Warfare and Taxation in Pre-Industrial Europe: Evidence from the Italian Risorgimento[*]

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21 July 2010

This paper examines the interplay between warfare and taxation in nineteenth-century Italy, from the end of the Napoleonic era in 1815 to unification in 1861. The institutional variety at the regional level makes the Italian peninsula a unique testing ground for comparative study. Using a new database, we argue that pre-unitary states pursued different fiscal policies in response to diverse domestic and external political environments. Our long-run empirical analysis complements recent theoretical works about state capacity. By emphasizing public finances, we also uncover novel insights into the process of state formation in Italy.

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1. Introduction

Public finances are the sinews of state power. A growing theoretical literature examines the interplay between wars, fiscal policy, and economic outcomes.[1] This literature takes inspiration from historical works that investigate the relationships between external conflicts and fiscal innovations that enabled states to gather greater wartime funds.[2] It is also motivated by works in political science that study how the ability of states to raise tax revenues affects the provision of growth-promoting public goods.[3] While the key advantage of the new theoretical literature is formal rigor, its basic weakness is a lack of empirical support.

This paper examines the fiscal evolution of Italian states from the end of the Napoleonic era in 1815 to political unification in 1861. Called the Risorgimento, the unification process was one of the major changes in the geopolitical landscape in nineteenth-century Europe. By investigating the specific interactions between warfare and taxation over the long run, our analysis provides new empirical insights that complement the burgeoning theoretical literature.[4] Most recent works on the Risorgimento downplay the role of economic factors. Our focus on the fiscal features of

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[1] See Hoffman and Rosenthal (2000), Acemoglu (2005), Besley and Persson (2008, 2009, 2010), McBride et al. (2009), Ticchi and Vindigni (2009), and Acemoglu et al. (2010).
[2] See Levi (1988), Brewer (1990), Tilly (1990), Hoffman and Rosenthal (1997), Epstein (2000), and O'Brien (2005).
[3] See Migdal (1988), Wade (1990), Herbst (2000), Bates (2001), and Kang (2002).
[4] Our case-study approach also complements recent works that use econometric techniques to test for the economic effects of warfare and taxation across countries. See Besley and Persson (2009), Scheve and Stasavage (2009, 2010), and Dincecco and Prado (2010).

pre-unitary states also offers a novel perspective on political unification.[5] In this regard, our study has general implications for the literature on state formation.[6]

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 of the Austrian Empire, and 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.

Our analysis uses a comprehensive new database of military, fiscal, and public goods indicators. This dataset draws on previous studies by Italian economic historians including Parenti (1956), Rossi Ragazzi (1956), Felloni (1959), Del Pane (1965), Romani (1982), and Ostuni (1992). A first look at the evidence indicates that pre-unitary states pursued divergent fiscal policies, which differences in income levels or tax systems alone cannot explain.

To account for fiscal diversity, we employ a simple analytic framework based on Hoffman and Rosenthal (2000), one of the first works in the new theoretical literature on

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[5] As the pioneering German financial sociologist Rudolf Goldscheid remarked in 1926: "The budget is the skeleton of the state, stripped of any misleading ideologies" (Spoerer, 2010, p. 105). Newer works on the Risorgimento like Hearder (1983) and Riall (1994) emphasize cultural and social factors, though older ones like Ciasca (1916) and Candeloro (1956-65) incorporate economics. Two exceptions are Ziblatt (2006), who examines the Risorgimento from the perspective of comparative politics, and Federico (2007), who tests for market integration.
[6] See Riker (1964), Alesina and Spolaore (2003), Ziblatt (2006), and Stavasage (2009).

warfare and taxation.[7] Hoffman and Rosenthal explain the rise of parliamentary government in terms of a political bargain which is well-suited to the context of nineteenth-century Europe. Traditional tax systems were characterized by divided fiscal authority. Rulers spent government funds as they pleased, and typically to wage wars. Elites exercised tax authority through representative bodies, however, and could limit the amount of available resources. An important change in the nature of conflict took place during the French Revolutionary and Napoleonic Wars (1792-1815). For the first time, rulers who were defeated in battle also faced the risk of losing their thrones. To gain greater revenues for military defense, rulers had to surrender control over spending to parliament. In turn, rulers could guarantee that a portion of the new funds would be spent on public services that elites desired.

Our evidence from pre-unitary Italy allows us to expand Hoffman and Rosenthal's key insights in two ways. Differences in size and geographical location affected the relative international standing of pre-unitary states. We examine how diverse foreign opportunities and threats influenced the fiscal approaches that rulers chose. When striking political bargains, rulers and elites also had to consider the population masses. The masses were an important source of tax revenues (as well as military recruits), but could not be taxed beyond some limit without revolting. Our framework suggests that rulers chose from a menu of approaches, each of which had different implications for military size and spending, the composition of tax revenues, and the provision of non-military public goods.

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[7] Hoffman and Rosenthal in turn base their study on previous contributions by North and Thomas (1973), North (1981), and North and Weingast (1989).

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We begin with an overview of economic and tax conditions in pre-unitary Italy. We next introduce our analytic framework and examine the military, fiscal, and public goods data. In light of this evidence, we characterize pre-unitary states according to the various approaches. We conclude by speculating about the long-term consequences of our results for the North-South income gap. The Data Appendix documents the sources and construction methods that we use.

2. Development and Taxation

Figure 1 plots per capita tax revenues in real gold grams for pre-unitary Italian states.[8] Several stylized facts stand out. First, there were large revenue differences. Average taxes per head were highest in Piedmont (4.24 gold grams). The Papal States (3.93) was next, followed by Tuscany (3.60), the Two Sicilies (3.36), Modena (2.97), and Parma (2.84). At just 1.52 gold grams per capita, average taxes were lowest in Lombardy-Venetia. Differences in tax levels, moreover, were persistent throughout the pre-unitary period. Though there was a general rise in tax revenues per head over the 1850s, this increase was greater in Piedmont than elsewhere, where taxes per head grew by over 35 percent relative to the 1840s. On average, Piedmont extracted 50 percent more in taxes than other Italian states during this decade, versus 41 percent over the 1840s.

For additional perspective, Figure 2 plots the Italian tax revenue data in the context of Europe. We focus on Piedmont as the key outlier and the Two Sicilies as the largest "Italian" state. The United Kingdom gathered the most taxes per head, though this

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[8] We omit the series for the Duchies of Modena and Parma from Figure 1 for the sake of readability. Data for Lucca were not available.

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amount declined from over 35 gold grams after Waterloo to around 14 to 19 gold grams from the 1840s onwards. In contrast, French tax revenues grew over this period, reaching British levels by the mid-1850s. Belgium and the Netherlands were also high-tax countries, with per capita revenues typically around 6 to 13 gold grams. Taxes per head for Piedmont resembled those for Prussia, and were larger than those for Austria. Per capita taxes for the Two Sicilies, which resembled those for Austria, were among the lowest, though they exceeded those of Spain.

Economic differences alone cannot account for the divergent fiscal policies pursued by pre-unitary states. Since there are no estimates for GDP per head at the regional level before 1891 (Felice, 2005), we employ the 1891 data to compute per capita GDP figures according to pre-unitary borders, using population shares from SVIMEZ (1961). The results do not show any notable development differences. Tuscany, the Papal States, and Piedmont were about 5 percent richer than average, and Lombardy-Venetia and the Two Sicilies were about 7 percent poorer (though Lombardy was wealthy, Veneto was very poor). Furthermore, any GDP differences that did exist in 1891 were likely to have been smaller at the time of unification in 1861: Daniele and Malanima (2007) claim that the North-South gap in GDP per head did not open until 1867, reaching 10 percent by 1891.

Since there are no systematic GDP estimates prior to unification, we rely on urbanization data, a common proxy for development levels (Dincecco, 2009). Table 1 ranks the largest percent changes in populations for Italian cities from 1800 to 1861. Turin, the capital of the Kingdom of Sardinia, grew by nearly 200 percent, the biggest single change, with a population increase from 61,000 to 181,000. However, six of the

ten largest increases in city size took place in the Two Sicilies. The urbanization data thus reinforce the notion that North-South development differences were small over the first half of the nineteenth century. Overall, the evidence indicates that differences in income among Italian states were not nearly as large as those in revenues prior to 1861: Piedmont gathered nearly 20 percent more in revenues than the South, for instance, but was not 20 percent richer.

Besides development levels, structural differences in pre-unitary tax systems could also account for the revenue variations that we observe. French conquest, however, led to the establishment of similar tax institutions throughout the Italian peninsula.[9] Invasion came in two waves, from 1800 to 1802 and from 1806 to 1807. While Latium, Liguria, Piedmont, Tuscany, and Umbria were directly annexed to France, the Continental South and a new *Regno Italico* (including Emilia, Lombardy, Umbria, and Veneto) remained formally independent but under French rule. 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. Though restored rulers eliminated many pieces of French legislation after Napoleon's fall in 1815, they kept most or all of the imported tax code *(*Candeloro, 1956-65 II).

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 restoration, the Bourbon king made an attempt to raise the Sicilian tax rate to the level of

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[9] As French Revolutionary and Napoleonic forces conquered large swaths of Europe from 1792 to 1815, they often instituted new institutional structures. See Acemoglu et al. (2009) and Dincecco (2009).

the mainland, which the local aristocracy obstructed. Revenues for Sicily were permanently lower than for the mainland, a gap that widened over the 1850s (see Figure 3). The King of Sardinia, by contrast, did not even try to extend the Piedmontese tax code to Sardinia until 1853, likely because the island was too poor to generate significant new revenues.

The French-style tax system was based on a combination of indirect and direct taxes. Indirect taxes were typically comprised of import duties on manufactured goods and an array of consumption and transaction taxes. These taxes generally affected the population masses. Custom duties on imports and exports were typically uniform within states, with the exceptions of tax-exempt ports like Leghorn and Messina. Consumption taxes were also levied at standard 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 within states.

The main direct tax (*fondiaria* or *prediale*) was on land, the key source of income for many pre-unitary elites. While governments in Piedmont, the Two Sicilies, and Tuscany set target revenues (*contingente*) which they then divided among taxpayers, those in Lombardy-Venetia and the Papal States charged individuals at fixed rates proportional to land values (*per quotità*). Direct tax rates were officially the same within states. However, actual rates depended on the assessments of land values, and thus on the rents that landowners charged. To avoid tax disparities between different areas in the same polity, or among taxpayers within the same area, land should have been assessed by independent surveyors using uniform criteria (*catasto geometrico-particellare*). Land

registers should have also been updated regularly. By 1815, 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.

Actual tax rates thus differed substantially within states. In Piedmont in 1851, for instance, land taxes ranged from 6 percent of estimated net incomes in the province of Nizza to 16 percent in the province of Novara (Felloni, 1959, p. 6). To make land taxes uniform in practice as they were on paper, states had to conduct completely new assessments. Though several governments made attempts, the results were mixed. The cadastre conducted by the Papal States in 1817 was so inaccurate as to be virtually useless (Rossi Ragazzi, 1956). Piedmont did not begin work until 1855 and 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 lasted only 17 years, from 1817 to 1834 (Del Pane, 1965). In each case, the distribution of land taxes changed, though not dramatically. Tax reform was never even attempted in the Two Sicilies, as the restored Bourbon king honored his promise to uphold the traditional cadastre (Carano-Donvito, 1928).

The scope for increasing revenues thus depended on the type of taxes. Pre-unitary states exercised strong fiscal authority with respect to indirect and personal taxes. These levies affected the masses, which had no political voice short of revolt. By contrast, governments were typically cautious with respect to direct taxes, and most notably the land tax. If necessary, states generally preferred tangential changes, like adding proportional surtaxes (*decimi* or *centesimi*) as in Piedmont (Felloni, 1959) or in

Lombardy-Venetia after 1848 (Uggè, 1956). States were typically hesitant to create new direct taxes on non-agricultural incomes, though this change would have reduced the heavy tax burdens on land.

In total, our review of the fiscal landscape of pre-unitary Italy leaves us with a puzzle. Though there were notable differences in per capita tax revenues among pre-unitary states, they cannot be explained by variations in income levels or tax systems alone. To account for these differences, we now develop a simple analytic framework that considers the impact of domestic and external political environments on fiscal choices.

3. Analyzing Political Bargains

Hoffman and Rosenthal (2000) assume that rulers nearly always wished to wage war, whether for homeland defense or personal glory. Though rulers had to protect their domains against external attack, and in some cases wished to expand their territory, we argue that they weighed such aims against the risk of internal threats like popular uprisings or coups. Since nineteenth-century states relied on the military to maintain public order, minimum-sized armies were imperative. Military size was larger when rulers were subject to external threats or when they hoped to pursue aggressive foreign policies. Both factors in turn depended on country size and location. There was little chance for the king of the small polity of Portugal, for instance, who also faced the threat of Spanish invasion after restoration in 1640, to expand his domains. The king of the large state of Prussia, by contrast, had a wide scope for foreign conquests. We claim that

rulers were generally only interested in economic development to the extent that a wealthier population would contribute higher tax amounts.

Though both the masses and elites wished to pay low taxes, they differed in notable ways. Since the masses had no political voice, popular revolt was their only option if they concluded that taxes were too high. By contrast, the ruler required political consensus with elites to maintain his rule, who could otherwise join the masses to overthrow him. The masses, furthermore, had no vested interest in territorial expansion. A larger military would likely result in higher indirect taxation, and they would not receive any direct benefits from successful wars. The masses also had to provide soldiers for the army, and take the greatest casualties. However, a large army and military expansion offered perks to elites, such as permanent jobs for cadet sons and war spoils.

Like Hoffman and Rosenthal, we let the ruler make the first move by choosing his desired military size as a function of internal and external political conditions. For simplicity, we claim that short-term expenses for the royal court and the civil service were relatively constant, and so military size drives the ruler's demand for revenues. The ruler could amass debt over the short run. His ability to borrow, however, depended on his credibility for repayment, which itself was a function of his capacity to maintain political power and gather funds. The evidence described in Section 2 suggests that pre-unitary states had great authority over indirect and personal taxes. We thus claim that the ruler first set indirect tax rates for the masses, starting with customs duties, the least invasive source. He then set rates on consumption and other indirect taxes. The ruler's overall goal was to maximize revenues without triggering popular revolt.

Direct taxes were a last resort for the ruler, because elites had political power. In certain cases, elites maintained traditional privileges, which prevented rulers from raising taxes unilaterally. Since elites formed an important part of the long-held social order upon which the ruler's legitimacy rested, spurning them was also difficult for ideological reasons. Furthermore, the ruler required the support of elites to help manage the country, and to prevent or quell popular uprisings. Raising direct taxes was also technically complex in terms of administration and enforcement.

For these reasons, we argue that rulers could only levy significant new direct taxes after striking a Hoffman and Rosenthal-style deal with elites, who could exploit their political bargaining power to gain two concessions. The first was a constitutional change that granted them a veto right over the ruler's fiscal policies. Since elites would then control how new tax revenues would be spent through parliament, they would be more willing to pay higher taxes. The second concession, assuming that elites were interested, was greater investment in non-military public goods like railways that benefited them, both in terms of new contracts and by reductions in transaction costs that promoted trade. Rulers did not typically value development, which would only increase revenues over the long run (so long as elites shared income advances with them). Since modernity could threaten traditional authority, moreover, there was also an ideological cost to the provision of public goods.

Overall, our analytic framework indicates that pre-unitary rulers could pursue one of three approaches:

1. A conservative approach, characterized by low indirect and direct taxes and a small military. Low indirect and direct taxes did not antagonize the masses or the elites, and

therefore minimized the ruler's risk of domestic overthrow. A small military, however, left the state more vulnerable to invasion by aggressive neighbors, and thus increased the ruler's risk of losing his throne through conquest.

2. A traditional aggressive approach, characterized by higher indirect (and possibly, direct) taxes and a larger military, but without constitutional change. This approach, which could include reforms that eliminated traditional tax privileges held by elites, was riskier than the conservative one. So long as military campaigns went well, we claim that elites were satisfied with the perks that they received, and would continue to support the existing regime. Defeat, however, could cause elites to join or lead the masses in popular revolt against the ruler. Hoffman and Rosenthal, moreover, argue that defeated leaders faced a greater risk of being thrown out by victorious armies after 1800.

3. A modern aggressive approach, characterized by high indirect and direct taxes and a large military, as well as constitutional change and investments in non-military public goods like railways. This approach decreased the risk of domestic overthrow if military defeat occurred, but at the cost of reducing the ruler's power relative to elites. Furthermore, there was still the risk of popular uprisings, since the masses did receive voting rights, and in the short run were not likely to reap any benefits from the greater provision of non-military public goods.

In light of these diverse approaches, our framework yields simple predictions about military size and spending, tax composition, and public goods provision, which we summarize as follows:

i. Aggressive states should have had the largest armies, and spent the greatest amounts on defense.

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ii. The financing of public expenditures by pre-unitary states should have followed a particular sequence: initial borrowing, then indirect taxes, and finally direct taxes.

iii. Direct taxes should have been highest in states that pursued modern aggressive approaches, but relatively low in states that pursued conservative or traditionally aggressive ones.

iv. The provision of non-military public goods should have been highest in modern aggressive states, but relatively low otherwise.

The remainder of the paper investigates these predictions. We first examine the quantitative evidence, which we then use to characterize pre-unitary states according to the three different approaches.

4. Quantitative Evidence

4.1 Military Size and Spending

Figure 4 plots military personnel per 1,000 inhabitants for the Italian and European polities for which data were available from 1815 to 1860. Austria and Piedmont had the biggest armies, with an average of 10 military personnel per 1,000 inhabitants. Both states had more military personnel per capita than the United Kingdom (7 military personnel per 1,000 inhabitants on average). Tuscany and the Two Sicilies, by contrast, had small armies, with an average of 4 to 6 military personnel per 1,000 inhabitants. Not surprisingly, Piedmont had to spend notably larger sums on the military. Figure 5 indicates that military expenditures for Piedmont, at over 2 gold grams per head,

were two times those of the Two Sicilies and nearly three times those of the Papal States and Tuscany.[10]

The Piedmontese military grew by 25 percent during the 1850s relative to the 1840s, and military expenditures per capita rose by over 30 percent. The 1850s also saw a notable rise in military size and expenditures in the Two Sicilies, as the Bourbon regime was threatened by internal discontent. Military spending in the Papal States and Tuscany remained low, however, which suggests that the Pope and the Grand Duke of Tuscany felt more secure.

4.2 Tax Composition

Our analytic framework indicates that the sequence by which pre-unitary states financed public expenditures was first borrowing, then indirect taxes, and lastly direct ones. Though the debt data are limited, the available evidence suggests that rulers took out loans when possible. 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. The ensuing debt was a major concern for years to come (Ostuni, 1992, p. 66-7). Piedmont was even more reckless. During the 1850s, it borrowed the equivalent of 42 percent of cumulative revenues, and interest payments accounted for roughly one-fifth of total expenditures by the end of the decade (Felloni, 1959). Since these high levels were probably unsustainable, Piedmont could have suffered from a severe financial crisis had

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[10] Military expenditure data for Lombardy-Venetia, which was part of the Austrian Empire, were not available.

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it not succeeded in unifying Italy (and thus increased revenue streams). Indeed, its former debt accounted for 55 percent of total Italian debt in 1861 (Corbino, 1931 I, p. 213).

Our framework indicates that customs duties were the type of (indirect) tax least likely to cause popular revolt. Figure 6 plots per capita trade taxes over pre-unitary states. Piedmont taxed trade by far the most, at around 0.75 to 1.25 gold grams.[11] Trade revenues for Piedmont remained high through the 1850s, as increased duties on colonial goods compensated for the liberalization of wheat and manufacturing imports (Di Gianfrancesco, 1974). Figure 7 shows that indirect taxes were also greater for Piedmont than for other polities save the Papal States. Indirect taxes were particularly low in Lombardy-Venetia. These differences reflect diverse rates on broadly the same items – taxes on consumption and transactions, and salt and tobacco monopolies.

Consistent with our framework, the data also indicate that states imposed low direct taxes. With the exception of Lombardy-Venetia, direct taxes typically accounted for less than one-third of total revenues in pre-unitary states.[12] However, Figure 8 indicates that revenues from direct taxes per head increased over the 1850s in all states, following the introduction of new forms of income taxes, such as the *tassa sull'esercizio di arti, mestieri, industrie, e commercio* in the Papal States (Rossi Ragazzi, 1956), the *imposta sulla rendita* in Lombardy-Venetia (Uggè, 1956), and, above all, the *richezza mobile* in Piedmont (Romeo, 1984a,b, Marongiu, 1996).

Introduced in 1851, the *richezza mobile* affected non-agricultural incomes such as interest on capital and fees from liberal professions and wages (beyond some minimum).

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[11] 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.
[12] Since direct taxes mostly affected rents and profits, these shares should be compared with data on factor income distributions. Though such information is not available, it is likely that cumulative income shares exceeded one-third.

After 1853, it was paid according to certain objective features, such as the size of professional premises. Figure 8 indicates that direct tax revenues per head for Piedmont increased by more than two-thirds from 1851 onwards relative to the 1840s. The gap with other states also typically widened: from 1851 onwards, individuals in Piedmont paid over 1.40 gold grams per head in direct taxes, around 10 to 80 percent more than individuals in any other pre-unitary state.

4.3 Public Goods Provision

Railways were arguably the most important sort of non-military public goods that liberal nineteenth-century governments provided (Cardoso and Lains, 2010). Since British and French investors were eager to build lines with their own funds in exchange for long-term concessions, railways could be an almost zero-cost investment. Pre-unitary states did not necessarily seize such opportunities, however, and there were large differences in cumulative railway kilometers per capita.

Figure 9 indicates that Piedmont was the clear leader by 1860, with 0.21 kilometers per head. Piedmont did not open its first line, from Turin to the summer resort of Moncalieri, until 1848, thirteen years after the Two Sicilies had built a comparable line between Naples and the seaside town of Portici. Over the 1850s, however, Piedmont constructed a comprehensive railway system throughout its mainland territory, including the main line between Turin and Genoa, opened in 1853. In 1857, Piedmont began drilling the Frejus tunnel to link with France. This work was completed in 1871. Since the Piedmontese government chose to fund and manage the railways by itself rather than

rely on foreign investment (Corbino, 1931 I, Tajani, 1939), railways accounted for a notable portion of total expenditures over the 1850s (7 to 15 percent, according to Felloni, 1959).

Lombardy-Venetia and Tuscany also established comprehensive railway networks. The Austrian government built the main lines in Lombardy-Venetia, which totaled 0.10 km per head by 1860. The Tuscan network, at 0.14 km per capita by 1860, connected its largest cities, all of which were located in the northern part of the region. The Pope and the King of the Two Sicilies, by contrast, invested little in infrastructure improvements. At the time of unification in 1861, the railway networks in each state totaled less than 100 kilometers. Total public works in the Papal States in the 1850s, furthermore, accounted for less than 4 percent of total expenditures (Friz, 1967). The available evidence on roads confirms these differences. Though on paper the Two Sicilies was better endowed with roads than Piedmont around 1860, the quality of Southern roads was notoriously poor (Corbino, 1931 I, p. 178).

In total, the evidence suggests that military size and spending was largest in Piedmont, but relatively low in Tuscany, the Papal States, and the Two Sicilies. While indirect taxes were high in Piedmont and the Papal States, they were low elsewhere. Direct taxes were typically low, though there was a general increase during the 1850s, with the most pronounced rise in Piedmont. Over this decade, Piedmont experienced significant growth in its railway system, which became the most comprehensive on the Italian peninsula. While Lombardy-Venetia and Tuscany also had well-developed railway networks, the lines in the Papal States and the Two Sicilies were almost non-existent. In

light of this evidence, we now characterize pre-unitary states according to the various approaches described in Section 3.

5. Diverse Approaches

5.1 Modern Aggression in Piedmont

The evidence suggests that Piedmont undertook a major shift in strategy around 1850, which we claim entailed a Hoffman and Rosenthal-style bargain between the ruling Savoys and a large portion of elites with no prior political representation. Since the fourteenth century, the Savoys had pursued a traditional expansionary approach that combined military aggression and crafty diplomacy. This policy was very successful, transforming a small fiefdom in the Alps into a regional power that included the whole of Piedmont and Sardinia. The Savoys achieved another triumph in 1815, when the Congress of Vienna awarded them the province of Liguria including Genoa, the largest harbor in northern Italy.

Following two decades of relative peace, the Savoys resumed their territorial ambitions in the 1840s. Though they positioned themselves as the champions of Italian liberation from Austrian hegemony, they stuck with their traditional aggressive approach. The king had absolute spending control, and civic freedoms were severely constrained. Piedmont's most distinguishing factor was its large military, which called for greater revenues than most other pre-unitary states. Piedmont also spent a much greater share on defense, at over 40 percent of total expenditures during the 1830s and 1840s.

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The democratic revolutions of 1848 forced all pre-unitary rulers including Carl Albert of Savoy to grant liberal constitutions. Political turmoil also provided Piedmont with an opportunity to wage war against Austria as the leader of an Italian coalition. The alliance was soon defeated, however, and all rulers save Carl Albert re-established absolute power. Piedmont again fought Austria in 1849, only to lose once more. Carl Albert abdicated thereafter, to be replaced by his son Victor Emmanuel II. After some wavering, the new king chose to maintain the 1848 constitution (the *Statuto Albertino*), which was later to become the founding document of the unified Kingdom of Italy. By stipulating that the lower house had to approve the budget as well as fiscal laws, the constitution gave voters sway over all taxing and spending matters.

Though the voting population accounted for a small share of the total population (just 4 percent in 1860, according to Ballini, 1988), there was a fundamental shift in political relations between the ruler and elites after 1848. Previously, only the traditional landed aristocracy had direct access to the king, as well as first claim on the best jobs in the civil service and military (Cardoza, 1997). Other elites, including wealthy merchants from Genoa, had little political influence. We claim that the decision by Victor Emmanuel II to retain the *Statuto Albertino* made a Hoffman and Rosenthal-style bargain possible. This political deal was sealed under Cavour, who became prime minister in 1851. In that year, parliament approved a large tax increase, including the *ricchezza mobile*, which affected the incomes of the non-landed elite. The new funds allowed the state to expand the military and participate in the Crimean War (1853-6) in order to curry political favor with France and the United Kingdom. Piedmont also made large investments in railways. Indeed, the share of military spending fell to less than 30 percent

of total expenditures over the 1850s. Though merchant elites bore the brunt of the new direct taxes, they stood to benefit from reductions in transportation costs and subsequent trade gains. Ultimately, the modern aggressive approach strategy delivered beyond Cavour's wildest expectations, culminating in the unification of the whole of the Italian peninsula from 1859 to 1860.

5.2 Conservatism in the Papal States, Tuscany, and the Two Sicilies

We claim that the Papal States, Tuscany, and the Two Sicilies pursued archetypical conservative approaches. Protected by the Austrian Empire, they did not face serious external threats. Nor did they harbor territorial ambitions. The Pope's role as leader of the Catholic Church meant that he could not pursue an aggressive foreign policy against other Catholic states. It also prevented attack by the Two Sicilies, which in the words of King Ferdinand I was situated "between holy water and salt water" (Romeo, 1984a, p. 802). The legitimacy of these absolutist regimes, furthermore, was questioned by the growing nationalist movement. Though domestic threats peaked in 1848, they continued through the 1850s. Since rulers in The Papal States, Tuscany, and the Two Sicilies restricted military size to the minimum necessary to maintain internal order, they called for smaller per capita tax revenues than Piedmont. Though revenues per head in the Papal States were relatively high, this outcome reflected the specific needs of managing Catholic affairs worldwide. Indeed, the military share for the Papal States averaged less than 20 percent of total expenditures over the pre-unitary period, versus nearly 40 percent for Piedmont.

5.3 Traditional Aggression and Local Perks for Lombardy-Venetia

The case of Lombardy-Venetia is less clear-cut than the previous ones. Officially, Lombardy-Venetia was ruled by a viceroy, but in practice there was little autonomy from the central government in Vienna. Austria was not only a major power, but a key defender of the traditional social order. To quell attempts of constitutional change on the Italian peninsula and elsewhere, it required a large military. Paradoxically, however, Lombardy-Venetia was taxed lightly. Though one of the most developed parts of the Empire (Good and Ma, 1999), it only paid about half of the Austrian average in per capita tax revenues. Furthermore, Lombardy-Venetia benefited from large infrastructure investments. Around 20 percent of the Austria's railway system in the 1850s was located there, though it comprised just 14 percent of the Empire's total population.

Why was Lombardy-Venetia treated so favorably by an Austrian government that was allegedly so repressive? We speculate that Vienna hoped to satisfy local elites, who could always defect in favor of the cause of Italian independence, as they had attempted to do in 1848. In a separate work (Dincecco. et al, 2010), we claim that constitutional reform in Piedmont was used to sway the support of elites in Lombardy-Venetia towards the nationalist movement. The Austrian emperor, by contrast, could not offer a Hoffman and Rosenthal-style political bargain in Lombardy-Venetia, because it would then face pressure to extend a similar deal to elites in Hungary and other regions of the Empire.

To compensate, Austria gave local economic (rather than political) perks such as low taxes and railways, subsidized with fiscal resources from other parts of its domains.

The railways, which were necessary to transport soldiers in case of internal revolts or invasion by Piedmont, also had clear military functions. Indeed, Vienna refused to link its lines in Lombardy-Venetia with those of Piedmont through the late 1850s. This decision was probably made to reduce the scope for economic interdependence, which could also encourage political union.

6. Conclusion

This paper examines the interplay between warfare and taxation in the context of the Italian Risorgimento. Using a new database of military, fiscal, and public goods indicators, we argue that pre-unitary states pursued different tax policies in response to diverse domestic and external political environments. While the Papal States, Tuscany, and the Two Sicilies adopted conservative approaches, Lombardy-Venetia took a traditional aggressive approach as part of Austria. Though Piedmont also followed a traditional aggressive approach through the 1840s, military defeats induced a new, modern aggressive approach that included parliamentary change and railway investments.

Italy continued to pursue a modern aggressive approach just after unification in 1861, borrowing great sums to construct railways and other forms of infrastructure (Federico, 2010). This approach culminated in 1866 with the war against Austria, which Italy won with the aid of Prussia. Investors soon grew wary of sovereign risk, however, forcing the government to exit the gold standard, scale back infrastructure investments, and sharply increase revenues.

Though Italy adopted conservative budget and foreign policies from the late 1860s onwards, we should not underestimate the importance of post-unification improvements in infrastructure, including a large railway system (over 7000 kilometers by 1872, according to ISTAT, 1958). It is unlikely that traditional rulers, had they managed to hold on to power, would have invested so much. Indeed, if unification had never taken place, we speculate that the South, lacking sufficient transportation networks, would have fallen even further behind the North by the start of World War I in 1913.

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*).

To facilitate cross-state comparisons, the 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 troy ounces using the series from Officer (2010). Fifth, revenues in gold troy ounces were converted into revenues in gold grams by multiplying by 31.10. Giovanni Federico provided the exchange rate data for the first and third steps.

Revenue data for Austria, Belgium, France, the Netherlands, Prussia, Spain, and the United Kingdom are from Dincecco (2010, Appendix 2). 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.

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.

Military Personnel and Expenditures. The military personnel data are from the Correlates of War Database of Sarkees (2000). Military and total expenditure data for the Papal States and Tuscany are from Manetti (2009, Tables 3, 6, and 14). 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).

References

Acemoglu, D. (2005). "Politics and Economics in Weak and Strong States." *Journal of Monetary Economics*, 52: 1199-226.

Acemoglu, D., Cantoni, D., S. Johnson, and J. Robinson (2009). "The Consequences of Radical Reform: The French Revolution." NBER Working Paper 14831.

Acemoglu, D., Ticchi, D., and A. Vindigni (2010). "Emergence and Persistence of Inefficient States." Forthcoming, *Journal of the European Economic Association*.

Alesina, A. and E. Spolaore (2003). *The Size of Nations*. Cambridge, MA: MIT Press.

Ballini, P. (1988). *Le elezioni nella storia d'Italia dall'Unità al fascismo*. Bologna: Il Mulino.

Bates, R. (2001). *Prosperity and Violence: The Political Economy of Development*. New York: Norton.

Besley, T. and T. Persson (2008). "Wars and State Capacity." *Journal of the European Economic Association*, 2: 522-30.

Besley, T. and T. Persson (2009). "The Origins of State Capacity: Property Rights, Taxation, and Politics." *American Economic Review*, 99: 1218-44.

Besley, T. and T. Persson (2010). "State Capacity, Conflict, and Development." Forthcoming, *Econometrica*.

Brewer, J. (1989). *The Sinews of Power: War, Money, and the English State, 1688-1783*. London: Unwin Hyman.

Candeloro, G. (1956-65). *Storia dell'Italia moderna*. Milan: Feltrinelli.

Carano-Donvito, G. (1928). *L'economia meridionale prima e dopo il Risorgimento*. Florence: Vallecchi.

Cardoso, J. and P. Lains (2010). *Paying for the Liberal State: The Rise of Public Finance in Nineteenth-Century Europe*, Cambridge, UK: Cambridge University Press.

Cardoza, A. (1997). *Aristocrats in Bourgeois Italy: The Piedmontese Nobility, 1861-1930*. Cambridge, UK: Cambridge University Press.

Ciasca, R. (1916). *L'origine del "Programma per l'opinione nazionale italiana" del 1847-8*. Milan: Dante Alighieri.

Corbino, E. (1931). *Annali dell'economia italiana, volumi I-V*. Città di Castello: Leonardo da Vinci.

Daniele, V. and P. Malanima (2007). "Il prodotto delle regioni e il divario Nord-Sud in Italia, 1861-2004." *Rivista di Politica Economica*, 97: 267-315.

Del Pane, L. (1965). *La finanza Toscana dagli inizi del secolo XVIII alla caduta del Granducato*. Milan: Banca Commerciale Italiana.

Di Gianfrancesco, M. (1974). "La politica commerciale degli stati sardi dal 1814 al 1859" *Rassegna Storica del Risorgimento*, 61: 3-36.

Dincecco, M. (2009). "Fiscal Centralization, Limited Government, and Public Revenues in Europe, 1650-1913." *Journal of Economic History*, 69: 48-103.

Dincecco, M. (2010). *Political Transformations and Public Finances: Europe, 1650-1913*. Book manuscript, IMT Lucca Institute for Advanced Studies.

Dincecco, M., G. Federico, and A. Vindigni (2010). "Winning Hearts and Minds through Constitutional Reform." Mimeo, IMT Lucca Institute for Advanced Studies.

Dincecco, M. and M. Prado (2010). "Warfare, Fiscal Capacity, and Performance." Mimeo, IMT Lucca Institute for Advanced Studies.

Federico, G. (2007) "Market Integration and Market Efficiency. The Case of Nineteenth-Century Italy." *Explorations in Economic History*, 44: 293-316.

Federico, G. (2010) "Always on the Brink: Italy, 1861-1914." In J. Cardoso and P. Lains, eds., *Paying for the Liberal State: The Rise of Public Finance in Nineteenth-Century Europe*, Cambridge, UK: Cambridge University Press.

Felice, E. (2005). "Il valore aggiunto regionale. Una stima per il 1891 e per il 1911 e alcune elaborazioni di lungo periodo (1891-1971)." *Rivista di storia economica*, 21: 272-314.

Epstein, S.R. (2000). *Freedom and Growth: Markets and States in Europe, 1300-1750*. London: Routledge.

Felloni, G. (1959). "Le entrate degli Stati Sabaudi dal 1825 al 1860." *Archivio economico dell'Unificazione Italiana, volumi 3-4, fascicolo 2*.

Friz, G. (1967) "Le strade dello Stato Pontificio nel XIX secolo." *Archivio economico dell'Unificazione Italiana, volume 16, fascicolo 1*.

Good, D. and T. Ma (1999). "The Economic Growth of Central and Eastern Europe in Comparative Perspective, 1870-1989." *European Review of Economic History*, 3: 103-37.

Hearder, H. (1983). *Italy in the Age of the Risorgimento, 1790-1870*. London: Longman.

Herbst, J. (2000). *States and Power in Africa: Comparative Lessons in Authority and Control*. Princeton: Princeton University Press.

Hoffman, P. and J.L. Rosenthal (1997). "The Political Economy of Warfare and Taxation in Early Modern Europe: Historical Lessons for Economic Development." In J. Drobak and J. Nye, eds., *The Frontiers of the New Institutional Economics*, St. Louis: Academic Press.

Hoffman, P. and J.L. Rosenthal (2000). "Divided We Fall: The Political Economy of Warfare and Taxation." Mimeo, California Institute of Technology.

ISTAT (1958). *Sommario di statistiche storiche*. Roma: ISTAT.

Kang, D. (2002). *Crony Capitalism: Corruption and Development in South Korea and the Phillipines*. Cambridge, UK: Cambridge University Press.

Levi, M. (1988). *Of Rule and Revenue*. Berkeley: University of California Press.

Malanima, P. (2006). "An Age of Decline: Product and Income in Eighteenth- and Nineteenth-Century Italy." *Rivista di Politica Economica*, 96: 91-134.

Manetti, D. (2009). *La "civil difesa". Economia, finanza e sistema militare nel Granducato di Toscana, 1814-59*. Florence: Olschki.

Marongiu, G. (1996). *Storia del fisco in Italia, volume II: La politica fiscale della Sinistra Storica*. Turin: Einaudi.

McBride, M., G. Milante, and S. Skaperdas (2009). "Peace and War with Endogenous State Capacity." Mimeo, University of California, Irvine.

Migdal, J. (1988). *Strong Societies and Weak States: State-Society Relations and State Capabilities in the Third World*. Princeton: Princeton University Press.

Mitchell, B. (2007). *International Historical Statistics: Europe, 1750-2005*. New York: Palgrave Macmillan.

North, D. and R. Thomas (1973). *The Rise of the Western World: A New Economic History*. Cambridge, UK: Cambridge University Press.

North, D. (1981). *Structure and Change in Economic History*. New York: Norton.

North, D. and B. Weingast (1989). "Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England." *Journal of Economic History*, 49: 803-32.

O'Brien, P. (2005). "Fiscal and Financial Pre-conditions for the Rise of British Naval Hegemony, 1485-1815." Mimeo, London School of Economics.

Officer, L. (2010). "The Price of Gold, 1257-2009." *Measuring Worth*, www.measuringworth.com

Ostuni, N. (1992). *Finanza ed economia nel regno delle Due Sicilie*. Napoli: Liguori.

Parenti, G. (1956). "Le entrate del Granducato di Toscana dal 1825 al 1859." *Archivio economico dell'Unificazione Italiana, volume I, fascicolo 4*.

Ragioneria generale dello Stato (1969). *Il bilancio dello Stato italiano dal 1862 al 1967*. Roma: Poligrafico dello Stato.

Riall, L. (1994). *The Italian Risorgimento*. London: Routledge.

Riker, W. (1964). *Federalism: Origin, Operation, Significance*. Boston: Little Brown.

Romani, M. (1982). *Storia economica d'Italia nel secolo XIX, 1815-82*. Bologna: Mulino.

Romeo, R. (1973). *Il Risorgimento in Sicilia*. Bari: Laterza. [Original edition, 1950]

Romeo, R. (1984a). *Cavour e il suo tempo, volume II: 1842-54*. Bari: Laterza. [Second edition]

Romeo, R. (1984b). *Cavour e il suo tempo, volume III: 1854-61*. Bari: Laterza.

Rossi Ragazzi, B. (1956). "Le entrate dello Stato Pontificio dal 1827 al 1859." *Archivio economico dell'Unificazione Italiana, volume I, fascicolo 4*.

Sarkees, M. (2000). "The Correlates of War Data on War: An Update to 1997." *Conflict Management and Peace Science*, 18: 123-44.

Scheve, K. and D. Stasavage (2009). "The Conscription of Wealth: Mass Warfare and the Demand for Progressive Taxation." Forthcoming, *International Organization*.

Scheve, K. and D. Stasavage (2010). "Democracy, War, and Wealth: Evidence from Two Centuries of Estate Taxation." Mimeo, New York University.

Spoerer, M. (2010) "The Evolution of Public Finances in Nineteenth-Century Germany." In J. Cardoso and P. Lains, eds., *Paying for the Liberal State: The Rise of Public Finance in Nineteenth-Century Europe*, Cambridge, UK: Cambridge University Press.

Stasavage, D. (2009). "Geographic Scale and Constitutional Control in the Process of European State Formation." Mimeo, New York University.

SVIMEZ (1961). *Un secolo di statistiche italiane, 1861-1961*. Roma: SVIMEZ.

Tajani, F. (1939). *Storia delle ferrovie italiane*. Milan: Garzanti.

Ticchi, D. and A. Vindigni (2009). "War and Endogenous Democracy." Mimeo, Princeton University.

Tilly, C. (1990). *Coercion, Capital, and European States, 990-1990*. Cambridge, UK: Blackwell.

Uggè, A. (1956). "Le entrate del Regno Lombardo-Veneto dal 1840 al 1864." *Archivio economico dell'Unificazione Italiana, volume 1, fasciolo 5.*

Wade, R. (1990). *Governing the Market: Economic Theory and the Role of Government in East Asian Industrialization*. Princeton: Princeton University Press.

Ziblatt, D. (2006). *Structuring the State: The Formation of Italy and Germany and the Puzzle of Federalism*. Princeton: Princeton University Press.

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

Rank	City	State	Pop, 1800	Pop, 1861	Percent Change
1	Turin	Piedmont	61	181	197%
2	Cerignola	Two Sicilies	6	17	183%
3	Trieste	Lombardy-Venetia	24	66	175%
4	Monza	Lombardy-Venetia	6	16	167%
5	Sulmona	Two Sicilies	5	13	160%
6	Castellammare	Two Sicilies	6	15	150%
7	Corato	Two Sicilies	10	25	150%
8	Acireale	Two Sicilies	15	35	133%
9	Salerno	Two Sicilies	9	21	133%
10	Trento	Lombardy-Venetia	7	16	129%

Sources: See Data Appendix.

Notes: Populations are in thousands.

Figure 1. Per Capita Tax Revenues (in Real Gold Grams), 1825-60
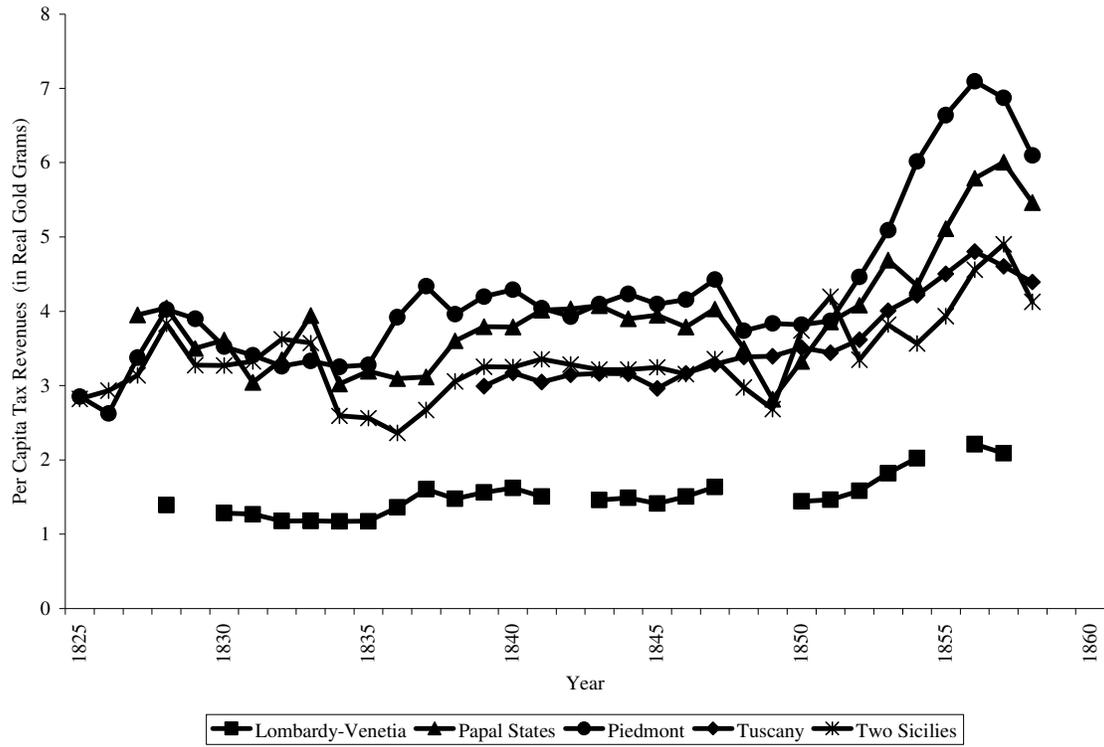
Sources: See Data Appendix.

Figure 2. Per Capita Tax Revenues (in Real Gold Grams), Europe, 1815-60
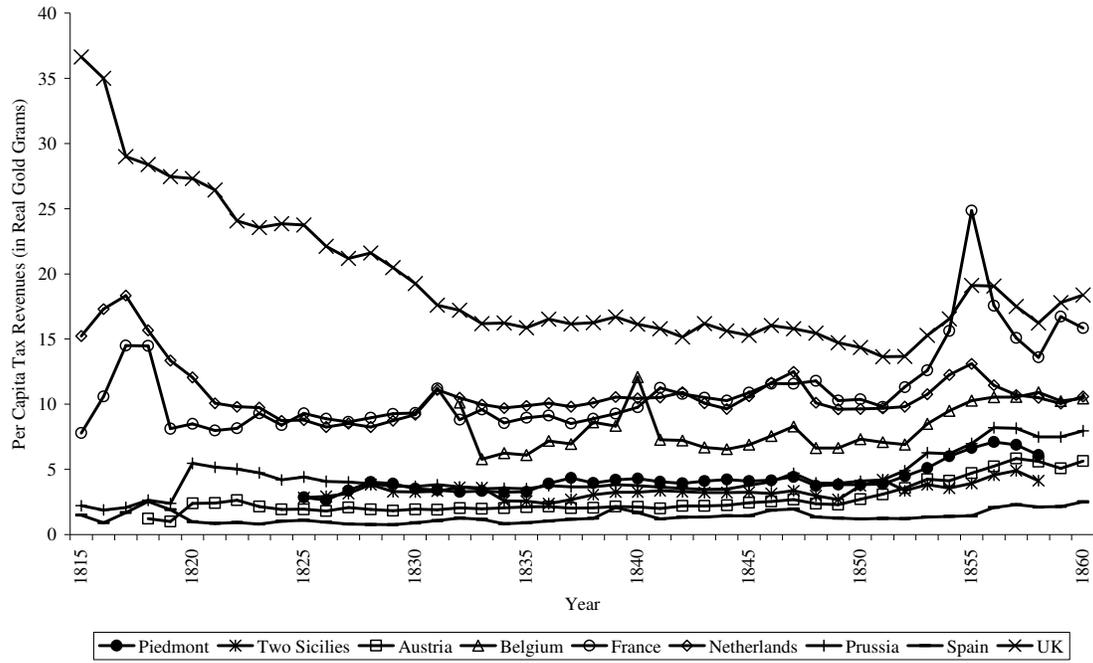
Sources: See Data Appendix.

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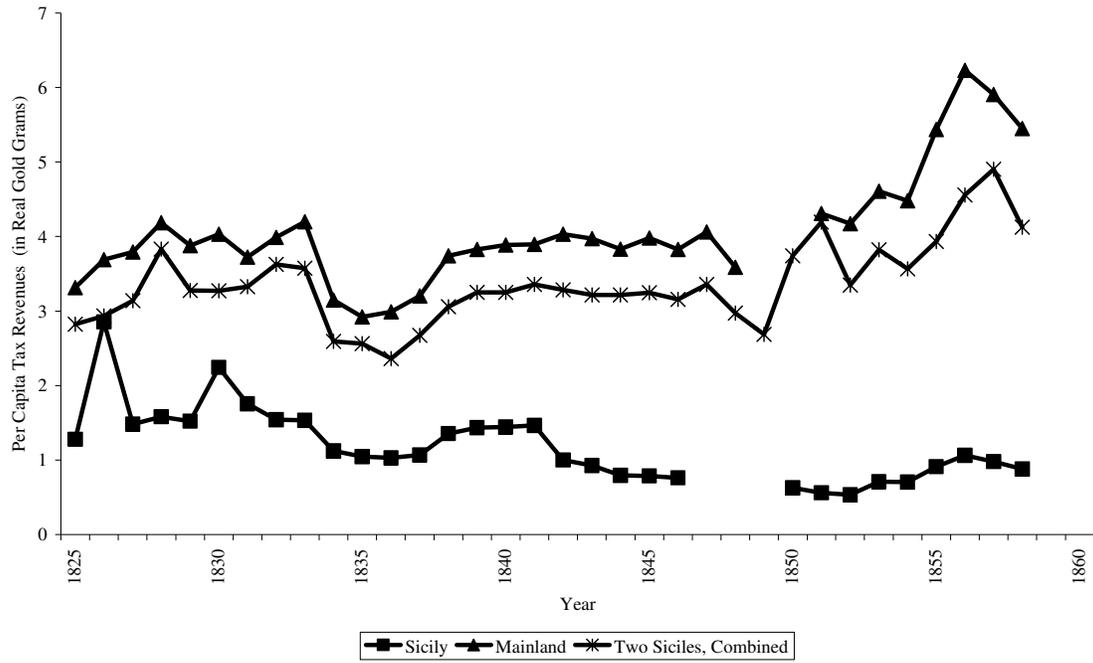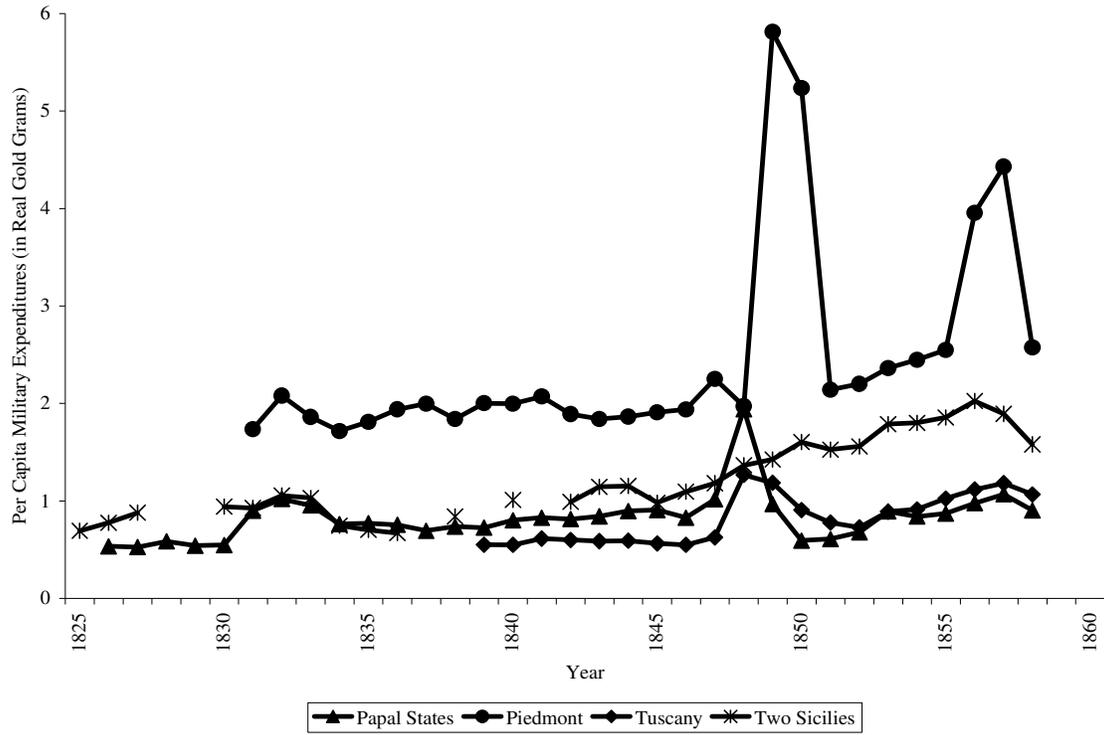

Sources: See Data Appendix.

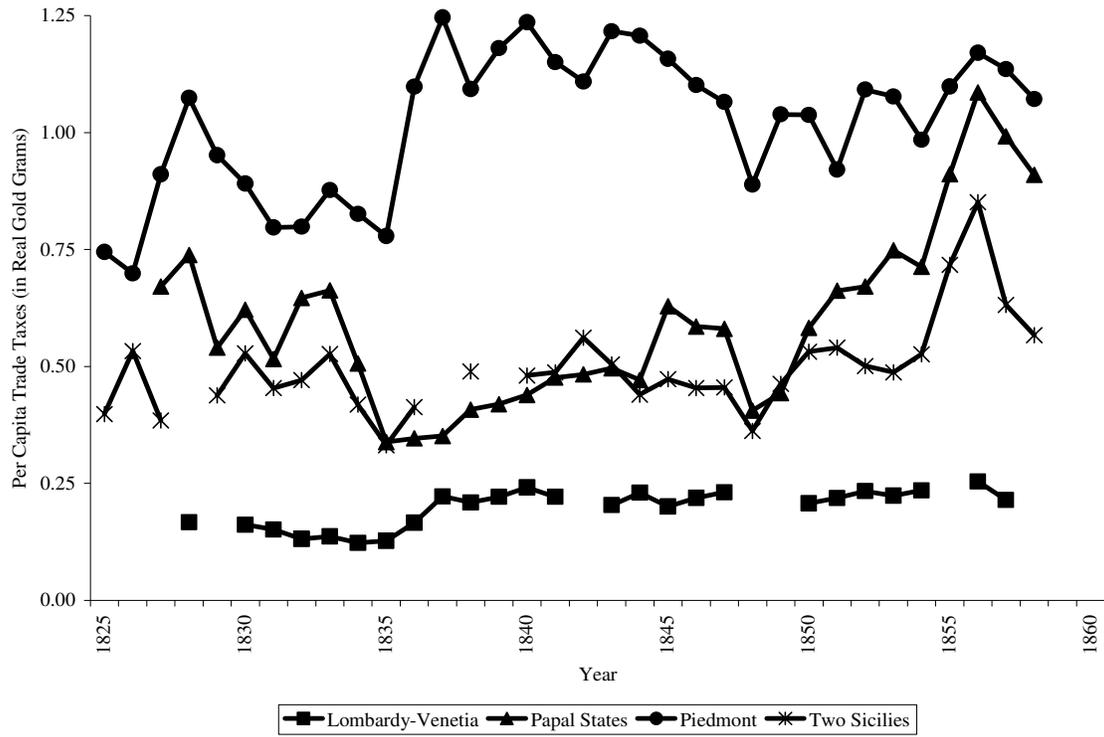Figure 4. Military Personnel Per 1,000 Inhabitants, Europe, 1815-60
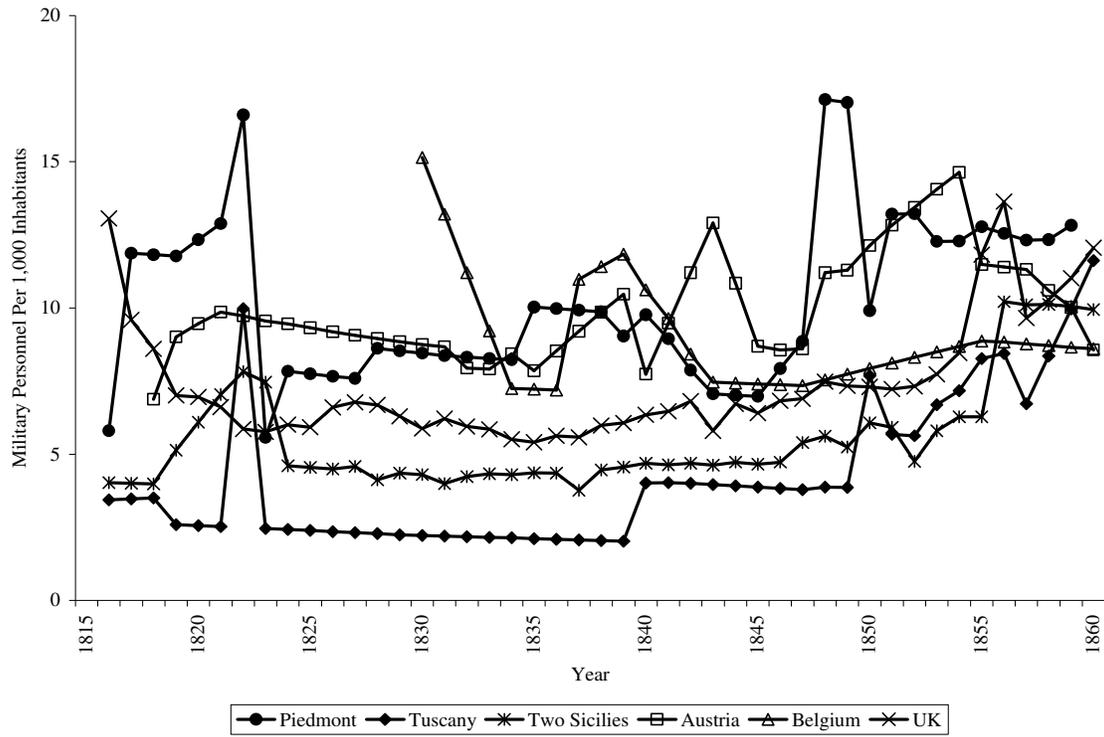
Sources: See Data Appendix.

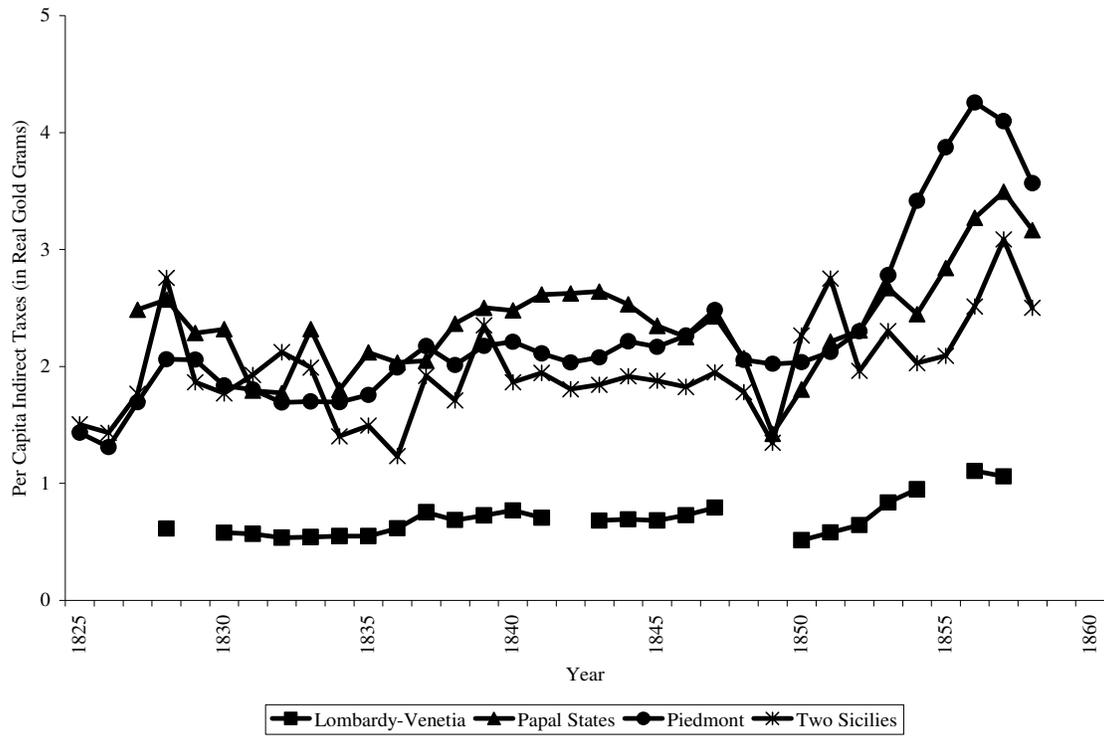Figure 5. Per Capita Military Expenditures (in Real Gold Grams), 1825-60

Sources: See Data Appendix.

Figure 6. Per Capita Trade Taxes (in Real Gold Grams), 1825-60
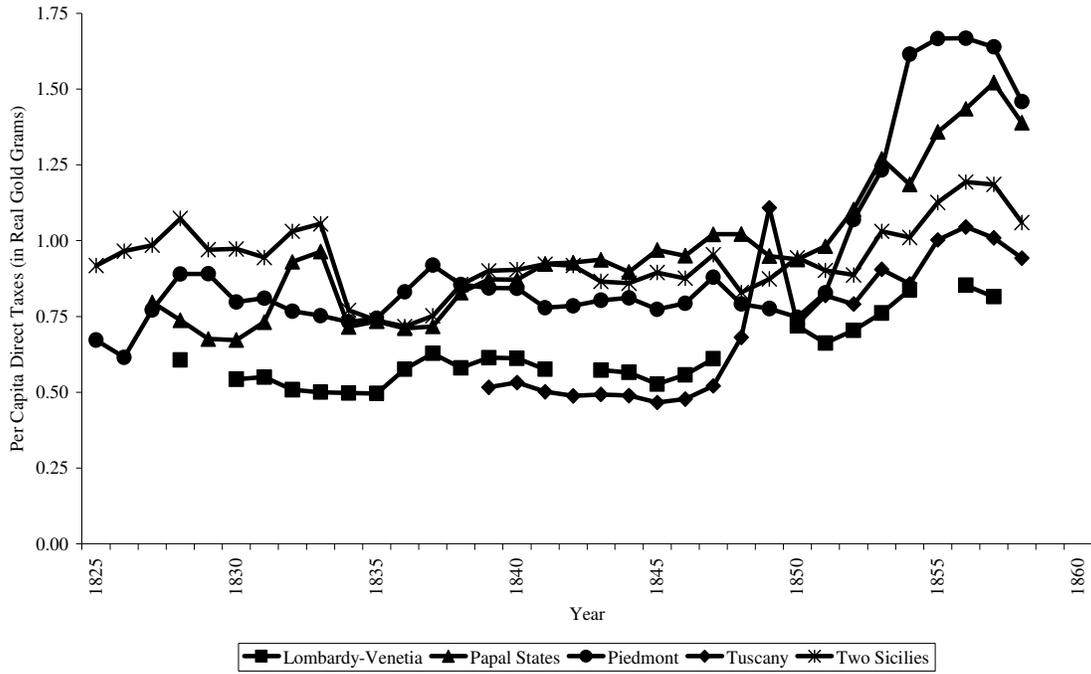

Sources: See Data Appendix.

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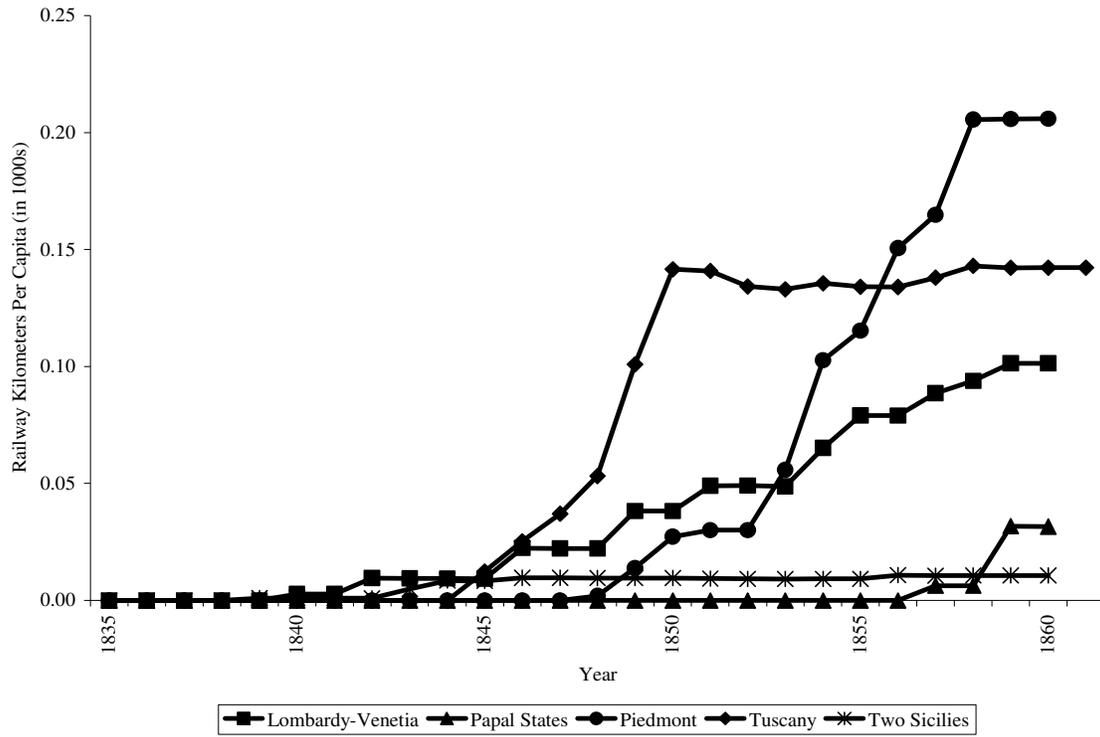

Sources: See Data Appendix.

Figure 8. Per Capita Direct Taxes (in Real Gold Grams), 1825-60

Sources: See Data Appendix.

Figure 9. Cumulative Railway Kilometers Per Capita, 1835-60

Sources: See Data Appendix.