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Fiscal Centralization, Limited Government, and Public Finances in Europe, 1650-1913

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Abstract: In 1650, most European countries suffered from fiscal fragmentation and absolutist rule, though by the start of World War I many of these same states possessed fiscally centralized institutions and limited government. Using a newly assembled panel data set of per-capita revenues and expenditures for five of the largest and/or most important players at the time – Britain, France, the Netherlands, Prussia, and Spain – this paper carries out a systematic analysis of the relationship between political regimes and public finances over the 17th to 20th centuries. The results suggest that political regimes mattered: both fiscally centralized and limited government regimes were associated with significantly higher levels of per-capita revenues and expenditures than fiscally fragmented and absolutist ones, even after controlling for economic factors and political risks.

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1. Introduction

In 1650, most European states faced two fiscal problems. Nearly all rulers had absolute discretion, enabling them to spend funds as they wished. As a result, rulers often chose personal consumption (e.g. foreign military adventures) over public services that would most benefit society (e.g. roads). To solve this problem, the power of rulers had to be limited. European states also suffered from divided authority, forcing central governments to bargain with various local bodies over tax amounts. Localities often attempted to free ride on the contributions of others, leaving states starved for revenues. To solve this problem, fiscal systems had to be centralized, enabling single authorities to take control of tax collection.

Much of the contemporary political economy literature centers on the problem of absolute discretion, suggesting that limited government is what really matters towards growth.[1] Yet as Acemoglu (2005) points out, powerful states – where central governments raise large tax amounts and play valuable economic roles – often support wealthy economies. Fiscal fragmentation also remains a serious issue in poor parts of the world. Herbst (2000) claims that there is a close relationship between divided fiscal authority and economic stagnation in Africa.[2] Dictatorial regimes also plague several such African nations, suggesting a direct link with Old Regime states in Europe, where rulers had great control over expenditures but less command over revenues.

One useful way to improve our understanding of the effects of absolutism and fragmentation on public finances is to examine the evolution of fiscal systems over the long term, making Europe ideal for study. There we find a clear pattern of economic and

[1] For theoretical statements, see North and Thomas (1973), North (1981), and McGuire and Olson (1996), among others. For empirical studies, see De Long and Shleifer (1993), Knack and Keefer (1995), and Acemoglu, Johnson, and Robinson (2001, 2002, 2005), for instance.

[2] This theme is more prominent in the political science literature than the economics one. See Migdal (1988), Wade (1990), and Bates (2001), among others.

political changes from 1650 to 1913, as European states replaced Old Regime institutions with modern ones. Such an inquiry is valuable because countries around the world have implemented European forms of fiscal governance. As mentioned, many of today's developing nations confront institutional situations resembling those experienced in the past by European ones.

Assessment of the literature on the historical political economy of Europe reveals a different sort of one-sidedness. Hoffman and Norberg (1994), Bonney (1999), Bordo and Cortès-Conde (2001), and others divide states by chapters, intimately portraying fiscal change. There is a cost to this case study approach, however, for without systematic cross-country analysis, the generality of such findings remains unclear.[3]

As an example, North and Weingast (1989) claim in a well-known paper that institutional changes with the Glorious Revolution of 1688 enabled the English crown to make a credible commitment to responsible fiscal policies.[4] In turn, the state had better access to credit, because investors had greater confidence in the ruler's ability to repay its loans. Since the time of the article, many other scholars have examined the link between limited government and public debt.[5] Yet this line of research has overlooked a more basic point, which is the direct impact of limited government on public revenues and expenditures.

[3] This is not to say that scholars have never studied European fiscal history in a purely comparative way. Tilly (1990) and Bonney (1995) provide voluminous qualitative accounts. For an abridged version of this sort, see O'Brien (2001). More recently, Stasavage (2005) uses econometric techniques to evaluate the politics of sovereign borrowing from 1274-1785. Similarly, Dincecco (2006b) tests the relationship between political regimes and sovereign credit risk from 1750-1913. Also see Van Zanden and Prak (2006).

[4] It is unclear whether institutional changes resulting from the Glorious Revolution actually improved property rights protections. Clark (1996) argues that secure property rights existed in England from at least 1600. Similarly, O'Brien (2001) argues that England implemented the constitutional and administrative structures underlying its fiscal state in the 1640s.

[5] Indeed, North and Weingast's work represents a valuable point of departure for many scholars. See, for instance, Frey and Kucher (2000), Sussman and Yafeh (2000, 2006), Quinn (2001), Stasavage (2003, 2005), Summerhill (2004), Bogart and Richardson (2006), and Dincecco (2006a, 2006b).

England also possessed fiscally centralized institutions from early on, making it anomalous among European states engaged in cumbersome tax negotiations with local authorities.[6] Indeed, Epstein (2000) claims that North and Weingast conflate the economic benefits of limited government with those of institutional centralization, arguing that economic and political fragmentation within states rather than fiscal abuse by rulers was the main cause of economic distortions before the 1800s.[7] Though Epstein correctly points notes that discussions of absolutist power carry less weight in fragmented institutional environments, it is worth mentioning that he relies on case histories of pre-modern Italian states for evidence.

Centralization of economic and political institutions often occurred during French Revolutionary and Napoleonic times (1789-1815). In turn, many Continental states – now with centralized but absolutist regimes – resembled pre-1688 England, suggesting that it is no longer anachronistic to examine how ruler constraints (or lack thereof) influenced public finances. Even in absolutist regimes, parliamentary bodies exercised control over taxation, inducing rulers to procure extra-legal revenues to wage wars and stifle opposition. With undivided fiscal authority, one might argue that monarchs gained new powers enabling them to undermine private property rights more easily. In fact, this is just the sort of problem that North and Weingast envisioned when describing the virtues of limited government, which constrained the behavior of rulers.

This paper examines the public finance consequences of the political transformations identified by North and Weingast (1989) and Epstein (2000), performing

[6] Brewer (1989), 3-7, Sacks (1994), 14-23, Epstein (2000), chapters 1, 2, and O'Brien (2001) 14-24.
[7] Epstein writes that "...absolutism was largely a propaganda device devoid of much practical substance (13)." Hoffman and Norberg (1994) also downplay the "…absolute in absolutism (393)." Similarly, Fritschy (2003) argues that a tax revolution (i.e. fiscal centralization) rather than a financial one (i.e. limited government) enabled the Dutch Republic (1584-1795) to become a great power. See Henshall (1992), Rosenthal (1998), and Dincecco (2006a, 2006b) as well.

a systematic cross-country analysis of the effects of fiscal centralization and limited government on per-capita state revenues and expenditures in Europe from 1650 to 1913. By pursuing a rigorous quantitative approach, it intends to complement existing qualitative studies.

In particular, I assemble a panel data set on per-capita revenues and expenditures for five of the largest and/or most important players in Europe at the time: Britain, France, the Netherlands, Prussia, and Spain. After identifying fiscal centralization and the rise of limited government within European states, I carry out a multivariate regression analysis of the public finance effects of political regimes, controlling for economic factors and political risks. The results show that both fiscally centralized and limited government regimes were associated with significantly higher levels of per-capita revenues and expenditures than fragmented and absolutist ones, suggesting that political regimes mattered.

The rest of the paper proceeds as follows. Section 2 dates fiscal centralization and limited government. Section 3 characterizes the expected relationship between political regimes and per-capita revenues and expenditures levels. Section 4 describes the data used and the sample states selected. Section 5 presents suggestive evidence. Section 6 discusses the control variables, section 7 introduces the econometric design, and section 8 presents the regression results. Section 9 concludes.

2. Political Transformations in Europe

In 1650, most European states suffered from fiscal fragmentation and absolutist rule, though by 1913 many of these same states possessed fiscally centralized institutions and limited government. To start, we must distinguish between divided fiscal authority and absolute fiscal discretion. Divided fiscal authority was a problem that encompassed

geographical space, involving negotiations over tax revenues between central and local governments. Absolute fiscal discretion was a problem contained within the central government itself, involving interactions between the ruler and organized national bodies like parliament over fiscal policy.[8]

Though separate, there was a close link between the two problems before the 19th century. Fragmented sovereignty in the form of powerful local assemblies, laws, and notables constrained the predatory capacities of European monarchs, suggesting that divided fiscal authority also "limited" absolute power.[9] Once central and local bodies had struck tax deals, however, rulers had great control over how to spend state funds.

Following North and Weingast's (1989) influential claim that relates parliamentary budget control to public finance improvements, my characterization of limited government refers exclusively to the problem of absolute discretion, meaning that a political regime could have been divided in terms of fiscal authority but unlimited in terms of fiscal policy.[10] Though I will make this definition more explicit in section 2.4, we may say for now that a state was limited only if parliament possessed a regular constitutional right to monitor how the crown spent tax revenues. This standard makes sense because one important aspect of the paper is to test whether the North and Weingast hypothesis generally holds. Since governments faced a variety of economic and

[8] These bodies took on various names depending on the state and/or era, though in all cases their institutional role was to counterbalance the ruler's power. In England, this body was called Parliament. In France and in the Netherlands, it was the Estates General. In Spain, it was called the Cortes. In Prussia, it was the United Diet. When necessary, I use the generic term "parliament" to refer to this class of institutions.

[9] For overviews, see Hoffman and Norberg (1994), 299-310, Bordo and Cortès-Conde (2001), 1-9, and O'Brien (2001), 14-24.

[10] In this sense, one might say that the problem of divided fiscal authority concerned revenues and the problem of absolute fiscal discretion expenditures.

political constraints, such precision is also necessary, or else many sorts of institutional arrangements could be considered limited.[11]

2.1 Fiscal Fragmentation

Prior to the 19th century, most European states were fiscally fragmented.[12] In France, the crown had to negotiate independently over tax amounts with powerful regional bodies, meaning that the central government applied uneven fiscal pressure across locales based upon the particular deal struck. Whole towns and provinces often avoided certain duties, as did elites. One example is the *taille*, a valuable land tax from which nobles in central and northern France received exemptions by the middle of the 15th century onwards. Farther south, nobles only paid the *taille* on certain holdings. Over time, royal officers won comparable exemptions.[13] The evidence suggests that divided fiscal authority made it difficult for the crown to raise enough in revenues indeed: during the 18th century, three episodes of government default plagued France.[14]

In Spain, the crown had to implement new taxes on top of old ones rather than make much-needed structural changes because tax agreement among the various kingdoms united under the sovereign was too difficult. Unable to overcome regional resistance, Bourbon reformers in the early 1700s chose to superimpose an additional tax in Spain's eastern provinces, called the *catastro* in Catalonia, the *contribucìon ùnica* in

[11] Limited government as interpreted also represented an institutional improvement upon previous credible commitment mechanisms in terms of asymmetric information. Prior to the 1800s, it was uncommon for European governments to release financial data on revenues and debt levels to parliament or the public. These statistics became widely available after the emergence of limited governments in the 19th century, however, reducing the amount of private information held by rulers.

[12] Dincecco (2006a) performs a quantitative cross-country analysis of fragmentation and centralization in Europe from 1700 to 1871, finding that fiscal zones were small because of divided fiscal authority through the start of the French Revolution (1789).

[13] Brewer (1989), 5-7, Velde and Weir (1992), 6-8, Hoffman (1994), 229-240, Major (1994), 60-61, and Sargent and Velde (1995), 482-485.

[14] Defaults occurred in 1713, 1759, and 1770. See Velde and Weir (1992), 5, 8-10, and Sargent and Velde (1995), 480-491.

Aragon, and the *equivalente* in Valencia. As in France, there was regional variation in tax rates dependent upon the bargain made.[15]

For these fragmented states, the power of local authorities to tax was closely intertwined with political autonomy, prompting elites to resist fiscal reforms that threatened their incumbent rights regardless of the negative effect on central government revenues. The result was a classic public goods problem, since each locality attempted to free-ride on the tax contributions of others. In turn, per-capita revenues collected by central governments remained low. A final fact: 18th century absolutist regimes in France and Spain levied smaller per-capita taxes than republican Britain or the United Provinces, indicating the magnitude of the problem of divided fiscal authority.[16]

2.2 Fiscal Centralization

Fiscal centralization was a centuries-long process that included all of the measures taken to assess and collect tax revenues. In many European countries, however, deep structural changes were imposed during French Revolutionary and Napoleonic times (1789-1815), producing a remarkable difference in the degree of centralization before and after this era.

To make systematic comparisons across states possible, I have chosen a simple definition of fiscal centralization, which occurred the year in which the state's central government secured its revenues through a tax system with uniform rates throughout the country.[17] As shown in table 1, this political transformation took place swiftly and

[15] Elliot (1986), 245-277, Lynch (1989), 61-66, Tortella (2000), 173-192, and Tortella and Comìn (2001), 141-148, 150-160.
[16] Mathias and O'Brien (1976), and Hoffman and Rosenthal (1997), 34.
[17] This definition does not imply that the central government gained a total monopoly over taxation after fiscal centralization. In the United States, for example, fiscal centralization occurred under the Constitution of 1788, which gave Congress the power to ensure that individual states complied with national tax

permanently on the Continent from 1789 to 1815.[18] In France itself, the introduction of a national tax system occurred during 1790s. The French conquered the Dutch Republic in 1795, leading to the replacement of fiscally decentralized institutions with centralized ones.[19] Indeed, the simple threat of takeover by France was at times enough to instigate change: Prussia made quick fiscal and legal reforms after French defeat in battle in 1806.[20]

Two exceptions bear mention. On one hand, England possessed fiscally centralized institutions from very early on. On the other, Napoleon did not aggressively pursue economic and political reforms on the Iberian Peninsula, meaning that fiscal centralization in Spain came relatively late (i.e. the 1840s). For additional details, please refer to appendix 1.

Undivided fiscal authority enabled central governments to compel all domains to adhere to national tax rates, overcoming the free-riding problem caused by fragmentation. By equalizing taxes at relatively high levels, per-capita revenues rose. So long as states spent the additional revenues raised, per-capita expenditures increased as well.

2.3 Absolutism

Even in absolutist regimes where monarchs spent funds as they wished, parliamentary bodies exercised authority in tax matters, prompting rulers to seek alternative resources through fiscal predation. Such strategies were not simply a response to divided fiscal authority. One important revenue stream for King Charles I (1625-1649) of England was loans under threat (i.e. "forced loans"), repaid in highly unpredictable

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standards. Before, under the Articles of Confederation, Congress could only request funds from states. Even after 1788, however, states maintained the ability to levy taxes. See Edling (2003).

[18] Also see Godechot, Hyslop, and Dowd (1971).

[19] Van Zanden and Van Riel (2004), 40-51.

[20] Godechot, Hyslop, and Dowd (1971), and Kiser and Schneider (1994).

ways and in terms altered from original agreements. From 1626 to 1627, Charles raised 260,000 pounds by this method. From 1634 onwards, he gathered an average of 107,000 pounds per year. Charles seized private goods as well, confiscating 130,000 pounds in bullion stored on government property from private merchants in 1640. Other measures to skirt parliament included customs impositions and the sale of monopolies, government lands, and offices. He also kept parliament in the dark about the state of English finances.[21]

Elsewhere in Europe, we may imagine a close link between divided fiscal authority and predatory tactics prior to the 1800s. Yet following fiscal centralization, sovereigns secured new tax revenues, ostensibly making it easier to fulfill debt obligations. Most regimes still lacked effective constraints limiting the ways in which rulers could use state funds, however.

In the Netherlands, fiscal unification occurred in 1806. At the end of the Napoleonic era, the Kingdom of the United Netherlands emerged, investing King Willem I (1814-1840) with absolutist powers. Budgets were submitted to parliament at 10-year intervals, meaning that the monarch was able to use an overwhelming portion of the funds that parliament had originally voted for as he saw fit. Moreover, parliament was unable to audit how Willem spent tax revenues and received little information about the state of public finances.

Unsurprisingly, Willem was able to include many favored items in his 10-year budgets of 1819 and 1829. Though fiscal centralization nearly doubled the size of the Dutch tax base and Europe remained politically stable, the Dutch king found it difficult to balance the national accounts. Under Willem's reign, the public debt increased from

[21] See North and Weingast (1989), 809-812, Velde and Weir (1992), 6, Hoffman and Norberg (1994), and Sacks (1994), 37-44, 53-65.

roughly 575 million florins in 1814 to 900 million florins in 1830 and 1200 million florins in 1840, amounting to more than 200 percent of GDP, a debt ratio comparable to that of war-ridden Napoleonic times. Partly in response to the excesses of fiscal absolutism, limited government – which I examine more closely in the following section – emerged in the Netherlands in the 1840s.[22]

In the absence of constitutional constraints, parliaments rightfully feared that kings would spend additional funds granted to them in reckless and wasteful ways. They therefore demanded fiscal limits as a precondition to provide new revenues. Unwilling to bow to such requests, rulers often resorted to predatory fiscal tactics. For these reasons, individuals resisted tax requests more fervently, suggesting that per-capita revenues collected by central governments remained low.

2.4 Limited Government

As for fiscal centralization, parliamentary control over state finances increased gradually over time. A reasonable definition of limited government in the spirit of North and Weingast (1989) must capture the real power of parliament to act rather than its mere presence. It must also be simple enough to apply similarly to all states. With these factors in mind, I define limited government to have emerged the year in which parliament gained the stable constitutional right to control the state's *annual* budget. To meet my criteria, parliament's power had to hold for at least two consecutive decades. Moreover, to make the dating as objective as possible, I have tried my best to select years and regimes for which there is widespread academic consensus. By incorporating these three factors – regularity (i.e. yearly), stability (i.e. at least twenty years in a row), and

[22] Fritschy and Van Der Voort (1997), 64-66, 75-81, and Van Zanden and Van Riel (2004), 32-51, 85-90, 96-110, 171-178.

scholarly agreement – we may be confident that political regimes were limited in a manner which closely replicates the standard that North and Weingast originally laid out for England.[23]

The Dutch case well illustrates this approach. As discussed in the previous section, the constitution of the Kingdom of the United Netherlands granted absolutist powers to King Willem I. Though parliament possessed control over the budget, this authority only came at 10-year intervals, rendering it ineffective. The crown also kept parliament in the dark about public finances: it was not until 1839 that Dutch fiscal troubles became public. In a rare display of strength, parliament vetoed the budget that covered the upcoming decade, leading to Willem's abdication in 1840. Afterwards, Willem II acceded to the Dutch throne, and a constitutional amendment was passed replacing 10-year budgets with 2-year ones and making information about government finances public. A truly liberal era in the Netherlands, replete with a new constitution, did not emerge until the year of revolutions in 1848, however. Most importantly, the Dutch crown had to submit annual budgets to parliament for approval, which in the words of Van Zanden and Van Riel (2004) became the cornerstone of parliamentary power.[24] Indeed, it is only after 1848 that the triple criteria for limited government of regularity, stability, and consensus are satisfied.

Table 1 indicates that in general this political transformation began to take place during the 1830s and 1840s, several decades after fiscal centralization. As mentioned, the major exceptions were England, which became limited nearly one century and one-half

[23] I have decided against using suffrage measures to identify limited government regimes for two reasons. First, they do not properly capture the North and Weingast sense of the term "limited," which is concerned with effective checks on fiscal power rather than democracy per se. Suffrage percentages may also suffer from arbitrariness, since one must choose cut-off rates for which a state becomes truly "representative.".
[24] Fritschy and Van Der Voort (1997), 73-77, 85-87, and Van Zanden and Van Riel (2004), 32-51, 85-90, 96-110, 171-178.

prior to any of the Continental states, and Spain, where it did not emerge until 1876 after decades of failed constitutional initiatives. For additional details, please refer to appendix 1.

Limited government strengthened parliament's right to levy taxes and reduced the ruler's ability to violate private rights to financial property. Parliament also controlled the state's purse strings, reducing the likelihood of bad fiscal policies by the ruler. In light of these twin developments, individuals were more willing to submit to tax requests by the state. Hence, per-capita revenues rose. In turn, per-capita expenditures likely increased as well.

Before discussing the yield data, it is worthwhile to mention some other points about the dating of political regimes. To bias against my hypothesis, I have always chosen the earliest possible year to define political regimes as either centralized or limited. Since per-capita revenues and expenditures generally grew from the 17th to the 20th centuries, this means that average revenue levels associated with centralized and absolutist and centralized and limited regimes will be lower than otherwise. In turn, the results will be more robust if I still find that centralized and absolutist and centralized and limited regimes were associated with significantly higher per-capita revenue and expenditure levels than fragmented and absolutist ones.

To illustrate, one might argue that limited government did not truly emerge in Germany until after World War II, suggesting that 19th century Prussia never possessed such a regime. One may also claim similarly that limited government did not emerge in Spain until after Franco's death in 1975. In these cases, the correct tests would be to categorize data prior to the 20th century in absolutist regimes and those during the 20th century in limited ones. As per-capita revenues and expenditures in Europe have risen over time, this classification would almost certainly strengthen any results that centralized and

absolutist and centralized and limited regimes were associated with level increases in per-capita revenues and expenditures.

During the 19th century, limited government on the Continent was also susceptible to political upheaval, which I control for in the econometrics section. For now, it is enough to recall that my definition ensures a minimum standard for "stable" limited government by requiring that parliament's constitutional veto power held for at least two consecutive decades. It would not only be impractical to require that limited government was a "permanent" reform, but for reasons described above, pushing back the dates for limited government would likely strengthen any results relating centralized and absolutist and centralized and limited regimes to public finance improvements.

I present France as a final case study of my dating methodology. Though limited in name only, the Bourbon regime established itself as a constitutional monarchy following Napoleon's final defeat in 1815. The next several years saw intense battles between royal and liberal forces. During the 1820s, King Charles X engaged in major abuses of power, ultimately inciting the July Revolution of 1830. Charles' replacement, Louis Phillippe, agreed to adhere more closely to constitutional limits on his power. The 1830 regime endured for less than two decades, however, ending in revolution in 1848. Just three years later, Napoleon III mounted a coup d'etat, establishing an authoritarian regime that lasted until 1870. The Third French Republic then came into existence, surviving until the German invasion of 1940.[25] This arrangement best satisfies the triple criteria of regularity, stability, and consensus, and therefore I date the emergence of a centralized and limited regime in France to 1870.

[25] Jackson (1974), 143-144, 150-151, and Price (1993), 157-165, 177-179, 188-191.

3. Implications for Political Regimes

Table 2 provides a summary of the public finance characteristics of the three possible political regimes: fragmented and absolutist, centralized and absolutist, and centralized and limited.[26] Revenues under centralized and limited regimes should have been higher than under fragmented and absolutist ones. Fiscal centralization implies an increase in revenues over fragmentation, because central governments resolved the problem of local tax free-riding. Similarly, limited government implies an increase in revenues over absolutism, since rulers were able to make a credible commitment to honor property rights and spend funds on public services rather than on personal consumption, making individuals more willing to submit to tax requests.[27]

High revenues imply high expenditures. In addition, both fiscal centralization and limited government mean that states had access to more plentiful, cheaper credit, because investors had greater confidence in the ability of rulers to fulfill outstanding loans. Undivided fiscal authority implies that it was easier for central governments to collect enough in tax revenues to repay debts. Similarly, limited fiscal discretion means that rulers were able to make credible commitments to debt service. Greater access to credit increased the ability of states to spend, strengthening the implication that expenditures rose relative to fragmented and absolutist regimes.[28]

Revenues and expenditures should have also increased under centralized and absolutist regimes in comparison with fragmented and absolutist ones, since fiscal

[26] Examples of fragmented and limited regimes are rare in European history. There are none among sample states.
[27] By curbing the personal consumption of rulers, however, limited government may have reduced revenues needs and thus levels, thereby partially offsetting this positive effect.
[28] Absolutism offset this effect to some extent, since monarchs were able to force loans upfront but renege later on repayment. Yet this pattern was ultimately subject to "unpleasant arithmetic." In 18th century France, for example, budget constraints and compound interest restricted government deficit and debt levels over time. See Sargent and Velde (1995).

centralization had taken place in the first case, resolving the problem of local free-riding. This suggests in turn that revenues and expenditures under centralized and limited regimes should have been higher than under centralized and absolutist ones, since limited government addressed the problem of fiscal absolutism as well.

The intensity of these implications depends on the magnitude of the private information problem that European states faced. A priori, each locality was uncertain about how the ruler would use new revenues generated by (i.e. possible) fiscal centralization. If local authorities perceived that the problem was severe, then there would have been great fear that the ruler would spend revenues on personal ends rather than on public services. Hence, each locality would have resisted tax reforms by the state more fervently, meaning that public finances in fragmented and absolutist regimes would have been in very poor shape indeed. We would expect aggregate revenues and expenditures on public goods to have been particularly low, suggesting that limited government rather than fiscal centralization should have had a greater impact on public finances, since individuals did not trust rulers to pursue sound fiscal policies in the absence of parliamentary oversight.

If taxpayers were relatively confident that the ruler would spend new revenues on public services rather than on personal ends, however, then public finances under fragmented and absolutist regimes would have already been decent, meaning that political transformations should have mattered less overall. To be precise, we would expect aggregate revenues and expenditures on public goods to have been relatively high. In this context, fiscal centralization rather than limited government should have had a greater positive impact on public finances, since changes to unify institutions and reduce transactions costs were more important than parliamentary budget control.

4. Yield Data

I constructed a database on annual revenues, expenditures, and population assembled from several secondary sources. For details, please see appendix 2.

The historical data is not without limitations. First off, European states did not keep detailed financial records during the 17th and 18th centuries, meaning that the series are at times imprecise. Annual data is also missing in some years for some states. For revenues, I have often interpolated intermediate years, since other than fiscal centralization there were few dramatic changes in the tax base during this period, meaning that the interpolated figures should provide reasonable estimates. The same logic applies to population figures, which I also interpolated in certain cases. No major population shocks such as plague occurred over the period under consideration, suggesting that the interpolated figures are decent approximates as well. Linkages between central government tax bases and expenditure levels in Europe were weak, however, particularly in times of war, and so I did not interpolate such figures for missing years.[29] Data also came in different currencies. To make calculations comparable across states, I transformed all units into grams of gold. These shortcomings notwithstanding, trends and levels of per-capita revenues and expenditures remain useful as basic indicators of public finances over political regimes in Europe from 1650-1913.

As sample states, I selected Britain, France, the Netherlands, Prussia, and Spain because of historical relevance and data availability. These countries were among the largest and/or most important players in Western Europe over the period under consideration, suggesting that they will provide a fair representation of the European experience. Of equal significance, annual data series of two centuries or more covering

[29] Regardless, the expenditures data remains rich, with over 850 observations in total.

per-capita revenues and expenditures as well as a variety of controls exists for each. Moreover, data is nearly always available for a minimum of fifty years both before centralized and absolutist regimes and after centralized and limited regimes, providing enough observations to compare steady-state yield levels. Lack of data led to the exclusion of several other states, among them Austria, Belgium, German ones like Bavaria, Italian ones like the Papal States, Piedmont, and Naples, and Scandinavian ones like Finland, Norway, and Sweden.

Cut-off years for fiscal centralization and limited government are relatively clear among sample countries. One exception is Spain, where political risk ran particularly high over the 19th century.[30] Historical significance and sufficiently long data series compensate for this shortcoming, however. By the same logic, I excluded Spain's Iberian counterpart, Portugal, due to a combination of political instability and data limitations.

5. Suggestive Evidence

Tables 3 and 4 display the summary statistics for the panel. For per-capita revenues, there are 1073 observations, 384 for fragmented and absolutist regimes, 224 for centralized and absolutist ones, and 465 for centralized and limited ones. What jumps out immediately is the significantly higher average per-capita revenues associated with centralized and absolutist regimes (7.26 grams of gold) and centralized and limited ones (14.15 grams of gold) relative to those of fragmented and absolutist ones (2.40 grams of gold). As discussed, I did not interpolate any expenditures figures. Table 4 indicates that there are 851 observations for per-capita expenditures, 245 for fragmented and absolutist regimes, 170 for centralized and absolutist ones, and 435 for centralized and limited ones. Again, significantly higher average per-capita expenditures are associated with

[30] For details, please see appendix 1.

centralized and absolutist regimes (10.98 grams of gold) and centralized and limited ones (16.89 grams of gold) than with fragmented and absolutist ones (3.00 grams of gold).

Such evidence – which fails to control for economic factors or political risks – is suggestive rather than definitive. Before moving on to the formal statistical analysis, however, it is worthwhile to look at the French and Dutch cases. For additional historical details, please refer back to section 2.

Figure 1, which plots annual per-capita revenues over political regimes in France from 1650 to 1913, indicates that revenues remained low at less than 5 grams of gold per-capita under the fragmented and absolutist regime that lasted endured the 1780s. The French Revolution (1789-1799) led to the establishment of a national tax system. Coinciding in time with the Revolutionary and Napoleonic wars, we observe a sharp increase in revenues through 1815, doubling to approximately 10 grams of gold per-capita. Over the next two decades, French revenues leveled out but never fell. Revenues again began to increase in the 1840s – albeit at a slower rate than during Napoleonic times –to almost 20 grams of gold per capita by the end of the 1860s. With the establishment of a centralized and limited regime in 1870, we observe another sharp increase in revenues, doubling over the next four decades to 40 grams of gold per capita at the start of World War I. Figure 2, which plots annual per-capita expenditures over political regimes in France from 1650 to 1913, matches the revenues story very closely.

Each of the seven provinces that comprised the Dutch Republic (1584-1795) had its own systems of administration, taxation, and representation. Due to data unavailability, I have culled revenues, expenditures, and population figures from Holland, the wealthiest and most heavily populated province. Within Holland itself, 1574 – the year in which the provincial government extended common taxes from urban areas to

rural ones – marks the establishment of a centralized tax system.[31] Note that the Republic remained fiscally fragmented at the national level, however.

The Dutch case well illustrates why it is difficult at times to draw meaningful distinctions between the terms "limited" and "absolutist" before the 19th century. Though constrained, Holland was not limited in the sense of a parliament that controlled the province's annual budget.[32] After discussion with knowledgeable scholars, I have chosen to designate the political regime in Holland as centralized and limited, since it best captures the set of institutional arrangements present there. Figure 3, which plots annual per-capita revenues over political regimes in the Netherlands from 1719 to 1913, highlights the success of Holland's fiscal system, indicating large revenues of around 15 to 20 grams of gold per head.[33]

In 1806, fiscal centralization occurred nationally. In 1815, the Kingdom of the United Netherlands emerged, investing King Willem I (1814-1840) with absolutist powers. Why revenues associated with this regime fall from pre-1795 levels by nearly half to approximately 10 grams of gold per capita?[34] Recall that Holland possessed fiscally centralized institutions, whereas the Dutch Republic as a whole had fragmented ones. To finance collective military expenditures, all provinces were required to pay a

[31] Per-capita revenues collected by the province increased greatly in the years following fiscal centralization, suggesting that this institutional reform reduced free-riding in Holland. See t'Hart (1989), 666-670, t'Hart (1997), 14-16, Fritschy (2003), 67-74, and Van Zanden and Prak (2006), 129-135.
[32] To provide a credible commitment to debt service, ruling elites invested heavily in government debts, aligning lender and borrower incentives. See t'Hart (1989), 678-679, Fritschy and Van Der Voort (1997), 70-75, 92, t'Hart (1997), 17-27, and Van Zanden and Van Riel (2004), 35.
[33] Also see Van Zanden and Prak (2006), 129-135.
[34] Upon its establishment, the Kingdom of the United Netherlands included southern provinces such as Belgium, which declared independence in 1831. To compute Dutch revenues, I had to net out the percentage contribution of such regions, resulting in the trough from 1816-1831 observed in figure 3. For additional details, please see appendix 2.

quota amount. As the most important of them, Holland was responsible for almost 60 percent of the total burden, resulting in higher per-capita taxes.[35]

As the theory and evidence presented in previous sections describe, absolutists also found it difficult to make a credible commitment to spend funds in socially valuable ways, suggesting that individuals ought to have resisted tax requests more fervently. The revolutions of 1848 saw the establishment of a centralized and limited regime in the Netherlands. In turn, Dutch revenues grew steadily, leveling out in the 1870s at approximately 15 grams per capita through the start of World War I.

The expenditure trends shown in figure 4, which plots annual per-capita expenditures over political regimes in the Netherlands from 1719 to 1913, support this interpretation of Dutch financial history. As the most powerful province in the Republic, Holland spent heavily over the 1700s, resulting in expenditures that averaged around 25 grams of gold per capita. Consistent with the theory and evidence described, expenditures fell with the establishment of an absolutist rather than limited regime during the first half of the 19th century. Indeed, the figures suggest that King Willem I pursued reckless fiscal policies, since expenditures levels during his reign were not only significantly greater than revenues (on average around 20 grams of gold per capita versus 10), but also somewhat higher than under the limited regime established in 1848.

6. Control Variables

In addition to political regimes, several other important economic and political factors may have influenced public finances from 1650 to 1913. Hence, the only way to confirm the positive effect of centralized and absolutist and centralized and limited

[35] Indeed, Van Zanden and Van Riel (2004) argue that other provinces frequently shirked their financial obligations, free-riding on Holland's defense contributions.

regimes is to regress per-capita revenues or expenditures (or some meaningful variant) on a set of relevant control variables. Rigorous controls also help to account for possible regime misclassifications, since no matter how diligently one tries, it is impossible to eliminate idiosyncratic elements from the dating procedures.

Presumably, economic growth increased central government tax bases, enabling states to collect larger revenues. Many studies employ measures of foreign trade as approximates of national output.[36] Systematic trade deficit and export series from 1650 onwards are not available for each of the sample states considered here, however, meaning that to control for economic performance we must consider other possibilities. Scholars such as Hohenberg and Lees (1985), Bairoch (1988), and Acemoglu, Johnson, and Robinson (2002, 2005) have argued that changes in urbanization rates and per-capita income within European states coincided closely for the period under consideration. Following these authors, I incorporate the variable URBAN, constructed by calculating the urban population as a percentage of the total population annually for each sample state, as a proxy for per-capita GDP.[37] As a robustness check, I make use of Maddison's (2003) per-capita GDP figures. A final note: as Ferguson and Schularick (2006) indicate, modern research on credit risk often employs per-capita GDP to approximate political risk and institutional quality, meaning that the macroeconomic indicators used here should capture political regimes characteristics as well.

I also consider monetary policy as part of the set of economic controls. Several scholars, including Bordo and Rockoff (1996) and Obstfeld and Taylor (2003), argue that adherence to the classic gold standard from the 1870s to the start of World War I sent a

[36] For examples of economic control variables used in historical studies, see Flandreau and Zumer (1994), Bordo and Rockoff (1996), Sussman and Yafeh (2000), Mauro, Sussman and Yafeh (2002), Obstfeld and Taylor (2003), Brown, Burdekin, and Weidenmier (2005), Dincecco (2006b), Ferguson (2006), and Ferguson and Schularick (2006), among others.
[37] For additional details, please see appendix 3.

valuable signal of financial integrity to investors. Though these authors focus on sovereign credit risk, one might also wish to assess the impact of monetary policies such as the classic gold standard on public finances. As both Obstfeld and Taylor (2003) and Ferguson and Schularick (2006) point out, coding GOLD is at times subjective, since states such as Spain "shadowed" the standard while never making an official commitment to it. Following these studies, I rely on Meissner's (2002) "strict" dates at which a currency became *de facto* and *de jure* convertible into gold by law.

A third factor affecting public finances may have been domestic and international political conflicts, which we find evidence for in the context of sovereign borrowing. Ferguson (2006) claims that through 1880 political events mattered more to investors than economic ones because there was a greater amount of regular information available about them, arguing that both wars and revolutions decreased revenues and increased expenditures. Sussman and Yafeh (2000, 2006) also find that financial markets responded quickly to civil unrest and wars in Britain (1690-1790) and Meiji-era Japan, further indicating the importance of controlling for political risks.

To assess the impact of warfare on public finances, I incorporate the dummy variable WAR, which identifies all of the years from 1650 to 1913 in which each sample state was engaged in a European military conflict. Similarly, to assess the impact of political turbulence, I incorporate the dummy variable REVOLUTION, which takes a value of 1 for each year(s) during any revolution, coup, or civil war within sample states over the same period.[38]

As a last point, we must remember that the analysis biases against finding any significant relationship between political regimes and public finances by assuming that it

[38] For additional details, please see appendix 3.

is in fact possible to neatly disentangle regimes from economic factors and political risks, though theory suggests that they influenced all of these variables.

7. Estimating the Effect of Political Regimes

As Ferguson and Schularick (2006) note, estimations of panel data are a common method to analyze large historical datasets, increasing informative content by combining variations across time and place. The estimation technique used here – OLS with panel-corrected standard errors, or PCSE – is standard for quantitative endeavors into comparative political economy.

I look to the coefficients on dummy variables for centralized and absolutist regimes (CA_REGIME) and centralized and limited (CL_ REGIME) relative to fragmented and absolutist ones (FA_REGIME) to estimate the effect of regime type on per-capita revenues and expenditures levels, justifying this approach as follows. Recall from the introduction that – though fiscal reforms in Europe occurred gradually over time – an influential strand of the historical literature focuses on two structural transformations: fiscal centralization and limited government. I do not wish to estimate the magnitudes of public finance changes immediately following such reforms, but rather to capture steady-state levels associated with different sorts of political regimes. The dummy variable approach is well suited for the present inquiry because it provides a clear and simple method to do so.

8. Econometric Evidence

Table 5 displays the results of the regressions for per-capita revenues. Specifications (1) to (3) characterize the dependent variable in different ways. Since each

approach has its pros and cons, I will proceed through them one at a time. What is important to remember is that the results are robust across choices.[39]

The first specification regresses per-capita revenues on the set of control variables, revealing that centralized and absolutist and centralized and limited regimes were associated with significantly higher revenue levels than fragmented and absolutist ones. URBAN is also significant as a proxy for per-capita GDP, indicating that income growth enabled central governments to collect more in revenues than before.

One may argue that urbanization facilitated tax collection by central government authorities, calling URBAN's validity as an instrument into question. The preferred solution to this problem would be to use a yearly ratio of central government revenues to GDP as the dependent variable. Unfortunately, reliable GDP figures are difficult to come by before at least 1820. Hence, in specification (2) I have constructed the ratio using urbanization rates as proxies for per-capita GDP. Although I must still work out the precise economic interpretation of the resulting coefficients, the key results continue to hold.

Specification (3) substitutes Maddison's (2003) real per-capita figures into the revenues to GDP ratio as the dependent variable. Note that use of real GDP data further dampens potential inflation effects, which were already reduced by converting revenues and expenditures figures into grams of gold. Although I must still provide a precise economic interpretation for these coefficients, the econometric findings remain: centralized and absolutist and centralized and limited political regimes enabled states on average to collect more in per-capita revenues than before, significantly improving public finances.

[39] Note that controls for time effects do not significantly change any of the results.

What about the other control variables? Contrary to Ferguson's (2006) claim, WAR is always associated with significant increases in per-capita revenues, suggesting that central governments increased collection efforts in times of war. REVOLUTION, on the other hand, is always associated with a slight decrease in revenues, indicating that domestic turmoil made it difficult for states to gather taxes. The results also indicate that adherence to the classic gold standard significantly improved public finances.

Table 6 displays the results of the regressions that use per-capita expenditures. Centralized and absolutist and centralized and limited regimes were associated with greater levels of expenditures than revenues relative to fragmented and absolutist ones, suggesting that these political transformations had positive effects on sovereign credit risk that went beyond one-to-one increases in tax funds. Consistent with Ferguson's (2006) claim, political risks such as warfare or civil conflict led to significant increases in central government expenditures. Perhaps surprisingly, GOLD was associated with a spending reduction. If interpreted as a sign of fiscal responsibility, however, it may be a reason why – following Bordo and Rockoff (1996) and Obstfeld and Taylor (2003) – that gold standard adherence improved sovereign creditworthiness.

9. Conclusion

This paper examines the relationship between political regimes and public finances in European states from 1650 to 1913. Fiscal centralization resolved the problem of local tax free-riding by granting undivided fiscal authority to central governments. Limited government enabled states to make credible commitments to sound policies by reducing the fiscal discretion of rulers. The results indicate that political regimes mattered. I find significant level increases in per-capita revenues and expenditures associated with both fiscally centralized and limited government regimes relative to

fragmented and absolutist ones, even after controlling for economic factors and political risks.

Indeed, historical analysis reveals a general pattern of fiscal evolution in Europe. The most pressing problem to face most states prior to the 19th century was divided authority. Though French conquest (1789-1815) often led to institutional centralization, it did little to address absolute discretion, which may have actually worsened as a result. Limited government became more important at this institutional juncture than before, because it addressed the problem of fiscal absolutism. However, we miss this point by focusing on the financial history of England, which stood out for early centralization.

The significant level increases in per-capita revenues and expenditures that we observe after limited government indicate that European states faced serious private information problems. In this regard, the results concur with the conventional wisdom that limited government counts, because it enabled rulers to make a credible commitment to sound fiscal policies. The findings also highlight the role of fiscal centralization, however. States were not necessarily born strong, as much of the current literature assumes. Indeed, fragmentation created just as many headaches as absolutism, suggesting that centralization was also necessary to develop efficient systems of public finance.

Appendix 1. Political Regimes

I define fiscal centralization to have occurred the year in which the state's central government secured its revenues through a tax system with uniform rates throughout the country. Similarly, I define limited government to have emerged the year in which parliament gained the stable constitutional right to control the state's annual budget. To meet my criteria, parliament's power had to hold for at least two consecutive decades. For additional details, please see section 2 of the text.

England (Britain).[40] Fiscal centralization occurred during medieval times in England: both Brewer (1989) and Sacks (1994) argue that England possessed strong, national institutions by the end of the 12th century. Therefore, I date fiscal centralization to the arrival of the Normans (1066), which contributed to the establishment of uniform rule by undercutting provincial authority. Following North and Weingast (1989), I date limited government to the Glorious Revolution (1688), which established parliament's power of the purse, granting it a regular budget veto along with the right to monitor crown expenditures.[41] For additional details, please see sections 1 and 2 of the text.

France. Please see text, sections 2 and 5.

The Netherlands. Please see text, sections 2 and 5.

Prussia. Following French defeat in the Battle of Jena-Auerstedt in 1806, the Prussian government hastened to carry out economic and political reforms, including fiscal centralization.[42] Over the next several decades, pressure to furnish a liberal constitution grew, which King Freidrich Wilhelm IV granted during the year of revolutions in 1848. As elsewhere on the Continent, the new constitutional regime was imperfect: in the 1860s, the Prussian government operated without legislative approval of the military budget. For additional details, please see section 2.4 of the text.[43]

Spain. In the early 1700s, Bourbon reformers strengthened the power of the central government in Castile, imposing new taxes on Spain's eastern provinces. Tax rates varied across regions, however, depending upon the particular bargain made. Thus, I view the Bourbon tax reforms as another example of tax particularism rather than as fiscal centralization.[44] For additional details, please see section 2.1 of the text. Napoleon invaded Spain in 1808, attempting to convert it into a satellite state. The French did little to generate modern laws and administrative practices, however. Fiscal centralization did not occur until 1844 amidst a "moderate" decade of institutional reforms. From 1808 to 1876, civil unrest created chaos in Spain. After decades of failed initiatives, a stable version of constitutional monarchy was established in 1876, lasting until a military coup in 1923.[45] For a list of 19th century Spanish revolutions, coups, and civil wars, please see appendix 3.

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[40] An Act of Union constitutionally assimilated England (including Wales) and Scotland in 1707. A similar Act of Union conjoined Ireland with Britain in 1800. In 1921, Ireland was partitioned into two states, the Irish Free State and Northern Ireland, which remains part of the United Kingdom. Brown (1991), 13-16, and Daunton (1995), 271-273. For additional details, please see appendix 2.

[41] Brewer (1989), 3-7, 143-154, and Sacks (1994), 14-23. Note that O'Brien (2001) argues that the crucial juncture in English financial history was the civil war of the 1640s rather than 1688.

[42] Even prior to fiscal centralization, contemporaries considered the Prussian tax system one of the most efficient in Europe. See Kiser and Schneider (1994).

[43] Tilly (1966), 486, 490, 493, Godechot, Hyslop, and Dowd (1971), Woolf (1991), and Breuilly (2003), 131-132.

[44] As Tortella (2000) writes, "…Attempts to modernize public finance go back to the 18th century, with the plan for a single tax (*contribucìon ùnica*) of the Marques de la Ensenada. But a century later things were even worse. Until 1845 the Spanish taxation system was a disorganized and unsystematic mosaic… (174)."

[45] Carr (1966), Vicens Vive (1969), Lynch (1989), Tortella (2000), 27-32, 173-192, and Tortella and Comìn (2001), 155-165.

Appendix 2. Data Sources

Revenues figures concern income from taxation collected by central governments. Loan income has been subtracted whenever possible. Expenditures figures concern all spending by central governments, including debt service. Intermediate years for revenues and populations were linearly interpolated, but those for expenditures were not. For additional details, please see section 4 of the text.

England (Britain). REV1 is total revenue to the English crown, 1650-1824, from O'Brien (1995). REV2 is net receipts of the public income for Great Britain, 1692-1801, from Mitchell (1988). REV3 is central government revenue for Great Britain, 1750-1801, and for the United Kingdom, 1802-1913, from Mitchell (2003). The series of British central government revenues from 1650-1913 consists of REV1: 1650-1691; REV2: 1692-1749; REV3: 1750-1913. Years 1654 and 1660 have been interpolated.

EXP1 is issues and assignments for the English Exchequer, 1660-1688, from Chandaman (1975), 339-366.[46] EXP2 is total net expenditure including debt charges for Great Britain, 1692-1801, from Mitchell (1988). EXP3 is central government expenditure for Great Britain, 1750-1801, and for the United Kingdom, 1802-1913, from Mitchell (2003). The series of British central government expenditures from 1650-1913 consists of EXP1: 1661-1687; EXP2: 1692-1749; EXP3: 1750-1913.

POP1 is population of England, from Mitchell (1988), 7-8.[47] POP2 is population of Wales for 1701, 1751, 1781, 1801, 1831, from Deane and Cole (1967), 103. POP3 is population of Scotland. The 1650 figure is from De Vries (1984), 36; the 1701 figure from Brown (1991), 33; and the 1755 figure from Mitchell (1988), 8. POP5 is the estimated mid-year home population of the British Isles, from Mitchell (1988), 11-13. The British population series from 1650-1913 consists of POP1: 1650-1691; POP1 + POP2: 1692-1700; POP1 + POP2 + POP3: 1701-1800; POP5: 1801-1913.[48]

The British official price of gold is given in pounds per fine ounce, 1650-1717, and the London market price of gold in pounds per fine ounce, 1718-1913. With the exception of French Revolutionary and Napoleonic times, both series are nearly identical, and are taken from Officer (2006).

France. REV1 is ordinary revenues of the French monarchy, 1650-1695, from Bonney (1995b). REV2 is total royal revenue in France from various sources converted into livres tournois, 1660-1775, from Bonney (1995c). REV3 is French ordinary revenue, 1727-1814, from Bonney (1995d). REV4 is French revenue, 1650-1870, courtesy of Francois Velde. REV5 is ordinary central government revenue, 1815-1913, from Mitchell (2003). REV6 is extraordinary central government revenue, 1815-1890, from *Annuaire Statistique* (1966). The series of French central government revenues from 1650-1913 consists of REV1: 1650-1656, 1662; REV2: 1661-1703, 1705-1715, 1727-1750, 1757-1758, 1761, 1763, 1773-1774; REV3: 1751-1754, 1764-1765, 1768, 1780-1781, 1788-1796, 1806-1813; REV4: 1716-1726, 1759-1760, 1766-1767, 1769, 1772, 1775-1779, 1782-1787, 1791-1793, 1796-1805, 1814; REV5 + REV6: 1815-1890; REV5: 1891-1913. Years 1657-1660, 1755-1756, 1762, 1770-1771 have been interpolated.

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[46] To calculate total expenditures from 1661-1687, I have added issues (listed at one-half year intervals, A and B) and assignments (also listed at one-half year intervals, A and B).

[47] These figures do not include Wales. See Wrigley and Schofield (1981), 10.

[48] We must distinguish between institutional innovations in England itself and for Britain as a whole. To control for such differences, I use the population for the relevant political entities when calculating per-capita figures. As discussed in appendix 1, Acts of Union assimilated England with Wales in 1536, with Scotland in 1707, and with Ireland in 1800. From 1650-1691, revenues and expenditures data for the English crown is used, since British data is unavailable. To convert into per-capita terms, I divide by only the English population. Due to data unavailability, neither Wales nor Scotland is included, though at the time the English crown collected revenues from both domains. By making the pre-1692 population denominator smaller than it actually was, both decisions bias against the hypotheses that limited government resulted in an increase in revenues and expenditures. Revenues and expenditures data are for Great Britain (i.e., England, Scotland, and Wales) from 1692-1801 and for the United Kingdom (i.e. Great Britain and Ireland) from 1802-1913. Accordingly, population figures are used for England, Scotland, and Wales from 1692-1801, and England, Scotland, Wales, and Ireland from 1802-1913.

EXP1 is royal expenditure in France, 1600-1695, from Bonney (1995e). EXP2 is royal expenditure in France, 1670-1715, from Bonney (1995f). EXP3 is French ordinary expenditure, 1727-1814, from Bonney (1995d). EXP4 is expenditure of the French monarchy at various dates, 1773-1785, from Bonney (1995h). EXP5 is total French expenditure, 1801-1844, from Bonney (1995g). EXP6 is total (ordinary and extraordinary) central government expenditure, 1815-1913, from Mitchell (2003). The series of French central government expenditures from 1650-1913 consists of EXP1: 1650-1656, 1662-1683; EXP2: 1684-1715; EXP3: 1727-1752, 1764-1765, 1767-1768, 1780-1781, 1788-1791, 1796; EXP4: 1785; EXP5: 1801-1814; EXP6: 1815-1913.

POP1 is population of France, from Dupaquier (1988), volume 2, 60. POP2 is from Mathias and O'Brien (1977). POP3 is population of France, from Blayo and Henry (1975), 97. POP4 is population of France at censuses from Mitchell (2003). The French population series from 1650-1913 consists of POP1: 1650, 1670, 1680, 1690, 1710; POP2: 1715, 1725, 1730, 1735; POP3: 1740, 1745, 1750, 1755, 1760, 1765, 1770, 1775-1776, 1780-1781, 1785-1786, 1790-1791, 1795-1796, 1800-1801, 1805-1806, 1810-1811, 1815-1816, 1820-1821, 1825-1826, 1830-1831, 1835-1836, 1840-1841, 1845-1846, 1850-1851, 1855-1856, 1860-1861; POP4: 1866, 1872, 1876, 1881, 1886, 1891, 1896, 1901, 1906, 1911. All other years have been interpolated.

The Paris market price of gold in francs per gram, 1650-1913, is courtesy of Jean-Laurent Rosenthal.

The Netherlands. Due to data unavailability, public revenues for the Dutch Republic have culled from Holland, 1719-1794.[49] For additional details, please see section 5 of the text. REV1 is public revenue in Holland, 1668-1794, from Fritschy, Horlings, Liesker, and Van Der Ent (1995a). REV2 is income of the Batavian Republic and its successors, 1803-1810, 1814, from Van Zanden and Van Riel (2004), 49. REV3 is income during the reign of Willem I, 1814, 1821, 1826, 1831, 1836, 1840, from Van Zanden and Van Riel (2004), 99. Years 1816-1830 include the Southern Netherlands (i.e. Belgium and Luxembourg), income shares of which may be found in Van Zanden (1996), 69. I have calculated total revenues for the Netherlands over this period by subtracting the percentage contribution of Southern provinces. REV4 is central government revenue, 1845-1913, from Mitchell (2003). The series of Dutch central government revenues from 1668-1913 consists of REV1: 1719-1794; REV2: 1803-1810; REV3: 1814-1840; REV4: 1845-1913. Years 1841-1844 have been interpolated.

As for revenues, public expenditures for the Dutch Republic have culled from Holland, 1719-1794.[50] For additional details, please see section 5 of the text. EXP1_HOL is public expenditures in Holland, 1727-1794, from Fritschy, Horlings, Liesker, and Van Der Ent (1995b). EXP2 is expenditure of the Batavian Republic and its successors, 1803-1810, 1814, from Van Zanden and Van Riel (2004), 49. EXP3 is estimates of expenditures in the Netherlands, 1814-1913, courtesy of Jan Luiten van Zanden. Unlike for revenues, years 1816-1830 do not include the Southern Netherlands. The series of Dutch central government expenditures from 1727-1913 consists of EXP_HOL: 1727-1794; EXP2: 1803-1810; EXP3: 1814-1913.

POP1 is population of Holland courtesy of Jan Luiten van Zanden. POP2 is population of the Netherlands from De Vries (1984), 36. POP3 is population of the Netherlands for 1816, 1829, 1839, 1849, 1859, 1869, 1879, 1889, 1899, 1909, 1920 from Mitchell (2003). The Dutch population series from 1650-1913 consists of POP1: 1650-1794; POP2: 1800; POP3: 1816, 1829, 1839, 1849, 1859, 1869, 1879, 1889, 1899, 1909. All other years have been interpolated. Consistent with the revenues and expenditures figures, population numbers exclude the Southern Netherlands.

The Dutch market price of gold in guilders per gram, 1719-1913, is courtesy of W.L. Korthals Altes. Years 1749 and 1759 are missing from the data set.

Prussia. REV1 is net revenues, 1688-1806, from Korner (1995). For 1688-1713, revenues figures are derived from the military treasury only. The series of Prussian central government revenues from 1688-1913 consists of REV1: 1688-1806.

[49] In turn, I have divided by Holland's population to compute per-capita revenues over this period.
[50] Again, I have divided by Holland's population to compute per-capita expenditures over this period.

EXP1 is net expenditures, 1688-1806, from Korner (1995). The series of Prussian central government expenditures from 1688-1913 consists of EXP1: 1688-1806.

POP1 is population of Prussia courtesy of Peter Brecke. Note that these figures incorporate Prussian territorial changes over the 17th to 19th centuries as best as possible. Also see Orjan Martinsson (www.tacitus.nu/historical-atlas/population/germany.htm). The Prussian population series from 1688-1913 consists of POP1: 1650-1865.

Please note that I will complete this section as more data becomes available.

Spain. REV1 is ordinary and extraordinary revenues, 1703, 1713, Lynch (1989), 61. REV2 is ordinary and extraordinary revenue categories to the Spanish crown, 1753-1788, from Gelabert (1995). REV3 is Ingresos Totales del Estado, 1801-1842, Carreras and Tafunell (2006). REV4 is Derechos Reconocidos y Liquidados Totales, 1845-1913, Carreras and Tafunell (2006). The series of Spanish central government revenues from 1703-1913 consists of REV1: 1703-1713; REV2: 1753-1788; REV3: 1801-1842; REV4: 1845-1913. Years 1714-1752 have been interpolated.

EXP1 is Gastos Totales del Estado, 1801-1842, and Obligaciones Totales del Estado Reconocidos y Liquidados, Carreras and Tafunell (2006). EXP2 is Obligaciones Totales del Estado Reconocidos y Liquidados, 1845-1913, Carreras and Tafunell (2006). The series of Spanish central government expenditures from 1801-1913 consists of EXP1: 1801-1842; EXP2: 1845-1913.

POP1 is population of Spain from De Vries (1984), 36. POP2 is population of Spain from Nogal and Prados de la Escosura (2006), 76. POP3 is population of Spain from Lynch (1989), 8, 116-117. POP4 is population of Spain from Mitchell (2003). The Spanish population series from 1801-1913 consists of POP1: 1650, 1700, 1850; POP2: 1750, 1787; POP3: 1717, 1797; POP4: 1768, 1857, 1860, 1877, 1887, 1897, 1900, 1910, 1920. All other years have been interpolated.

The Spanish market price of gold or silver is not available over the 16th to 19th centuries because buying and selling bullion outside the Spanish mint was forbidden. Hence, I have converted Spanish revenues (pesetas) into grams of gold as follows. First, the pounds for pesos exchange rate was transformed into pounds for pesetas by multiplying by 5.[51] Second, Spanish revenues in pesetas were transformed into Spanish revenues in pounds by dividing by this exchange rate. Third, Spanish revenues in pounds were transformed into Spanish revenues in grams of gold by dividing by the market price of gold in ounces. Fourth, Spanish revenues in ounces of gold were transformed into Spanish revenues in grams of gold by multiplying by 28.35, since 1 ounce = 28.35 grams. Lastly, I have divided by the Spanish population to find per-capita Spanish revenues in grams of gold.

[51] To do so, the London Pound for Madrid Peso (1698-1913) data set from the Global Financial Database (www.globalfinancialdata.com/index.php3) was employed. Since the Spanish revenues data is in pesetas, I had to make the following conversion: 1 peso = 20 reales and 1 peseta = 4 reales, meaning that 1 peso = 5 pesetas. See Vicens Vive (1969), 582-583, 713-715, and Tortella (2000), 158, for details on conversions involving pesos, reales, and pesetas.

Appendix 3. Regression Variables

For additional details, please see sections 6, 7, and 8 of the text.

Dependent variable 1 is PC_REV, annual per-capita revenues collected by the central government for each sample state.

Dependent variable 2 is PC_REV / URBAN, the ratio of annual per-capita revenues collected by the central government for each sample state to urbanization rates. For per-capita expenditures, it is PC_EXP / URBAN. Please see below for additional details on URBAN.

Dependent variable 3 is PC_REV / PC_GDP, the ratio of annual per-capita revenues collected by the central government for each sample state to Maddison's (2003) per-capita GDP figures. For per-capita expenditures, it is PC_EXP / PC_GDP. Please see below for additional details on PC_GDP.

FA_REGIME is a dummy variable that takes a value of 1 for each year that a sample state possessed a fragmented and absolutist political regime from 1650-1913.

CA_REGIME is a dummy variable that takes a value of 1 for each year that a sample state possessed a centralized and absolutist political regime from 1650-1913.

CL_REGIME is a dummy variable that takes a value of 1 for each year that a sample state possessed a centralized and limited political regime from 1650-1913.

WAR is a dummy variable that takes a value of 1 for each year in which a sample state was engaged in a European military conflict from 1650-1913, according to Winks and Kaiser (2004) and the Encyclopedia Britannica (2007). First Anglo-Dutch War, 1652-1654 (Britain, Netherlands); Anglo-Spanish War, 1654-1660 (Britain, Spain); Second Anglo-Dutch War, 1665-1667 (Britain, Netherlands); War of Devolution, 1667-1668 (Britain, France, Netherlands, and Spain); Third Anglo-Dutch War, 1672-1674 (Britain, Netherlands); Franco-Dutch War, 1672-1678 (France, Netherlands, and Spain); War of the Reunions, 1683–1684 (France, Netherlands, and Spain); War of League of Augsburg, 1689-1697 (Britain, France, Netherlands, and Spain); Great Northern War, 1700-1721 (Prussia); War of the Spanish Succession, 1701-1714 (Britain, France, Netherlands, Prussia, and Spain); War of the Quadruple Alliance, 1718-1720 (Britain, France, Netherlands, and Spain); War of the Polish Succession, 1733-1738 (France, Prussia, and Spain); War of the Austrian Succession, 1740-1748 (Britain, France, Netherlands, Prussia, and Spain); Seven Years' War, 1756-1763 (Britain, France, Prussia, and Spain); Fourth Anglo-Dutch War, 1780-1784 (Britain, Netherlands); War of the First Coalition, 1792-1797 (Britain, France, Netherlands, Prussia, and Spain); War of the Second Coalition, 1799-1802 and 1805-1807 (Britain, France, Netherlands, and Prussia); Peninsular War, 1808-1813 (Britain, France, Netherlands, Prussia, and Spain); Battle of Waterloo, 1815 (Britain, France, and Prussia); Belgian-Dutch War, 1831-1839 (Netherlands); First War of Schleswig, 1848-1851 (Prussia); Crimean War, 1854-1856 (Britain, France); Second War of Schleswig, 1864 (Prussia); Austro-Prussian War, 1866 (Prussia); Franco-Prussian War, 1870-1871 (France, Prussia). The Netherlands was ruled by France from 1795 to 1813, and so it has been counted in any war that France fought over this period.

REVOLUTION is a dummy variable that takes a value of 1 for the year(s) during any revolution, coup, or civil war within sample states from 1650-1913, according to Winks and Kaiser (2004) and the Encyclopedia Britannica (2007). Britain: 3rd English Civil War, 1649-1651; Glorious Revolution of 1688. France: French Revolution, 1789-1799; Napoleonic coup of 1799; Restoration of 1815; July Revolution of 1830; Year of Revolution of 1848; French coup in 1851; Fall of 2nd empire in 1870. Netherlands: Batavian Revolution of 1785; Restoration of 1814-1815; Belgian Revolution of 1830; Year of Revolution of 1848. Prussia: Year of Revolution of 1848. Spain: Coup of 1820; Restoration of 1823; 1st Carlist War, 1833-1839; Moderate coup of 1843; Matiners (2nd Carlist) War, 1847-1849; Rebellion of 1854; Government collapse of 1863; Glorious Revolution, 1868-1870; 3rd Carlist War, 1872-1876 (encompassing the Restoration of 1874).

URBAN is a variable that calculates the urban population as a percentage of the total population for each sample state annually. All urban population figures are from De Vries (1984). In particular, figures for 1650, 1700, 1750, and 1800 are from appendix 3, 305-337, and figures for 1850, 1890, and 1980 are from table 3.8, 44-47, for cities with populations of at least 10,000 inhabitants through 1850, with at least 20,000 inhabitants in 1890, and with at least 100,000 inhabitants in 1980.[52] All intermediate years are interpolated. For total population sources, please see appendix 2.

PC_GDP is a variable taken from Maddison (2003) that measures per-capita GDP in 1990 International Geary-Khamis dollars for sample states from 1650-1913. Data is available for 1600, 1700, and approximately 1820-1913. All intermediate years are interpolated.[53]

GOLD is a dummy variable that takes a value of 1 for each year that a state was on the gold standard, according to Meissner (2002), who notes that there are discrepancies in adoption dates due to use of different definitions in the literature. He takes a strict measure of gold adherence, selecting the year in which a currency became *de facto* and *de jure* convertible into gold by law. Britain was the first country to go on a *de facto* gold standard in 1717. However, it was not until 1774 that silver's legal tender property was restricted and not until 1816 that the gold standard was formally adopted. In 1821, Britain returned to de facto gold convertibility. Many other states were legally bimetal, though effectively silver, through the 1840s. Of these, France was the most important: the bimetallic standard was established there in 1803. The Netherlands was also legally bimetal until 1849, when it formally switched to silver. German states such as Prussia were on a silver standard. In Spain, competing monetary systems coexisted until 1848, when bimetallism was legally established. The 1848 law was a failure, however, and another attempt was taken in 1868. Unlike most other European states, Spain was a "shadow" rather than official member of the gold standard. It suspended gold convertibility of its banknotes in 1883, becoming one of the few remaining silver standard countries. Britain: 1821-1913. France: 1878-1913. Netherlands: 1875-1913. Prussia/Germany: 1872-1913. Spain: No *de facto* and *de jure* gold adherence from 1650-1913. For additional sources, see Redish (1995), 718, Flandreau (1996), 862, Jonker (1997), 95-98, Tortella (2000), 158-161, 202-205, Officer (2001), and Morys (2006), 38-44.

STATE is a dummy variable that takes a value of 1 to identify individual sample states.

[52] Due to a lack of data, I have used German urbanization and population figures for Prussia from 1688-1913.

[53] As for URBAN, a lack of data has forced me to substitute Maddison's (2003) German per-capita GDP figures for Prussia.

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Table 1. Timeline of Political Transformations for European States

	Fiscal Centralization	Limited Government
Britain	1066	1688
France	1799	1870
Netherlands*	1806	1848
Prussia	1806	1848
Spain	1844	1876

*Note that data for the Dutch Republic (1584-1795) was culled from Holland, characterized by a centralized and limited political regime. For additional details, please see section 5 of the text.

Table 2. Public Finance Characteristics of Political Regimes

Regime	Per-Capita Revenues	Per-Capita Expenditures
Fragmented + Autocratic	**Low** due to local free-riding and lack of credible commitment	**Low** due to low revenues and inability to repay debts
Centralized + Autocratic	**Increase** due to resolution of local free-riding but still no credible commitment	**Increase** due to increase in revenues and ability to repay debts
Centralized + Limited	**High** due to resolution of local free-riding and credible commitment	**High** due to high revenues and high ability to repay debts

Table 3. Summary Statistics of Per-Capita Revenues Data

	Obs.	Mean	St. Dev.	Min	Max
All Regimes	1073	8.51	7.72	0.26	42.04
Fragmented and Absolutist	384	2.40	1.39	0.26	6.27
Centralized and Absolutist	224	7.26	4.89	1.01	24.38
Centralized and Limited	465	14.15	7.81	2.36	42.04

Table 4. Summary Statistics of Per-Capita Expenditures Data

	Obs.	Mean	St. Dev.	Min	Max
All Regimes	851	11.71	9.26	0.21	41.95
Fragmented and Absolutist	245	3.00	1.34	0.21	9.82
Centralized and Absolutist	170	10.98	7.08	1.33	23.89
Centralized and Limited	436	16.89	8.79	2.33	41.95

Table 5. Regression Results for Per-Capita Central Government Revenues

Independent Variables	Dependent Variables		
	PC_REV	PC_REV/URBAN	PC_REV/PC_GDP
CA_REGIME	3.620** (0.240)	18.741** (1.521)	0.0025** (0.0002)
CL_REGIME	8.723** (0.342)	38.805** (1.857)	0.0048** (0.0002)
WAR	0.786** (0.223)	5.210** (1.476)	0.0004** (0.0001)
REVOLUTION	- 0.619 (0.446)	- 2.705 (2.590)	- 0.0002 (0.0003)
GOLD	5.131** (0.418)	8.185** (2.068)	0.0002 (0.0002)
URBAN	22.545** (2.613)	--	--
STATE	Yes	Yes	Yes
Constant	- 4.111** (0.488)	7.190** (2.388)	0.0008** (0.0002)
Observations	1073	1073	1073
R^2	0.743	0.541	0.589
Wald χ^2	9266.67	5750.24	5796.20

**Significant at one percent level, *Significant at five percent level

Panel-corrected standard errors are in parentheses.

Table 6. Regression Results for Per-Capita Central Government Expenditures

Independent Variables	Dependent Variables		
	PC_EXP	PC_EXP/URBAN	PC_EXP/PC_GDP
CA_REGIME	6.627** (0.965)	42.277** (3.647)	0.0041** (0.0004)
CL_REGIME	12.053** (0.1.215)	66.275** (5.376)	0.0067** (0.0006)
WAR	1.988** (0.659)	11.036** (4.059)	0.0013** (0.0004)
REVOLUTION	2.704* (0.1.365)	15.092** (6.082)	0.0017** (0.0006)
GOLD	- 0.571 (0.1.330)	- 7.197 (7.058)	- 0.0015* (0.0006)
URBAN	44.526** (8.332)	--	--
STATE	Yes	Yes	Yes
Constant	- 9.294** (1.851)	- 7.027 (7.303)	0.0004 (0.0007)
Observations	851	851	851
R^2	0.735	0.543	0.553
Wald χ^2	3405.04	775.07	1259.02

**Significant at one percent level, *Significant at five percent level

Panel-corrected standard errors are in parentheses.

Figure 1.

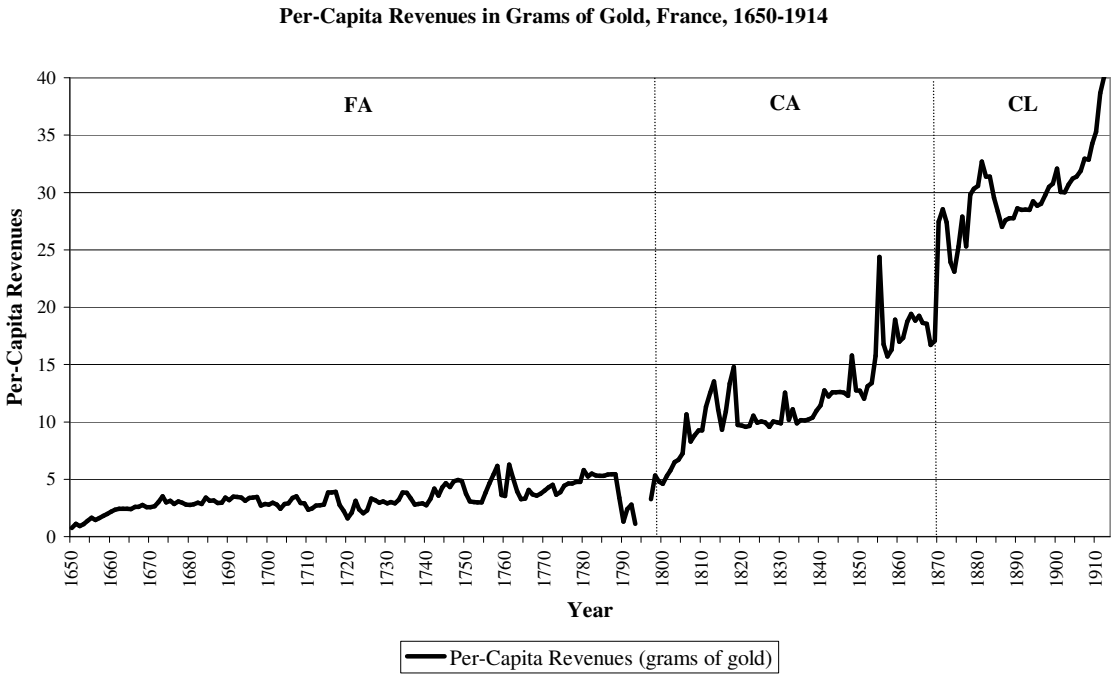


Figure 2.

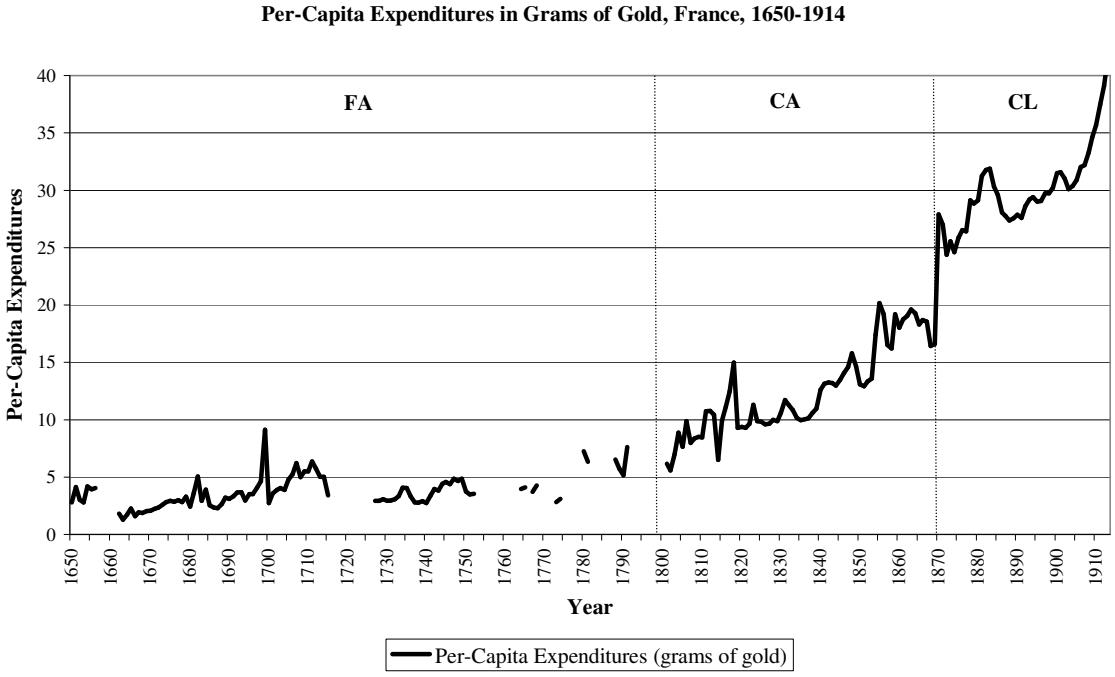
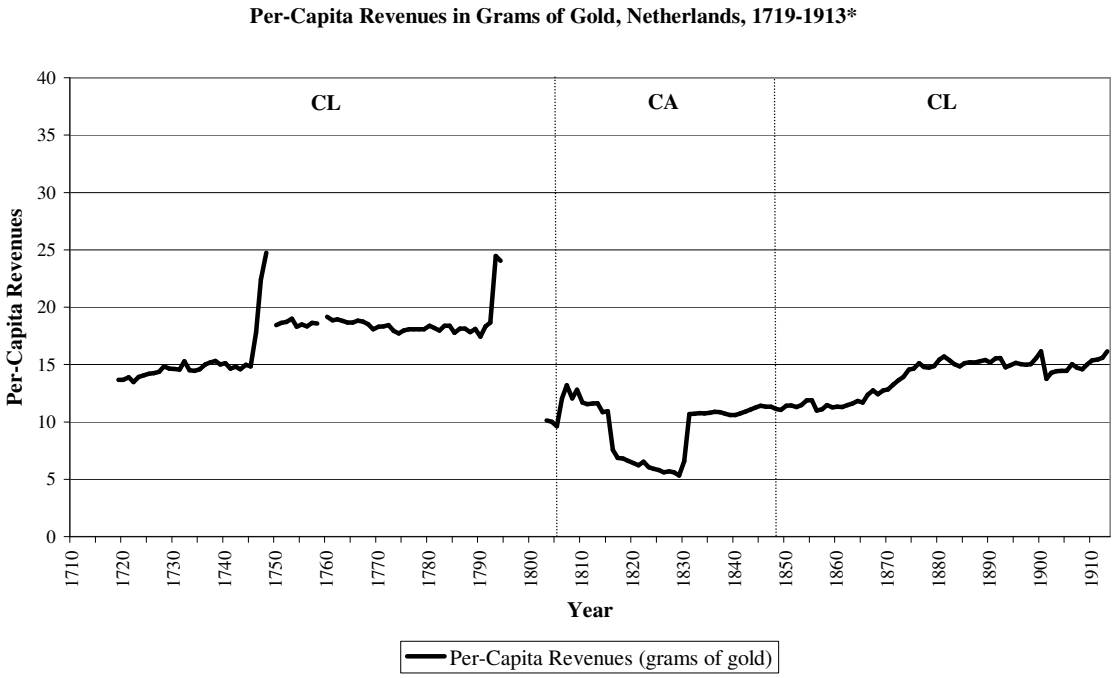
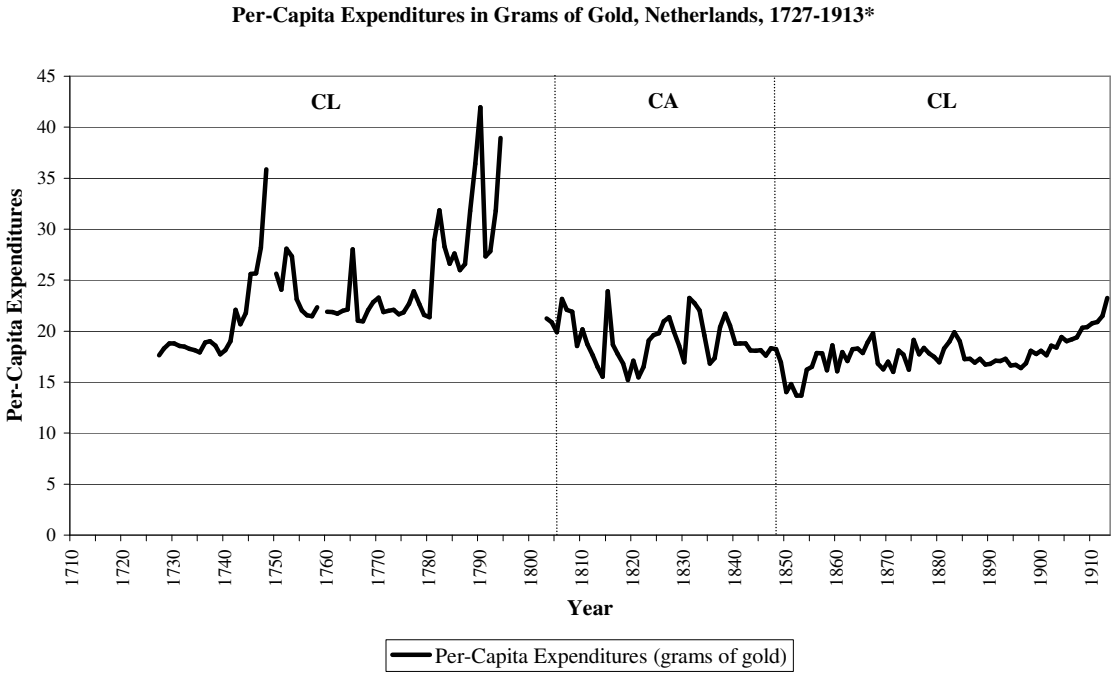


Figure 3.



*Note that data for the Dutch Republic (1584-1795) was culled from Holland, characterized by a centralized and limited political regime. For additional details, please see section 5 of the text.

Figure 4.



*Note that data for the Dutch Republic (1584-1795) was culled from Holland, characterized by a centralized and limited political regime. For additional details, please see section 5 of the text.