

# The worldwide economic impact of the French Revolutionary and Napoleonic Wars, 1793–1815

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## **Abstract**

*The paper provides a comparative history of the economic impact of the Revolutionary and Napoleonic Wars. By focusing on the relative price evidence, it is possible to show that the conflict had major economic effects around the world. Britain's control of the seas meant that it was much less affected than other belligerent nations, such as France and the United States. The fact that this conflict had such large price effects around the world suggests a highly inter-connected international economy, but is also consistent with the hypothesis that mercantilist conflicts prevented the emergence of more pronounced commodity market integration during the eighteenth century. The war had several longer-run effects which both helped and hindered the integration of international commodity markets during the nineteenth century.*

## **Introduction**

The years between 1793 and 1815 saw an unusually bloody, lengthy and widespread conflict between Great Britain and France, which widened to include many of the other leading powers of the day. This paper offers a comparative, quantitative assessment of the economic impact of the conflict. While data availability dictates that the paper's focus is largely on countries such as Britain, France and the US, I attempt to range more widely, and bring together evidence concerning the impact of the wars not just on Europe and

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North America, but on Latin America, Asia and Africa as well. The evidence clearly shows that the wars of 1793–1815 had a powerful, worldwide impact on trade.

The paper obviously speaks to the large literature which has emerged documenting the effects of wartime policies such as Napoleon's Continental Blockade, or Jefferson's Embargo.<sup>1</sup> Less obviously, it also speaks to the issue of when modern globalization, or more narrowly, modern commodity market integration, began. In recent papers with Jeffrey Williamson, I have argued that inter-continental market integration for bulk goods such as grain only began towards the middle of the nineteenth century; while other scholars have pointed to the considerable inter-continental exchanges of ideas, animal and vegetable species, and commodities such as silver which took place at much earlier dates.<sup>2</sup> One way of reconciling such diverse opinions is to stress that O'Rourke and Williamson focus on only one very narrow dimension of what is commonly known as 'globalization', namely market integration for goods such as grains, textiles and metals; but the question of what delayed commodity market integration thus defined remains. One possibility is that integration for low value to bulk commodities required the transport revolutions of the nineteenth century; another possibility is that there was already a potential for integration prior to then, but that this potential was constantly frustrated by mercantilist policies and warfare.<sup>3</sup> For this to be true, international commodity markets should have displayed a high degree of interconnectedness, in the sense that a large shock, such as a war, should have affected commodity markets in many countries; it should also have been the case, of course, that wars led to quantitatively significant disruptions of international trade. This paper finds that both these conditions obtained during the Revolutionary and Napoleonic Wars.

The paper begins with a brief summary of the conflict, and the ways in which it disrupted trade. It then looks at what is known about the behaviour of trade volumes during the period, stressing the uncertain nature of some of the evidence. The focus then shifts onto

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- 1 A sample of this literature includes Eli F. Heckscher, *The continental system: an economic interpretation*, Gloucester, MA: Peter Smith, 1964 (reprint of 1922 edition); François Crouzet, 'Wars, blockade, and economic change in Europe, 1792–1815', *Journal of Economic History*, 24, 1964, pp. 567–88; Crouzet, *L'Economie Britannique et le blocus continental*, 2nd edition, Paris: Economica, 1987; Crouzet, 'The continental system after eighty years', paper presented at the Eli Heckscher Celebratory Symposium, Stockholm School of Economics, 22–24 May 2003; G. Ellis, *Napoleon's continental blockade: the case of Alsace*, Oxford: Clarendon Press, 1981; Jeffrey A. Frankel, 'The 1807–1809 embargo against Great Britain', *Journal of Economic History*, 42, 1982, pp. 291–307; Douglas A. Irwin, 'The welfare effects of autarky: evidence from the Jeffersonian embargo', forthcoming, *Review of International Economics*; Lance E. Davis and Stanley L. Engerman, *Blockades in peace and war: an economic history of naval blockades since the middle of the eighteenth century*, forthcoming; Mancur Olson, *The economics of the wartime shortage: a history of British food supplies in the Napoleonic War and in World Wars I and II*, Durham, NC: Duke University Press, 1963; J. H. Rose, 'Our food supply in the Napoleonic War', *Monthly Review* 6, 1902, pp. 63–76.
  - 2 Kevin H. O'Rourke and Jeffrey G. Williamson, 'When did globalization begin?', *European Review of Economic History* 6, 2002, pp. 23–50; Dennis O. Flynn and Arturo Giráldez, 'Path dependence, time lags and the birth of globalization: a critique of O'Rourke and Williamson', *European Review of Economic History*, 8, 2004, pp. 109–17.
  - 3 On the transport revolutions of the nineteenth century and their implications for commodity markets, see C. Knick Harley, 'Ocean freight rates and productivity, 1740–1913: the primacy of mechanical invention reaffirmed', *Journal of Economic History*, 48, 1988, pp. 851–76; Kevin H. O'Rourke and Jeffrey G. Williamson, *Globalization and history: the evolution of a 19th century Atlantic economy*, Cambridge, MA: MIT Press, 1999; Kevin H. O'Rourke and Jeffrey G. Williamson, 'From Malthus to Ohlin: trade, industrialization and distribution since 1500', *Journal of Economic Growth* 10, 2005, pp. 5–34.

the relative prices of importable and exportable goods in several countries and continents. The paper concludes with a brief discussion of some of the longer-run implications of the conflict.

## The Twenty-three Years' War<sup>4</sup>

In 1792, France declared war on Austria and Prussia; and on 1 February 1793, the French National Convention declared war on Great Britain. The ensuing period of warfare between the two countries, which lasted almost uninterrupted until 1815 (there was a brief interlude of peace which lasted from the Peace of Amiens in March 1802 until the renewal of war in May 1803, and another during 1814–15), had profound and long-lasting effects on international trade worldwide.

Within a month, the Convention had prohibited the importation of large classes of British goods, and in October it banned all British manufactured goods; meanwhile, the British side adopted a policy of blockading the coast of France. As Eli Heckscher's classic account emphasizes, each side was motivated by a mercantilist desire to prevent the other exporting, and thus acquiring precious metals, rather than by a desire to prevent the enemy from importing food or other goods which might be useful to the war effort (the main exception being that food exports were occasionally banned when domestic food supplies were scarce).<sup>5</sup> Both the French and the British took measures against neutral shipping which transported enemy goods, but the bilateral trade dispute took on a multilateral nature in December 1800, when Russia, Denmark, Sweden and Prussia formed the League of Armed Neutrality (which succeeded a similar arrangement between the two Scandinavian countries in 1794), agreeing to provide naval protection for their merchant shipping. This arrangement came to an end in 1801, but not before the British had announced a blockade on trade with the League (bar Prussia), and physically attacked Copenhagen. Trade disruption was to become far more widespread in the aftermath of Napoleon's military victories over Austria in 1805 and Prussia in 1806. In November 1806, his Berlin Decree declared that the British Isles were under blockade (somewhat fancifully, since Britain controlled the seas), that all trade in British goods was prohibited, and that all vessels coming directly from Britain or her colonies were to be turned away from French ports. More importantly, Napoleon began applying these restrictions, not just in France, but in vassal states such as Spain, Naples and Holland. His forces defeated those of Russia in 1807; the ensuing Treaty of Tilsit implied that not just Russia, but Denmark and Portugal, joined the blockade (the former voluntarily, the latter as a result of a French invasion), as did Prussia; the result was that virtually the entire Continent was now in a state of 'self-blockade' against the exports of Britain, the overwhelmingly dominant industrial power of the time. (The only Continental country to hold out was Sweden, which was eventually forced to join the blockade in 1810.)

Nor did matters end there. In November 1807 the British declared that neutral ships could be seized if found to be carrying goods from enemy colonies to their mother countries,

4 This section draws heavily on Ronald Findlay and Kevin H. O'Rourke, 'Commodity market integration, 1500–2000', in Michael D. Bordo, Alan M. Taylor, and Jeffrey G. Williamson, eds., *Globalization in historical perspective*, Chicago: University of Chicago Press/NBER, 2003, pp. 32–5.

5 Heckscher, *Continental system*.

even if they first transited via neutral ports; on the other hand neutral ships could still carry goods from enemy colonies to their own home ports, or from enemy colonies to British ports, or from their own home ports to British ports, or from British ports to enemy ports. The practical effect of this was that neutrals would have to put into British ports if they wanted to ship goods from, say, French colonies (or indeed, from their own country) to France. Napoleon retaliated by declaring that any neutral ship putting into a British port was fair prize, and could be seized. Faced with a situation where neutral ships carrying goods to the Continent were now subject to seizure from either one side or the other, the young US government closed its ports in December to belligerent shipping and forbade its own ships to leave these ports. This Embargo Act was repealed in 1809, and replaced with a non-Intercourse Act which only banned trade with Britain and France (and which was clearly difficult to enforce, once ships had been given leave to sail to Europe). Nonetheless, for fourteen months the United States found itself in a state of virtual autarky.<sup>6</sup>

Russia broke with France in 1810. By 1813 Napoleon was in retreat and the Continental Blockade was unravelling in several directions, and the Blockade legislation was finally repealed following Napoleon's abdication in 1814, having effectively collapsed in the summer of 1813. On the other hand, in 1812 continuing friction over trade-related issues led to the United States declaring war on Britain. There followed British attempts to blockade the US coastline, attempts which were greatly helped by victory over Napoleon in 1814, which allowed the Royal Navy to redeploy its forces there. The day after the peace treaty between France and Britain was signed, Britain ordered that the entire US coastline be blockaded. The war between Britain and its former colony, and the ensuing damage to trade, was to last for the rest of the year.

The period was also marked by war and revolution in the Caribbean and Latin America. In 1791, slaves on the French sugar colony of Saint Domingue rose against their masters, and after resisting British and French invasions, Haiti became an independent republic in 1804. Naval warfare between Spain and Britain (1796–1802 and 1804–8) seriously disrupted Latin American trade; this was followed by a series of revolutions in the following decade, following Napoleon's invasion and occupation of Iberia in 1808, and the subsequent Peninsular War which lasted until 1814. By the 1820s independent republics (or, the case of Brazil, an independent Empire) had been established across the continent.

For over twenty years leading governments had acted so as to severely disrupt international trade, and under the Continental System that disruption had been widespread and rather extreme. The question now arises as to what were the economic consequences of this disruption, in both the short and longer run.

## War and the volume of trade

Did measures such as the Continental Blockade and Britain's naval blockade of enemy ports seriously impede the integration of international commodity markets, or were they so undermined by smuggling, corruption and fiscally-motivated legal exceptions to the general protectionist rule as to have had no significant effect? There is certainly a strand in the

<sup>6</sup> Irwin, 'Welfare effects'.

literature which holds the latter view: for example, Heckscher emphasizes the normality of smuggling, which was universally acknowledged at the time. He cites no less a figure than Napoleon, in a letter to King Louis of Holland dated 3 April 1808, as saying that ‘If you need to sell your gin, the English need to buy it. Settle the points where the English smugglers are to come and fetch it, and make them pay in money but never in commodities.’<sup>7</sup> While this seems more an extension of Napoleon’s generally mercantilist policies than anything else, Heckscher stressed the ‘hopelessness of enforcing obedience to the blockade decrees’ and concluded that the policy merely served to transfer foregone customs revenue from the French state to smugglers and corrupt officials.<sup>8</sup> Similarly, the qualitative literature contains many references to smuggling which undercut the effectiveness of the US Embargo; Jefferson himself concluded that ‘this embargo law is certainly the most embarrassing we ever had to execute. I did not expect a crop of so sudden and rank growth of fraud, and open opposition by force, could have grown up within the United States.’<sup>9</sup>

By contrast, François Crouzet, while not denying that corrupt French officials did undermine the effectiveness of the Continental Blockade, nevertheless maintains that the blockade was effective from mid-1807 to mid-1808, and again from spring 1810 until the winter of 1812; while Jeffrey Frankel has persuasively argued that the Jefferson Embargo successfully impeded Anglo-American trade during 1808.<sup>10</sup> Only quantitative evidence can resolve an issue such as this. A data appendix, available from the author upon request, outlines the sources for the price and quantity information relied upon in what follows.

Figure 1 shows estimates of the volume of trade between 1780 and 1830 for the two main belligerents, Britain and France, as well as for two neutrals, Sweden and the United States. The shaded area in the graph refers to the period between 1807, the beginning of the Continental Blockade and the Jefferson Embargo, and 1814, when wartime disruption between Britain and the United States was at its peak. On the face of it, the effects on Britain seem to have been relatively minor. Imports seem to have been reduced between 1811 and 1814 (although this is relative to a peak in 1810), but apart from a dip in 1811 exports seem to have been close to trend throughout the period. By contrast, French imports were seriously reduced throughout the war, while her exports were lower during 1808–11 than in 1806 and 1807. 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% of their pre-Revolution level; import volumes had declined by 55%. This decline was largely due to the collapse in trade with France’s overseas colonies, particularly Saint Domingue: France’s American colonies had accounted for 15% of French exports in 1787–9, and 40% of her imports, but this trade all but vanished with the slave revolution and the beginning of war.<sup>11</sup> There is little obvious impact on Swedish trade volumes; but US exports and imports

7 Heckscher, *Continental system*, p. 192.

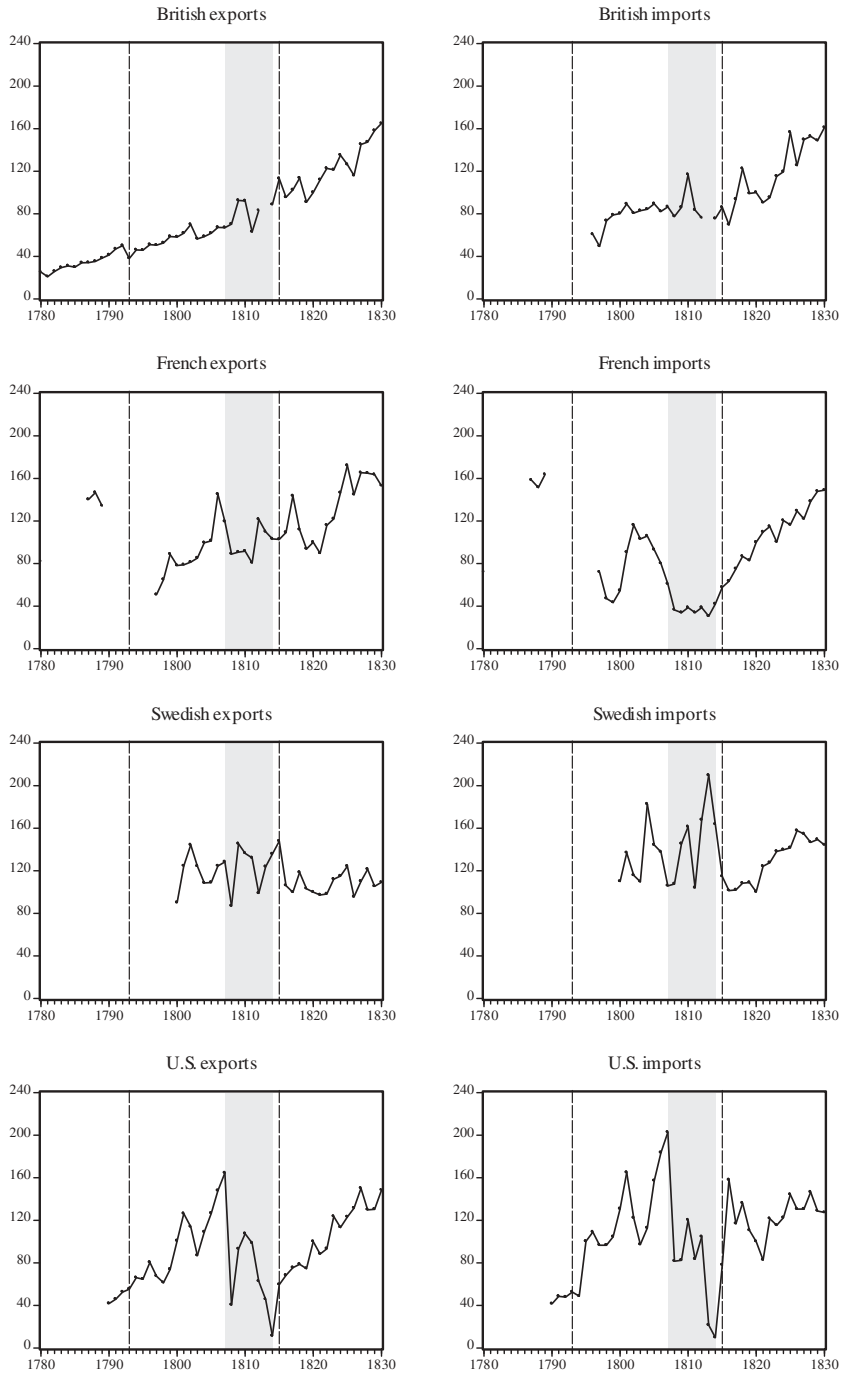
8 *Ibid.*, pp. 366–7, p. 197.

9 Cited in Davis and Engerman, *Blockades*, Chapter 3.

10 Crouzet, *L’Economie Britannique*; Frankel, ‘The 1807–1809 Embargo’.

11 Based on data underlying Javier Cuenca Esteban, ‘Comparative patterns of colonial trade: Britain and its rivals’, in Leandro Prados de la Escosura, ed., *Exceptionalism and industrialisation: Britain and its European rivals, 1688–1815*, Cambridge: Cambridge University Press, 2004; data graciously provided by the author.

**Figure 1.** Volume of trade, 1780-1830 (1820=100).  
*Source:* see Appendix 1.



**Table 1.** Impact of blockades on trade volumes, 1807–14 (Percent change in trade relative to no-blockade counterfactual)

	Exports	Imports
Britain	-4.1	2.1
France	4.3	-51.6
Sweden	7.1	22.4
US	-36.3	-52.8

Source: see text.

declined substantially after 1808, and collapsed in 1814, when trade volumes were only around 10% of their 1820 levels.

An alternative way of measuring the impact of wartime blockades on trade volumes, given the existence of strong upward trends in some of these time series, is to regress the log of the series on time, time squared, and a blockade dummy variable taking the value one for the years 1807–14 and zero otherwise. The percentage impact of the blockade on trade (relative to a no-blockade counterfactual) is then given by  $100 \times (e^{\delta} - 1)$  where  $\delta$  is the coefficient on the blockade dummy variable. Table 1 gives the percentage changes in trade volumes for these four countries during 1807–14 relative to the no-blockade counterfactual; entries in bold type correspond to equations in which the coefficient on the blockade dummy variable was statistically significant. As can be seen, British trade was essentially unaffected by the blockades; on the other hand, French and American imports were halved during the period, while US exports were reduced by a third. The blockades do not seem to have reduced Swedish trade volumes at all, according to these measures. (Indeed, Swedish timber exports remained healthy during the conflict, while the period was on balance a prosperous one for the iron industry.)<sup>12</sup> The message from the table is that Britain's opponents appear to have done worse than Britain herself; on the other hand, the fact that the French and American declines in trade volumes appear to be greater on the import side than on the export side is consistent with (if unlikely to be entirely explained by) the under-reporting of trade due to smuggling (which, one assumes, would have posed a greater problem for compiling accurate import statistics than for export statistics, in cases where governments were mainly concerned with reducing their opponents' exports).

The trade effects of the wars were not limited to Europe and North America. In Argentina, *per capita* exports collapsed by two-thirds between 1810 and 1812, before recovering their 1810 level in 1814 and surpassing it thereafter.<sup>13</sup> The Spanish blockade of Buenos Aires was an Argentine-specific factor in this case, but Latin American trade more broadly was severely disrupted during the conflict.<sup>14</sup> Not only that; an inability to export,

12 *Historisk statistik för Sverige. Del 3. Utrikeshandel 1732–1970*. Stockholm: Statistiska Centralbyrån, 1972; Eli F. Heckscher, *An economic history of Sweden*, Cambridge, MA: Harvard University Press, 1954, pp. 181–2.

13 R. D. Salvatore and C. Newland, 'Between independence and the golden age: the early Argentine economy', in G. della Paolera and Alan M. Taylor, eds., *A new economic history of Argentina*, Cambridge: Cambridge University Press, 2003, Figure 2.1, p. 21.

14 Victor Bulmer-Thomas, *The economic history of Latin America since independence*, 2nd edition, Cambridge: Cambridge University Press, 2003, p. 19.



and later the struggle for Latin American independence, severely hit the continent's output of silver, one of its major export commodities. According to the available data,<sup>15</sup> almost a century of continual expansion was replaced immediately after the onset of the wars by wildly fluctuating output around an essentially flat trend, which then started declining; according to Dermigny, Mexican silver output, which had averaged more than 20 million *piastres* p.a. between 1792 and 1806, fell to an annual average of 16.4 million between 1807 and 1813, 11.3 million between 1814 and 1820, and just 8.8 million between 1821 and 1827.<sup>16</sup> These data suggest an initial negative impact of wartime blockades on silver exports, which was then reinforced by political disorder within Latin America. The result was that worldwide silver production, which had averaged more than 28 million ounces between 1781 and 1810, fell to 17.4 million ounces in the following decade, and 14.8 million during the 1820s.<sup>17</sup> In turn, this decline in Latin American silver output had consequences around the world. To take one example, British silver shipments to India and China declined dramatically, with a much greater proportion of Britain's payments to those countries in exchange for their exports taking the form of merchandise than had been the case during the eighteenth century.<sup>18</sup>

Figure 2 shows that exports from Africa were also seriously disrupted by the war: it gives 5-yearly totals of African slave exports from the 1670s until the final end of the trade in the 1860s. The shaded area represents the period from 1791 to 1815: exports during 1811–15 were less than half of what they had been in the late 1780s. Of course, warfare was not the only factor disrupting the slave trade: in 1808 the British government abolished the slave trade between Africa and British colonies, the same year that saw the abolition of the United States slave trade, and five years after the Danish decision to end her own slave trade in 1803.<sup>19</sup> The Dutch abolished their slave trade in 1815, and formally the French trade was ended the following year (although illegal trade continued for several decades). The impact of these import abolitions can be seen in the fact that in several areas not affected by them (South East Brazil, Puerto Rico, Cuba) imports were higher in 1811–15 than in 1806–10 (although imports declined between the two periods in Bahia, Pernambuco, and North East Brazil).<sup>20</sup> And yet wartime disruption to shipping, as well as the slave revolt on Saint Domingue, must have played a role as well, since exports were already falling in the 1790s, before abolition; and since once the war had ended, slave exports resumed, before finally collapsing after 1850 or so.<sup>21</sup>

15 See the data given at the Latin American Economic History Data Bank, <http://mansell.stucen.gatech.edu/rlg7/latamdata/index.html>.

16 L. Dermigny, *La Chine et l'Occident: le commerce à Canton au XVIII<sup>e</sup> Siècle 1719–1833*, Tome III, Paris: S.E.V.P.E.N., 1964, p. 1206.

17 P. Vilar, *A history of gold and money 1450–1920*, London: NLB, 1976, p. 331.

18 Dermigny, *La Chine*, pp. 1209–10.

19 Stanley L. Engerman, 'Some implications of the abolition of the slave trade', in D. Eltis and J. Walvin eds., *The abolition of the Atlantic slave trade: origins and effects in Europe, Africa, and the Americas*, Madison, WI: University of Wisconsin Press, 1981, pp. 4–5.

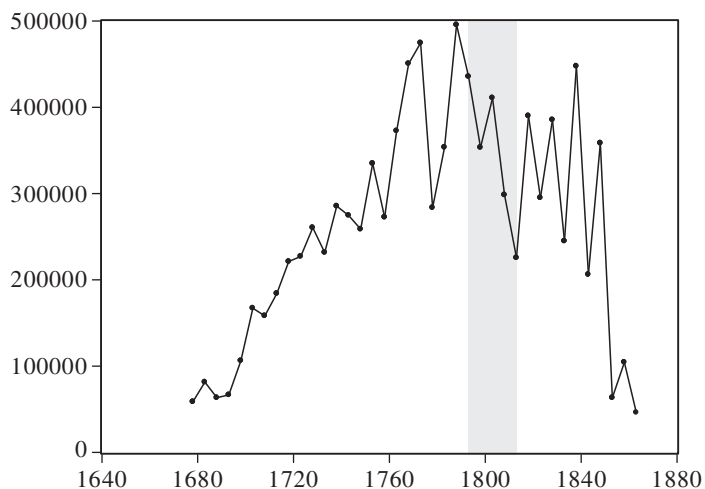
20 Supplement materials for David Eltis, 'The volume and structure of the transatlantic slave trade: a reassessment', *William and Mary Quarterly*, 3d Ser., 58, 2001, pp. 17–46. I am grateful to Professor Eltis for making these available to me.

21 Indeed, previous eighteenth-century wars had led to the complete cessation of the French slave trade. I am indebted to François Crouzet for this point.



**Figure 2.** African slave exports, 1676–1865.

Source: data underlying Eltis (2001), kindly provided by author.



The case of Southeast Asia is perhaps the exception that proves the rule. Bulbeck *et al.* document Southeast Asian trade in four key regional exports: cloves, pepper, sugar and coffee, and find that the 1780s marked a (positive) turning point for Southeast Asian exports, for a region-specific reason: as will be seen below, the wars led to the end of the colonial trade monopolies, in the long run boosting export supply.<sup>22</sup> Thus, export growth averaged an impressive 4.6% p.a. during 1780–1829 (p. 15), which was by far superior to the rates achieved previously. On the other hand, trade during the wars was unstable, owing to the disruption of shipping and the French occupation of the Netherlands in 1795: export growth in real terms fell to a mere 0.1% p.a. in the 1810s, before increasing to 11% p.a. in the 1820s. Javanese sugar barely reached Europe during 1790–1816, while the same was true for the island’s coffee exports after 1794.<sup>23</sup> However, while exports to Europe declined during the wars, Chinese and, especially, American ships could now buy spices directly in Southeast Asia, and ship them to their home markets; with sugar and coffee production in Saint Domingue disrupted by the slave rebellion there, there was an abundant demand for the region’s output.

Overall, it appears that war had a negative impact on trade volumes, but the evidence is not as definitive as one would like, given the problems with the available trade statistics, and the omnipresent possibility that smuggling was in fact quantitatively significant, as Heckscher claimed. Fortunately, there is another way of measuring trade disintegration, and that is to look at the price evidence. If blockades had an impact on trade, then the relative prices of importables should have increased in the affected countries; the relative price of exportables should have declined; the terms of trade should have worsened; and price gaps between export and import markets for particular commodities should have increased. Since there is abundant and high-quality price evidence available for a number

22 D. Bulbeck, A. Reid, L. C. Tan, and Y. Wu, *Southeast Asian exports since the 14th century: cloves, pepper, coffee, and sugar*, Leiden: KITLV Press, 1998, pp. 12–13.

23 *Ibid.*, pp. 118, 147.

of countries during this period, largely thanks to the efforts of the International Scientific Committee on Price History of the 1930s and 1940s, it makes sense to explore this evidence and see what it reveals.<sup>24</sup>

## Relative price evidence

Throughout this section, I will focus on *relative* prices, typically of import goods with respect to export goods. International commodity market disintegration will show up here as a rise in the relative price of the import good. As well as being the 'right price' to look at from the point of view of economic theory, looking at relative prices in this manner allows me to abstract from the volatile aggregate price movements of the period. Obviously, the relative price of, say, wheat to textiles in Great Britain will be influenced by factors other than wars and blockades; in principle, the relative price could also increase because of a bad harvest, or other factors. However, if I were to find that during the war, the relative price of wheat rose relative to textiles in Britain, while simultaneously *falling* in France, and if I were to find that systematically import prices rose relative to export prices in many countries, then it would be a fair conclusion that wartime disruption to international trade was leading to a disintegration of international commodity markets. (Moreover, in regressions not reported here, I found that taking account of British weather shocks made no difference whatsoever to my estimate of the effects of war and blockades on the British relative price of wheat.)<sup>25</sup>

Figure 3 explores the impact of war on the relative prices of importables in Britain. In this and subsequent figures, all relative prices are indexed on 1820 = 100 (unless otherwise stated). Six goods are chosen, two representing imports from Europe, two from Asia, and two from the New World. The European commodities chosen are wheat, which as the leading industrial nation Britain was already importing in the late eighteenth century, from neighbouring Ireland but also from Northern Europe; and timber, another crucial import which at the end of the eighteenth century still came predominantly from Northern Europe. Pepper and green tea are chosen as representative imports from Asia; while sugar and raw cotton are chosen as representative imports from the New World. Together, corn, timber, tea, spices, sugar and raw cotton accounted for almost two-fifths of total British imports in 1784–6. The prices of all six commodities are expressed relative to the price of textiles, which accounted for 45% of British exports during the same period.<sup>26</sup>

The first graph in Figure 3 concerns the relative price of wheat. According to Thomas Tooke, it cost between 30 and 50 shillings per quarter to ship wheat from the Baltic to Britain in 1810, as compared with 4s 6d in 1837, while Glenn Hueckel has estimated that wartime freight, insurance and licence costs accounted for between 25% and 40% of British

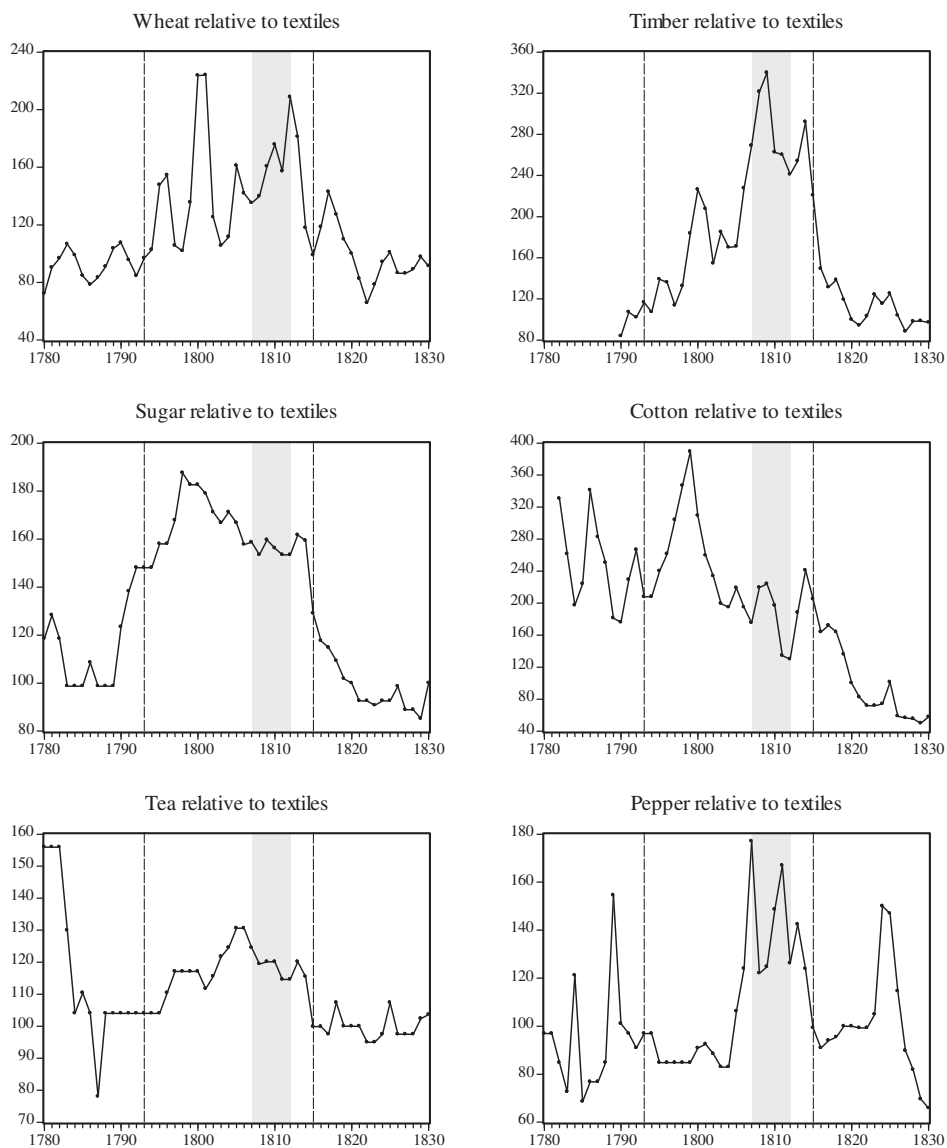
24 A. H. Cole and R. Crandall, 'The international scientific committee on price history', *Journal of Economic History*, 24, 1964, pp. 381–8.

25 I am grateful to Liam Brunt for providing me with data on that portion of British wheat yields due to weather shocks during the period.

26 Ralph Davis, *The industrial revolution and British overseas trade*, Leicester: Leicester University Press, 1979, pp. 94, 110–11.

**Figure 3.** Relative prices in Britain, 1780–1830 (1820=100).

Source: see Appendix 1.



wheat prices in 1812.<sup>27</sup> It would thus be surprising if the relative price of wheat did not rise during the war, and Figure 3 confirms that indeed it did. The relative price of wheat was 57% higher during the war years (1793–1815) than in the thirteen years previously, and it was 47% higher than during the succeeding fifteen years. Comparing the Blockade period

27 Glenn Hueckel, 'War and the British economy, 1793–1815: a general equilibrium analysis', *Explorations in Economic History* 10, 1973, p. 369.

(1807–12, the shaded area in Figure 3), the effect was greater still: relative wheat prices increased 77% relative to their pre-war average, and 66% relative to their post-war average.

The relative price of lumber seems also to have been profoundly affected by war, although in this case it is admittedly difficult to separate out the effects of trade disruption (which would have lowered British supplies) from the increased naval demand for lumber which the war gave rise to, and which would have led to its relative price increasing even if free trade had been maintained throughout the conflict. As can be seen from the graph, the relative price of lumber peaked during the Continental Blockade period, suggesting that demand-side factors were not the only ones at work, and that trade disruption mattered also. Indeed, Gayer *et al.*, from whom the timber prices were extracted, were forced to use prices for Yellow American timber after 1808, whereas they had previously used quotations for Memel fir, since '(i)n 1808 the virtual closing off of the Baltic forced British importers to shift rapidly to the American sources of supply. Memel timber in that year was virtually unavailable, its price was astronomically high' (p. 851).<sup>28</sup> Average wartime relative prices were 61% higher than prices during 1816–20; the relative price of lumber during 1807–12 was 121% higher than during 1816–20.

It seems clear that war impeded Britain's ability to import goods from Continental Europe, and raised British relative prices of 'temperate zone' agricultural commodities. But what of Britain's overseas trade with Asia and the Americas? Here, the picture is somewhat more nuanced, as would be expected given the fact that Britain was dominant at sea. Take the relative price of sugar, for example. Figure 3 shows that the relative price of sugar was indeed much higher during the war than either before (43% higher) or after (66% higher). However, the relative price of sugar had already been rising prior to 1793 (since 1789, in fact, perhaps due to the influence of the French Revolution on Haitian sugar supplies). Not surprisingly, the years of the most intense blockade (1807–12) did not have any particular impact on the relative price of a good imported in the main from the Caribbean and Latin America, rather than Continental Europe. As for raw cotton, its relative price did increase in 1808 and 1809, as a result of the US Embargo, as well as in 1814, but Figure 3 makes it clear that these increases were not out of the ordinary, and have to be set against a trend which was steadily favourable as far as Britain's cotton producers were concerned, a result of innovations such as the cotton gin and the steady expansion of the area under cultivation in the United States. Relative cotton prices were indeed lower after the war than during it, but the figure suggests that it would be difficult to attribute this fact to the cessation of hostilities alone.

On the other hand, there is clearer evidence of wartime increases in the relative prices of Asian imports. The relative price of tea was 16% higher during than after the wars (and note also the very substantial spike in 1780–4, coinciding with the Fourth Anglo-Dutch War). As for the relative price of pepper, it was 53% higher during the peak of the wartime trade disruption (1807–12) than before the war, and 44% higher than after, reflecting wartime increases in freight and insurance rates. However, there were also pronounced spikes in this relative price both before (1784, 1789) and after (1824–5) the war. While the two

28 A. D. Gayer, W. W. Rostow, and A. J. Schwartz, *The growth and fluctuation of the British economy 1790–1850*, Oxford: Clarendon Press, 1953, p. 851.

earlier spikes can plausibly be related to conflict or fears of conflict (the end of the Anglo-Dutch war, and the French Revolution), it is less clear what was driving the latter one.

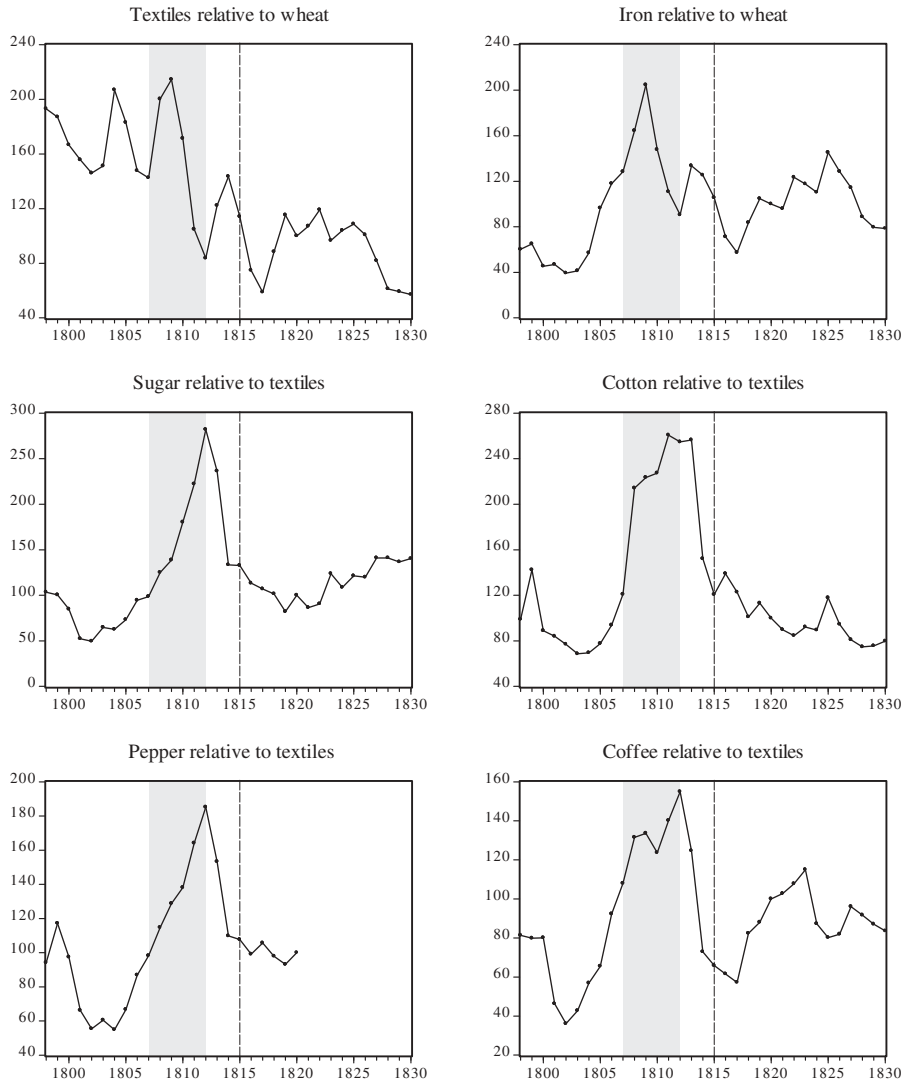
To summarize: these annual price data suggest a pronounced wartime effect on British imports from Europe, and a less pronounced (if still sizable) effect on imports from Asia and the Caribbean/Latin America. Given that the French were able to influence trade between Britain and large areas of the Continent, which were under their control, but had no power whatsoever to influence Britain's overseas trade, this makes sense. What about other countries participating in the conflict?

Figure 4 looks at relative prices in France, but only from 1798 onwards (which is when data become available in the standard source for the period).<sup>29</sup> This means that wartime prices can only be compared with post-war prices. As can be seen from the figure, the key British export to the Continent, textiles, was a lot more expensive relative to wheat during the war than afterwards (thus, this relative price moved in opposite directions on either side of the English Channel): prices during 1798–1815 were 77% higher than during 1816–30. While there was a peak in the relative price during the Continental Blockade period, it does not stand out from similar, earlier peaks, although relative import prices did fall sharply and permanently in 1812–13. War, rather than the blockade itself, seems to have had an important impact on French relative prices in this instance. The situation is different as regards the other major industrial commodity of the early Industrial Revolution, iron: its relative price rose substantially during the Continental Blockade (to a level 41% higher than its post-war average) but was not higher on average during the war as a whole than afterwards. Iron (as opposed to hardware and other iron products) was not smuggled at all, and it may be that this explains the greater effect of the Blockade *per se* on iron prices; but this is speculation. The Blockade also appears to have had an important effect in making overseas imports, such as sugar, raw cotton, pepper and coffee, scarcer within France (and indeed this effect is much more clearly discernible than for the European industrial commodities just mentioned): the peaks in the prices of these four commodities relative to the major European exportable (textiles) are very pronounced, with the relative prices during 1807–12 exceeding average post-war levels by 53%, 124%, 39% and 50% respectively. Another noteworthy feature of the figure, which reinforces the impression that war and blockades did have an important effect on relative prices, is the decline in the relative price of importables coinciding with the Peace of Amiens of 1802–3.

The available price evidence also suggests that the relative prices of overseas importables rose considerably in the Netherlands during the wars, and especially during the period of the Continental Blockade (Figure 5). Indeed, the impact of war on relative prices in this maritime nation was more dramatic than in either Britain or France. Relative to textiles prices, sugar was an astonishing 577% dearer during 1807–12 than it had been before the war, and 277% dearer than its post-war average. (In part, this was related to the loss of Guyana and Surinam to Britain (Surinam was returned in 1815), but it was more a reflection of the British blockade than of anything else, since before the war, Dutch sugar refineries had relied far more on imports from France than on imports from the Dutch plantation

29 A. Chabert, *Essai sur les mouvements des prix en France de 1798 à 1820*, Paris: Librairie des Médecis, 1945.

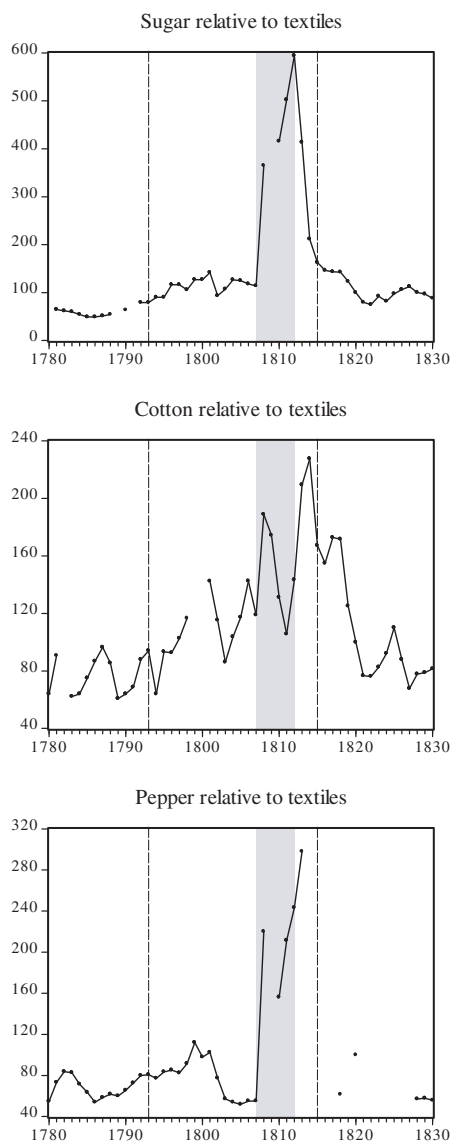
**Figure 4.** Relative prices in France, 1798–1830 (1820=100).  
*Source:* see Appendix 1.



colonies.)<sup>30</sup> The equivalent figures for raw cotton are 39% and 90%; those for pepper are 167% and 161% respectively. In the case of trade between the Netherlands and Asia, there exists information on intercontinental price gaps for a number of commodities.<sup>31</sup> Clove prices had been 15.7 times higher in Amsterdam than in Southeast Asia in the 1760s and the 1770s; the margin declined in the 1800s to 6.5, presumably due to the ending of the VOC monopoly, of which more later. However, it increased again to 8.9 in the 1810s,

30 Jan de Vries and A. van der Woude, *The first modern economy: success, failure, and perseverance of the Dutch economy, 1500–1815*, Cambridge: Cambridge University Press, 1997, pp. 472–3.

31 Bulbeck et al., *Southeast Asian exports*.

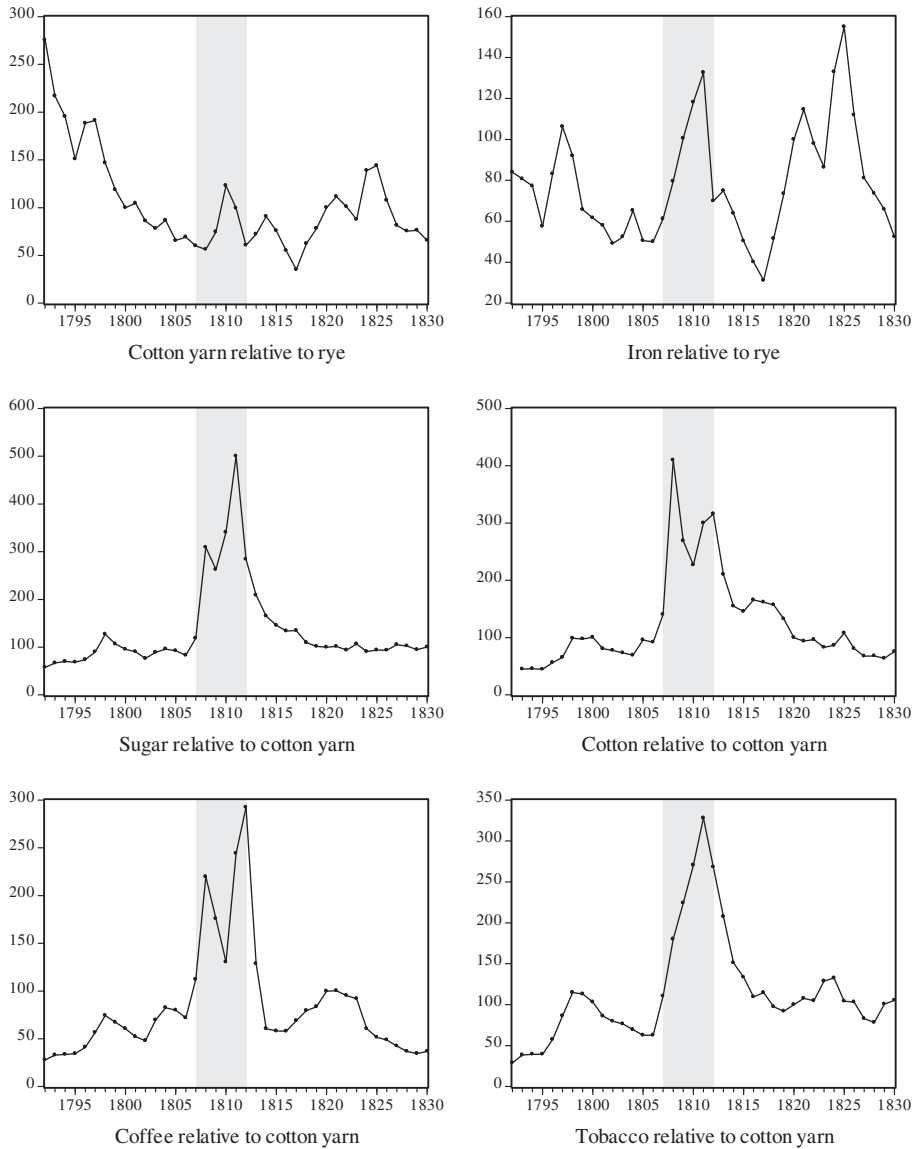
**Figure 5.** Relative prices in Holland, 1780–1830 (1820=100).*Source:* see Appendix 1.

reflecting wartime blockades, before collapsing to 1.9 in the 1820s, and just 1.2 in the 1830s. Something similar happened in the case of pepper: Euro-Asian price spreads which had been in the 4–5 range in the mid-1700s rose to 6 in the 1780s, and 9.3 in the 1790s. There then followed the same pattern of declining spreads in the 1800s (to 3.8), a rise in the 1810s (to 5.0), followed by steady decline once the war had ended.

Figure 6 shows the impact of the war on relative prices in Germany. As can be seen, there were spikes in 1810–11 in the prices of European industrial goods (cotton yarn and iron) relative to rye, although these were not particularly noteworthy in the context of



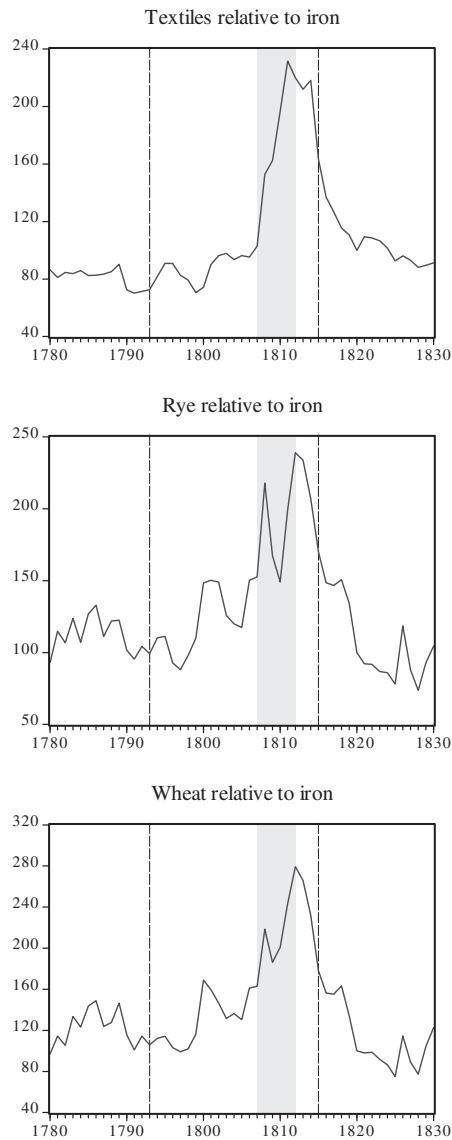
**Figure 6.** Relative prices in Germany, 1792–1830 (1820=100).  
*Source:* see Appendix 1.



longer run trends. As with France, the real impact of the war, and in particular of the blockade period, was to increase the relative prices of non-European imports; and as in the case of the Netherlands, these increases were dramatic. Relative to the price of cotton yarn, the price of sugar was 190% higher during 1807–12 than after the war; the relative price of raw cotton was 169% higher; the relative price of coffee was 197% higher; and the relative price of tobacco was 121% higher.

Nor were the effects of war limited to those countries which were actually involved in it. Sweden had remained outside the Continental System for longer than any other Continental

**Figure 7.** Relative prices in Sweden, 1780–1830 (1820=100).  
*Source:* see Appendix 1.



power, only joining it under compulsion in January 1810. According to Heckscher, countries such as Sweden, which had ‘unhampered supply from Great Britain’, found themselves facing ‘a kind of hypertrophy of imports’ as British supplies were diverted from their normal outlets: the result was an improvement in the terms of trade, rather than a deterioration, and a consequent increase in welfare.<sup>32</sup> In fact, Figure 7 shows that this happy outcome did not arise. Bar iron was the dominant Swedish export towards the

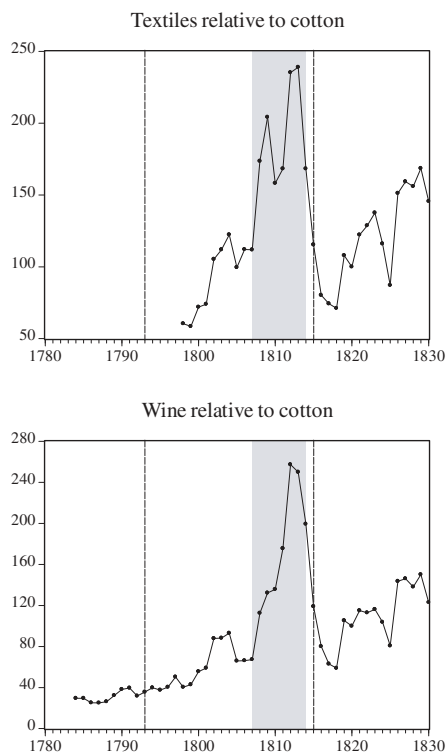
<sup>32</sup> Heckscher, *Continental system*, pp. 264–5.

end of the eighteenth century; Sweden imported colonial goods, as well as grain (especially rye), textiles, and raw materials. The figure shows that prices of textiles and grains, relative to bar iron, shot up during the period of the Continental Blockade. While relative import prices rose sharply in 1810, the year Sweden joined the Blockade, they did not decline during 1808 and 1809, as would have been the case under Heckscher's hypothesis. Rather, the evidence is consistent with rising transport costs during the period: the buoyant demand for iron and wood products mentioned earlier did not translate into a higher *domestic relative* price of iron in Sweden, since transport costs lowered Swedish iron prices relative to prices abroad, and raised Swedish import prices relative to those abroad. The relative price of textiles was 118% higher during 1807–12 than it was before the wars, and 70% higher than the post-war average; the figures for rye were 67% and 77% respectively; and the figures for wheat were 75% and 94% respectively. In the case of all three commodities, their relative prices collapsed once the war was over.

It seems as though the wars of 1793–1815 had important relative price effects in both belligerent powers and neutral countries, despite the undoubted existence of smuggling. Nor was the impact of the wars limited to Europe. According to Jeffrey Frankel, in 1807 the Liverpool price of cotton was 27.5% higher than the Charleston price; but in the final two months of the embargo the Liverpool price was 293.3% higher than the Charleston price. Using prices for a number of key agricultural and industrial commodities, Frankel found that the British terms of trade deteriorated by between 41.9% and 49.7% during the dispute, while the US terms of trade deteriorated by between 31.6% and 32.7%.<sup>33</sup> Figure 8 confirms that war and embargoes did seriously hamper trans-Atlantic trade, smuggling notwithstanding: the relative price of goods imported from Europe, such as textiles and wine, increased significantly in the United States during the years of the Embargo and its aftermath (which culminated in the War of 1812 opposing Britain and the United States). Relative to the price of raw cotton, textiles prices were 51.4% higher during 1807–14 (the shaded area in the graph) than they were on average post-war, while wine prices were 52.4% higher. Indeed, compared with the immediate post-war (1816–20) era the effects seem even larger: textiles prices were 110.2% higher during 1807–14, and wine prices were 104.1% higher. A key finding of Figure 8 (consistent with the evidence in Figure 1) is that the most serious disruption to US trade with Europe occurred in 1814, rather than during the Embargo, despite the attention that has been lavished on the earlier episode.

The war also severely affected Latin American markets. Figure 9 shows the price of two key Peruvian imports from Europe, linen and paper, expressed in terms of silver (the key Peruvian export). The paper prices come from different locations, but all the graphs tell a similar story: the relative price of imports rose considerably during the wars. Relative to silver, paper prices during 1807–12 (the shaded area in the graph) exceeded their pre-war averages by between 88.7% and 150% in these three cities (Lima, Arequipa and Potosí) and they exceeded their 1816–20 levels by between 70.6 and 140%. Silver prices of Rouen linen in Arequipa during 1807–12 exceeded their pre-war averages by 68.4%, and they exceeded their 1816–20 average by 167%. War also affected relative prices in

33 Frankel, 'The 1807–1809 embargo', pp. 304, 307–8.

**Figure 8.** Relative prices in U.S., 1780–1830 (1820=100).*Source:* see Appendix 1.

Argentina. According to Newland the end of the Napoleonic Wars led to a decline in freight and insurance costs, and a convergence of local on international prices.<sup>34</sup>

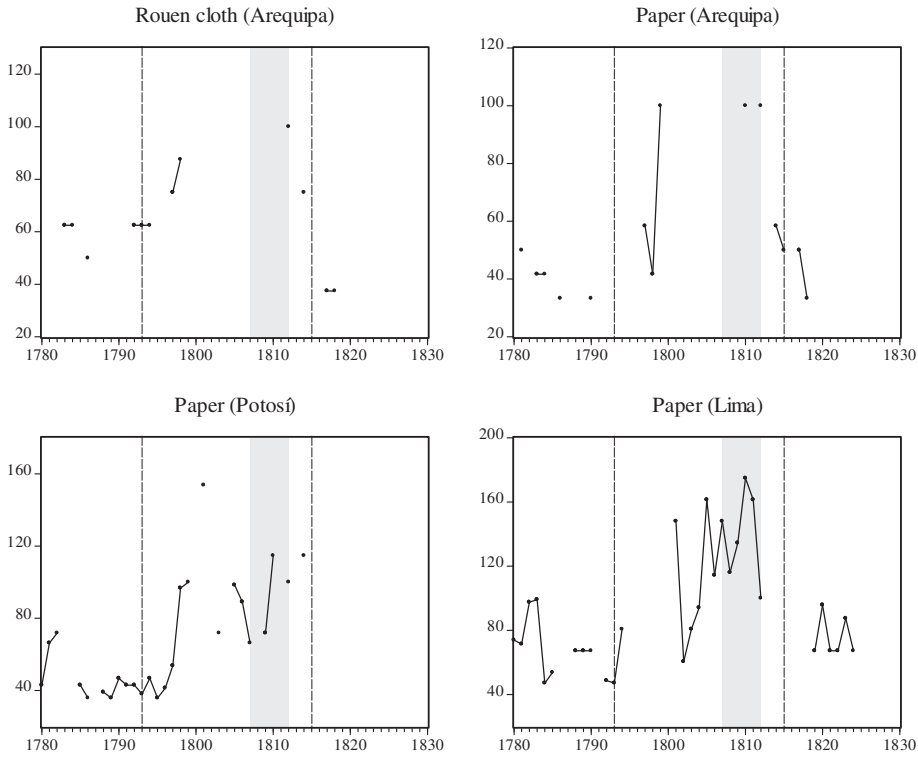
Lovejoy and Richardson provide data on slave prices deflated by the cost of imported trade goods, both in West Africa, where British slaving had been heavily concentrated, and further south, in Angola.<sup>35</sup> If their prewar (1788–92) level is taken to equal 100, real West African slave prices stood at 91.6 during 1793–7, 122 during 1798–1802, 132.5 during 1803–07, but only 74.3 during 1808–14, and 40.3 during 1815–20. The prices then recovered, consistent with the evidence in Figure 2 of a recovering slave trade, to 57.6 in the early 1820s, and 90.1 in the late 1820s. The timing of the price decline suggests strongly that the British and US abolition of the slave trade was the most important force driving it, an impression strengthened by the evidence that Angolan slave prices were stable after 1808 (Table 3, p. 113); on the other hand, the post-war recovery in slave prices suggests an independent effect for the war as well.

Once again, Southeast Asia is in some ways the exception that proves the rule. Elsewhere, it seems to have been true that the relative price of imports rose during the wars,

34 C. Newland, 'Exports and terms of trade in Argentina, 1811–1870', *Bulletin of Latin American Research*, 17, 1998, p. 413.

35 P. E. Lovejoy and D. Richardson, 'British abolition and its impact on slave prices along the Atlantic coast of Africa, 1783–1850', *Journal of Economic History*, 55, 1995, pp. 98–119.

**Figure 9.** Peruvian import (expressed in silver) 1780–1830 (1820=100).  
*Source:* see Appendix 1.



and that the relative price of exports fell. While Bulbeck *et al.* do not provide Southeast Asian prices of imported goods spanning the pre-war and post-war periods, they do give prices (expressed in silver) for a variety of exported goods. Table 2 gives average decadal silver prices for three exported commodities, cloves, pepper and coffee. The data on coffee prices exhibit similar behaviour to that experienced in other regions of the world, with export prices below their pre-war levels in the 1800s and to a lesser extent the 1810s, before rising in the 1820s. Cloves and pepper reveal a different pattern, however. If the mean price for the 1770s is taken to be 100, clove prices averaged 131.6 during the 1801–20 period, while pepper prices also rose, to 153.4 during the 1800s, and 134.4 during the 1810s. The fact that relative export prices rose during this period, rather than falling, of course reflects the ending of the VOC monopsony mentioned earlier; the difference between this atypical behaviour and the experience of coffee prices can presumably be explained by the fact that while the international cloves and pepper trade had been largely controlled by European trading monopolies, coffee was also produced in the Western hemisphere, and its world price was thus not affected by the decline and fall of the VOC. (For example, in 1825, the Dutch East Indies accounted for just one-fifth of world coffee production.)<sup>36</sup> Even in the Southeast Asian case, however, war probably had an independent effect on

<sup>36</sup> Bulbeck *et al.*, *Southeast Asian exports*, p. 150.

**Table 2.** Southeast Asian export prices (in silver), 1770s–1820s (1770s = 100)

	Cloves	Pepper	Coffee
1770s	100.0	100.0	100.0
1780s	NA	100.0	100.7
1790s	NA	82.2	100.0
1800s	131.6	153.4	33.8
1810s	131.6	134.4	87.8
1820s	266.5	118.8	143.2

Source: Bulbeck *et al.*, *Southeast Asian exports*, pp. 59, 84, 168.

prices: clove prices were twice as high in the 1820s as they had been in the first two decades of the century. This suggests that wartime disruption prevented clove prices from rising even faster in the wake of VOC abolition than they actually did.<sup>37</sup>

Table 3 summarizes the discussion thus far, providing relative price information that is as far as possible comparable across countries. In particular, it shows the percentage by which war and blockades raised the price of importables, relative either to exportables, or to grain prices. This percentage impact was once again calculated by regressing the log of the relevant relative price on time, time squared, and dummy variables representing wartime (1798–1815, the start date being determined by the availability of French data) and the blockade period (taken to be 1807–14, so as to capture the effects of the Anglo-American war). The results in the column headed ‘blockade’ reflect the combined effects of both wars and blockades, and are calculated by adding together the coefficients on both dummy variables.

Panel A looks at the relative price of wheat and textiles in Britain and France, and confirms that agricultural goods became relatively more expensive in Britain during the conflict, and that textiles became relatively more expensive in France. Figure 10 gives the two relative prices on one graph, and shows that they moved in a broadly similar (if opposite) fashion during the conflict, with British import price spikes in 1800–1 and 1814, and French import price spikes in 1804–5 and 1808–9. According to Panel A, the average wartime impact in the two countries was very similar, while the blockade had roughly twice as big an impact in Britain as in France, raising relative import prices by approximately 40% and 20% in the two countries respectively. The results suggest that wartime attempts to disrupt trade in Europe worked, and if anything had a bigger impact on land-scarce and populous Britain than on the European continent, which had a comparative advantage in agricultural commodities, but was also a producer of textiles.

However, once the focus is switched to imports of non-European commodities, the picture is dramatically altered. Panel B looks at the relative price of a key European import from Asia, that is to say pepper, relative to both wheat and textiles, in Britain, France and the Netherlands. As can be seen, the price of pepper rose far more in France and the Netherlands than in Britain, no matter which *numéraire* is used. Its relative price more than doubled on the Continent during the blockade period, while rising by less than a third relative to textile prices in Britain. (Indeed, since wheat prices in Britain also rose, the price

<sup>37</sup> Pepper was an exception during the 1820s, however, with its price slipping slightly rather than rising.

**Table 3.** Price impact of Napoleonic Wars (percentage increase in relative price relative to peace-time counterfactual)

Relative price	Country	War	Blockade
<b>Panel A. Intra-European</b>			
Wheat/textiles	Britain	19.03	41.35
Textiles/wheat	France	16.58	19.84
Textiles/wheat	Germany	6.74	5.71
<b>Panel B. Europe-Asia</b>			
Pepper/wheat	France	66.53	216.36
	Britain	-27.22	-8.21
	Holland	1.41	119.46
Pepper/textiles	France	19.10	109.82
	Britain	-13.37	29.74
	Holland	15.13	167.37
<b>Panel C. Europe-Americas</b>			
Sugar/wheat	France	63.31	195.03
	Britain	16.31	-2.90
	Holland	17.87	165.10
	Germany	2.43	143.09
Raw cotton/wheat	France	-6.46	114.28
	Britain	-10.96	-26.17
	Holland	-9.47	11.45
	Germany	-28.70	67.89
Sugar/textiles	France	26.70	125.59
	Britain	38.44	37.25
	Holland	25.27	214.64
	Germany	-4.04	129.95
Raw cotton/textiles	France	-19.76	78.81
	Britain	6.43	4.93
	Holland	-2.31	31.23
	Germany	-33.20	58.82
Textiles/Raw cotton	USA	106.01	182.51
Wine/raw cotton	USA	28.59	137.05
Rouen cloth/silver	Peru (Arequipa)	12.92	91.58
Paper/silver	Peru (Arequipa)	53.19	120.79
Paper/silver	Peru (Lima)	46.87	111.77
<b>Panel D. Africa-Europe/Americas</b>			
Imports/slaves	Africa	-48.49 <sup>a</sup>	-32.37 <sup>b</sup>
<b>Panel E. Asia-Europe/Americas</b>			
Silver/cloves	Southeast Asia	102.51 <sup>c</sup>	NA
Silver/pepper	Southeast Asia	-17.44 <sup>c</sup>	NA
Silver/coffee	Southeast Asia	135.53 <sup>c</sup>	NA

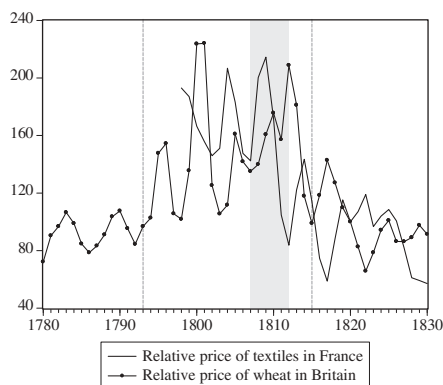
Source: see Appendix 1 and text. Southeast Asian prices are taken from Table 2; African prices are from Lovejoy and Richardson (1995, Table 2, column 6, p.108).

<sup>a</sup>1798-1814/1815-20; <sup>b</sup>1808-14/1815-20; <sup>c</sup>1801-20/1821-30

of pepper relative to wheat actually fell in Britain, a finding mirrored for sugar and cotton below.)

Panel C looks at the relative prices of European imports from the Americas (sugar and raw cotton, relative to both wheat and textiles), as well as American imports from



**Figure 10.** Relative wheat/textile prices in Britain and France, 1780–1830.*Source:* see Appendix 1.

Europe (textiles, wine and paper, relative to cotton and silver). Once again, relative import prices rose very substantially in France, Holland and Germany during the blockade period, and by a lot more than in Britain, even when textiles are used as the *numéraire* rather than wheat. It is noticeable that while relative sugar prices in France and the Netherlands were higher throughout the war, reflecting the collapse of Saint Domingue and British efforts to disrupt trade between the enemy and enemy colonies, relative cotton prices there only rose during the blockade period, when the neutral American trade with the Continent was also prohibited as a result of the British Orders in Council. Similarly, it was only during the blockade period, when Napoleon's policies were extended eastward, that the relative prices of cotton and sugar rose in Germany. Meanwhile, on the other side of the Atlantic the relative prices of textiles, wine and paper rose sharply. Comparing Britain and the United States, it seems that the cotton/textiles relative price moved far more against the United States than against the UK: Anglo-American economic and military warfare more than doubled the relative price of textiles in the United States, but had only a small impact on British prices. The contrast between these results and those of Frankel are most likely explained by the different periods studied by the two papers; Frankel concentrates on the Embargo of 1807–9, while this study encompasses the more important British naval blockade of the United States in 1814.

The final two panels are calculated by comparing wartime prices with post-war prices, there being not enough data to carry out regression analysis. Panel D gives the relative price of imported goods relative to slaves in Africa; the goods imported into Africa consisted both of European manufactures, and re-exports of New World goods. In this case, it seems as though imports were relatively cheaper during the war than afterwards; this is due to the choice of 1816–20 as the peace-time benchmark (since real slave prices in West Africa fell after 1808, but continued falling right through the 1810s). Panel E gives the Southeast Asian price of silver, relative to cloves, pepper and coffee: the fact that these prices are only available decadally means that I cannot separate out the blockade years from the rest of the war, but with the exception of pepper mentioned earlier, the table shows large increases in the price of silver relative to local export goods when the first two decades of the nineteenth century are compared with the 1820s.

There are thus three main conclusions from the table. First, the war raised the relative price of importables nearly everywhere, often by significant amounts. Second, the increase in the relative price of importables was particularly pronounced during the blockade years, with increases of more than 100%, or even 200%, being common. Third, a comparison of Britain with France, Holland and Germany suggests that the former's access to non-European goods was far less severely restricted during the conflict than that of its rivals. This can presumably be put down to British domination of the seas, which can also explain the greater impact of the conflict on import prices in the United States than in Britain, particularly during 1813–14.

It is clearly implausible to claim that the blockades and embargos of the French Revolutionary and Napoleonic Wars were so undermined by smuggling and corruption that they had no economic impact. Rather, the wars seriously impeded trade, not just in Europe, but across the globe. Indeed, in the working paper version of this article, I found that these restrictions to trade implied severe welfare losses in the United States (where they were of the order of 5–6% *per annum*) and France (where they lay between 3 and 4% *per annum*), although they were lower in Britain (less than 2% *per annum*).<sup>38</sup>

## Conclusion

The wars of 1793–1815 seriously disrupted trade; the fact that they did so worldwide suggests (but does not prove) that there was a potential for widespread commodity market integration during this period, which was hampered by military conflict. Whether this was also true earlier in the eighteenth century remains to be seen; for the moment, I merely note that Euro-Asian commodity price gaps rose during the first and second Anglo-Dutch Wars (1652–4 and 1665–7) and the Seven Years War (1756–63), while prices of imported goods such as paper and pepper rose substantially in Peru during the War of the Spanish Succession (1701–13), and the War of Jenkins' Ear between Spain and Britain (1739–41); and suggest that further study of the impact of wars on relative prices (or better yet, international price gaps) would be well worth while.<sup>39</sup>

What of the longer-run implications of the conflict for international commodity market integration? These were both negative and positive. On the negative side, the wars' effects continued to be felt in the trade policies of the main belligerents long after the conflict had ended. For example, in Britain rents rose substantially towards the end of the war: not surprisingly, landowners were reluctant to give up these gains. The result was political lobbying that gave rise to the Corn Law of 1815, which meant in practice that domestic markets were closed to foreign grain for most of the seven years following 1816. While this law was gradually relaxed in the succeeding decades, it was only finally repealed in 1846.

38 See Kevin H. O'Rourke, 'The worldwide economic impact of the Revolutionary and Napoleonic wars', *CEPR Discussion Paper No. 5079*, London: Centre for Economic Policy Research, 2005; also available as *NBER Working Paper No. 11344*, Cambridge, MA: NBER, 2005.

39 O'Rourke and Williamson, 'When did globalization', Figure 4, p. 33; K. W. Brown, 'Price movements in eighteenth-century Peru: Arequipa', in L. L. Johnson and E. Tandeter, eds., *Essays on the price history of eighteenth-century Latin America*, Albuquerque: University of New Mexico Press, 1990, pp. 183–5.

Meanwhile, on the French side of the English Channel war also had predictable political economy effects, although here the sectoral patterns of winners and losers were somewhat more complicated. In particular, whereas in Britain it was the case that agriculture, broadly speaking, gained from warfare, and that industry lost, in France there were winners and losers within industry itself.<sup>40</sup> Industries which were linked with the Atlantic trade, such as sugar-refining, the linen industry, ship building, rope-making, and sail-making were seriously affected by the Royal Navy's sea blockade, as well as the slave revolt on Saint Domingue; on the other hand, import-substituting industries presumably benefited (although in the case of cotton textiles, not only did the price of the final output rise, but so did the price of the major raw material, raw cotton). Naturally, Continental industries which had managed to prosper under these wartime circumstances, but were uncompetitive internationally, were unlikely to favour peacetime moves towards free trade; after the war they clamoured for protection, and, as Crouzet points out, they generally obtained it. In this way, the consequences for post-1815 French trade policy were to prove quite persistent.

Something very similar happened in the United States. In 1790, there were just 2,000 cotton spindles in the United States, as opposed to over 2 million in Britain, and by 1809 this number had only grown to 8,000. However, the number of American spindles then began to soar, reaching 93,000 in 1812 and 333,000 in 1817.<sup>41</sup> Thus, the take-off of the American cotton textiles industry coincided exactly with the virtual elimination of imports from Britain. This makes sense: Table 3 shows that the price of textiles in the United States, relative to raw cotton, was twice as high during 1807–12 as it was during 1816–20; this should have boosted the industry's profits, in contrast to the situation in Britain and France. Furthermore, the industry went into decline in 1815 and 1816, once the war had ended. Peter Temin recounts how New England textile manufacturers such as Francis Lowell set out to protect the new industry; their efforts were soon rewarded, since the 1816 tariff bill established a minimum valuation for cotton cloth imports, which effectively excluded low-cost Indian fabrics from the American market.<sup>42</sup> The fact that Indian manufacturers did not use American cotton made it easier for the bill to pass in the face of the objections of southern Congressmen, representing US export interests; however, in the years to come northern manufacturers would continue to press for protection, resulting both in tension between North and South, and in high levels of manufacturing protection during most of the nineteenth century. Thus, once again the disintegrating effects of war were propagated through domestic political processes.

Thus far, this paper has stressed the negative effects of the Twenty-three Years' War on trade and welfare; and these were indeed considerable. Indeed, at the time of writing (2005), sugar was one of the main obstacles facing trade negotiators in the context of the Doha round of trade discussions; and the growth of powerful rich-country sugar interests can of course be directly traced back to the development of an import-competing European sugar beet industry during the Napoleonic Wars. But the conflict had other, longer-run and more

40 Crouzet, 'Wars'.

41 Joshua L. Rosenbloom, 'Path dependence and the origins of cotton textile manufacturing in New England', in David Jeremy and Douglas A. Fairnie, eds., *The fibre that changed the world: cotton industry in international perspective*, Oxford: Oxford University Press, 2004, Table 1.

42 Peter Temin, 'Product quality and vertical integration in the early cotton textile industry', *Journal of Economic History*, 48, 1988, pp. 891–907.

systemic effects which ran in the other direction, and it would be wrong to conclude the paper without mentioning these.

First, one of the most striking long-run impacts of the conflict of these years was the virtual collapse of Europe's New World empires, and the transformation of the Americas into a land mass divided into independent states. To be sure, these states were now able to pursue their own commercial policies, and on the whole chose to impose high tariffs on imports, which implied commercial disintegration both with the rest of the world and amongst themselves.<sup>43</sup> On the other hand, however, mercantilist efforts to privilege bilateral trade between New World colonies and their mother countries, at the expense of multilateral trade, now lapsed (and presumably the revolutions themselves did nothing to foster closer trade links between Latin America and Iberia). This had an immediate effect, as can be seen, for example, by the increase in British exports to Latin America during and after the Napoleonic Wars. In the mid-1780s, Latin America had accounted for just 0.06% of British manufactured exports; the proportion was 3.3% in 1804–6, 6.3% during 1814–16, and 15% in the mid-1820s.<sup>44</sup>

Second, traditional mercantilist restrictions on trade between Europe and Asia were also disintegrating during the period, and again war was at least a proximate cause. In Holland, the VOC was severely weakened by the Fourth Anglo-Dutch War of 1780–4, losing half its ships; while it had not been profitable for some time, it now became 'a ward of the state'.<sup>45</sup> When the French revolutionaries invaded the Netherlands in 1795, and the Batavian Republic was declared, the VOC's activities were taken over by the government, who found, however, that war made trade with Asia next to impossible. In 1806, the Dutch government permitted free trade with Asia.<sup>46</sup> Meanwhile, the English East India Company lost its monopoly on the trade with India in 1813, following a very partial relaxation of this monopoly in 1793. According to Webster, this decision was also a by-product of wartime conditions: in an inflationary environment in which many imports were in scarce supply, and with consequent fears of social unrest, it became more difficult to justify trade monopolies caused by British legislation and which further restricted supplies.<sup>47</sup>

The English East India Company would hang on to its monopoly of the Anglo-Chinese trade until 1833; however, the Napoleonic wars brought to an end the era of great European trading monopolies. While this did not imply the dawn of a free-trading Golden Age, the typical trade restriction of the long nineteenth century would be a tariff, rather than the non-tariff barriers which had distinguished the eighteenth century, and which would distinguish the twentieth century. International trade between 1815 and 1914 would thus be conducted on a more multilateral basis than had been true before, a tendency that was further strengthened in 1860 when the Cobden-Chevalier Treaty placed the most-favoured-nation principle at the heart of European commercial policy.

43 John H. Coatsworth and Jeffrey G. Williamson, 'Always protectionist? Latin American tariffs from independence to Great Depression', *Journal of Latin American Studies* 36, 2004, pp. 205–32; William G. Clarence-Smith, *Cocoa and chocolate, 1765–1914*, London: Routledge, 2000.

44 Davis, *Industrial revolution*, p. 88.

45 de Vries and van der Woude, *The first modern economy*, p. 455.

46 *Ibid.*, p. 456.

47 A. Webster, 'The political economy of trade liberalization: the East India Company Charter Act of 1813', *Economic History Review*, New Series 43, 1990, pp. 404–19.

Third, by the war's end Britain was firmly established as the world's dominant power, and especially as its dominant naval power. The French had lost Haiti, their major Caribbean possession and source of colonial imports, while by 1830 the Spanish presence in the New World had been reduced to Cuba and Puerto Rico. The Dutch had lost the South African Cape Colony and Ceylon to Britain, as well as territories in the West Indies; more importantly, Amsterdam's once central role in international trade had been destroyed, as a result of the combined effects of the British blockade, the French Continental System, and French Imperial protectionism. One measure of British immediate post-war dominance is her share of world shipping, which had been just 17.9% in 1670; it jumped from 25.3% in 1780 to an impressive 42% in 1820.<sup>48</sup> And as Patrick O'Brien points out, British military hegemony at sea was an important precondition for the broadly liberal international economy of the long nineteenth century.<sup>49</sup>

Finally, the wars of 1793–1815 were such a traumatic event that they produced a surprisingly durable peace settlement—resembling, from this point of view, the war of 1939–45 rather than the war of 1914–18. In Paul Schroeder's view, the political equilibrium which emerged from the Congress of Vienna rested on 'a mutual consensus on norms and rules, respect for law, and an overall balance among the various actors in terms of rights, security, status, claims, duties and satisfactions rather than power'.<sup>50</sup> Rather than relying on an unattainable balance of power, the Congress implicitly recognized British and Russian hegemony in their respective spheres of influence (the wider globe, and Eastern Europe and much of Asia respectively); but the hegemony was relatively benign, and the entire system relied on 'the restoration of the rule of law, beginning with its foundation, the security and legitimacy of all thrones'.<sup>51</sup> While the Vienna system ultimately failed, the fact remains that battlefield deaths as a proportion of Europe's population were seven times more numerous in the eighteenth century than they were in the nineteenth, and the nineteenth century stands out as an unusually peaceful one in the context of Europe's bloody history.<sup>52</sup> Thus European wars were less important during this canonical globalization period than they have been before or since; and this is surely no coincidence.

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48 Angus Maddison, *The world economy: a millennial perspective*, Paris: OECD, 2001, p. 95.

49 Patrick K. O'Brien, 'The impact of the Revolutionary and Napoleonic Wars, 1793–1815, on the long-run growth of the British economy', *Review* XII, 1989, p. 383.

50 Paul W. Schroeder, 'Did the Vienna settlement rest on a balance of power?', *American Historical Review*, 97, 1992, p. 694.

51 *Ibid.*, p. 696.

52 Paul W. Schroeder, *The transformation of European politics 1763–1848*, Oxford: Clarendon Press, 1994, p vii.