McColloch, William

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William McColloch

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University of Utah
Department of Economics
260 S. Central Campus Dr., Rm. 343
Tel: (801) 581-7481
Fax: (801) 585-5649
http://www.econ.utah.edu

A Shackled Revolution? The Bubble Act and Financial Regulation in 18th Century England

William McColloch
Lewis and Clark College
wmccolloch@lclark.edu

Abstract

Revisionist estimates of growth rates during the British industrial revolution, though largely successful in presenting a more modest picture of Britain's 'take-off' prior to the 1830s, have also posed fresh analytical difficulties for champions of the new economic history. If 18th-century Britain was witness to a diffuse explosion of 'useful knowledge,' why did aggregate growth rates or industrial output growth rates not more closely shadow the pace of technological change? In effort to explain this paradox, Peter Temin and Hans-Joachim Voth have claimed that a few key institutional restrictions on financial markets – namely the Bubble Act, and tightening of usury laws in 1714 – served to amplify the crowding out impact of government borrowing. Against this vision, the present paper contends that the adverse impact of financial regulation and state borrowing in 18th century Britain has been greatly overstated. To this end, the paper first briefly outlines the historical context in which the Bubble Act emerged, before turning to survey the existing diversity of perspectives on the Act's lasting impact. It is then argued that there is little evidence to support the view that the Bubble Act significantly restricted firms' access to capital. Following this, it is suggested that the "crowding out" model, theoretical shortcomings aside, is largely inapplicable to 18th century Britain. The savings-constrained vision of British capital markets significantly downplays the extent to which the Bank of England, though founded as an institution to manage the public debt, provided the *entire* financial system with liquidity in the 18th century.

Keywords: Bubble Act, Bank of England, Financial Regulation, Industrialization
JEL Classification: N13, N23, O43, E44

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1INTRODUCTION

Within the heterodox literature there is no shortage of lamentations that the experience of the 'Great Financial Crisis' failed to prompt a sober reassessment of neoliberal policy prescriptions. That a restructuring of mainstream economic theory did not materialize is undoubtedly disappointing, but something less than unexpected; mainstream economic theory having long since shown itself to be impervious to many of the features of reality. It would appear that the crisis has, however, lent renewed vigor to certain, otherwise arcane, research agendas in economic history. The hope, it seems, is that if the experience of the past three decades offers limited testimony to the virtues of deregulation, more distant history might speak in its stead. Here, as ever, Britain's experience of industrialization is made to serve as the first proving ground for competing models of long-run growth.

Revisionist estimates of growth rates during the British industrial revolution, though largely successful in presenting a more modest picture of Britain's 'take-off' prior to the 1830s (Crafts and Harley 1992), have also posed fresh analytical difficulties for champions of the new economic history. If 18th-century Britain was witness to a diffuse explosion of 'useful knowledge' (Mokyr 2002), why did aggregate growth rates or industrial output growth rates not more closely shadow the pace of technological change? While languid aggregate growth rates over the period are often explained as the consequence of a dual-economy in which the relatively stagnant agricultural sector remained dominant, the pace of manufacturing growth remains somewhat of a puzzle. In an effort to resolve this puzzle, a host of authors (Williamson 1984; Black and Gilmore 1990; Temin and Voth 2005) have suggested that British government borrowing crowded out private investment, and stifled what otherwise would have been a more robust industrial revolution prior to 1830. More recently, Peter Temin and Hans-Joachim Voth (2013) have offered a somewhat refined version of this argument. Specifically, they have claimed that a few key institutional restrictions on financial markets – namely the Bubble Act[1], and tightening of usury laws in 1714[2] – served to amplify the impact of government borrowing, and "ensured that Britain experienced a revolution in public borrowing that harmed private finance more than it helped" (2013, p. 158). In this view, the rapacious demands of wartime borrowing fell upon a financial sector whose lending was already limited in scope, given its inability to exact risk premiums in the face of a statutory maximum interest rate. Further, the contention is that the Bubble Act, from its introduction in 1720 to its repeal in 1825, greatly limited the expansion of the joint-stock corporate form by forcing

1 6 Geo I, c.18, passed by Parliament on June 9th of 1720.

2 The statute, formally titled "An Act to reduce the Rate of Interest, without any Prejudice to Parliamentary Securities," which lowered the maximum rate of interest that could be charged on a loan was passed by Parliament in 1713 (13 Anne, c. 15), but took effect on September 29th of 1714.

prospective limited liability corporate bodies to obtain a charter from Parliament, and thus denied many nascent firms access to a broad share market in which their stock would be freely transferable. The financial revolution of the 18th century, far from constructing some of the necessary conditions for the industrial revolution, is reduced to a case-study of the consequences of over-zealous financial regulation.

Against this vision, the present paper contends that the adverse impact of financial regulation and state borrowing in 18th century Britain has been greatly overstated. To this end, the paper first briefly outlines the historical context in which the Bubble Act emerged, before turning to survey the existing diversity of perspectives on the Act's lasting impact. It is then argued that there is little evidence to support the view that the Bubble Act significantly restricted firms' access to capital. Following this, it is suggested that the "crowding out" model, theoretical shortcomings aside, is largely inapplicable to 18th century Britain. The savings-constrained vision of British capital markets significantly downplays the extent to which the Bank of England, though founded as an institution to manage the public debt, provided the *entire* financial system with liquidity in the 18th century.

2 THE ORIGIN OF THE BUBBLE ACT

The cursory outlines of the South Sea Bubble have become an increasingly familiar story in the wake of the crisis of 2008, and a brief outline of the Bubble's origins may suffice. The budget of the English state had expanded markedly in the latter half of the 17th century, from £2.3 million in 1668 to £5.6 million in 1692, of which nearly a fifth was borrowed (Carswell 1960, p. 22). In light of the limited success of the tontine lotteries, and financial 'innovations,' in raising funds, alternative proposals for the Crown's finances found a ready audience. Viewed at the time as a temporary institution born out of short-term need, the Bank of England had been granted a Royal charter as a joint-stock company in 1694 on the basis of its assumption of £1.2 million of the Crown's debt. The Bank and its subscribers were to receive interest of 8 percent in perpetuity, with the Bank being forbidden to make additional loans to the Crown without Parliamentary consent (Clapham 1966, p. 18). Though Parliament was not initially confident that the Bank would find subscribers for its shares, the initial offering was filled with "contemptuous ease" in the span of ten days (Dickson 1967, p. 55). The Bank's directors, like those of the established East India Company, were predominantly Whigs. Anxious to replicate the success of the Bank, Tory-supported schemes to manage the public debt quickly proliferated. The Bank had to contend in its first years of existence with a variety of aspirant rivals, from displaced goldsmith banks

to Barbon's land bank. Though these challengers regularly lobbied Parliament for incorporation offering the state more generous terms, they typically succeeded only in forcing the Bank to match their terms. Wary of its potential competitors, the Bank eventually gained more secure footing with the so-called Ingraftment Act of 1697. As a consequence of the Act, the Bank agreed to take on a unlimited number of new subscribers, and to accept from them as payment government tallies at par value. The Bank was then to receive eight percent interest on these 'ingrafted' tallies. Crucially, the Act also granted the Bank a temporary monopoly, as it prohibited the chartering of any additional banks until August of 1710 (Clapham 1966, p. 48-50). The security yielded to the Bank by the Ingraftment Act was, however, to be fleeting.

Among the rival start-ups that continued to emerge, the Sword Blade Company (SBC) was perhaps the most prominent. While the SBC had begun its history as a manufacturer of hollow sword blades, it had long since outgrown its name and formal charter. By the turn of the century the original charter of the SBC had been sold, and the Company was 'restructured' as a financial institution. As a result of the Glorious Revolution, landowners that had remained loyal to James II were expropriated by William of Orange, with the new King choosing to bequeath these estates to his personal favorites. After some political uproar, initiated in part by principal shareholders of the SBC, the King was forced to cancel these land grants and to resell the estates at auction in 1702, where the SBC was a significant buyer. We should note that the payment received by the Crown in this 'auction' was that the SBC funded some £200,000 in back pay due to the Army, by exchanging the Crown's debentures for Sword Blade stock. On the basis of these newly acquired assets, the SBC emerged as a land bank, discounting notes, as well as issuing short-term mortgages, along with bank notes, much to the displeasure of the Bank of England (Sperling 1960).

The true encroachment of the Sword Blade Company in the Bank of England's territory did not finally occur until the second decade of the 18th century. In 1710, England marked its eighth year of engagement in the War of Spanish Succession, the debts from which Marlborough largely financed through rising direct taxation, much of which was borne by the predominantly Tory landowning classes. As Tory criticism of Marlborough's management of the War rose, many of the State's previously reliable sources of credit began to dry up. Moreover, a particularly severe winter and harvest failure in 1709 led to a Continent-wide downturn, and a more general scarcity of credit. The ascension of Robert Harley to the position of Lord Treasurer, and the election of a new Tory Parliament that viewed with reproach the significant debts the previous Parliament had incurred through the BOE, initiated the transformation of the SBC into the State's primary financier. Harley, in particular, brought the level of the State's debt to Parliament attention through the accounting inquiries he undertook

shortly after acquiring his new position.[3] From this point on, the SBC took a leading role in the organization and management of the State's lotteries, which garnered renewed interest through the payment of higher and higher effective rates of interest. In a broader sense, the transition in 1710 between Whig and Tory Parliaments can be seen as a contest between rival financial interests, with Whig interests lying in the Bank of England and Tory interests with the SBC. Some tangible evidence of Parliament's shifting financial allegiances is offered by David Stasavage (2003, p. 83-4) who argues that the Tory electoral victory caused a nearly immediate and dramatic fall in the BOE's share prices prior to any of the proposals for the South Sea Company. Moreover, the Bank's share price remained depressed for nearly four years, not returning to its pre-Tory heights until 1714.

Still, the funds raised through lotteries reflected only a small fraction of the debt the Crown continued to incur, and a longer-term solution to secure the sustainability of the public debt was sought. Mirroring the basic model upon which the Bank of England was founded, a new joint-stock company – the South Sea Company (SSC) – was chartered to essentially refinance the Crown's existing floating debt. Championed by Harley, and other Tory MPs, the proposed company was met with ridicule and violence from Whig opposition, though the Tory majority ensured that the charter was never truly in doubt.[4] Parliament eventually carried the proposal in late May of 1711. In total the SSC assumed £9 million of the State's floating and unsecured debt, which was traded on par with shares in the newly created company. In exchange the company was to receive interest payments of six percent from the Exchequer; a rate well below what had been paid on recent lotteries (Carswell 1960, p. 45). Further, the fact that this massive issue of public debt was, for nearly a decade, successful magnifies the historical significance of the SSC from our vantage. Despite this bitter opposition, the Tory majority in Parliament eventually carried the proposal in late May of 1711.

The chartered joint-stock company, though it was also granted a monopoly over the British slave trade with the Spanish colonies of the Americas, showed relatively little interest in developing the trade.[5] Aping the Bank's proven and lucrative model of state finance was always the SSC's true ambition. Plainly, not one member of the SSC's board of directors had any experience in the slave trade. Trade in the SSC's shares throughout its early years clearly testifies to public skepticism with regard to the profitability of the slave trade. For over five years after the first issue of the company's stock its value lingered well below the par value of the State debt assumed by the company, and there

3 Harley's survey placed the total level of the State's floating debt, extending back to the reign of William of Orange, at some £9.5 million (Sperling 1960, p.3).

4 Harley was, in fact, stabbed while making his proposal to Commons. It was only during his recovery the plans for the creation of SSC were finalized.

5 It should be noted that the company did eventually manage the transportation of slaves to the Americas in significant numbers, even in the wake of the bubble's collapse (Paul 2004).

was little expectation that the company could hope for anything more than the six percent paid by the Exchequer.[6] Though there is no reason to believe that Harley or the other architects of the SSC foresaw the financial ruin that the scheme was to bring, from the beginning there was little expectation that the SSC would be anything other than a shell-company for the State's debt.

The final expansion of SCC involvement in state finance seems clearly to have drawn from the exploits of John Law and his management of the French State's finances. As one English observer of Law's 'financial innovations' noted that "[b]y the success of Mr. Law's projects the public debt is paid off at a single stroke and the French King remains master of an immense revenue and credit without bounds" (Carswell 1960, p. 95).[7] In 1719, the SSC proposed to Parliament the conversion of the entirety of the state's outstanding annuities into SSC stock. Though the Bank of England was also permitted to bid on the conversion, and was successful in thwarting the SCC's attempt to to convert the debt the Bank had already assumed, the SCC was eventually granted the right to convert more than £30 million worth of debt, both redeemable and irredeemable. (Paul 2010, p 45). The final proposal was approved in February of 1720, and the SSC agreed to pay up to £7.5 million for the privilege, depending on the quantity of annuities successfully converted. It was only once it had seemingly emerged as the state's preeminent financier that the speculative mania came in 1720 to surround the SCC, and the British market for joint-stock shares generally. Importantly, for the SSC, the profitability of the venture depended on its share price. The higher the SSC's market valuation, the fewer wold be the shares necessary to exchange with the government's annuitants. Further, a rising market in SSC shares made it easier for the company to attract holders of irredeemable state debt, and carried the clear promise of higher returns to the Company's share issues to the open market (Dickson 1967, p. 100-01).

3 MOTIVATION FOR THE BUBBLE ACT

While a substantial literature surrounds the origins and history of the South Sea Bubble, it is difficult to point to a consensus regarding the intent and effects of the Bubble Act of 1720. A survey of the existing literature reveals at least three distinct interpretations of the Act. The surprisingly durable, but

6 Here it is worth noting that the administrative task of converting the State's floating debt into SSC stock was an involved administrative task that took nearly two years (Dale 2004, p. 46-7).

7 Indeed, the South Sea Company and Law's experimentation in state finance mutually conditioned each other throughout their respective histories. Law initially patterned his Mississippi Company after the SSC, though his company did earnestly pursue its commercial ambitions to a greater extent (Dale, p. 65-71). Proceeding from the other direction, John Law's ambitious scheme seemed to prove that the expansion of public debt should no longer be treated as a grave development, but rather that such debt could even serve as the basis for new and highly profitable commercial ventures. While Law certainly enjoyed a degree of centralized power over the State incomparable with that wielded by the SSC, the basic point to be made is that the historical coincidence of the two schemes was far more than that (Garber 1990).

least substantiated of these interpretations holds that the Bubble Act reflected a hasty response by Parliament to the rising tide of speculative activity, or "stock-jobbing."[8] Though this reading has sometimes mistakenly gained traction, the historical reality is that the Bubble Act was passed on June 9th of 1720, well before the Bubble's peak in August of that year.

Beyond this basic problem of dating, the Bubble Act has been interpreted by some authors as a reflection of public distrust in the principle of limited liability. Even some frequent critics of orthodox understandings of the State's role in development, such as Ha-Joon Chang, uncritically accept this point.[9] Such a reading is little more than a refashioning of the largely discredited view that the Bubble Act was meant to curb speculation *in general*. Certainly there were members of Parliament that appreciated some of the dangers of the speculative mania they were witnessing, though this was undoubtedly a minority. Among these opponents of speculation, Archibald Hutcheson was arguably the most prominent. Hutcheson was evidently quite active as a pamphleteer, writing primarily on economic matters, and warned of the growing burden of the national debt. Generally, he advocated for extinguishing the national debt as quickly as possible by means of sinking funds. To this end, earlier in his Parliamentary career he promoted a plan to pay off the debt on the basis of a broadly applied flat 10 percent tax on property (Paul 2012). Favoring his own approach, Hutcheson was a critic of the South Sea Company from the first. As the bubble surrounding the SSC inflated over the course of the Spring and Summer of 1720, Hutcheson had warned of impending collapse writing that "[t]he Managers of the South Sea Scheme appear to me to have copied exactly after the French Mississippi in all the steps which have been hitherto taken...Is there not, therefore, reason to fear, that the parallel will happen throughout?" (Hutcheson 1721, p. 65). Hutcheson then later served as a member of the committee in the House of Commons that drafted the text of the Bubble Act, and had his approach prevailed a stronger regulatory structure could likely have taken shape. He argued that there was already ample legislation governing incorporation, and that what was truly necessary was a new regulatory body that would have controlled "stock-jobbing" and reigned in the excesses of the SSC and others (Dale 2004, p. 135). Though such regulation may well have been warranted, Hutcheson lacked the influence to carry his proposals, and his voice cannot be said to have contributed substantially to the clauses of the Bubble Act.

Other authors, seeking to frame the Bubble Act within public choice theory, argue that the Act

8 Niall Ferguson is perhaps the most prominent adherent to this view, claiming in a 2009 *New York Times* op-ed that the Bubble Act is the "classic example" of the "usual response to introduce a raft of new laws and regulations designed to prevent the crisis from repeating itself."

9 Chang notes that "[limited liability] was also believed, with some justification, to be an important cause of financial speculation. Britain banned the formation of new limited liability companies on these grounds with the Bubble Act in 1720" (Chang 2003, p. 85).

reflected the opportunism of Parliament. Margaret Patterson and David Reifen (1990) claim that the Act was meant to increase Parliamentary revenues as more companies would be forced to seek Parliamentary approval for their charters, and perhaps offer concessions to the fiscal demands of the State. They suggest that the primary means available to Parliament in claiming a share of corporate profits was through the chartering fees it charged. As many joint-stock companies in the early 18th century obtained their charters second-hand from failed joint-stock companies, this source of revenue was increasingly circumvented. Thus, "Parliament had not anticipated a used-charter market, it had not extracted a payment for the "salvage value" of a charter when the charter was originally granted" (Ibid, p. 168). Moreover, as a greater number of firms entered the market, opportunities for profit were eroded, and the share of profits Parliament could lay claim to was diminished. The principle difficulty with this interpretation is the near absence of prosecutions under the Bubble Act. Had Parliament's basic motive in passing the Act been to raise its own revenues, one would expect the record of prosecutions under the Act to be far more voluminous than it, in fact, is. Beyond this, Patterson and Reifen display either naiveté or willful ignorance with regard to the history of the South Sea Company. As we have argued, Parliament had found the BOE and SSC to be ready instruments for the assumption of any debt they could accrue. The basic advantage of these mechanisms was that they offered far lower debt servicing burdens for Parliament. Thus, the notion that Parliament faced a budgetary crisis, and saw a revival of legal chartering as a means to solve it, appears to stretch credibility.

The most accurate reading of the Bubble Act is that it was passed at the behest of the SSC's board of directors in order to draw investment away from the SSC's competitors and maintain the momentum of SSC shares. This position was clearly articulated by John Sperling who found that "[t]here is good reason to believe that the Act resulted from the lobbying of the South Sea directors who wished to cut off speculation in these companies because it drew money out of the market in South Sea stock" (1960, p. 31-2). Support for this position is also found in Carswell (1967), and more recently and stridently by Ron Harris (1994). The interpretive difficulty lies in the fact that the BA did herald the collapse of the South Sea Bubble, despite having been passed with the opposite intent. The speculative frenzy was not limited to SSC shares alone, as several hundred newly-formed joint-stock firms, only some of which had legitimate commercial aims, emerged in the first six months of 1720. Harris (2000, p. 62) estimates that at the bubble's peak a nominal capital of £224 million had been invested. By the early summer of 1720 SSC shares had nearly peaked, but there was little to suggest that any collapse in share price was imminent. In fact, many investors were eagerly awaiting the payment of substantial dividends, having been assured by the Company that its finances were unassailable. Well before any prosecutions of the SSC's competitors were initiated, the passage of the Act seems to have given rise to anxiety among the

Company's investors. Even before the Act had formally passed, SSC shares began to slip. Prices were, however, quickly revived by the announcement of a new subscription that required only ten percent down on the share price, with a second ten percent payment not due for another six months. Investors could thus bank on an increase in SSC shares to make their future payments, and given this incentive SSC shares rose to their ultimate peak between late June and early August of 1720.

In the first weeks of August SSC stock began to drift downwards once again, but without any precipitous drop. However, on August 18th, following continued pressure from the SSC directors writs of *scire facias* where brought against several of the SSC's smaller competitors for violating clauses of the Bubble Act (Sperling 1960, p. 32). These companies were targeted at the insistence of the SSC's directors, and were perceived to have been diverting investment away from the SSC itself. The initiation of these legal proceedings brought a rapid fall in the share prices of these companies and set in motion a process of de-leveraging. As the general bubble in London markets had been driven by highly leveraged buying, and a steady inflow of foreign capital, the collapse of share prices in even a small portion of the market had contagion effects and spurred rapid capital flight. SSC share prices soon began their irreversible downward slide, and by September the Company's liabilities exceeded its assets by some £3 million. As the turbulent year closed, SSC stock had returned roughly to par with the original State debt the Company had assumed, and various proposals for the punishment of the SSC directors, and remuneration of the Company's ruined shareholders were being floated.

An attentive reading of the historical record draws one, unavoidably, to the conclusion that the Bubble Act was never meant to curb joint-stock speculation in general. Instead, the Act is best seen as a last ditch effort on the part of the SSC's directors to perpetuate their scheme with the aid of their long-standing alliance with Tory elements of Parliament. In the preceding discussion we have argued that by the closing decade of the 17th century there was a newfound willingness on the part of the English Crown and Parliament to explore new means of state finance. The creation of the Bank of England represented the first successful venture to spread large portions of the Crown's debt to the public. Put another way, state debt truly became public debt for the first time as debt instruments were both sold to the general public, and guaranteed not by the King but by Parliament and its tax revenues. As factions of Parliament came to a greater apprehension of the potential profits of joint-stock companies founded on public debt, and military debts continued to mount, competitors to the Bank of England's monopoly arose. The BOE owed its privileged position, fundamentally, to Whig support. Consequently, the shift in Parliamentary power to the Tories in 1710 saw the rise of the Sword Blade Bank as the state's new financier. The SSC, having been incorporated by the principal investors of Sword Blade Bank, was very much Parliament's creation as well. Thus, the Bubble Act was a futile attempt by Parliament to

preserve its own interests. There was, no doubt, significant public outcry against the pernicious effects of speculation following the collapse of the South Sea Bubble. Understandably then, the causal student of the Bubble Act might be persuaded that it represented an ernest attempt at financial regulation. A more careful study leaves no room for this interpretation.

4 THE IMPACT OF THE BUBBLE ACT

That the Bubble Act was passed at the behest of the SSC does not, of course, automatically imply that it had no lasting effects on the process of industrialization. Though unchartered corporate partnerships developed throughout the hundred-odd year period that the Act remained law, partners in these companies did not enjoy limited liability, possibly limiting the number of investors that could be attracted to industrial ventures. Indeed, Temin and Voth (2013) are not alone in elements of this supposition, despite being more forceful in their conclusions. Alfred Marshall[10] (1919), and Armand DuBois (1938) long ago suggested that the more widespread adoption of the joint-stock form was markedly constrained by the Act. Dubois was, however, careful to note that whatever Parliament's initial hesitancy to grant charters in the aftermath of the Bubble, "at the middle of the century there was a perceptible increase in Parliamentary acts of incorporation" which became "even more pronounced" in the closing two decades of the eighteenth century (p. 36). Neither is it clear that the Bubble Act was the decisive piece of legislation that led to a limited number of formal incorporations after 1720. In a thorough study of English governing corporate bodies Ron Harris (2000, p. 79) contends the decision limit incorporation and to prosecute firms for abuses of their charters was "a matter of public policy rather than new law or interpretation of the law."[11]

Assessing the impact of the the Bubble Act invariably involves a significant degree of counter-factual speculation, as we have little way of knowing how many prospective firms might have availed themselves of the joint-stock form in the absence of regulation. It is true that manufacturing firms were rarely granted incorporation in the 18th century, while charters for the construction of canals, turnpikes, and shipping infrastructure appear to have been obtained with relative ease (Harris 2000, p. 194).[12] It is

10 For Marshall, the consequence of the Bubble Act was that "associations abounded that were called 'companies,' but had no legal status as such. As each member of such a company was liable for all its debts, a prudent and responsible man was unwilling to take a share in it, even though it afforded reasonable prospects of high gains" (p. 312).

11 Harris also notes that the regulation of Exchange Alley was extended, outlawing trading in certain types of options and futures, in 1734 following another market collapse (p. 225).

12 Adam Smith, though critical of course of the monopoly rights granted to the great joint-stock trading companies, argued the joint stock form was uniquely suited to the needs of canal and aqueduct construction, along with banking and insurance. Outside of these domains, Smith noted that capital needs were not "requisite for rendering reasonable the

not, however, clear that the joint-stock form would have been preferred by early manufacturers had it been easier to obtain. As emphasized by Pressnell (1956, p. 256), there was not a rush on the part of manufacturers to obtain charters following the Bubble Act's repeal in 1825. Of equal importance, unchartered joint-stock companies, which were rarely prosecuted in the fifty years prior to the Act's repeal, were not regularly found in the manufacturing sector. One may just as easily speculate that the more measured spread of chartered joint-stock companies after the Bubble restrained any number of poorly managed or sham firms, and served to restore public confidence in the joint-stock form as legitimate and stable means of finance.

The absence of joint-stock companies in manufacturing should not lead one to the conclusion that they played no role in industrialization. Rather, it is telling that legally chartered joint-stock companies were the predominant financiers in the wave of canal construction that swept England and Wales between 1755 and 1815. In practice, of the 50 canal projects undertaken during the period only one, the Duke of Bridgewater's canal, was not undertaken by a joint-stock company (Ward 1974, p. 18). Though varying in size and complexity, the average canal project raised a subscribed capital of £340,000, and found subscribers in a broad cross-section of social classes. Moreover, both the primary and secondary markets for canal stock seem to have been predominantly local, with modest turnover rates.[13] The simple conclusion that suggests itself is that joint-stock incorporation was preferred by firms investing in transportation infrastructure with significant capital needs, and that such charters were regularly granted. For manufacturers with more modest, short-term borrowing needs, endogenous modes of finance emerged; forms that were crucially aided by the Bank of England in its emergent role as a central bank.

5 THE BANK'S ROLE POST-BUBBLE

It seems clear that the experiments in public finance of the early 18th century, abortive though some may have been, were fundamentally transformative. Despite the collapse of the Bubble, the SSC had succeeded in converting much of the state's irredeemable debt into stock, and thus served to radically reduce the public debt servicing burden (Brewer 1988, p. 125-6). The dramatic magnitude of this transformation is worth emphasizing. Taking annual debt service expenditures as a percentage of total debt outstanding gives a rough index of the effective rate of interest paid on the aggregate sum of debt.

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establishment of a joint-stock company" (Smith 1994, p. 818).

13 Data on canal stock turnover in secondary markets is, unsurprisingly, quite fragmentary. Nevertheless, of the three projects surveyed by Ward, none averaged an annual turnover rate of greater than 10 percent.

In 1718, this figure at slightly more than 7 percent, whereas by 1726 it had fallen to little more than 5 percent, and approached 4 percent by 1730. A broader picture of the state's interest burden in the 18th century is given in Figure 1.

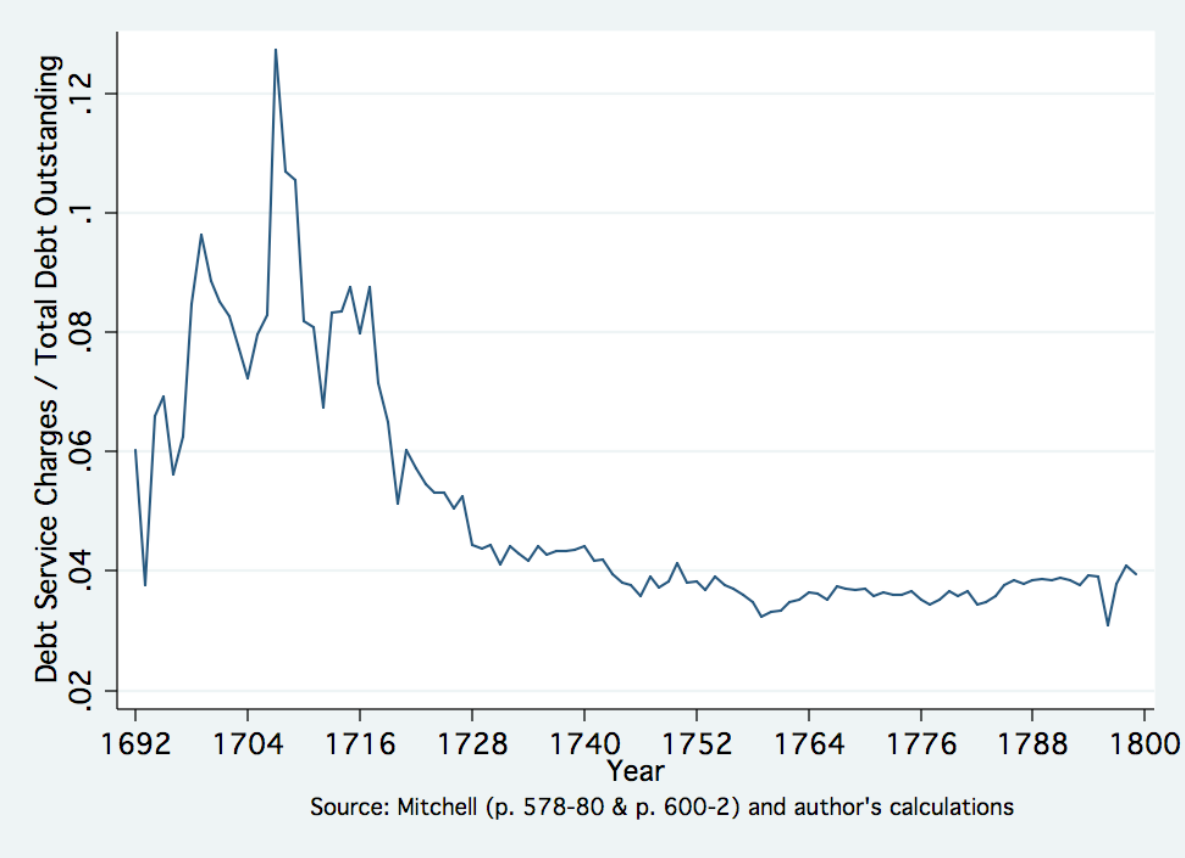

Figure 1 Effective Interest Paid on Outstanding Public Debt

With the problem of the irredeemable debt effectively solved, the Bank of England, devoid after the Bubble of any serious competitors, was free to expand its role as public financier. Parliament and the crown were likewise enabled to expand public debt as necessary to finance military expenditures, with the government sector remaining a consistent source of domestic demand at an average of 12 percent of GDP between 1721 and 1799. What is at issue for a portion of the literature, is the impact that the Bank of England came to have on the process of industrialization in the latter half of the century.

Temin and Voth's (2013) position regarding the adverse impact of government borrowing in the 18th century can be sketched simply. Periods of heightened borrowing flooded capital markets with higher yielding assets, thereby inducing depositors of the goldsmith banks to withdraw their funds. In the face of the five percent upper-bounds on interest rates enforced by the usury laws, the contraction of deposits forced the goldsmith banks to more carefully ration credit. In this story, bankers may also have found the near risk-free returns on government securities to be more attractive assets in which to place

their capital, and thus preferred them to their interest rate-constrained private loans. Stated somewhat more broadly, this thesis has a long, if somewhat discontinuous, lineage. Ashton (1955), while noting England was generally 'blessed with cheap money' in the 18th century, contended that the usury laws 'at times' diverted resources away from the private sector, and directly lead to great volatility in the level of activity. The 'crowding out' argument has also been presented in this context by Jeffery Williamson (1984) and Robert Barro (1987). What is conspicuously missing from this general discussion is any serious attention to the positive role that may have been played by the Bank of England, both in the financing of industrial development, and in enhancing the stability of the nascent financial system generally.

As John Clapham (1966, p. 172) rightly noted in his comments on the Bank's position at the close of the 18th century, "[i]t is not to be supposed that the Bank, though most emphatically central, had acquired or been given all the functions associated today with that adjective." While there can be little doubt the the Bank of England served primarily in the 18th century as an institution to finance the needs of the state, the Bank's role in financing the private sector has been too often neglected. It is clear that in addition to its business with Parliament, the Bank discounted bills of exchange for a number of the larger merchants of London, and not simply for East India and South Sea companies (Mathias 1983, p. 149). In sketching this feature of the Bank's activity, two points merit initial emphasis. First, as has long been apparent from Clapham's data, the Bank did not maintain anything approaching a fixed ratio between its bullion reserves and note issue. Particularly in the latter half of the 18th century, the Bank appears to have significantly expanded its discounting activities during periods of crisis, acting, in the view of some scholarship, as a lender of last resort (Lovell 1957). Secondly, while the private banks of London were formally prohibited from discounting directly with the Bank, a number of partners of some of the major London houses maintained drawing accounts with the Bank which likely came with informal access to the Bank's discount facilities upon occasion (Clapham 1941, p. 83). Further, Clapham (1966, p. 129) records that while the volume of discounts remain relatively stable between 1720 and 1750, there was, by the early 1760s a "gigantic increase" in volume . This increase plainly coincides will the rise of the country banks, and the emerging process of industrialization generally. The significance of these points to our argument cannot be overemphasized. The case for crowding out rests upon the premise that the Bank had little inaction with the private banking sector, beyond supplying it with an increasingly widely accepted unit of account. Absent this assumption, a very different picture of the British financial system emerges. Namely if, as seems evident, the Bank expanded and contracted the credit it afforded according to the needs of trade, rather than in response to variations in its bullion reserves, the British financial system as a whole cannot have been deposit

constrained. Though adopting a different theoretical perspective from that advanced in this paper, Patrick O'Brien (2011) has also emphasized that the Bank's directors in the 18th century never articulated a singular principle by which their note issues where regulated. While O'Brien contends that the state of confidence of the Bank's directors and their resultant note issue governed the size of the money supply, and imperfectly regulated the credit extended by London and country banks, his emphasis on the inter-connectedness of the rising financial system is nevertheless compatible with a demand-led model of credit creation.

Apart from the question of whether the private banks were forced to ration credit during periods of heightened government borrowing, the uses to which private loans were put is also at issue. Focusing primarily on two of the more significant West-end banks, Hoare's and Child's, Temin and Voth observe and document a marked 'gentrification' of goldsmith bankers' dominant clientele following the tightening of usury laws in 1714.[14] From this trend, they admittedly speculate that the borrowers who came to be excluded were "gentlemen and successful members of the growing middle class, successful merchants and manufacturers, which...suggests that Hoare's did not only offer consumption loans" (Temin and Voth 2013, p. 79). That both Hoare's and Child's came to be the favored banks of the landed aristocracy, receiving rents of their estates and managing investments on their behalf, is not under dispute (Joslin 1954, p. 176). The operative question is whether the gentrification of the West-end banks' customers can be purely ascribed to the usury laws. In Mathias' (1983, p. 150) opinion, the West-end banks "rather looked down on soiling their hands with commerce: close association with it might have prejudiced their custom with their main clients – the aristocracy, gentry and wealthy gentlemen."

Following the specialization of the West-end banks, the finance of industry and trade was left to the banks of the City and, more importantly, to the 'country' banks that emerged in the industrial cities of the North in the latter half of the 18th century. The country banks were not typically the outgrowths of local goldsmiths, and seem often to have been the partially self-serving creation of local industrialists (Pressnell 1956, p. 13). As a general pattern, it appears that country banks in predominantly agricultural counties found depositors is excess potential borrowers, and invested much of their surplus capital in the London money markets. Conversely, banks within the rising industrial districts drew upon London to satisfy local demands for credit (Kindleberger 1984, p. 80-1). Prior to the 19th century, most of these industrial banks can be traced to owners of textile firms or foundries. Bearing this in mind, the

14 The text of the act makes explicit its intent to promote the 'advancement of trade,' and to relieve the landowning classes. In regard to the latter we are told that "the heavy burden of the late long and expensive war hath been chiefly born by the owners of the land of this kingdom by reason whereof they have been necessitated to contract large debts, and thereby, and by abatement of the value of their lands, are become greatly impoverished" (Raithby 1811, p. 488).

expansion of local credit facilities in the industrial towns should be seen as an endogenous response to the needs of industry, rather than as a outgrowth of the London money market. Once established, the country banks forged relationships with the City banks by means of regular agents who handled their business in London. As the literature has regularly emphasized, the fixed capital required for many of the early innovations of the industrial revolution was relatively meagre (Deane 1965, p. 178). Of greater importance was access to short-term finance for the payment of wages and the purchase of raw materials, and it was in such provision that the country banks regularly specialized. As Pressnell (1956, p. 76) has emphasized with respect to country banks located in industrial areas, "[w]hen money was scarce country banks in general turned to London, much as London firms turned to the Bank of England, as the lender of last resort." Thus the Bank of England, though clearly established and expanded as an agent to manage the public debt, seems to have played at least an indirect role in the finance of industrialization.

In sum then, the contention that financial regulation and mounting public borrowing constrained industrialization seems to rely on an overly atomistic vision of the financial sector in 18th century England. The Bubble Act, though originally intended to support speculation in the South Sea Company, did not seriously constrain firms' access to credit in the latter half of the 18th century. Importantly, the chartered joint-stock form was heavily utilized in the central infrastructural investments of the 18th century wherein the need for capital was much larger. The manufacturing sector, with its more modest and short-term credit needs, was well supplied by the emerging country banks. Moreover, these country banks did not simply harness local pools of savings, but instead regularly drew upon London to meet the local demand for credit. Finally, the existence of the Bank of England, in addition to creating a secure and liquid market for public debt, supplied credit directly and indirectly to the English banking system through its discounting operations. Private lending was consequently not savings-constrained, and depended rather on the demand for loans and on the number of credit-worthy borrowers. The English state was both beneficial to, and inseparable from the process of industrialization in the 18th century.

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