The Response of Taxpayer Compliance to the Large Shock of Italian Unification[*]

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Abstract

The institution of Italy as a unified state, in 1861, was an unexpected event to many. The associated shocks to the tax burden, raised differently across pre-unitary states, triggered on impact large spatial variability in compliance. A fair amount of that variability settled in the following decades; current rates of compliance are, however, still correlated with the unification shocks. The decentralized system of tax enforcement established after the political integration allows to explain the lack of full convergence in compliance.

Keywords: State formation, tax shock, noncompliance, decentralized enforcement.

JEL: D62, D81, H26, K41, K42.

1 Introduction

Institutions can be seen as a nexus of constraints and rules which affect incentives and behaviour of economic actors and thus, ultimately, shape the performance of economies (North, 1991; Acemoglu and Robinson, 2012). A number of empirical contributions have documented that current differences in economic outcomes across countries and regions can be related to historical episodes leading to different institutions (see, among others, Acemoglu et al., 2001, 2005; Banerjee and Iyer, 2005; Fuchs-Schündeln, 2008; Fuchs-Schündeln and Schündeln, 2020). In this paper we use the Italian unification as a natural experiment to investigate the effect on taxpayer compliance of a large increase in the tax burden and a sharp institutional change.

As a unified state, Italy was born in 1861 through the consolidation into a single political entity—namely, the Kingdom of Italy—of those states that formerly were part of the territory known as the Italian peninsula together with Sicily and Sardinia. This sudden and swift process caught almost everyone by surprise, both in Italy and abroad (Cohen et al., 2001). Its main implication was the drastic change experienced by citizens of the newborn kingdom, whose everyday life was shaken by the application of new laws and rules replacing those of the pre-unitary states. In particular, we focus on two aspects of this new institutional setting arguably of major impact for the geographical distribution of taxpayers' behavior. The identification of the response to a tax shock is based on the exogenous variation of the tax burden across regions brought about by the unification and on the decentralized system of tax courts characterizing the Italian fiscal union.

The first empirical evidence is provided by looking at two measures far apart in time of jurisdiction-level (province) tax compliance: the historical one based on a novel data set relative to 1868-70, that is just after the tax shock determined by the Italian unification, and the current one made available by the Italian *Agenzia delle Entrate* relative to the years 2008-10. A simple comparison of these two measures reveals a clear process of spatial convergence in noncompliance; the standard deviation of the current measure is about one half that of the historical one. Moreover, estimates of a cross-province regression reveals that this stylized fact persists even after accounting for differences in wealth and development at the time of Italian unification, shocks to culture originating from the free

city-states experience during the late Middle Ages, that is well before the unification, and control for differential efficiency of the auditing activity. Thus, it seems consistent with the likely consequence of integrating people from different states into a new, enlarged legal entity where common rules and the emergence of more similar social norms drive the dynamics of tax compliance (Besley et al., 2019).

Rates of compliance for 1868-70 reveals very large variability in behaviors across provinces. Moreover, data relative to the recent years imply that, despite convergence, fairly relevant differences in compliance still persist today. We rely on the large tax shock determined by the Italian unification to account for these facts. The first government of the kingdom soon realized the need to homogenize the tax burden across areas of the country as well as to increase the supply of public services. As a result, in the second half of the 1860s taxpayers faced differential increments in the burden of taxation entirely driven by differences in taxes among pre-unitary states.[1] Such increments are the natural candidates to explain the spatial variability in compliance in the aftermath of the unification. Their differences across regions can be taken as exogenous, being the effects of having lived under different tax regimes for decades.

Indeed, an index of the differential tax shocks turns out to be strongly correlated with the historical measure of compliance, in a way that a larger increase in the tax burden resulted in a higher rate of noncompliance. Moreover, an IV estimate of the convergence equation, which makes use of this index as instrument, shows that the origin of the persistent spatial variability in compliance can be at least in part traced back to the shocks in taxation at the time of the Italian unification.

The empirical evidence raises the challenging question relative to the mechanism through which the identified long-term 'convergence-persistence' pattern in compliance took place. The increased homogeneity across provinces accords with the reasonable prediction that integrating people from different states in a unified institutional framework should determine some convergence of attitudes and codes of conduct. The same institutional change associated with the Italian unification, however, has also determined the preconditions for a limited process of convergence, because of the distinctive and long-

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[1]A number of projects, aimed at fostering growth, were undertaken by the first government of the Kingdom of Italy. However, because of the large public debt inherited, these projects were financed by a remarkably large increase of taxation (Dincecco et al., 2011).

lasting features of the enforcement system. Although the institutions of the newly born kingdom were characterized by a high degree of centralization, in order to cope with the threats to the political stability of the state, the design of the tax enforcement activities went rather in an opposite direction.[2]

The so-called Lanza Law, passed by the Parliament in 1864, and the Royal Decree No. 3023 issued in 1866 introduced a tax court system in which the court of first instance was the municipal tax commission while that of second instance was the provincial tax commission of the territory where the tax office issuing the challenged deed was located (Alessio, 1883). The commission decided disputes concerning the imposition of taxes and the denial of tax refunds. Differently from the case of the civil and criminal courts, however, the selection of the judiciary personnel took place at local level leaving it more open to pressures by interest groups. Moreover, contrary to the strict eligibility criteria required to qualify as a judge in civil and criminal courts, no minimal educational requirement was in place for fiscal judges, thus leaving larger opportunities for external intervention in the selection and appointment processes. Quite relevant for our analysis, we also notice that the allocation of resources by the central government across provinces was not designed to tackle local shocks, so that in the areas that had been more strongly hit by the unification tax shocks there was no provision of additional enforcement activities. This system of decentralized tax enforcement was restated without any significant change at the time of the Mussolini Government—through the Royal Decree No. 1639—and also survived to the transition from monarchy to the current republican form of government in 1946 (Manestra, 2010). It has been in place until very recently.

Combined with the 1865 tax shocks, felt too large by many citizens of the new country, we argue that the decentralized enforcement structure has elicited and perpetuated local-specific behaviors which hindered the process of convergence. Indeed, in one of the earliest analysis about the tax evasion in Italy it is argued that the excessively high tax burden (in comparison to other countries), the peculiar composition of the tax courts, and the inadequate resources and inspection powers committed by the central government to local officials are to be considered as the main reasons for the diffused noncompliance

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[2]In general, although local authorities were often given important and expensive responsibilities, such as the provision of primary schooling, they were granted very little autonomy (Cohen et al., 2001).

(Alessio, 1883).

To close our analysis we thus propose a simple dynamic model which draws on insights from the economic literature of misbehavior as a rational choice. Its main assumption is a congestion externality capturing the idea that the actual degree of enforcement is determined by the lenient response to large noncompliance. By adding also imperfect observability and adaptive learning dynamics by taxpayers, we investigate the conditions under which differential shocks to the tax burden characterizing two areas may indeed generate persistent differences in compliance.[3]

In addition to the studies reported above, our paper naturally relates to contributions investigating how behaviors and conducts may be affected by the design of institutions. A main feature of the proposed case study is that the formal institution, resulting from a historical event, has been surviving for one century and a half without any significant variation. In this respect, our evidence accords with that on legal rules as documented by La Porta et al. (1998) and complements that about people's cultural attitudes as reported in Guiso et al. (2016b).

Our paper also contributes to the literature on the economics of state formation, or breakup, and integration processes (Bolton and Roland, 1997; Alesina and Spolaore, 2003). Regarding European countries, the critical role of cultural differences is discussed, among others, by Bertola et al. (2014) and more formally analyzed by Guiso et al. (2016a): cultural heterogeneity may limit the benefits from unification and shape its final outcome. Our evidence suggests that the institutional design—a strong decentralization of the enforcement of the fiscal law—may play a significant role, too, as it may foster persistent disparities in behaviors even within a country like Italy where ethnic, religious, or linguistic distances and cleavages are not particularly marked compared to other nation states or unions of countries.

The empirical evidence we report adds to studies exploiting tax reforms as natural experiments to identify the impact of policy shocks. In particular, the lack of convergence we document is consistent with the main result by Besley et al. (2019) who study the

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[3]Sah (1991) highlights that in the presence of enforcement externalities crime participation rates of societal groups facing similar economic fundamentals may evolve differently. Ferrer (2010) shows that neighborhood externalities may enhance or impede enforcement, depending on the crime rate. Acemoglu and Jackson (2017) suggest that when laws are in strong conflict with prevailing social norms then equilibrium multiplicity and long-run persistence may emerge.

dynamic effects of the poll tax in England and Wales during 1990-93. The introduction of this tax triggered a dispersion of compliance rates across local districts that persisted for a decade after its removal. The suggested interpretation is that, due to the evolution of social motives, temporary tax shocks may have persistent effects on tax evasion when they affect the intrinsic compliance motives.[4]

A number of authors have explicitly investigated the role of spillovers to explain the individual decisions about tax compliance.[5] As for Italy, Galbiati and Zanella (2012) show that during the 1980s congestion in the auditing activity crucially affected the size of the social multiplier whereas Battaglini et al. (2019) show that individual tax evasion from 2007 to 2013 was correlated with the average evasion of all taxpayers that cater to the same tax professional. Moreover, results in Drago et al. (2020) suggest that communication among neighbors affects the compliance decisions of Austrian households. The empirical evidence we provide is in line with these findings emphasising the relevance of social interactions to account for tax evasion. Differently from previous authors, however, we highlight the role of the fiscal courts to explain our long-run evidence.

The rest of the paper is organized as follows. Section 2 presents the data and provides evidence on convergence in compliance. In section 3 we investigate the persistence impact of the tax reform at the onset of the Italian unification while in section 4 we develop a model useful to interpret the historical evidence. Section 5 concludes.

2   A historical perspective on tax compliance

Italy provides a unique opportunity to study tax compliance in a historical perspective. Along a very long interval—roughly one hundred and fifty years—the province has always been, and still is, the relevant territorial entity for issues concerning taxpayers. This feature was not even undermined by the monarchy-republic referendum in 1946. Together with the more recently established regional administrations, provinces represent the relevant administrative district in case of dispute between the taxpayer and the tax

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[4]By comparing the tax reforms in Argentina and Chile, Bergman (2003) concludes that Chile was able to enhance tax compliance thanks to an effective tax administration. Among other studies, Cummins et al. (1994, 1996), Hall and Jorgenson (1967), and Carroll et al. (2000) point to the relevance of exploiting tax reforms that represent discrete events with discernible effects on the variables of interest.

[5]Slemrod (2019) reviews recent economic research in tax compliance and enforcement.

administration. Available data allow to compare a measure of unpaid taxes at province level over 1868-1870, that is just after the formation of the Kingdom of Italy, with a quite equivalent measure over 2008-2010.

2.1 Data and measurement

The formation of the Kingdom of Italy was the outcome of an uncertain and swift political process involving a number of states whose borders had been decided in the Congress of Vienna, after the downfall of Napoleon I.[6] Led by monarchists loyal to the House of Savoy in Northern Italy and by the revolutionary republican Giuseppe Garibaldi in Southern Italy, in few months the unification process determined the creation of a new kingdom that encompassed the Kingdom of Sardinia in the centre-north of the Italian peninsula, the independent territories of the Grand Dukedom of Tuscany, the Dukedom of Modena and the Dukedom of Parma, which were linked to Austria by political alliances and economic interests, the Papal States (that is, territories in the centre of the peninsula under the sovereign rule of the Pope), and the territories in the South that were part of the Kingdom of the Two Sicilies.[7] The unification process was formalized by the Law 17 March 1861 No. 4761, when the Italian Parliament proclaimed Victor Emmanuel, until then king of Sardinia, as the first king of Italy. One month before his proclamation, however, Victor Emmanuel had already assembled the deputies of the first Italian Parliament in Turin, while on 27 March 1861 it was declared that Rome would have been the capital of Italy, even though at that time it was not yet part of the kingdom. The addition of Veneto in 1866 and Rome in 1871 completed the unification process.

The first tasks of the government of the new-born Italy were those of harmonizing the military, political, and administrative systems of the several old states into a unified one. The task was quite easy, for instance, in the case of administrative bureaucracies as they were all organized according to the Napoleonic system. It was, instead, rather more difficult for issues regarding the level of taxation and the mechanism of tax collection. In

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[6]At the time of unification the word Italy was already known. According to the Austrian chancellor, Klemens von Metternich, in 1847, Italy was a geographical expression, a description that was a useful shorthand but had no political significance.

[7]The Kingdom of Sardinia mainly consisted of the current regions of Piedmont, Liguria, Sardinia and the annexation of the Lombardy after the Second Italian War of Independence. The Kingdom of the Two Sicilies consisted instead of southern regions of the Italian peninsula and Sicily.

any case, before the end of the 1860s, homogeneous information regarding tax bills and tax payments at province level was already released. Indeed, the historical measure of noncompliance we use is the official difference—as reported by the Ministry of Finance of the Kingdom of Italy—between the assessed taxes, that is the total tax bill notified to all taxpayers of any province during 1868-70, and the corresponding tax revenue, that is the amount actually paid. Assessed taxes consisted of all direct taxes as determined by the Province Tax Commission together with local public officials and accounted for the official aggregate measure of the amount of the direct tax bill due by all taxpayers in any province. They included land taxes, property taxes, and the labor and capital-income tax called *Imposta di ricchezza mobile*. In the following, the historical measure of noncompliance will be given by the ratio of the total amount of unpaid taxes over the amount of assessed taxes.

Although the Italian experience provides an interesting setting to design a case study for a historical investigation of the evolution of tax compliance, we recognize two problems. Because of differences in the current tax assessment system with respect to that prevailing in the past, we cannot exploit the same measure of unpaid taxes to identify current tax evasion. In particular, as it is well known, current measures of compliance are usually based on proxies for the exact amount of total taxes due by taxpayers. In fact, we use data provided by the Italian Tax Revenue Agency on province-level total tax gap and tax revenue whose sum is the expected tax bill. The missing portion of the potential tax base is calculated using the top-down approach through the comparison between tax data and the national accounts data of the Italian National Institute of Statistics (ISTAT).[8] The ratio between tax gap and potential tax revenue over 2008-10 provides our measure of current noncompliance.

The second problem is related to differences in the number of provinces between the two periods of our interest. The current measure of noncompliance is based on one hundred and six provinces, that is the number of Italian provinces at the beginning of the current century, while in the aftermath of the unification the corresponding number was sixty-eight, as thirty-eight new provinces had been created in the meantime. In particular,

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[8]Note that data by ISTAT also include an estimate of the underground economy, thus providing an indicator of the potential tax base.

for twenty-eight cases each new province consists of land area that was entirely part of a single province at the time of the unification. Thus, in these cases we have simply aggregated the current provinces so as to restore the historical boundaries. For eight current provinces—Trento, Bolzano, Trieste, Roma, Viterbo, Latina, Frosinone, Rieti— we do not have any historical data since they were not yet part of the Kingdom of Italy during the 1860s; hence we have dropped them. Finally, there are five cases such that the land area of the current province was part of two different historical provinces. This is so for Barletta-Andria-Trani, Varese, Pescara, Nuoro, and Enna. We have solved this issue by considering two possibilities. In one instance, we have aggregated each couple of historical provinces containing the lately born administrative entity. In the other instance, we have related the current province to one of the two historical ones according to the share of the land area parceled out to create the new province. In the former case we end up with sixty-three observations, while in the latter case with sixty-eight. We anticipate, however, that the qualitative results are not sensitive to the chosen strategy.

2.2   Comparing tax compliance over one century and a half

According to the historical data, during 1868-70 the average rate of tax noncompliance across Italian provinces was about 25% (see the first row of Table 1). The standard deviation was about 70 percentage points of the average value, suggesting huge variations among point values of the distribution; the minimum and maximum values were indeed 1% and 79%, respectively. Strikingly enough, the second row of Table 1 shows that on average the current official measure of noncompliance across provinces is virtually the same as the historical one: overall about one euro of taxes out of four is still unpaid in Italy. Thus, over one century and half tax noncompliance has been remaining on average strongly persistent at a quite high rate.

The two distributions of noncompliance also reveal a drop in the measure of dispersion around the constant average: the standard deviation halved from 0.18 to 0.09, revealing a quite strong process of convergence. This pattern is shown in Figure 1: in provinces which were characterized by relatively high (low) rates of noncompliance during 1868-70 we observe a reduction (increase) of noncompliance through time. Moreover, it is also evident that points of the scatter plot align very well along the downward slop-

9

ing line, suggesting that there is no specific group of provinces which drives the main conclusion.

Table 1: Tax Compliance, Summary Statistics

Period	Mean	Std. Dev.	Min.	Max.	N
1868-70	0.254	0.184	0.011	0.794	68
2008-10	0.273	0.092	0.121	0.465	68

Note: The table reports summary statistics relative to the historical and current measure of tax noncompliance.

Figure 1: Convergence in Compliance
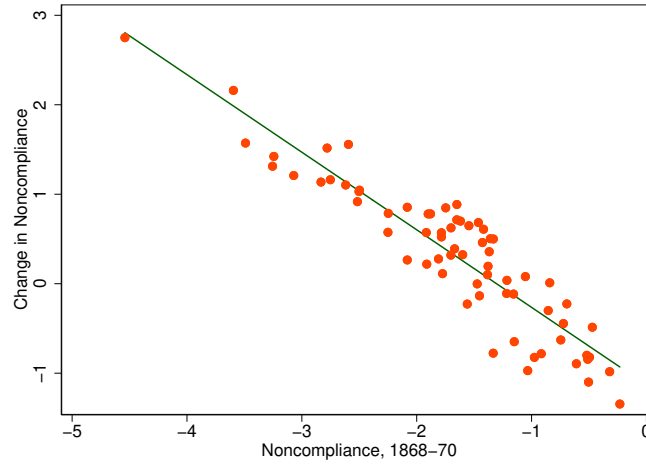
Although the previous plot is quite informative, we provide a more formal assessment of the observed convergence by means of the following empirical specification:

$$Ln(E_T/E_0)_i = \alpha + \beta\, Ln(E_0)_i + \gamma X_i + \varepsilon_i \tag{1}$$

where the left-hand side is the change in noncompliance for province i, $Ln(E_0)_i$ is the logarithm of the historical measure of noncompliance, X_i contains control variables, and ε_i is an error term. Controls include a proxy for historical income-wealth inequality, namely the logarithm of total yields on public debt bonds held by Italian residents in 1870 divided by population in 1861; a dummy picking provinces with large urban centres (that is, more than 100,000 inhabitants) in 1870 to control for differences in the level of development; the province land area in 1861 to take into account the heterogeneity in the size of provinces; the variable Commune suggested by Guiso et al. (2016b) to capture cultural persistence determining different levels of civic capital today; finally, we also

10

use a proxy for potential differences across provinces in the efficiency of enforcement, measured as the ratio between the number of tax reports audited during 2008-10 and the corresponding hours worked by the personnel of the Internal Revenue Agency.

In general, the estimated value of β is lower than zero and its magnitude stays almost constant under alternative specifications (see Table 2). By interpreting equation (1) as derived from a partial adjustment model, the estimate would suggest that the speed of convergence in compliance has been about 0.015 per year. A formal test also reveals that β is greater than -1 implying that convergence has carried out together with a certain degree of persistence in the province-level rankings of noncompliance.

Columns (2) and (3) make clear that neither economic inequality nor differences in tax assessment efficiency significantly affect this result. Moreover, the convergence-persistence pattern is not driven by groups of provinces whose characteristics tend to persist over time, such as provinces with large cities or those characterized by communes in the past. Finally, column (4) provides evidence that our main conclusion is only marginally affected by the North-South divide.

3   Local tax shock and noncompliance

Alessio (1883) and Seligman (1914), among others, document that tax noncompliance was a diffuse practice and a quantitatively important phenomenon in the Kingdom of Italy. As documented by Manestra (2010) the significant amount of noncompliance is a constant trait of the entire history of Italy. Alessio (1883) notices that (just after our period of investigation) the total income reported by all private workers in Italy amounted to 495 millions Lira and that total wage paid to public employees, taking into account also local administrations, was 319 millions. A simple comparison of these figures with that of the labor force composition suggested that the true income by private employees had to be much higher than the reported one. Seligman (1914) highlights the two main distinctive features of the Italian system of tax administration and jurisdiction in comparison with those of other countries: its decentralization at municipality and province level, as well as its excellent technical characteristics, like the stoppage-at-source provisions.

Alessio (1883) and Seligman (1914) shared the view that the origin of the large tax eva-

Table 2: Evolution of Noncompliance

	(1)	(2)	(3)	(4)
Ln(E 1868-70)	-0.867***	-0.852***	-0.863***	-0.891***
	(-23.34)	(-23.34)	(-22.82)	(-25.37)
Ln(Inequality 1870)		-0.069	-0.033	-0.043
		(-1.61)	(-0.75)	(-0.96)
Large City 1870		-0.258	-0.267	-0.253
		(-1.55)	(-1.75)	(-1.64)
Ln(Size 1861)		0.111*	0.116*	0.040
		(2.13)	(2.16)	(0.83)
Ln(Efficiency 2008-10)		0.280	-0.077	-0.628
		(0.54)	(-0.15)	(-1.26)
Commune			-0.086**	-0.024
			(-3.28)	(-0.79)
South				0.298**
				(3.00)
Constant	-1.131***	-2.329***	-2.171***	-1.949***
	(-13.86)	(-4.97)	(-4.40)	(-4.12)
N	68	68	68	68
Persistence	0.001	0.000	0.001	0.003

Note: The left-hand side is the logarithm of the ratio between current and historical measures of noncompliance. *E* stands for noncompliance. *Large City* is a dummy with values equal to 1 for provinces characterized by at least one large urban centre (higher than 100,000 population). *Efficiency* is the ratio between the number of tax assessments and the corresponding number of working hours by the Internal Revenue Service. *Inequality* is total yields on public debt bonds held by residents in 1870 divided by population in 1861. *Size* is the province land area (squared kilometres). *Commune* is the number of communes at time of war against Emperor Frederick I (Guiso et al., 2016b). *South* is a dummy with values equal to 1 for the Kingdom of Two Sicilies. *Persistence* reports the *p*-value for testing $1 + \beta = 0$. Statistical significance is denoted as follows: * $p < 0.05$, **$p < 0.01$, *** $p < 0.001$.

sion in Italy had to be found in the exceptionally high level of tax burden. By comparing the case of Italy with those of other European countries Seligman (1914) concludes that: 'tax rates are so enormously high that evasion and fraud are almost universal. [...] it is of course true that Italy has less wealth than England or Germany. But with a tax rate four to five times as high as in England or Germany, the total yield is less than half of what it is in Germany and less than a third of what it is in England.' As for the large differences in compliance across areas of the kingdom, Alessio (1883) considered them as the natural consequence of both the decentralization of enforcement activities and the differential tax increments realized by the central government in the aftermath of the Italian unification. In the following we exploit this conjecture in a formal way by constructing an index of the local tax shocks determined by the unification.

3.1 The tax regime in the Kingdom of Italy

As pointed out by the Minister of Finance of the new-born Kingdom of Italy, the fiscal systems of the pre-unitary states were mainly characterized by indirect taxation, with differences from state to state both in the number of taxes levied and in the size of tax rates.[9] Overall, in 1860 the per-capita tax revenue ranged from about 30 Liras in the Lombardo-Veneto and the Kingdom of Sardinia to less than 20 Liras in the Kingdom of the Two Sicilies, where no taxation at all was levied on income due to professional activities, trade, and capital gains as well as to inheritances (Zamagni, 2011).[10] The Kingdom of the Two Sicilies and the Papal States shared a quite similar tax regime.

The wide variability of tax systems is clearly documented by Seligman (1914): 'We find in Venice a business tax as well as a capital tax, and in Lombardy both these taxes, together with a poll tax; while a so-called income tax, which was of a very partial character, and which rested largely on outward presumptions, had been introduced in both of these states in the early fifties. In Parma we find a business tax and a so-called personal tax; in Modena, a poll tax with a rather complicated system of property taxes; in Piedmont a personal and movable property tax; in Tuscany a so-called family tax; in the Papal states a business tax and a class tax; in the Neapolitan monarchy a tax on wages

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[9]Only in some cases the system was supplemented by personal taxes.

[10]Tax revenue in the Kingdom of the Two Sicilies was mainly due to custom duties and the land tax.

and pensions; and in Sardinia a rather complicated system of taxes on industry and busi-ness'. The land tax was part of almost all taxation systems; its tax rate, however, varied among states.

The first government of the kingdom aimed at pursuing two main goals: (i) securing an adequate revenue to finance all expenditures considered as necessary for the economic development of the kingdom; (ii) bringing order into the fiscal heterogeneity among areas of the country which implied unequal treatments of otherwise similar taxpayers. Con-strained by the high sovereign debt, the drastic solution adopted resulted in new taxes together with higher rates of existing ones which mainly punched those areas character-ized by relatively low levels of taxation.[11]

In his famous speech, the Minister of Finance Quintino Sella illustrated the expected benefits of the new fiscal regime for the whole country. After an intense debate in the Parliament and the withdrawal of two preliminary projects in 1861 and 1862, it was only in 1864 that the fiscal reform, presented by the Minister of Finance Minghetti, was ap-proved with a number of opponents (Law 14 July 1864, n. 1830). Its main ingredients were the new capital-labor income tax (known as *Imposta sul Reddito di Ricchezza Mo-bile*)—which determined a drastic change with respect to the past—and the revision of the various land taxes. As a consequence, during 1861-69 the average per-capita tax rev-enue increased from 22.2 up to 36.8 Italian lira; then it reached 41.1 lira in 1872—see Table 3.

Table 3: Tax Revenue in the Kingdom of Italy

	1861	1872	1875	1861-75
Capital and Labor	15.6	188.9	184.7	11.8
Land	136.3	217.1	186.2	1.4
Total Revenue	482.6	1,100.2	1,149.2	2.4
Revenue per capita	22.2	41.1	42.1	1.9

Note: Tax revenue is measured as millions of Italian lira; values per capita, instead, are Italian lira. In the last column we report the ratio between measures in 1875 and those in 1861. The source is Zamagni (2001).

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[11]Large variability also characterized sovereign debts of the pre-unitary states; particularly large was the difference of sovereign debts between the Kingdom of the Two Sicilies and the Kingdom of Sardinia. When the consolidated debt of the Kingdom of Italy was assessed, in 1865, it turned out that about 60 percent of such debt had been originated in the former Kingdom of Sardinia.

The introduction of the Income Tax, which represented an absolute novelty for some areas of the country, was also aimed at enforcing a homogeneous tax structure in a country characterized by major economic and social differences among its regions and provinces. Not surprisingly, similarly to the case of the tax on flour, in the period 1861-1865 the revenue accruing from the new income tax increased by 12,5 times, whereas the whole fiscal burden increased by 2.4 times (Zamagni, 2011).[12] In particular, the economic and social impact of the Income Tax was stronger in those areas, such as the Southern and the Central regions, where it was introduced for the first time. In 1872, the per-capita tax revenue was equal to 3.1 for the regions of the former Kingdom of the Two Sicilies, to 3,2 for the region of the former Papal States e to 2,8 for the northern regions known as Lombardo-Veneto. Over less than ten years the significant increase of the fiscal pressure in areas which were formerly Dukedoms determined the replacement of Piedmont as the top contributing area. As for an international comparison, it is worth noticing that whereas at the end of the 1860s the average tax rate on income in Italy was equal to 13.2 percent, the equivalent rate in the U.K. was merely 2.46 percent.[13]

The fiscal regime of the kingdom also rested on a second pillar represented by the Land Tax, which replaced the various forms of land taxation in the pre-unitary states. As for the Income Tax, the goal was to guarantee homogeneity among areas; however, this determined an increase of fiscal pressure in some areas, such as the Southern regions or Piedmont, and a decrease in others such as Lombardy or the provinces of the former Papal States. Overall, as documented by Zamagni (2011), the effect of this reform was to reduce the gap between areas with higher fiscal pressure (such as Lombardy where the per-capita tax was reduced from 7,44 to 6,33 lira) and those with lower pressure (such as Sicily where the per-capita tax raised from 3,40 to 4,24 lira).

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[12]Along with the new tax base, the taxation system of the united Italy also introduced two further novelties: the direct assessment of the tax burden—opposed to the rule of presumption prevailing in the pre-unitary systems—and the principle of differentiation, that was carried much further than in other countries (Seligman, 1914).

[13]To reduce uncertainty on public revenues, the Income Tax was originally allocated among provinces by apportioning to each province a share of the target revenue fixed at national level, according to some socio-economic indicators. Similar indicators were then used to redistribute the fiscal burden among municipalities of the same provinces. In this case the Major and the Municipal Council were formally in charge to allocate the burden among residents. In 1866 the tax was changed to a percentage tax. Smaller incomes were exempted. In 1870 the income from agricultural industry, previously not taxed, was included in the tax base.

3.2 Tax reform and long-run persistence

For those areas where something similar to the new income tax preexisted we have calculated the ratio between the per-capita tax revenue in 1872—the closest year to the reform for which data are available—and the corresponding measure in 1861. The ratio has then been normalized so to have an index ranging from 1 to 5. A value of 5 is also assigned to the former Papal States and the Kingdom of the Two Sicilies where an equivalent income tax did not exist before the unification. The same procedure has been used to derive an index on the increments in the tax burden due to the land tax. In particular, in this case the before-after ratio is relative to the 1867 tax revenue forecast by the government, as a result of the new regime, and the value in 1860. It is interesting to stress that the variability of this index turns out to be smaller if compared to the variability of the index relative to the taxation of capital and labor. Finally, an overall index of the local tax shock is derived as the average of the land tax and the capital-labor tax indexes (see Table 4).

Figure 2: Relevant Dates

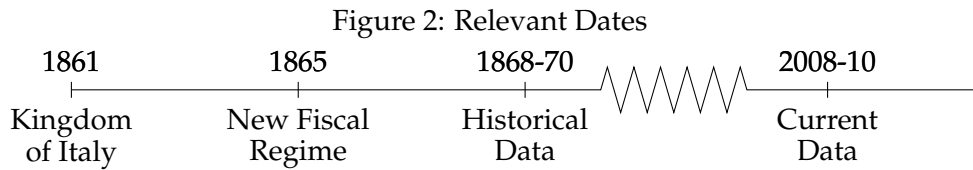| 1861	1865	1868-70	2008-10
Kingdom of Italy	New Fiscal Regime	Historical Data	Current Data

Figure 2 reports the time line of interest for our analysis. We use the index of local tax shocks dated 1865 as instrument for the historical measure of noncompliance to get an IV estimates of the convergence equation (see Table 5). Consistent with predictions of traditional economic literature and compelling previous evidence (for instance, Clotfelter, 1983; Fisman and Wei, 2004), the first stage regression implies that increments in the tax burden are associated with increments in noncompliance. In particular, according to the identifying assumption it suggests that on impact the unification tax shocks triggered large spatial variability in rates of compliance. Moreover, the value of the relevant t-ratio is well above the threshold for not incurring in the weak-instrument concern, thus assessing the strong relevance of our index.

The second column of Table 5, where we report the 2SLS results, supports our main conclusion regarding the convergence-persistent pattern of noncompliance. It is confirmed that a substantial amount of the historical variability in compliance settled through

Pre-unitary States	Capital-Labor (1872/1861)	Land (1867/1860)	Tax Shock
Kingdom of Sardinia A	1.80 (3.24)	3.95 (1.13)	2.87
Kingdom of Sardinia B	1.80 (3.24)	3.33 (1.05)	2.57
Lombardy-Venetia	1.00 (2.00)	1.77 (0.85)	1.39
Modenese	1.49 (2.75)	4.17 (1.16)	2.83
Parmense	1.49 (2.75)	1.00 (0.75)	1.24
Tuscany	5.00 (8.18)	5.00 (1.26)	5.00
Papal States	5.00 (—)	2.41 (0.93)	3.71
Kingdom of Two Sicilies A	5.00 (—)	3.40 (1.06)	4.20
Kingdom of Two Sicilies B	5.00 (—)	4.87 (1.25)	4.97

Table 4: Index of Local Tax Shock

Note: The table reports an index of changes in capital-labor and land taxes determined by the fiscal regime of the Kingdom of Italy. For the land tax, values in parenthesis denote the ratio between the per-capita tax revenue forecast by the government for the 1867 and the actual value in 1860. For the capital-labor tax, instead, the corresponding ratio is between per-capita tax revenues in 1872 and 1861. Data are from Zamagni (2011). These ratios are normalized to get, for each tax base, an index ranging from 1 to 5. The highest value of the index is assigned if the capital-labor tax was absent before the unification. In the last column we report our global index of local tax shock by averaging the two elementary indices. Pre-unitary Italy refers to the territories that unified into the Kingdom of Italy. Kingdom of Sardinia A includes Piedmont and provinces of Novara-Como, Piacenza, Imperia, and Genova. Kingdom of Sardinia B includes provinces of Cagliari and Sassari. Lombardy-Venetia includes Lombardy, Veneto, Udine, and Reggio Emilia. Modenese and Parmense consist, respectively, of the province of Modena and Parma. Tuscany includes provinces of Lucca, Siena, Pisa, Livorno, Grosseto, Firenze, Arezzo, and Massa Carrara. Papal States includes Umbria, Marche, Bologna, Ferrara Forlì, Ravenna, Benevento. Kingdom of Two Sicilies A includes Avellino, Caserta, Salerno, Napoli, Puglia, Calabria, Molise, Abruzzo, Basilicata. Kingdom of Two Sicilies B includes the region of Sicily.

time, though the IV estimate of β is a bit lower (in absolute value) than the OLS one. Recent rates of compliance are still correlated with the unification tax shocks: If we replace the left-hand side of the first stage regression with the current measure of noncompliance, then the coefficient attached to our index of tax shocks is estimated about one-third that reported in the first column, and it is strongly statistically significant (the t-ratio is greater than 3). Finally, the last two columns shows that controlling for the North-South divide does not affect the main evidence.

Table 5: Noncompliance and Local Tax Shock

	(1) First Stage	(2) 2SLS	(3) First Stage	(4) 2SLS
Ln(Tax Shock 1865)	1.161***		1.380***	
	(5.55)		(5.16)	
Ln(E 1868-70)		-0.734***		-0.825***
		(-9.41)		(-11.84)
Ln(Inequality 1870)	0.066	-0.031	0.099	-0.041
	(0.62)	(-0.60)	(0.89)	(-0.86)
Large City 1870	0.175	-0.328	0.116	-0.284
	(0.73)	(-1.93)	(0.47)	(-1.74)
Ln(Size 1861)	-0.022	0.104	0.098	0.045
	(-0.14)	(1.50)	(0.53)	(0.77)
Ln(Efficiency 2008-10)	0.402	-0.071	1.480	-0.553
	(0.25)	(-0.12)	(0.93)	(-1.12)
Commune	0.024	-0.076*	-0.072	-0.027
	(0.33)	(-2.51)	(-0.66)	(-0.84)
South			-0.538	0.258*
			(-1.56)	(2.55)
Constant	-2.328	-1.849**	-2.822*	-1.822**
	(-1.72)	(-2.70)	(-2.12)	(-3.32)
N	68	68	68	68
Persistence		0.001		0.015

Note: The 2SLS estimates are obtained by using the index of tax shocks as instrument for the historical measure of tax noncompliance. Statistical significance is denoted as follows: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

4 Why do differences in compliance persist nowadays?

In this section we present a simple model whose predictions accord with our empirical evidence. In such a model, the nationwide features of the fiscal legislation that are common to various districts of a country—mainly tax rates and penalties—push towards convergence of compliance. The decentralization of tax enforcement decisions together with a non-contingent distribution of resources by the central government result in a congestion externality pushing instead towards district-specific behaviors by taxpayers.

4.1 Congestion and learning

Consider a country whose territory is divided in D districts. Each taxpayer i of any district d reports the fraction δ_i of her taxable income Y_i to the fiscal authority. We assume that Y_i is exogenously given and normalize to 1 the measure of taxpayers per district. The nationwide tax legislation implies an income tax rate τ and a fine F to be levied if tax evasion is detected. The fine is proportional to the unpaid tax bill (Yitzhaki, 1987), that is $F_i = \phi\tau(1 - \delta_i)Y_i$.

Our main assumption shapes the limited commitment to geographically uniform enforcement by the government implied by the decentralization of enforcement activities and an allocation rule of resources across district non-contingent on specific needing: the probability r^d that the misbehavior is punished depends negatively on the diffusion of unlawful acts within a district, the latter captured by the share e^d of lawbreakers. In particular, to simplify the exposition we suppose that such congestion effect is triggered when e^d is above a fixed exogenous threshold $\tilde{e}^d$:

$$
r^d = \begin{cases} \overline{\theta}^d & \text{for } e^d \leq \widetilde{e}^d \\ \underline{\theta}^d & \text{for } e^d > \widetilde{e}^d, \end{cases} \tag{2}
$$

with $\overline{\theta}^d > \underline{\theta}^d > 0$.

However, we assume that each agent decides the income share to report on the basis of her perception p_i^d about r^d. This should capture the uncertainty after a drastic institutional change as that prevailing after the formation of the Kingdom of Italy. In particular, we assume that perception evolves over time according to a simple adaptive learning

process:

$$p_{i,t}^d = \alpha p_{i,t-1}^d + (1-\alpha)s_{i,t}^d, \tag{3}$$

where $(1-\alpha)$ is the weight on new information about r_t^d accruing to each taxpayer as a non distorted signal $s_{i,t}^d$. Such signal may be interpreted as coming either from peers sampled in the same district or from experts operating there (Battaglini et al., 2019). Moreover, the time t signal is assumed to be driven by the district-level of deterrence in the previous period plus a noise component $\eta_{i,t}$.[14] Hence, individual perception dynamic may be written as

$$p_{i,t}^d = \alpha p_{i,t-1}^d + (1-\alpha)(r_{t-1}^d + \eta_{i,t}). \tag{4}$$

Equations (2) and (4) imply that, depending on whether the district-level rate of evasion is lower than, or higher than the congestion threshold, one of the two following equations applies:

$$p_{i,t}^d = \begin{cases} \alpha p_{i,t-1}^d + (1-\alpha)(\overline{\theta}^d + \eta_{i,t}) & \text{for } e_{t-1}^d \le \widetilde{e}^d \\ \alpha p_{i,t-1}^d + (1-\alpha)(\underline{\theta}^d + \eta_{i,t}) & \text{for } e_{t-1}^d > \widetilde{e}^d. \end{cases} \tag{5}$$

In particular, since decentralization of fiscal administration implies that the actual level of enforcement in a given district only depends on taxpayers' behavior in that district, any taxpayer is only interested to learn about the probability of a sanction being inflicted by a local court: in determining the evolution of $p_{i,t}^d$ only local history matters.

4.2 The taxpayer decision

We assume that each risk-neutral taxpayer is characterized by a specific time-constant moral benefit from abiding to the fiscal obligation. The moral benefit increases linearly with the tax bill: $\varepsilon_i \delta_i Y_i$, where ε_i is uniformly distributed on $[0, \overline{\varepsilon}]$.[15] Moreover, to keep the analysis simple we also assume that maximal fine applies, that is $\phi \tau = 1$ (Becker, 1968). Hence, at any time and in any district the taxpayer problem can be formalized as

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[14]In the following we assume $\eta_i \in [-\overline{\eta}, \overline{\eta}]$ is a i.i.d (across time) noise component with distribution function $H(\eta)$, such that $E(\eta_i) = 0$ and $Var(\eta_i) = \sigma_\eta^2$ and $\overline{\eta}$ is taken to be sufficiently small so that $s_{i,t} \in [0,1]$. Thus, the signal on the average frequency of punishment in the past period is correct on average among the taxpayers.

[15]To simplify the exposition we omit the superscript d and the subscript t.

follows:

$$\underset{\delta_i \in [0,1]}{Max} \quad (1 - \tau \delta_i)Y_i + \varepsilon_i \delta_i Y_i - p_i[(1 - \delta_i)Y_i]. \tag{6}$$

The main conclusions are summarized in the following lemmas.

Lemma 1 *The choice regarding individual compliance implies:*

$$\delta_i = \begin{cases} 0 & \text{if } \varepsilon_i \leq \tau - p_i \\ 1 & \text{otherwise.} \end{cases} \tag{7}$$

Given the tax rate and the perceived probability of apprehension, a taxpayer characterized by relatively low (moral) benefit from compliance will be a noncompliant.

Lemma 2 *The size of noncompliant taxpayers—namely, the aggregate district-level evasion rate—is given by:*

$$e = \frac{(\tau - p_m)}{\bar{\varepsilon}} \tag{8}$$

where p_m denotes the average value of the perception distribution.

Aggregate evasion increases (linearly) in the level of the tax rate and decreases with the average perception about local enforcement.[16]

4.3 The long-run outcome

A steady state of the fiscal system is defined as a time invariant distribution of perception—implying $p_{m,t} = p_{m,t-1}$—and induced evasion behavior.[17] The steady-state perception average p_m^* must satisfy

$$p_m^* = \begin{cases} \alpha p_m^* + (1 - \alpha)\bar{\theta} & \text{for } p_m^* \geq \tau - \widetilde{e}\bar{\varepsilon} \\ \alpha p_m^* + (1 - \alpha)\underline{\theta} & \text{for } p_m^* < \tau - \widetilde{e}\bar{\varepsilon} \end{cases}$$

which implies

$$p_m^* = \begin{cases} \bar{\theta} & \text{for } p_m^* \geq \tau - \widetilde{e}\bar{\varepsilon} \\ \underline{\theta} & \text{for } p_m^* < \tau - \widetilde{e}\bar{\varepsilon}. \end{cases} \tag{9}$$

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[16]Since $e \to \frac{\tau}{\bar{\varepsilon}}$ when $p_m \to 0$, partial compliance does not disappear even without any enforcement.

[17]To avoid uninteresting cases we assume $\widetilde{p} \in (0, 1)$.

Lemma 2 and the steady-state perception average allows to determine the steady-state aggregate evasion rate:

$$e^* = \begin{cases} e_l^* = \frac{(\tau - \bar{\theta})}{\bar{\varepsilon}} & \text{for } p_m^* \geq \tau - \widetilde{e}\bar{\varepsilon} \\ e_h^* = \frac{(\tau - \underline{\theta})}{\bar{\varepsilon}} & \text{for } p_m^* < \tau - \widetilde{e}\bar{\varepsilon}. \end{cases} \tag{10}$$

Finally, it is straightforward to conclude that the steady-state probability of apprehension r^* is such that $r^* = p_m^*$.

The main qualitative implication arising from equations (9) and (10) can be summarized as follows.

Proposition 1 *Suppose there exists an invariant distribution of perceptions. Then there exist at most two steady states for the perception average and two related aggregate evasion rates.*

Consider, for instance, a set of parameters such that $\underline{\theta} < \bar{\theta} < \tau - \widetilde{e}\bar{\varepsilon}$. Then the unique equilibrium is characterized by an initial distribution of perceptions the average of which satisfies the condition $p_{m,0} < \tau - \widetilde{e}\bar{\varepsilon}$ and determines the long-run outcome with low probability of apprehension and high evasion rate. Conversely, if $\tau - \widetilde{e}\bar{\varepsilon} < \underline{\theta}$ then the unique equilibrium is characterized by an initial value of the perception average that satisfies the condition $p_{m,0} > \tau - \widetilde{e}\bar{\varepsilon}$ and determines the long-run outcome with high probability of apprehension and low evasion rate. Arguably, the most interesting case applies when

$$\underline{\theta} < \tau - \widetilde{e}\bar{\varepsilon} < \bar{\theta}$$

as such condition is consistent with two possible long-run outcomes. Figure 1 illustrates this case. Given the threshold $\widetilde{e}\bar{\varepsilon}$, the initial value of the perception average determines which one of the two possible long-run outcomes emerges. For instance, if $p_{m,0}$ is greater than the threshold then the system will approach the high steady-state perception average with low evasion rate. Otherwise, the high evasion rate will apply. The figure also highlights that the greater the difference between $\underline{\theta}$ and $\bar{\theta}$, i.e. the greater the effect of the congestion, the more realistic is the possibility of history-dependent long-run outcomes.

Our results can be rephrased by defining three possible regimes depending upon the tax rate and our measure of efficiency of the enforcement system $\widetilde{e}$:
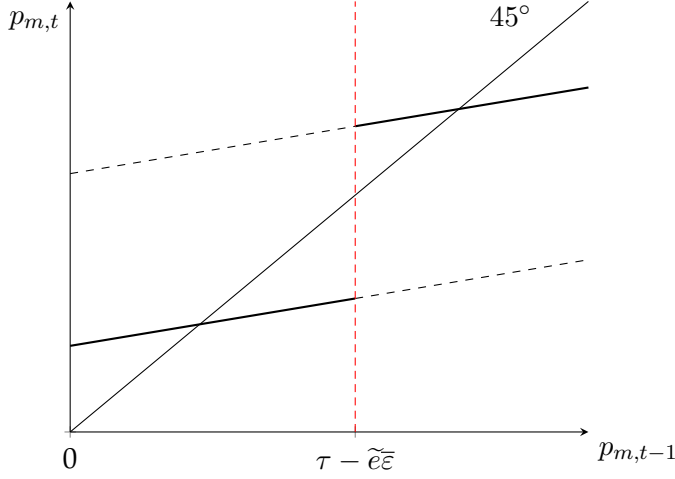
Figure 3: The evolution of perception average

- Low tax rate: if $\tau \in [0, \bar{\varepsilon}\tilde{e} + \underline{\theta}]$ then $p_m^* = r^* = \bar{\theta}$ and $e^* = e_l^*$;

- Intermediate tax rate: if $\tau \in [\bar{\varepsilon}\tilde{e} + \underline{\theta}, \bar{\varepsilon}\tilde{e} + \bar{\theta}]$ then either $p_m^* = r^* = \bar{\theta}$ and $e^* = e_l^*$ or $p_m^* = r^* = \underline{\theta}$ and $e^* = e_h^*$;

- High tax rate: $\tau \in [\bar{\varepsilon}\tilde{e} + \bar{\theta}, 1]$ then $p_m^* = r^* = \underline{\theta}$ and $e^* = e_h^*$.

Given the efficiency of the enforcement system, if the tax rate is relatively high or low then a unique steady state exists: either the high or the low evasion rate can be a steady state. In particular, the larger the congestion effect on the enforcement system, i.e. the lower the value of $\tilde{e}$, the lower must be the tax rate in order to enforce the low evasion outcome. For intermediate values of the tax rate two equilibria, instead, are possible long-run outcomes. In this case, the initial value of the perception average matters.[18]

4.4 Theoretical suggestions and empirical results

Let us start by assuming that a unique equilibrium holds. In this case, whatever the initial distribution of perceptions among taxpayers and thus their evasion rates, the same rate of evasion will be approached. Therefore, if provinces of any country share the same parameters characterizing the moral benefit of compliance, $\bar{\varepsilon}$, as well as the congestion threshold, $\tilde{e}$, then they will converge to the same rate of evasion determined by the nationwide tax code. In particular, if the social learning process displays a large amount of

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[18]Notice that in all cases the limit probability of perceptions are correct on average (i.e. after integrating with respect to η_i) and the steady states coincide with a rational expectation equilibrium, where $p_m^* = r^*$, i.e. the average individual perception coincides with the true probability of apprehension.

inertia—captured in our model by a high value of α—then the convergence to the steady state will be very slow. However, the source of inertia driven by the learning process does not seem to be a realistic explanation for a very long period of persistence.

The prediction of the model in case of multiple equilibria suggests to look at mechanisms affecting in a more drastic way the behaviors within groups of taxpayers. One potential mechanism relies on the idea that an ancient shock in the tax burden can get transmitted for a very long time if it affects the behavior of the enforcement agents. In particular, a major tax reform inducing strong increments in the tax burden may induce such agents to become more lenient in response. Given that, if the anti-evasion activity by the central government is not devised to counteract local heterogeneity of misbehavior, then two districts of the same country would approach different long-run outcomes depending upon their different initial conditions. Arguably, this possibility adds further realism to the previous scenario as the activity of the tax administration in Italy has been historically neither particularly efficient nor strongly targeted to tackle local conditions (Seligman, 1914; Manestra, 2010). The number of tax amnesties during the last century supports the claim that the inability of enforcing a quite high tax burden is at the root of high evasion rates.

5 Conclusions

The swift formation of the Kingdom of Italy in 1861 determined the establishment of common legal rules and formal institutions for people formerly living in different states. Among other things, many of those people had to experience the major change given by the introduction of a new fiscal regime in 1865. Indeed, to fulfill the large spending requirement of the new-born state as well as to fix its nationwide tax base and tax rates, the first Italian government actually determined differential increments in taxation across areas of the country.

We investigated the consequences of these historical events for tax compliance, thus contributing to the literature on the long-run effects of a drastic institutional change. Three main results came out. The spatial variability of the tax shocks is positively correlated with the province-level variability of tax compliance assessed shortly after the

shocks. One century and a half after the Italian unification, the historical variability in compliance is not yet completely absorbed. A substantial process of spatial convergence in compliance since the unification has been, however, occurred, though data constraints do not allow to ascertain when the bulk of convergence happened.

To shed light on the mechanism behind our empirical evidence, we notice the peculiar features of the tax system established in the aftermath of the Italian unification. Differently from other institutional arrangements, tax enforcement activities—especially those pertaining to the recruitment of personnel—were decentralized at local level, mainly provinces. In particular, local tax courts were composed according to criteria which let local political authorities play a crucial role in the process. Moreover, the implementation of the tax system was undertaken in the absence of locally specific budgeting of resources and assignments of tax revenues to local branches of the public administration. These features left a loophole in the control of the incentive to tax compliance.

A simple model formalizes the idea that, if the deterrence activity is subject to a form of congestion then, in contexts characterized by high levels of noncompliance, taxpayers will expect to face a low probability of being sanctioned in case of misbehavior. Under these conditions differences in compliance, triggered by large differential tax shocks as those that occurred in the episode of Italian unification, were shown to persist through time as the self-fulfilling beliefs on the effectiveness of deterrence evolved into social norms. In this sense, our interpretation of the proposed case study appears to accord with the relevance of beliefs and culture in shaping the long-run outcomes of an economy, as suggested by Tabellini (2008) and Guiso et al. (2016a).

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