Tax evasion across Italy: Rational noncompliance or inadequate civic concern?*

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Abstract. The paper suggests an explanation for the geographical dimension of tax evasion that focuses on the structure of territorial government. Taxes administered by the central government are not differentiated by regions. Poor areas may prefer a combination of lower taxes and lower levels of public services at both the central and the local level. This is especially true when income and wealth levels differ among the areas and the demand for publicly provided goods is correlated to these levels. But the use of nationally uniform tax schedules imposes a welfare burden on poorer areas. While the tax rates of local taxes can be adjusted to local preferences, tax evasion may be tacitly accepted as a compensation for the welfare loss deriving from too high centrally set tax rates.

Keywords: tax evasion, interjurisdictional relations, decentralization, public goods, cograduation.

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1. Introduction

This is a paper on geographical tax evasion. This is a rather neglected area of research, given that most studies of tax evasion offer analyses from the point of view of personal and/or functional distribution of income. The underlying assumption of such studies is that opportunities for evasion are correlated to the size of income and/or its distribution across various categories, while geographical location likely plays a minor role, at least as concerns national taxes. The significance of the geographical dimension of tax evasion may sometimes prove substantial, however, even after having taken into account those structural features - such as the prevalence of small firms and/or informal or underground activities - which may impinge upon the possibility for tax evasion. This is so in Italy, as will soon be shown.

The geographical dimension of tax evasion requires different explanations from those usually forwarded by the theory. One explanation, frequently provided by political scientists emphasizes the importance of differences in political systems. For example, evasion of taxes may be a manifestation of inadequate civic concern. Civic concern in turn, may vary from area to area according, for example, to social capital, as Putnam (1993) has tried to explain with reference to Italy.

Within economic theory, instead, tax evasion is simply considered a consequence of regional differences in the efficiency with which resources are used in both the public and private sectors. Yet, if this were the case, higher evasion would always be correlated with relative backwardness. A slightly different explanation points to differences in the quality of public services provided in the various areas: tax evasion is higher where the quality of services is lower. In other words, in these areas tax evasion is a compensating behavior related to the level of services provided.

This paper suggests a third, more general explanation which focuses on the structure of territorial government. More specifically, taxes administered by the central government are - in democratic systems - not differentiated by region.[1] Poor areas may prefer a combination of lower taxes and lower levels of public services at both the central and the local levels. This is especially true when, as usually happens, the income and wealth levels differ among the various areas, and the demand for publicly provided goods is correlated to these levels. However, the use of uniform tax schedules nation-wide imposes a welfare burden on relatively poorer areas. While the tax rates of local taxes can be adjusted to local preferences, centrally tolerated tax evasion may be tacitly accepted as a form of compensation for the welfare loss deriving from tax rates set too high by the central authorities. This is the main argument developed here. Of course, in a setting where law enforcement is low because of inadequate civic concern, free riding in tax compliance in excess of the level that is centrally tolerated cannot be excluded. Taxpayers resident in the poorer regions could choose on their own the optimal level of tax evasion if tax administration is inefficient and/or civic concern is missing. In other words, tax evasion could be divided in two distinct components:

a) the part that is centrally tolerated as a compensation for the higher tax rates imposed nationwide;

b) another part that derives from "free riding" induced by poor enforcement of tax law.

   It is, however, unfeasible to empirically separate the two components.

   The paper is divided into five sections. The second section presents some data concerning tax evasion and the quality of public services according to region. In the third section, we provide a simple analytical framework for our main argument, by using a simple model of demand for publicly provided goods. Section four discusses the

implications of the argument analyzed above. Section five presents empirical evidence on tax evasion, and local tax pressure that is consistent with our hypothesis. The results are summarized in the conclusions.

2. Facts and possible reasons for geographical tax evasion in Italy

Tax evasion is a widespread activity in Italy, but it is not evenly distributed geographically. A number of studies indicate that evasion is higher in Southern regions. As shown in Table 1, which reports the results of the two seminal contributions to this literature, the index of evasion for the two most important centrally administered taxes, the personal income tax (PIT) and the value-added tax (VAT)[2] is higher from the Abruzzo region downwards. The per capita gross product of these same regions is lower than the Italian average: thus, the intensity of evasion of central taxes is negatively correlated to income level, that is, to the relative economic backwardness of Italian regions.

Table 1 - Tax evasion by region in Italy

Regions	Personal Income Tax		Value Added Tax	
	Evasion Index*	Evaded tax (000 liras)	Evasion Index**	Evaded tax (000 liras)
Piemonte	0,36	1,346	0.34	54
Valle d'Aosta	0.39	2,161	0.39	97
Lombardia	0.38	1,622	0.33	68
Trentino A.A.	0.43	1,938	0.35	72
Veneto	0.42	1,704	0.41	74
Friuli V.G.	0.40	1,640	0.36	64
Liguria	0.40	1,698	0.34	54
Emilia Romagna	0.38	1,663	0.39	75
Toscana	0.39	1,573	0.38	77
Umbria	0.41	1,442	0.54	110
Marche	0.44	1,924	0.52	91
Lazio	0.38	1,499	0.42	79
Abruzzo	0.49	1,948	0.58	87
Molise	0.52	1,765	0.64	74
Campania	0.53	1,785	0.65	71
Basilicata	0.50	1,583	0.64	69
Puglia	0.50	1,628	0.58	68
Calabria	0.57	1,913	0.63	66
Sicilia	0.54	1,878	0.56	70
Sardegna	0.47	1,722	0.46	65
National total	0.42	1,624	0.43	71

Source: Cerea (1992) and Ragazzi (1993)
* Taxed income/taxable income ** Taxed value added /taxable value

Tax evasion may be even stronger than data implies. Actually, the very existence of tax evasion is sufficient reason for underestimating the product. A widely accepted opinion, supported by occasional but consistent research, maintains that the so-called underground or black economy is larger in the South than elsewhere in Italy.

As mentioned in the introduction, higher tax evasion may simply be the result of relative backwardness. That is, poorer regions are generally less efficient in tax administration as well as in other activities. This is in fact one of the main reasons why they are poor. Thus, tax evasion is but one manifestation of the general inefficiency associated to relative backwardness.

However, there is some evidence, reported in Table 2, which is not entirely consistent with this explanation. These data show that some indicators of efficiency of centrally provided services are not inversely correlated with income. The index reported

in column 1 averages three distinct indicators of efficiency: the delay in payment of pensions, in the delivery of postal services and in access to the telephone system, respectively. No clear geographical pattern prevails.[3] The two remaining columns report two synthetic indicators of the performances of regional and local governments, as calculated by Putnam (1993) in his well-known book on social capital in Italy. Here a well defined regional pattern emerges: the indexes decrease as we move from richer to relatively poorer areas.

Table 2 - Indices of government performances.

Regions	Central Government	Regional governments	Local governments
Piemonte	1.55	0.98	0.62
Valle d'Aosta	-0.47	0.26	1.29
Lombardia	-0.89	0.49	0.41
Trentino A.A.	-1.59	0.49	0.03
Veneto	-0.19	0.49	0.22
Friuli V.G.	1.19	0.75	0.69
Liguria	-2.06	0.49	0.59
Emilia R.	0.89	1.70	1.34
Toscana	-0.23	0.98	0.83
Umbria	0.27	1.44	1.01
Marche	1.30	0.00	0.69
Lazio	1.42	0.23	-0.15
Abruzzo	0.39	-0.49	-0.29
Molise	-0.19	-0.69	-1.83
Campania	-1.07	-1.67	-1.51
Basilicata	0.01	-0.98	-0.67
Puglia	0.64	-0.46	-0.01
Calabria	-0.48	-1.87	-2.30
Sicilia	0.31	-1.18	-0.57
Sardegna	-0.81	-0.98	-0.39

Sources: Cassese (1993) for the first column and Putnam (1994) for the other two.

What is at stake at present is the efficiency of centrally provided services and the provisional conclusion that evasion of central taxes cannot immediately be attributed to the higher inefficiency of the central government in poorer regions. A more general alternative is presented in the following sections. It considers to welfare losses stemming from centralization of government and ways to correct them.

3. The demand for publicly provided services and welfare losses from centralization

Let us introduce the standard model for the demand of a publicly provided good, g. There are two regions, A e B, with homogeneous preferences inside. A is richer, that is, it has a higher per capita income, y, than B, and it also has a higher voting population ($N_A > N_B$). This difference is sufficient to ensure that A's preferences will translate into national choices, when a decision concerning to the whole country has to be taken. The citizens' preferences over g and a composite private good, x, are represented by:

$$u = u(g) + v(x). \tag{1}$$

The total cost of supplying the publicly provided good is:

$$C = c\,(N, \gamma),$$

where $c'_N \geq 0$ and $c'_\gamma > 0$, while $p = c/N$ is the per capita average cost of one unit of g. For the sake of simplicity we suppose that the production of g is subjected to constant returns to scale, but that cost depends on the degree of rivalry, γ, and on population, N. More specifically, for pure public goods, where γ is equal to zero, the average per capita cost decreases with the population. For private goods, where γ is equal to 1, the total cost is proportional to the population and the average cost is independent of the population. Thus, $p_N \leq 0$.

Concerning rivalry, we simply assume that p increases with γ, thus $p_\gamma > 0$. The cost of providing g is financed through a proportional income tax (or a bundle of taxes producing a total revenue that is proportional to income, y). Total tax payments by individual voters are thus ay, where a is the tax rate, chosen by the median voter. For individuals, the budget constraint is:

$$x = y - ay, \tag{2}$$

while the government budget constraint is $cg = aY$, where Y is the total aggregate income. Letting $t = Y/N$ be the per capita tax base, the budget constraint becomes:

$$pg = at. \tag{3}$$

Thus, individuals maximize their utility, U, by choosing the level of g, subject to (2) and (3) which can then combined into a single constraint:

$$x = y - (pg/t)\, y.$$

The first order condition is:

$$u'(g) = v'(x)\, py/t, \tag{4}$$

which states that each voter maximizes his/her utility when the marginal rate of substitution between the public and the private good equates his/her tax price.

The second order condition is:

$$Z = u''(g) + v''(x)(py/t)^2 < 0. \tag{5}$$

Differentiating (4) with respect to *y, N* and *γ,* we can see how each voter's level of *g* is influenced by his/her income, the size of the population and the rivalry in consumption. Thus, we can make some inferences about the costs and benefits of the centralization of the provision.

$$g_y = 1/Z[v''(x)py/t(1-a)+v'(x)p/t], \tag{6}$$

$$g_N = 1/Z[v'(x)y/tp_n - v''(x)(y/t)^2 pgp_n \geq 0, \tag{7}$$

$$g\gamma = 1/Z[v'(x) \; y/t \; p\gamma - v''(x) \; 4y/t)^2 \; p \; g \; p\gamma] < 0. \tag{8}$$

Equation (6) says that in the case of a publicly provided good, even if this good is a normal one, there is no guarantee that the optimal quantity demanded will increase with income. This is due to the fact that the price – which is each individual's share of the total cost – will increase with the quantity. We thus face the usual problem regarding prevalence of the income versus the substitution effect.

Equation (7) has neater results. The demand for publicly provided goods increases with the number of citizens: this is the case of non-rival goods, where the cost can be shared among a greater number of beneficiaries. Alternatively, the demand may

be unrelated to *N*. This is the case of pure private goods, where there are no gains from cost sharing. The results of equation (8) are even neater: the demand is negatively correlated to rivalry, since the latter implies higher costs.

Let us now turn to the implications of these results for the welfare gains and losses stemming from centralization/decentralization of services. We shall bear in mind the Italian situation, where Northern-central regions are much richer and more populated than those in the South. In other words, the group of the former regions makes up region A in this model and Southern regions form region B. Region A dictates the national choices. Conventional wisdom, derived from experience, says that rich regions have a higher demand for public goods than poor regions. But to have the demand for *g* increasing with income, we need to make an explicit although reasonable specific assumption.

In figure 1, the voters' choices are illustrated, in terms of *a* and *g*. The budget constraint is represented by the straight line from the origin, while the preferences are represented by indifference curves whose levels increase as they move toward south-east (the two arguments have an opposite impact on utility). The slope is:

$$R(y,a,g) = da/dg \big|_{U \ = \ U} = u'(g) / v'(x).$$

The slope of the budget constraint is:

$$da/dg = p/t.$$

At the optimum the slopes of the two curves are equal. Stating that quantity demanded is increasing with income requires that R varies monotonically with income which cannot be derived from:

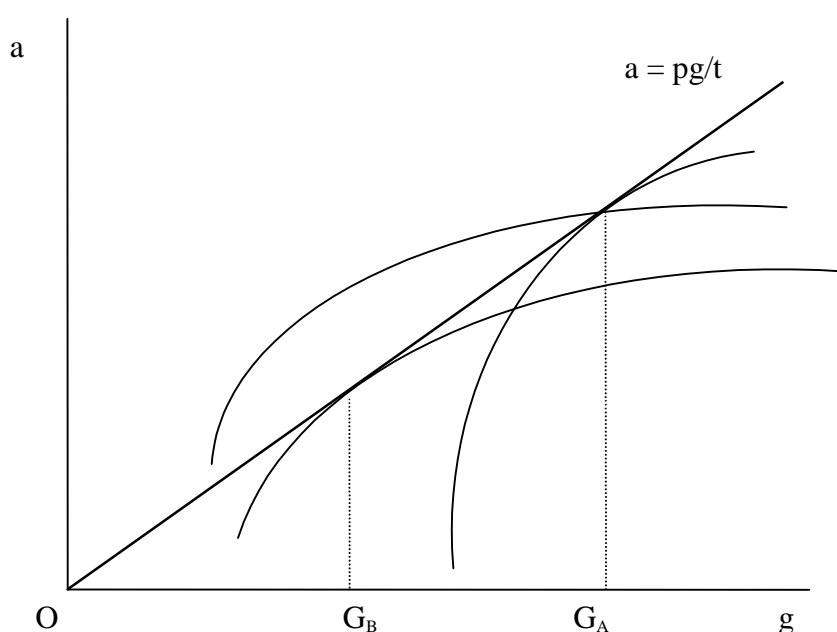$$R_y = - u'(y)/v'(x)^2 [v'(x) + v''(1 - a)].$$

Fig. 1. Voters' choices for a public good

We have thus to assume that $R_y > 0$ for any level of y. One approach, used in the literature (e.g., Gans and Smart, 1996; Bork, 1998), is to assume that preferences for public goods and taxes satisfy the condition of a single point of intersection. It implies that the indifference curve of a rich individual crosses that of a poor only once and from below, as figure 1 shows.

Thus U_A type curves are those of the rich voters of A region, while U_B type curves represent the preferences of the poor, region B, voters. If g is provided at the

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central level, the median voter will be a resident of region A and the quantity G_A is produced. The optimal quantity for region B is G_B, which is smaller than G_A and the distance between the two U_B type indifference curves reported in the figure measures the welfare loss. This is the traditional result found in the literature of fiscal federalism: centralization brings a welfare loss for those areas that have different preferences from those of the national median voter.

This result does not change when the publicly provided good becomes less public, that is, when γ increases. As shown by equation (8), when γ increases the demand for g decreases. This is a general result. The same equation shows, however, that if $v_B'(x) > v_A'(x)$ and $v'_A'(x) = v'_A'(x)$ (a quite plausible assumption) then the decrease in demand is higher for the poor region. This case is graphically shown in figure 2, where the shift to a non-pure public good is illustrated by darker curves. Here the increase in γ is shown by a higher value of a, since more rivalry implies that the total cost is divided by a number of beneficiaries smaller than N.
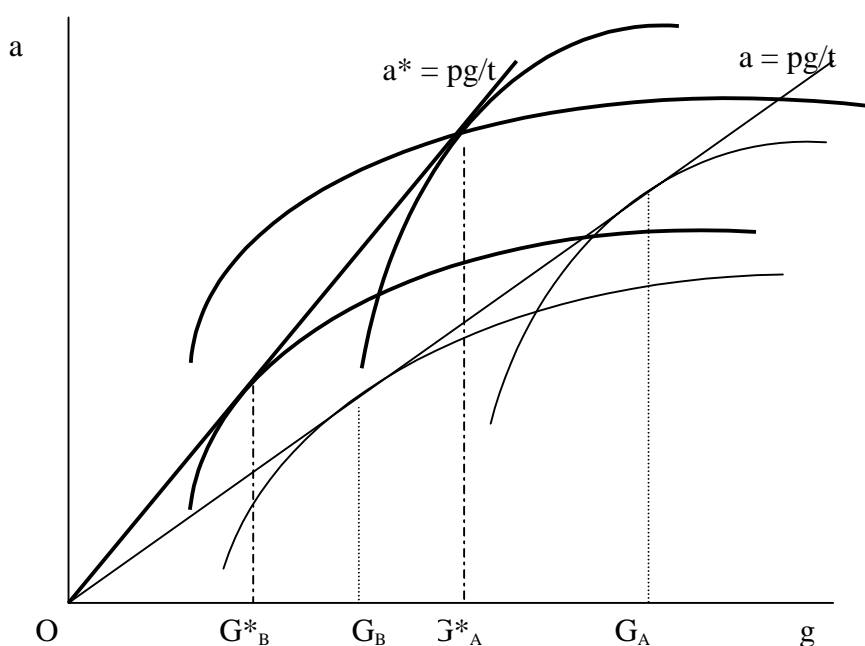

Fig. 2 . Voters' choices for a public good in rich and poor regions

The decrease in the optimal quantity (from G_B to G^*_B and from G_A to G^*_A) is smaller for the rich region. This result holds even when publicly provided goods are pure private goods, financed by a proportional tax on income. The fact that consumption by poor regions is subsidized by the rich regions does not imply that the former prefer the quantity chosen by the latter. This is because the tax price may be simply too high for them.

We can now summarize the results, bearing in mind that by hypothesis there are no increasing returns in the production of the goods.

For public goods:

i)   when in a centralized system the quantity and its associated tax price are chosen by the rich region, the poor region will suffer a welfare loss;

ii)   the rich region always prefers centralization when it can choose quantity and tax price, since it decreases the per capita cost.

For rival goods:

i')   decentralization may be preferred by the poor region, when the tax price is too high;

ii')   decentralization may obviously be preferred by the rich region, when its tax share is higher than its share of the total cost. Obviously, more definite results could be obtained by making more specific hypotheses about the cost functions.

However, when both public and private provision of a private good coexist, wealthy individuals may opt-out from the public sector and use the alternative provided by the private one. Although this is the case of healthcare and education, the literature has mainly focused on the former. Epple and Romano (1997) show that under standard

assumptions on preferences a majority voting equilibrium exists. Provision of both public and private healthcare is preferred by a majority with respect to either only market or government provision. According to Gouveia (1996), low public provision is preferred by a coalition of high- and low-income voters. The former prefer low services and corresponding low tax payments because it is better for them to use the market. Poor voters would prefer low service because of income effects. Jofre-Bonet (2000) shows that mixed provision results in a welfare improvement compared to the strictly private regime, and it is less costly than a purely public regime.

4. Tax evasion as a tacitly agreed compensating device

We can now derive the implications of the exercise for the problem at hand. The first implication is that the poor region will ask – and in a competitive democracy will receive - compensation for its welfare loss due to centralization in the provision of public goods. As suggested by the literature on fiscal federalism, this compensation may take the form of a transfer paid to its citizens, or to its local government. This compensation may also, in alternative or in conjunction, take the form of some tacitly permitted evasion of central taxes. In other words, the central government recognizes that the tax burden on the poor region is too high and prefers to partially ignore tax compliance with respect to other form of more explicit, legal but political more burdensome, form of compensation. Alternatively, the same phenomenon may be explained by higher enforcement costs for tax agencies. And this is surely the case when tax evasion is successfully carried out through illegal (and sometimes criminal) behavior.

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The second implication is that there may be a consensus among both rich and poor regions about the decentralization of the provision of non-pure public goods. This means, for example, that for such broad functions as education and health, in the real world we should observe a very frequent splitting of responsibilities between the central and the local level. The central level will retain those responsibilities which have a public good content, while local governments will be responsible for the provision of rival goods. This is a quite common pattern in traditionally highly centralized systems, such as the Italian one. In the education sector, for example, local governments are responsible for the provision of services that can be tailored to local preferences, such as extra curriculum activities, financial support to disadvantaged students, teaching support to disabled pupils, and the building and maintenance of school premises. If this is true, we should observe lower burdens for local taxes in the poor regions (and lower direct participation of citizens in the production of local services, which is a phenomenon, however, more difficult to confirm).

5. Some testing of the implications.

The main argument of the paper – that tax higher evasion is tacitly accepted in the poorest regions – cannot be directly tested. However, we can provide some non-parametric tests, firstly, of the link between the intensity of the evasion and the level of regional GDP and, secondly of one of the main implication of this paper; that is, that tax pressure for local taxes is negatively correlated with GPD.

We start considering the correlation between per capita GDP and tax evasion, both for personal income and value-added tax (respectively PIT and VAT, thereafter).[4] Typically, in this kind of tests the null hypothesis states that there is no correlation

between the analyzed variables, whereas the alternative maintains that there is some kind of correlation. We test the null hypothesis using Kendall's rank correlation (τ), which indicates the association between variables from any bivariate population (Siegel, 1956).[5] The series are ranked starting from the lowest to the highest level, and when a tie occurs, the tied observations are given the average of the ranks they would have received if there were no ties.

In this case we use the following alternative:

H_0: There is no significant correlation between per capita GDP and tax evasion.

H_1: There is a significant negative correlation between these variables.

The value of τ is quite similar in both cases, -0.645 for income tax and -0.638 for value-added tax. To test for their significance, a one-tail test is used, because negative correlation is anticipated. For a number of observations greater than ten, the τ is *de facto* distributed as a standardized normal. The correspondent z-values are -3.981 and -3.938, respectively. The critical value that corresponds to the 99.995 percent confidence level is -3.891. Since the calculated z-values lie outside the acceptance region, we can reject the null hypothesis of no correlation and accept the alternative one of negative correlation.

Table 3 – Correlation between per capita GDP and PIT and VAT evasion indices

Regions	Per capita GDP	Rank	PIT Evasion Index	Rank	VAT Evasion Index	Rank
Calabria	19.511	1	0.57	20	0.63	17
Campania	21.599	2	0.53	18	0.65	20
Sicilia	21.905	3	0.54	19	0.56	14
Basilicata	22.810	4	0.50	15.5	0.64	18.5
Puglia	23.408	5	0.50	15.5	0.58	15.5

Sardegna	25.444	6	0.47	13	0.46	11
Molise	25.991	7	0.52	17	0.64	18.5
Abruzzo	30.476	8	0.49	14	0.58	15.5
Umbria	32.916	9	0.41	9	0.54	13
Marche	36.401	10	0.44	12	0.52	12
Toscana	37.603	11	0.39	5.5	0.38	6
Lazio	38.940	12	0.38	3	0.42	10
Piemonte	39.997	13	0.36	1	0.34	2.5
Liguria	40.917	14	0.40	7.5	0.34	2.5
Veneto	42.808	15	0.42	10	0.41	9
Friuli V.G.	43.350	16	0.40	7.5	0.36	5
Lombardia	44.763	17	0.38	3	0.33	1
Trentino A.A.	44.875	18	0.43	11	0.35	4
Emilia R.	44.971	19	0.38	3	0.39	7.5
Valle d'Aosta	46.166	20	0.39	5.5	0.39	7.5

As pointed out earlier, a main implication of the model is that when jurisdictions have the opportunity to set taxes on a local basis, the poor ones will choose a lower level of autonomous taxation with respect to the rich ones. To explore the evidence on this implication we calculate the local government taxation to GDP ratio for each region,[6] then we perform a Kendall test with the following hypotheses:

H_0: There is no significant correlation between per capita GDP and local government tax/GDP ratio.

H_1: There is a significant positive correlation between these variables.

Table 4 – Correlation between per capita GDP and local tax pressure

Regions	Per capita GDP Rank	Local gov. tax/GDP	Rank (1)	Rank (2)
Calabria	1	1.05	1.5	1.5
Campania	2	1.70	13	8
Sicilia	3	1.20	2.5	-
Basilicata	4	1.05	1.5	1.5
Puglia	5	1.53	11	6
Sardegna	6	1.30	6	-
Molise	7	1.32	7	3
Abruzzo	8	1.51	9.5	5
Umbria	9	1.56	12	7
Marche	10	1.47	6	4

Toscana	11	2.03	18	13
Lazio	12	2.21	19	14
Piemonte	13	1.80	15	10
Liguria	14	2.35	20	15
Veneto	15	1.75	14	9
Friuli V.G.	16	1.51	9.5	-
Lombardia	17	1.92	1.6	11
Trentino A.A.	18	1.20	2.5	-
Emilia R.	19	1.95	17	12
Valle d'Aosta	20	1.25	5	-

Notes: Rank (2) excludes special statute regions.

The results are slightly different whether we include special statute regions or not. In the first case the value of τ is 0.308, and the associated z-value is 1.901. Again, a one-tail test is considered because positive correlation is expected in this case. Since the computed z-value lies on the right of the critical value equal to 1.645, we can reject the null hypothesis and accept the alternative one at the 95 percent confidence level. The results are stronger if we exclude from the sample the special statute regions that take advantage of high transfers from the central government and then are able to set local taxes at a lower rate. In this case we can reject the null hypothesis at the 99.5 percent confidence level, since τ is equal to 0.555, the z-value is 2.891, and the critical value corresponding to that confidence level is 2.576. These results support the rational noncompliance model.[7]

6. Conclusions

We have explored a profile of tax evasion that is rather neglected in the literature, namely its geographical profile. We started from the observation that in Italy

evasion of central taxes is negatively correlated to per capita regional gross product. We then discussed some possible explanations for this phenomenon, after which we advanced the hypothesis that tax evasion may be understood mainly as a tacit compensation for a higher than optimal central tax burden in the less developed regions. Some free riding in tax compliance can not be ruled out, when tax administration is weak and civic concern inadequate. However, it is impossible to single it out empirically. A first corollary of this argument is that poor regions should also choose a lower level of pressure for their own taxes. Evidence we have provided is consistent with our arguments.

Notes

1. Different legal tax rates are widely used, however, for growth inducing policies but are restricted to taxes on businesses and on payrolls.

2. VAT evasion is computed at the retail stage only, that is it refers to a tax base that should be rather homogenous among regions.

3. Positive values show situations above (that is, more efficient than) the national average and the converse for negative values.

4. Availability of data is an important problem in this study. As will be evident in the proceeding of this Section, data on tax evasion, tax collection and healthcare are updated more slowly than data on GDP. We have tried to use the most recent data in each application, but still there are marked differences in the years of availability. Data for per capita GDP are taken from Svimez (2000) and refer to 1998. Indeed, during the nineties there have been minor changes in the relative position of each region with respect to the others, so there are no problems of coherence with the data. The PIT and VAT evasion indices are calculated as the ratio between assessed and taxable income, and assessed and taxable value added, respectively.

5. This kind of test has a long tradition in the empirical analysis of propositions referred to public good models. One of the most important example concerns the economic theory of military expenditure, where this procedure has been used to study the contribution of each country to the alliance since the very beginning of this stand of literature to more recent articles (Olson and Zeckhauser, 1966; Khanna and Sandler, 1996).

6. Data are taken from Istat (1997; 1998).

7. A more detailed test would require to take into account the impact of intergovernmental transfers on local tax decision.

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