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Does municipal fiscal distress hinder inter-municipal cooperation? The Italian case

Abstract

Purpose – Inter-municipal cooperation (IMC) has been increasingly adopted worldwide to tackle issues of size and cost reduction in the provision of public services. Although the determinants of cooperation among municipalities have been widely investigated in the prior literature, little is known about the link between a municipality's financial health and that of the supra-municipal entity formed under IMC. This study fills this research gap by analysing the case of municipal unions (MUs) in Italy.

Design/methodology/approach – A quantitative approach has been used, applying OLS and quantile regression on financial information and other variables of municipalities and their MUs.

Findings – The study finds that the most important condition of operation for IMC, that is, financial sustainability, is directly linked to the financial health of member municipalities and the functional integration reached with the supra-municipal entity.

Originality – The study analyses all MUs in Italy, focusing on the factors affecting their financial sustainability. In doing so, it sheds light on the factors that influence the financial sustainability of second-tier governments, which rely on external funding.

Keywords: inter-municipal cooperation, financial health, municipalities, Italy

Introduction

Historically, industrial countries have consisted of a large number of small, sometimes very small, municipalities. Some countries in Northern Europe – for example, Sweden, Denmark, Belgium, the Netherlands, the United Kingdom – have adopted a policy of mergers to reduce the number of municipalities. Others, such as Italy, France, Switzerland, Spain, and the United States still maintain a fragmented municipal structure (Fedele & Moini, 2006; Bobbio, 2015). Municipalities are the level of government closest to citizens and therefore important for public service provision, which has prompted a number of studies considering the rationalization of municipalities, both in terms of size and function (Agranoff, 2004; Garrone, Grilli, & Rousseau, 2013; Tavares & Feiock, 2018; Bel & Warner, 2015; Bolgherini, Casula, & Marotta, 2018; Swianiewicz & Teles, 2018). This paper

examines a particular aspect of municipal rationalization, that is, the impact of municipalities' financial health on financial sustainability of inter-municipal cooperation (IMC).

IMC is a form of institutionalized interaction between municipalities relating to a common task or goal. It can be defined as generating and maintaining collaboration between municipalities in terms of governance arrangements and institutions (Hulst & van Monfort, 2007). In this study, we specifically discuss the circumstances in which a second-tier local government is created (Allers & de Greef, 2019). Hence, the new intermunicipal entity substitutes the municipalities as a new local government in the provision of certain functions and services. IMC is a widespread phenomenon in the European Union, consistent with the emergence of open horizontal and vertical networks of inter- and intra-sectoral conditions (Swianiewicz & Teles, 2018), as the French, German, Spanish, and other EU cases show (Swianiewicz & Teles, 2018). Its purpose is mostly aimed at organizational aggregation for small and very small municipalities to strengthen their effectiveness and efficiency without resorting to forced amalgamations (Midiri, 2002). These entities have different names and are structured differently depending on the relevant domestic institutional frameworks. Nevertheless, they share the same setting, where participants of the IMC fund and own the new administrative body, transferring the right to provide some of their public services as well as the collection of some revenues. This study focuses on municipal unions (MUs) in Italy, that were introduced in the 1990s and escalated after the **Global Financial Crisis (GFC)** in 2008 to tackle the costs of public administration at the local level (Bolgherini, 2015; Bolgherini & Dallara, 2016; Lippi & Tsekos, 2018).

Most prior empirical studies have focused on the determinants of IMC, especially the rational-choice school (Feiock, 2007; Oakerson, 2004; Steinacker, 2004; Post, 2004). In particular, the relevant factors in favor of IMC appear to be: size of municipalities, number of participants, joint gains, power asymmetry, cooperation costs, selective incentives, government involvement, trust, and norms of reciprocity (Brasington 1999; Carr, Gerber, & Lupper, 2007; Ostrom 1990). However, previous studies neglect the financial dimension, that is, the commitment to financial support from the member municipalities to the IMC. Thus this study considers the level of active functioning of IMC entities in terms of expenditure and whether there is a commitment to financial support from the member municipalities to the inter-municipal body, which has significant implications for the financial sustainability of MUs. We seek to understand whether there is a financial health effect from municipalities' IMC that hinders the financial sustainability of IMC. **Our research question is: does**

the financial health of external funders, that is, the municipalities, have an impact on the financial sustainability of an IMC entity as a specific type of separate local government organization?

This research question is of particular interest since IMC entities are separate, supra-municipal entities, and thus should be considered as a vehicle for small municipalities to resolve inefficiencies and increase their performance by devolving some of their responsibilities (Savas, 1987). In terms of financial management, IMC entities may rationalize costs, collect revenue, manage debt, and so on for their municipal members with the aim to foster financial sustainability. One of the main reasons for municipalities engaging in IMC is financial distress (Norgaard, 1996). Yet, successful cooperation is more likely when municipal members are in a sound financial position (Steiner, 2003). Hence, our aim is to establish whether and to what extent IMC can incorporate the range of financial health or otherwise experienced by municipal members to gain financial sustainability as precondition of success.

We analyse Italian MUs based on their financial activity, using municipal and MUs' administrative data from the financial reports of the last fiscal year available (2017). We measure MU relevance in terms of expenditure managed at the MU level out of the total expenditures within the member municipalities. Financial sustainability is measured by using the ratio between revenues and expenditure, but then assessed by focusing on municipalities' financial engagement.

Literature review

The role of IMCs in local finance

Macro-processes, such as globalization and Europeanization, which have paved the way for an “unravelling” of the state (Hooghe & Marks, 2003), have also prompted national reforms reconfiguring administrative boundaries that include a transfer of resources and powers from upper to lower tiers of government (Peters & Pierre, 2001; Denters & Rose, 2005; Kuhlmann, 2010). This entails a vertical and horizontal shift of competences and power (Goldsmith & Eggers, 2004; Hooghe & Marks, 2009) with a subsequent progressive **devolution of competences and practices toward local governments – and from them to IMCs** - in terms of planning and services provision (Rivolin & Faludi, 2005).

Accordingly, IMC aims to address the challenges of suboptimal municipal size and fragmentation via a different means from amalgamations to achieve greater administrative efficiency at the local level

(Hertzog, 2010), thus fostering financial sustainability. IMC is considered a more flexible way to achieve upscaling than amalgamations (Dollery, Byrnes, & Crase, 2007; Feiock & Scholz, 2009) because it overcomes commonly faced challenges, such as opposition to the loss of autonomy from the local population and policy makers (Mello & Lago-Penas, 2013). While the transfer of functions from municipalities to an IMC entity also means a loss of sovereignty, autonomy and decision-making independence **because the municipal decisions will depend on decisions made at the higher level of the IMC entity**, it has the benefit of providing greater homogeneity in the provision of services with better access, familiar procedures, and no changed costs for citizens. This process is somewhat parallel to that seen in the relationship between the EU and its member states in which there has been a partial transfer of sovereignty from the latter to the former (Mitrany, 1975).

In terms of financial impact, the 2008 GFC was the trigger for debate and reform (Pollit & Bouckaert, 2017) of municipal cooperation in the EU, particularly in those Mediterranean countries where austerity policies have been introduced (Morlino & Raniolo, 2017). Spending cuts and austerity measures have been combined with pro-growth measures (such as economic liberalization) and radical streamlining of the state apparatus (Lippi & Tsekos, 2018). The crisis negatively affected the transfers that municipalities (especially small ones) receive from the state (Cepiku, Mussari, & Giordano, 2016; Ladner, 2017), which has jeopardized the viability of the welfare system (Gamble, 2016; Pollit & Bouckaert, 2017). However, as highlighted by Bobbio (2015), the autonomy and functioning of local governments depends to a large extent on their financial resources, both in terms of quantity and decision-making ability. The main rationale for developing IMC under austerity is that the decrease in revenues associated with diminished transfers from upper levels of government and lower tax revenues requires cost saving measures (Raudla & Tavares, 2018) that can be achieved by exploiting new economies of scale (Aldag & Warner, 2018).

Similar to external entities within outsourcing and corporatization settings, IMC entities may thus be speculatively used to transfer debt and expenditures so as to improve the appearance of municipal finances (Cuadrado-Ballesteros *et al.*, 2013). In reality, municipalities may tend towards the *status quo* (Overmans & Noordegraaf, 2014). All in all, previous studies suggest that IMC stems from the need to decrease local public expenditure, and thus to increase the financial sustainability of member municipalities (Cuadrado-Ballesteros *et al.*, 2013). Nevertheless, evidence suggests that cost savings may not always happen (Allers & de Greef, 2019). Furthermore, as external entities IMCs may be used by member municipalities to transfer their financial difficulties, with the result of increasing the level of inefficiency, as another layer of government with its coordination needs is created, no

financial sustainability improvement is achieved, and, in case of financial distress, the problems are spread to other member municipalities of the IMC.

Municipal financial health as IMC's financial sustainability factor: the missing link

Financial sustainability can be considered as a precondition for organizations to operate, and is the positive side of financial health, in direct contrast to the concept of financial distress (Gardini & Grossi, 2018). Financial health in local governments has received much attention in previous studies, but several labels (fiscal or financial health, fiscal or financial condition, financial position, fiscal or financial sustainability, fiscal stress or distress, fiscal or financial crisis) and definitions exist (Cabaleiro *et al.*, 2013). It ranges from the simple notion of ability to meet financial obligations (e.g. Carmeli & Cohen, 2001, Wang *et al.* 2007) to wider conceptualizations that include acceptable levels of taxation (Lin & Raman, 1998) and services (Jones & Walker, 2007, Zafra-Gomez *et al.*, 2009), and short-term and long-term perspectives (Kloha *et al.*, 2005). Groves *et al.* (1981, 2003) has developed four dimensions of financial health.

1. Cash solvency — a local government's liquidity and effective cash management, and its ability to pay current liabilities.
2. Budget solvency — a government's ability to generate sufficient revenues to fund its current or desired service levels.
3. Long-run solvency — the impact of existing long-term obligations on future resources.
4. Service-level solvency — the ability of the government to provide services required by its citizens.

Prior literature focuses on the metrics and determinants of the financial health of local governments, ranging from a set of purely financial indicators (Wang *et al.*, 2007; Rivenbark *et al.*, 2010) to indicators of financial conditions, social and economic characteristics, and quality of services provided, that include both internal and external factors (Zafra-Gómez *et al.*, 2009). Regardless, revenue-generating capacity or financial autonomy has one of the strongest impacts on local governments' financial health and thus sustainability (e.g. Jones & Walker, 2007). CICA (2009) developed the concept of financial vulnerability as part of a threefold approach that includes flexibility (the capacity of adaptation to external changes) and sustainability (the ability to maintain existing services while covering obligations without increasing indebtedness and taxation levels). In this context, financial vulnerability is seen as “the extent to which the organization depends on

resources beyond its own control or influence” (Cabaleiro *et al.*, 2013, p.733). Chapman (1988) argued that local governments face more risk when they rely on grant revenues because they are more uncertain about their revenue inflows, since funding decisions are made by other entities.

Similarly, an IMC entity’s financial sustainability is considered more vulnerable since its revenues largely depend on other governments’ transfers (Padovani *et al.*, 2021). Certain supra-national institutions have claimed that the financing of IMC is a key factor in its success (Council of Europe, 2010). Indeed, IMC revenues essentially come from grants generated by municipal members (Swianiewicz & Teles, 2018). In the case of decreasing grant incomes for municipalities, IMC entities either must decrease their expenditures or over time face negative financial impacts. Considering that local governments adjust expenditures related to service provision more quickly for upward than for downward changes (Cohen, Karatzimas, & Naoum, 2017), a phenomenon known as “cost stickiness” behavior (Anderson, Banker, & Janakiraman, 2003), it is very likely that a decrease in grants will end in financial distress. Vice versa, grant increases may result in higher expenditure.

Two studies on IMC highlighted how municipalities undergoing financial stress conduct operations to outsource public services and/or engage in cooperation with other municipalities (Mohr *et al.*, 2010; Gómez *et al.* 2014). However, no studies addressed the relationship in the opposite direction, that is, the implications for the financial sustainability of an IMC entity in relation to member municipalities’ financial health. Previous literature has proved that external factors such as demography, service demands, consumer behavior, economic changes, population income, unemployment rate, and geographical location, have an impact on the financial sustainability of local governments (Gardini & Grossi, 2018), but no studies have considered the financial conditions of funding governments. We focus on this phenomenon as it is the precondition for effective IMC implementation. Indeed, a municipality in financial distress may not transfer adequate resources to its IMC entity, which in turn may experience one of the four consequences of financial health outlined above. Failing to agreed grants to the IMC entity in the case of financial distress is not the only possibility, as a municipality may have the following further options: (a) prioritizing the IMC entity over other creditors (e.g. municipal employees and service providers); (b) leveraging on debt (e.g. via short-term bank facilities) and therefore worsening its financial health; or (c) improving its own financial condition (e.g. increasing revenues, reducing costs, etc.). Hence, municipalities have different options to fulfill the payment of transfers to their IMC entity, and the decision to eventually share their financial difficulties with the IMC entity is a specific course of action they may deliberately choose to adopt.

The case of municipal unions in Italy

In Italy, municipalities engage in a series of “fundamental functions”¹ over which the state has exclusive legislative power (Vandelli, 2014). There are about 8,000 municipalities in Italy, of which a quarter have fewer than 1,000 inhabitants and more than two thirds have fewer than 5,000. For historical reasons, the size of municipal governments varies considerably from one region to another. During the period 2012 to 2017 about 200 municipalities experienced bankruptcy. In 2019, 1,400 municipalities, of which 800 have fewer than 5,000 inhabitants (i.e., 40% of the total amount of small municipalities), experienced cash solvency difficulties, and therefore can be considered as suffering from poor financial health (Raffer & Padovani, 2019).

In the last 30 years, the Italian Government has been promoting both amalgamation and IMC because many small municipalities were not sustainable and supra-municipal bodies have been created to cope with functions that small municipalities could not perform alone (Poggi *et al.*, 2010). However, mergers are rare, so we focus on IMC, introduced by Law 142/1990, allowing municipalities to transfer their decision-making powers in relation to expenditure to a MU (Unione di Comuni).

Italy is characterized by a fragmented pattern of municipalities and MUs have been used to overcome inefficiencies and to foster joint action through the creation of a new government body that is a particular type of second-level institution (i.e., governing bodies are not elected by citizens) adopted as a predominant form of IMC in Italy, to which municipalities delegate their activities (generally these are legally required activities), as well as add new tasks, thus providing possible innovative approaches (Vandelli, 2014). Municipalities provide the human and administrative resources relating to the transferred tasks while the internal structures and responsibilities of the MU are allocated by the municipalities’ administrators. The president is elected from amongst the mayors, the council by the executives of the municipal members, and the advisors chosen by the councils of the municipalities. When a MU is created, it is necessary to define the organizational model for centralizing the back office for the functions transferred and for functions and front office work that remain with the municipalities. Sanctions from the Italian Government only occur in the case of corruption or poor fiscal management but have rarely been applied. Hence, it can be assumed that municipalities are aware that sanctions for mismanagement are unlikely.

¹ These functions are: a) general administrative organization, financial management, accounting, and control; b) organization of municipal public services of general interest; c) cadastre; d) urban planning at municipal and supra-municipal level; e) civil protection; f) waste collection and disposal; g) social services; h) school buildings; i) municipal police.

Since 1990, three different waves of MU-related reforms have been introduced with the aim of fostering efficiency and effectiveness (Gasparri, 2017; Bocchino, 2018). It is important to highlight that the third legislative phase was instigated as part of post-GFC austerity measures (Lippi & Tsekos, 2018) and imposed aggregated management of the key functions of small municipalities, that is, those with a population of fewer than 5000 inhabitants. It must be noted that some studies have found that politicians may have introduced cooperation for political reasons rather than with a goal of efficiency and effectiveness (Mussari & Ruggiero, 2017).

Methodology

We used official information published online on a centralized, publicly available database on municipalities and their MUs (Comuniverso). For the financial side we have used the municipalities' and MUs' administrative data from the financial reports of the last fiscal year available (2017), which is accessible in the AIDA PA database, by Bureau van Dijk – A Moody's Analytics Company to identify MUs with expenditures used to provide services to citizens, labelled "active MUs". **Socio-graphic and socio-economic data were derived by aggregating municipal information available from the Italian national statistical institute (ISTAT).** Thus, a database of active MUs was created by dropping the MUs considered "existing" by Comuniverso, but with no financial activity, labelled "inactive MUs".

We developed an Expenditure Centralization (EC) index to evaluate the level of functional integration with the MU². This is relevant as it may explain a different level of financial commitment by the member municipalities, that is, they may be more committed where they delegate more resources. EC is computed as the ratio between a MU's current expenditure and the sum of the member municipalities' current expenditure, in order to measure how much municipalities rely on the MU for their activities.

In order to assess the financial health of MUs, we have adopted some of the financial indexes used in the literature to measure the financial health of local governments, covering the dimensions of cash solvency and budget solvency by Groves *et al.* (2003). We did not take into consideration long-run solvency, as MUs generally do not have capital expenditures and thus have limited or no debt burden, nor service-level solvency, as it cannot be measured with the available information. The Current

² Data that distinguishes in concrete terms which specific services MUs manage and provide is not available.

Balance (CB) ratio is one of the most important and generally accepted financial condition indexes (Levine, Justice, & Scorsone, 2013). This ratio is computed by dividing current revenues by current expenditures plus debt repayments; if it is below 1, current expenditures and debt repayments are not fully covered by regular inflows of financial resources, breaking the so-called “golden rule”. The prior literature suggests that this index is particularly relevant to assess financial risk for investors (Martell, 2008; Bastida *et al.*, 2014; Pinna, 2015).

The Revenues Dependency (RD) index is the ratio between current grants, mainly received by member municipalities, and the sum of current revenues collected by the MUs. The literature suggests that local governments with higher tax receipts are perceived by the market as having greater financial health, as a financially autonomous local government is held responsible for its own resources (Chapman, 1988; Martell, 2008; Bastida *et al.*, 2014). In the case of MUs, revenues come mainly from municipal members’ grants, therefore this index is useful to ascertain the level of dependency on their municipalities.

We also use the Credit Index (CI), which identifies the ratio between accounts receivable of current grants and accrued current grants. Considering that most current revenues derive from grants, the higher this index, the lower the level of liquidity and its connected cash solvency. This last dimension is considered a major dimension of financial distress by several authors (Downing, 1991; Aljarde & López, 2001; Cohen, Costanzo & Manes-Rossi, 2017), but in this study it also represents the “financial link” between MUs and their member municipalities. In fact, one may argue that this index also measures the level of loyalty of a municipality to its MU: the higher this index, the lower the level of loyalty. For computational purposes, the CI index has been normalized into the Not Collected Grants index (NCG) showing the ratio between accounts receivable of current grants and accrued current grants plus accounts receivable of current grants. **The NCG does not measure the levels of savings each municipality achieves from IMC as the level of grants — together with the level of expenditures and services to be provided by the IMC entity — is established by municipalities within the IMC executive body. Rather it determines the definition of efficiency levels.**

[insert new Table 1]

Then, in order to test whether the financial health of the municipalities influences their financial engagement in the MU and its sustainability, we performed a multiple linear regression (OLS), with

standard errors robust to heteroscedasticity having as the dependent variable the NCG and as the main independent variable the municipalities' financial health.

Financial health is measured using the "Financial Health Score" ("rating finanziario"). This is a composite indicator available in the Italian local governments' financial information database AIDA PA, based on the national database of audited financial reports available at the Ministry of the Interior and Ministry of Economics and Finance. It is based on ten indicators that reflect the most relevant dimensions of financial conditions of local governments: long-term solvency, budgetary solvency, and short-term solvency (Hendrick, 2011; Jacob & Hendrick, 2012). These ten indicators were selected for their capability to measure the most important aspects of financial distress determinants considered by the Court of Auditors, the Italian audit body on local governments, and where they are also considered by laws and regulations, for example, to impose debt limits. They are measured for each municipality then transformed into a score where 1 is no financial distress and 11 is high financial distress. These scores are then averaged using specific weights that reflect the importance of each indicator, then normalized into a 1–11 score. The result is a composite indicator that assesses the level of financial condition or the level of financial distress. This indicator is currently and permanently used by banks, financial institutions, and public sector providers to assess the level of financial risk of Italian municipalities.

The MU's municipalities Financial Health (FH) index was constructed by using the MU member municipalities mean of the Rating Score from which the standard deviation is subtracted and divided by the maximum distance the score ranges (10).³

Other regressors included in the model are: **the EC index, which can be considered a proxy to measure the municipal financial commitment to the MU and the functional integration reached by the MU**; the internal polarization of the MU, a dummy variable that considers MUs in which there is at least one municipality with a population of more than 5,000 inhabitants and in which the biggest municipality has a population at least double that of the second most populated municipality (Poggi *et al.*, 2010); sea access, a dummy variable that considers whether there is at least one coastal municipality, since this affects the needs of the MU in terms of seasonality of local services (i.e., trash collection, transportation, roads and traffic, police, etc.) and a different citizen profile due to the effect of tourism; the number of member municipalities, as a higher number of municipalities may generate more complexity for decision making and, thus, lower financial

³ In order to validate it we ran another regression having as basic unities the municipalities and using the Rating Score as an independent variable; the results go in the same direction as the results presented in the next paragraph.

commitment from municipalities (Poggi *et al.*, 2010), or a higher level of commitment as a higher number of municipalities could provide access to a greater range of competences able to be accessed by a single municipality. Socio-graphic, socio-economic, and regional controls are also used in the model since they have proven to be determinants of financial sustainability in local governments (Capalbo & Grossi, 2014; Sargiacomo, 2016). As spatial controls we included the MU's size, average altitude, and rural nature (and index computed as the average ratio between scattered houses and urban area houses for each municipality); as sociographic controls the population living in each MU and the MU's age and its squared value because it is assumed that the IMC's implementation is an incremental process, in which municipalities start working on certain areas and gradually increase the scope of intervention. As economic controls we used the MU's average per capita Gross Income (GI_{pe}) and the Gini Index; finally, then we controlled for possible regional effects, through a categorical variable of regional dummies (Reg), as the 20 Italian regions play a regulatory role in IMCs, including MUs.

We adopt the following variables:

- (1) Y_{NCG} the dependent variable, where NCG means *not collected grants*.
- (2) X_{FH} the main independent variable, where FH means *financial health*.
- (3) X_{EC} the independent variable, where EC means *expenditure centralization*.
- (4) X_P the dichotomic independent variable, where P means *polarization*.
- (5) X_{AS} the dichotomic independent variable, where AS means *access to the sea*.
- (6) N_M the independent variable, where M represents the *number of municipalities*.

For *spatial, sociographic, financial and regional controls* we adopt the following variables.

As spatial controls:

- (1) S MU's size.
- (2) Ru Rurality index.
- (3) Al the MU's average altitude.

As sociographic controls:

- (4) P the population living in the MU.
- (5) A the MU's age.

As economic financial controls:

- (6) GI_{pe} the average per capita Gross Income.
- (7) Gi the average Gini index.

As regional controls:

- (8) Reg the regional dummies

We use the Ordinary Least Squares (OLS) with standard error — s — robust to heteroscedasticity as our multiple linear regression model. Hence, our dependent variable Y_{NCG} is given by:

$$Y_{NCG} = A_{NCG} + \beta_{FH}X_{FH} + \beta_{EC}X_{EC} + \beta_P X_P + \beta_{AS}X_{AS} + \beta_M N_M + \beta_S S + \beta_{Ru} Ru + \beta_{Al} Al + \beta_P P + \beta_A A + \beta_{A^2} A^2 + \beta_{1,G} GI_{pe} + \beta_{2,G} Gi + \beta_R Reg + s$$

toward

We then tested the effect of the independent variables by running a quantile regression as a robustness check of the OLS model. This is because the dependent variable is not normally-distributed, but is slightly skewed to the left, thus, we wanted to check whether nonlinear relationships with the predictors were present. Indeed, quantile regression allows us to consider the impact of a covariate on the entire distribution of Y, not merely its conditional mean. Indeed, the dependent variable's 25th, 50th, and 75th quantiles are modelled to test for differential effects of the independent variables. The quantile regression estimates the model with bootstrap standard errors, retaining the assumption of independent errors but relaxing the assumption of identically distributed errors; thus, they are analogous to robust standard errors in OLS (Wooldridge, 2010). The proposed model passed the post-estimation diagnostic of multicollinearity (variance inflation factor) and of model specification (Ramsey test and Linktest).

[insert Table 2 about here]

Table 2 describes the variables used in the OLS model, while Table 3 is a correlation matrix of the same variables in the model. Numbers are Pearson correlation's coefficients from -1 to 1 , with strong correlation when closer to 1 .

[insert Table 3 about here]

Besides some obvious correlations, as between the number of municipalities and the MU's population, the correlation between the Financial Health and NCG displays the strongest and most significant value (-0.536^*). In the following section we will test the results of the Pearson correlation shown in Table 3.

Data and overview of the Italian case

It is important to highlight that the only database available for MUs (Comuniverso) presents a picture of the phenomenon at a point in time (2018). This makes it difficult to identify whether MUs are actually functioning or are inactive. Table 4 shows a synopsis of the dataset. The first column presents the number of total municipalities in each region, the first macro-column provides the number of MUs and member municipalities and the average number of municipalities according to

Comuniverso, while the second macro-column displays the same information according to our final database and the last column highlights the percentage of inactive MUs.

[insert Table 4 about here]

The decrease in the number of MUs displayed in the last column of Table 4 is because we decided to consider as active MUs those fulfilling the requirements of Madia's law, that is, those that have provided evidence of activity by providing financial reports to the central government. For those considered to be not active we cross-checked their activity by looking at: (a) their deliberations and those of their municipalities; (b) their statutes; (c) regional reports when available; (d) local newspapers and web scraping to look for any evidence of those MUs being active. The results highlight that in some regional jurisdictions, such as Campania, Calabria, and Sicily, some "existing MUs" have, for example, not elected their MUs councils or, in the worst cases, no evidence of activity has been found. We think it is safe to assume these MUs were created to receive the first *ad hoc* incentive provided by the regional government but have never been active.

We focus on the active MUs, of which there are 393, involving 2,201 municipalities. As shown in Table 4 the total current expenditure of the MU is 5.58 times smaller than that of their municipalities. This is because, firstly, generally MUs manage the "fundamental functions", while municipalities' activities include other services, and secondly, as the third column of Table 4 suggests, Expenditure Centralization shows very low values ratios. This implies that generally municipalities rely only partially on MUs for their activities, indeed, only, 20 MUs reached a ratio greater than or equal to 1, representing the 5.08%.

[insert Table 5 about here]

The Current Balance (CB) ratio suggests that 80.81% of MUs have a current balance ratio equal to or higher than 1 and only 11.19% have a ratio below 0.98, therefore it would seem that the vast majority of MUs can be described as having good budget solvency. As shown in Table 5, the mean of the Revenues Dependency (RD) index is higher than 0.82, and the median is even higher. This means MUs' activity mainly depends on financial transfers from member municipalities. The Current Balance (CB) ratio considers accrued revenues, which may not be *de facto* deposited by municipalities. Municipalities may choose not to deposit their contribution to MUs' expenditures because they do not consider the MU legitimate, or may fail to do in cases of financial distress in the

municipality. Therefore, a Credit Index (CI) of 0.6 (the median) means that a MU has 60% of uncollected annual current grants; a CI above 1 means that MU has credits for uncollected current grants that is even higher than annual current grants. 54 MUs have ratios equal to or higher than 1, while only 5.8 % of MUs collect at least 95% of all receivables (accrued grants plus previous years accounts receivable of current grants). On average (last column in Table 5) MUs do not collect around 30% of expected revenues from member municipalities, **determining the increase in short term liabilities**. This raises the problem of cash solvency as an important aspect of financial health (Levine *et al.*, 2013) for several Italian MUs, therefore undermining the effectiveness of IMC policies in these contexts. **We used NCG, as normalization of CI, as a proxy for financial health for MUs as the correlation between the CI and the short-term liabilities is significant (Pearson correlation= 0.6420*).** In fact, account receivables, which compose the CI, have an impact on accounts payables, that is, short term liabilities, thus determining cash solvency capacity (Benoy & Hendrick, 2013). Moreover, CI, and thus NCG, can also be interpreted as a measure of overall municipal members' commitment to MU. In can be considered that municipal members have a high commitment to MU if they pay the MU in a timely fashion.

In order to provide a better overview of the MUs in the country, we have classified them by crossing the Expenditure Centralization (EC) and Credit Index (CI), distinguishing four types of active MUs, with a fifth category, inactive MUs:

1. successful, those where there is high centralization of expenditure and municipalities spend resources continuously; if there is political consensus, these are the MUs most likely to merge;
2. sectorial, those where municipalities spend resources continuously, but there is a tendency to focus on only a few areas of activity as expenditures are centralized below the median;
3. with potential to be tested, those where there is a high degree of centralization of expenditure but where either (i) the municipalities do not recognize the authority/importance of the MU to pay the necessary resources on a continuous basis, or (ii) they have financial difficulties that make it impossible for the resources to be actually paid out;
4. unsuccessful, those characterized by low centralization of expenditure and municipalities spend resources intermittently accumulating delays that can generate financial difficulties in the MUs; this is the case with the highest possibility of failure, unsuccessful MUs (113) and inactive (144) MUs represent a total of 257 out of 537 MUs, the 47%.
5. inactive, those considered active by Comuniverso but that our activity check revealed to be not active.

[insert Figure 1 about here]

Figure 1 shows a regional pattern, with successful and sectorial MUs concentrated in Northern regions: Friuli-Venezia Giulia has the highest concentration of successful MUs, while several MUs in Veneto and Piedmont are sectorial. Inactive MUs are scattered throughout the nation, with a certain concentration in Central-Southern regions, even though small inactive MUs are also present in Piedmont, Veneto, and Liguria. Unsuccessful MUs are rare in Veneto, Lombardy, and Tuscany. This may be the consequence of the administrative coordination of local governments by regional governments that also have legislative power on these matters.

Analysis

We tested whether the financial health of member municipalities influences the MU's capacity to collect expected revenues, and thus its financial sustainability. NCG was used as the dependent variable to test the hypothesis. Table 5 reports the results for the OLS and the quantile regressions.

In substantive terms, the OLS model (Table 6) shows that, keeping constant the other variables, as the Financial Health increases by 1 score point, the NCG decreases by -0.025 . The **significant** negative correlation ($p < 0.01$) implies that increasing the financial health of the member municipalities has a positive effect on the capacity of the MU to collect expected revenue. **Moreover, the negative correlation with EC suggests the payment of expected income is connected to the level of functional integration with the MU; the higher municipal commitment to the MU the more likely members will pay. Indeed, as the EC increases by 1 score point, the NCG decreases by -0.046 .**

If we focus on the values regarding the number of participants, the MU polarization appears to not be significant in respect to the NCG of the MU, while the sea access is significant. **This seems to suggest the non-payment is explained more by municipalities' financial health and by the level of municipalities' financial commitment to the MUs for service delivery (EC) rather than by strong territorial leadership (polarization), and by the number of municipalities involved. Moreover, if a certain area (access to sea) is popular with tourists would seem to play a role. This may be because coastal municipalities feature a different citizen profile that includes more tourists, which may incentivize municipalities to provide financial resources to MUs to support the economically activity of tourism. This correlation deserves further analysis.**

Table 6 reports also the results for the 25th, 50th, and 75th quantiles, estimating whether the independent variables have a differential influence. After these model extensions are implemented,

financial health appears to have almost uniform effects, always significant at $p < 0.01$ and the EC almost always significant ($p < 0.1$ at the 50th quantile and $p < 0.05$ at the 75th quantile), whereas other variables appear to be not significant. Thus, we can conclude that the financial conditions of municipalities and their functional integration play a key role in the financial sustainability of MUs.

[insert Table 6 about here]

Discussion

IMC has been introduced in Italy, through MUs, to foster efficiency by cutting public administration costs and provide a higher level of municipal services than would be otherwise possible in small municipalities. However, cash solvency, the most important financial health dimension for MUs, is already in danger because revenues are not received from member municipalities. On average the Credit Index is very high (.41), suggesting that municipalities tend not to deposit the sums agreed within the MU governing bodies. The analysis highlights that the financial sustainability of an MU is affected by three main factors: whether the territory can be categorized as a tourist destination, the functional integration of municipal members with their MU, and the financial health of municipal members. First, tourism may influence the behavior of municipalities because tourism plays a pivotal role in municipal policies in Italy (Regio, 2018). This highlights that when there is a specific and highly sensitive interest, municipalities have an incentive to be financially committed to the MU.

Second, factor suggests the more municipalities commit to the MU in financial terms, the more likely the MU receives expected revenues. In turn, the more the MU integrates and is trusted by municipalities in financial terms, the more municipalities depend on it, and the more likely they will provide funds in a timely manner.

Third, specific to our research question, the MU's capacity to collect the expected incoming grants or the municipal members' willingness to pay the expected outgoing grants — which is the basis for the MU's financial sustainability — seems to be strictly linked to municipalities' financial conditions. This suggests that the MU may be not considered as a supra-municipal entity where municipalities cooperate to achieve a joint goal, but a purely external entity used to decentralize problems. This is consistent with the work of Cuadrado-Ballesteros (2013), who investigated decentralization strategies and found that municipalities may speculatively use external entities to transfer their financial difficulties. In other words, MUs act as a sort of financial buffer. Municipalities in financial

difficulties are likely to adopt a “free-riding” behavior, that is, they will not provide the resources to the MU that they are expected to provide, instead leveraging the debt or improving their own financial conditions. This might be explained by a pattern of “passing the buck” behavior, aimed at limiting or avoiding municipalities’ responsibility for their financial health, and passing this responsibility to another entity. This can be interpreted as a blame avoidance strategy (Hood 2011), that forces others to make politically costly choices (Jacquot & Vitale, 2014) and minimizes losses, even at the expense of obtaining potentially greater benefits (Weaver, 1986). If the non-payment causes financial problems for the MU, then these difficulties are shared with other municipalities who must take up the responsibility of providing the shared tasks, personnel, and expenditure and potentially provide a lesser service across all municipal members.

The financial sustainability of an MU is not affected by non-financial features such as the number of municipalities involved and by the presence of a ‘naturally-leader’ municipality (polarization). Even though specific types of internal leadership (Cepiku & Mastrodascio, 2020) and the number of participants may play a key role in shaping the transaction costs connected to IMC practice and bargaining (Poggi *et. al*, 2010). Our results suggest that the preconditions of MU activity, that is, MU financial sustainability, are municipalities’ sound financial health and the devolution of higher rates of expenditure to MUs. Only after these preconditions are reached, do other internal and external factors play a role in determining the outcomes of the joint activity carried out through IMC.

This research also finds that other factors usually presented by the literature on general local governments’ financial health are not influential for entities that mainly base their activity on derived finance. This is an interesting implication, as it demonstrates that second tier local governments, with revenues represented by grants, have different financial behavior that is highly conditioned by the financial patterns of their funders.

Conclusions

This study fills a gap in the literature, namely the relationship between local governments’ financial health and the financial sustainability of IMC entities. The quantitative analysis provides evidence of the influence of municipal financial conditions on IMCs.

Generally, national governments promote IMC as an alternative to amalgamation for reducing expenditure and increasing efficiency in the provision of public services to citizens. However, whether the financial conditions of municipalities and their financial commitment to the IMC plays a role in supporting or hindering the sustainability of the IMC entities created has not been widely considered. Yet it is an important question as the consequences of non-payment of grants from

member municipalities are serious, such as a reduction of services to citizens and a spreading of financial repercussions to other member municipalities that likely increase their costs and have other staffing and organizational impacts, and in extreme cases may cause the IMC to fail.

We find that the implementation of an IMC aimed at increasing the efficiency and effectiveness of small local governments cannot be simply created by decree, without recognizing, addressing, and solving the underlying asymmetries between municipalities, especially in terms of their different financial conditions. Furthermore, IMC entities need a clear functional integration in respect of devolution of financial resources by municipalities. Our study highlights that these aspects represent necessary preconditions for the success of IMC as they guarantee financial commitment by municipalities and therefore financial sustainability.

Our findings have practical implications for different government levels, both in Italy and in other countries adopting IMC. We recommend the following, with the first four focused on financial health and the latter four on functional integration.

1. Policymakers that create an IMC entity with the aim to improve the performance of municipalities should address any municipal financial distress first, to avoid financial distress simply being transferred to IMC entities in the future.
2. National intervention should be established to promote financial equalization strategies and financial support to weak municipalities or setting a specific grant fund to be distributed to an IMC entity on the basis of the payment gap by municipalities, so as to guarantee IMC entity's financial sustainability and improve municipal finances at the same time.
3. National policymakers should consider providing a compulsory doubtful account provision in proportion to the level of financial health of municipal members that makes evident during budgeting that a certain amount of revenue may not be paid on time, so as to reduce expenditure and thus the probability of a shortfall between actual revenues and expenditures, and consequent financial difficulties.
4. Clearer national or regional controls and policies should be developed to detect malfeasance and financial misbehavior by municipalities.
5. A set of rules should be developed by national policymakers that incentivize centralizing municipal services to IMCs to establish a minimum-standard level of resources based on best practice or specific thresholds so as to guarantee a minimum level of financial commitment.
6. IMC performance thresholds should be recognized only when reliable and comprehensive information is available about IMC performance; indeed, the creation of a system of indicators for IMC entities should be considered.

7. Local policymakers should consider devolving more financial (and therefore policy) powers to IMC entities or consider their dismissal in cases where the levels of expenditure centralization is minimal and thus represents IMC adoption that is self-interested.
8. The mandatory nature of IMC for small municipalities may be overcome by the national legislator in order to avoid adoption of the model simply for funding purposes (regional incentive), where the decision to devolve resources to the IMC is not possible.

These recommendations may be particularly relevant in the case of municipalities in financial distress, in order to avoid the spreading of financial difficulties across municipal members. This is because, as Swianiewicz (2011) argues, IMC is not only a means to strengthen municipalities: it requires some initial strength in order to develop successfully. Thus, having sound municipal financial conditions as well as reaching adequate functional integration are the pillars of IMC successful implementation.

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Table 1. Summary of financial indices

Name	Abbreviation	Computation	References
<i>Expenditure Centralization</i>	EC	MU's current expenditure/ Sum of the member municipalities' current expenditures	Own Computation
<i>Current Balance</i>	CB	MU's current revenues/ MU's current expenditure	Capeci, 1994; Pinna, 2015
<i>Revenues Dependency</i>	RD	MU's current revenues/ MU's current revenues from member municipalities	Chapman, 1988; Martell, 2008
<i>Credit Index</i>	CI	MU's accounts receivable of current grants/ MU's accrued current grants	Berne & Schramm, 1986
<i>Not Collected Grants</i>	NCG	MU's accounts receivable of current grants/ MU's accrued current grants + MU's accounts receivable of current grants	Own computation based on CI

Table 2. Summary statistics

<i>Variable</i>	<i>Obs</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>	<i>Source</i>
<i>NCG</i>	392	0.312	0.177	0	1	AIDA PA
<i>FH</i>	393	6.271	2.043	1	10.61	AIDA PA
<i>Population</i>	393	21883	28742.23	482	235000	ISTAT
<i>Age</i>	393	7.224	5.563	0	21	AIDA PA
<i>Age_sq</i>	393	83.051	93.834	0	441	AIDA PA
<i>No. municipalities</i>	393	5.601	3.903	2	35	Comuniverso
<i>EC</i>	393	0.274	0.356	0	3.481	AIDA PA
<i>Size</i>	393	200.235	204.019	7.58	1261.77	ISTAT
<i>Altitude</i>	393	320.507	261.179	2.83	1623.66	ISTAT
<i>Rurality</i>	393	0.180	0.148	0	1	ISTAT
<i>GIpe</i>	393	13898.4	2399.079	6914.21	20093.06	ISTAT
<i>Gini</i>	393	0.186	0.015	0.143	0.27	ISTAT

Table 3. Pearson correlation of the variables of the OLS model

Variables	<i>NCG</i>	<i>FH</i>	<i>EC</i>	<i>N. of municipalities</i>	<i>MU's size</i>	<i>Altitude</i>	<i>Rurality</i>	<i>MU's Population</i>	<i>Age</i>	<i>GIpe</i>	<i>GINI</i>
NCG	1										
FH	-0.5357*	1									
EC	-0.1928*	0.1743*	1								
No. of municipalities	-0.0331	0.0736*	-0.2477*	1							
MU's size	0.0609*	-0.0715*	-0.2300*	0.5504*	1						
Altitude	0.0884*	-0.0563*	-0.1306*	0.2651*	0.2802*	1					
Rurality	0.1099*	-0.0919*	0.0252	0.1299*	0.0512*	0.0263	1				
MU's Population	-0.0378*	0.0183	-0.1741*	0.2607*	0.4113*	-0.2549*	-0.0501*	1			
Age	0.2456*	-0.1786*	0.1728*	-0.1632*	-0.1985*	-0.2007*	-0.0606*	-0.0519*	1		
GIpe	-0.3949*	0.4730*	0.2121*	-0.0361*	-0.1548*	-0.0874*	0.0772*	0.1014*	-0.2974*	1	
GINI	0.1281*	-0.1774*	-0.0226	-0.0755*	0.0450*	0.0069	0.1971*	0.1345*	0.1088*	-0.1470*	1

* $p < 0.05$

Table 4. Overview of Italian MUs

Region	Municipalities	<i>Official DB¹</i>			<i>Amended Db</i>			% of inactive MUs
		MUs	Municipalities in MUs	Average municipalities per MU	MUs	Municipalities in MUs	Average municipalities per MU	
<i>Abruzzo</i>	305	11	68	6.18	5	28	5.6	54.54%
<i>Apulia</i>	258	23	113	4.91	15	67	4.47	34.78%
<i>Basilicata</i>	131	2	16	8	1	6	6	50.00%
<i>Calabria</i>	404	10	53	5.3	4	22	5.5	60.00%
<i>Campania</i>	550	15	90	6	4	26	6.5	73.33%
<i>Emilia-Romagna</i>	331	42	270	6.43	40	240	6	4.76%
<i>Friuli-Venezia Giulia</i>	215	19	146	7.68	16	132	8.25	15.79%
<i>Lazio</i>	378	20	101	5.05	13	67	5.15	35%
<i>Liguria</i>	234	23	110	4.78	13	52	4	43.48%
<i>Lombardy</i>	1,516	80	277	3.46	74	243	3.28	7.50%
<i>Marche</i>	229	19	120	6.32	19	105	5.53	0.00%
<i>Molise</i>	136	8	52	6.5	3	16	5.33	62.50%
<i>Piedmont</i>	1,197	108	778	7.2	94	656	6.98	12.96%
<i>Sardinia</i>	377	36	281	7.81	21	163	7.76	41.67%
<i>Sicily</i>	390	47	174	3.7	13	59	4.54	72.34%
<i>Trentino-South Tyrol</i>	292	0	0	0	1	5	5	-
<i>Tuscany</i>	274	22	139	6.32	21	117	5.57	4.54%
<i>Umbria</i>	92	1	8	8	2	16	8	-100%
<i>Veneto</i>	571	43	225	5.23	34	181	5.32	20.93%
Italy	7,880	529	3,021	5.73	393	2,201	5.73	27.45%

Source: Author's adoption of Comuniverso's Data.

¹ Comuniverso's DB.

Table 5. Descriptive statistics about financial management (mean, 5th, 25th, 50th, 75th, 95th percentiles)

<i>Mus' Current Expenditure</i>	<i>Member Municipalities' Current Expenditure</i>	<i>Expenditure Centralisation (EC)</i>	<i>Current Balance (CB)</i>	<i>Revenue Dependency (RD)</i>	<i>Credit Index (CI)</i>	<i>Not Collected Grants (NCG)</i>
Tot= 1,263,879,466	Tot= 7,057,325,521	-	-	-	-	-
Mean= 3.215,978	Mean= 3,212,224	Mean= 0.27	Mean= 1.09	Mean= 0.82	Mean= 0.60	Mean= 0.31
5th= 66,151	5th= 222,849	5th= 0.00	5th= 0.88	5th= 0.35	5th= 0.04	5th= 0.04
25th= 311,109	25th= 662,682	25th= 0.05	25th= 1.00	25th= 0.74	25th= 0.23	25th= 0.19
50th = 1,360,732	50th = 1.406,487	50th = 0.14	50th = 1.04	50th= 0.89	50th= 0.41	50th= 0.29
75th= 3,570,620	75th= 3,161,904	75th= 0.33	75th= 1.12	75th= 0.97	75th= 0.71	75th= 0.42
95th= 13,865,230	95th= 10,391,817	95th= 1.01	95th= 1.49	95th= 0.99	95th= 1.59	95th= 0.61
Obs= 393	Obs= 2,201	Obs= 393	Obs= 393	Obs= 393	Obs= 393	Obs= 393

Table 6. OLS and quantile regression results

	OLS	Quantile Regression		
		Quantile 0.25	Quantile 0.5	Quantile 0.75
<i>Financial Health</i>	-0.025*** (0.004)	-0.025*** (0.005)	-0.031*** (0.005)	-0.025*** (0.008)
<i>Expenditure Centralization</i>	-0.046** (0.018)	0.019 (0.015)	-0.037* (0.019)	-0.058** (0.027)
<i>Polarization</i>	-0.012 (0.018)	-0.003 (0.022)	0.008 (0.026)	-0.002 (0.030)
<i>Access to sea (dummy)</i>	-0.107*** (0.029)	-0.103* (0.057)	-0.47 (0.019)	-0.053** (0.024)
<i>N. municipalities</i>	-0.000 (0.002)	-0.001 (0.002)	-0.001 (0.004)	0.001 (0.005)
<i>Spatial Controls (Size, altitude, rurality)</i>	Yes	Yes	Yes	Yes
<i>SocioGraphic Controls (Pop., MU's age, age_sq)</i>	Yes	Yes	Yes	Yes
<i>Economic Controls (Gipc and GINI)</i>	Yes	Yes	Yes	Yes
<i>Regional Controls</i>	Yes	Yes	Yes	Yes
<i>Cons.</i>	0.512*** (0.134)	0.335*** (0.193)	0.514*** (0.166)	0.606*** (0.205)
<i>Obs</i>	393	393	393	393
<i>Pseudo R-squared</i>	-	0.3182	0.3471	0.3579
<i>R-squared</i>	0.505	-	-	-

Standard errors are in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Figure 1. Mapping MU's effectiveness

