Dissecting the sinews of power: International trade and the rise of Britain's fiscal-military state, 1689-1823

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Abstract

We evaluate the role of taxes on overseas trade in the development of imperial Britain's fiscal-military state. Influential work, e.g., Brewer's *Sinews of Power*, attributed increased fiscal capacity to the taxation of domestic, rather than traded, goods: excise revenues, coarsely associated with domestic goods, grew faster than customs revenues. We construct new historical revenue series disaggregating excise revenues from traded and domestic goods. We find substantial growth in revenue from traded goods, accounting for over half of indirect taxation around 1800. This challenges the conventional wisdom attributing the development of the British state to domestic factors: international factors mattered, too.

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1 Introduction

British expansion from the 17th to the 19th centuries established a global empire and set the stage for the emergence of modern economic growth. In those centuries, Britain's capacity to wage and win wars relied on the expansion of the fiscal capacity of its state (O'Brien, 1988). Where did Britain get the revenue required to pay for its ships and men, and to repay the debts it incurred in fighting its wars? Historical scholarship on the development of the British fiscal-military state — most notably Brewer's (1989) *Sinews of Power* — has emphasized the importance of increased indirect tax revenue, in particular excise revenue. The excise tax has been treated by many historians as a tax on goods produced (and consumed) *domestically*. The importance of excise tax revenue suggests a central role for revenue generated from domestic economic activity, as opposed to revenue generated from overseas trade passing through customs. The emphasis on domestic taxation also suggests a primary role for an excise bureaucracy described by Brewer (1989, p. 82) as "a body of men widely regarded as the most proficient revenue officers in government." These officers traveled the British counties, in contrast to customs officers concentrated in ports. This account rhymes well with a broader literature that considers domestic institutions to be the primary drivers of Britain's development (e.g., North and Weingast, 1989; Acemoglu et al., 2005; Acemoglu and Robinson, 2012). This perspective continues to influence the literature on the political economy of historical development (e.g., Besley and Persson, 2011; Acemoglu and Robinson, 2019; Koyama and Rubin, 2022; Angelucci et al., 2022).

In this paper, we challenge the conventional wisdom emphasizing domestic forces and institutions. Although often overlooked, the excise was a tax on goods produced and consumed domestically, and *also* on goods traded overseas (henceforth, "traded" goods). O'Brien (1988) observed that excise revenue included taxes collected on traded goods, but incorrectly believed that this began only around 1790.[1] In fact, from its inception in the 17th century, the excise tax was applied to both domestic and traded goods. Its collection occurred not only in the interior of Britain, but

[1] O'Brien (1988) writes in the note to his Table 4, "In the late 1780s, Pitt transferred a large part of the responsibility for the assessment and collection of duties on foreign spirits, tea, tobacco and wine from Customs to the Excise department." The primary sources we reference below, along with the data collected by Hoppit (2017) make clear that these goods were taxed under both customs and excise as far back as the 17th century.

also in its ports — especially the port of London.[2] Evaluating the role of traded goods in Britain's increased tax revenues thus requires richer data than those that have been used in the literature. In particular, one needs time series that are more disaggregated than the coarse categories (e.g., "Customs," "Excise," "Stamps," ...) reported in the primary source relied on by the reference work on Britain's fiscal development (i.e., Mitchell, 1988, and Brewer, 1989).[3]

We construct such disaggregated data from sources in the National Archives (TNA) collection "Records of the Board of Customs, Excise and Customs and Excise, and HM Revenue and Customs" (these are referenced under *CUST 145*).[4] These sources allow us to calculate yearly excise revenue raised *by commodity*.[5] Thus, we can decompose the excise revenue according to whether the good being taxed is produced and consumed domestically (henceforth "domestic"), or instead produced abroad but consumed domestically, or produced domestically but consumed abroad (i.e., goods imported or exported or "traded"). We also construct new disaggregated customs revenue series that allow us to identify customs taxes on traded goods as well as customs taxes on domestically-produced coal. To construct the customs revenue series, we relied primarily on the National Archives collection "HM Treasury – Accounts and Ledgers" as well as the collection "Board of Customs: Statistics: Revenue".[6]

That domestically-produced coal was taxed at customs is further evidence that the distinction between customs and excise reflected the management of the tax collection process, not the origin of the goods being taxed. This is clear when directly consulting the primary sources. These sources, however, present several challenges that perhaps contributed to historians' longstanding reliance on secondary, more aggregate sources. The archival sources often present revenues at different levels of aggregation, and often have ambiguous labels. For example, *CUST 145/22*

[2]Hoppit (2017) presents snapshots of excise revenues collected in London suggesting that taxes on traded goods like tea, tobacco, and foreign spirits made up a significant share of excise tax revenue across the 18th century.

[3]Mitchell's and Brewer's historical source was a compilation produced for Parliament in the second half of the 19th century, "Accounts of public income and expenditure 1688-1869," (PP 1868–9, xxxv), referenced by Brewer as "British Parliamentary Papers, vol. 35 (1868–9). This is also the source relied on by O'Brien (1988), referred to as the "Chisholm Report."

[4]This collection is part of the larger set of documents stored at the British National Archives, "Board of Customs and Excise and predecessors: Excise Duties, Receipts, Payments and Rates." We rely primarily on *CUST 145/8*, *CUST 145/12*, *CUST 145/18*, *CUST 145/20*, and *CUST 145/22*.

[5]In addition to producing and making available our constructed revenue series, we will make publicly available the transcribed primary source data as well as statistical software packages needed to convert these primary source data into final series.

[6]We primarily rely on *T 35/55*, *T 38/357*, and *CUST 37/50*.

includes a category labeled "Excise," which is evidently *not* all of the traditional excise (i.e., that reported by Brewer, 1989), because it also lists categories like "soap" and "candles" separately, which are part of the traditional excise. The "Excise" subcategory in *CUST 145/22* is disaggregated in *CUST 145/12*. Yet, it is clear that *CUST 145/12* alone is insufficient because it leaves out the categories like soap and candles that are reported in *CUST 145/22*. Thus, constructing a comprehensive excise series disaggregated by product requires careful cross-referencing of categories across primary sources.

In some cases, categories may be too broad to allow unambiguous assignment into domestic or traded categories (e.g., salt and vinegar). We thus construct estimates of disaggregated excise revenue reflecting conservative assumptions regarding the revenue raised from traded goods. For example, we compute revenues collected on salt as domestic, though some salt was certainly imported. Nor do we make an effort to decompose the tax revenue on domestically-produced goods with a traded component to their value added. For example, taxes on domestically processed textiles are treated as domestic taxation even when the main input (e.g., a less processed textile) was produced abroad and represented a significant share of the value added.[7]

Using our newly constructed data, we reevaluate the contribution of taxes on overseas trade to Britain's indirect tax revenue.[8] Even under our conservative assumptions, these data overturn the conventional wisdom regarding the importance of taxes on overseas trade to Britain's fiscal development. The data in Mitchell (1988) and Brewer (1989) suggest that in the early 18th century, taxes on traded goods represented a *minority* — around 40% — of total indirect taxes (i.e., taxes on both traded and domestically produced goods). Over the 18th century and into the early 19th century, total revenues greatly expanded, and Mitchell (1988) and Brewer (1989) suggest that the tax share of traded goods fell in this period to around 30% of total indirect taxes. In contrast, our series show that the tax share of traded goods *grew* from around 40% of indirect taxation early in

[7]We leave for future work a more complete accounting of the role of trade in the rise of the British state and the British economy. This would require not only addressing the challenges noted above, but also more precisely estimating spillovers across sectors and the dynamic consequences of trade for the British economy.

[8]Our focus on indirect taxation follows Brewer (1989), who writes, "[After 1714,] indirect taxes, most notably the excise, were overwhelmingly the most important source of the state income." The importance of indirect taxation to British revenues in the 18th century is reflected in Online Appendix Figure B.1 (reporting data from Mitchell, 1988), showing that indirect taxation accounted for 50% or less of total British tax revenue in the late 17th century, while accounting for two-thirds or more of total revenue in the 18th century.

the 18th century to more than 50% around 1800. During the first quarter of the nineteenth century, traded goods provided a *majority* of the revenue from taxed goods. This share further increases if we account for revenues collected from traded goods and then used to subsidize exports and promote other national objectives (i.e., revenues spent on "bounties").[9] The increase in revenues from traded goods from 1689 to the early 19th century accounts for more than half of the overall increase in indirect tax revenues. Tax revenues from overseas trade thus represented a substantial component of the fiscal expansion that funded Britain's imperial dominance.

Our analysis makes several contributions to the literature on British and global economic history. Most directly, we contribute new data on British revenues over time that improve upon the standard references (Mitchell, 1988; Brewer, 1989). We join Hoppit (2017) in arguing against the traditional treatment of the excise as taxation of domestic production and provide improved, disaggregated data on both excise revenue and customs revenue from 1689 to 1823. In so doing, we contribute fundamental new evidence to the literature analyzing Britain's fiscal development in the 17th–19th centuries (e.g., O'Brien, 2011; Murphy, 2013; Cox, 2016; Dickson, 2017).

Our disaggregation of the excise allows us to connect Britain's rising fiscal capacity in the 18th and 19th centuries to specific goods traded overseas. We show that the taxation of products with inelastic demand — so called "drug foods" (Mintz, 1985) — provided a large share of Britain's rising tax revenue. Trade in many of these products, for example, tea, tobacco, coffee, spices, and sugar, was supported by the application of Britain's coercive power — whether directed toward the colonized or toward competing powers. Taxation of these "imperial" goods accounted for over 50% of revenues collected from traded goods as of 1818.[10] Thus, we add to a literature that emphasizes the importance of trade and colonies to the development of the modern Atlantic economies (e.g., O'Brien, 1982; Pomeranz, 2000; Acemoglu et al., 2005; Findlay and O'Rourke, 2007; Palma, 2016; Hersh and Voth, 2022).

More broadly, by placing international trade at the center of the fiscal changes experienced

[9]The revenues used for bounties did not reach the Exchequer and so were excluded from the revenue figures in Mitchell (1988) and Brewer (1989).

[10]We define a conservative set of imperial goods including tea, tobacco, coffee, other habituation goods (such as pepper and other spices), and sugar. This set accounts for 50% of revenues from traded goods. This fails to account for the contribution of rum, which is included with other foreign spirits in our data. When we include revenues from foreign spirits, the share of revenues from traded goods coming from imperial goods rises to over 60%.

in Britain in the 17th–19th centuries, our descriptive evidence has important implications for our understanding of both the domestic and international dimensions of British state development. Domestically, our findings suggest an important role for tax collection by a traditional bureaucracy based in ports, with particular concentration in London (this reinforces the argument made by Hoppit, 2019). This is distinct from the narrative in Brewer (1989), which emphasizes revenue collection by excisemen across Britain's interior at myriad points of consumption. Internationally, we show that overseas trade contributed substantial means to building the fiscal capacity of Britain during an era in which war among European nations in the 16th to 19th centuries shaped the rise of modern states (Tilly et al., 1975; Bonney, 1999; Dincecco, 2011). Wars matter because they induced investments in fiscal capacity that could then be used to fund a growing state that supported the economy (Besley and Persson, 2009). As war became more costly, it was the states able to raise more revenue that prevailed (Gennaioli and Voth, 2015; Cantoni et al., 2022). Identifying the sources of Britain's fiscal strength is pivotal to understanding the process of the formation of the state that was victorious in this geopolitical competition.

Because much of the trade that shored up Britain's fiscal capacity was conducted within the institutional context of the British Empire, our work relates to the literature that emphasizes the role of empire and coercion in the historical development of capitalism (e.g., Williams, 2021; Findlay and O'Rourke, 2007;Beckert, 2014; Levy, 2021; Heblich et al., 2022).[11] These authors consider that a strong fiscal-military state helped Britain dominate trade. Findlay and O'Rourke (2007) also propose that trade fed back into the fiscal-military state through the taxable wealth it created. This, they argue, established a mutually reinforcing relationship between economic activity and the development of the coercive power of the state.[12] In the case of Britain, the possibility of such mutually-reinforcing relationship was negated by the conventional wisdom seeing domestic goods as the main contributors to Britain's fiscal might. Our finding that international trade provided a substantial share of indirect taxes not only counters the conventional wisdom on fiscal

[11]The concept of "empire" is fuzzy: it was in some cases formal and in others (e.g., trade with India in the 18th century) informal. It was generally "overseas", but in other cases was very close to home (e.g., Scotland and Ireland, brought into union with England in 1707 and 1801, respectively). We generally use the term "empire" to refer to overseas trade beyond the British Isles, whether with formal colonies or others. However, we note that Ireland is a source of exports to Britain for much of the period under study.

[12]See also Sánchez de la Sierra, 2020; Acemoglu and Robinson, 2019; Dal Bó et al., 2022; Beraja et al., 2021.

matters. Our finding also increases the plausibility of explanations in which empire was a driver of Britain's military and economic success.[13]

In Section 2, we describe the role of excise and customs taxes in funding the British state, particularly in times of war. In Section 3, we discuss the existing historical literature on the excise tax. In Section 4, we describe the historical data sources we rely on to construct new, disaggregated excise and customs revenue statistics. In Section 5, we present our newly constructed revenue time series. We conclude in Section 6.

2 Background: War and taxes in 17th–19th century Britain

Britain's fiscal capacity, like that of many early-modern European states, was developed in a context of recurrent warfare. In the 17th to 19th centuries, Britain's wars were increasingly conducted overseas, facilitating Britain's mercantilist economic policy.[14]

Brecke (1999) provides comprehensive information on conflicts since 1400. From this data, we constructed time-series of Britain's military activity, as well as that of other Atlantic trading powers: France, the Netherlands, Portugal, and Spain. We also identify which conflicts involve fighting away from the European continent. From the 18th century on, Britain became the most belligerent power, and the one most frequently involved in overseas wars. In the 1600–1850 period, Britain fought 273 wars compared to 229 for France, the second most belligerent European power during the period. Moreover, England is the nation that shifted most aggressively toward fighting wars overseas. During the period 1600–1700, England fought 39 percent of its wars overseas, but this percentage increases to 65 in the period 1700–1850.

Britain's empire was built on winning these wars, that were so frequently overseas, with its dominant navy. Glete (1993) provides detailed information on the capacity of Britain's navy and the navies of its European rivals. We transcribed and harmonized the data on navy strengths in

[13]Of course, there were other important contributors to the emergence of the industrial revolution in Britain: from resource endowments (Allen, 2009), to culture (Mokyr, 2010), to political institutions (North and Weingast, 1989; Acemoglu and Robinson, 2012).

[14]Britain also expanded its "empire" close to home, in particular in Unions with Scotland (1707) and Ireland (1801). These territorial expansions of the state had important consequences for policymaking and state-building across the British Isles: e.g., fully incorporating Scotland into an economic union with England and Wales; and, extracting revenues from Ireland without integrating its fiscal system into Britain's. However, because the Unions' impact on British revenues were limited (Hoppit, 2021), we do not examine them in depth here.

Glete, 1993, and found that during the period 1600–1800, when Britain developed its fiscal capacity, fought wars, and expanded its empire, its naval strength overtook that of all of its European rivals. First it overtook the Dutch in the second half of the 17th century, and then the French in the early 18th century.

Such naval superiority was expensive. For example, Findlay and O'Rourke (2007), citing Baugh (2004), note that "[A] 74-gun ship costing £50,000 to build in 1780 when the largest factory in England cost only a tenth of that amount." It is thus unsurprising that each major war Britain fought was associated with an increase in its stock of government debt (see Online Appendix Figure B.2). This debt was backed by the promise of government tax revenue, and new taxes were regularly issued in a manner explicitly linked to the demands of war. For example, in 1689, Parliament passed "An Act for granting to Their Majesties a Subsidie of Tonnage and Poundage and other Sums of Money payable upon Merchandizes Exported and Imported" (2 W&M, sess. 1, cap. 4). Parliament passed this bill "for the better enabling your Majestyes to prosecute the present Warr against the French King and for the reduceing of Ireland."

3 The excise: existing scholarship and an assessment of historical fiscal motives

The conventional wisdom on the excise tax is built on three pillars, all of which are well-summarized by Brewer (1989).[15] First, its *domestic scope*: Brewer (1989, p. 56) writes that, "The excise was an indirect commodity tax on domestically produced goods, levied either at their point of production or distribution." Second, compared to the customs tax, its great and increasing *relative importance*: Brewer (1989, p. 80) presents data showing approximately equal levels of excise and customs revenues collected around 1700, and excise revenue levels that are more than double the customs revenues in the late 1700s. Third, its *contribution to state development*: Brewer (1989, p. 56) writes that, "Excises became the largest category of taxes, excisemen the biggest body of of-

[15] Our focus on the excise tax during the 18th century mirrors that of Brewer (1989, p. 79), who writes, "Put in its simplest terms, the fiscal history of the period between 1688 and 1714 was dominated by direct taxation in the form of the land tax; thereafter indirect taxes, most notably the excise, were overwhelmingly the most important source of state income." This is not to ignore the occasional importance of direct taxation in this period, especially in response to acute revenue needs (e.g., wars fought in the late 18th century).

ficials, and the Excise Office a byword for administrative efficiency. . . . [T]he English Excise more closely approximated to Max Weber's idea of bureaucracy than any other government agency in eighteenth-century Europe."[16] There is some truth in this conventional wisdom: excise revenues did grow throughout the 18th century and the excise administration was an early example of an efficient government bureaucracy.

However, the conventional wisdom is incorrect in viewing the excise tax or the growth in excise revenues as entirely driven by domestic forces. This is evident, qualitatively, in the first excise bill passed by Parliament in 1643, which imposed a tax on, "[A]ll and every the Merchants and **Importers** of the said **Forraign** Commodities in the said Schedule mentioned."[17] In a history of the excise, the Boards of Customs and Excise describe how "At the Accession of James II [in 1685], the Temporary Excises were renewed for his life, and increased by additional duties on Wine, Vinegar, Tobacco, and Sugar." Needless to say, Britain did not produce tobacco or sugar domestically in 1685.[18]

To move beyond this initial assessment, we more systematically examine the military motives behind tax bills, as well as the importance of taxes on trade during the later Stuart reigns (those of William & Mary and of Queen Anne), when the excise and customs regimes of the 18th century were established.[19] We read and classify every tax bill in 1689–1714 according to its mention of war and/or trade. Roughly 40 percent of bills across both rulers were "Public," and could involve matters of taxation.[20] We find that around 80% of public tax bills mention military, colonial, or defense (i.e., "war-related") objectives in their text; during the rule of William and Mary, 36% of tax bills mentioned *both* war and taxes on traded goods, and this simultaneous mention rises to

[16] Brewer is not alone in taking these positions. Mathias and O'Brien (1976, p. 630) write, "In Britain excise taxes were imposed on a large number of commodities at the place of production and the state levied import or custom duties upon foreign products at the point of entry into the country." Beckett and Turner (1990) and Ashworth (2003) also treat excise as a tax on domestic production. The data series on customs and excise taxation in Mitchell (1988) are constructed from precisely the same coarse historical source as Brewer: the "Accounts of public income and expenditure 1688-1869." The efficiency and importance of the excise administration are emphasized by Coffman (2013).

[17] Emphasis added by the authors. The bill is TNA/CUST 145/15, "An Ordnance of the Lords and Commons, In Parliament, for the speedy Raising and Levying of Monies by Way of Charge and New Impost, upon the several Commodities in a Schedule annexed," September 11, 1643.

[18] The history of the excise quoted is CUST 155/7, "Some Account of the Excise Duties," 1829.

[19] Studying the Hanoverian monarchs of the 18th century is less revealing. Because the systems of excise and customs were already established, there were fewer tax bills. In addition, because the purpose of taxation — to pay for war — became self-evident, it also became implicit, rather than explicit, in tax bills.

[20] "Private" bills, in turn, affected some particular interest more circumscribed than the general public. Examples are bills affecting communal rights of passage, or roads.

Table 1: Classification of Tax Bills in 1689-1714: Financing Wars and Taxing Trade

	(1)	(2) **Tax bills**:	(3) **Tax bills mention**:	(4)
Reign:	Public Bills	Share of Public	War	War & Trade
1689-1702: William & Mary	341	0.22	0.81	0.36
1702-1714: Queen Anne	338	0.20	0.77	0.50
Total:	679	0.21	0.79	0.43

Note: This table reports the classification of bills passed during the reigns of William & Mary and Queen Anne. The coding is based on the authors' reading of the bills. Column 1 reports the count of public bills (excluding "private" bills, with circumscribed effects). Column 2 reports the share of public bills that are tax bills, column 3 reports the share of tax bills that mention military aims, and column 4 reports the share of tax bills that mention military aims and also include traded goods. Bills from the reign of William III are included in row 1 with William & Mary. See section 3 for a discussion of the coding.

50% during Queen Anne's reign (see Table 1).[21]

One may still worry that even if many excise bills mentioned trade, traded goods could still have been marginal to the excise. Hoppit (2017) has collected evidence suggesting not only that excise taxes were collected on traded goods as Britain's fiscal capacity expanded, but also that the role of traded goods was substantial and growing. Hoppit (2017, p. 293) presents data showing that in 1741, of the excise revenue collected in London (one-third of all British excise), imported tea and liquors accounted for nearly 40%. In 1796, imported tea, spirits, wine, and tobacco and snuff accounted for nearly two-thirds of London's excise revenue. These data points, as well as our analysis of excise legislation, suggest the need to re-examine the historical evidence that sustains the conventional wisdom. As noted above, such a re-examination requires disaggregated data from archival sources that have not yet been systematically used.

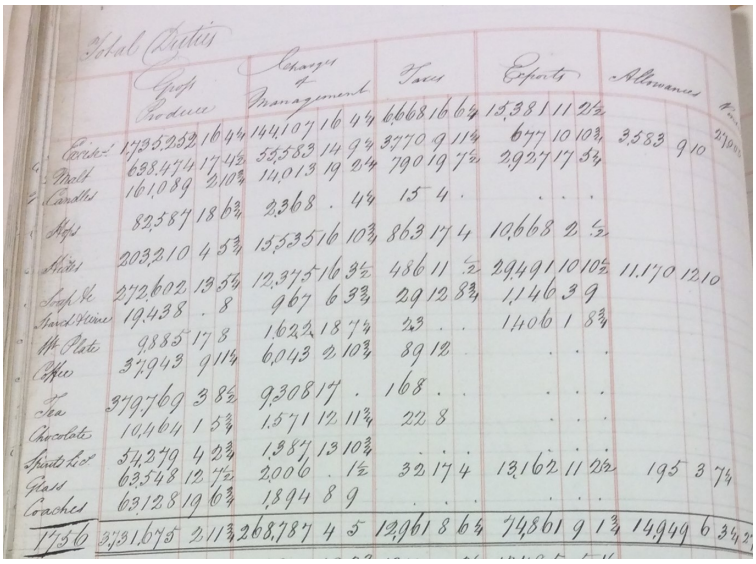
[21] It is important to note that taxes on imported goods also had aims other than funding wars. For example, import duties protected domestic producers from competition (see, e.g., Davis, 1966, and O'Brien et al., 1991).

4 Constructing new series of excise and customs revenues

4.1 Excise revenues

To construct our disaggregated excise tax dataset, we begin with *CUST 145/22*. This source is sufficient to construct, by individual good, yearly revenue series from 1788 onward, allowing us to classify revenues as originating in trade or from domestic production. Prior to 1788, *CUST 145/22* is not fully disaggregated. It presents good-level excise and inland revenues for many goods that fall under the traditional heading of "excise." These include glass, soap, paper, tea, and chocolate, among others (see Figure 1 for an image of *CUST 145/22*). Unfortunately, *CUST 145/22* also includes a category labeled "Excise" which requires further disaggregation. It is a subcategory of what is traditionally regarded as excise, and it aggregates revenues from different types of alcohol.

Figure 1: Excise Revenues by Taxed Good in 1756, Sample of CUST 145/22

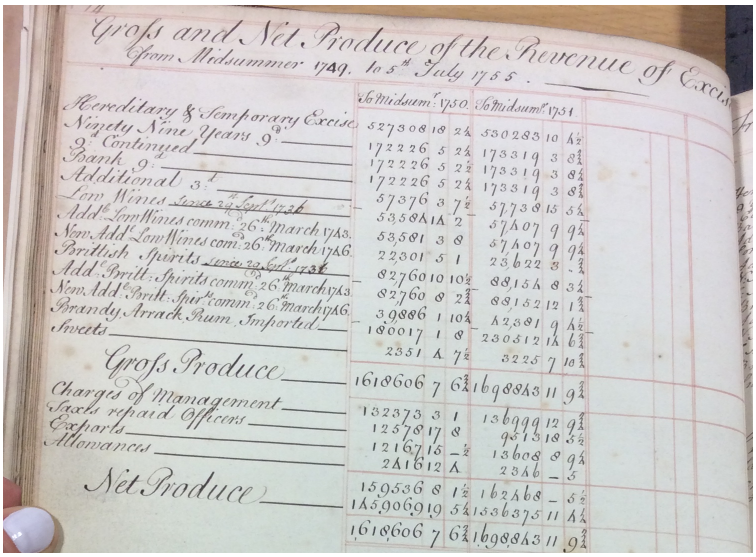


Note: This figure reproduces a sample of the archival records organized under CUST 145/22. These records report excise revenues by taxed good from 1788 forward. For earlier years (e.g. 1756 in this figure) the category of narrow excise (cf. row 1 of this figure) needs to be further disaggregated.

To disaggregate the "Excise" category from *CUST 145/22*, we turn to *CUST 145/8* and

CUST 145/12 for the years up to 1787 (see Figure 2 for an image of *CUST 145/12*).[22] These sources include revenues information on various categories of alcohol, which add up to the "Excise" category from *CUST 145/22*. However they do not include the other disaggregated revenues that are reported in *CUST 145/22* (glass, soap, paper, tea, etc.), meaning that we need to combine information from *CUST 145/22*, *CUST 145/8*, and *CUST 145/12*.

Figure 2: Excise Revenues by Government Act in 1750-55, Sample of CUST 145/12



Note: This figure reproduces a sample of the archival records organized under CUST 145/12. These records report excise revenues by government act.

The next step is to convert the revenues information on various types of alcohol from *CUST 145/8* and *CUST 145/12* into revenue data by good at a disaggregated enough level to allow assignment to traded or domestic categories. In some cases, e.g., "British Spirits", this can be done directly from the source. However, most of the revenue reported in *CUST 145/8* and *CUST 145/12* is organized *not* according to good, but according to the acts under which taxes were collected (e.g., "IX Continued quarto Annae") or allocated (e.g., " Hereditary and Temporary Excise").

To convert act-level revenues into revenues by good, we first identify which goods are taxed under a given act. Then, we rely on data on taxed *quantities* by good and year, as well as tax *rates* by

[22] *CUST 145/8* and *CUST 145/12* include the same information; we rely on both sources to overcome the challenge of illegible documents.

good and year to calculate the revenues by good and year that fall under a particular act.[23] When rates are ambiguous (for example, imported brandy might be taxed under the French brandy rate or as generic foreign brandy) we assign the lower rate to calculate the revenue from traded goods conservatively.

A final obstacle in identifying revenue from traded versus domestic goods is the temporary revenue category, "P Cent" (a percentage tax temporarily levied on selected commodities). This category of excise appeared in the *CUST 145/22* series between 1779 and 1787 and included both traded and domestic goods. To disaggregate the category, we use *CUST 145/20*, which shows the yearly contributions of each of the goods charged "P Cent" duties (e.g., tea and foreign spirits, among others).

4.2 Customs revenues

The vast majority of customs revenues were collected from traded goods, as one would expect. The primary domestic good that was taxed under customs was coal. In addition, other domestically produced goods were taxed under customs as "carried coastways goods."[24] We assign these revenues to domestic production, along with taxes levied on coal.[25] In addition, from 1786–1806, a tax on windows (under the Commutation Act of 1784) was included in the customs revenues, and we assign these revenues to domestic production as well.[26]

Disaggregated customs revenues data come from multiple historical sources. To disaggregate total customs revenues into revenues from traded goods and revenues from domestically produced goods, we mainly rely on *T 35/55*, *CUST 37/1*, *T 38/357*, and *CUST 37/50*. These series end

[23]This is not always trivial: for example, rum is in some years implicitly taxed at the same rate as imported brandy, and sometimes taxed as a distinct commodity. For quantities of taxed goods we relied on *CUST 145/20*. For rates, we relied on *CUST 145/3*, *CUST 145/4*, *CUST 145/11*, *CUST 145/12*, *CUST 145/18*, and *CUST 145/20*, as well as printed primary sources and Parliamentary bills (e.g., Crouch, 1731, Baldwin, 1770, and 6 Geo. II, cap. 17). It is important to note that this "bottom up" approach may miss some revenues (e.g., temporary excises). Such measurement error is likely small, however: in Figure 3 below, we show that our aggregate Excise and Custom revenues are extremely close to those in (Mitchell, 1988) and Brewer (1989).

[24]Such goods included, for example, corn and wine; however, they appear only rarely and their revenue contribution was small, typically not larger than £2,000 per year.

[25]While the vast majority of customs revenues collected from coal are on domestic consumption, a small share of customs revenues are collected from the international export of coal. We count the latter revenues as revenues on traded goods. Customs were also collected from domestically produced and exported tin and lead.

[26]The tax on windows is included under customs because it was enacted alongside a reduction in the tax rate on tea under the Commutation Act, and was managed by customs.

in 1806. From 1807 onwards, we supplement these sources with detailed tables on revenues by good or by act from the Parliamentary Papers.

4.3 Methodological choices

We first identified goods that were undoubtedly traded internationally and taxed under the excise. Some of these goods, like foreign spirits, are labeled as such. Others are not labeled as foreign, but were certainly produced outside Britain, like tea, coffee and cocoa nuts, tobacco, and pepper. We also treat wine as traded — in contrast with "low wine", which was recorded separately, and which may have included some domestic production.

This makes for an extremely conservative calculation of revenues from traded goods — a lower bound. When it is possible that a positive share of a good may have been domestic, we assign it to the domestic category. For example, we do not include in our estimated revenues from trade those revenues collected on hides or salt, though some hides and salt were certainly imported. In addition, taxes on domestically processed textiles are treated as domestic taxation even when the raw input (e.g., a less processed textile, or raw materials like silk or cotton) was produced abroad and represents a significant share of the value added.

We follow the approach of Mitchell (1988) and Brewer (1989) in that we report revenues net of: (*i*) the costs of running the respective tax administrations (i.e., "management costs"); (*ii*) refunds on import duties paid to re-exporters (called "drawbacks"); and (*iii*) revenues used directly to subsidize domestic producers' exports or to pay for other national objectives (called "bounties") that never reached the Exchequer. To be precise, we collect information on the "Payments into Exchequer" for both customs and excise.[27] As our goal is to assess the contribution of taxes on traded goods to Britain's fiscal strength, it is natural to consider revenues net of tax administration costs and net of refunds paid to re-exporters (re-exported imports may not have arrived in the first place without the refund of the import duties).[28] However, netting out bounty payments, while stan-

[27] We also follow Mitchell (1988) and Brewer (1989) in reporting revenues collected in Britain (but not Ireland), and we report these revenues in millions of pounds in nominal terms. It is worth noting that the revenue increases over the time period we cover were not driven by higher price levels. Inflation over the period studied was low — below one percent per year (Thomas and Dimsdale, 2017).

[28] One category of re-exported goods deserves specific mention: textiles that were imported from India solely for re-export. The import duty was set at 5% of the imports' value for finished textiles imported by the East India Company

dard practice, is more questionable: bounty payments may not have reached the Exchequer, but they supported the state's strategic objectives, nonetheless. For example, bounty revenues were collected by customs officers from traded goods and used to pay domestic corn producers and to support the civil government of Scotland (to give two prominent examples). There is thus a good argument to include these revenues in the contribution of traded goods to revenue. Information on these bounty payments was not available in the primary sources consulted by Mitchell (1988) and Brewer (1989), but we are able to identify this category of revenue. We thus construct separate series of revenues from traded and domestic goods that include the bounty revenues in addition to the "Payments into Exchequer." In order to keep our exposition as close as possible to that in the received literature, in the main text we focus on revenue series corresponding to "Payments into Exchequer," and include bounties in alternative series reported in the Appendix.[29]

5 Empirical patterns

5.1 New vs. old series: comparison in the aggregate

We begin by comparing our total excise revenue and customs revenue series for the years 1689–1823 with those in Mitchell (1988), the standard reference (which is based on the same historical source as Brewer, 1989). In Figure 3, Panel A, one can see that our construction of total excise revenue closely matches the aggregate excise data reported previously by Mitchell (1988)).[30] Including the bounties in our excise data series has minimal effect (see Online Appendix Figure B.3). In Figure 3, Panel B, one can see that our construction of total customs revenue again closely matches aggregate data that have previously been collected (Mitchell, 1988). Adding the bounties to our customs data series has a more noticeable effect, but again the broad patterns of total revenue match those in Mitchell (1988). It is worth emphasizing that our data come from a different

(see Baldwin, 1770). There was then a refund of this duty (i.e., a "drawback") upon re-export, which varied depending on the good and the exports' destination, from 5% of the duty paid to 100%. The net revenues from these re-exports are included as revenue from (traded) customs in our series.

[29] All data series are provided in tables included in Appendix A. Figures plotting data series including bounties are shown in Online Appendix B. It is worth noting that our data series on bounties is incomplete (starting only in 1711), due to archival data limitations (see also Hoppit, 2017).

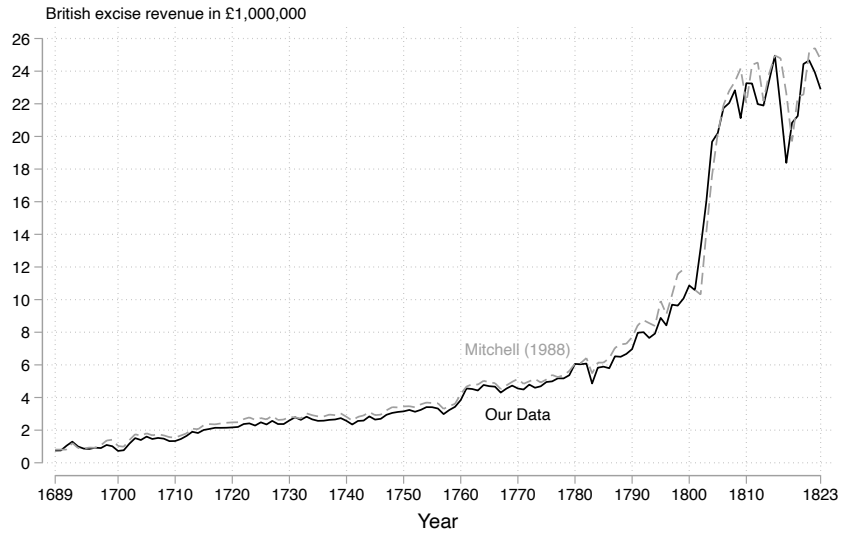
[30] Our yearly total excise, total customs, bounty, and disaggregated customs and excise data are provided in Appendix Tables A.1-A.4.

set of far more disaggregated historical sources; it is reassuring that these data yield aggregate patterns that match the established historical data sources.[31]

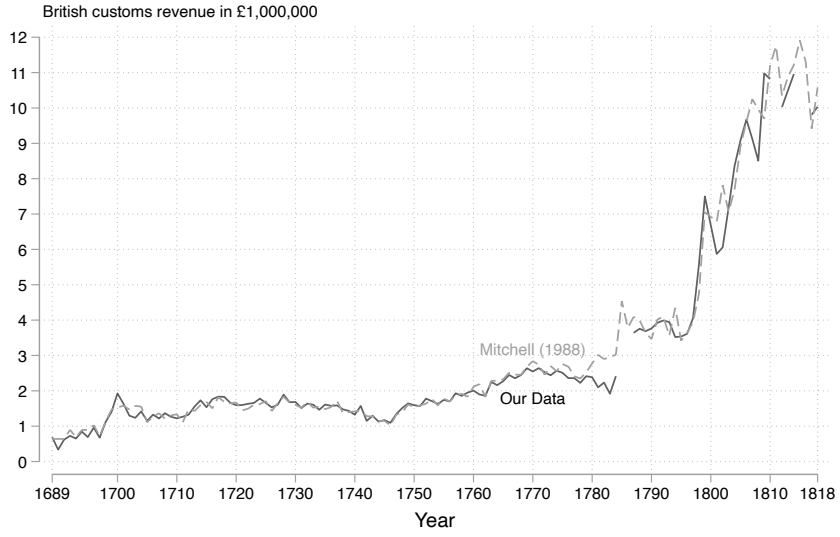
[31]Note that the disaggregated data sources for customs are missing for a small number of years, accounting for the observed gaps in our series in the 1780s and 1810s.

Figure 3: Comparison of Aggregate Excise and Customs Revenues with Mitchell (1988)

Panel A: Excise Revenues



Panel B: Customs Revenues



Note: This figure compares the aggregate patterns of excise and customs revenues of the British government (in £1,000,000) as calculated by the authors (black, solid lines) with those reported in Mitchell (1988) (as grey, dashed lines). Panel A reports the excise revenues for 1689-1823, and Panel B reports the customs revenues for 1689-1818. Gaps in the lines indicate years with missing data. See Section 4 for a description of the data and methodology. See Online Appendix Figure B.3 for a version of this figure which includes revenues spent to finance bounties.

5.2 New vs. old series: comparison of disaggregated data

We next decompose aggregate revenues into revenues collected from traded goods and revenues collected from domestic goods. Let $RevenueTrade_t$ denote the tax revenue raised on internationally traded goods, $RevenueDomestic_t$ denote the tax revenue raised on domestic goods, $Customs_t$ the tax revenue collected by customs, and $Excise_t$ the tax revenue collected as excise, all during year t. The approach in Brewer (1989) (using the same data as Mitchell, 1988), is to assume the following two equalities hold:

$$RevenueTrade_t = Customs_t$$
$$RevenueDomestic_t = Excise_t.$$

Then, following Brewer (1989), the trade-related share of total indirect tax revenue (i.e., the sum of taxes from traded and domestic goods) would be calculated as:

$$ShareTrade_t = \frac{Customs_t}{Customs_t + Excise_t}.$$

But as we have argued, it is incorrect to equate taxes on traded goods to taxes generated by customs, and taxes on domestic goods to the excise. It is necessary to define $CustomsCoal_t$ to denote tax revenue collected by customs on coal (a domestic product), $ExciseDomestic_t$ to denote excise taxes raised on domestic goods, and $ExciseTrade_t$ to denote excise taxes on traded goods. Then, using our disaggregated excise and customs data we can calculate:

$$RevenueTrade_t = Customs_t - CustomsCoal_t + ExciseTrade_t$$
$$RevenueDomestic_t = ExciseDomestic_t + CustomsCoal_t.$$

As a result, the trade-related share of total revenue is:

$$ShareTrade_t = \frac{RevenueTrade_t}{RevenueTrade_t + RevenueDomestic_t}.$$

Importantly, we can construct these time series restricting revenues to those paid to the Exchequer (as in Mitchell, 1988, and Brewer, 1989) or including also the revenues used to pay bounties.

In Figure 4, Panel A, we first show the levels of revenues from customs and excise as presented in Mitchell (1988) and Brewer (1989). Revenues are stacked on top of each other to sum to

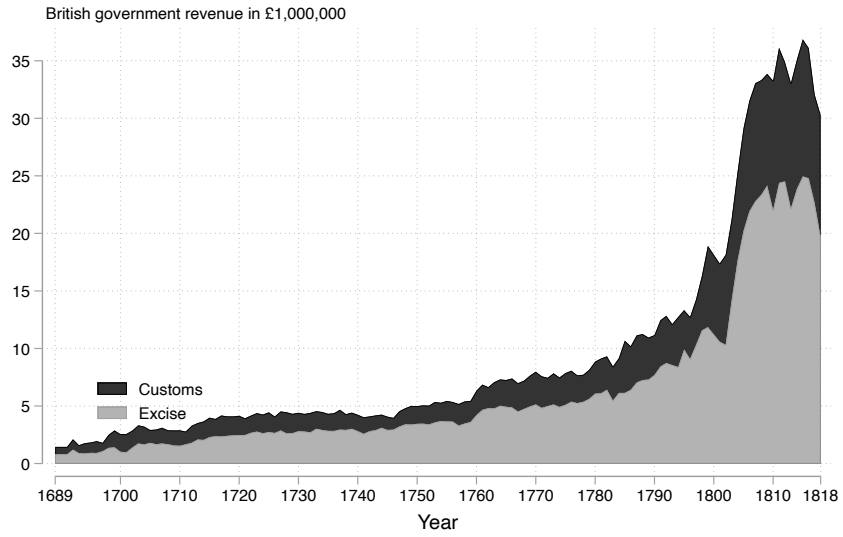
total revenue from indirect taxes. One can see two patterns. First, that excise revenue is substantially larger than customs revenue throughout the time period. Second, in the Mitchell (1988) and Brewer (1989) treatment, taxes on "domestic production" — to be precise, excise revenues — account for the bulk of enormous increase in revenues in the late 18th and early 19th centuries.

In Figure 4, Panel B, we show the levels of revenues from *traded* and *domestic* goods as we calculate them.[32] A very different pattern of revenue growth appears. Revenue from traded goods *increases*, rather than declines in importance as the British state developed over the 18th century. At the height of the Napoleonic wars in the early 19th century, traded goods provide *more* revenue than domestic goods. If we take the entire period under study, increasing revenues from traded goods in 1689-1818 account for 54% of the overall increase of excise and customs revenues. The growth of the British fiscal military state was not financed on the taxation of domestic goods alone. Rather, tax revenues from international trade represented a substantial component of the fiscal expansion that funded Britain's imperial dominance.

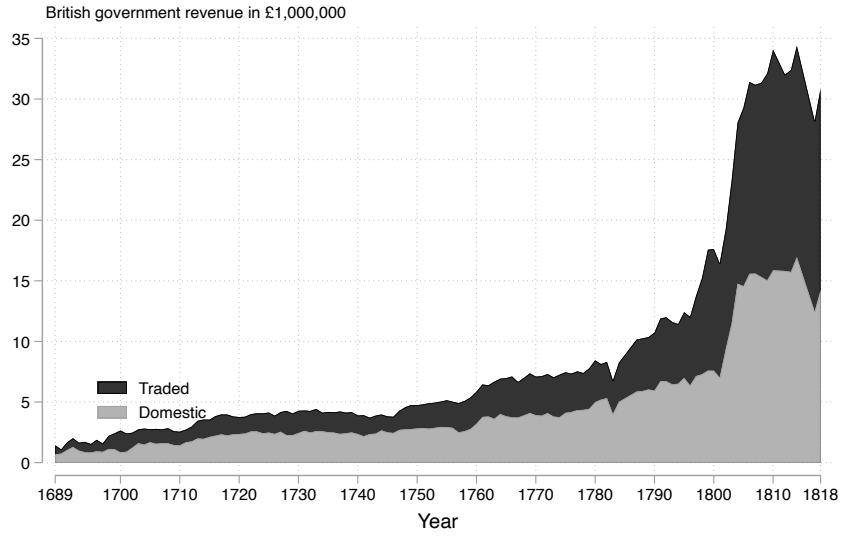
[32]Figure B.4 in the Online Appendix reproduces the graph including revenues raised to be spent on bounties.

Figure 4: Decomposition of Excise and Customs Revenues

Panel A: Revenues from Customs and Excise (as in Mitchell, 1988, and Brewer, 1989)



Panel B: Revenues from Traded Goods and Domestic Goods (as calculated by the authors)



Note: This figure decomposes the excise and customs revenue of the British government (in £1,000,000). Panel A decomposes the revenues as presented in Mitchell (1988) and Brewer (1989) into revenues from customs and excise. Panel B plots the levels of revenues from traded goods and domestic goods as calculated by the authors. Years with missing customs data are linearly interpolated. See Sections 4 and 5.2 for a description of the data and methodology. See Online Appendix Figure B.4 for a version of Panel B which includes revenues spent to finance bounties.

In Figure 5, we plot the share of British customs and excise revenue from traded goods calculated using the approach and data in Mitchell (1988) and Brewer (1989) (i.e., treating customs revenue as coming from traded goods and excise as coming from domestic production), as well as the share of revenue from traded goods calculated using our disaggregated data.

Figure 5: Revenues from Traded Goods as Share of Excise and Customs

Note: This figure compares the share of British customs and excise revenue from traded goods as computed by the authors with the share as reported in Brewer (1989) and using the data in Mitchell (1988). The grey, dashed line plots the share following Brewer (1989) in treating customs revenue as coming from traded goods and excise as coming from domestic production. The black, solid line plots the share of revenue from traded goods following the authors' calculations and using disaggregated customs and excise data. Gaps in the lines indicate years with missing data. See Sections 4 and 5.2 for a description of the data and methodology. See Online Appendix Figure B.5 for a version of this figure which includes revenues spent to finance bounties.

One can see in the figure that the traditional narrative of a modest and declining role for taxes on traded goods as Britain expanded its fiscal capacity is overturned when examining disaggregated data on the excise. Indeed, our data show that as revenues expanded enormously over the second half of the 18th century, the share of revenues from traded goods actually *increased* and was *over* 50% of total excise and customs revenues in the late 18th and early 19th centuries. The share of revenues from traded goods reaches a peak of over 60% in 1800, when additionally considering revenues spent on bounties (see Online Appendix Figure B.5).[33]

[33]Naturally, the share of *total* revenue (that is, the sum of indirect and direct taxation) attributable to taxes on over-

5.3 What traded goods contributed to fiscal revenues?

An obvious threat to the success of the excise tax would have been charging rates that discouraged imports. A standard result in public finance due to Ramsey (1927) is that optimal taxes should bear an inverse relationship to the elasticity of demand. To gain insight into what made a high fiscal revenue possible we examine the nature of the traded goods that were taxed.

In Figure 6, Panel A, we further decompose, by good, excise revenues from trade.[34] Tea and foreign spirits were the most important components throughout the 18th and early 19th centuries, with wine and tobacco playing an increasingly important role in the early 19th century. The other goods are cocoa, chocolate, coffee and pepper. The *entirety* of traded excise goods are consumption items that create habituation and have been noted to have relatively inelastic demands — actual drugs like alcohol and tobacco, as well as what Mintz (1985) called "drug foods."[35] Figure 6, Panel B, decomposes the customs revenues from traded goods.[36] The set of goods includes imports that were taxed under both excise and customs (foreign spirits, tea, tobacco, etc.). The most important contributor to customs revenue was sugar, which was not taxed under excise, and which accounted for a third of customs revenues. A majority of customs revenues also came from habituation goods with highly inelastic demand.

These findings help us understand why the combination of taxation and trade activity provided a high volume of fiscal revenue.[37] They also highlight the importance of Britain's coercive power in its fiscal expansion. One can see that a substantial share of revenues from traded goods was due to goods whose trade (and in some cases production) depended on the application of coercive power against colonized peoples, slaves, and against competing European powers.

seas trade is smaller than the share of indirect tax revenue alone. In Online Appendix Figure B.6, we plot the share of *total* taxes from overseas trade using our approach as well as that in Mitchell (1988) and Brewer (1989). The divergence between our series and theirs remains the same, with both series shifted down in proportion to the share of total income from direct taxation.

[34] We provide the data underlying Figure 6 (both Panels A and B in Appendix Tables A.5–A.8.

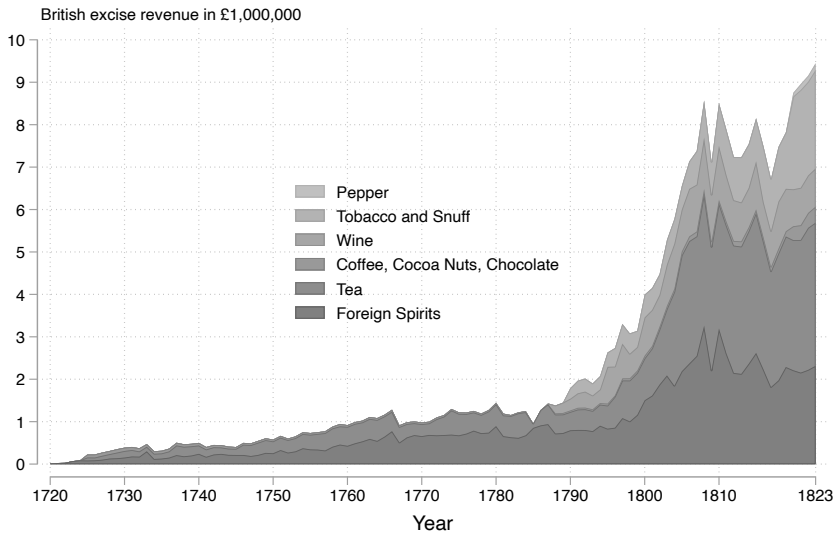
[35] Pomeranz (2000) leverages Mintz's characterization to argue that the trade on these goods gave the British economy an additional boost by expanding labor supply: to afford these goods, individuals altered their labor-leisure choices toward longer working hours (see also De Vries, 1994).

[36] Before 1787 our customs data is disaggregated by tax act, which does not allow for a simple decomposition by goods.

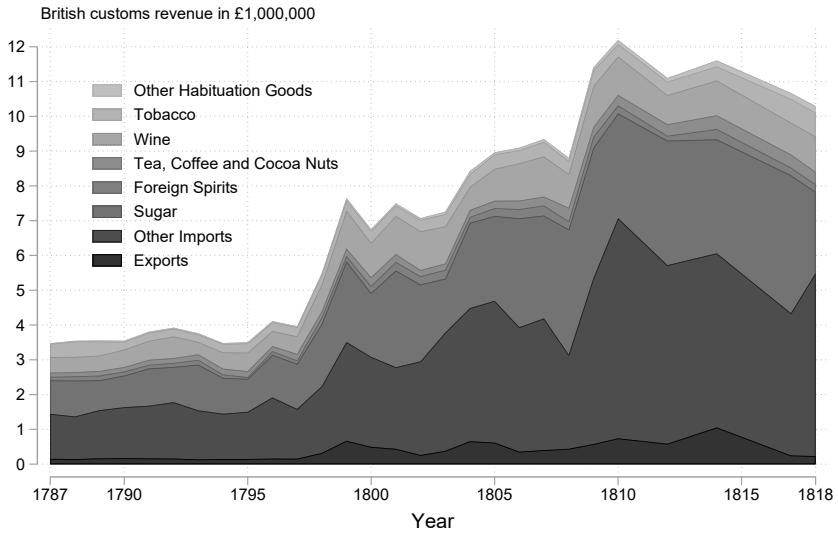
[37] It is notable that this high volume of revenue was collected despite the fact that the excise tax was not expanded to cover a wide variety of goods (as proposed by Walpole in 1733) and despite the elimination of taxes on exports.

Figure 6: Decomposition of Revenues from Traded Goods

Panel A: Excise Revenues, 1720-1823



Panel B: Customs Revenues, 1787-1809



Note: This figure decomposes British government revenues from traded goods (in £1,000,000). Panel A plots excise revenues by traded good for 1720-1823. Panel B plots customs revenues by traded good for 1787-1818. Excise revenues from tea and wine include revenues from tea and wine licenses. Excise revenues from imported beer have been included with the revenues from foreign spirits, since revenues from imported beer are too small to be visible independently. Customs revenues from other habituation goods come from opium, licorice, pepper, spices etc. The "Other Imports" category of Panel B includes all the customs revenues from imports other than the habituation goods enumerated in this figure. See Section 4 for a description of the data and methodology.

6 Conclusion

We provide new data on British excise and customs revenues over time that improve upon standard references. The data make clear that: (*i*) excise taxation was not only a tax on domestically produced goods, but was also a tax on traded goods; (*ii*) taxes on traded goods were a large share of indirect taxation, ranging from 40 to 55%; and (*iii*) taxes on traded goods were a growing share of total revenues from the early 18th century to the early 19th century, as Britain's fiscal-military state developed. These results are evident even under the conservative assumptions guiding the construction of our data.

The patterns revealed by the data we collect should change the narrative regarding the growth of Britain's fiscal state. First, it had roots in the massive expansion in British trade — especially across the Atlantic and in Asia — that occurred in the 17th–19th centuries (as documented by, e.g., Schumpeter, 1960 and Davis, 1962). Similar to the change in Britain's institutional trajectory identified by Robinson et al. (2005), overseas trade was a shock that changed the state's fiscal trajectory as well. Second, it relied to a significant extent on a traditional bureaucracy located in ports — even in the case of the excise.[38] This shifts both the geographic and administrative dimensions of Britain's fiscal development. Finally, it depended on war and empire, which facilitated overseas trade in the goods essential to the rise in revenues. The more general implication is that the coercive power of the state was both an input to, and an outcome of, taxable economic activity.

[38]The case of tea is instructive: as Hoppit (2017, p. 294) writes, "Tea duties could have been charged to the customs, but they came under the excise. ...99 percent of British tea excise was collected in London, but in the late eighteenth century the capital had only 7 per cent of Britain's' 53,000 licensed tea dealers."

References

Acemoglu, Daron and James A. Robinson, *Why Nations Fail: the Origins of Power, Prosperity, and Poverty*, New York: Crown Business, August 2012.

_ and _, *The Narrow Corridor: States, Societies, and the Fate of Liberty*, New York: Penguin Press, 2019.

_, Simon Johnson, and James A. Robinson, "The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth," *American Economic Review*, June 2005, *95* (3), 547–579.

Allen, Robert C, *The British industrial revolution in global perspective*, Cambridge University Press, 2009.

Angelucci, Charles, Simone Meraglia, and Nico Voigtländer, "How merchant towns shaped parliaments: From the norman conquest of England to the great reform act," Technical Report, National Bureau of Economic Research 2022.

Ashworth, William J, *Customs and excise: trade, production, and consumption in England, 1640-1845*, Oxford University Press on Demand, 2003.

Baldwin, Samuel, *A Survey of the British Customs*, J. Nourse, 1770.

Baugh, Daniel A, "Naval power: what gave the British navy superiority?," in Leandro Prados de la Escosura, ed., *Exceptionalism and Industrialisation*, Cambridge University Press, 2004, pp. 235–258.

Beckert, Sven, *Empire of Cotton: A Global History*, New York: Alfred A. Knopf, 2014.

Beckett, John V and Michael Turner, "Taxation and economic growth in eighteenth-century England 1," *The Economic History Review*, 1990, *43* (3), 377–403.

Beraja, Martin, Andrew Kao, David Y Yang, and Noam Yuchtman, "AI-tocracy," Technical Report, National Bureau of Economic Research 2021.

Besley, Timothy and Torsten Persson, "The origins of state capacity: Property rights, taxation, and politics," *American economic review*, 2009, *99* (4), 1218–44.

_ and _, *Pillars of prosperity*, Princeton University Press, 2011.

Bonney, Richard, *The rise of the fiscal state in Europe c. 1200-1815*, Clarendon Press, 1999.

Brecke, Peter, "Violent conflicts 1400 AD to the present in different regions of the world," in "meeting of the Peace Science Society" 1999, pp. 8–10.

Brewer, John, *The Sinews of Power*, Cambridge, Mass.: Harvard University Press, 1989.

Cantoni, Davide, Cathrin Mohr, and Matthias Weigand, "The rise of fiscal capacity," Technical Report, University of Munich 2022.

Coffman, D'Maris, *Excise taxation and the origins of public debt*, Springer, 2013.

Cox, Gary W, *Marketing sovereign promises: Monopoly brokerage and the growth of the English state*, Cambridge University Press, 2016.

Crouch, Henry, *A Complete View of the British Customs...* 1731.

Dal Bó, Ernesto, Pablo Hernández-Lagos, and Sebastián Mazzuca, "The paradox of civilization: Preinstitutional sources of security and prosperity," *American Political Science Review*, 2022, *116* (1), 213–230.

Davis, Ralph, "English foreign trade, 1700-1774," *The Economic History Review*, 1962, *15* (2), 285–303.

_ , "The rise of protection in England, 1689-1786," *The Economic History Review*, 1966, *19* (2), 306–317.

Dickson, Peter George Muir, *The Financial Revolution in England: a study in the development of public credit, 1688-1756*, Routledge, 2017.

Dincecco, Mark, *Political transformations and public finances: Europe, 1650–1913*, Cambridge University Press, 2011.

Findlay, Ronald and Kevin O'Rourke, *Power and plenty: Trade, war, and the world economy in the second millenium*, Princeton University Press, 2007.

Gennaioli, Nicola and Hans-Joachim Voth, "State capacity and military conflict," *The Review of Economic Studies*, 2015, *82* (4), 1409–1448.

Glete, Jan, *Navies and nations : warships, navies and state building in Europe and America, 1500-1860*, Stockholm: Almqvist & Wiksell International, 1993.

Heblich, Stephan, Stephen J Redding, and Hans-Joachim Voth, "Slavery and the British Industrial Revolution," Technical Report, National Bureau of Economic Research 2022.

Hersh, Jonathan and Hans-Joachim Voth, "Sweet diversity: Colonial goods and the welfare gains from global trade after 1492," *Explorations in Economic History*, 2022, p. 101468.

Hoppit, Julian, *Britain's Political Economies*, Cambridge University Press, 2017.

_ , "Taxing London and the British fiscal state, 1660-1815," in Julian Hoppit, Duncan Needham, and Adrian Leonard, eds., *Money and Markets: Essays in Honour of Martin Daunton*, The Boydell Press, 2019, chapter 1, pp. 19–34.

_ , *The dreadful monster and its poor relations: taxing, spending and the United Kingdom, 1707-2021*, Penguin UK, 2021.

Koyama, Mark and Jared Rubin, *How the World Became Rich: The Historical Origins of Economic Growth*, John Wiley & Sons, 2022.

Levy, Jonathan, *Ages of American Capitalism: A History of the United States*, Random House, 2021.

Mathias, Peter and Patrick O'Brien, "Taxation in Britain and France, 1715-1810. A comparison of the social and economic incidence of taxes collected for the central governments," *Journal of European Economic History*, 1976, *5* (3), 601.

Mintz, Sidney, *Sweetness and power: The place of sugar in modern history*, Penguin, 1985.

Mitchell, Brian R, *British historical statistics*, CUP Archive, 1988.

Mokyr, Joel, *The Enlightened economy an economic history of Britain 1700-1850*, Yale University Press, 2010.

Murphy, Anne L, "Demanding 'credible commitment': Public reactions to the failures of the early financial revolution 1," *The Economic History Review*, 2013, *66* (1), 178–197.

North, Douglass C and Barry R Weingast, "Constitutions and commitment: the evolution of institutions governing public choice in seventeenth-century England," *Journal of Economic History*, 1989.

O'Brien, Patrick, "European Economic Development: The Contribution of the Periphery," *The Economic History Review*, 1982, *35* (1), 1–18.

_ , "The Political Economy of British Taxation, 1660-1815," *The Economic History Review*, 1988, *41* (1), 1–32.

_ , "The nature and historical evolution of an exceptional fiscal state and its possible significance for the precocious commercialization and industrialization of the British economy from Cromwell to Nelson," *The Economic History Review*, 2011, *64* (2), 408–446.

O'Brien, Patrick K and Philip A Hunt, "The rise of a fiscal state in England, 1485–1815," *Historical Research*, 1993, *66* (160), 129–176.

O'Brien, Patrick, Trevor Griffiths, and Philip Hunt, "Political components of the industrial revolution: Parliament and the English cotton textile industry, 1660-1774," *The Economic History Review*, 1991, *44* (3), 395–423.

Palma, Nuno, "Sailing away from Malthus: intercontinental trade and European economic growth, 1500–1800," *Cliometrica*, 2016, *10* (2), 129–149.

Pomeranz, Kenneth, *The great divergence: China, Europe, and the making of the modern world economy*, Princeton University Press, 2000.

Ramsey, Frank, "A Contribution to the Theory of Taxation," *The Economic Journal*, 1927, *37* (March), 47–61.

Robinson, James A, Daron Acemoglu, and Simon Johnson, "The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth," *American Economic Review*, June 2005, *95* (3), 546–579.

Sánchez de la Sierra, Raúl, "On the origins of the state: Stationary bandits and taxation in Eastern Congo," *Journal of Political Economy*, 2020, *128* (1), 000–000.

Schumpeter, Elizabeth Boody, *English overseas trade statistics, 1697-1808*, Clarendon Press, 1960.

Thomas, R. and N. Dimsdale, "A Millennium of UK Data," 2017. Bank of England OBRA dataset.

Tilly, Charles et al., "Western state-making and theories of political transformation," *The formation of national states in Western Europe*, 1975, *638*.

Vries, Jan De, "The industrial revolution and the industrious revolution," *The Journal of Economic History*, 1994, *54* (2), 249–270.

Williams, Eric, *Capitalism and slavery*, third edition. ed., Chapel Hill: University Of North Carolina Press, 2021.

A Appendix Tables

Table A.1: British Excise and Customs Revenues (in £1,000), 1689-1720

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Excise revenues:				**Customs revenues**:			
	Paid to Exchequer:				**Paid to Exchequer**:			
Year:	Total	Trade	Domestic	Bounties	Total	Trade	Domestic	Bounties
1689	750	63	687		687	687	0	
1690	760	11	749		338	338	0	
1691	1050	3	1047		618	618	0	
1692	1297	0	1297		728	728	0	
1693	998	0	998		649	649	0	
1694	870	4	867		846	846	0	
1695	849	9	840		692	692	0	
1696	927	6	921		960	937	22	
1697	902	9	893		674	674	0	
1698	1093	5	1088		1119	1076	44	
1699	1016	16	1000		1406	1292	114	
1700	727	22	704		1928	1780	148	
1701	769	13	755		1638	1489	149	
1702	1176	13	1163		1299	1216	82	
1703	1513	10	1503		1236	1134	103	
1704	1396	25	1371		1418	1294	124	
1705	1606	32	1573		1151	1035	116	
1706	1461	26	1435		1327	1203	124	
1707	1523	19	1504		1217	1107	109	
1708	1481	18	1463		1368	1230	138	
1709	1328	10	1319		1267	1130	137	
1710	1334	16	1318		1222	1114	108	
1711	1459	10	1449		1268	1033	235	44
1712	1650	24	1625		1328	1199	129	40
1713	1902	19	1883		1557	1436	121	101
1714	1825	23	1802		1732	1572	161	44
1715	2012	26	1986		1536	1397	139	82
1716	2075	25	2050		1764	1584	180	46
1717	2146	22	2124		1836	1619	217	50
1718	2143	21	2122		1829	1704	125	63
1719	2150	15	2135		1664	1453	211	86
1720	2169	15	2155		1593	1381	213	71

Table A.2: British Excise and Customs Revenues (in £1,000), 1721-1757

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Excise revenues:				**Customs revenues**:			
	Paid to Exchequer:				**Paid to Exchequer**:			
Year:	Total	Trade	Domestic	Bounties	Total	Trade	Domestic	Bounties
1721	2196	26	2170		1597	1359	238	67
1722	2375	30	2346		1633	1402	232	98
1723	2416	70	2345		1658	1421	237	99
1724	2283	87	2196		1781	1555	227	89
1725	2481	225	2256		1658	1428	230	125
1726	2350	227	2124		1531	1281	250	100
1727	2569	272	2297		1608	1354	254	60
1728	2376	309	2066		1894	1686	209	39
1729	2376	352	2024		1678	1429	249	31
1730	2594	387	2207		1686	1449	237	53
1731	2790	404	2386		1514	1271	244	85
1732	2631	374	2257		1639	1406	233	79
1733	2826	472	2354		1608	1358	249	125
1734	2661	304	2357		1463	1231	232	202
1735	2571	315	2256		1613	1351	261	124
1736	2581	365	2216		1575	1308	267	69
1737	2631	504	2128		1588	1339	249	123
1738	2655	467	2188		1476	1233	244	197
1739	2737	478	2258		1433	1197	236	167
1740	2569	500	2069		1324	1029	295	58
1741	2346	402	1944		1572	1335	238	38
1742	2565	451	2114		1150	907	243	111
1743	2587	448	2139		1295	1038	257	156
1744	2846	413	2433		1129	895	234	138
1745	2648	402	2246		1173	917	256	153
1746	2697	500	2197		1096	841	254	129
1747	2942	489	2453		1344	1092	252	156
1748	3056	549	2507		1516	1268	247	220
1749	3117	608	2508		1646	1381	265	261
1750	3153	578	2575		1592	1342	250	314
1751	3239	666	2574		1570	1282	288	212
1752	3127	602	2525		1779	1498	282	242
1753	3243	653	2590		1708	1421	287	308
1754	3412	751	2661		1631	1345	286	227
1755	3407	733	2675		1744	1475	268	263
1756	3326	752	2573		1701	1401	300	200
1757	2984	774	2211		1932	1641	291	120

Table A.3: British Excise and Customs Revenues (in £1,000), 1758-1794

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Excise revenues:				**Customs revenues**:			
	Paid to Exchequer:				**Paid to Exchequer**:			
Year:	Total	Trade	Domestic	Bounties	Total	Trade	Domestic	Bounties
1758	3236	884	2352		1858	1608	249	115
1759	3431	946	2485		1948	1642	307	188
1760	3848	919	2929		2007	1726	281	231
1761	4555	990	3565	0	1899	1688	211	293
1762	4523	1024	3499	3	1858	1542	316	460
1763	4432	1110	3322	9	2250	1947	302	485
1764	4770	1084	3686	8	2160	1824	336	565
1765	4696	1166	3530	8	2271	1972	299	339
1766	4665	1282	3383	10	2448	2090	358	354
1767	4303	915	3388	5	2356	2019	337	192
1768	4548	987	3561	5	2445	2102	343	175
1769	4731	1005	3726	6	2639	2267	372	186
1770	4554	982	3572	7	2546	2198	348	234
1771	4492	1000	3492	6	2642	2257	385	294
1772	4793	1099	3694	6	2526	2125	401	223
1773	4601	1156	3445	4	2439	2078	361	172
1774	4689	1300	3390	4	2568	2201	367	218
1775	4951	1220	3732	8	2510	2125	385	
1776	4991	1215	3776	7	2359	1951	408	
1777	5176	1254	3922	7	2359	1945	414	
1778	5171	1192	3979	7	2225	1847	378	
1779	5366	1274	4092	6	2415	2063	352	230
1780	6059	1444	4614	6	2878	2687	191	
1781	6040	1190	4850	12	2813	2635	178	
1782	6081	1156	4924	20	3040	2840	200	
1783	4861	1221	3641	11	2598	2410	188	
1784	5828	1249	4579	7	2872	2443	429	
1785	5891	955	4936	11	4586	4457	130	
1786	5795	1273	4521	8	4063	3655	408	
1787	6526	1430	5096	7	3641	2867	774	304
1788	6498	1382	5115	12	3756	2962	795	317
1789	6674	1448	5225	11	3687	2874	813	314
1790	6967	1790	5177	9	3764	2991	773	236
1791	7970	1966	6005	11	3925	3210	715	264
1792	8005	2017	5988	10	3989	3256	732	333
1793	7651	1900	5751	5	3947	3233	714	224
1794	7918	2073	5845	2	3521	2854	667	264

Table A.4: British Excise and Customs Revenues (in £1,000), 1795-1823

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Excise revenues:				**Customs revenues**:			
	Paid to Exchequer:				**Paid to Exchequer**:			
Year:	Total	Trade	Domestic	Bounties	Total	Trade	Domestic	Bounties
1795	8882	2630	6253	5	3535	2784	751	387
1796	8421	2735	5686	2	3613	2918	694	881
1797	9690	3305	6385	2	4056	3292	763	279
1798	9635	3080	6555	6	5571	4834	737	256
1799	10069	3140	6929	15	7499	6834	665	295
1800	10869	3994	6875	32	6763	6047	716	259
1801	10581	4148	6433	19	5871	5271	600	1661
1802	13165	4473	8692	21	6059	5406	652	992
1803	16040	5283	10757	18	7180	6465	715	261
1804	19670	5777	13893	12	8358	7481	877	304
1805	20207	6551	13656	31	9084	8177	907	270
1806	21735	7132	14603	27	9673	8697	977	317
1807	22049	7377	14672	20	9124	8188	935	546
1808	22829	8568	14261	7	8508	7443	1066	792
1809	21122	7119	14003	14	10981	9941	1039	720
1810	23261	8510	14750	13	10819	9698	1121	847
1811	23247	7881	15366	8				
1812	21980	7239	14740	24	10030	8956	1073	602
1813	21894	7231	14663	21	10495	9418	1077	590
1814	23425	7541	15884	20	10961	9879	1082	579
1815	24949	8151	16798	25				
1816	21786	7480	14306	13				
1817	18383	6721	11662	18	9808	8997	811	425
1818	20836	7471	13365	17	10035	9176	859	411
1819	21257	7819	13438	4				
1820	24439	8751	15688	4				
1821	24660	8958	15702	4				
1822	23922	9154	14767	4				
1823	22888	9449	13440	6				

Note: These tables report the yearly excise and customs revenues of the British government (in £1,000). Columns 1-3 report the revenues paid to the Exchequer collected by the excise, and columns 5-7 report the revenues paid to the Exchequer collected by the customs. These exchequer revenues are net of management costs, drawbacks, and bounties or other charges paid out of the revenues. Columns 2-3 for excise and columns 6-7 for customs disaggregate the exchequer revenues into those collected from traded and domestic goods. Columns 4 and 8 report the revenues that finance bounties or equivalent charges for national objectives. These revenues never reached the Exchequer and are therefore not included in the totals of columns 1 or 5. The excise revenues paying for bounties (in col. 4) are solely derived from traded goods. All the customs revenues paying for bounties (in col. 8) are collected from traded goods. Cells are left empty whenever data is missing. See section 4 for a discusion of the sources and methodological choices.

Table A.5: British Excise Revenues from Overseas Trade (in £1,000), 1720-1757

	(1)	(2)	(3)	(4)	(5)	(6)
Year:	Foreign Spirits	Tea	Coffee etc.	Wine	Tobacco	Pepper
1720	15					
1721	26					
1722	30					
1723	70					
1724	87					
1725	85	71	69			
1726	89	65	72			
1727	103	92	76			
1728	131	104	74			
1729	138	134	80			
1730	154	156	77			
1731	180	152	72			
1732	175	124	74			
1733	302	109	61			
1734	121	122	61			
1735	130	123	62			
1736	152	148	65			
1737	212	228	64			
1738	184	224	60			
1739	202	218	58			
1740	242	197	60			
1741	171	175	57			
1742	226	171	54			
1743	241	152	55			
1744	218	147	49			
1745	215	146	42			
1746	215	243	42			
1747	190	258	41			
1748	217	289	42			
1749	264	301	43			
1750	256	280	42			
1751	330	294	42			
1752	270	295	37			
1753	300	313	40			
1754	373	337	40			
1755	346	345	41			
1756	341	370	41			
1757	321	410	43			

Table A.6: British Excise Revenues from Overseas Trade (in £1,000), 1758-1794

	(1)	(2)	(3)	(4)	(5)	(6)
Year:	Foreign Spirits	Tea	Coffee etc.	Wine	Tobacco	Pepper
1758	410	433	41			
1759	460	430	55			
1760	431	447	41			
1761	489	460	42			
1762	535	448	41			
1763	594	472	44			
1764	546	494	44			
1765	648	479	39			
1766	776	460	46			
1767	509	366	40			
1768	629	316	42			
1769	683	281	41			
1770	659	282	41			
1771	687	274	39			
1772	678	381	39			
1773	685	435	36			
1774	694	573	33			
1775	677	507	35			
1776	718	462	36			
1777	788	430	35			
1778	730	429	33			
1779	741	500	34			
1780	896	519	29			
1781	658	490	42			
1782	633	501	23			
1783	618	580	23			
1784	678	547	24			
1785	853	101	2			
1786	912	362	0			
1787	942	469	4	15		
1788	720	448	28	186		
1789	731	439	34	244		
1790	797	432	35	276	250	
1791	805	482	40	340	298	
1792	803	491	38	377	309	
1793	777	476	39	324	284	
1794	904	499	35	320	314	

Table A.7: British Excise Revenues from Overseas Trade (in £1,000), 1795-1823

	(1)	(2)	(3)	(4)	(5)	(6)
Year:	Foreign Spirits	Tea	Coffee etc.	Wine	Tobacco	Pepper
1795	834	545	47	866	338	
1796	857	733	28	680	437	
1797	1085	887	48	820	465	
1798	1006	965	52	577	480	
1799	1158	991	53	555	384	
1800	1504	989	62	901	538	
1801	1613	1112	58	848	517	
1802	1873	1296	67	749	489	
1803	2090	1569	70	973	581	
1804	1846	2214	71	1061	584	
1805	2187	2732	90	986	556	
1806	2369	2885	112	1120	646	
1807	2547	2820	115	1104	792	
1808	3260	3118	103	1213	875	
1809	2206	2910	132	1098	774	
1810	3194	2959	75	1270	1013	
1811	2608	3017	92	1092	1072	
1812	2147	3002	110	959	1020	
1813	2125	3001	122	919	1063	
1814	2363	3125	91	928	1034	
1815	2621	3303	80	1131	1017	
1816	2226	3016	97	834	1307	
1817	1816	2727	106	843	1230	
1818	1971	2991	113	1108	1288	
1819	2288	3077	122	1001	1330	
1820	2212	3068	326	871	2186	88
1821	2156	3127	348	881	2305	141
1822	2221	3347	351	883	2209	143
1823	2317	3375	378	899	2320	159

Table A.8: British Customs Revenues from Overseas Trade (in £1,000), 1787-1818

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Year:	Exports	Sugar	Foreign Spirits	Tea etc.	Wine	Tobacco	Other Habit.	Other Imports
1787	137	965	99	123	445	381	21	1288
1788	137	1033	122	118	439	441	30	1219
1789	142	863	132	133	444	408	35	1377
1790	157	909	117	129	504	222	38	1457
1791	138	1075	103	144	545	231	40	1505
1792	145	1013	117	138	625	224	35	1613
1793	121	1317	136	160	356	213	39	1406
1794	127	1031	98	167	468	242	31	1297
1795	124	950	49	169	535	266	40	1348
1796	135	1225	106	144	433	252	42	1752
1797	125	1300	98	185	508	261	36	1421
1798	272	1795	189	175	769	283	50	1868
1799	349	2322	156	214	1089	304	68	2766
1800	393	1835	204	252	989	340	65	2494
1801	354	2782	248	227	1098	303	68	2257
1802	208	2211	239	176	1114	328	60	2622
1803	298	1551	255	182	1067	352	79	3256
1804	533	2458	166	199	662	369	116	3634
1805	510	2440	226	215	913	419	69	3886
1806	358	3124	264	243	1072	377	81	3578
1807	403	2959	290	255	1156	420	79	3786
1808	442	3600	236	387	972	376	94	2706
1809	577	3751	316	278	1182	451	88	4766
1810	743	3014	230	299	1104	363	114	6325
1812	587	3580	140	329	839	386	108	5134
1814	1000	3277	296	396	1000	403	174	4916
1817	250	3967	221	377	915	681	192	4067
1818	232	2331	220	360	1015	687	454	4996

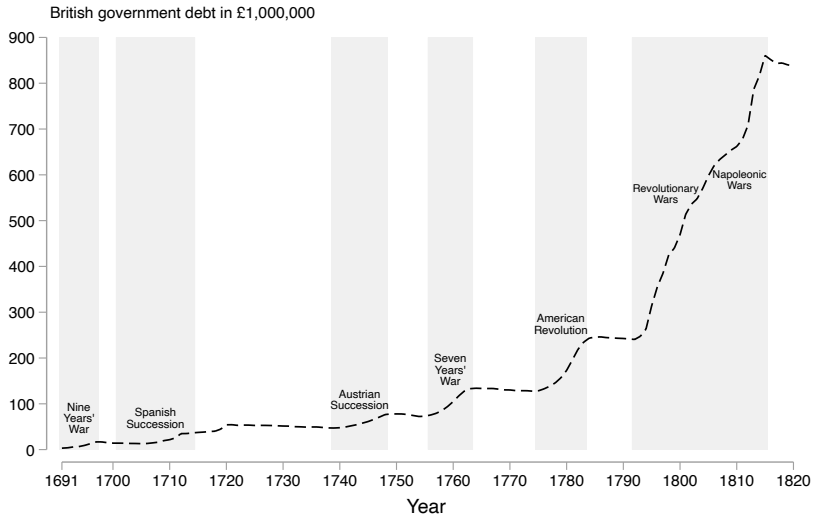
Note: These tables decompose British government revenues from traded goods (in £1,000), corresponding to Figure 6 in the text. Tables A.5-A.7 provide excise revenues by traded good for 1720-1823. Table A.8 provides customs revenues by traded good for 1787-1818. Excise revenues from tea and wine include revenues from tea andwine licenses. Excise revenues from imported beer have been included with the revenues from foreign spirits. Customs revenues from other habituation goods come from opium, licorice, pepper, spices etc. The category of Table A.8 includes all the customs revenues from imports other than the goods enumerated here. See Section 4 for a description of the data and methodology.

B Supplementary Appendix Figures

Figure B.1: Revenues from Indirect Taxation as Share of Total Revenue

Note: This figure plots the share of British total revenue from indirect taxation (i.e., excise and customs revenue) over time. Source: Mitchell (1988).

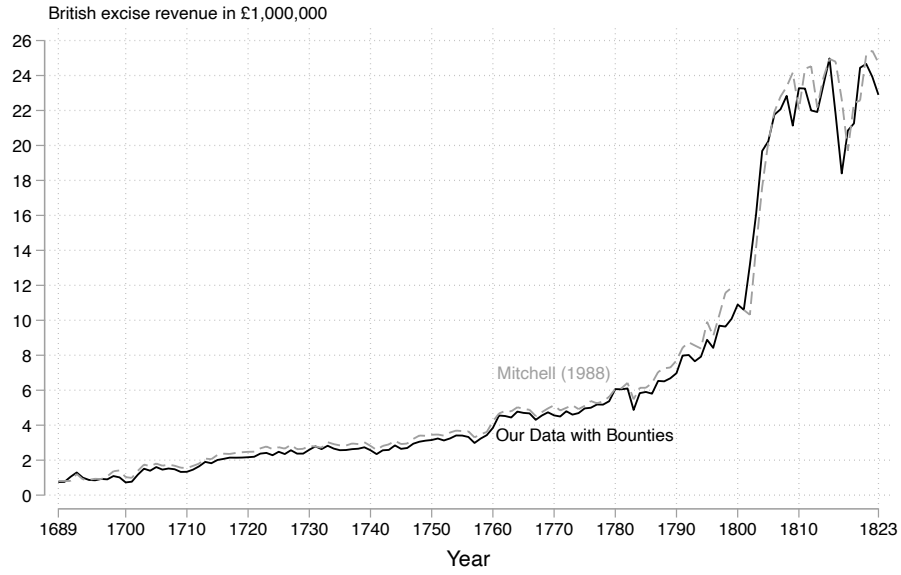
Figure B.2: Growth of British Government Debt in Times of War, 1691-1820



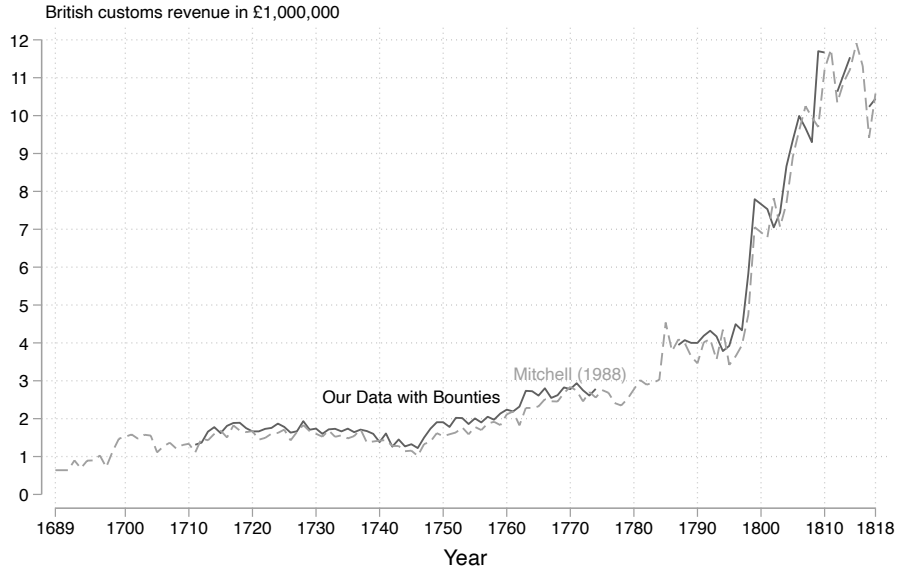
Note: This figure plots British government debt in £1,000,000 over time, with major wars shaded in gray. See Section 2 for a discussion of this figure. Source: Mitchell (1988).

Figure B.3: Comparison of Aggregate Revenues with Mitchell (1988), with Bounties

Panel A: Excise Revenues

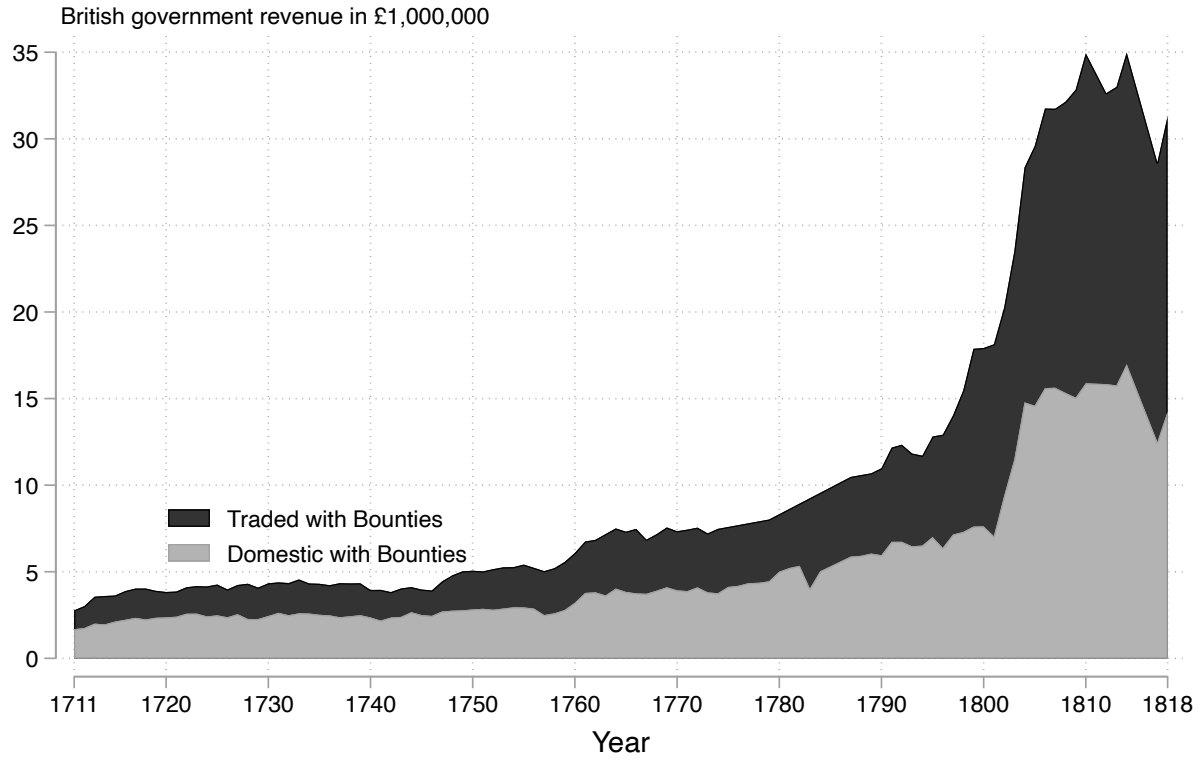


Panel B: Customs Revenues



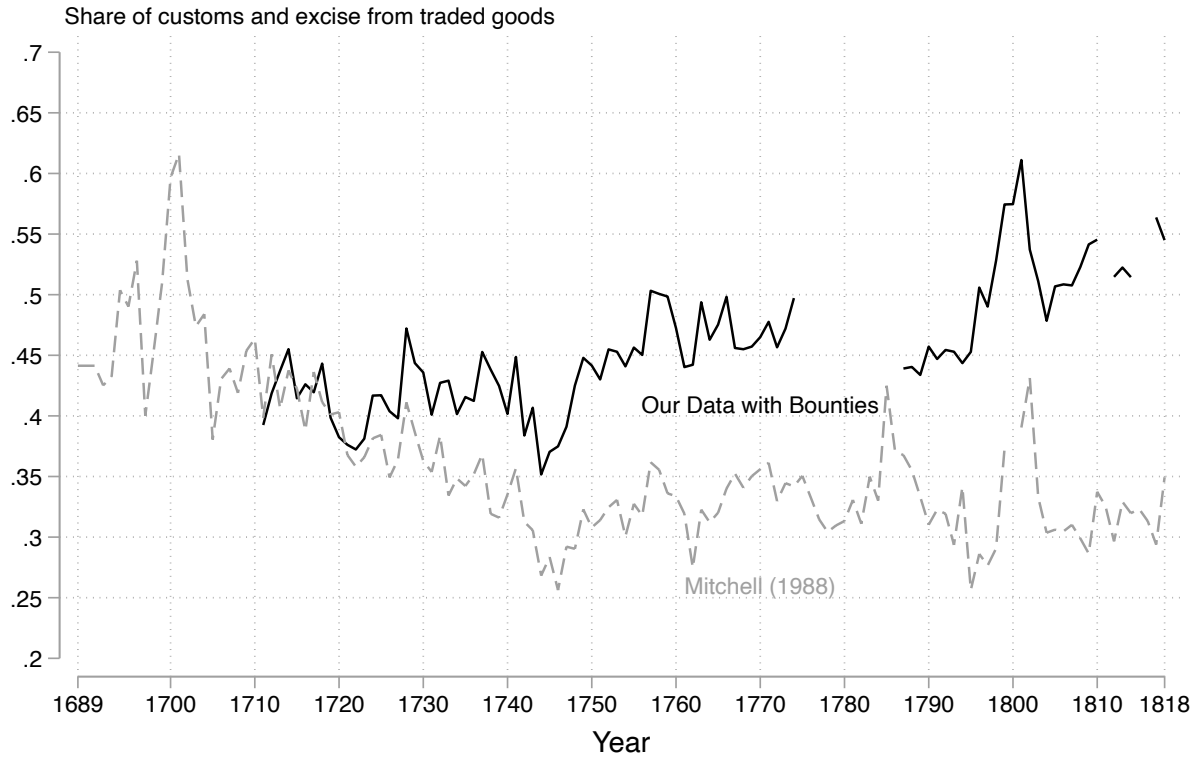
Note: This figure compares the aggregate patterns of excise and customs revenues of the British government (in £1,000,000) as calculated by the authors with those reported in Mitchell (1988). Panel A reports the excise revenues for 1689-1823, and Panel B reports the customs revenues for 1689-1818. The black, solid line plots revenues as paid into the Exchequer plus revenues spent on bounties and other national objectives. This figure reproduces the plots of Figure 1, but with Exchequer plus bounty revenues instead of solely Exchequer revenues. Gaps in the lines indicate years with missing data. We assume zero excise revenues spent on bounties before 1761. See Section 4 for a description of the data and methodology.

Figure B.4: Revenues from Traded Goods and Domestic Goods, with Bounties



Note: This figure decomposes the excise and customs revenue of the British government (in £1,000,000). The black area plots the levels of revenues from traded goods, and the grey area plots the revenues from domestic goods. These revenues are the sum of Exchequer revenues and revenues raised to pay for bounties and other national objectives, as calculated by the authors. This figure reproduces the plots of Figure 2, Panel B, but with Exchequer plus bounty revenues instead of solely Exchequer revenues. Years with missing data are linearly interpolated. We assume zero excise revenues spent on bounties before 1761. The figure starts in 1711, as we do not observe data on bounties before that year. See Section 4 for a description of the data and methodology.

Figure B.5: Revenues from Traded Goods as Share of Excise and Customs, with Bounties



Note: This figure compares the share of British customs and excise revenue from traded goods as computed by the authors with the share as reported in Brewer (1989) and using the data in Mitchell (1988). The grey, dashed line plots the share following Brewer (1989) in treating customs revenue as coming from traded goods and excise as coming from domestic production. The black, solid line plots the share of revenue from traded goods following the authors' calculations and using disaggregated customs and excise data. Our Data with Bounties is the sum of Exchequer revenues and revenues spent on bounties and other national objectives. This figure reproduces the plots of Figure 3, but with Exchequer plus bounty revenues instead of solely Exchequer revenues. Gaps in the lines indicate years with missing data. We assume zero excise revenues spent on bounties before 1761. The black line starts in 1711, as we do not observe data on bounties before that year. See Section 4 for a description of the data and methodology.

Figure B.6: Revenues from Traded Goods as Share of Total Revenue

Note: This figure compares the share of British total revenue from traded goods as computed by the authors with the share as calculated following Brewer (1989) and using the data in Mitchell (1988). The grey, dashed line plots the share following Brewer (1989) in treating customs revenue as coming from traded goods and excise as coming from domestic production. The black, solid line plots the share of revenue from traded goods following the authors' calculations and using disaggregated customs and excise data. Total revenues data come from O'Brien and Hunt (1993).