The determinants of the fiscal distress of Italian municipalities: how much is it due to inadequate resources compared to needs?

Antonella Evangelista – SOSE SpA (Ministero dell'Economia e delle Finanze)

Francesco Porcelli – SOSE SpA (Ministero dell'Economia e delle Finanze)

Alberto Zanardi - Ufficio parlamentare di bilancio e Università di Bologna

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Abstract

The aim of this paper is to empirically analyse the main factors affecting the probability of financial distress in Italian municipalities. On the basis of a cross-section database including all the municipalities which experienced or not financial distress in 2012-2018 we investigate in particular the role of structural deficiency of financial resources in making some municipality more financially vulnerable than others. The estimation results show that municipalities that suffered from a level of total resources lower than what is required to provide public services in their jurisdiction at standard levels as measured by Standard expenditure needs indicators are, ceteris paribus, more prone to run into financial distress.

Keywords: Local government, Default, Fiscal distress, Efficiency, Fiscal equalization

JEL Classification: H72, H74

1. Introduction

As the evolution of public finances in most countries following the 2008 Great recession clearly shows, the fiscal position of central and subnational governments are strictly interrelated[1]. On the one hand, the increase in subnational governments' deficits and debts, due the combined impact of decreased tax revenues and increased demand for social services (scissors effect), contributed to the fiscal stress of the central government by strengthening expectations for central government (implicit or explicit) bail-outs. On the other hand, financial consolidation strategies carried out by central government affected subnational finances by pushing down part of fiscal adjustment efforts to the decentralized level. In many OECD countries, central governments implemented reductions in transfers to subnational governments, and established expenditure and/or deficit objectives to be met by local or regional authorities. Such measures dramatically reduced the financial room of subnational governments for implementing key public services and investments.

As a result of this deterioration of public finances, during and after the 2008 many local governments experienced severe financial difficulties and sometimes were compelled to declare financial insolvency. The US experience offers a number of outstanding cases of large municipalities which filed for bankruptcy, such as Stockton and San Bernardino in 2012 and Detroit 2013[2]. However, budget default of subnational authorities can also be observed in Europe: the most relevant episode was Catalonia in 2012, but there are some other significant cases in other countries like Portugal[3].

In particular, in Italy the number of cases of Municipalities in condition of financial distress, both in the form "multiyear procedure of financial rebalance" and "financially destabilized" local governments show a sharp increase in the aftermath of the 2008 financial crisis (see Table 1)

[1] See Ahrend et a. (2013); Vammalle et al. (2013).
[2] See Gorina (2017); Beckett-Camarata (2014).
[3] See Lobo (2011).

Table 1 – Italian municipalities in financial distress (source Ca 'Foscari Foundation)

Year	Financially destabilized municipality		Municipality under procedure of financial rebalance		Total municipalities in financial distress	
	no.	%	no.	%	no.	%
1993	1	0.50%	0	-	1	0.20%
2005	2	1.00%	0	-	2	0.40%
2006	3	1.50%	0	-	3	0.60%
2007	1	0.50%	0	-	1	0.20%
2008	6	3.00%	0	-	6	1.10%
2009	6	3.00%	0	-	6	1.10%
2010	5	2.50%	0	-	5	0.90%
2011	13	6.50%	0	-	13	2.40%
2012	15	7.50%	46	13.60%	61	11.30%
2013	19	9.50%	65	19.20%	84	15.60%
2014	21	10.50%	48	14.20%	69	12.80%
2015	18	9.00%	31	9.10%	49	9.10%
2016	32	16.00%	55	16.20%	87	16.10%
2017	28	14.00%	48	14.20%	76	14.10%
2018	29	14.50%	45	13.30%	74	13.70%
Total	**200**		**339**		**539**	

Conditions of financial distress in local governments potentially depends on a large number of different factors. These factors can be grouped into two categories: non-structural and structural[4]. Factors included in the first category are to some extent under the control of local policy-makers and officials and include poor financial management and inefficiency, the role of interest group pressures and political factors (such as the timing of election, the political orientation and the strength the local government, its alignment with the party in power at central level). Mis-management and opportunistic behaviour of local policy-makers can also be related to the design of intergovernmental fiscal relationship: subnational governments are incentivized to overspend and borrow excessively when they expect central government to assume part of the cost of their spending or borrowing in case of financial difficulties (soft budget constraint)[5].

Structural factors include socio-economic features which are generally beyond the direct control of local policy-makers such as declining population or fundamental

[4] See Pammer (1990).
[5] See, for example, Ter-Minassian (2007).

changes in economic base which affect local tax capacity. In addition, in the category of structural factors, we can also count cuts in vertical transfers accomplished by the central government. As mentioned before, when the local governments' finances heavily depends on vertical transfers, cuts in these transfers decided as a part of the fiscal consolidation plans taken by central government may severely weaken the fiscal position at subnational level and to put at risk the possibility of local governments to provide public goods and services for which they are responsible. Leaving the issue aside of how the consolidation burden can be shared even-handedly across levels of government, the question arises of how much consolidation subnational governments should implement: their capacity to undertake the required adjustments is usually more limited, not least as key social spending generally accounts for a larger share of their expenditure. As a result, some local governments could run into fiscal difficulties, in particular those disproportionately affected by the transfer cuts, or those that, already before the consolidations measures, are penalized because the current intergovernmental transfer system fails to adequately offset the differences in tax capacities across local authorities (horizontal fiscal imbalance).

The latter case seems particularly effective in explaining the recent experience of Municipalities in Italy. In the period following 2010 Municipalities suffered from heavy reductions in available financial resources. As a part of the financial consolidation strategies undertaken the central government, in the period 2010-2014, current vertical transfers towards Municipalities reduced by 8.6 billion of euros in the period 2010-2014.

In addition, the enactment of a general reform of subnational government financing (Law 42/2009) spurred the government to reckon standard expenditure needs indicators (SENs) for the main expenditures categories in each Municipality as the basis, together with fiscal capacity indicators, of the future fiscal equalization system at municipal level. SENs may provide, at least in relative terms, a benchmark to gauge the total resources (tax capacity plus equalizing transfers) to be correctly assigned to each local authority as justified by the needs of local population and territories.

The aim of this paper is identify the factors the factors which explain the differences in the probability of financial distress among Italian municipalities. In particular, the analysis is focused on the role of heterogeneity across municipalities in commanding fiscal resources actually adequate to their own needs. For the purpose of this paper, SENs can be used to evaluate how severe the transfer cuts the central government imposed to each municipalities actually were. Therefore, we can exploit this measure of how much resources to correctly assign to each single municipalities in order to properly evaluate the horizontal vertical imbalance of each municipality and study its impact on the probability of generating a situation of financial distress.

To our knowledge, there are no studies on the determinants of financial default specifically referred to the case of the Italian municipalities. The only exception is Gregori et al. (2019), who however are interested in detecting the budget indicators (debt repayments, current budget equilibrium, amount of residuals and personnel costs) which are most likely to lead to a situation of local distress rather than in analysing the role of a structural variable as the heterogeneity across municipalities in disposable fiscal resources.

The structure of this paper is as follows. Section 2 illustrates the elements of the Italian institutional background relevant for this analysis: the insolvency frameworks for subnational governments regulated by Italian legislation and the main features of the standard expenditure needs indicators introduced by the recent reform of equalizing system for Italian Municipalities. Section 3 presents the dataset (dependent variable and independent variables) on Italian Municipalities we build for the analysis and the specification of the empirical model. In Section 4 we present and interpret the main findings. Section 5 offers some concluding remarks.

2. Institutional background

In our analysis, we focus on 6,605 Italian municipalities located within normal-statute regions, as they share the same set of fiscal rules and because the new equalization system applies only to this subset of local governments.

Italian municipal governments are ruled by a city council and an executive committee appointed by the elected mayor. The council and the mayor are directly elected for a five-year term and are subject to a two-term limit.6 As in many other European countries, also in Italy, there is a high level of fragmentation at the municipal level: 85% of all municipalities have less than 10,000 inhabitants, 75% less than 5,000, 24% less than 1,000 inhabitants, while only 6 cities have more than 500,000 inhabitants. At this level of government is allocated 6.8% of total current public expenditure (52.2 billion euros), by which a wide range of essential public services are provided: environment protection and waste management, social services to elderly and disabled persons, childcare and nursery schools, school-related services (such as school meals and transportation), local police, maintenance of municipal roads, management of civil registries, town planning, culture, recreation, and economic development.

Municipalities' own fiscal revenues come from two main sources: (1) local taxes, among which the most relevant are the Property Tax (called “ICI”' until 2011 and “IMU” afterward), the tax on waste disposal (called “TARSU” until 2011 and “TARI” afterward), and the local income tax surcharge; (2) local fees related to road and traffic, libraries, theatres and culture, burial services, and other services such as the occupation of public spaces, public billboards, certificates.

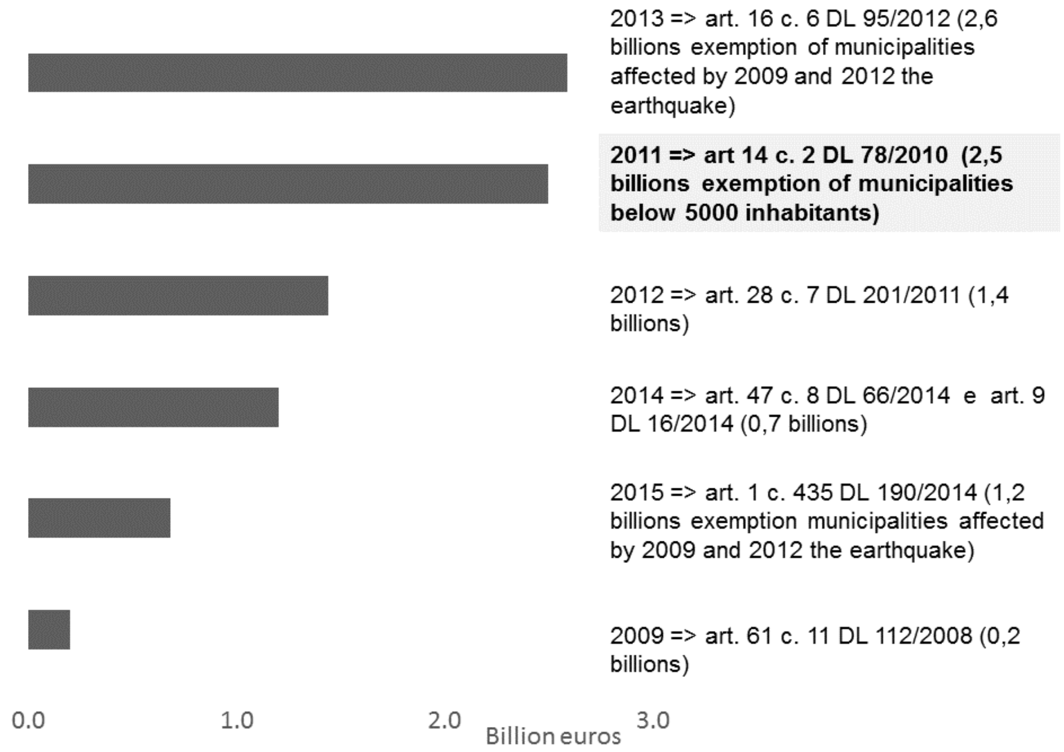
[6] The electoral system is different according to the population: in small municipalities (below 15,000 inhabitants) there is single-round plurality system; instead, in larger municipalities (above 15,000 inhabitants) there is a run-off system.

According to the Italian Constitution, all local governments are subject to a balanced-budget constraint and fiscal deficit is allowed only to finance capital expenditure. Moreover, up to 2016 as an additional and fundamental fiscal discipline mechanism, all municipalities (with the exception of those below 5,000 inhabitants until 2013), provinces, and metropolitan districts must comply with the rules of the “Domestic Stability Pact” (DSP) that was introduced in Italy, as in other European countries, in 1999 after the European Union adopted its Stability and Growth Pact in 1997.

In the aftermath of the financial crisis, starting in 2010, the Italian government has implemented an intense program of spending cuts. In the period 2010-2015, approximately one third of the fiscal consolidation occurred through a permanent cut in transfers to municipal governments, which were reduced by 8.6 billion euros, corresponding to roughly 16% of current expenditure or 33% of capital expenditure at the municipal level. As a result of these cuts, in 2015 the vertical component of the equalization grants was abolished, and the equalization system became horizontal.

Figure 1, that follows, provides a snapshot of the different laws through which the cuts in federal transfers were gradually imposed.

Figure 1 – Composition of municipal transfer cuts.



There are two different aspects of Italian institutional background that are relevant for the analysis of the determinants of financial distress at local level. The first one is the legal definition of the cases of financial distress of local governments provided by Italian legislation. Traditionally, according to Pagano and Moore (1985), financial distress can be defined as the inability of a public sector entity to balance its budget and, in a broader sense, as the ability of a public entity to provide services and meet its future obligations. However, each national legislation regulates specifically acknowledged cases of financially distressed local governments. In particular, according to the Italian legislation (Decree Law 267/2000) local governments can incur into three different cases of fiscal difficulties distinctively defined: "structurally distressed" local governments (enti "strutturalmente deficitari"), local governments in "multiyear procedure of financial rebalance" (enti in "procedura di riequilibrio finanziario"), "financially destabilized" local governments (enti "in dissesto finanziario"). The different procedures of resolution of subnational financial crises usually comprises some form of debt restructuring, supplemented with subnational fiscal adjustment plans, administrative intervention by a higher level of government, or judicial procedures for insolvency and bankruptcy.

In particular, "structurally distressed" local governments are those where there is evidence of "severe and incontrovertible conditions of disequilibrium" as signalled by a set of specific financial indicators monitored each year. When more than half of these parameters (referred to past final accounts and not to the budget) are out of the acceptable ranges, local governments are subject to controls by the Department of the Interior in order to prevent insolvency. Controls concern personnel expenditures, including hiring of new staff, and coverage of costs for services provision by means of fees and tariffs. In the case of failing in meeting the rules, a reduction in funds from central government is inflicted. Controls cease as soon as the local government restores its sound financial condition according to the set of indicators mentioned above, which are checked at the end of each year. This means that after a single year, a formerly structurally distressed local government can get rid of central controls by reducing to four the number of parameters out of acceptable ranges, whatever they are. The criteria to identify the "structurally distressed" local governments, first applied in 2010, have been recently reviewed (2018) in order to maintain an adequate ability to capture Municipalities in conditions of serious financial distress.

The "financial rebalancing" is a procedure that the Municipalities can decide to implement in case of structural imbalances able to put the budget at risk of financial default. Introduced in 2012, this procedure is a sort of a tool for the self-reorganization of the Municipality since the management of the crisis remains entrusted to its ordinary bodies on the basis of an array of measures envisaged by a multiyear financial rebalance plan. The experience of the implementation of the "financial rebalancing" procedure shows that Municipalities sometimes adopt unnecessary dilatory interventions, based on the remodulation and reformulation of the plans, exclusively aimed at putting off the final acknowledgement of the default (in this sense "financial rebalancing" is sometimes viewed as a sort of non-declared “financially destabilized” situation).

Lastly, the default case (formally defined as “financially destabilized” local government), Introduced in 1989 in the Italian legislation, is the most severe situation of fiscal distress: it occurs when the Municipality it is no longer able to assure the provision of essential services and functions, or when its liquid liabilities cannot be fulfilled. When these conditions occur, the city council votes a formal default resolution. Subsequently, the central government appoints an extraordinary board charged with managing the paying off of past debts, whereas the ordinary municipal bodies are left the task of dealing with “good loans” but under severe limitations (in terms of obligations to increase their own taxes and service fees, to reduce staff, etc.).

A reform of the different procedures of fiscal distress above illustrated is currently under discussion in Italy[7]. The main elements of the reform envisage to unify "financial rebalance" and default procedures, to exclude financial distressed Municipalities from fiscal consolidation measures implemented by the central government, to assign financial support to those entities which incurred financial distress outside the direct responsibility of local policy-makers.

The second relevant institutional profile concerns the evaluation of SENs for municipal expenditure programs. As mentioned above, in 2015 the Italian government estimated a set of SENs for the main municipal expenditure programs (about 80% of their current expenditures) as the basis, together with fiscal capacity indicators, of the new fiscal equalization system at local level. For each expenditure function SENs measures the financial resources to be assigned to each Municipality (6.702 in total) as justified by differences in the socio-economic conditions affecting the production costs and the demand for local public services. Following a top-down approach (budget to be assigned to the Municipalities as a whole determined exogenously) standard expenditure needs (estimated in monetary terms) are then converted in coefficients in order to apportion the pre-determined budget constrain across Municipalities. Apart from their use as a component of the mechanism for calculating equalizing transfers to Municipalities, SENs can give a piece of evidence relevant for this work: they provide a measure of the resources that should be allocated to each Municipality according to clear equalizing criteria to be compared with the resources actually assigned to them in order to derive a measure of the misallocation produced by the current mechanism of financing local governments. As a consequence, we can identify those Municipalities that suffer the most from insufficient resources with respect to their needs assessed through the SENs with the result to make these Municipalities more exposed to the risk of falling into financial distress conditions.In particular, the current expenditure of these municipalities is fully financed by local taxes and fees plus horizontal (non earmarked) equalization grants allocated with a system based on historical expenditure up to 2014; after that year a

[7] Ministero dell’interno (2019).

new equalization system based on the difference between standard expenditure needs and fiscal capacity has been gradually introduced with the goal of completely replacing the previous method in 2021. In 2018 only 22.5% of grants where redistribution according to the new equalization system, therefore most of the grants are still apportioned according to the old historical expenditure parameters. In 2015, the first year in which the system was adopted this percentage was 10%. Moreover, as e a residual source of funding, municipalities receive specific grants (usually earmarked) by the central or the regional government.

Therefore, at this stage of the reform, considering its partial implementation, the new equalization system provides a good measure of the existing structural horizontal fiscal imbalance of each municipality. This measure can be obtained by computing the difference between the amount of resource that each municipality should receive in case of full implementation of the new equalization system compared with the historical resources.

3. Data and model specification

The analysis merges different sources of micro-data at the individual Municipality level.

The first source collects information on the cases of fiscal distress of the Italian Municipalities collected by the Ca ’Foscari Foundation for the period 2005-2017. In particular, in Italy the number of cases of Municipalities in condition of financial distress (both in the form of local governments in “multiyear procedure of financial rebalance” and “financially destabilized” local governments) increased significantly after 2011, even if the comparison over time is hampered by the continuous revision of provisions regulating formal bankruptcy frameworks which affect economic convenience and political costs to adhere to these procedures.

In our analysis we consider only conditions of financial distress declared by municipality after 2012, the year that constitutes our latest reference point for the evaluation of the historical resources considered for the evaluation of the horizontal fiscal unbalance of each municipality. This choice is primarily motivated by the he reform of the local property tax implemented in 2012 that produced a reshape of the whole municipal funding structure still in force today.

The second source of information concerns the transfers the Municipalities receive according to the Municipal Solidarity Fund (FSC) from the Ministry of the Interior. In particular, two groups of Municipalities are identified separately:

- on the one hand, the Municipalities which, by moving to the new equalizing system based on a comparison between standard requirements and fiscal capacity, receive more resources than those provided, with historical expenditure as a point of reference;

- on the other hand, the Municipalities that, instead, see the resources available to them reduced compared to the historical expenditure. The same source of data provided also the amount of transfer cuts that each municipality was assigned during the fiscal consolidation period in the aftermath of the financial crisis between 2008 and 2015.

Figure 2 and 3 (respectively aggregating municipalities by region and population brackets) show the relationship between: the percentage of municipalities in financial distress, and the level of transfer cuts measured in percentage of the total current expenditure. From the graphical point of view, we do not notice a sharp correlation between the two variables.

Instead, Figure 4 and 5 (respectively aggregating municipalities by region and population brackets) show the relationship between: the percentage of municipalities in financial distress, and the level of horizontal fiscal imbalance measured with the percentage of municipalities in each region and population bracket that should receive more equalizing grants to finance their standard expenditure needs according to the new equalizing system. There is a clear evidence of the positive correlation between the two phenomena: the higher the level of horizontal fiscal imbalance the higher the percentage of municipality in financial distress.

The third source of information is offered by the website Opencivitas.it site which, based on the estimated SENs for individual municipal functions, evaluates the performance of the Municipalities in terms of the combination of the level of per capita expenditure and the level of services provided per capita. In particular, considering the first two waves of standard expenditure needs evaluations, we include in our analysis the global performance indicators (*named LQP, Livelli Quantitativi delle Prestazioni*) published online up to 2016, and elaborated to 2010 and 2013 financial years. Each index provides, for all municipalities, a score between 1 to 10, these scores measure the level of efficiency in the provision of services combing two variables: the percentage deviation of historical expenditure form the standard expenditure needs, with the deviation of the actual level of services from the standard level that should have been produced to satisfy the potential demand.

Figure 6 and 7 (respectively aggregating municipalities by region and population brackets) show the relationship between: the percentage of municipalities in financial distress, and the level of efficiency in the provision of local services measure through the 2010 Opencivitas LQP index. Also in this case there is a clear evidence of the inverse correlation between the two phenomena: the higher the level of efficiency the lower the percentage of municipality in financial distress. This correlation is particularly evident for municipalities located in the southern regions.

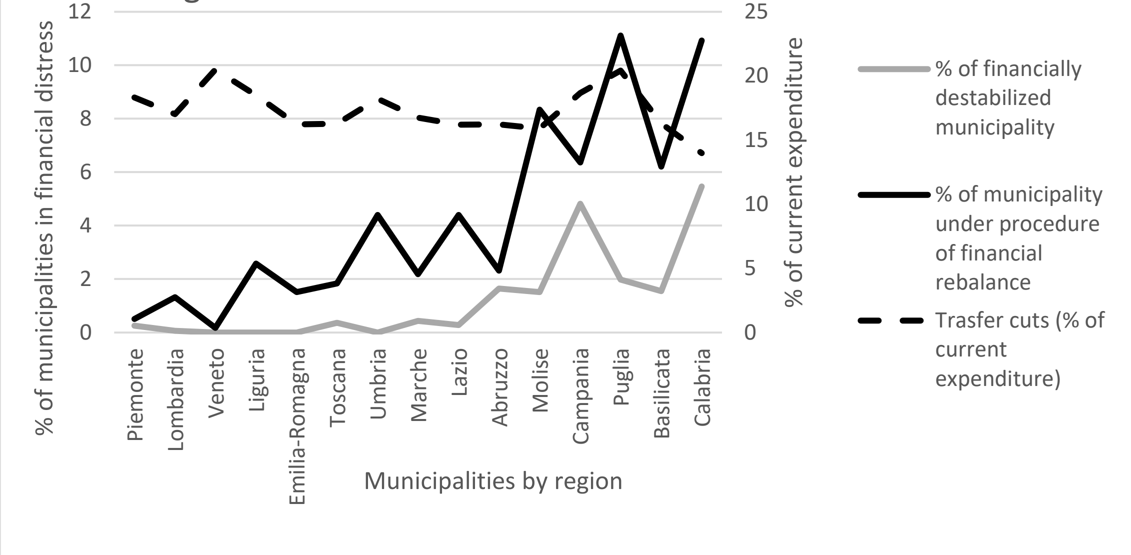


Figure 2 - Financial distress vs Vertical fiscal imbalance

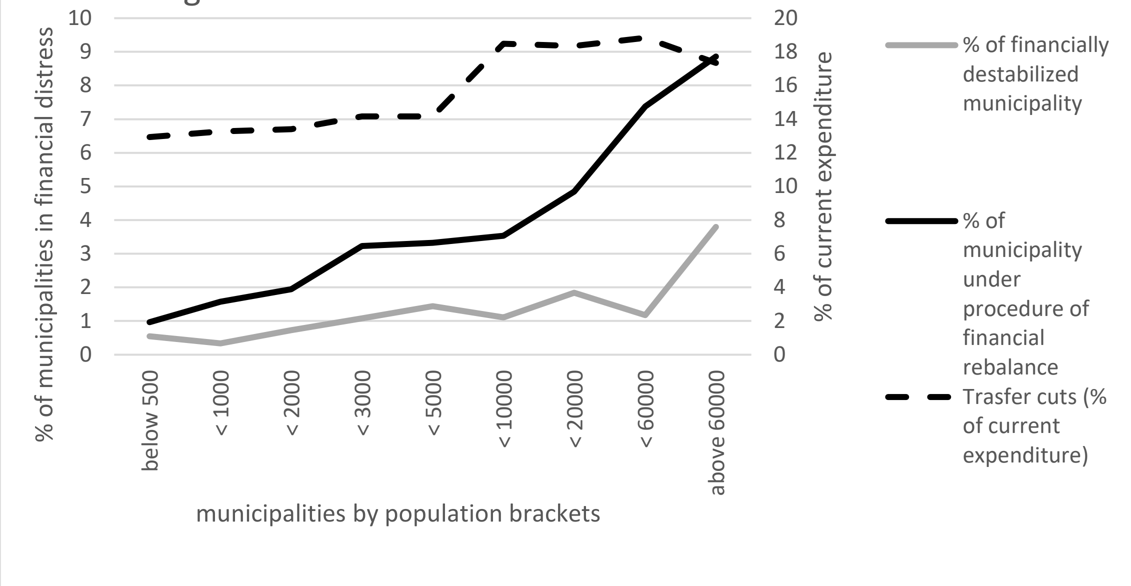


Figure 3 - Financial distress vs Vertical fiscal imbalance

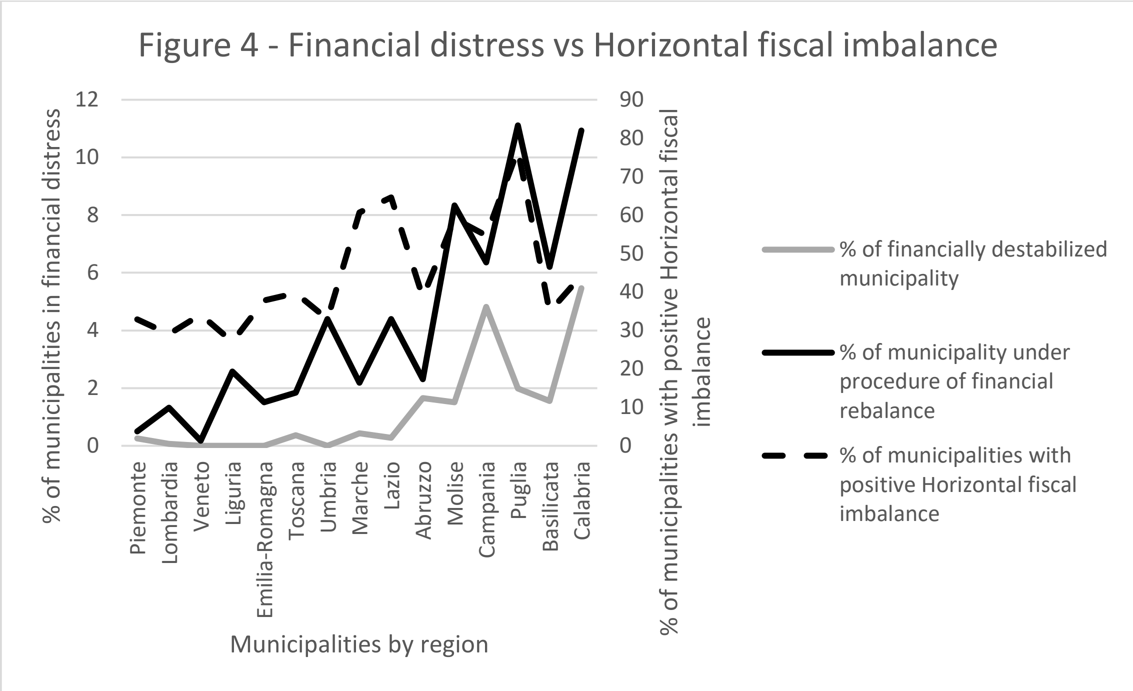


Figure 4 - Financial distress vs Horizontal fiscal imbalance
% of municipalities in financial distress
0
2
4
6
8
10
12
% of municipalities with positive Horizontal fiscal imbalance
0
10
20
30
40
50
60
70
80
90
Piemonte
Lombardia
Veneto
Liguria
Emilia-Romagna
Toscana
Umbria
Marche
Lazio
Abruzzo
Molise
Campania
Puglia
Basilicata
Calabria
Municipalities by region
% of financially destabilized municipality
% of municipality under procedure of financial rebalance
% of municipalities with positive Horizontal fiscal imbalance

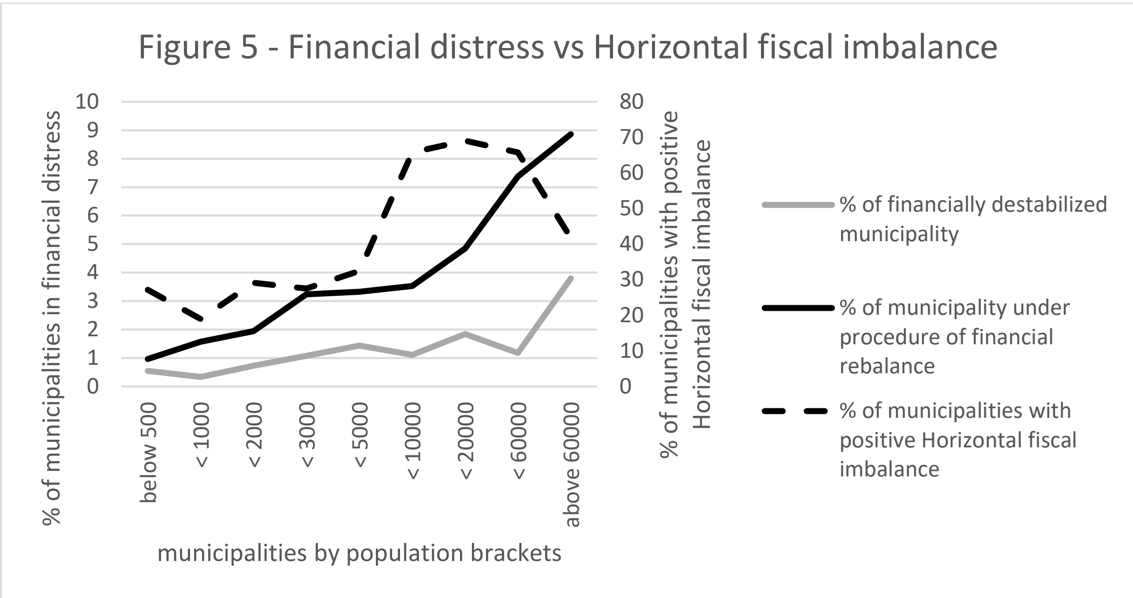


Figure 5 - Financial distress vs Horizontal fiscal imbalance
% of municipalities in financial distress
0
1
2
3
4
5
6
7
8
9
10
% of municipalities with positive Horizontal fiscal imbalance
0
10
20
30
40
50
60
70
80
below 500
< 1000
< 2000
< 3000
< 5000
< 10000
< 20000
< 60000
above 60000
municipalities by population brackets
% of financially destabilized municipality
% of municipality under procedure of financial rebalance
% of municipalities with positive Horizontal fiscal imbalance

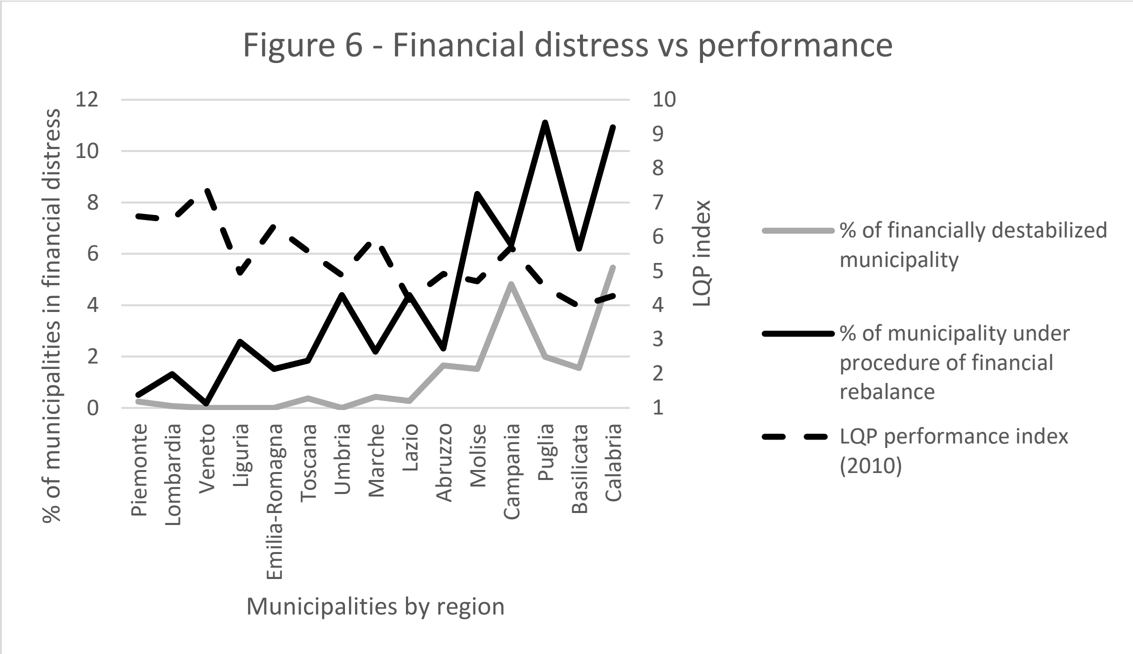


Figure 6 - Financial distress vs performance
% of municipalities in financial distress
12
10
8
6
4
2
0
10
9
8
7
6
5
4
3
2
1
LQP index
Piemonte
Lombardia
Veneto
Liguria
Emilia-Romagna
Toscana
Umbria
Marche
Lazio
Abruzzo
Molise
Campania
Puglia
Basilicata
Calabria
Municipalities by region
% of financially destabilized municipality
% of municipality under procedure of financial rebalance
LQP performance index (2010)

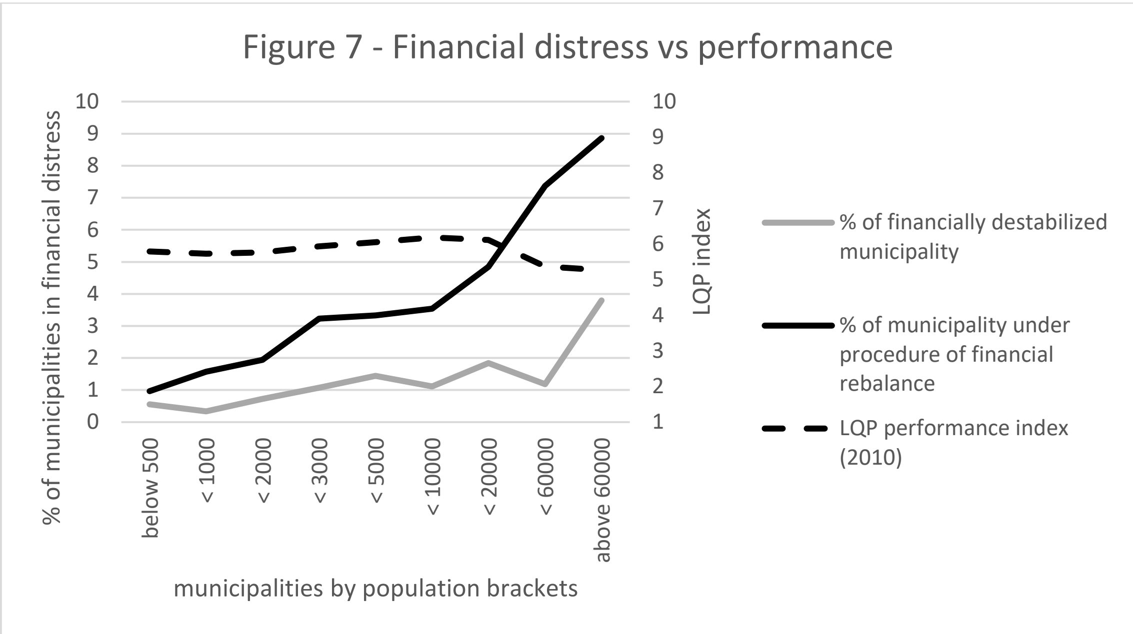


Figure 7 - Financial distress vs performance
% of municipalities in financial distress
10
9
8
7
6
5
4
3
2
1
0
10
9
8
7
6
5
4
3
2
1
LQP index
below 500
< 1000
< 2000
< 3000
< 5000
< 10000
< 20000
< 60000
above 60000
municipalities by population brackets
% of financially destabilized municipality
% of municipality under procedure of financial rebalance
LQP performance index (2010)

The empirical model used for the estimation of the impact of the horizontal fiscal imbalance on the probability of financial distress, conditional on the level of efficiency in the provision of services and the level of transfer cuts, is specified in the following equation (1).

$$Y_i = \beta_0 + \beta_1 {D_i}^{HFI} + \beta_2 {D_i}^{VFI} + \beta_3 LQP_i \quad + \boldsymbol{\beta_4}' \boldsymbol{Controls}_i \quad + \epsilon_i \qquad (1)$$

where:

- Y_i.is a dummy that takes value 1 in case of financially destabilized municipality or, alternatively in case of municipality under procedure of financial rebalance;
- ${D_i}^{HFI}$ is a dummy that takes value 1 for municipality with positive Horizontal fiscal imbalance;
- ${D_i}^{VFI}$ is a dummy that takes value 1 for municipality that received a transfer cuts (in percentage of its historical current expenditure) above the national mean;
- LQP_i is a dummy that takes value 1 for municipality that show a level of efficiency above the average in terms of 2010 LQP OpenCivitas index;
- $\boldsymbol{Controls}_i$ is a vector of controls including electoral, census and morphological variables.

Table 2 that follows provide a general overview of the descriptive statistics of the variables used in the specification of the model. As can be noticed, the dependent variables and the main explanatory variables are discrete binary variables. Therefore, we decided to estimate the probability of financial distress using, as a preliminary analysis, a Linear Probability Model (LPM) where point estimates are obtained through OLS with robust standard errors.

Table 2 - Point estimates of fiscal imbalance and performance impact on the probability of financial distress (linear probability model)

Variable	Obs	Mean	Std. Dev.	Min	Max
Dummy = 1 if financially destabilized municipality	6605	0.0233	0.1509	0	1
Dummy = 1 if municipality under procedure of financial rebalance	6605	0.0368	0.1883	0	1
Dummy = 1 if municipality under financial distress after 2012	6605	0.0115	0.1067	0	1
Dummy = 1 if municipality with positive Horizontal fiscal imbalance	6605	0.4872	0.4999	0	1
Dummy = 1 if transfer cuts in % of current expenditure above mean	6543	0.4721	0.4993	0	1
Dummy = 1 if 2010 Opencivitas performance index above mean	6538	0.4971	0.5000	0	1
Dummy = 1 if 2013 Opencivitas performance index above mean	6171	0.5004	0.5000	0	1
Horizontal fiscal imballane (euro per capita)	6605	-3.63	64.29	-1137.43	637.59
Transfer cuts in % of current expenditure	6543	15.89	4.21	0.95	41.37
2010 Opencivitas performance index (LQP)	6538	5.86	2.03	1	10
2013 Opencivitas performance index (LQP)	6171	5.55	1.99	1	10
Dummy = 1 if per capita fiscal effort above mean	6605	0.2754	0.4467	0	1
Electoral cycle (years from election, 0 = electoral year)	6521	2.29	1.17	0	4
Dummy = 1 if left council majority	6511	0.0938	0.2916	0	1
Dummy = 1 if right council majority	6511	0.0954	0.2938	0	1
Dummy = 1 if centre council majority	6511	0.0052	0.0721	0	1
Margin of victory of incumbent major (%)	6137	19.98	17.27	0	98
Dummy = 1 term limit major	6516	0.3838	0.4864	0	1
Seismic risk class	6543	2.73	1.24	1	5
Rural municipality level	6542	1.89	0.95	1	3
Altimetric zone	6542	2.92	1.54	1	5
% of population below 2	6543	2.55	0.74	0.00	6.17
% of population 3-14	6543	10.55	2.19	0.00	17.84
% of population above 65	6543	22.85	5.83	5.71	62.64
Resident population	6605	7781	45773	29	2872800

4. Results

The point estimates obtained through the LPM model are reported in the Tables 3 and 4. In particular, Table 3 provides the results related to the three main variables of the model specified in equation (1). The main evidence is that municipalities with positive horizontal fiscal imbalance exhibit a statistically significant increase in the probability of experiencing financial distress.

The clearest results can be seen in case of municipalities under procedure of financial rebalance (column 4, 5 and 6 of Table 3), where the lack of resource in terms of equalization grants, is correlated with an increase in the probability of financial distress that ranges from 3.25% to 0.76%, respectively when the control variables are included or excluded from the specification.

Moreover, especially in case of municipalities under procedure of financial rebalance, there is also a clear evidence of a robust negative impact on the probability of financial distress generated by LQP performance indicators above average (around -1.39% when control variables are in the model).

Finally, independently on the procedure of resolution of subnational financial crises, the presence of transfer cuts above the average (as a percentage of current expenditure) is strongly correlated with an increase in the probability of financial distress: 5.8% is the estimated risk in case of financially destabilized municipality, 0,9% the risk in case of municipality under procedure of financial rebalance.

Table 4, reports the point estimates related to the set of control variables included in the model. The probability of financial troubles is strongly correlated with a geographical pattern since there is a clear evidence that municipalities located in southern regions are more subject to both financial rebalance and declaration of default.

Also the set of electoral variables provide some interesting results: on average left wing councils seems to be less subject to financial distress procedures than right wing councils. Moreover, the default risk has been estimated higher in case of a mayor subject to term limit and lower in case of mayors supported by a larger majority.

In conclusion, the dimension of the municipality matters: on average larger municipality show a higher probability of ending in a procedure of financial rebalance, although this impact is not linear presenting a concave shape.

Table 3 - Point estimates of fiscal imbalance and performance impact on the probability of financial distress (linear probability model)

	(1)	(2)	(3)	(4)	(5)	(6)
	Y (dummy = 1 if financially destabilized municipality)			Y (dummy = 1 if municipality under procedure of financial rebalance)		
Dummy = 1 if horizontal fiscal imbalance > 0	0.0118***	0.0108***	-5.34e-05	0.0325***	0.0296***	0.00763*
	(0.00253)	(0.00253)	(0.00252)	(0.00429)	(0.00423)	(0.00415)
Dummy = 1 if Opencivitas performance index (2010) above mean		-0.00954***	-0.00425		-0.0292***	-0.0139***
		(0.00249)	(0.00289)		(0.00417)	(0.00440)
Dummy = 1 if transfer cuts in % of current expenditure above mean			0.00592**			0.00990**
			(0.00296)			(0.00485)
Constant	0.00447***	0.00980***	-0.0173	0.0143***	0.0307***	0.0451
	(0.00115)	(0.00209)	(0.0190)	(0.00205)	(0.00346)	(0.0335)
Control variables	NO	NO	YES	NO	NO	YES
Observations	6,501	6,434	6,028	6,501	6,434	6,028
R-squared	0.03	0.06	0.38	0.09	0.16	0.45

*Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*

Table 4 - Point estimates of control variables impact on probability of financial distress (linear probability model)

	(1) Y (dummy = 1 if financially destabilized municipality)		(2) Y (dummy = 1 if municipality under procedure of financial rebalance)	
Population	3.96e-05	(4.44e-05)	0.000255*	(0.000132)
Population (sq)	-1.56e-08	(1.69e-08)	-1.01e-07**	(4.82e-08)
Lombardia	-0.0102***	(0.00258)	-0.00602	(0.00506)
Veneto	-0.0139***	(0.00344)	-0.0222***	(0.00588)
Liguria	0.000559	(0.00318)	0.0250**	(0.0117)
Emilia-Romagna	-0.00806**	(0.00366)	-0.00385	(0.00998)
Toscana	0.00264	(0.00535)	-0.000171	(0.0104)
Umbria	-0.00562	(0.00498)	0.0117	(0.0213)
Marche	-0.00532	(0.00669)	-0.00117	(0.0134)
Lazio	-0.000980	(0.00422)	0.0214**	(0.0108)
Abruzzo	0.00984	(0.00871)	-0.00102	(0.0121)
Molise	0.0110	(0.0121)	0.0537**	(0.0241)
Campania	0.0347***	(0.0106)	0.0302**	(0.0137)
Puglia	0.00497	(0.00925)	0.0709***	(0.0205)
Basilicata	0.0115	(0.0121)	0.0281	(0.0238)
Calabria	0.0477***	(0.0139)	0.0779***	(0.0188)
Electoral cycle	-0.00119	(0.00129)	-0.00251	(0.00208)
Dummy = 1 if left wing council	-0.0122***	(0.00355)	0.00217	(0.00992)
Dummy = 1 if right wing council	0.00150	(0.00485)	0.0140*	(0.00842)
Dummy = 1 if centre council	0.00598	(0.0341)	-0.0179	(0.0328)
% of margin of victory	-0.000128**	(6.19e-05)	-3.54e-05	(0.000122)
Dummy = 1 term limit mayor	0.00549*	(0.00296)	-0.00700	(0.00442)
Seismic risk class	0.00235	(0.00175)	0.00580*	(0.00313)
Rural municipality level	-0.00441*	(0.00237)	-0.00835**	(0.00376)
Altimetric zone	-0.000282	(0.00133)	0.00309	(0.00229)
% of population below 2	0.00188	(0.00353)	-0.00376	(0.00332)
% of population 3-14	0.00209	(0.00132)	0.000568	(0.00161)
% of population above 65	0.000134	(0.000387)	-0.00118*	(0.000670)
Dummy = 1 if fiscal effort above mean	0.00554*	(0.00325)	0.00163	(0.00522)
Observations	6,028		6,028	
R-squared	0.38		0.45	

*Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*

6. Concluding remarks

The aim of this paper is to empirically analyse the main factors affecting the probability of financial distress in Italian municipalities. On the basis of a cross-section database combining all the Municipalities (in ordinary regions) which experienced or not financial distress in 2012-2018 with time-invariant characteristics of those municipalities measured before 2012, we investigate in particular the role of structural deficiency of financial resources in making some municipality more financially vulnerable than others.

The estimation results show that municipalities that suffered from a level of total resources (tax capacity plus equalizing transfers) lower than what is required to provide public services in their jurisdiction at standard levels as measured by SENs are, ceteris paribus, more prone to run into financial distress. Similarly, a severe cut in central government transfers seems exerts a statistically significant effect on the probability of municipality to incur a situation of default.

The analysis presented here is based on a quite narrow definition of financial distress conditions consistent with Italian legislation (municipalities in “multiyear procedure of financial rebalance” plus “financially destabilized” municipalities) which has the additional drawback to be measured only in qualitative terms (the dependent variable is therefore a binary variable). In order to derive a more informative measure of financial distress, a possible development of this research consists in drawing on the definition “structurally distressed” local governments, which, as mentioned above, is provided by the Italian legislation on the basis of a set of specific financial indicators monitored each year in quantitative terms. Starting from these indicators a summary measure of the soundness of public finance situation could be reckoned for each Municipalities and each year and be used as dependent variable. This could be the first step to build a new a panel annual dataset including all Italian Municipalities (both those in financial distress conditions and those not) and time-variant explanatory variables.

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