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A Tale of Two Currencies: British and French Finance During the Napoleonic Wars

MICHAEL D. BORDO AND EUGENE N. WHITE

The record of British and French finance during the Napoleonic wars presents the striking picture of a financially strong nation abandoning the gold standard, borrowing heavily, and generating inflation, while a financially weaker country followed more "orthodox" policies. This paradoxical behavior is explained by Britain's strong credibility that allowed more flexible policies, while France's poor reputation forced reliance on taxation.

The Napoleonic wars offer an experiment unique in the history of wartime finance. While Britain was forced off the gold standard and endured a relatively high inflation, France remained on a bimetallic standard for the war's duration. For wars of comparable length and intensity in the nineteenth and twentieth centuries, Napoleonic war finance stands out. As Milton Friedman recently pointed out, the French experience is a puzzle.[1] Under the *ancien régime* and the revolutionary governments, France's credit was far inferior to Great Britain's; yet in the years of bitter struggle after 1796, it was the British who used inflationary finance, not the French.

This apparent paradox may be explained by drawing upon the new literature on tax smoothing, time consistency, and credibility in macroeconomics. Before the Revolution, French fiscal policy strongly resembled the British practice in which large temporary increases for wartime expenditures were paid for by increased borrowing, leaving taxes relatively unchanged.[2] This was a relatively efficient strategy for war finance, but its success hinged critically on the credibility of the government to repay its accumulated and enlarged debt after the war. If the government was perceived by the public to be pursuing a time-

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[1] Milton Friedman, "Bimetallism Revisited," *Journal of Economic Perspectives*, 4 (Fall 1990), pp. 85–104.

[2] Robert J. Barro, "Government Spending, Interest Rates, Prices and Budget Deficits in the United Kingdom," *Journal of Monetary Economics*, 20 (Sept. 1987), pp. 221–48; and Robert J. Barro, "The Neoclassical Approach to Fiscal Policy," in Robert J. Barro, ed., *Modern Business Cycle Theory* (Cambridge, 1989), pp. 236–64.

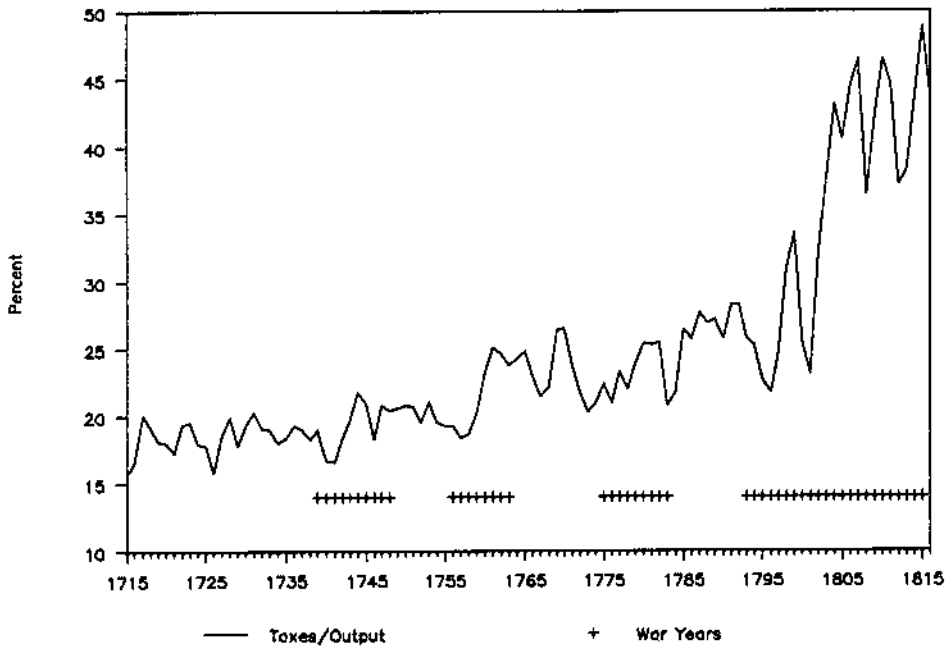

FIGURE 1

GREAT BRITAIN: TAX RECEIPTS AS A PERCENT OF COMMODITY OUTPUT

Sources: A. D. Gayer, W. W. Rostow, and A. J. Schwartz, *The Growth and Fluctuation of the British Economy, 1790–1850* (Oxford, 1953); B. R. Mitchell and P. Deane, *Abstract of British Historical Statistics* (Cambridge, 1962); and P. O'Brien and P. Mathias, "Taxation in England and France 1715–1810," *Journal of European Economic History*, 5 (1976).

inconsistent policy, one likely to produce default once the debt was acquired, this avenue of war finance would be closed.[3]

The French Revolution's use of confiscation, capital levies, and an inflation tax destroyed its credibility and forced Napoleonic France to rely primarily on taxation. In contrast to France's frequent changes in political regime, Britain's continuous parliamentary form of government, in which debt holders exercised considerable influence, was able to issue a massive quantity of debt and leave the gold standard with the promise of eventual redemption.

BRITISH AND FRENCH FISCAL POLICY BEFORE 1789

Britain's movement toward tax smoothing—financing of wartime expenditures by borrowing, then servicing and amortizing the debt by taxation in peacetime—began after the Glorious Revolution of 1688. This political victory for parliamentary government led to improve-

[3] Finn E. Kydland and Edward C. Prescott, "Rules Rather than Discretion: The Inconsistency of Optimal Plans," *Journal of Political Economy*, 85 (June 1977), pp. 473–91; and Robert E. Lucas, Jr. and Nancy L. Stokey, "Optimal Fiscal and Monetary Policy in an Economy Without Capital," *Journal of Monetary Economics*, 12 (July 1983), pp. 55–93.

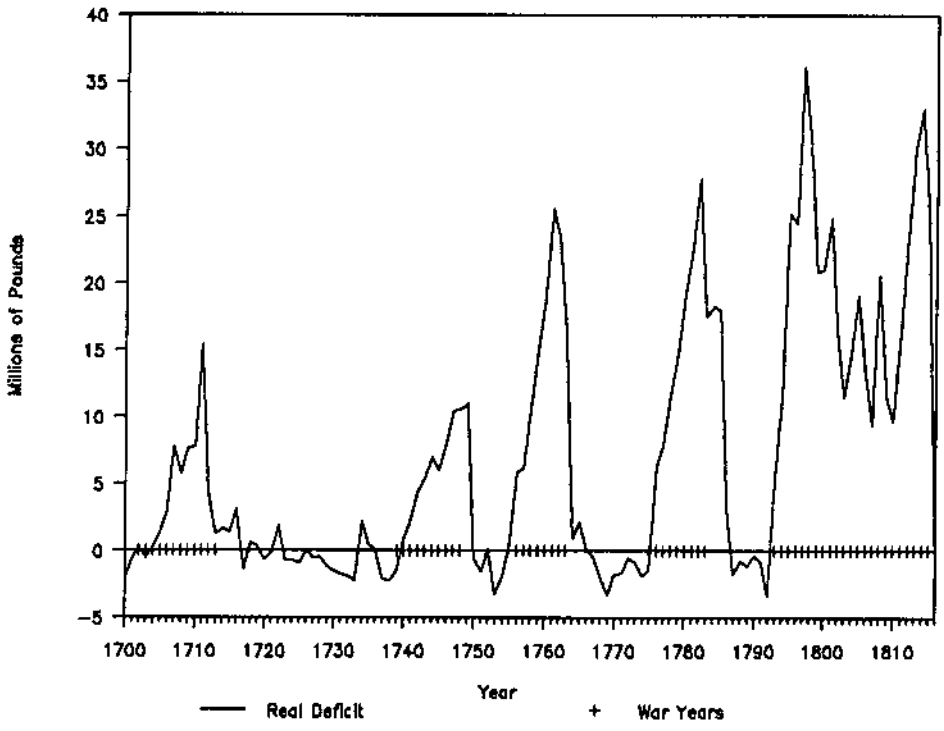

FIGURE 2

GREAT BRITAIN: REAL DEFICIT (SURPLUS)

Sources: See Figure 1.

ments in tax collection and administration and the development of more modern capital markets.[4] By the War of the Spanish Succession (1702–1713), Britain's new fiscal program was in place. Taxes as a percentage of commodity output did not rise substantially in wartime periods until the very end of the eighteenth century (see Figure 1). The boom in wartime spending, unaccompanied by major tax increases, produced very large deficits, as seen in Figure 2.

British wartime expenditures were primarily financed by the issue of "unfunded debt," a variety of short-term obligations that included army, navy, ordnance, and, increasingly, exchequer bills. The "funded debt" or long-term securities, secured by specially earmarked indirect taxes, were mostly used during and after the war to retire the more costly unfunded debt. Reduction of the debt and of its servicing costs during periods of peace then allowed the government to resume borrowing in even larger amounts in the succeeding wars, as can be seen in Figure 2. To assuage heightened fears of national bankruptcy and crippling levels of peacetime taxation to service the debt after the

[4] P. G. M. Dickson, *The Financial Revolution in England* (London, 1967); and John Brewer, *The Sinews of Power: War, Money and the English State, 1688–1783* (New York, 1989).

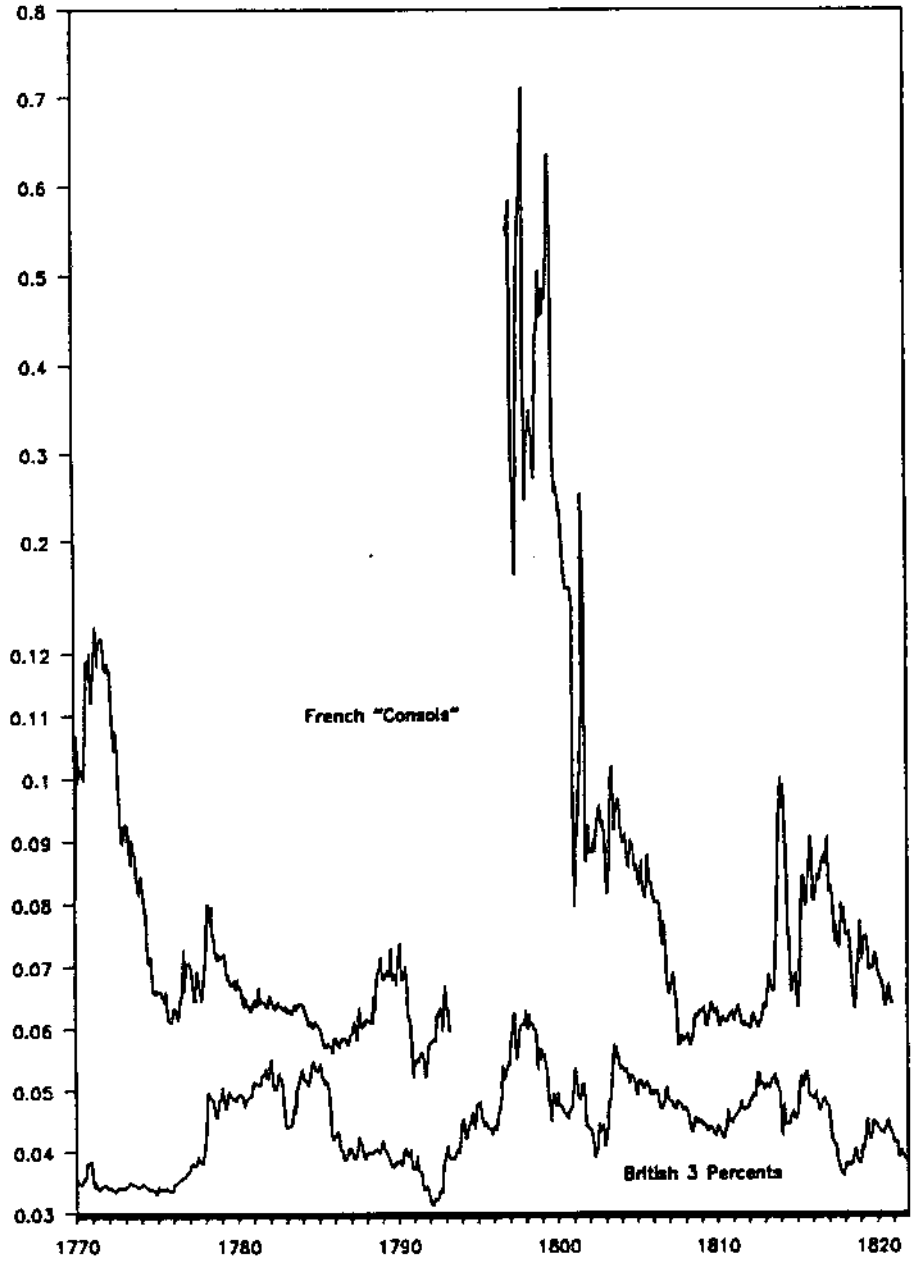

FIGURE 3

YIELDS ON BRITISH AND FRENCH SECURITIES: 1770–1821

Sources: Castaing, *The Course of Exchange*, *Gazette de France*, *Ancien Moniteur*; and Alphonse C. Courtois, *Tableaux des cours des principales valeurs* (Paris, 1877).

American War for Independence, William Pitt, the chancellor of the Exchequer, re-established the Sinking Fund in 1786, which during the seven succeeding years of peace used budget surpluses to reduce the

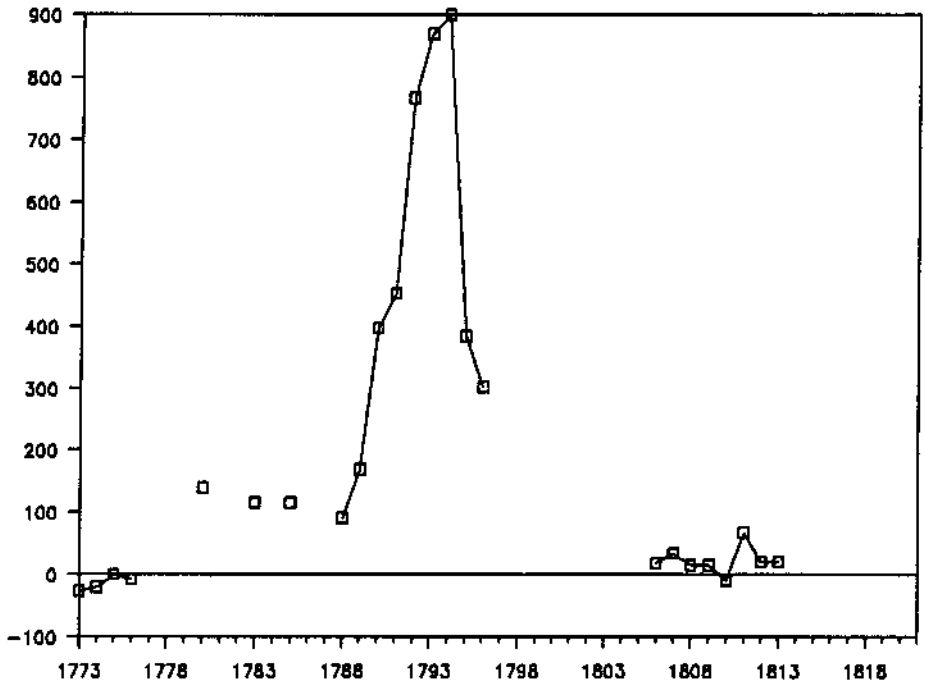

FIGURE 4

FRANCE: REAL DEFICIT (SURPLUS)

Sources: François-Nicolas Mollien, *Mémoires d'un Ministre du Trésor Public* (Paris, 1835); Eugene Nelson White, "Was There a Solution to the Ancien Régime's Financial Dilemma?" this JOURNAL, 49 (Sept. 1989), table 1; and Eugene Nelson White, "Deficits, Inflation, and the Bankruptcy of the French Revolution" (Rutgers University mimeo, 1990).

debt. The Sinking Fund was viewed by contemporaries as a way of showing the public that taxes would eventually be reduced and hence could be viewed as an investment in sovereign credibility and future borrowing power.

The monthly yield on the 3 percent consols from 1770 to 1821 is depicted in Figure 3.[5] During the American Revolution and the Napoleonic wars, the interest rate rose sharply, a pattern consistent with recent developments in the theory of fiscal policy.[6] To marshal scarce resources for the war effort, real interest rates should have risen in wartime to reduce both present consumption and leisure in favor of saving and labor effort. The nominal interest rate displayed here should be a good proxy for the real interest rate, since up to 1797 Britain

[5] These data were graciously provided by Larry Neal.

[6] For a similar pattern in earlier wars in the eighteenth century, see Barro, "Government Spending"; and D. K. Benjamin and Levis A. Kochin, "War, Prices and Interest Rates: A Martial Solution to Gibson's Paradox," in M. D. Bordo and A. J. Schwartz, eds., *A Retrospective on the Classical Gold Standard, 1821 to 1931* (Chicago, 1984).

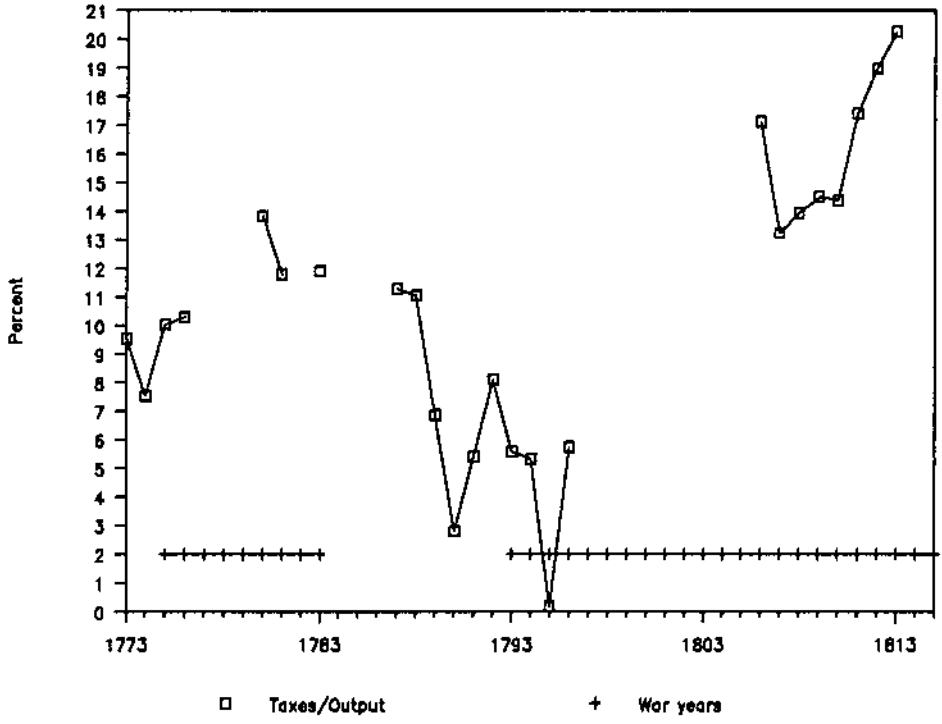

FIGURE 5

FRANCE: TAX RECEIPTS AS A PERCENT OF COMMODITY OUTPUT

Sources: Patrick O'Brien and Caglar Keyder, *Economic Growth in Britain and France 1789–1914* (London, 1978); Mollien, *Mémoires d'un Ministre*; White, "Was There a Solution?" table 1; and White, "Deficits, Inflation, and the Bankruptcy."

adhered to a specie standard, under which the price level was remarkably stable.[7]

France's national finances at the beginning of the century were not greatly inferior to Britain's. John Law's unsuccessful attempt to reorganize the government's finances, which ended in 1721 with another massive write-down of the debt, had its parallel in the South Sea Bubble. The French were, however, unable to follow the British and improve their fiscal management, leaving the state's finances relatively precarious. In 1759, in the midst of the Seven Years War, the Crown was forced to suspend repayment of the capital on a variety of

[7] During the suspension period, the inflation rate displayed no evidence of persistence. See Robert B. Barsky, "The Fisher Hypothesis and the Forecastability and Persistence of Inflations," *Journal of Monetary Economics*, 19 (Jan. 1987), pp. 3–24; and Michael D. Bordo and Eugene N. White, "British and French Finance during the Napoleonic War" (NBER Working Paper No. 3517, 1990). For other evidence that nominal interest-rate movements largely reflected movements in the real rate, see Robert A. Black and Claire G. Gilmore, "Crowding Out during Britain's Industrial Revolution," this JOURNAL, 50 (Mar. 1990), pp. 109–31.

short-term debts.[8] The continuing financial crisis after the war eventually led to the partial bankruptcy of 1770. After this last crisis, the Crown made a new commitment to fiscal stability. Finance ministers successfully balanced the budget or ran surpluses up to the American War as shown in the budgets depicted in Figure 4. Taxes, as in the British case, were a relatively constant but lower share of output as seen in Figure 5.

The interest-rate history of France thus paralleled Britain's as depicted in Figure 3.[9] As in the British case, a rise in the interest rate during the American War served to reallocate scarce resources to the war effort. Likewise, after the war, interest rates fell. However, a large peacetime deficit also appeared. The public in France only gradually became aware of the government's deviation from a tax-smoothing path, its announced objective. The French monarchy was able to deceive the public because government finance was not open to parliamentary inspection as in Britain.[10] There were no institutions in France to guarantee that the government would adhere to a time-consistent policy. In Britain the Parliament in Westminster voted on the budget, the Bank of England faithfully made daily redemption of its notes in specie, and a sinking fund paid off the national debt. By contrast, the budget was not public in France, there was no regular parliament to monitor the Crown, a project to set up a sinking fund had failed, and the Discount Bank had been forced to suspend more than once.

This lack of institutional commitment in the absence of a good track record forced the French government to borrow at higher interest rates than the British could. In the well-integrated capital markets of the late eighteenth century, the premium on French consols over British consols reflects the greater riskiness of French securities.

THE REVOLUTION: FRANCE'S SQUANDERED REPUTATION

The collapse of the French monarchy was initially accompanied by a loss of confidence in the nation's ability to meet its commitments. The revolutionary upheaval of 1789 substantially reduced the tax base, and the government found it difficult to borrow, except at high rates. Unwilling to raise taxes, the National Assembly chose to seize the lands of the church. To meet the state's urgent financial needs, the *assignats* were created to cover the deficit and pay off part of the national debt.

[8] Marcel Marion, *Histoire financière de la France depuis 1715* (Paris, 1914), vol. 1, p. 197.

[9] The yields reported for France in Figure 3 are on the stock of the Compagnie des Indes (1770–1793), the *inscriptions sur le grande livre de la dette publique* (1797), and the *tiers consolidé* (1798–1821).

[10] Douglass C. North and Barry R. Weingast, "Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England," this JOURNAL, 49 (Dec. 1989), pp. 803–32.

This paper money was used by the state to pay its creditors who could in turn employ them to buy the nationalized properties of the church.

While the immediate situation looked dismal, financial markets believed the state's problem could be resolved, and interest rates fell back to pre-crisis levels in 1791. Credibility was created by the more open budget process and more importantly by the successful sale of church lands to retire the *assignats*. The outbreak of the war in April 1792, however, eliminated any chance of success. The state's finances deteriorated rapidly and the growing deficit (Figure 4) was covered entirely by the issue of *assignats*. During the revolutionary Terror, the government attempted to halt inflation with price controls and raise revenue by steeply progressive income taxes and forced loans. These experiments failed, and the government became wholly dependent on money creation, leading to hyperinflation in 1795. The *assignats* were abandoned, but, unable to increase tax collections, the government issued a new paper money, the *mandats*, in 1796, generating a very short-lived fast inflation.

Having exhausted its ability to use money creation, the Directory had to cut expenditures and raise taxes. In September 1797 the government wrote down the value of interest payments by two-thirds. The debt was further reduced by cancelling the debts of émigrés and convicts. By 1799 the annual interest payments on the national debt stood at 75.3 million—a drastic reduction from the 260 million of 1788.[11] Nevertheless, the government did not make full payment in specie even on this reduced sum. Revolutionary France had squandered its modest endowment of credibility, having failed to pursue consistent policies. Consequently, options for financing the wars of the next decade and a half were limited.

BRITISH FISCAL STRATEGY, 1793–1815

The war against France was initially financed in the traditional eighteenth-century manner, with 90 percent of the expenditures between 1793 and 1798 covered by borrowing.[12] The massive scale of expenditures led to a doubling of the national debt by 1798. The Napoleonic wars required far greater expenditures and thus larger deficits for a longer period of time than previous wars, as seen in Figure 2. This increased pressure on government finance resulted in two new developments that deviated from previous experience: the suspension of specie payments in 1797, and the introduction of an income tax in 1799.

[11] J. M. Fachan, *Historique de la rente française* (Paris, 1904), pp. 130–31; and Alphonse Vührer, *Histoire de la dette publique en France* (Paris, 1886), pp. 424–25.

[12] Patrick O'Brien, "Government Revenue 1793–1815: A Study in Fiscal and Financial Policy in the Wars Against France" (Ph.D. diss., Oxford University, 1967).

Britain fought the wars of the eighteenth century on the gold standard, but the circumstances of the late 1790s were extraordinary. The sale of government securities which otherwise would have been absorbed by the Bank competed with private securities, forcing up interest rates to unprecedented levels. Private borrowers then turned to the Bank, which responded by rationing credit in December 1795. The credit stringency was alleviated by direct government lending to the City. The response by the Bank to its dwindling gold reserves hindered the government's war finance.[13] To prevent the collapse of the Bank in the face of both a massive external drain and a run on the country banks, occasioned by fears of a French invasion, the government finally allowed it to suspend specie payments on February 26, 1797.

After the Bank suspended specie payments, the government was again able to sell much of its short-term debt to the Bank of England. Thus, until hostilities ceased, the share of unfunded loans increased dramatically from a low of 19.3 percent in 1797 to a peak of 76 percent in 1808.[14] Accommodation of both government and private borrowing is generally viewed by historians as the way in which the Bank contributed to war finance.[15] While money creation by the Bank seems to have been responsible for inflation, as measured by seigniorage revenue, it was not a principal pillar for financing the war. Measured as the increase in bank notes divided by the average price level, seigniorage only exceeded 10 percent of the deficit in 1810 and never rose above 5 percent of war revenue.[16] Money creation did not make a large contribution to war finance, but it did give the government critical flexibility in short-term finance and debt management.

The government thus viewed the Bank of England as an essential component of its war finance program. This can be seen in its opposition to a number of requests by the Bank to resume specie payments, its support of the Bank in the face of the withering criticism of the Bullion Report of 1810, its encouragement of the Bank to accommodate private demands for credit, and its granting of de facto legal tender status to the Bank's notes in 1811.[17]

The second departure from the eighteenth-century pattern of government finance was the institution of an income tax in 1799. Concern over the size of the national debt, the inability to further raise revenue from

[13] Ibid., chap. 5.

[14] See Bordo and White, "British and French Finance," table 2.

[15] Frank Fetter, *Development of British Monetary Orthodoxy, 1797–1875* (Cambridge, MA, 1965); E. Schumpeter, "English Prices and Public Finance, 1660–1822," *Review of Economics and Statistics*, 20 (Feb. 1938); N. Silbering, "British Prices and Business Cycles," *Review of Economics and Statistics*, 5 (Oct. 1923); and Jacob Viner, *Studies in the Theory of International Trade* (New York, 1937).

[16] Bordo and White, "British and French Finance," table 3.

[17] O'Brien, "Government Revenue," chap. 5; and Frank Fetter, "Legal Tender During the English and Irish Bank Restriction," *Journal of Political Economy*, 58 (June 1950).

indirect taxes, and the threat of defeat by the French revolutionaries were all arguments that Pitt used to overcome opposition to direct taxation by the propertied classes. The income and property taxes were immensely successful, rising from zero to approximately 20 percent of total tax revenue by the end of the war. Moreover, unlike the preceding wars, total taxes covered a far greater share of government expenditure than borrowing, which at its peak supplied approximately 30 percent. The British experience during the Napoleonic wars suggests that the government followed policies consistent with the modern theory of tax smoothing, which implies that an optimizing government will set tax rates over time so as to minimize deadweight losses.[18] In an uncertain world, taxes will follow a martingale pattern as the government attempts to forecast expenditures rationally and sets the current tax rate consistent with its forecast of the future so that only unpredictable events will produce changing tax rates.[19] We tested for such a pattern in the average British tax rate from 1700 to 1815. The Dickey-Fuller tests on the lagged tax rate showed that the null hypothesis that the coefficient is equal to one cannot be rejected at the 1 percent level.[20] This evidence supports the hypothesis that the British government had engaged in tax smoothing.

The ability to smooth taxes was based on the government's credibility to ensure a flow of revenue after the war to service the debt. The British had invested in credibility by their performance of debt service after other wars. In addition, establishment of the Sinking Fund and its continued operation during the Napoleonic wars strengthened this investment. This stands in contrast to the French monarchy, which created a sinking fund in 1785—attempting to enhance its reputation—only to be forced to quickly abandon it.

The British experience is also consistent with recent theoretical developments about rules versus discretion.[21] The experience of the suspension period can be viewed as being consistent with following a

[18] Barro, "The Neoclassical Approach."

[19] L. Kochin, D. Benjamin, and M. Meader, "The Observational Equivalence of Rational and Irrational Consumers if Taxation is Efficient" (Federal Reserve Bank of San Francisco West Coast Academic Conference, 1985).

[20] For the period 1715 to 1815, using as the dependent variable the ratio of tax receipts to commodity output (T/Y), we obtained the following equation: $(T/Y)_t = -51.3 + 0.03Time + 0.93(T/Y)_{t-1}$. The R^2 was 0.89, and the Durbin-Watson statistic 1.96. The Dickey-Fuller test was −0.948, well below the critical value of −3.45 at the 5 percent level. We have not reported the coefficients on the lagged differences. Similar results were obtained for the ratio of tax receipts to national income and for the ratio of tax receipts to commodity output for France from 1728 to 1796. See Bordo and White, "British and French Finance." The power of these tests are weak, and there is considerable controversy about their use. See Bennett MacCallum, "On 'Real' and 'Sticky-Price' Theories of the Business Cycles," *Journal of Money Credit and Banking*, 22 (Nov. 1989), pp. 397–441; and Peter Rappoport and Lucrezia Reichlin, "Segmented Trends and Nonstationary Time Series," *Economic Journal*, 99 (Supplement 1989).

[21] Michael D. Bordo and Finn Kydland, "The Gold Standard as a Rule" (NBER Working Paper No. 3367, 1990).

contingent gold standard rule. Under this rule, the government maintains the standard—keeps the price of its currency in terms of gold fixed—except in the event of a major war. In wartime it may suspend specie payments and issue paper money to finance its expenditures, and it can sell debt issues in terms of the nominal value of its currency on the understanding that the debt will eventually be paid off in gold. The rule is contingent in the sense that the public understands that the suspension will last only for the duration of the wartime emergency plus some period of adjustment; it assumes that afterward the government will follow the deflationary policies necessary to resume payments.

Despite the government's opposition to resumption during wartime conditions, there exists considerable evidence that the government wished to confirm its commitment to return to the gold standard once hostilities ceased. The failure to confront directly the Bullion Report's criticism of the Bank for allowing the exchange rate to depreciate can be understood in this light. After hostilities ceased in 1815, several attempts were made to pick a date for resumption, but as each occasion approached, the Bank requested a postponement on the ground that the exchanges were unfavorable. In 1819 Parliament finally decided to begin resumption in stages, starting on February 1, 1820. The government promised to retire its outstanding securities held by the Bank and the Bank would reduce its note issue to achieve the aim. Resumption was achieved on May 7, 1821. The tenor of the debate in Parliament and the press, the lack of effective opposition to resumption, and the fact that resumption was achieved, despite the delays, before the final date suggest that observing the rule was vitally important.[22]

The experience of the suspension may also be understood within the context of recent theories of optimal seigniorage and revenue smoothing. Over time an optimizing government would smooth revenue from both tax instruments and both instruments would evolve in a similar martingale pattern. To confirm this hypothesis, a positive and significant coefficient from a regression of the rate of inflation on the average tax rate is postulated.[23] We carried out this experiment, but unlike earlier studies our results were not consistent with the hypothesis. Seigniorage smoothing may not be expected to prevail under a specie standard where the inflation rate does not exhibit persistence.[24] Indeed, our results suggest that although specie payments were suspended, the

[22] A. Feaveryear, *The Pound Sterling* (Oxford, 1963), pp. 224–25; Fetter, *Development of British Monetary Orthodoxy*, pp. 73–76; and David Laidler, "The Bullionist Controversy," *New Palgrave Dictionary of Economics* (London, 1987).

[23] N. Greg Mankiw, "The Optimal Collection of Seigniorage—Theory and Evidence," *Journal of Monetary Economics*, 20 (Sept. 1987), pp. 327–41.

[24] See fn. 8; and B. L. Goff and M. Toma, "Optimal Seigniorage and Central Bank Financing" (University of Kentucky mimeo, 1990).

commitment to resume prevented the government from acting as it would under the pure fiat regime postulated by the theory.

THE CONSULATE AND EMPIRE, 1799–1812

Although Great Britain, in spite of suspension, was able to finance a considerable portion of its war effort by borrowing, France was forced to rely almost entirely on taxation while it attempted to rebuild its reputation as a debtor. It had lost its credibility during the Revolution and was unable to follow a tax-smoothing policy. Consequently, the empire was forced, even at the height of the wars, to cover virtually all its expenditures by taxation. Napoleon has traditionally been regarded by historians as a simple, obstinate, hard-money man. In public, he adamantly professed to oppose any new borrowing. The collapse of the *ancien régime*'s finances from excessive borrowing and the Revolution's finances from excessive use of paper money may have irrationally colored his view of public finance. His pronouncements, however, were necessary to a certain degree to restore confidence, and many of his actions and statements should be measured in this light.

Napoleon's coup of November 1799 began sweeping changes in government finance that were built on the tough measures taken by the Directory. The system of taxation was reorganized, new taxes were imposed, payment on the debt in specie was resumed (1800), the nation returned to the bimetallic standard (1803), and institutions—the Banque de France (1800) and a sinking fund (1799)—were established, which served as additional guarantees of the government's commitment to fiscal prudence.

Napoleon improved the collection of direct taxes and re-introduced indirect taxes, abolished during the Revolution.[25] The result of this new policy regime was that the French were taxed at a significantly higher level than before the Revolution. French taxes as a percentage of commodity output were distinctly higher under the empire (Figure 5), allowing the government to cover most of its expenditures without extensive borrowing. The slow restoration of France's reputation led to a drop in the yields on French consols (Figure 3).

The growth of the public debt under the empire was quite modest. Borrowing from the Banque de France was important for smoothing the flow of tax payments, but it was, in the overall picture of government finance, a relatively minor contribution to war finance. Even at the peak of 80 million francs in 1805, it was less than 10 percent of expenditures. While the emperor's borrowing from the Banque was generally restrained, the government did press the bank too far once, forcing a

[25] Marion, *Histoire financière*, vol. 4, pp. 297–304.

partial suspension in 1805.[26] Unlike the British, the government could not fully or permanently suspend payment, given its history, and hope that the public would maintain its real balances. In the next few years, imperial borrowing from the bank was more restrained until the empire's collapse.

France's borrowing during the wars from all sources was limited. There was widespread capital flight from the continent to Britain owing to revolutionary and imperial predations and the imposition of the continental system.[27] Traditional lenders, like the Dutch, were unwilling to trust the new French regime. Investing heavily in Britain left the French with relatively limited sources of new funds. Finance ministers, like François Barbé-Marbois and die-hard emigrés like Francis d'Ivernois believed that any large issue of debt could only be sold for very high yields that were politically unacceptable.[28]

Even at its apogee, Napoleon's system of finance did not engender enough confidence to permit the government to return to large-scale borrowing. The imperial budget remained secretive, and the public had no equivalent to the British Parliament to monitor the plans of the emperor. In the absence of such an institution, it was impossible for the government to make a completely convincing commitment to its announced program.

The fiscal discipline imposed on the empire because of France's lack of credibility was, however, partially eased by taxation of the conquered territories and its allies. Most of the taxation of conquered nations was to support French armies abroad. In 1805 Austria supplied 75 million and in 1809 164 million francs. Between 1806 and 1812 Prussia provided somewhere between 470 and 514 million francs. These enormous revenues meant that French armies abroad were not a drain on the French treasury.

French finances appeared victorious in early 1811. Britain was encumbered by a growing debt, the Bank of England's notes had depreciated, and the pound sterling stood at a substantial discount. France maintained the value of the franc, the Banque de France redeemed its notes at par, and the budget of the previous year was balanced. What destroyed the empire was the enormous expense and failure of the Russian campaign. Napoleon's Hundred Days brought another crushing burden in the form of reparations, estimated at 1,290 million francs. The restored monarchy remained very weak and was only rescued by a series of new loans in 1817. The end result was that the *rentes* which required annual payments of 63.3 million in 1814 now had an annual cost of 202.4 million francs in 1830. Ironically, these

[26] Alphonse C. Courtois, *Histoire des Banques en France* (Paris, 1881), pp. 116–17.

[27] Larry Neal, "A Tale of Two Revolutions: International Capital Flows, 1789–1819" (University of Illinois BEBR Faculty Working Paper No. 90-1663, July 1990).

[28] Marion, *Histoire financière*, vol. 4, pp. 337–38.

interest payments were not much different from the total cost of payments in the last years of the *ancien régime*.

CONCLUSION

While the Napoleonic wars after 1797 offered the curious spectacle of faithful Albion abandoning the gold standard and perfidious France maintaining convertibility of the franc, these war finance regimes were the consequence of each nation's credibility as a debtor. Given its long record of fiscal probity, coupled with its open budgetary process in Parliament, Great Britain could continue to borrow a substantial fraction of its war expenditures at what were relatively low interest rates. British tax rates did not vary much over most of the eighteenth century as peacetime surpluses offset wartime deficits to pay off the accumulated war debts. Taxes would not have been greatly increased during the Napoleonic wars except that their duration imposed a debt burden much higher than the eighteenth-century norm, requiring a rise in the tax rate to sustain the nation's credibility as a borrower. France, on the other hand, had squandered her reputation in the last decade of the *ancien régime* and the Revolution. Her dependency on taxation did not reflect any superior fiscal virtues but rather the opposite. Borrowing would have been exceedingly costly and the public was skeptical of the empire's fidelity. Inherited credibility resolves this paradoxical pairing of fiscal regimes.