

Regime Threats, Fiscal Capacity, and Development: Evidence from Italian Unification^{*}

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This paper examines the complex relationships between warfare, domestic politics, fiscal change, public goods, and growth in historical perspective. We do so in the context of nineteenth-century Italy, from the end of the Napoleonic era in 1815 to Unification in 1861. Using a comprehensive new database, we argue that pre-unitary states pursued different fiscal policies as a result of diverse external and internal political environments. In turn, there was a significantly higher level of investment in public infrastructure in the North than in the South. Our work provides a novel explanation of Italian Unification, one of the two major political events in Europe from Waterloo to World War I. It also contributes to the long-standing debate over North-South economic differences, as well as the burgeoning literature on fiscal capacity.

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1. Introduction

Determining the state's proper fiscal role is of fundamental importance for today's emerging economies. Though several literatures examine fiscal capacity, defined as the government's ability to raise tax revenues, each has a notable shortcoming. Historians emphasize the relationship between external conflicts and fiscal innovations, but generally overlook linkages to economic growth.¹ Political scientists stress the relationship between weak states and the lack of public goods provision, but typically ignore linkages with military competition.² Though economists have recently developed formal models that highlight the interactions between foreign threats, capacity, and growth, they often neglect rigorous empirics.³ The various limitations of each of these literatures create an opening for economic history, whose methodology combines insights from economic and political theory with detailed empirical analysis of institutional change over the long run.⁴ This paper takes such an approach, focusing on the fiscal evolution of Italian states from the end of Napoleonic wars in 1815 to political unification in 1861.

The institutional variety at the regional level makes pre-unitary Italy a unique testing ground for comparative work. The Congress of Vienna divided the peninsula into five major political units, the Kingdom of Lombardy-Venetia, the Kingdom of Sardinia, the Grand Duchy of Tuscany, the Papal States, and the Kingdom of the Two Sicilies, and three minor ones, the Duchies of Lucca, Modena, and Parma. Lombardy-Venetia was part

¹ See Brewer (1990) and Tilly (1990).

² See Migdal (1988), Wade (1990), Herbst (2000), and Bates (2001).

³ See Acemoglu (2005), Besley and Persson (2008, 2009, 2010), Ticchi and Vindigni (2009), and Acemoglu et al. (2010).

⁴ See North (1981), Hoffman and Rosenthal (1997a,b), Epstein (2000), O'Brien (2005), and Dincecco (2009).

of the Austrian Empire, and cadet branches of the Habsburg dynasty ruled over the duchies of Modena, Parma, and Tuscany (which absorbed Lucca in 1847). The native Savoy dynasty ruled the Kingdom of Sardinia, including Piedmont and Liguria, while the native Bourbon dynasty ruled the Two Sicilies.

To perform our analysis, we assemble a new database of fiscal, military, and growth indicators. We argue that, as a result of diverse environments for external threats and domestic politics, pre-unitary states pursued different fiscal policies. In turn, there was a significantly higher level of investment in public infrastructure in the North, and in particular in Piedmont, than in the South. Our work provides a novel explanation of Italian Unification, one of the two major political events in Europe from Waterloo to World War I. Different levels of public investment also have implications for the long-standing North-South income gap. After 1861, Italy followed Piedmont's fiscal policies. Our evidence suggests that, without Unification, the South would have been in worse economic shape than it actually was by 1913.

We begin with an overview of the fiscal landscape of pre-unitary Italy. We first show that economic differences alone cannot account for the large variations in revenue levels across states. Lombardy-Venetia collected lower revenues per capita than average, while after 1848, Piedmont collected larger ones. To explain these differences, we examine the role of fiscal institutions. Spending constraints on executives only accounted for a small amount of the variations in revenues. We also find that, though Italian states were fiscally centralized (due in large part to Napoleonic conquests at the start of the 1800s), pre-unitary rulers typically underexploited the capacity that they had.

To understand this phenomenon, we adopt a simple framework that describes the interplay between external and internal threats, ruler incentives, and fiscal and foreign policies. We claim that rulers had three strategic options. The first was a conservative approach, characterized by low direct taxes and a small army. The second was a traditional aggressive one, characterized by high direct taxes and a large military. The final approach was a modern aggressive one, which also featured large investments in non-military public goods. In a related work (Dincecco et al., 2010), we argue that greater demand for revenues called for representative government, which granted control over expenditures to elites. There was thus a foreign policy element to constitutional reform, which could be used to “win hearts and minds” and influence public opinion in areas targeted for expansion.

We next examine the evidence regarding external and domestic threat environments, military size and spending, tax regimes, and railway investment in pre-unitary Italy. The Papal States, Tuscany, and the Two Sicilies pursued conservative strategies under the protection of Austria. Lombardy-Venetia, on the other hand, was forced to play a traditional aggressive strategy as part of one of the Great Powers. Following a centuries-old tradition, Piedmont also took an aggressive approach in the 1840s. After crushing military defeat in 1848 and 1849, however, it switched to a modern aggressive strategy, including constitutional change.

We conclude our investigation with a short discussion of Italian state policies after political unification in 1861. The central government pursued a modern aggressive strategy of high taxes, a large military, and transportation investments that built upon the model established by Piedmont. This approach reached its zenith in 1866, when Italy

annexed Venetia, but then collapsed, as the state's revenues did not match its ambitions. It is likely that without Unification, however, the modernization strategy favored by Piedmont would have not been implemented in the South. In turn, it is probable that Southern railways would have been built much later than 1861. We thus speculate that, if Unification had not taken place, then the South, lacking sufficient railways, would have fallen even further behind the North by 1913.

As described, our key contribution is to perform a detailed empirical analysis that integrates the best of the various approaches found in the economics, history, and political science literatures. Yet our work also makes several related contributions. First, it provides a detailed explanation of fiscal policy during a crucial but hitherto neglected period of Italian economic history (Cohen and Federico, 2001). In this respect, our study also contributes to the literature on state formation, complementing the recent work by Ziblatt (2006), who argues that weak institutional capacity throughout much of pre-unitary Italy forced the national government to adopt a centralized (versus federalist) structure in 1861.⁵ We provide the historical context to understand this decision. The ground-level approach that we take, moreover, supplements cross-country econometric analyses of fiscal capacity (Besley and Persson, 2008, 2009, 2010, Dincecco and Prado, 2010). Finally, our study contributes to the long-standing debate over North-South economic differences in Italy. While recent works focus on factors like culture, social capital, and trust (Alesina and La Ferrara, 2002, Guiso et al., 2004, 2006, 2009, Giuliano, 2007, Tabellini, 2007), we identify a new channel: the role of past investments in fiscal capacity.

⁵ Also see Riker (1964) and Stavasage (2009).

The rest of the paper proceeds as follows. The next section describes the pre-unitary fiscal landscape. We then introduce our theoretical framework, and examine the fiscal, military, and development evidence. The final section considers fiscal policy in unified Italy. The Data Appendix documents the sources and construction methods for the data series that we use.

2. The Fiscal Landscape of Pre-unitary Italy

A. Not Just Economic Differences

Figure 1, which plots yearly per capita revenues in real gold grams for pre-unitary Italian states, enables us to establish two key starting points. First, the series for the Papal States, Piedmont, Tuscany, and the Two Sicilies were clustered around 2 to 4 gold grams per head through the 1840s.⁶ Lombardy-Venetia was the exception, with average revenues 56 percent lower. The second point is that, though there was a general increase in per capita revenues after 1850, this rise was greater for Piedmont: taxes per head there increased by 36 percent over the 1850s relative to the previous decade. Thus, Piedmont extracted 50 percent more revenues on average than other Italian states during the 1850s.

For additional perspective, Figure 2 plots the Italian revenue data in the context of Europe as a whole. We focus here on Piedmont as the key outlier and the Two Sicilies as the largest “Italian” state. The United Kingdom gathered the most revenues per head, though this amount declined from nearly 35 gold grams after Waterloo to 12 to 18 from the 1840s onwards. In contrast, French revenues grew over the period, reaching British levels by the late 1850s. Belgium and the Netherlands were also high-tax countries, with

⁶ Per capita revenues for the Duchies of Modena and Parma, which we omit from Figure 1 for the sake of readability, also resembled this standard.

per capita revenues typically around 6 to 13 gold grams. Revenues per head for Piedmont resembled those for Austria and Prussia, two of the Great Powers. Per capita revenues for the Two Sicilies were among the lowest, though they did exceed those of Spain.

Economic differences alone cannot account for these differences in revenues, neither within Italy nor between Italy and Europe. It is possible to estimate GDP per capita according to pre-unitary borders by relating GDP estimates in 1891 from Daniele and Malanima (2007), classified according to current regional borders, to data on the distribution of the pre-unitary Italian population from SVIMEZ (1961). Tuscany, the Papal States, and Piedmont were roughly 5 percent richer than average, and Lombardy-Venetia and the Two Sicilies were roughly 7 percent poorer (though Lombardy was wealthy, Veneto was by then very poor). These variations were not only small, but most likely overstate income differences from thirty years before. Daniele and Malanima, in fact, argue that the 10 percent North-South gap that we observe in 1891 only began to emerge after 1867.

Since there are no regional GDP estimates before 1861, we rely on urbanization data, a common proxy for development levels.⁷ Table 1 ranks the largest weighted percent changes in populations for Italian cities from 1800 to 1861 relative to Naples, the largest Italian city at the time. Seven of the ten largest increases in city size over this period occurred within the North or the Center. Turin, the capital of the Kingdom of Sardinia, grew by 85 percent, by far the greatest single change, with a population increase from 61,000 to 181,000. Next, there was a cluster of cities that grew by 21 to 31 weighted percent. In ranked order, they were: Naples (Two Sicilies), Trieste and Milan (Lombardy-

⁷ There is a close relationship between urbanization rates and income growth. See Hohenberg and Lees (1985), Bairoch (1988), Acemoglu et al. (2005), and Dinicecco (2009).

Venetia), and Genoa (Piedmont). Finally, there was another cluster of cities that grew by 10 to 12 weighted percent. Once more by rank, they were: Livorno (Tuscany), Acireale (Two Sicilies), Florence and Pisa (Tuscany), and Rome (Papal States).⁸

This evidence suggests that Piedmont (and the North, more generally) grew faster than the rest of Italy over the first half of the nineteenth century, reaching the average level of development by the time of Unification. Regardless of the economic performance of Piedmont, however, the data indicate that the differences in income among Italian states were not nearly as large as those in revenues during the pre-unitary period. Piedmont collected 20 percent more in revenues than did the South, for instance, but it was not 20 percent richer. Similarly, Lombardy-Venetia was not 57 percent poorer. Though one of the most developed parts of the Austrian Empire, it paid roughly half of the Austrian average in terms of per capita revenues (Figures 1 and 2).

B. The Role of Fiscal Institutions

Having established that differences in income levels alone cannot account for differences in fiscal capacity across pre-unitary Italian states, we now examine fiscal institutions. We base our analysis on Dincecco (2009), who identifies two broad features of historical polities.⁹ The first was constraints by parliament, which monitored how the executive spent tax funds and reduced wasteful expenditures. The second was fiscal centralization, which enabled the state to implement a uniform tax system, devoid of traditional exemptions and privileges, throughout its territory. Dincecco argues that, by

⁸ Acireale was a typical Southern agricultural town: an agglomeration of agricultural day laborers who lived in a central location and commuted every day to the fields.

⁹ Many other works, including North and Weingast (1989), Hoffman and Norberg (1994), Hoffman and Rosenthal (1997a, b), Epstein (2000), Stasavage (2003, 2007, 2009), and O'Brien (2005), emphasize one or both of these features.

the start of World War I, European polities had struck an institutional balance that enabled central authorities to charge standard tax rates, while limiting ruler discretion over spending. In turn, state revenues rose dramatically. We now study these two institutional innovations in the context of pre-unitary Italy.

i. Executive Constraints

All of the Italian states were absolutist in 1815. Officially, the Kingdom of Lombardy-Venetia, which was part of the Austrian Empire, was ruled by the Viceroy. In practice, however, there was little autonomy from the central government in Vienna, which was also absolutist. Though progressive elites in all pre-unitary states desired liberal constitutions, there was little success before 1848 (Candeloro, 1958-64). The democratic revolutions not only forced rulers to grant constitutions, but also to wage war against Austria under the leadership of Piedmont. This unwilling coalition was soon defeated, however, and all rulers save one eagerly reclaimed absolutist power.

The exception was Piedmont, which resumed its war against Austria in 1849, only to be defeated once more. After some wavering, the king decided to maintain the constitution (the *Statuto Albertino*), which was to become the constitution for the unified Kingdom of Italy in 1861. By stipulating that the lower Chamber, elected with a very narrow suffrage, must approve the budget as well as fiscal laws, the constitution gave elites a say over all taxing and spending matters. This reform preceded the large rise in per capita revenues that we observe for Piedmont after 1848 (Figure 1), which corresponds with Dincecco's (2009a) claim that executive constraints increase fiscal capacity. On the other hand, limits to executive power cannot explain the differences

between Piedmont and the rest of Italy before 1848, nor the small but notable general increase in per capita revenues that occurred over the 1850s.

ii. Fiscal Centralization

Having established that executive limits only accounted for a small amount of the variation in fiscal capacity that we observe among pre-unitary states, we now turn to fiscal centralization, the second institutional feature that Dincecco (2009) emphasizes.

Though some reforms took place during the Enlightenment, Napoleonic conquest was the major catalyst of fiscal change on the Italian peninsula.¹⁰ French invasion came in two waves, the first from 1800 to 1802 and the second from 1806 to 1807. Latium, Liguria, Piedmont, Tuscany, and Umbria were directly annexed to France, while the Continental South and a new *Regno Italico* (including Emilia, Lombardy, Umbria, and Veneto) remained formally independent, but under French kings. Throughout the peninsula, Ancien Régime tax systems were replaced by the French tax code, based on customs duties, indirect taxes on consumption and transactions, and direct taxes on land and non-agricultural income. Only the islands of Sardinia and Sicily remained free from French rule. In Sardinia, the traditional tax system remained, while in Sicily, the exiled Bourbon king of Naples abolished feudal rights and introduced a French-style land tax in 1806. After Napoleon's fall, the restored rulers eliminated many pieces of French legislation, but they kept most or all of the tax code (Candeloro, 1956-65 II). In the framework put forth by Dincecco (2009), rulers had every incentive to do, since they

¹⁰ In general, as French Revolutionary and Napoleonic forces conquered large swaths of Europe from 1789 to 1815, they often instituted new institutional structures (Acemoglu et al., 2008, Dincecco, 2009a).

preferred greater fiscal authority to less, and since they did not have to relinquish any control over expenditures to gain such powers.

Thus, on paper, fiscal systems were similar across pre-unitary Italy, with the partial exceptions of Sicily and Sardinia. The 1806 Sicilian reform was less effective than that of its mainland counterpart, and after restoration the king could not overcome the resistance of the local aristocracy (Romeo, 1973). Figure 3 shows that revenues for Sicily remained permanently lower than for the mainland, around 1 (versus 3) gold grams per head. Whereas mainland revenues nearly doubled after 1850, moreover, Sicilian ones fell. The Piedmontese tax code was only extended to Sardinia in 1853, most likely since the island was so poor that the prospects of collecting new revenues there were small. Finally, we wish to note that pre-unitary tax systems were of varying levels of efficiency: the Papal States, for instance, was even unable to produce proper budgets from 1837 to 1844 (Rossi Ragazzi, 1956).

As a rule, the level of centralization of indirect taxes was high in pre-unitary states. Each polity imposed the same custom duties on imports and exports, with few exceptions, most notably at tax-exempt ports such as Leghorn and Messina. Similarly, consumption taxes on salt, tobacco, and transactions were also levied at uniform rates when they accrued to the state, though local consumption taxes (*dazio consumo*) differed by place. Lastly, personal tax rates on a per capita or per household basis (such as the *macinato* in the mainland South) were uniform throughout each polity.

The case of the *fondiarìa* or *prediale* (i.e., land tax) deserves particular attention, since land was still the main source of income for elites.¹¹ Governments in Piedmont, the Two Sicilies, and Tuscany set target revenues (or *contingente*), which they then divided among taxpayers, while those in Lombardy-Venetia and the Papal States charged individuals at fixed rates, proportional to land values (*per quotità*). In both cases, however, implicit tax rates depended on land assessments. To avoid disparities between geographical areas, or among taxpayers within similar areas, land should have been assessed by independent surveyors with uniform criteria (*catasto geometrico-particellare*), and land registers should have been updated regularly. By 1815, such a state-of-the-art cadastre was only available for Lombardy. Elsewhere, registers had been compiled according to owner statements, and some were very old, even dating back to 1533 in one case. As a result, the actual rates differed substantially within states. In Piedmont in 1851, for instance, land taxes ranged from 6.2 percent of estimated net incomes in the province of Nizza to 16.4 percent in the province of Novara (Felloni, 1959, p. 6).

To make land taxes uniform in practice (as they were on paper), states needed to conduct completely new assessments. Though several governments made such attempts, the results were mixed. The 1817 cadastre for the Papal States was so inaccurate as to be almost useless (Rossi Ragazzi, 1956). Piedmont, which did not begin its work until 1855, also accomplished little before Unification (Felloni, 1959). Land assessments were better in Veneto, where the new survey was ready in 1851, after having been started in 1817 (Uggè, 1956), and above all in Tuscany, where the entire process only lasted 17 years,

¹¹ Direct taxes on non-agricultural incomes were implemented later and were typically uniform within states. One exception was Piedmont, where income taxes differed according to city size (Felloni, 1959).

from 1817 to 1834 (Del Pane, 1965). In each case, the distribution of land taxes changed, though not dramatically. In the Two Sicilies, by contrast, land tax reform was never even attempted, as the Bourbon king honored the promise that he made upon restoration to uphold the traditional cadastre (Carano-Donvito, 1928). Land taxes thus remained largely fragmented in practice.

In summary, our analysis suggests that the scope for increasing revenues differed according to the type of taxes. Pre-unitary states exercised strong fiscal authority with respect to indirect taxes and personal ones. These levies hit the popular classes, who had no political voice short of revolt. In contrast, governments were cautious with respect to direct taxes, and most notably the land tax. If necessary, states made tangential changes, like adding proportional surtaxes (*decimi* or *centesimi*) as in Piedmont (Felloni, 1959) or in Lombardy-Venetia after 1848 (Uggè, 1956). Most states were also hesitant to create new direct taxes on non-agricultural incomes, though this change would have reduced heavy tax burdens on land.

3. Theoretical Framework

Our analysis of the pre-unitary fiscal landscape suggests that, though they had the institutional strength to increase revenues, most pre-unitary rulers did not fully exploit the fiscal capacity at their disposal. To explain this phenomenon, we now formulate a simple framework that describes the interplay between external and internal threats, ruler incentives, and fiscal and foreign policies.

A. Basics

Our framework draws from recent theoretical works in economics that examine the interactions between fiscal capacity, politics, and growth. There are three key actors, an absolutist ruler, political elites, and the mass of the population. The ruler has two key objectives, one internal and the other external. Not only does he wish to maintain power in the face of domestic threats such as popular uprisings or coups, but he also wants to protect his territory against external threats and, if possible, to expand his domain. The essential requirement to fulfill both aims is military strength. Through the end of the nineteenth century, states routinely relied on the military to maintain public order, and so they needed minimum-sized armies. Military size, and thus cost, was larger when the state was subject to foreign threats or when it wanted to pursue an aggressive foreign policy. Rulers were interested in economic conditions only to the extent that wealthier subjects could afford to pay higher taxes.

We assume that political elites pay direct taxes on their incomes, while the masses pay indirect taxes. Though both groups prefer to pay the lowest possible taxes, they differ in two key respects. First, since the masses have no political voice, violent revolt is their only option if they decide that taxes are too high. By contrast, the ruler requires tax consensus with elites to maintain his rule. Otherwise, they may join with the masses to overthrow him. Second, the masses have no interest in territorial expansion. A larger military will only result in higher taxation, and they will not receive any benefit from successful foreign aggression. The masses must also provide soldiers for the army, and therefore take the greatest casualties when war occurs. By contrast, a large army and

military expansion offer certain perks to elites, such as permanent jobs for cadet sons and war spoils.

B. Ruler Choice

Given this framework, the ruler's decisions depend on external and internal factors. The first is the international political environment, in terms of the levels of foreign threats and the opportunities for expansion. The second is the domestic situation, in terms of the ruler's ability to extract indirect taxes from the masses. Taken together, the external and internal political environments enable the ruler to determine the preferred military size and thus the preferred level of expenditures, on top of fixed expenses for the royal court and the civil service.

The ruler next decides how to fund spending. Over the short run, he may amass debt. The ruler's ability to borrow, however, depends on his credibility for repayment, which itself is a function of his skill to maintain political power and gather revenues. With respect to tax policy, the ruler first sets indirect tax rates for the masses, starting with customs duties, the least invasive source. He then sets rates on consumption taxes. The overall goal of the ruler's calculus is to maximize revenues without triggering popular revolt.

Direct taxes are a last resort, since elites (unlike the masses) have political bargaining power. In certain cases, they maintain traditional privileges from the Ancien Régime, which prevent the ruler from raising taxes unilaterally. Since elites form an important part of the long-held social order upon which the ruler's legitimacy also rests, spurning them is also difficult for ideological reasons. Lastly, the ruler requires the

support of elites to help manage the country, as well as to prevent and quell popular uprisings.

If the ruler attempts to levy new direct taxes, then elites may exploit their political bargaining power to gain two concessions. The first is a constitutional change that grants them a formal veto right over the ruler's fiscal policies. Since they would now have control over how new tax revenues would be spent, elites may be more willing to pay higher taxes.¹² The second, assuming that they are interested, is greater investment in non-military public goods like transportation infrastructure that benefit elites, both in terms of new contracts and by reductions in transaction costs that promote trade. Recall that the ruler does not value development, which would only increase revenues over the long run (so long as elites shared income advances with him). Since modernity may threaten the ruler's authority, there may also be an ideological cost to public goods provision.

In total, the ruler has three strategic options. The first is a conservative approach, characterized by low direct taxes and a small military. This approach does not antagonize the masses or the elites and therefore minimizes the risk of overthrow. The second is a traditional aggressive one, characterized by high direct taxes and a large army. This approach, which may include reforms that eliminate traditional tax privileges held by elites, is risky. So long as the military campaign goes well, elites are satisfied with the perks that they receive. Defeat, however, may cause them to join or lead the masses in a revolt against the ruler. The final approach is a modern aggressive one. In addition to high direct taxes and a large army, it is also characterized by constitutional change and

¹² Hoffman and Rosenthal (1997b) make a general argument of this sort for nineteenth-century European states. Also see Dincecco (2009).

investment in non-military public goods. This strategy decreases the risk of being overthrown, particularly if military defeat occurs, but at the cost of reducing the ruler's power.

4. Evidence

A. External and Domestic Threats

To assess how well our theoretical framework explains the behavior of pre-unitary rulers, we first describe the external threat environments. The Papal States, Tuscany, and the Two Sicilies adopted conservative strategies. Since they were protected by the Austrian Empire, none of them faced major external threats. Nor did any harbor territorial ambitions. The only border of the Two Sicilies, the largest of the three, was with the Papal States, and invasion was unthinkable. Furthermore, the political legitimacy of the restored royalty was increasingly questioned by a growing portion of elites (Candeloro, 1956-65 II, Woolf, 1981, Hearder, 1983).

Though it pursued a conservative foreign policy in the pre-unitary period, Austria required a large military to play its traditional role as a Great Power. Lombardy-Venetia benefitted from low taxation (Figure 1) and infrastructure investment (to be described in Section 4.D). The reason for this positive treatment was the desire by the central government to satisfy local elites, who could defect in favor of the cause of Italian independence. The 1848 revolt in Milan is one prominent example of elite discontent. Ultimately, Lombardy was ceded to the nascent Italian state following the Second War of Italian Independence in 1859, and Venetia following the Third Independence War (alternatively, the Austro-Prussian War) in 1866.

The Savoy dynasty had pursued a successful strategy of traditional aggression since the fourteenth century, extending its domains from a small fiefdom in the Alps to the whole of Piedmont and later to Sardinia. In 1815, the Congress of Vienna awarded the province of Liguria including Genoa, the largest harbor in Northern Italy, to the Savoys. Positioning itself as the champion of Italian liberation from Austrian hegemony, Piedmont resumed its territorial ambitions in the 1840s, but was defeated as described in Section 2.B.i. Under the new king Victor Emmanuel II and prime minister Cavour, Piedmont thus switched to a modern aggressive strategy, funded by the substantial increase in revenues. In addition to rebuilding the army, the state put the additional funds towards large infrastructure investments (to be described in Section 4D).

B. Military Size and Spending

We now turn to the military data, which support our interpretation of the diverse strategies of pre-unitary states. Figure 5 plots military personnel per 1,000 inhabitants for the Italian and European polities for which data were available from 1815 to 1860. Armed aggression required a large military: Piedmont and Austria had the biggest armies, with an average of 10 military personnel per 1,000 inhabitants. Indeed, both states had more military personnel per capita than did the United Kingdom (7 military personnel per 1,000 inhabitants on average). At the low end of this spectrum, Tuscany and the Two Sicilies had small armies, with an average of 4 to 6 military personnel per 1,000 inhabitants, which supports our claim that the strategy of those states was conservative.

Of course, large armies were expensive. Figure 5, which plots military expenditures per capita over pre-unitary Italian states, indicates that average military

spending for Piedmont, at 2.23 gold grams per head, was two times that of the Two Sicilies, and over three times higher than that of the Papal States. Through the late 1840s, military expenditures also accounted for a larger share of total spending for Piedmont than for any other state, at 42 percent versus 32 percent for the Two Sicilies and 17 percent for the Papal States (Figure 6). In the 1850s, the size of the Piedmontese army grew by 25 percent over its 1840s level (Figure 4), and military expenditures per capita rose by 32 percent. After peaking at 59 percent during the 1849 war, however, the military share in total expenditure fell to less than 30 percent (Figure 6), since other expenditure categories, including infrastructure investments and interest payments on government bonds, increased by even larger amounts. Over the 1850s, there was also a notable rise in army size and military expenditures (both in levels and as a share of total expenditures) in the Two Sicilies, as the Bourbon regime was threatened by internal discontent (Figures 4, 5, and 6). The Grand Duke of Tuscany and the Pope, by contrast, felt more secure, and thus military spending in those polities remained low (Figure 5 and, for Tuscany, Del Pane, 1965).

C. Tax Regimes

How did pre-unitary states fund military expenditures? Our theoretical framework suggests that the fiscal policies pursued by rulers followed a particular sequence: first borrowing, then raising indirect taxes, and finally adjusting direct taxes.

Though the data are limited, there is evidence that rulers did in fact amass large debts at times. The Bourbon King of the Two Sicilies paid the equivalent of one year of revenues from 1815 to 1819 for foreign policy purposes (including large bribes to

Talleyrand and Metternich for their support at the Congress of Vienna), and the ensuing debt was a major concern for years (Ostuni, 1992, p. 66-7). Piedmont was even more reckless. During peacetime from 1850 to 1858, it borrowed the equivalent of 42 percent of its cumulated revenues, and interest payments accounted for roughly one-fifth of total expenditures by the end of the 1850s (Felloni, 1959). Since such levels were in all likelihood unsustainable, Piedmont would have arguably suffered a severe financial crisis had it not succeeded in unifying Italy (and thus increased revenue streams). Indeed, Piedmont's former debt accounted for roughly 55 percent of total Italian debt in 1861 (Corbino, 1931 I, p. 213).

From debt, our framework predicts that rulers will then turn to indirect taxes, and in particular customs duties, that fall on the masses. Figure 7, which plots per capita trade taxes over pre-unitary Italian states, indicates that Piedmont taxed trade by far the most, at roughly 0.65 to 1.15 gold grams.¹³ Interestingly, trade revenues for Piedmont remained high in the 1850s, as duty increases on colonial goods compensated for the liberalization of wheat and manufacturing imports (Di Gianfrancesco, 1974). Figure 8 shows that indirect taxes besides trade were also greater for Piedmont than for other polities save the Papal States: on average 16 percent higher than for the Two Sicilies and 226 percent higher than for Lombardy-Venetia. These large differences reflect different rates on broadly the same items – taxes on consumption and transactions, and salt and tobacco monopolies.

Since greater direct taxes may have negative political consequences, our framework indicates that rulers will choose to impose them last. Indeed, direct taxes

¹³ Though the Tuscan data do not distinguish between custom duties and other indirect taxes, total indirect taxes were roughly one-third of those for Piedmont from 1825 to 1859.

typically accounted for less than one-third of total revenues for all pre-unitary states except Lombardy-Venetia.¹⁴ As Figure 9 indicates, however, revenues from direct taxes increased for most polities in the 1850s, mainly following the introduction of new forms of income taxes, such as the *tassa sull' esercizio di arti, mestieri industrie e commerce* in the Papal States (Rossi Ragazzi, 1956), the *imposta sulla rendita* in Lombardy-Venetia (Uggè, 1956), and, above all, the *ricchezza mobile* in Piedmont (Romeo, 1984a,b, Marongiu, 1996). Introduced in 1851, this latter tax affected non-agricultural incomes, such as interest on capital and fees from liberal professions and wages (i.e., beyond some minimum). After 1853, moreover, the *ricchezza mobile* was paid according to certain objective features, such as the size of professional premises. In consequence, direct tax revenues per head for Piedmont increased by two-thirds from 1854 to 1858 relative to 1850 to 1853, and the gap with other states widened. From 1854 onwards, citizens of Piedmont paid on average 1.47 gold grams per head in direct taxes, roughly 20 to 90 percent more than citizens of any other pre-unitary polity. We view this jump, which occurred under the liberal constitution, as the first component of the bargain by which newly enfranchised elites agreed to pay higher taxes in return for greater control over government spending. Since merchant elites from Liguria stood to gain more from institutional reform than did the traditional landed aristocracy, which already had close relationships with the king, they were asked to contribute greater tax amounts in exchange for parliamentary power.

¹⁴ Since direct taxes mostly affected rents and profits, these shares should be contrasted with data on factor income distributions. Though such information is not available, it is likely that cumulative income shares exceeded one-third.

D. Infrastructure Investment

What sorts of non-military public goods did nineteenth-century governments provide? The short answer is transportation infrastructure, and in particular railway networks. Since British and French investors were eager to build lines with their own funds in exchange for long-term concessions, railways were nearly a zero-cost investment. As the theoretical framework suggests, however, both the Pope and the King of the Two Sicilies, who favored conservative policies over (threatening) modern ones, resisted. These two states, which ruled over half of the Italian population and nearly half of its territory, each had roughly 100 kilometers of railway track by 1861. Sicily did not possess a single kilometer, and from 1844 to 1859 the entire South built just 27 kilometers. Tuscany, on the other hand, had an established railway network by 1861, at roughly 257 kilometers. The concentration of the Tuscan population in the north of its territory aided the construction of this system.

Most of the Italian railway network was to be found in the North, in Lombardy-Venetia (522 kilometers in 1861) and Piedmont (850 kilometers). Roughly 20 percent of the Austrian Empire's railway system in the 1850s was located in Lombardy-Venetia, though it only comprised around 14 percent of the Empire's total population. As described in Section 4.A, the strategic appeasement of local elites was the likely reason for this discrepancy. By reducing transaction costs, railways enabled the exportation of agricultural goods. There was also a clear military concern, since the central government relied upon railways to transport soldiers both from within Lombardy-Venetia itself and from the rest of the Empire in the case of internal uprisings or invasion by Piedmont. In fact, Vienna refused for years to link its railways in Lombardy-Venetia with those of

Piedmont, since it feared that economic interdependence would encourage political union.

At the start of the 1850s, Piedmont began construction of a comprehensive railway system throughout its mainland territory, as well as to make plans to link it with the French network. We view infrastructure investment as the second component of the constitutional bargain of 1848 described in Section 4.C. Merchant elites in Liguria, who were to bear the brunt of new direct taxes, wished to exploit the new railways as a way to promote their trade. There was also a strategic element to railway construction in Piedmont. Rather than rely on foreign investment, the government chose to fund and manage the railways by itself (Corbino, 1931 I, Tajani, 1939). In total, railways accounted for 7 to 15 percent of total expenditures for Piedmont and Tuscany over the 1850s (Felloni, 1959, Del Pane, 1965). By contrast, all public works accounted for less than 4 percent of total expenditures for the Papal States (Friz, 1967).

To summarize this part of our analysis, Figure 10 plots cumulative railway kilometers per capita over pre-unitary Italian states. As described, Piedmont was the clear leader, with roughly 0.21 kilometers per capita, by 1860. In Tuscany, this figure was roughly 0.14 kilometers per capita; in Lombardy-Venetia, it was roughly 0.09. Even by 1860, railway networks in the South were almost non-existent: these figures were 0.03 kilometers per capita or less for the Papal States and the Two Sicilies.¹⁵

¹⁵ Though scattered, the available evidence on roads confirms such differences. On paper, the Two Sicilies was better endowed with roads than Piedmont in 1863, at 2.75 versus 1.62 kilometers per capita, but the quality of Southern roads was very poor (Corbino, 1931 I, p.178).

5. Conclusion: The Legacy of Piedmont

After 1861, the newly unified Italian state continued to pursue the modern aggressive strategy established by Piedmont. It invested huge sums in new railways and other public works and assembled an army worthy of a Great Power – larger than the Prussian military and just smaller than the Austrian one. Figure 11 makes clear the continuity from Piedmont to the unified Kingdom of Italy: the series of yearly per capita revenues merge quite seamlessly in the early 1860s around 6 gold grams. Italy's modern aggressive approach culminated in 1866, when it teamed with Prussia to wage war on Austria. Thanks to the prowess of the Prussian army, the strategy worked. Despite being thoroughly defeated on the battlefield, Italy gained Venetia.

Unfortunately, political and military achievements were not matched by fiscal success (Federico, 2010). Though indirect taxes were easily harmonized after Unification, the same cannot be said for direct taxes, which affected the income of voting elites. By tinkering with both the land tax and the *ricchezza mobile*, parliament was able to reduce, but never to end, regional disparities. Total revenues thus fell far short of expenditures, and the state had to fund its huge deficit by issuing perpetual bonds (*rendita*).

By 1866, investors grew wary of sovereign risk, forcing the government to exit the gold standard, scale back infrastructure investments, and sharply increase revenues. The government began with massive increases in indirect taxation, including a new milling tax (*macinato*) which caused a wave of popular uprisings throughout the peninsula. Elites also begrudgingly agreed to pay more, by way of the imposition of additional surcharges on land taxes (*decimi*) and the final harmonization of the *ricchezza*

mobile. Indeed, this bargain was consistent with their new empowerment under Italy's liberal constitution. Landowners in the South, however, were staunchly opposed to the new cadastre, which was not initiated until 1884, and whose full results did not become available until 1956.

Though the government pursued conservative budget and foreign policies from the late 1860s to the 1880s, we should not underestimate the legacy of the modern aggressive strategy that Italy pursued just after Unification, which generated a sizeable transportation network as well as modern administration structures. In 1872, the total length of Italian railways exceeded 7,000 kilometers (ISTAT, 1958). Long-distance North-South lines were built first. In the 1880s and 1890s, a network of coastal-inland feeders was constructed, increasing the total railway length to 15,000 km by 1893.¹⁶ Had traditional absolutist rulers managed to hold on to their power, it is doubtful that they would have invested so much. By 1913, GDP per capita in the South was only 80 percent of that of the Center-North, and the income of the poorest region, Abruzzi, was half that of the richest one, Liguria (Daniele and Malanima, 2007). Though it is difficult to make precise estimates of the impact of railways on growth, economic logic predicts that, by reducing transaction costs, railways promote competition and trade. Thus, without Unification, we claim that the South, lacking sufficient railways, would have fallen even further behind its Northern counterpart by 1913.

¹⁶ Fenoaltea (1983) and Federico (2007) question whether it was wise to first build North-South lines, which were subject to competition from cheap coastal trade and thus less economically justified than coastal-inland feeders.

Data Appendix

Revenues. Michael Pammer provided the revenue data for Lombardy and Venetia. Totals for Lombardy-Venetia sum each series. Data are from Romani (1982) for the Papal States (Table 23, 1827-34, 1845-60), Parma (Table 19), Modena (Table 20), and Tuscany (Table 21). Data for the Papal States from 1835 to 1844 are from Rossi Ragazzi (1956, *Prospetto A*); data for direct taxes and trade taxes were linearly interpolated based on the average shares from the pre-1835 and post-1844 periods. Data for the Kingdom of Sardinia are from Felloni (1959) and sum total taxes for the mainland and Sardinia. Data for the Kingdom of the Two Sicilies are from Ostuni (1992, Appendix V, Table 1, *Introito dello stato per cespiti consuntivo*) and sum total taxes for the mainland and Sicily. In all cases, total taxes are the sum of direct (typically, *prediale, personale, altre*) and indirect taxes on trade (*dogane*) and consumption and transfers (typically, *dazi consumo, sale e tabacchi, bollo, altre*).

Revenue data were converted into real gold grams as follows. First, revenues in home currencies were converted into Austrian lire. Second, revenues in Austrian lire were converted into real 1861 prices using the price indices for Northern and Southern Italy from Malanima (2006, Appendix 1). Third, revenues in real Austrian lire were converted into British pounds. Fourth, revenues in real British pounds were converted into gold grams using the series from Officer (2006). Giovanni Federico provided the exchange rate data for the first and third steps.

Revenue data for Austria, Belgium, France, Netherlands, Prussia, Spain, and the United Kingdom are from Dincecco (2009). These series were converted into real 1861 prices using exchange rate data provided by Giovanni Federico. They were then converted into gold grams following Dincecco's methodology.

Revenue data for Italy from 1861 to 1913 are from the Ragioneria generale dello Stato (1969). The series was converted into real 1861 prices using exchange rate data from ISTAT (1958). It was then converted into gold grams following the methodology described above.

Population. Michael Pammer provided the population data for Lombardy and Venetia. Totals for Lombardy-Venetia sum each series. Data for Parma, Modena, the Kingdom of the Two Sicilies, and Tuscany are from Romani (1982, Table 1). Data for the Kingdom of the Two Sicilies sum the populations for the mainland and Sicily. Due to availability, data for the Papal States and the Kingdom of Sardinia are from SVIMEZ (1961). Data for the Kingdom of Sardinia sum the populations for the mainland and Sardinia. In all cases, population data between census years were linearly interpolated.

Urbanization. Paolo Malanima provided the urbanization data for Italian cities in 1800 and 1861. Percent changes are weighted relative to the population of Naples, the largest Italian city in 1861.

Military Personnel and Expenditures. The military personnel data are from the Correlates of War Database of Sarkees (2000). Military (*oneri per la difesa*) and total expenditure data for the Papal States are from Romani (1982, Table 23). For Tuscany, data for military expenditures are from Parenti (1956) and total expenditures from Del Pane (1965). Data for the Kingdom of Sardinia are from Felloni (1959) and sum military and total expenditures for the mainland and Sardinia. Data for the Kingdom of the Two Sicilies are from Ostuni (1992, Appendix V, Table 2, *Spesa dello stato per ministeri consuntivo*) and sum military (*guerra, marina*) and total expenditures for the mainland and Sicily. Expenditures were converted into real gold grams following the methodology described above.

Railways. The railway data for pre-unitary Italian states are from Romani (1982, Table 25). Data for Austria are from Mitchell (2007).

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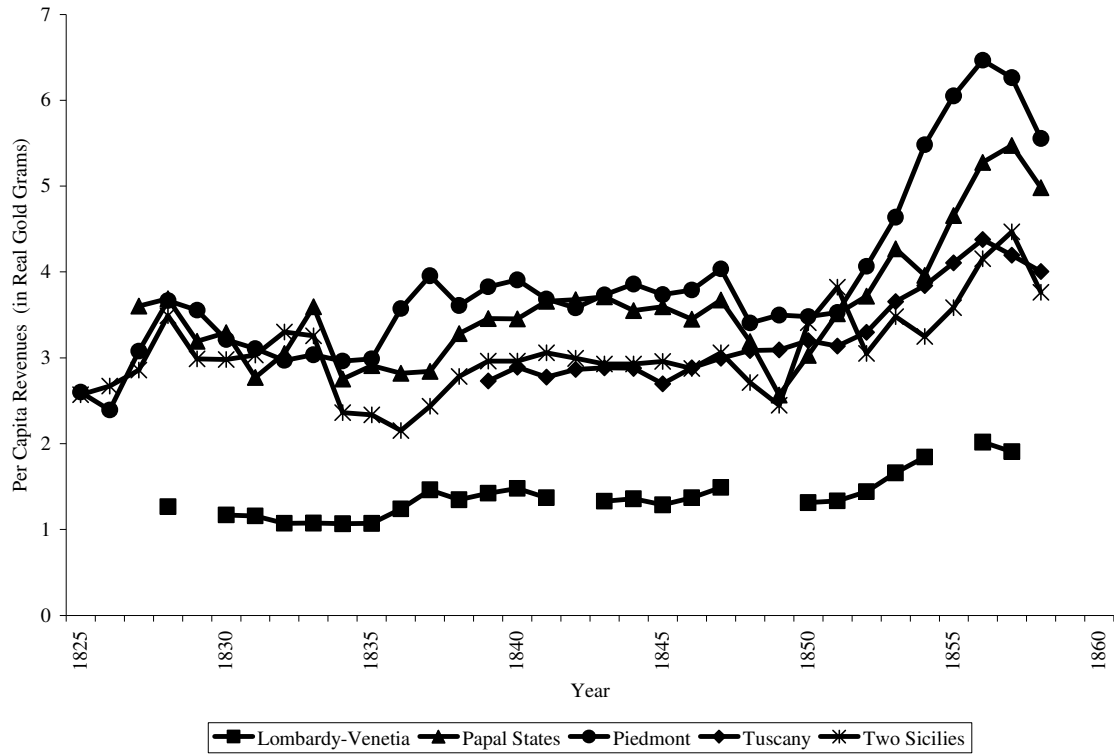
Table 1. Largest Weighted Percent Changes in City Sizes, 1800-61

Rank	City	State	Pop, 1800	Pop, 1861	Percent Change
1	Turin	Piedmont	61	181	85%
2	Naples	Two Sicilies	320	419	31%
3	Trieste	Lombardy-Venetia	24	66	28%
4	Milan	Lombardy-Venetia	124	196	27%
5	Genoa	Piedmont	76	128	21%
6	Livorno	Tuscany	53	84	12%
7	Acireale	Two Sicilies	15	35	11%
8	Florence	Tuscany	81	114	11%
9	Pisa	Tuscany	15	34	10%
10	Rome	Papal States	153	188	10%

Sources: See Data Appendix.

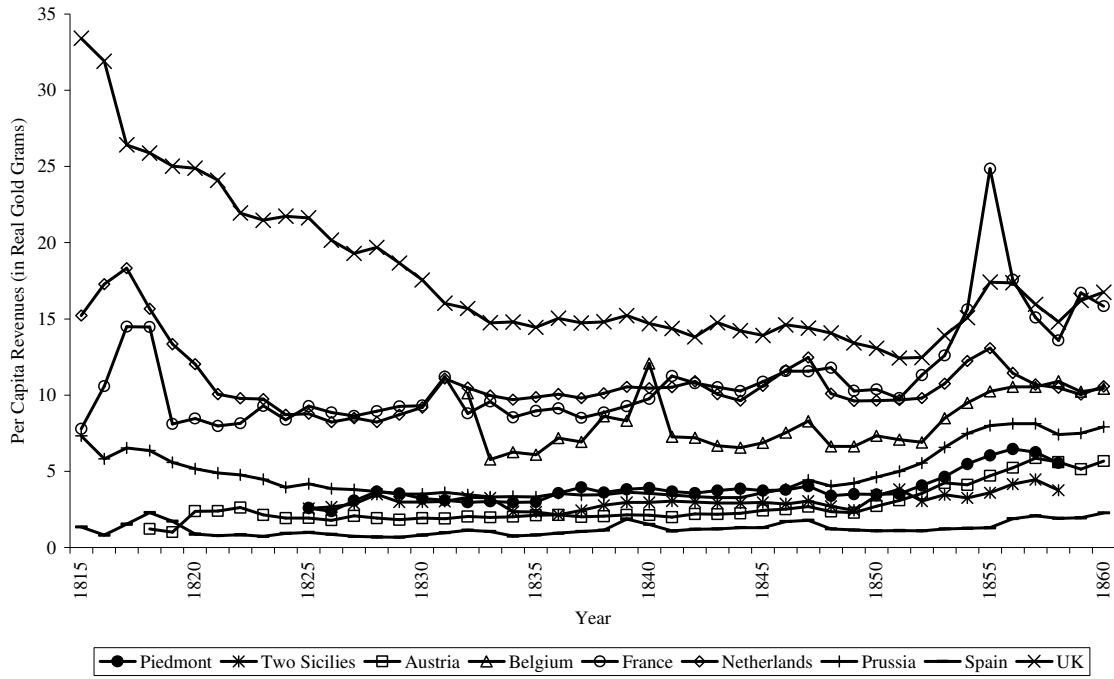
Notes: Populations are in thousands. Percent changes are weighted relative to the population of Naples, the largest Italian city in 1861.

Figure 1. Yearly Per Capita Revenues (in Real Gold Grams), 1825-60



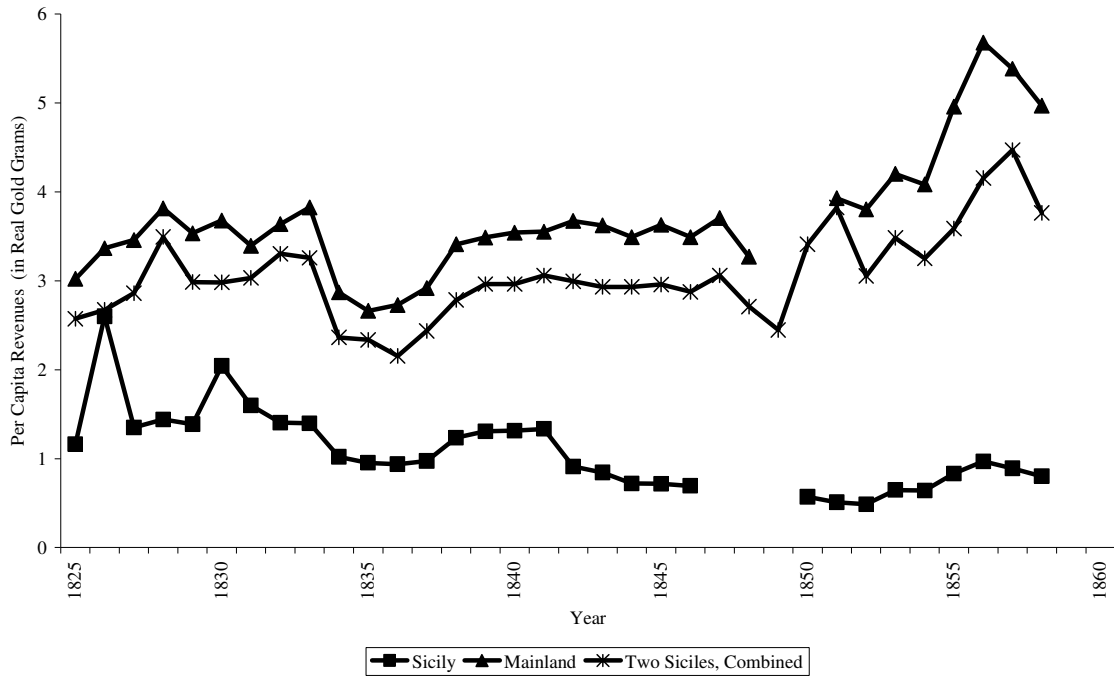
Sources: See Data Appendix.

Figure 2. Yearly Per Capita Revenues (in Real Gold Grams), Europe, 1815-60



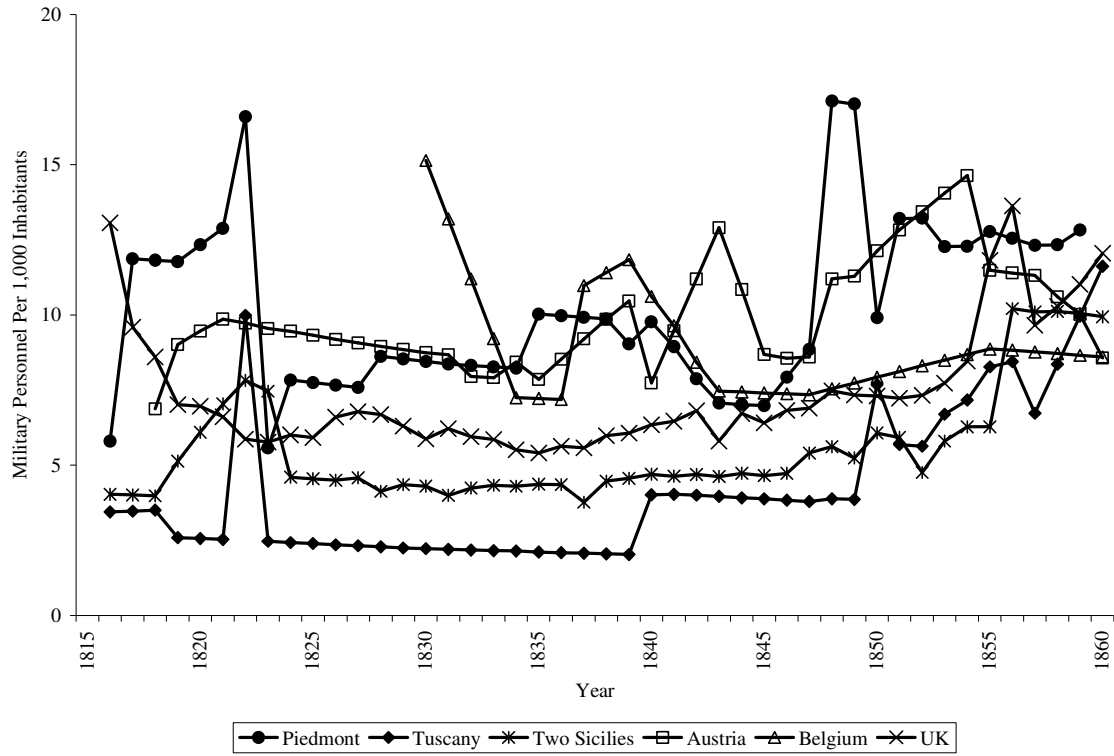
Sources: See Data Appendix.

Figure 3. Yearly Per Capita Revenues (in Real Gold Grams), Two Sicilies, 1825-60



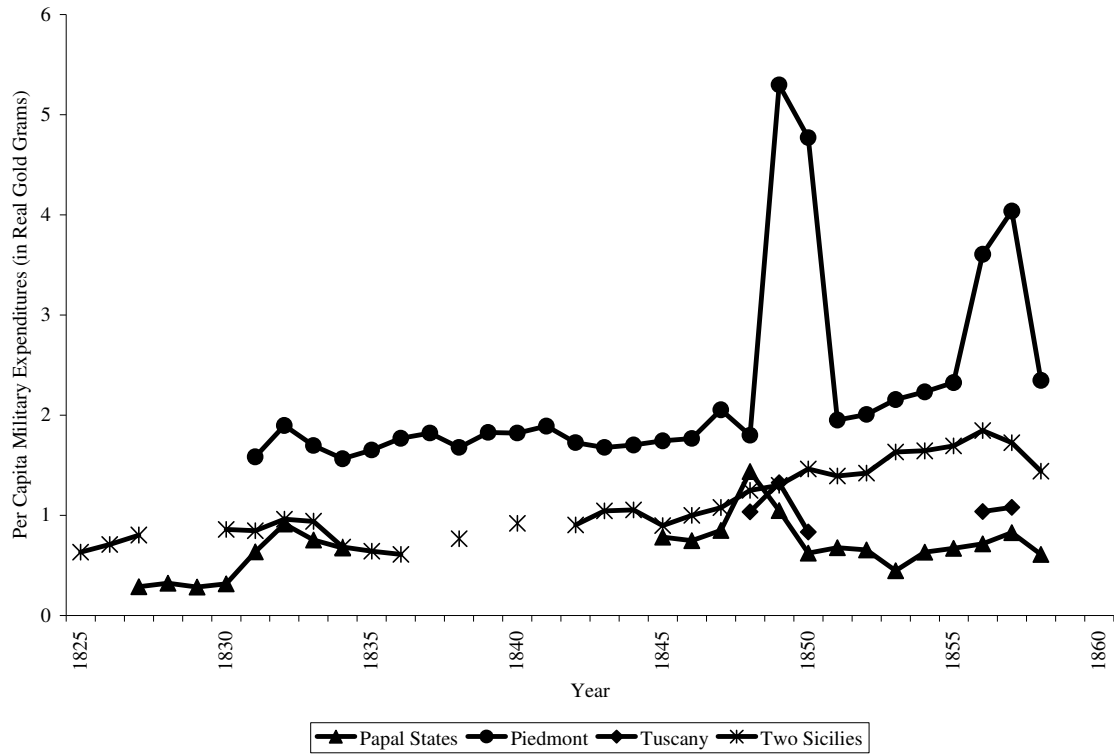
Sources: See Data Appendix.

Figure 4. Military Personnel Per 1,000 Inhabitants, Europe, 1815-60



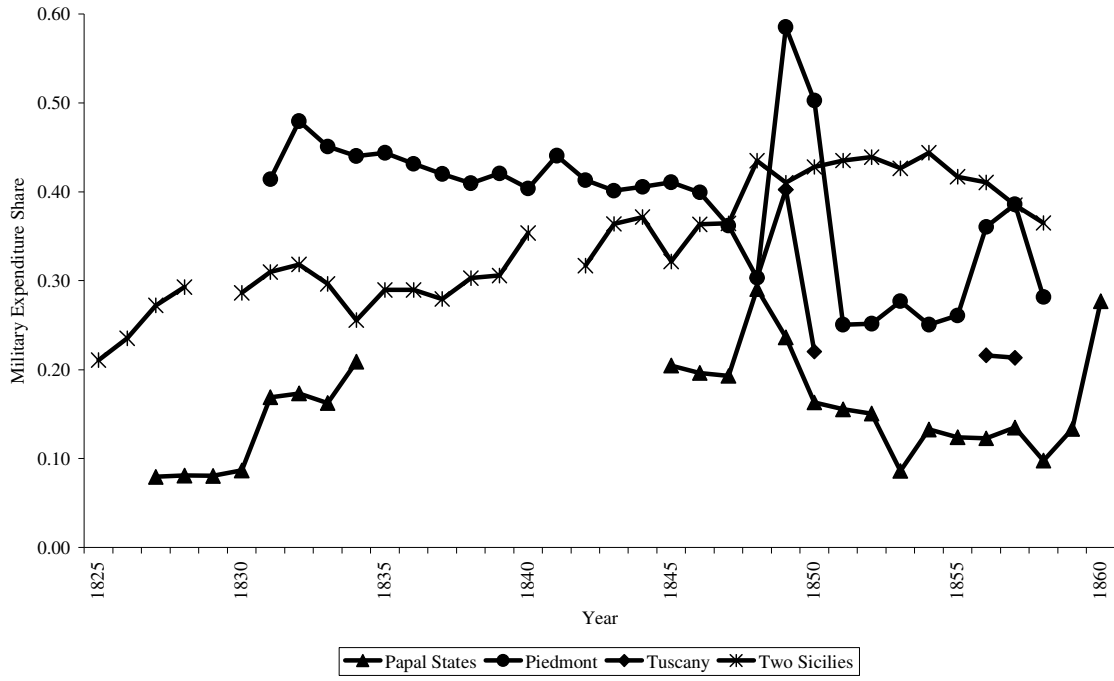
Sources: See Data Appendix.

Figure 5. Yearly Per Capita Military Expenditures (in Real Gold Grams), 1825-60



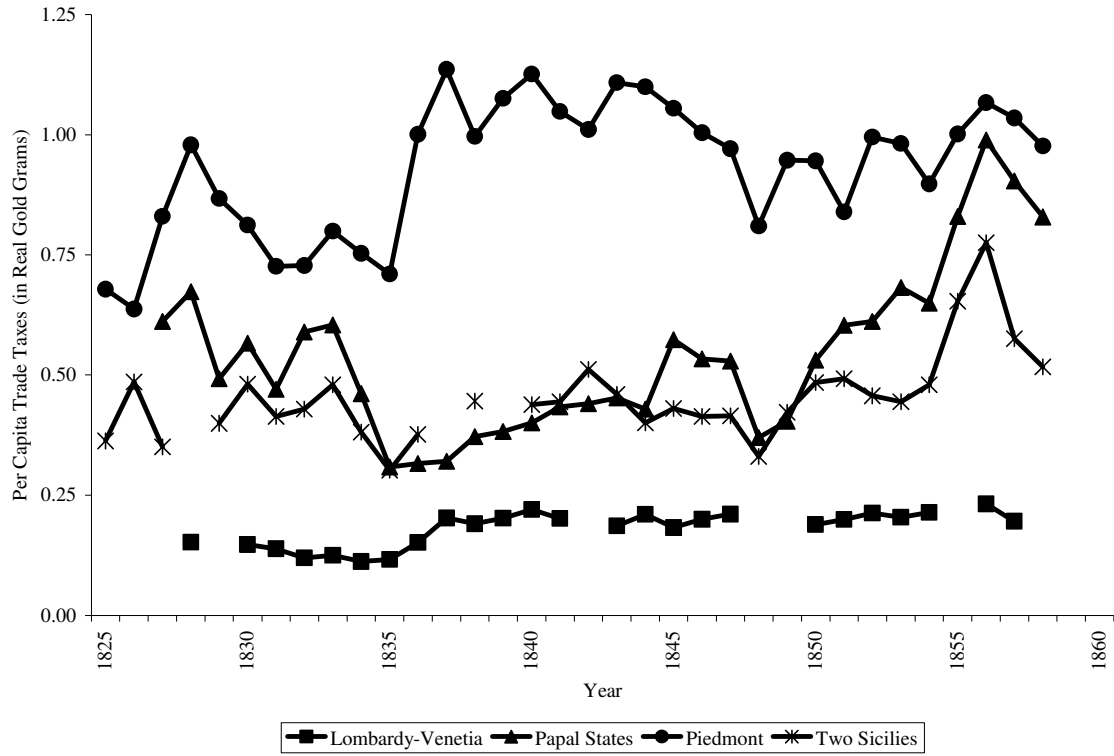
Sources: See Data Appendix.

Figure 6. Shares of Military Expenditures in Total Expenditures, 1815-60



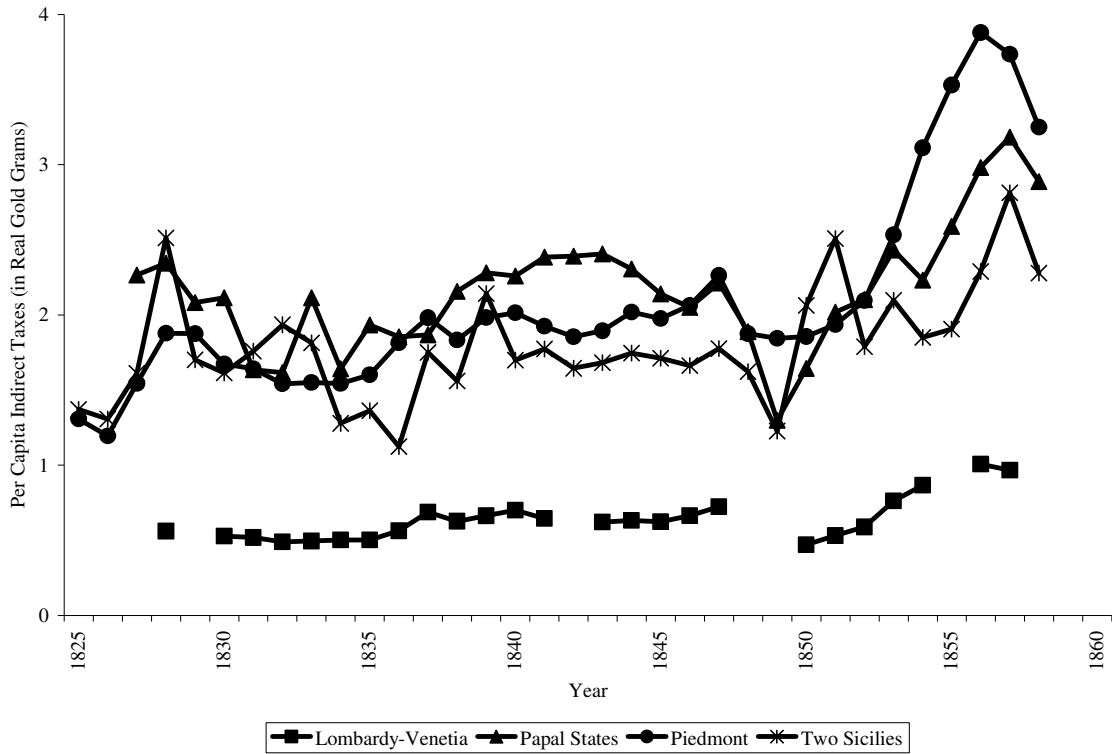
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Figure 7. Yearly Per Capita Trade Taxes (in Real Gold Grams), 1825-60



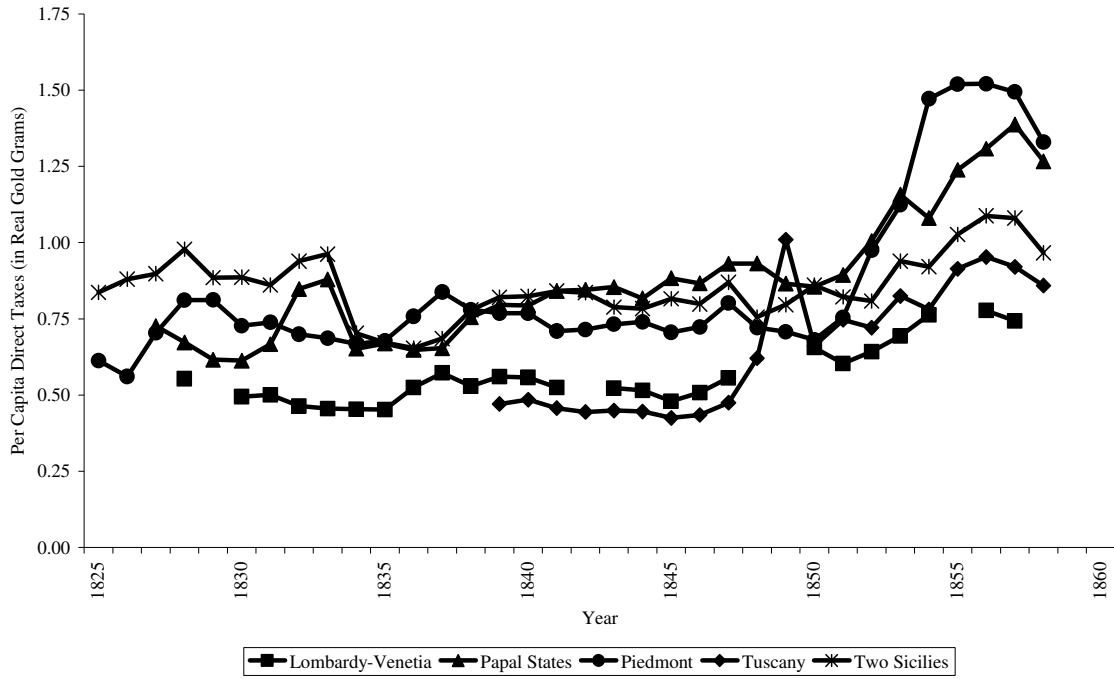
Sources: See Data Appendix.

Figure 8. Yearly Per Capita Indirect Taxes Excluding Trade (in Real Gold Grams), 1825-60



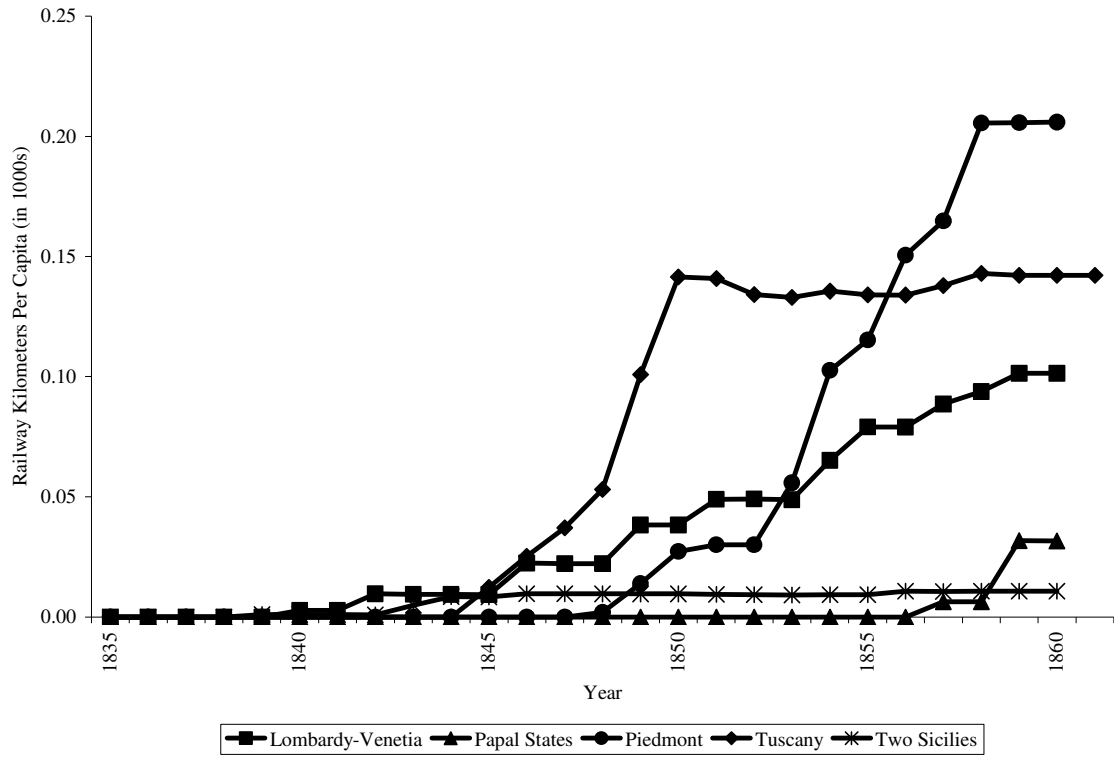
Sources: See Data Appendix.

Figure 9. Yearly Per Capita Direct Taxes (in Real Gold Grams), 1825-60



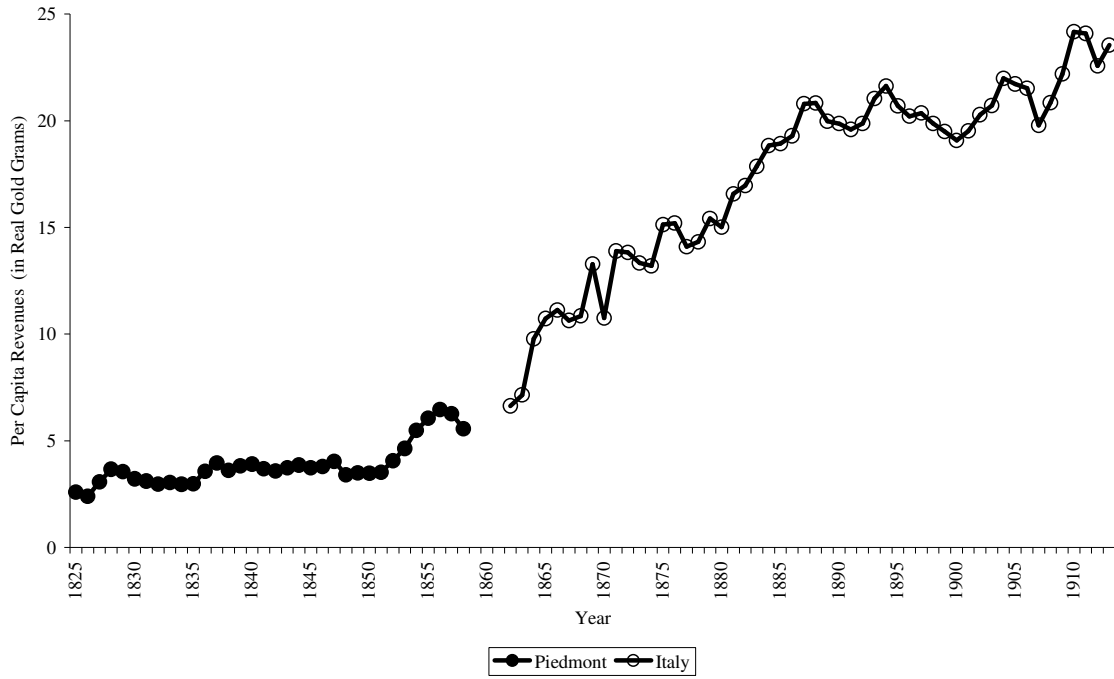
Sources: See Data Appendix.

Figure 10. Cumulative Railway Kilometers Per Capita, 1835-60



Sources: See Data Appendix.

Figure 11. Yearly Per Capita Revenues, Piedmont vs. Italy, 1825-1913



Sources: See Data Appendix.