

**Did the Revolutionary and Napoleonic Wars against France in the late eighteenth and early nineteenth centuries have an adverse effect on Britain's economic growth during and after the Industrial Revolution? This article discusses some of the problems historians face in answering this question. Professor Patrick O'Brien argues that on balance the adverse effects of the wars were probably more than offset by favourable consequences.**

# The French Wars and the Industrial Revolution

Many economic historians now present the Industrial Revolution as a gradual affair. One reason why it was such a protracted process of change may be the fact that for 60 per cent of the time it took for Britain to emerge as Europe's leading industrial power its economy was afflicted (more or less seriously) by wars and their aftermaths. In the very middle of the Industrial Revolution the country was engaged for nearly a quarter of the century in the most costly of all the eight wars fought against France and her European allies between 1688 and 1815. Although some recent accounts of British industrialization tend to ignore the problem as too intractable to model, connexions between the Revolutionary and Napoleonic wars and the Industrial Revolution were explored at the time, and have formed the subject of persistent debate among historians ever since. [1] In any case a victory which cost the country roughly five times the national income for 1792, can hardly be disconnected from the long-term growth of the economy.

This survey will deal exclusively with the period of the Revolutionary and Napoleonic Wars. However, it is important to recognize the whole period of the 'French Wars' from 1793 to 1815 as the culmination of an interconnected sequence of diplomatic and military conflicts which followed the Glorious Revolution of 1688. These eventually provided the security required to protect the domestic economy, the British Empire and foreign trade from all serious threats of external aggression, from Waterloo down to the Great War of 1914.

## Assumptions

It is not clear that historians can provide anything like a satisfactory answer to the question: what were the effects of the last great conflict with France on the Industrial Revolution? Theoretically, these two wars could have accelerated, delayed or transformed the pace of industrialisation. Which result we judge most likely depends on the 'counterfactual' assumptions we make. By this is meant, what we assume *might* have occurred if there had been no French Revolution but everything else had remained unchanged. Seemingly attractive assumptions to make are:

- (a) that pre-war trends in rates of growth of national and per capital incomes, industrial production, and structural change would all have persisted as before in the absence of war;
- (b) that observed deviations from these trends may be attributed to war;
- (c) that the observed gaps between assumed and actual rates of growth represented the costs of war; and finally,
- (d) that the effects of war would have petered out once the economy was back on the path it had traveled along before the outbreak of war in 1793.

However, these very simple assumptions will not commend themselves to historians. They would not be convinced that trends, estimated on the handful of economic indicators available

for just nine pre-war years from 1783 to 1792, can be extrapolated forward along straight lines to represent what *might* have happened if peaceable conditions had prevailed beyond 1793. After more than a century of intermittent warfare from 1688 to 1792 there are no 'normal' periods of growth to be observed. In any case, while the Industrial Revolution was already under way in the 1780s, its further course in the absence of war cannot be predicted with any degree of certainty. At the time, classical economists expected population growth and urbanization to founder against rising food prices, and diminishing returns in agriculture. And in the wake of the loss of thirteen American colonies, gloom about the future tended to mark the prognostications of commentators and politicians alike. Finally, historians would also be disinclined to accept the assumption that the economic influence of the French wars ceased once the economy was back on trend around 1825. They would insist upon the necessity of investigating its precise impact, factor by factor, institution by institution, sector by sector, because they would wish to separate out those effects of war which outlasted the war to become significant components of the pace and pattern of economic advance after Waterloo.

## Short and long term effects

Nevertheless, not everything that happened in wartime (which should logically be defined to include the period of preparation for hostilities and the transition to a peacetime economy as well as the actual years of conflict) exercised *long term* effects upon the growth of the economy. Temporary shifts occurred: (a) in relative prices (for example the price of goods purchased by the armed force went up faster than prices in general); (b) in the re-deployment of resources from civilian to military uses; (c) in fiscal and financial policies; (d) in rates of investments and consumption; and (e) in patterns and levels of foreign trade. But all of these were soon reversed once hostilities ended, and so left no enduring impact on the economy's development over the nineteenth century. For example, the income tax imposed during the war was repeated in 1816; and something like a quarter of a million men were demobilized to rejoin the civilian labour force round about the same time. Economic historians thus try to distinguish the interesting problem of what happened to the British economy between 1793 and 1815, from the more difficult task of separating out the enduring economic outcomes of the French Wars. What can be said about long-term malign and benign influences of these wars on

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capital formation, technical progress, the workforce, industry, agriculture, foreign trade, institutional development, and social attitudes is all part of an ongoing debate about the consequences of war for the Industrial Revolution. Recently, quantitative economic historians have focused attention upon the major, but by no means the only, relationship between war and economic growth - namely the rate and direction of capital formation from 1793 to 1815.[2]

## *Capital stocks and wartime investment*

War both reduced and added to stocks of physical assets available to the British economy for its future growth. Between 1793 and 1815 successful military action by the enemy destroyed, damaged and captured productive assets owned by British nationals. At the same time Britain's army and navy seized, and in other ways reduced, the capital of France and other enemy powers. It seems unlikely that historians will ever be able to construct an exact balance sheet of the gains and losses in national wealth. Only scattered information is available, and to place a value on the territories (Malta, Mauritius, etc.), acquired by Britain at the Treaty of Vienna in 1815 seems impossible.

What can be said is that there are several reasons for thinking that Britain emerged well into the black on this account. Home, and also imperial, territories were hardly touched by enemy action, and the Royal Navy ensured that seizures of British ships and their cargoes at sea fell short of captures of enemy ships and merchandise. For most of the war – and certainly by its end – British domestic and imperial capital remained noticeably safer from the risks and threats associated with foreign aggression. This placed the British economy at an advantage *vis-à-vis* France, Holland, and other European economies in the competition for international markets, even though Britain's stock of productive assets would almost certainly have been larger in the absence of war. Military expenditures between 1793 and 1815 also operated to protect and, therefore, to augment the nation's wealth. In the long run the security from foreign aggression acquired in the peace settlement at Vienna raised the willingness of capitalists to invest in the future of the economy. In any case, an international economic order free from warfare is not a realistic scenario to contemplate. After the outbreak of the French Revolution, the relevant options presented themselves as various diplomatic and military strategies for the containment of French aggression. Within that mercantilist order, the ultimately successful prosecutions of wars against Revolutionary France and Napoleon kept the Industrial Revolution on course.

## *Crowding out*

Recent debates have focused upon the 'crowding out' effects of the truly massive amounts of money borrowed by the state to finance the military spending required to defeat Revolutionary France. 'Crowding out' means that, in the absence of war, a significant proportion of these investible funds flowing as loans to the Government would otherwise have been used to build up productive assets, upon which the long term growth of the economy depended. However, the facts as they now stand are hostile to any extreme assumption that a **very high** share of the money would have been used for such productive purposes if they had not been required to contain France's military ambitions. [3] First of all, if the Government is to be realistically represented as bidding a considerable

share of available flows of savings away from civilian capital formation, then we might expect that the costs of borrowing money by the Treasury in wartime would have risen dramatically. In fact, however, the average rate of interest was no more than 4 per cent to 5 per cent; this is by no means high for a period when the rate of price inflation was running at around 3 per cent per annum.[4]

Secondly, the imperfect national accounts at present available suggest that during the war loans to the Government, and gross



The costs of the French Wars to England was unpopular as this, and the next, cartoon by Gillray suggest. This cartoon of 1795 shows John Bull, the embodiment of the nation, being fleeced by his foreign allies (Prussia, Austria and Holland) in order to pay for the war with France. A French *sans culotte* shown on the right, adds insult to injury. Meanwhile, the English Prime-Minister, Pitt the younger, who is depicted on the left holds John Bull's coat for him but removes the money from his coat-pocket.

domestic domestic expenditures on the formation and maintenance of the nation's stock of capital, both rose together. Savings expressed as a share of national income went up sharply, from perhaps a rate of 15 per cent of national income before the war to an average rate of around 20 per cent in wartime. [5] Not surprisingly, it seems that it was household consumption – and not private savings or investment – that was visibly depressed during the war years. There is no evidence on any of the estimates currently available that the gross domestic investment rate actually declined. In fact the recent estimates of capital expenditure from Feinstein and Pollard suggest that the *rate* of capital accumulation increased over the period. [6] All in all, the evidence appears to show that investors found the funds required to maintain and even add to the nation's stock of productive assets at the same time as they were financing the most expensive war in Britain's history

## *Wartime saving*

While some crowding out surely occurred, with a special impact on house-building and the infra-structure, what now requires explanation is how the economy managed to maintain surprisingly high rates of capital formation and fund a major war at the same time. To some degree, still unmeasured, the funds required came from outside the kingdom. Historians have suggested that European, particularly Dutch, holdings of Britain's public debt were substantial, down to the American War of Independence. Government bonds had been marketed to investors all over Europe long before the Revolutionary Wars made London the safest haven for capital in Europe. We do not know the share of gross national capital formation plus government borrowing which was covered by net inflows of foreign capital but, between 1793 and 1815, the tide of political events rendered investment in British assets a consistently safer option for Europeans to take up. Interest rates in London rose, and the paper pound did not depreciate seriously

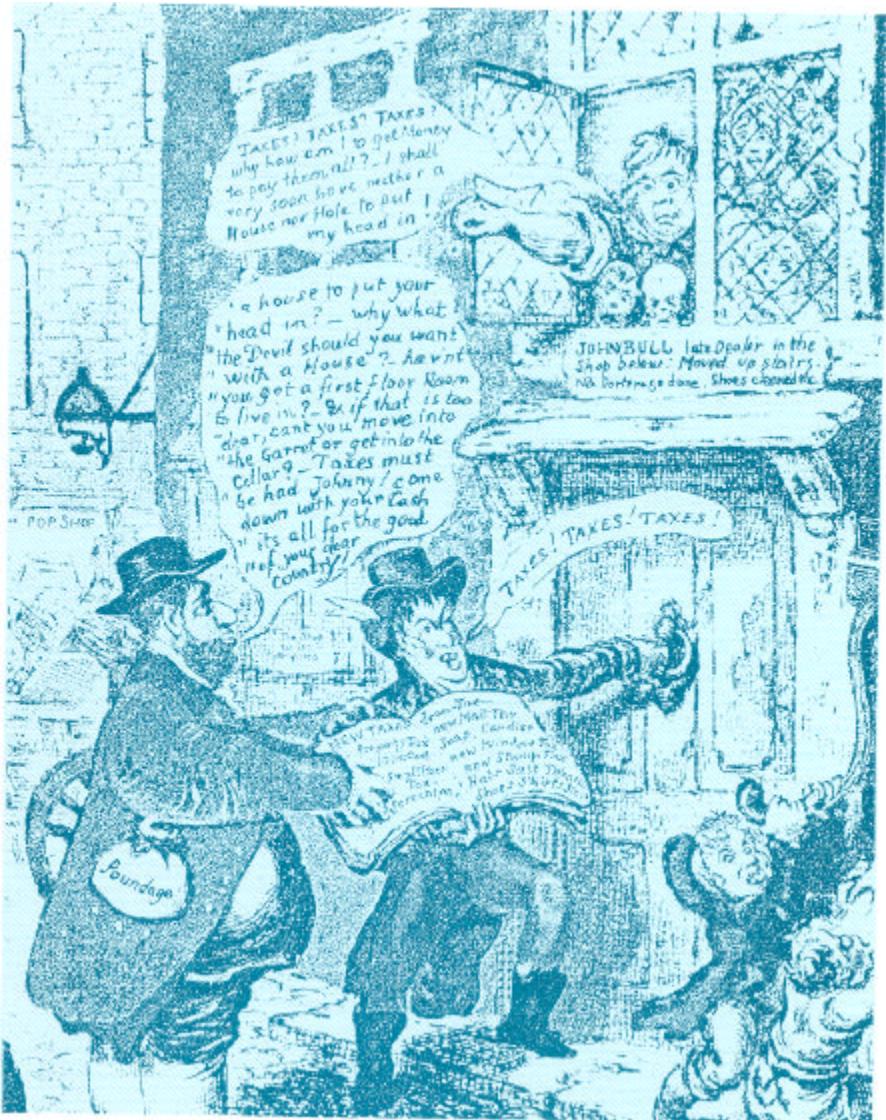
until the closing years of the war.[7] Apart from the political factors operating to 'push' foreign capital into Britain, it seems that domestic savings were responsive to rather small upswings in **money** rates of interest payable on the loans made to the British Government. Perhaps this is not surprising because, from long experience, holders of the national debt knew that the British Government consistently honoured its obligations. Furthermore, Britain had invariably won the wars it engaged in from 1688 onwards, and bondholders could confidently anticipate capital gains once war was over. [8]

In addition to these economic considerations, it may be wrong to regard their contributions to Government loans (especially in the context of a war for survival against Revolutionary France), as a normal example of profit-maximization. The bondholders' patriotism and loyalty were constantly appealed to by Ministers of the Crown. The British way of funding warfare had traditionally relied on those with high incomes to lend their savings voluntarily (of course at market rates of interest), to 'defend' both the Hanoverian State and thus also their own property, social status, political privileges and Protestant religion. For those with money to lend, this system was certainly preferable to the alternative means of raising money to pay for the war - namely through higher taxation on incomes and wealth. Once we begin to perceive loans to the Government as a form of investment designed to protect and consolidate an established set of property rights, the responsiveness of the wartime rate of savings becomes less remarkable. It cannot be assumed that funds of anything like that magnitude could have been mobilized for other purposes, and indeed the savings rate fell back much closer to normal proportions once the war ended.

### Taxation and monetary policy

During the war, Pitt the Younger, and his successors as Chancellors of the Exchequer, pursued a combination of tight fiscal and loose monetary policies. This policy mix was a second factor which helped to raise the domestic rate of savings, and also improved the institutional framework for their collection and mobilization.

Contemporary political cartoons suggest the unpopularity of high war taxation in England (see the illustrations). For example, heavy rates of taxation were imposed on the consumption of the better-off. The more they spent on luxuries such as their houses, carriages, horses, servants, and dogs, the more tax they paid. However, when an income tax was imposed for the first time in 1799 it was based on a flat, not a progressive scale, and, therefore, did not appropriate high and rising *proportions* of the incomes of those who were potential investors. Pitt's novel strategy of using taxes in order to make his generation pay a greater share of the costs of the wars against Revolutionary France certainly reduced (and perhaps radically reduced) competition between businessmen and the Government for investable funds. [9] At the same time, the fiscal system as a whole continued to be regressive, and became even more so with the repeal of the income tax in 1816. Between 1793 and 1815 something like 60 per cent of the increment to tax revenue raised to pay for the war was



J. Gillray, *The Friend of the People and his Petty-New-Tax-Gatherer* (detail)

This is an attack on the budget of March 1806 which increased income tax to two shillings in the pound. In the cartoon a bankrupt John Bull has new taxes demanded of him. He has been driven out of his livelihood of shopkeeping and now lives penitently above the shop. A sign of the times is the pop shop (pawnbroker) in the background. A party political point is also being made by Gillray in depicting Charles James Fox – a frequently caricature figure – as the tax gatherer.

transferred to the Government's creditors in payment of interest and repayments of debts. After the war 55 per cent of total revenues continued to be paid to the wealthy minority who held most of Britain's national debt. Most of the revenue was raised by taxes on items consumed by the population at large, and a very large share of the proceeds was then transferred by the state to bondholders. They had a high propensity to save and invest. The scale of this transfer from the poor to the rich was strongly reinforced by the rise of the national debt from a nominal value of £290 million in 1788-92 to £862 millions in 1815. Despite Pitt's strategy of shifting some of the burdens of the war to taxation, the accumulation of public debt on that scale implies that one major outcome of the conflict was a permanently enlarged and regressive fiscal process. This helped the state to borrow in wartime, and raised propensities to save and capacities to invest thereafter. Monetary policy loosened up when Pitt repealed the obligation of the Bank of England to redeem its note issues in gold in 1797. This removed the limits on the note issue, and it became possible for the Central Bank, London and country banks, and other financial intermediaries, to respond to increasing demands for credit from both the Government and private businessmen. Several favourable outcomes for the longer-term progress of the economy

flowed from the unusual decision to maintain a paper currency which was not convertible into gold between 1797 and 1821. First, moderate inflation ensued, wages tagged behind the rise in product prices, and the income transferred to profits and rents became available either for loans to the Government, or for expenditure upon productive assets. Inflation also encouraged optimism and investment, particularly investment in agriculture. The more flexible monetary policy not only prompted bankers to lend more, but allowed businessmen to obtain the short-term funds they required to ride out the instabilities created by the war. In particular, it enabled them to cope with repeated and sometimes successful attempts by the French to interrupt trade with Continental Europe. In short, the easy monetary policy pursued after 1797 helped to bring some stability into an inherently unstable economic environment.

There was one further important effect of the war which deserves mention. Every time the government borrowed money it issued paper assets as a record of its debt to the original lender. These took various forms, according to the precise terms of the loan, including short-term bills and long-term bonds. The existence of this ever-growing volume of paper assets in turn encouraged the formation and expansion of banks, and their numbers more than doubled between 1792 and 1812. The banks both subscribed to the loans issued by the government to raise the funds required for its military campaigns, and also bought and sold these bills and bonds as other investors wished to dispose of or acquire them.

Financing the state had long provided an impetus to the development of Britain's banks and other financial institutions, and the policies pursued during the long wars with France carried the financial system rapidly forward in scale and scope. By the end of the wars Britain had the most efficient capital market in Europe. Borrowers were subsequently able to raise large amounts of capital for a variety of different purposes in all parts of the country at a unified charge (rate of interest). The most substantial benefit of this development was evident from the 1830s in the relative ease with which the railway companies were able to obtain large sums for the construction of this great innovation in transport. These benign consequences almost certainly offset any crowding-out, higher taxation, and other malign effects of the war upon the civilian economy.

## Conclusion

Although it is a difficult subject, certain conclusions can be drawn from the current debate on connexions between capital formation and the French wars. High levels of military expenditures incurred to protect the wealth of the nation and its empire overseas, were both inevitable and necessary to keep the Industrial Revolution on

course. While the wars continued, the fiscal and monetary policies implemented to fund these expenditures operated both to 'crowd in' and to 'crowd out' the investment in productive assets required for the development of the economy over the nineteenth century.

Historians who tackle the intractable problem of where the balance of these complex effects came down are really speculating about what the size and structure of the capital stock might have looked like in, say, 1851, if wars with France from 1793 to 1815 had not intervened. Given the range of spin-offs, as well as the more obvious negative effects which flowed from Government borrowing and higher taxation, and accepting the argument that a rather high proportion of the funds loaned to the State could not have been mobilized for other purposes, there seems to be no good reason to lay much of the blame upon the wars with France for the apparently slow rate of growth during the First Industrial Revolution.

## References and further reading

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