.030	-0.022	-0.040
	(0.109)**	(0.103)**	(0.110)**	(0.049)	(0.047)***	(0.049)
Number of ships in enemy navies	-0.145	-0.059	-0.161	0.036	0.068	0.038
	(0.081)	(0.080)	(0.082)*	(0.028)	(0.029)**	(0.028)
Fraction of year Britain at war	0.049	0.038	0.081	0.029	0.022	0.033
	(0.014)***	(0.013)***	(0.023)***	(0.007)***	(0.008)***	(0.007)***
3rd order polynomial time trend	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	121	121	121	108	108	108
R squared	0.65	0.64	0.60	0.57	0.6	0.59
Durbin-Watson statistic	1.97	1.96	1.96	1.89	1.82	1.81

Notes: The table reports results from a regression model with a lagged dependent variable. The dependent variable is the annual number of unique letters of marque commissioned in Britain (columns (1)-(3)) and Bristol (columns (4)-(6)). Number of ships in enemy navies sums all vessels in the service of the Spanish, French and Dutch navies. French foreign trade is calculated as the sum of the values of French imports and exports (in 1,000 Pounds Sterling). Each specification also includes a constant as well as a third-order polynomial time trend (not reported). Robust standard errors are reported in parentheses. The Durbin-Watson statistic reported in the last row shows that residual autocorrelation is negligible.

Table 5: Determinants of Privateering Success, 1689-1815

	Prizes British privateers (1689-1815)		Prizes Bristol privateers (1699-1812)	
	(1)	(2)	(3)	(4)
Number of Privateering Prizes (T-1)	0.558	0.545	0.596	0.453
	(0.164)***	(0.163)***	(0.065)***	(0.060)***
French foreign trade (in £1,000)/1000	3.171	3.278	0.0002	0.0002
	(1.144)***	(1.122)***	(0.0002)	(0.0001)***
British foreign trade (in £1,000)/1000	-1.025	-0.806		
	(0.421)**	(0.512)		
Number of slave ships from Bristol			-0.013	-0.006
			(0.003)***	(0.002)**
Number of ships in Royal Navy		-0.360		-0.004
		(0.148)**		(0.001)***
Number of ships in enemy navies		0.112		0.001
		(0.063)*		(0.0004)
Ship characteristics:				
Ship tonnage	-0.217	-0.237	-0.0002	0.000
	(0.084)**	(0.089)**	(0.0001)***	(0.0001)
Crew size	2.360	1.034	0.0001	0.0001
	(2.163)	(0.533)*	(0.0001)	(0.0002)
Number of guns on board	0.777	1.707	0.0015	-0.001
	(0.511)	(2.138)	(0.0013)	(0.0010)
Fraction of year Britain at war	0.003	0.0240	0.0003	0.0003
	(0.004)	(0.047)	(0.0002)*	(0.0002)*
Linear and quadratic time trend	Yes	Yes	Yes	Yes
Number of observations	98	98	1024	1024
R squared	0.76	0.78	0.45	0.47
Durbin-Watson statistic	1.7	1.77	1.85	1.90

Notes : The table reports results from a model with lagged dependent variable. The dependent variable is the number of prizes caught by British privateers between 1689 and 1785 (columns (1) and (2)) and the number of prize ships caught by a Bristol privateer in a given year between 1699 to 1812 (columns (3) and (4)). The last row reports the Durbin-Watson statistic of autocorrelation. Tonnage, crew size and guns refer to the individual Bristol privateering ship (in columns (3) and (4)) and the average ship characteristics of all British privateers in columns (1) and (2). All specifications include a constant, a linear and quadratic time trend. Robust standard errors are reported in parentheses.

Table 6: Decreasing Importance of Privateering in Bristol, 1698-1807

	Merchant elite (count) (1)	Privateers (count) (2)	Percentage privateers among merchants (3)	Slave traders (count) (4)	Privateers (count) (5)	Percentage privateers among traders (6)
Privateering among merchants						
(1) Entire Period (1698-1807)	111	89	80.2%	505	210	41.6%
(2) Before 1780 (1698-1779)	96	80	83.3%	428	187	43.7%
(3) In and after 1780 (1780-1807)	15	9	60.0%	77	23	28.0%
Switching activities over time						
(4) Merchants who stopped privateering	89	60	67.4%	210	83	39.5%
(5) Privateers who became merchants only	30	21	70.0%	95	52	54.7%
(6) Merchants who became privateers only	77	37	48.1%	366	32	8.7%

Notes: The left-hand side of the table (columns (1) through (3)) reports individual-leveldata on the Bristol merchant *elite* engaged in the sugar trade (covering activities in 1728-1800), tobacco trade (covering 1728-1799), slave trade (covering 1698-1807), and in privateering partnerships (n=89 privateering merchants in 1699-1807). The right-hand side (columns (4) through (6)) reports data on *all* Bristol merchants known to have been engaged in the slave trade (covering 1698-1807). The first three rows show that privateering declined relative to merchant activities in Bristol over time. The fourth row shows the number (columns (1)-(2) and (4)-(5)) and fraction (columns (3) and (6)) of merchants whose privateering activity is known to have ended before their trade investments. The fifth row shows the number and fraction of merchants who started out as privateers and ended as merchant traders. The final row (6) calculates the number and fraction of merchants who switched completely from regular trades to privateering.

Sources: Eltis et al. (2008); Morgan (1993); Powell (1930); Richardson (1985).

Table 7: Profits and Revenues of Merchant Trade

	Slave trade			Sugar trade		
	Revenues (annual £)	Profits (annual £)	Profits (£ per slave)	Revenues (1,000 £)	Profits (annual £)	Profits (£ per slave)
	(1)	(2)	(3)	(4)	(5)	(6)
1701-1720			8.5	959.1	505.1	3.7
1721-1740			3.2	911.2	757.2	4.7
1741-1760			8.8	1,754.2	2,018.6	9.4
1761-1770	7,247,372	548,769	1.9-2.2	2,784.7	1,684.5	6.6
1771-1780	6,676,503	714,484	3.1	3,234.8	1,203.3	4.2
1781-1790	8,821,601	848,129	2.9		2,068.0	4.9
1791-1800	16,556,636	1,897,234	4.8		3,041.5	11.0
1801-1807/1815	11,561,082	363,060	1.7		3,179.8	11.1

Notes: Numbers for the slave trade end in 1807. Slave trade revenues and profits are for the Atlantic slave trade. Slave trade profits between 1701-1770 refer to the trade with Jamaica, and those between 1770-1807 refer to the Atlantic slave trade. Sugar revenues refer to shipments from the West Indies, and profits refer to profits accrued by sugar planations in the West Indies.
Sources: for slave trade revenues and profits in 1761-1807, Anstey (1975); for slave trade profits in 1701-1770, Rawley and Behrendt (2005); for sugar trade revenues, Richardson (1987); for sugar trade profits, Ward (1978).

Table 8: Decline of Expected Revenues for British Privateers

	British Privateers			
	Probability of a prize		Prize values (£)	
	Prizes/Commissions	Prizes/Vessels	Median	Expected
	(1)	(2)	(3)	(4)
1689-1697	1.04	1.26	396	499
1702-1713	0.73	0.88	261	229
1739-1748	0.26	0.34	5,441	1859
1756-1763	0.18	0.23	12,171	2769
1775-1783	0.18	0.49	7,455	3644
1793-1802	0.08	0.12	2,240	278
1803-1815	0.03	0.10	2,716	282

Notes: The probability of taking a prize is calculated as the number of prizes divided either by the number of commissions (column (1)), or by the number of privateering vessels (column (2)). The number of privateering vessels is calculated by counting the number of distinct vessels (based on the name of the ship, its home port and tonnage). Prize values are deflated using 1700 as the base year. Expected prize values in column (4) are calculated as the mean prize value times the probability of a prize for a British vessel (column (2)) in the respective war.

Sources: for British privateering data, PRO HCA records (see table A1 for data sources); Starkey (1990a) .

Table 9: Private Men-of-War and Letter of Marque Ships

	Private Men-of-War		Letter of Marque Ships	
	Number of Vessels	% of Privateering Fleet	Number of Vessels	% of Merchant Fleet
	(1)	(2)	(3)	(4)
1739-1748	377	31.7	814	11.9
1756-1763	478	28.5	1,201	17.8
1775-1783	805	30.1	1,871	27.8
1793-1802	216	12.0	1,579	16.1
1803-1815	175	9.7	1,635	8.1

Notes: The number of private men-of-war in column (1) is calculated from the Letter of Marque Declarations as follows: all vessels below 100 tons and a ton-per-man ratio of 2.5 or vessels above 100 tons and a ton-per-man ratio of 2.5 or less excluding the ships operated by the East India Company (see Starkey, 1990a, p. 294 for details). The percentage in column (2) is calculated by dividing column (1) by the total number of privateering vessels (see table 2, column (2)). The number of letter of marque ships in column (3) is calculated as the number of privateering vessels minus private men-of-war (column (1)). Column (4) is determined by dividing column (3) by the size of the merchant fleet net of private men-of-war.

Sources: PRO, HCA 25 and 26 (Letter of Marque Declarations); Starkey (1990c).

Table 10: Trade Protection by the Royal Navy in the West Indies, 1689-1815

	British slave ship taken			British slave ship lost (natural causes)		
	1689-1748	1749-1783	1784-1815	1689-1748	1749-1783	1784-1815
	(1)	(2)	(3)	(4)	(5)	(6)
Number of ships in Royal Navy	0.001	-0.001	-0.006	0.001	0.000	0.001
	(0.001)	(0.0002)***	(0.001)***	(0.001)	(0.0003)	(0.002)
Number of ships in enemy navies	0.000	0.002	0.001	0.001	0.000	0.000
	(0.0002)**	(0.0004)***	(0.0003)***	(0.0003)***	(0.001)	(0.0003)
Fraction of year Britain at war	0.046	0.161	0.096	0.013	0.009	0.110
	(0.013)***	(0.014)***	(0.017)***	(0.027)	(0.025)	(0.022)***
Ship tonnage	0.000	0.000	0.000	0.000	-0.001	-0.001
	(0.0001)	(0.0001)***	(0.0001)***	(0.0001)	(0.0001)***	(0.0001)***
Linear and quadratic time trend	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	2,236	3,428	3,068	2,139	3,213	2,708
Log-likelihood	-359.3	-651.9	-974.5	-938.8	-1162.4	-982.7

Notes: The table reports marginal effects from a probit model in three different time periods: 1689-1748, 1749-1783 and 1784-1815. The dependent variable in columns (1)-(3) is whether or not a British slave ship was taken during a voyage or sunk due to enemy action. In columns (4)-(6), the dependent variable is whether or not a British slave ship was lost due to natural hazards (e.g. storms). All specifications also include a linear and quadratic time trend. Robust standard errors clustered at the year level are reported in parentheses.
Sources: see table A1

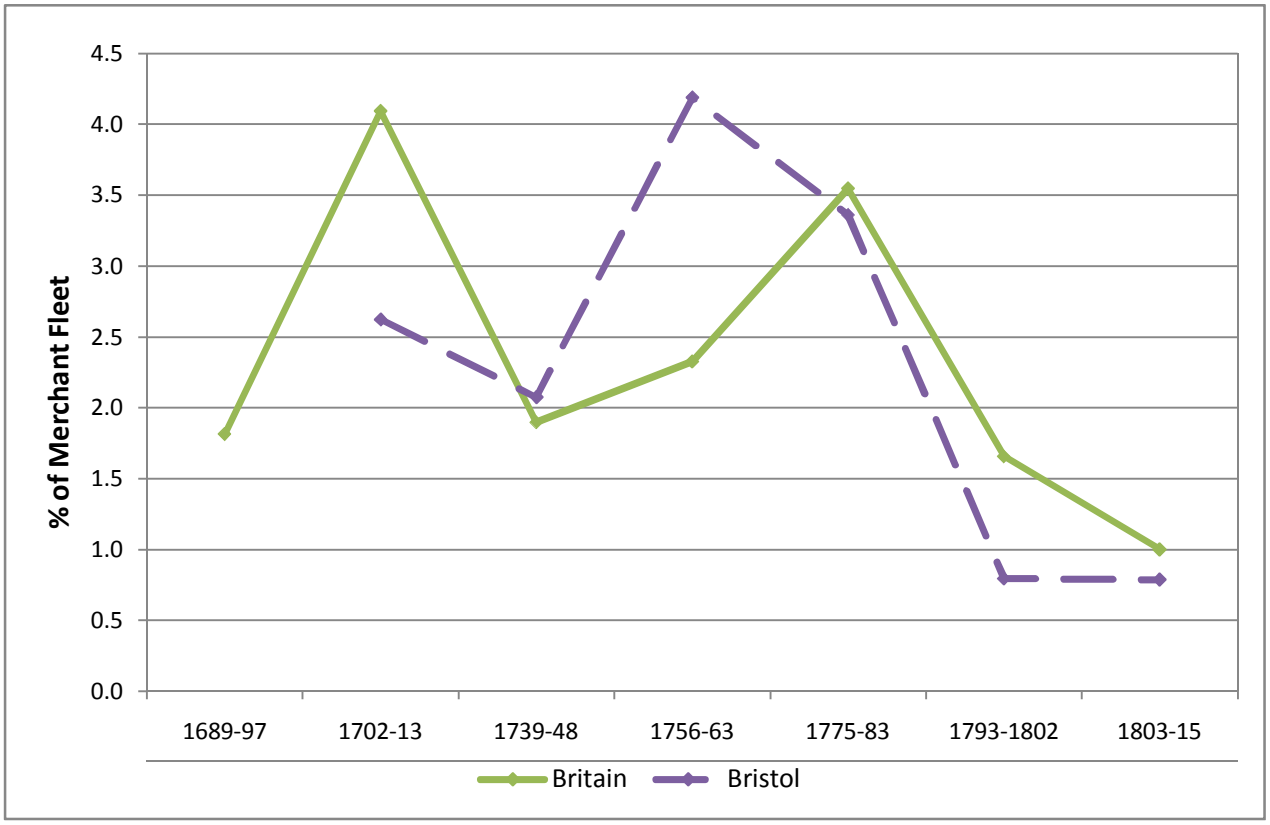
Table 11: The Number of Seamen on Royal Navy ships, Merchant vessels and Private Men-of-War

	Number of Seamen in Royal Navy		Number of Seamen in Merchant Fleet		Number of Seamen Private Men-of-War		Ratio Royal Navy / Merchant Fleet		
	Total Sum	Annual Average	Sum	Annual Average	Monthly Peak	Annual Average	Sum	Average	Average (w/o PMW)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1689-1697	362,365	40,263							
1702-1713	494,008	36,545		19,633				1.86	
1739-1748	425,825	48,542	255,792	25,579	10,632	2,602	1.66	1.90	2.11
1756-1763	523,603	70,244	264,606	33,076	11,331	3,286	1.98	2.12	2.36
1775-1783	581,241	70,241	368,920	40,991	19,465	3,749	1.58	1.71	1.89
1793-1802	970,456	104,822	535,015	53,502	3,532	3,150	1.81	1.96	2.08
1803-1815	1,606,611	123,585	1,429,951	109,996	3,273	2,794	1.12	1.12	1.15

Notes: The table reports the sum of seamen-years employed in the Royal Navy (column (1)) and in the merchant fleet (column (3)), and the annual average of employed seamen in columns (2) and (4). The number of seamen on private-men-of-war is calculated from letter of marque documents using Starkey's definition of a private-men-of-war (below 100 tons and ton-per-man ratio below 2.5, or above 100 tons and ton-per-man ratio above 2.5). Columns 7 and 8 show the ratio of seamen employed in the Royal Navy relative to the merchant fleet (including private-men-of-war): column (7) = column (1)/column(3); column (8) = column (2)/column(4). Column (9) reports the same ratio without private-men-of-war: column (9) = column (2)/(column (3)-column(5)).

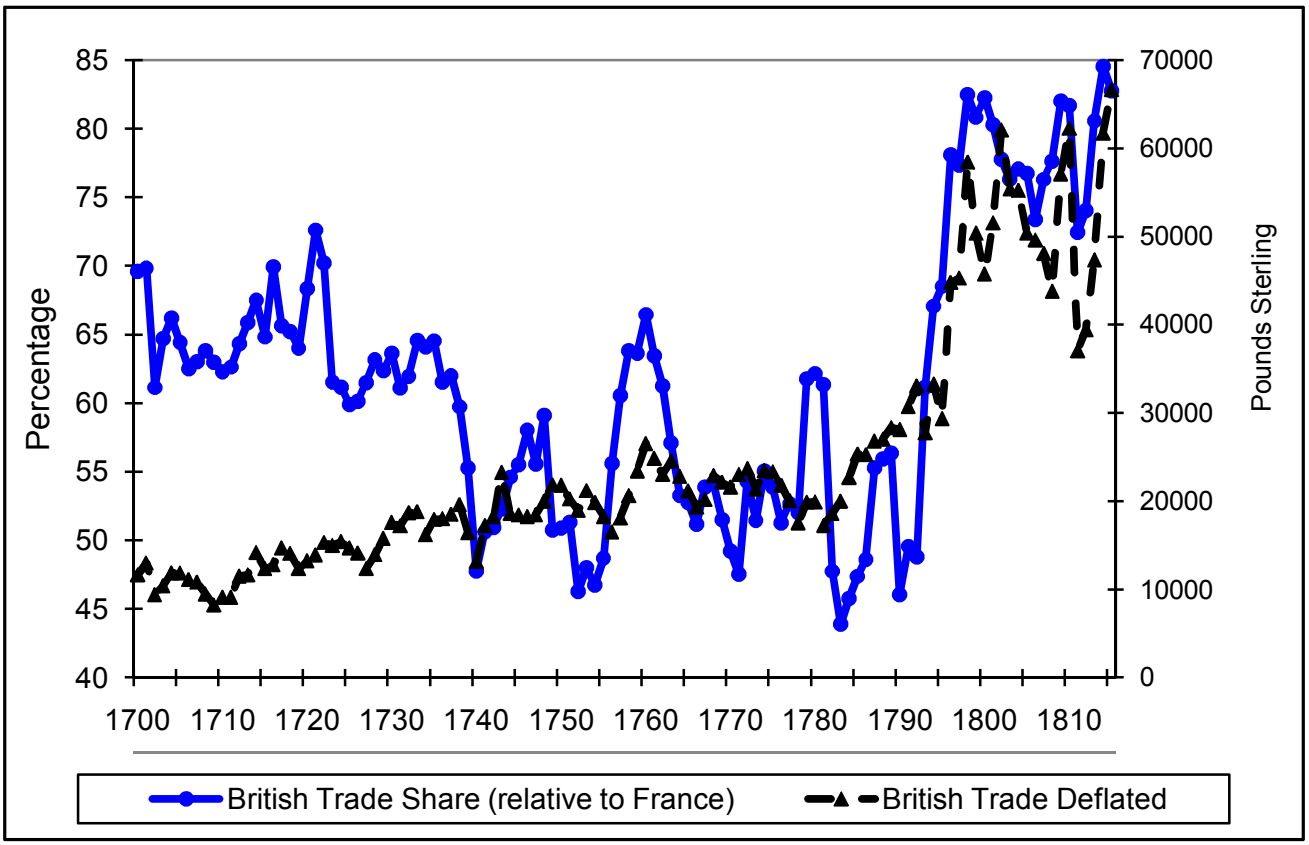
Sources: for the Royal Navy, Rodger (2004); for the merchant fleet, Davis (1956) and Starkey (1990b); for private-men-of-war, PRO HCA 25 and HCA 26; Starkey (1990b).

Figure 1: Decline of Privateering in Britain and Bristol, 1689-1815



Notes: for each war between 1689 and 1815, the graph shows British privateering vessels as a percentage of the British merchant fleet (left y-axis) and the number of Bristol privateering vessels as a percentage of the number of ships coming into Bristol from transatlantic destinations (right-y axis). The number of unique privateering vessels were extracted from our data on commissions using the name of the ship and its captain.

Figure 2: The Expansion of British Trade, 1700-1815



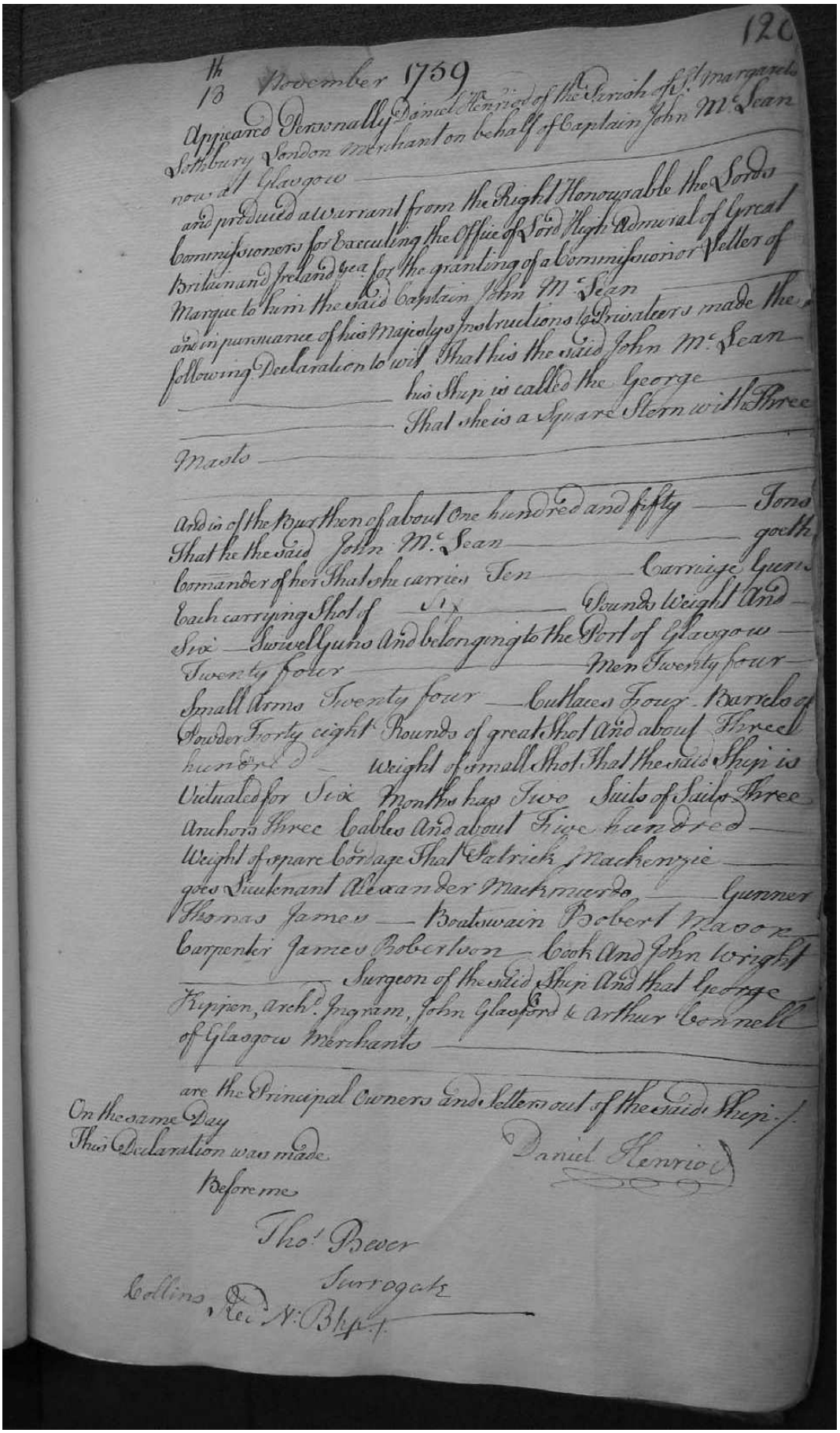
Notes: The right-hand y-axis shows the evolution of Britain's total volume of trade in Pounds Sterling deflated by the McCusker price index to prices in 1700. The left-hand y-axis refers to the trade share of Britain relative to France, measured as the percentage of their combined volumes of trade. The total volume of trade is calculated as the sum of imports, exports and re-exports.
Sources: Chabert (1945); Jeulin (1929); Mitchell (1976; 2003); Romano (1957); Tarade (1972)

Table A1: Data Sources for Empirical Analysis

	Type of Data	Time Period	Description	Variables	Source
Data on Privateers					
British Privateers	10% Sample	1689-1809	Letters of Marque (LOM) issued by crown	Number of commissions	PRO HCA 26
		1809-1815		Date of commission	PRO HCA 25
				Home port	
				Tonnage	
				Crew size	
				Guns (number and shot weight)	
		1689-1815	Prize Activities	Number of prizes caught	PRO HCA 34
				Date sentenced by Court	
				Name of captor ship and captain	
	Sample	1690-1811	Prize Values	Appraisal date (HCA 30, 32, 49), capture date (HCA 45)	PRO HCA 30; PRO HCA 32; PRO HCA 49
				Value of cargo, value of ship and total value	PRO HCA 45
		1690-1815		Total value of prize ship	Andrews (1964); Bromley (1987); Crowhurst (1989); Hill (1999); Jamieson (1986); Lydon (1970); Powell (1930); Starkey (1990a); Timewell (1970); Williams ([1897]2004)
Bristol Privateers	Universe	1699-1812	Letter of Marque declarations	Date of commission	Powell (1930)
			Characteristics of privateering ships	Tonnage, crew size, number of guns	
			Prize activities	Number of prizes caught with exact date	
			Fate of Ship	Sunk or taken (often with date)	
Data on Merchant Trade					
British foreign trade	Annual time series	1700-1820	Value of British foreign trade	Imports, exports and reexports (official values, in 1,000 £)	Mitchell (1976)
East India Company	Population	1689-1815	Ships of East India Company	Ship characteristics (tonnage, crew size and guns)	Farrington (1999)
				Numbers of ships lost (taken or sunk)	
Slave trade ships	95% of Universe	1689-1807	British slave ships	Number of slave voyages by British ships	Eltis et al. (2008)
				Ship characteristics (tonnage, crew size and guns)	
				Number of British slave ships lost or taken	
British merchant fleet	Time series	1689-1815	Size of British merchant fleet	Number of ships, total official tonnage	Usher (1928)
Bristol trade	Individual level	1728-1800	Merchant trade in Bristol	Investment in sugar trade (amount, value, starting and end dates)	Morgan (1993)
		1728-1799		Investment in tobacco trade (amount, value, starting and end dates)	
		1698-1807		Investment in slave trade (amount, value, starting and end dates)	
	95% of universe	1699-1807		Number of slave ships clearing for Africa from Bristol	Eltis et al. (2008)
				Names of Bristol slave ship owners, year of voyages	Eltis et al. (2008); Morgan (1993); Richardson (1985)
	Annual time series	1700-1797	Size of Bristol merchant fleet	Ships entering Bristol from transatlantic destinations	Morgan (1993)
French foreign trade	Annual time series	1716-1815	Volume of French trade	Value of French exports and imports (in £1,000)*	Chabert (1945); Jeulin (1929); Mitchell (2003); Romano (1957); Tarrade (1972)
Data on Navies and War					
Strength of navies	5-year averages	1685-1820	Overall size of navy (Great Britain, France, Spain, United Provinces)	Number of ships and battleships*	Glete (1993)
				Total tonnage*	
War	Annual time series	1689-1815	Britain at war	Fraction of Days Britain at war	Levy and Morgan (1994)

Notes : For variables with *, missing intermediate values were calculated using linear interpolation.

Figure A.1. Exemplary Letter of Marque (PRO, Series HCA 26, vol.11)



120

th
13 November 1759

Appeared Personally Daniel Henrico of the Parish of St. Margarets
Sothbury London Merchant on behalf of Captain John Mc. Lean
now at Glasgow
and produced a Warrant from the Right Honourable the Lords
Commissioners for Executing the Office of Lord High Admiral of Great
Britain and Ireland &c. for the granting of a Commission or Letter of
Marque to him the said Captain John Mc. Lean
and in pursuance of his Majestys Instructions to Privateers made the
following Declaration to wit That his the said John Mc. Lean
his Ship is called the George
That she is a Square Stern with Three
Masts

And is of the Burthen of about One hundred and fifty Tons
That he the said John Mc. Lean goeth
Commander of her That she carries Ten Carriage Guns
Each carrying Shot of Six Pounds Weight And
Six Swivel Guns And belonging to the Port of Glasgow
Twenty Foler Men Twenty four
Small Arms Twenty four Cutlaces Four Barrels of
Powder Forty eight Rounds of great Shot And about Three
hundred Weight of small Shot That the said Ship is
Victualed for Six Months has Two Suits of Sails Three
Anchors Three Cables And about Five hundred
Weight of spare Cordage That Patrick Mackenzie
goes Lieutenant Alexander Muckmurdo Gunner
Thomas James Boatswain Robert Moore
Carpenter James Robertson Cook And John Wright
Surgeon of the said Ship And that George
Kippen, Archd. Ingram, John Glassford & Arthur Connell
of Glasgow Merchants
are the Principal Owners and Setters out of the said Ship.

On the same Day
This Declaration was made
Before me

Daniel Henrico

Tho. Bever
Surrogate

Collins, Reg. N. Bkp.