Vulnerability factors shaping municipal resilience throughout the global financial crisis: comparing Italy and France

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Abstract

The global financial crisis has challenged local governments (LGs) as they are specific targets for restoring public finances in many countries. The shock has been more or less intense depending on the national context and policies, and on individual situations and strategies. Our research aims at better understanding how perceived national, local and internal factors of vulnerability have influenced the reaction of LGs to the global financial crisis. We found that (a) municipalities react to national economic trends depending on the municipality austerity policies imposed by the central state, (b) local factors seem not always significant, as they might influence long-term instead of short-term financial policies, and (c) there are similar reactions across countries on revenues and expenditures to grants variation, short-term financial distress and budget rigidity.

Summary

1. Introduction: context and research aims

The global financial crisis that started in 2007-2008 as a financial and banking crisis, and turned in 2010 to a governmental fiscal and debt crisis has damaged the situation of all Western governments (Kickert 2012). The different and successive types of recovery plans, austerity measures, cutback strategies, and institutional reforms implemented by States following the crisis and their influencing factors have been widely studied (Cepiku and Bonomi Savignon 2012; Kickert 2012; Klase 2011; Lodge and Hood 2012; Raudla et al. 2013; Schick 2011, 2012).

However, the global financial crisis also challenged local governments (LGs) as they are specific targets for restoring public finances in many countries (Cepiku et al. 2016). The shock has been more or less intense depending on the national context and policies, and on individual situations and strategies. As a consequence, a later but growing stream of research has studied the reactions of local actors to crisis, from the description and typology of reactions and cutback strategies, to more normative approaches, or to the analysis of factors influencing reactions to crisis (Barbera et al. 2016; Cepiku et al. 2016; Sommerfeld and Posner 2013). Evidence is brought that responses to successive crisis and shocks are to be found at the strategic rather than operational level (Boin and Lodge 2016; Cepiku et al. 2016) and the understanding and identification of the key factors or capacities that influence those strategic decisions is of major interest for research (see for example Barbera et al. 2016; Cepiku et al. 2016; Innes and Tetlow 2015; Jimenez 2013, 2014). To go further, Steccolini et al. (2017a) note a need for research that would capture the dynamic of crisis reactions and the interrelated nature of capacities in coping with the crisis. As such, researches on the resilience pattern of municipalities is a recent attempt to go further in that direction and to answer the need for understanding strategies or capacities that could make organizations more resilient (Boin and Lodge 2016). This pushes to better study the capacities and their interaction in building strategic answers to the crisis (Saliterer et al. 2017).

In that stream, our research aims at better understanding how perceived factors of vulnerability have influenced the reaction of LGs to the global financial crisis. What is the influence of internal and external factors – local and national factors –, on the financial policy decisions of LGs and how this relation is impacted by the global financial crisis?

We are set at the cornerstone of various streams of literature. First, literature on cutback budgeting and management (based on the seminal work of (Levine 1978) and reviewed by (Raudla et al. 2013)) and literature on management of austerity in LGs (Cepiku et al. 2016) that give a lighting on the effect of the crisis on revenues and expenses decisions. Second, literature on LGs financial resilience (Barbera et al. 2017; Steccolini et al. 2017a). The concept of financial resilience offers an analytic framework to study interactions between the perception of vulnerability factors by managers and their decisions in terms of revenues and expenditures, in crisis and austerity period. It permits to understand the dynamic relation between external and internal factors that shape the perception of vulnerability by managers, and their resulting decisions in terms of financial policies. These decisions in turn influence the building or use of capacities and though the internal factors and the perceived vulnerability. Third, literature on cross national comparative studies in public administration (Kuhlmann and Wollmann 2014). As such, the paper intends to answer the call for comparative studies on how different nations have reacted to global crisis (Pollitt 2010; Raudla et al. 2013) covering the specific level of municipalities.

Our research objectives are threefold. First, we want to investigate how national, local and internal factors influence expenditures and revenues decisions, and to what extent the local and internal factors have comparable influence on LGs from different countries. Second, we

want to bring to the better understanding of LGs reactions to the crisis and of their revenues and expenditures decisions, within the framework of financial resilience. Last, we want to study if these patterns have changed throughout the 2008-2015 period, assessing if LGs have changed their decision-making process in the different crisis periods.

The cross-country comparative analysis provides the opportunity to isolate the effects of the national context. Previous paper from the authors (du Boys & Padovani, 2016) shed light on the effect of the institutional context on LGs situation and on the timing of the crisis between France and Italy. It suggested that the effect of the crisis has come later in France than in Italy, and affected differently LGs. One may wonder if this is the consequence of the late decrease in French state grants, coupled with the tax guarantee on tax payment or the absence of any bankruptcy regulation, whereas in Italy, measures such as reinforcement of the internal stability pact or grants cutting have been taken very early. Here, our interest also goes beyond studying national influence and we wish to understand the influence of local and internal factors. To do so, we propose a quantitative analysis on a panel data set of 2.200 municipalities over 10.000 inhabitants in France and in Italy over an 8 years period (2008-2015).

Results show that municipalities react to national economic trends depending on the municipality austerity policies imposed by the central state. Grants represent an important mechanism, but municipalities react similarly in different countries only when there is a clear message by the central state that structural and heavy austerity policies are put in place. Local factors seem not always significant, as they might influence long-term instead of short-term financial policies that are the focus of this study. All internal factors have different impacts in terms of financial policy decision, but there are some recurring relationships: a reduction in grants is reflected on a reduction of personnel expenditures, a short-term financial distress is associated to a reduction in current other than personnel expenditures, a high budget rigidity is contrasted by increasing own resources and decreasing of personnel expenditures.

This paper is structured as follow. Section 2 discusses the conceptual framework used in this study and exposes our research model that we use in this study. In section 3, we expose the methodology and the operationalization of the quantitative study, with a particular interest in discussing the different characteristics of the French and Italian national contexts. Section 4 presents and provides a discussion of results, while conclusions are included in Section 5.

2. Main concepts and theoretical model

We first discuss expenditures and revenues choices as an interesting angle for studying financial policy decisions to cope with the crisis. The financial policy adopted by each LG represents our dependent variable. We then discuss the financial resilience as a constructive framework for the analysis of external and internal influences, what we then consider under the label “vulnerability factors”, our independent variables.

2.1 Financial policies of LGs

Financial shocks have strong and complex impacts on financial balances. On the one hand, the level of severity and length of crisis affect with different magnitude both revenues through tax base reduction, and expenditures via an increase of demand for services (Dunsire and Hood 1989; Pollitt 2012; Raudla et al. 2013). On the other hand, expenditures and revenues result from crisis management and budget decisions.

In any period, budget annual cycle remains pivotal in the decision of revenues and expenditures (Gianakis et al. 1999), as well as rebudgeting (Anessi-Pessina et al. 2012).

Budget management is a key aspect of municipalities reactions to the crisis (Cepiku et al. 2016). Previous literature, such as the one on cutback management (Cepiku and Bonomi Savignon 2012; Klase 2011; Levine 1978; Raudla et al. 2013) provides many elements showing that budget decisions are central in crisis management. Raudla et al. (2015) also underline the increased power of budget units during crisis. In that line, Cepiku et al. (2016) argue that LGs responses to the global financial crisis can be studied based on the way governments manage their budget categories.

Previous research shows that in terms of revenues and expenditures, LGs may react in several ways (Baker 2011; Cromwell and Ihlanfeldt 2015). Notably some of their financial resources are provided and decided by the central state (and other upper tier governments such as regions). During times of financial crisis, these may be reduced. The central government may not only withdraw grants, but also limit the ability of LGs to impose, raise or modify local taxes. LGs retain, however, the ability to set the price for fee-paying services. LGs may increase revenue in reaction to decreases in state grants, especially in the early phases of crisis, when the 'tooth fairy syndrome', that is, the idea that cutbacks are not needed, may influence decision makers (Levine 1979), or where the cutbacks provided are less than the reduction of state grants.

There is a significant body of literature focusing on the pattern of expenditure cutbacks, showing, for example, the importance of capital spending reduction and personnel expenditure reduction via a hiring freeze (Raudla *et al.* 2013). Capital spending is the most likely cutback during crises (Levine *et al.* 1981; Dunsire and Hood 1989), although not necessarily the most effective strategy in the long term (Scorsone and Plerhoples 2010). A freeze on personnel hiring is also frequently adopted, as it decreases expenditure without unpopular layoffs (Levine 1978; f 1985). Finally, the reduction of operating expenditure via cuts to programs or efficiency measures is another often adopted option.

There is also evidence to support that expenditures and revenues decisions come in answer to internal and external contingencies (Anessi-Pessina et al. 2012). Internal factors constitute an important set of forces that influence municipalities' reaction to crisis and budget decisions (Lee et al. 2009; Pollitt 2012). But there is more at stake. The multiple type of influences on expenditures and revenues decisions is of great interest to research and can be modeled with reference to the financial resilience framework.

2.2 Internal and external factors of vulnerability that affect financial policies

The financial resilience framework developed by Steccolini et al. (2017a) gives an interesting understanding of the effects of external and internal factors on strategies and financial decisions taken by municipalities to cope with crisis. Resilience is an established concept within crisis management studies (Duit 2016). Financial resilience is the capacity of governments to anticipate, absorb and react to shocks affecting their finances over time. It is a "dynamic combination of four interrelated dimensions, namely financial shocks, vulnerability, anticipatory capacity and coping capacity" (Barbera et al. 2017; Steccolini et al. 2017a). First part of Figure 1 portrays the different dimensions and underlines the dynamic characteristic of the model.

The resilience pattern of municipalities can explain expenses and revenues decisions. Steccolini et al. (2017a) and du Boys (2017) show that cities with greater anticipative or coping capacities can limit the amplitude of cutbacks or tax increases. Long-term anticipation and accurate perception of the municipalities' external and internal vulnerabilities allow to limit cost cuts and fiscal and debt rise.

Financial decisions are an important element in the resilience framework, via their effect on the use or development of coping capacities, and in particular buffering ones. Coping capacities are made of three types: buffering, adaptive and transformative. Buffering capacities (i.e. the ability to absorb shocks) represent more traditional budget management techniques, and refer to elements such as increase in tax revenues, short term reduction in investment, or deferring expenditures. Adaptive capacities refer to the ability for implementing incremental changes, while transformative capacities to the ability for taking paths of more radical changes (Steccolini et al. 2017a). As a result, buffering capacities, and to a lesser extent adaptive and transformative ones, are linked to financial policies decisions. Focusing on expenses and revenues decisions enable to comprehend the deployment or development of coping capacities in reaction to the financial crisis.

Vulnerability is interpreted "as the level of exposure to a shock" (Barbera et al. 2017; Steccolini et al. 2017a). Its perception by decision-makers influences the LG's reaction to crisis and the decisions to deploy or develop coping capacities. Vulnerability results from internal and external factors. LG's vulnerability and its perception first result from the external environmental conditions, such as uncertainty of the environment, evolution of national grants, default or bankruptcy regulations, local economic poverty, territorial attractiveness (Barbera et al. 2017; Céline du Boys 2017). National contextual factors should also affect LGs' vulnerability, due to different administrative culture or traditions (Loughlin 1994), different structures of the State in terms of vertical dispersion of authority (Pollitt and Bouckaert 2011), and different state-level austerity policies in reaction to crisis (Miller and Hokenstad 2014).

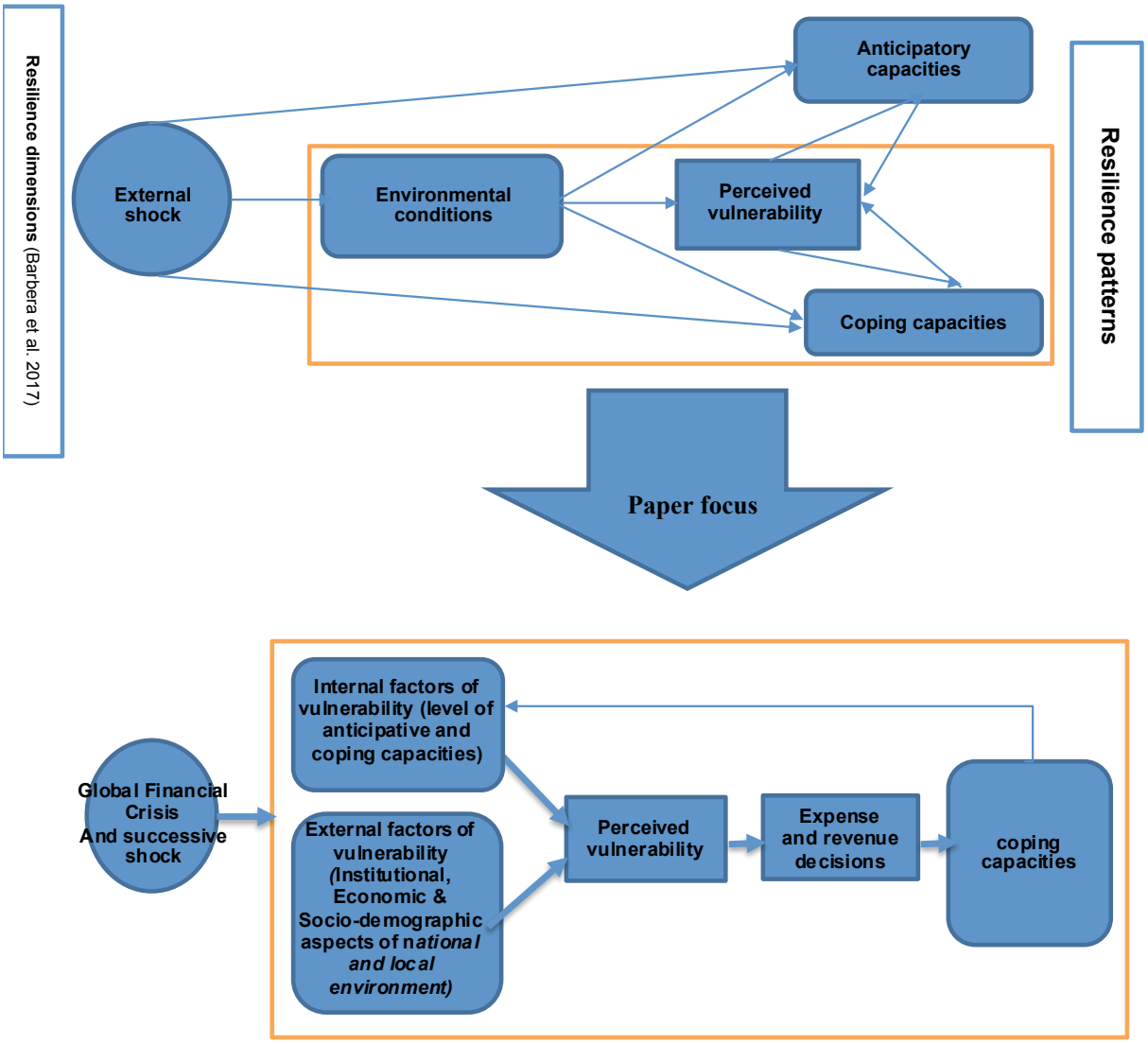
Perceived vulnerability then results from internal factors. It is at the center of the dynamic relations stated by the financial resilience model, in which the ex-ante level and types of capacities influence the perception of vulnerabilities, that in-turn influence the development or deployment of capacities. Internal factors are such as financial reserves, state and level of assets, diversification and importance of revenues and taxes, level of debt, doubtful liabilities, rigidity of expenditures, past financial situation such as successive deficit, subsidiaries' situation and internal capacity to control them, misfit between funding and service responsibilities (Barbera et al. 2017; Céline du Boys 2017). Leadership and managerial capacities may enable the development of long-term strategies in answer to crisis (Céline du Boys 2017), including infrastructure development and employment retraining (Pollitt 2012). Their presence minimizes the negative effects of cutbacks (Behn 1980; Levine 1978). As such, they appear as another internal factor that shape perceived vulnerability.

Following these reflections, financial resilience seems to offers a pertinent framework to analyze the type of relations and interactions between internal and external factors and financial policies decisions.

2.3 Theoretical model

Consequently to the discussion above, we chose to refer to the financial resilience framework to study how internal and external vulnerability factors impact on financial policies over time, in times of crisis and austerity. Barbera et al.'s (2017) reflection intends to describe and characterize capacities, elements of perceived vulnerability and contextual elements in order to identify various resilience patterns. In parallel with this reflection, we propose to study the relations between different dimensions of the model: internal and external factors that shape vulnerability, and revenues and expenditures decisions that drive to the deployment or development of coping capacities in reaction to the financial crisis. In our approach, we leave aside the anticipatory capacities dimension. The positioning of our reflection with regard to the financial resilience model is schematized in Figure 1.

Figure 1– Theoretical model



In this framework, we now propose to test the relation between internal and external factors and financial policy decisions. We are interested in understanding how LGs are affected by external, both national and local, and internal factors when they decide their level of revenues and expenditures. We wonder to what extent the local and internal factors have comparable influence on LGs in different countries.

The global financial crisis is an interesting period to study these influences. There is evidence as stated by Klase (2011) that there is a "response to fiscal stress which varies depending on severity of fiscal retrenchment". (Scorsone and Plerhoples 2010) suggest that strategies have evolved throughout time, with different combination of tax increases, spending cuts and rainy-day funds. Thus, we wonder if the influence of external and internal factors has evolved throughout the crisis.

3. A comparative analysis between French and Italian municipalities

The interaction of the national context and the individual situation in the shaping of LGs' individual strategies makes it hard to differentiate the influence of each level on the LGs'

resulting financial situation. However, a cross-country comparative analysis provides the opportunity to isolate the effects of the national context. Thus, in order to study the influence of both national and individual factors, this paper proposes a quantitative comparative study between French and Italian LGs. We selected the municipal level of LGs.

In France, there are three levels of LGs (region, department and municipality). They have a very similar legal system, and are placed on an equal footing regarding the State. They are freely administrated by elected councils, and do not exert control on each other. In 2015, there were 36.658 municipalities (communes), but only 958 over 10.000 inhabitants, describing a highly fragmented pattern. Municipalities have extensive autonomous powers to implement national policy and are responsible to manage such services as waste collection and disposal, water and sewerage systems, roads, social services, building permits and planning.

Italy has a fragmented LGs pattern, with three main governmental levels, the State level, the regional level, and the municipal level. The previous fourth level (between regions and municipalities) has been transformed in a second tier LG, a sort of consortium amongst municipalities. In common they all have a territorial basis of action. There are about 8.100 municipalities (*comuni*) that are responsible for such local services as local transportation, waste collection and disposal, social services, road and school infrastructure and maintenance, amongst which 1.200 are above 10.000 inhabitants.

Before describing the precise sample and methodology of our empirical study, we first discuss the national factors that may influence financial policy decisions, illustrating the differences between French and Italian municipalities.

3.1 National factors in France and Italy

Above national economic conjuncture, national institutional contextual factors affect municipalities' reaction to crisis. As already discussed, they can be seen at three different levels: the administrative culture or traditions, the basic structure of the State in terms of vertical dispersion of authority, and the state-level austerity policies in reaction to crisis. France and Italy can be considered similar in terms of culture or administrative traditions (Ongaro 2010), therefore we limit our analysis to the latter two variables.

3.1.1 Vertical dispersion of authority

Vertical dispersion of authority relates to the different state models in place. While usually the distinction is between unitary and federal states, some unitary states are so highly decentralized that the degree of de facto decentralization is even higher than in federal state. It is thus important to distinguish between different levels of centralization/decentralization. The concept of decentralization is multifaceted and complex in nature. Schneider (2003) defines three types of decentralization: fiscal, administrative and political. The measurement of centralization/decentralization is controversial, but amongst the most popular measures that have been used there are share of revenues or expenditures at local level compared to the public sector, percentage of local revenues controlled by LGs, and percentage share of public employment.

One element that may be considered as symptom of high level of autonomy and thus high decentralization is the presence of bankruptcy rules opposed to state takeovers (Scorsone and Padovani 2014). Bankruptcy refers to that situation where a LG's state of insolvency is declared or imposed by a court order, and creditors are paid by clearance of assets and credits. Many countries do not have a provision for LG's bankruptcy filing but rather a higher level, usually the central government, takes charge of the situation.

Another aspect that is important to assess the level of freedom of a LG, and thus its subjection to national policies, is its ability to decide their budget policies amongst which debt burden is pivotal. Most countries (but not all) provide restrictions to LGs borrowing. Policies affecting the debt load (by limiting borrowing so as to reduce debt load or by taking direct control of the financial load), policies affecting current primary savings (by restricting borrowing to finance capital expenditure or by increasing municipal revenues), or policies affecting the co-funding efforts (by reducing co-funding of investments or reducing capital expenditures) are possible strategies put in place by State governments (Cabases et al. 2007).

Fiscal and financial centralization/decentralization

Classic measures of centralization/decentralization tend to show that Italy is more decentralized than France (see Table 1)[1].

Table 1 – Comparing French and Italian level of decentralization and their evolution with the crisis

	France		Italy	
	2007	**2015**	**2007**	**2015**
Total Local expenditures / total public expenditures	**21,4%**	**20,0%**	**31,3%**	**28,8%**
Total local revenues / total public sector revenues	**21,8%**	**21,4%**	**32,1%**	**31,0%**
Local public employment /total public employment *(in number of employees)*	**33,7%**	**35,1%**	**42,0%**	**42,6%**

Sources: INSEE (France) and ISTAT (Italy).

The French Republic is a unitary State which organization is decentralized. In the early 2000's, decentralization and LGs' financial autonomy were registered in the Constitution. LGs are freely administered by elected councils. Municipal taxes are collected directly and indirectly from citizens and companies. Municipalities' councils vote the rate of main direct taxes, and the State ensures tax collection and bears the risk of non-payment. The State pre-pays and guarantees the amount of taxes voted locally. Municipalities also decide service fees.

The Italian Constitution recognizes federalism and localism. As to municipalities, the constitution provides a certain level of autonomy in terms of ability to raise taxes and service fees, for which they are responsible in terms of collection, decide on the organization and performance of their functions and offices, and allocate resources to different functions and services provided. In 2009 a reform of fiscal federalism has begun. The reform has not been completed yet, and today the system appears contradictory since the central government is conferred a high power over local finances, particularly during economic crisis.

Bankruptcy rules

In France, bankruptcy procedure does not apply to LGs and their assets are exempted from seizure. Specific procedures are designed to protect creditors. Thanks to these mechanisms, the risk of insolvency does not seem to exist in LGs. Even in the worst examples of French

[1] See previous research by the authors (du Boys et al. 2014) that have identified, through a qualitative study, some important differences in the French and Italian institutional contexts (level of central authority on

LGs difficulties, there has been no debt write-off. The debt has just been extended to enable the payment.

In Italy the law provides three typologies of situations of financial distress for municipalities, from the most serious default or bankruptcy (*dissesto*) to the intermediate pre-default (*pre-dissesto*), which is a sort of condition in which the LG is subjected to a series of central government continuous checks, and the least acute imbalance that occurs in the rebalancing procedure (*procedura di riequilibrio*). A municipality is considered in bankruptcy condition when (a) it is not able to continue its functions and essential services, or (b) it cannot pay creditors with regular resources (i.e. insolvency). Municipalities subjected to bankruptcy procedures face a financial shock and assets can be sold to pay creditors.

Municipal budget and structure

In France as in Italy, the municipal budget is divided into operating and capital revenues and expenditures. Operating section can generate a surplus, which will permit to finance the investment activities. Budget must be balanced. Any overall imbalance must be covered in the following budget cycle.

In France, the Prefect and the Court of Auditors, representing the central State, monitor and can impose measures to return to balance. In Italy, the Court of Auditors monitors or suggests measures to balance to municipalities, and starting from November 2011, it can even declare the bankruptcy status (see hereinafter) in case of sever unbalances.

Debt regulation

In both countries, debt is low, but much lower in Italy, if compared to State debt. Municipal borrowing was 2,2% of the Italian public debt compared to 3,2% in France in 2013. But while in France, it has been increasing since 2003, in Italy it has constantly decreased of 20% between 2011 and 2016.

In Italy, debt is subjected to specific restrictions by Constitution, national and regional laws with the aim to guarantee financial sustainability. The law imposes quantitative limits to borrowing related to annual revenues. LGs can take out new debt in case the new annual amount of expenses for interests (of any form of past and new debt and guarantee) does not exceed a specific amount of current revenues of the second to last previous fiscal year. The length of any debt operation (even for renegotiations) is between a minimum of 5 to a maximum of 30 years. Another important element of public finances regulation is the Internal stability pact (ISP). It reflects on LGs' financial policies and is intended to decrease local debt, De facto, the ISP is imposed by central government as fiscal consolidation within the European framework of the Stability and growth pact (SGP). Established in 1999, this measure was introduced in answer to the decentralisation process begun in the early 90s and mirrors the SGP by requiring municipalities (and other LGs) to adopt specific measures with the final aim to improve the difference between primary revenues and expenditures and, thus, decrease the stock of debt. The ISP has changed over time, in terms of ways to implement the financial efforts and their level. This latter characteristic has substantially introduced a certain level of uncertainty amongst LGs in their financial planning, especially considering that the ISP has widely been considered not an agreement between the central government and regions and LGs, but a unilateral deed.

In France, debt regulation is more simple. Borrowing is only allowed for investments, not for operating activities. Debt repayment is mandatory and must be done from own-resources.

Many LGs suffer from a risky debt structure due to an important proportion of toxic loans[2]. There is no systemic risk (Observatoire des finances locales 2014), but many LGs are affected and some suffer from a high increase in their financial expenses. The loan agreement with a bank is a matter of private law, but includes a commitment to increase taxes if necessary to fulfil the annual repayments (Mouzet 2011).

3.1.2 State-level austerity policies in reaction to crisis

A level of national institutional contextual factors that can affect LGs' perception of vulnerability is the state-level austerity policies in reaction to crisis (Miller and Hokenstad 2014). They come in different forms. Standardization of procedures, setting limits and ceilings to spending, borrowing and activities, general priority-setting by the government are the main example of state-level austerity policies that inevitably brings to a higher centralization in the relationship between central and local governments (Stanley 1980; Peters 2011; Pollitt 2010). While the rational and the deliberate goals of these procedures are set to face fiscal crisis, contradictions exist (Cepiku and Bonomi Savignon 2012) and these policies may not have the desired impact on revenues, costs and debt and thus the financial health of LGs.

State-level austerity policies

There are at least two characteristics that differentiate the Italian answer to crisis from the French one, namely its anticipation, since its most severe phase can be dated to 2011 instead of 2014-15 of France, and its complexity. The first symptoms of fiscal crisis arose in 2008, when markets and international institutions, amongst which the EU, started to convey warning signals to the Italian government. Italy then started a series of reforms to strengthen public budgeting, accounting and audit. But the worsening situation also required deep financial cutbacks for municipalities that were obtained via several policies and mechanisms, with a particular boost in late 2011 with effects starting in 2012:

- Reductions in state grants,
- Increase of the ISP fiscal targets,
- Ceilings for specific current expenditures, known as "spending review" policies,
- Hire freezing.

In France, after the 2008 crisis, there has been successive national economic recovery plans (26 billion euros in 2009 and 35 billion euros in 2010) that limited the economic recession, and protected LGs. In 2010, specific measures were even implemented to support local investment. But from 2011, the State froze and then decreased the "DGF", the main general operating grant to LGs with the aim of forcing LGs to rationalize their expenses. From 2015, the strong decrease in DGF (11 billion decrease planned until 2017) has been felt as a strong and unexpected shock for most LGs. The expected overall effects in terms of cutbacks of the policies above in the two countries can be summarized as in

[2] Structured debt combining traditional bank loans and derivatives. Often linked to non-traditional indexes as the Swiss exchange rate.

Table 2.

Table 2 - Cutbacks effects on Italian and French municipalities during crisis

	2009	2010	2011	2012	2013	2014	2015	2016	2017
France*	none	none	transfers freezing	transfers freezing	transfers freezing	0,59	1,45	1,45	0,72
Italy**	1,46	1,03	3,01	5,19	3,16	0,04	0,85	n/a	n/a

Note: in billion Euros
Source: INSEE (France) and IFEL (Italy).
*France: reduction in state grants (DGF).
**Italy: overall effects in terms of cutbacks policies mentioned above.

Fiscal federalism reforms

Coupled with these policies, fiscal reforms that challenged decentralization have been implemented in both countries. In Italy, the central government re-introduced the municipal property tax in 2012 after 4 years of re-centralization of public finances, then in 2013 abolished the property tax on first residences and gave the possibility to raise rates of municipal personal income tax. In France, in 2010 (after years of less intense local revenues reforms) the removal of an important business tax called "Taxe professionnelle"[3] resulted in a great loss of flexibility in revenues and has been a challenge for LGs.

Regarding France and Italy, we can conclude that Italy appeared to be more decentralized than France, whether it is concerning the autonomy given to LGs, the part of local expenditures, revenues or employees, or the bankruptcy rules. But local debt is much more regulated in Italy than in France. However, in both countries, the crisis has generated a recentralization trend mainly through fiscal reforms. If LGs in both countries suffers from state level austerity policies, Italians undergo much more important, long and complex ones.

Following this review of difference in national characteristics between France and Italy, we do the hypothesis that municipalities in France or in Italy are in quite different national context and it is likely that we should have different patterns of decisions making regarding expenditures and revenues.

3.2 How to compare financial performance and condition of municipalities across boundaries

Comparing the financial performance and condition of LGs has been an aspect widely discussed when the comparison is limited within nations, while less attention has been received when extended across national boundaries (Padovani and Scorsone 2011). This topic calls for several types of issues that have been already examined in literature. First of all, it should be noted that reporting of public finance is at the cornerstone of two competing approaches to accounting: "government financial statistics" otherwise called "national statistics", i.e. that accounting system whose aim is to represent economy at a whole and articulated in its subsectors, and "government financial reporting", whose foundational basis is entity accounts. In this study, we refer to the latter. The International Public Sector Accounting Standard Board (IPSASB) provides a set of standards (IPSAS) that have been followed by several countries around the world, but only a limited number of EU countries have applied them and with different nuances (Ernst & Young 2012, PricewaterhouseCoopers

[3] Tax paid by businesses, based on the value of their fixed assets. The rate was set by LGs. It represented 44% of LGs' tax revenues. It has been replaced by several taxes which are smaller in amount. Moreover, some of them are very volatile and their rate is not set by the LG.

2014). French LGs have a level of proximity of their accounting information to IPSAS of 84 percent while Italian LGs got a lesser level, 30 percent (Ernst & Young 2012). In France, a full accrual accounting is applied both to general accounting and budget. In Italy, starting from 2009, the public sector accounting has been challenged by an all-encompassing reform called "harmonization of accounting systems and reports". During the period covered by the analysis and still currently, Italian municipalities are provided by a cash/modified cash plus modified accrual bases of accounting sometimes called commitment-based accounting accompanied by an accrual basis-like set of documents.

While some researchers have argued that the comparability of financial reports and accounts may for the moment only be achieved at a rhetorical level (Heald and Hodges 2015), a recent research project has defined a common framework that make the international comparison of city governments' financial health possible. Originating from currently used accounting information and a process of selection and legitimization of information upon which comparing LGs, the results point out that relevant information to compare city governments' financial health is to a great extent already available but needs to be interpreted and re-shaped for purposes of making comparisons (Padovani et al. 2017). Based on that experience, we have chosen measures of the model's variables that can be compared between France and Italy.

3.3 Selection of variables

The quantitative approach adopted in this research offers to test hypotheses on a representative sample, but obliges to simplify the measurement of the various dimensions of the model as developed by the qualitative multiple cases approach. The variables at stake here are twofold: the independent variables that describe external and internal factors that affect the perception of vulnerability, and the dependent variables explaining financial policies adopted by municipalities.

As discussed, environmental (external) conditions plays a pivotal role in shaping the perception of vulnerability. National GDP growth (*National economic wealth*) and evolution of grants received from central and other governments (*State-level and other governments austerity policies via grants*) can be considered as important independent variables to measure national economic factors. While national GDP is a quite standardized measure and derives from national statistics, the second variable requires a thorough understanding of the accounting information available from the accounting dataset. In general, while for both countries obligation-based accounting information was available (for Italy cash accounting information is also available), important differences emerged from deep discussions on the structure of information and the technicalities of these allegedly similar accounting systems. With reference to grants, for Italy we have used the data on current grants from other governments based on obligation-based accounting as this information represents the resources municipalities can rely on to fund their expenditure policies. For France, we have used the information on the "Dotation Globale de Fonctionnement - DGF" in obligation-based accounting terms. For Italy, it has also be considered the *Impact of ISP on local public finances*, by considering the overall levels of fiscal efforts required to municipalities at the macro level.

Another sub-set of environmental (external) factors relates to local economic and social factors. *Municipal economic growth*, measured by the change in natural persons income for all inhabitants of the municipality and *Population growth*, as percentage of population growth during the last two years, represent possible variables. These measures are quite standard and conventional variables to measure the socio-economic environment and can be obtained by statistics available at the national statistic office or at the revenue agency.

Concerning the internal factors of vulnerability, we have singled out what we consider the main four measures amongst the many aspects studied in the qualitative analysis of Steccolini *et al.* (2017a): the level of financial dependency from other governments' revenue; the level of budget rigidity; the level of fiscal distress, divided into short term and long term fiscal distress levels. To select the appropriate accounting information (also for the measurement of grants), we have adopted the validity and legitimacy criteria developed by Bouckaert (1993). Validity refers to understandability, accuracy and credibility, while legitimacy reflects the idea that the accounting information is considered as valuable by its recipients (i.e., policymakers in municipalities). *Municipal financial dependency from other governments* is measured considering grants received from other governments using obligation-based accounting in both countries, while the current revenue are measured by using obligation-based accounting in France, where all municipal revenues cash inflows are guaranteed by the State, and cash-based accounting in Italy. In fact, while obligation-based accounting is relevant for grants (see above), it does not account for current revenue from municipal fees and taxes on the basis of fair value (IPSASB 2001, 2006). For this reason, cash accounting is considered as a better proxy. For the same reason, *budget rigidity*, which considers the portion of current revenue absorbed by personnel expenditure, considers cash accounting for revenue for Italy and obligation-based accounting for France. Obligation-based accounting is used for both countries for expenditure as it represents the amount of resources consumed and that therefore must be funded.

Fiscal distress has been measured by several indicators. While previous studies suggest several dimensions and variables, short term and long term dimensions seem to be a constant (Jacob and Hendrick 2013). In this study *fiscal distress, short term* is measured by the gross operating balance divided by current revenue. Similarly, from other variables discussed above and with the aim of accounting for the fair value of revenue, for Italy the gross operating balance has been computed by subtracting the obligation-based accounting level of current expenditure to cash-based accounting current revenue, while current revenues are measured by cash-based accounting. For France, all the variable components have been considered according to obligation-based accounting. It must be noted that gross operating balance is similar but not equal to operating balance, since it does not include depreciation (i.e., the economic value of assets usage), which is instead typical information provided by accrual accounting. Computational details for gross operating balance are included in Table 3. *Fiscal distress, long term* is measured by the stock of debt (long term debt does not consider accounts payable) in relation to current revenue in obligation-based accounting terms for France and cash accounting terms for Italy.

The dependent variables describe some municipal financial policies that may be adopted in reaction to perceived vulnerability and to cope with the global financial crisis and austerity. The use of these policies and their mix result from various strategies, from cutbacks (Baker 2011) to expansionist strategies, and from various resilience patterns, from fatalists to self-regulatory (Steccolini *et al.* 2017b). They illustrate decisions regarding the evolution of revenue, personnel expenses, other current expenditure and capital expenditure from one year to the other. We have not considered fiscal reserves (otherwise labelled 'rainy-days' funds) since these have been heavily affected by central government fiscal consolidation policies mechanism (for example the ISP in Italy) instead of deliberate and autonomous decisions by municipalities. We have not considered the state and level of assets, since this accrual accounting information is highly inaccurate as inventories are not regularly updated (Corte dei Conti 2016) and might be influenced by different accounting principles implemented.

For the same reasons explained above, *Variation of municipal own revenue* is computed considering municipal own revenue in cash accounting terms for Italy, and in obligation-

based accounting terms for France. *Variation of personnel* and *variation of other current expenditure* are computed considering obligation-based accounting. *Variation of capital expenditure* is computed considering the accounting basis which is the closest to the momentum in which a new asset (e.g., a new road, a new school building or any other public infrastructure) is made available: obligation-based accounting in France, cash-based accounting in Italy.

To simulate the decision made at the beginning and during the year, we use the measure of the independent variables that should be available at that moment. For example, the evolution of grants is known at the beginning of the year, whereas the GDP later. For population growth we choose to take a 2 year variation as we did the hypothesis that it was a longer trend indicator.

The data collection has been possible thanks to a cooperation with Bureau Van Dijk, Brussels. We have worked on the creation of a database grouping together all financial information available on LGs in France (PA France) and Italy (Aida PA).

A synopsis of independent and dependent variables used in this study is available in Table 3**.**

Table 3 – Variables

Variable name	***Description***	***Computation details and data sources***
Independent variables		
1a. External factors of vulnerability - National economic factors		
GDPGROWTH	*National economic wealth* GDP growth between N-1 and N-2	GDP Source, FR: INSEE (National statistics institute) Source, IT: ISTAT (National statistics institute)
POLICYGRANT	*State-level and other governments austerity policies via grants* Change of grants received by the municipality between N and N-1	FR: DGF ("Dotation Globale de Fonctionnement"), obligation-based accounting IT: Current grants from other governments ('Titolo 2 – Entrate da contributi e trasferimenti correnti' of revenue), obligation-based accounting
POLICYISP	*Impact of ISP on local public finances* Proxy for the Internal Stability Pact (ISP) policy	IT only: overall fiscal impact at the macro level Source: IFEL
1b. External factors of vulnerability - Local economic and social factors		
ECOGROWTH	*Municipal economic growth* Change of total natural persons income for all inhabitant of the municipality between N-1 and N-2	Sum of individual income of all inhabitants within jurisdiction Source, FR: BvD (from Ministry of Finance) Source, IT: Ministry of Finance
POPGROWTH	*Population growth* Change of jurisdiction's population between N and N-2	Population
2. Internal factors of vulnerability		
FINDEP	*Municipal financial dependency from other governments* How much of current revenues are gathered from other governments (central state, regions, other) in year N-1	FR: DGF ("Dotation Globale de Fonctionnement"), obligation-based accounting ÷ Total current revenue, obligation-based accounting IT: Current grants from other governments ('Titolo 2 - Entrate da contributi e trasferimenti correnti' of revenue), obligation-based accounting ÷ Total current revenue ('Titolo 1'+'Titolo 2'+'Titolo 3' of revenue), cash based accounting

Variable name	*Description*	*Computation details and data sources*
BUDRIG	*Budget rigidity* part of personnel expenditures in current revenues for year N-1	FR: Personnel expenditure, obligation-based accounting ÷ Total current revenue, obligation-based accounting IT: Personnel expenditure ('Titolo 1 – Intervento 1' of expenditure), obligation-based accounting ÷ Total current revenue ('Titolo 1'+'Titolo 2'+'Titolo 3' of revenue), cash based accounting
FHSHORT	*Fiscal distress, short term* Gross operating balance out of current revenues in year N-1	FR: [Total current revenues (without asset disposal) – Total current expenditures (excluding depreciation and accounting value of asset that are sold during the year), obligation-based accounting] ÷ Total current revenue, obligation-based accounting IT: [Total current revenue ('Titolo 1'+'Titolo 2'+'Titolo 3' of revenue), cash based accounting – Current expenditure ('Titolo 1 – Intervento 1' of expenditure), obligation-based accounting] ÷ Total current revenue ('Titolo 1'+'Titolo 2'+'Titolo 3' of revenue), cash based accounting
FHLONG	*Fiscal distress, long term* Long term debt out of current revenues in year N-1	FR: Stock of debt at year end ÷ Total current revenues, obligation-based accounting IT : Stock of debt at year end ÷ Total current revenues ("Titolo 1"+"Titolo 2"+"Titolo 3" of revenues), cash based accounting
Dependent variables: decisions on revenues and expenditures		
MOVVAR	*Variation of municipal own revenues* Change of municipal own revenues between N and N-1	FR: Total current revenues – DGF ("Dotation Globale de Fonctionnement"), obligation-based accounting IT: Total municipal current revenue from taxes and fees ('Titolo 1'+'Titolo 3' of revenue), cash based accounting
PEVAR	*Variation of personnel expenditures* Change of personnel expenditures between N and N-1	FR: Personnel expenditure, obligation-based accounting IT: Personnel expenditure ('Titolo 1 – Intervento 1' of expenditure), obligation-based accounting
CUREXPVAR	*Variation of other current expenditures* Change of municipal other current expenditures (current expenditures excluded personnel) between N and N-1	FR: "Achats et charges externs", obligation-based accounting IT: Current expenditure for service and goods provisions ('Titolo 1, Intervento 2'+ 'Titolo 1, Intervento 3' of expenditure), obligation-based accounting
CAPEXPVAR	*Variation of capital expenditures* Change of capital expenditures between N and N-1	FR: Capital expenditure, obligation-based accounting IT: Capital expenditure ('Titolo 2' of expenditure), cash-based accounting

Source: PA France for France, Aida PA for Italy, by Bureau van Dijk, datasets containing all information contained in financial reports of municipalities (plus annexes), except different information provided in boxes. All data have been retrieved on 01-05-2017.

3.4 Sample selection and description

As stated above, our empirical study is based on French and Italian Municipalities. We chose to study municipalities as they represent the first tier of LGs in both countries. We collected data on all municipalities over 10.000 inhabitants (except Paris and Rome) in France and in Italy, throughout the years from 2007 to 2015, this is to say 983 French municipalities and 1219 Italian municipalities. Then we corrected the sample by winsorizing the variables at level 1% in each tail to reduce the effect of possibly spurious outliers. The sample is described in Table 4.

Table 4 - Number of municipalities by size category *(in thousand inhabitants)*

Number of inhabitants / Country	[10–20 [	[20–50[	[50- 100[	[100–250[	>= 250	Total
France	534	327	84	31	7	**983**
Italy	709	364	102	33	11	**1219**
Total	**1243**	**691**	**186**	**64**	**18**	**2202**

3.5 Data analysis method

To analyze the panel dataset we use a fixed-effect model, i.e. a linear regression model in which the intercept terms vary over the individual unit. Let *i* be the variable index for the unit $(i = 1, \dots, N)$, i.e. municipality, and *t* the variable index for the time period $(t = 1, \dots, T)$, i.e. the year, the specification of the fixed-effect model is:

$$y_{it} = \alpha_i + x'_{it}\beta + \epsilon_{it}$$

where α_i captures the effects of those variables that regard the unit *i* and are constant over time x_{it} is the vector of explanatory variables and ϵ_{it} is assumed to be independent and identically distributed over municipalities and time with zero mean and variance σ_ϵ^2. Moreover, it is usually assumed that all x_{it} are independent of all ϵ_{it}. The fixed-effect model requires the exclusion of the variables that are time-invariant (e.g. nation, population mean) for multicollinearity problems, thus we run separate fixed-effect models for each country. In particular, for each dependent variable and for each country we run four fixed-effect models, regarding the four different time periods, with time-fixed effects since the null hypotheses of no time fixed effect is rejected. Fixed effects were chosen over random effects on the basis of the Hausman test (Hausman 1978) for each dependent variable. In addition, we use robust standard error estimates since the related test has confirmed heteroskedasticity. We exclude income variable since it is correlated with budrig variable; their correlations corresponds to -0.8227.

3.6 Evolution of financial policies throughout the crisis

To better comprehend the evolution of patterns across time, we determine the combinations of financial policies decisions, on the basis of our dependent variables, for each municipality.
We encode our dependent variables depending on their evolution (negative or positive) as stated in the

Table 5 and we detect the combination of each municipality through the evolution of expenses and revenues. In particular, we assign to each municipality a code based on the combination of the four dependent variables trends, where each character corresponds to a dependent variable trend. For example, "2-2-1-1" means the financial policy characterized by increase in both municipal own revenues and personnel expenditures and decrease in both other current expenditures and capital expenditures. Then, we compute the combinations frequency for each time period and country and we classify the combinations regarding their frequency.

Table 5 – Encoding dependent variable evolution

VAR	1	2
MOVVAR	<=0	>0
PEVAR	<=0	>0
CUREXPVAR	<=0	>0
CAPEXPVAR	<=0	>0

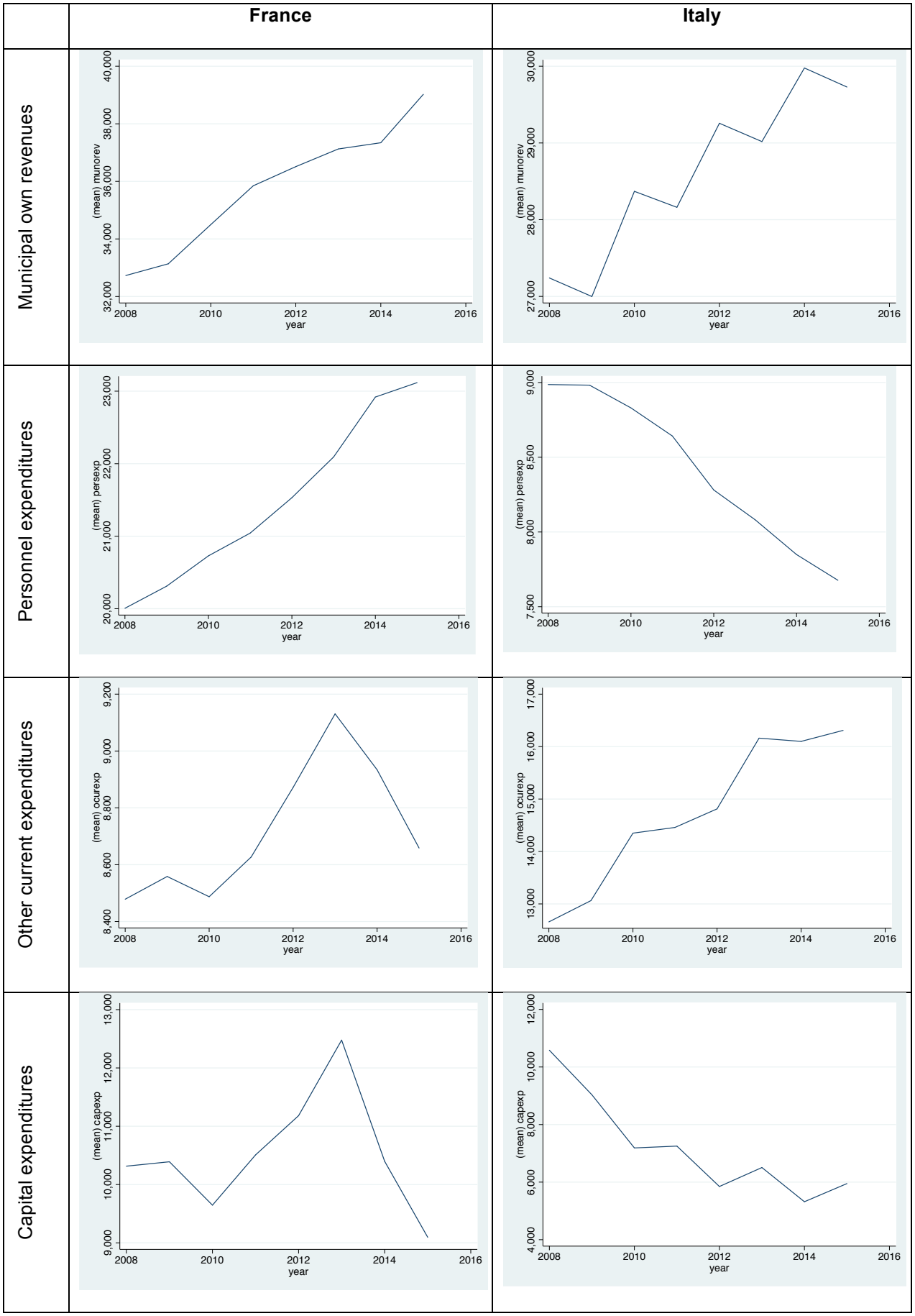
4. Result presentation and discussion

We present successively the results of our quantitative analysis. We first describe the evolution of the dependent variables means over time. Then we present the results of our panel regressions and so the effect of national, local and internal factors on the variation of municipal own revenues, personnel expenditures, other current expenditures and capital expenditures for each municipality. Last, we show the results on the evolution of main combinations of dependent variables.

4.1 Evolution of dependent variables

Figure 2 shows the different evolution of French and Italian municipalities on the dependent variables. If own municipal revenues face a quite comparable growing evolution, personnel expenditures vary the opposite ways, with a constant increase in France vs a constant decrease in Italy. Concerning other current expenditures, they have been growing in both countries until 2013, after they decrease strongly in French municipalities. At last, capital expenditures have permanently decreased in Italy, contrary to France, where they have increased until 2013, before dropping. These elements suggest different timing of the crisis in France and Italy, and a later reaction to the crisis in French municipalities, compared to Italy.

Figure 2 - Evolution of average municipal own revenues, personnel expenditures, other current expenditures and capital expenditures by country, from 2007 to 2015 (in thousand euros)



4.2 Influence of vulnerability factors on financial policy decisions

Tables 6 to 9 shows the results obtained by the panel regressions with time fixed effects for each country and each dependent variable. The standard errors in brackets represent * $p<0.10$, ** $p<0.05$, *** $p<0.01$. R^2 interpretation is not possible as instead for the linear regression. In fact, Verbeek (2004) claims that "The computation of goodness-of-fit measures in panel data applications is somewhat uncommon. One reason is the fact that one may attach different importance to explaining the within and between variation in the data. Another reason is that the usual R^2 or adjusted R^2 criteria are only appropriate if the model is estimated by OLS". As a result, we will not comment on R^2.

Thanks to our regressions results, we now discuss the influence of internal, local and then national factors of vulnerability on the variation of own revenues, personnel expenses, other current expenditures and capital expenditures.

The first interesting results coming from our analysis is the existence of nation fixed effect. French and Italian municipalities decision-making on expenditures and revenues is based on two different set of factors. They are not influenced the same way by national, local and internal factors. Moreover, the existence of year fixed effect shows that their decision making has evolved throughout the post crisis years.

Table 6 to 9 shows the results of regression per period and by nation.

Table 6 – Fixed-effect model results – MOVVAR

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	2008/2009 FR	2010/2011 FR	2012/2013 FR	2014/2015 FR	2008/2009 IT	2010/2011 IT	2012/2013 IT	2014/2015 IT
ECOGROWTH	-0,0439	0,0701	-0,06	-0,118	0.749***	0.393***	0.566***	-0,294
	[0.0710]	[0.110]	[0.106]	[0.101]	[0.153]	[0.149]	[0.127]	[0.311]
POPGROWTH	-0,104	-0,0834	-0.369**	-0,0801	-0,271	-0,204	0,243	0,224
	[0.0835]	[0.0640]	[0.153]	[0.190]	[0.551]	[0.189]	[0.176]	[0.387]
POLICYGRANT	0,0571	0,0728	-0,0437	0.0538***	0.0774***	-0,0027	0.0165***	0.0246**
	[0.0803]	[0.0871]	[0.0336]	[0.0193]	[0.0151]	[0.0138]	[0.00350]	[0.0106]
GDPGROWTH	0.493***	0.592***	0.358*	-16.04***				
	[0.171]	[0.0779]	[0.211]	[3.414]				
FINDEP	3.181***	3.057***	2.355***	3.098***	0.758***	-0.309**	0.497***	0.635***
	[0.542]	[0.504]	[0.355]	[0.383]	[0.174]	[0.137]	[0.114]	[0.221]
BUDRIG	1.344***	1.438***	2.092***	1.768***	2.178***	3.319***	2.839***	2.688***
	[0.321]	[0.420]	[0.191]	[0.167]	[0.333]	[0.247]	[0.263]	[0.495]
FHSHORT	-0,122	0,175	0.330***	0.270***	-0.420***	-0.438***	-0.294***	-0,141
	[0.130]	[0.147]	[0.104]	[0.0913]	[0.114]	[0.0896]	[0.0845]	[0.168]
FHLONG	0.214***	0.200***	0.140***	0.167***	0,0189	-0,0157	0.00737***	0,0437
	[0.0388]	[0.0611]	[0.0376]	[0.0412]	[0.0121]	[0.0170]	[0.000787]	[0.0351]
POLICYISP					-0.00406***	0.00536***	-0.00325***	-0.00107**
					[0.00105]	[0.00142]	[0.000930]	[0.000533]
CONST	-1.469***	-1.460***	-1.586***	-1.379***	-0.715***	-0.460***	-0.844***	-0.717***
	[0.0959]	[0.134]	[0.0799]	[0.0967]	[0.109]	[0.0962]	[0.0822]	[0.111]
N	1959	1963	1962	1960	2417	2401	2407	2351
R^2	0,581	0,5	0,606	0,589	0,384	0,409	0,42	0,511

Table 6 – Fixed-effect model results – PEVAR

	2008/2009 FR	2010/2011 FR	2012/2013 FR	2014/2015 FR	2008/2009 IT	2010/2011 IT	2012/2013 IT	2014/2015 IT
ECOGROWTH	0,00754	0,0205	-0,012	0,00248	0.269***	-0,0463	0.179***	0,0869
	[0.0318]	[0.0427]	[0.0330]	[0.0445]	[0.0666]	[0.0615]	[0.0437]	[0.112]
POPGROWTH	-0.0910***	-0.0551**	-0.105*	0,0387	-0,0466	-0,0428	0.124**	-0,0192
	[0.0340]	[0.0252]	[0.0607]	[0.0736]	[0.221]	[0.0818]	[0.0590]	[0.117]
POLICYGRANT	0.0524*	0.0934***	0.0856***	0.0320***	0.0326***	0.0168***	0.00563***	0.00777**
	[0.0286]	[0.0191]	[0.0210]	[0.00978]	[0.00599]	[0.00547]	[0.00117]	[0.00322]
GDPGROWTH	0.122*	-0,0423	-0.241***	5.601***				
	[0.0666]	[0.0314]	[0.0842]	[1.815]				
FINDEP	0.606***	0.598***	0.772***	0.724***	0.189***	0.111**	0,0255	0,0295
	[0.161]	[0.105]	[0.164]	[0.235]	[0.0681]	[0.0501]	[0.0362]	[0.0337]
BUDRIG	-0.339***	-0.547***	-0.583***	-0.518***	-1.738***	-0.937***	-0.433***	-0.398***
	[0.104]	[0.0753]	[0.0730]	[0.0795]	[0.134]	[0.0961]	[0.0885]	[0.0893]
FHSHORT	0.187***	0.124***	0.0823**	-0,0224	-0.346***	-0.0902***	-0.0861***	-0.0586**
	[0.0463]	[0.0385]	[0.0369]	[0.0528]	[0.0411]	[0.0282]	[0.0265]	[0.0253]
FHLONG	0.0272*	0.0514***	0.0602***	0.0591**	0,00105	0,00473	0,000244	0,00509
	[0.0151]	[0.0196]	[0.0152]	[0.0239]	[0.00535]	[0.00785]	[0.000198]	[0.00530]
POLICYISP					0.000912**	0,00058	-0.00158***	-0.000174*
					[0.000451]	[0.000543]	[0.000321]	[0.0000961]
CONST	0,0122	0.101***	0.100***	0,032	0.446***	0.199***	0.0612**	0.0674**
	[0.0298]	[0.0265]	[0.0193]	[0.0406]	[0.0431]	[0.0321]	[0.0267]	[0.0275]
N	1959	1963	1962	1960	2417	2401	2407	2351
R^2	0,133	0,179	0,18	0,36	0,301	0,12	0,079	0,041

Table 6 – Fixed-effect model results – CUREXPVAR

	2008/2009 FR	2010/2011 FR	2012/2013 FR	2014/2015 FR	2008/2009 IT	2010/2011 IT	2012/2013 IT	2014/2015 IT
ECOGROWTH	-0,0326	-0,12	0,0703	0,0219	0.623***	-0,145	0.579***	0,566
	[0.0887]	[0.155]	[0.129]	[0.174]	[0.169]	[0.210]	[0.166]	[0.349]
POPGROWTH	-0,0231	-0,0818	-0,102	0,00779	-0,552	-0,292	0,262	-0,147
	[0.0954]	[0.0892]	[0.159]	[0.193]	[0.492]	[0.267]	[0.239]	[0.268]
POLICYGRANT	0,112	0,0419	0.169**	0,0148	0.116***	0.0736***	0.0298***	0.0485***
	[0.0784]	[0.0402]	[0.0836]	[0.0222]	[0.0170]	[0.0219]	[0.00482]	[0.00959]
GDPGROWTH	0.643***	0.165*	-0.659***	-0,964				
	[0.212]	[0.0943]	[0.230]	[3.544]				
FINDEP	0,127	0,113	0.705*	0,104	0.689***	0.872***	0,251	0.391***
	[0.445]	[0.225]	[0.384]	[0.374]	[0.161]	[0.209]	[0.191]	[0.123]
BUDRIG	0.811**	0.539***	-0,07	-0,0181	3.222***	4.567***	3.193***	2.407***
	[0.328]	[0.144]	[0.227]	[0.163]	[0.373]	[0.396]	[0.517]	[0.395]
FHSHORT	0.826***	0.895***	0.509***	0.684***	1.353***	2.115***	1.000***	0.788***
	[0.158]	[0.172]	[0.123]	[0.185]	[0.123]	[0.115]	[0.142]	[0.104]
FHLONG	-0,0713	-0,0306	-0,0458	-0,0262	0.0198*	0,0205	0.00163**	0,00691
	[0.0458]	[0.0490]	[0.0406]	[0.0575]	[0.0114]	[0.0219]	[0.000737]	[0.0219]
POLICYISP					-0.00247**	-0,00262	0,000622	0,000442
					[0.00105]	[0.00215]	[0.00124]	[0.000290]
CONST	-0.458***	-0.353***	-0.101*	-0,0846	-1.309***	-1.811***	-0.948***	-0.698***
	[0.102]	[0.0714]	[0.0522]	[0.0976]	[0.125]	[0.130]	[0.155]	[0.117]
N	1959	1963	1962	1960	2417	2401	2407	2351
R^2	0,088	0,111	0,067	0,07	0,261	0,456	0,184	0,219

Table 6 – Fixed-effect model results – CAPEXPVAR

	2008/2009 FR	2010/2011 FR	2012/2013 FR	2014/2015 FR	2008/2009 IT	2010/2011 IT	2012/2013 IT	2014/2015 IT
ECOGROWTH	1.133**	0,411	0,727	1,106	1.818***	-0,191	0,753	-0,487
	[0.546]	[0.858]	[0.793]	[0.694]	[0.653]	[0.803]	[0.602]	[2.255]
POPGROWTH	0,165	0,224	-2,182	-0,399	-2,549	2.397**	0,108	0,398
	[0.526]	[0.462]	[1.382]	[1.104]	[2.978]	[1.069]	[0.852]	[2.160]
POLICYGRANT	-0,0119	0,43	-0,0941	0,145	0.136**	0,0175	0,0265	0,0252
	[0.457]	[0.276]	[0.239]	[0.0902]	[0.0583]	[0.0799]	[0.0179]	[0.0685]
GDPGROWTH	-3.256***	2.584***	-1,085	-13,63				
	[1.086]	[0.561]	[1.672]	[17.85]				
FINDEP	4.133*	4.074**	0,494	2.914**	1.350**	1,039	0,443	1.102*
	[2.155]	[1.772]	[2.312]	[1.333]	[0.664]	[0.748]	[0.671]	[0.626]
BUDRIG	1,466	1.560*	3.813***	2.474***	-0,216	-0,432	1,254	-3.061**
	[1.183]	[0.863]	[1.120]	[0.809]	[1.595]	[1.456]	[1.664]	[1.450]
FHSHORT	0,319	1,299	0,652	0,21	-0,223	0,241	-0,0628	-0.836**
	[0.729]	[0.815]	[0.561]	[0.531]	[0.514]	[0.390]	[0.463]	[0.409]
FHLONG	-1.567***	-1.537***	-1.346***	-1.939***	-0,0426	-0,0174	0,0025	0,0269
	[0.339]	[0.373]	[0.333]	[0.278]	[0.0514]	[0.115]	[0.00307]	[0.0766]
POLICYISP					-0.00737*	-0.0268***	0.00886**	0.0111***
					[0.00429]	[0.00762]	[0.00428]	[0.00175]
CONST	-0,291	-0,516	-0.823*	-0,295	-0,308	-0,67	-0,265	0,593
	[0.468]	[0.533]	[0.425]	[0.439]	[0.547]	[0.438]	[0.518]	[0.433]
N	1959	1963	1962	1960	2417	2401	2407	2351
R^2	0,074	0,086	0,038	0,07	0,023	0,038	0,056	0,094

National institutional and economic factors

National factors influence the type of strategies implemented in reaction to crisis, as shown by the existence of nation fixed effect. In general, the perception of municipal vulnerability is influenced by the national context and as such decision-making concerning expenses and resources differs in the two countries, but there also are some similarities. On the one hand, our results show that there are some similarities in terms of financial policies adopted by LGs amongst the two countries when internal factors like the level of budget rigidity and short term financial health are concerned. Also there are similar reactions to variation in grants. On the other hand, local factors and other national factors do not have the same influence on financial policy decisions. They will be discussed later. In general, the difference in vulnerability perception between France and Italy might be the consequence of different administrative cultures or institutional settings or other national policies than those via grants. For example, the specific fiscal consolidation mechanism (the ISP) that is applied only in Italy may act as a "disturbing" factor.

The French State has been very supportive to municipalities and protected them from the crisis consequences until 2013. But from 2014, operating grants have begun to decrease and this has accelerated in 2015 (see Table 1). This drop in the operating grants has been felt as a shock for many municipalities, and has pushed them to find other ways to balance their budget or has forced them to undergo a great decrease in their gross operating balance. Thus, there has been a before and an after 2014. Despite similarly to Italy personnel expenditures decisions have been influenced by variation in grants all over the period, our results suggest that before 2014, municipalities did not consider the evolution of grants to decide on their municipal own revenues. Grants variation has a positive and significant influence on municipal own revenues only from 2014. This can be explained by a large number of municipalities that have tried not to increase taxes in order to compensate for grants decrease. Literature also states a tendency to answer to grants cuts by postponing or cutting investment spending. Indeed, from 2015, municipalities complained about the decrease in grants, and alerted on the drop of their investment spending. This tendency doesn't come out clearly of our study. Grants cuts have no significant influence on capital spending, and neither on other current expenditures (except in 2012 and 2013). At last,

The Italian national situation was somewhat different. Cutbacks effects from different types of policies started well before than France, at the beginning of the global financial crisis period (and even before that) and were somewhat increasingly constant until 2012 (see Table 1). 2012 is also the year when a major fiscal federalism reform has been introduced, then followed by another reform in 2013; also some new bankruptcy procedures were also introduced in 2012. Therefore, 2012 (and to some extent 2013) can be considered a sort of dividing line, where before (up to 2012/13) it is a period with increasing efforts required to municipalities, followed then by a more relaxing period. Interestingly, our analysis does not show particular differences amongst the two macro-periods in terms of different reactions to vulnerability national factors. With the exception of the period 2010/2011, municipalities react to grants reduction from central state by decreasing their revenues. Mayors tend thus to move their own revenues in the same direction of grants. This could be explained either by the tendency of mayors to copy central governments' austerity policies, or by the adoption by the central state, especially during austerity measures, of rules that do not allow municipalities to increase their taxes (which in several cases represents an important amount of municipal own revenues) to counteract the reduction in grants. In the same vein, there also is a neat tendency to reduce personnel expenditures and other current expenditures in case of reduction in grants.

In other words, austerity policies via grants seem to be effective as municipalities tend to reduce both own revenues and total current expenditures in case of less resources received from the state and other governments. This is not evident for ISP austerity policies since the relationships with the dependent variables are either not statistically significant or their magnitudes are not particularly high[4].

Related to GDP variation, the multicollinearity problem with POLICYISP in Italy prevented us from studying its influence on Italian municipalities. In France, GDP has increased over the period except in 2009. We note a very unstable relationship across the years on all dependent variables. We wonder if GDP could be correlated with some national public policies that could explain this changing influence. As such, it is hard to interpret.

Local economic and social factors

Local economic and social factors, namely the municipal economic growth and the population growth, have a weaker influence on financial policy decisions, especially for the French context. We observe a discrepancy between France and Italy in the effect on current expenditures and municipal own revenues.

In France, local factors have barely no significant influence. Local economic growth and population growth has no influence on municipal own revenues. Municipal own revenues come mainly from taxes: property and business taxes. The bases on which property taxes are computed are very stable and quite disconnected from economic revenues, and business taxes are nowadays often put back to the inter-municipality organization. Moreover, they are guaranteed by the State at the level of taxes voted at the beginning of the year. Fees represents a small part, and are only very recently seen as a lever to increase own revenues (see for example Celine du Boys and Eisinger 2016). These elements explain the non-significant influence of local factors on own revenues. Concerning expenditures, French municipalities do not take their financial policy decisions in regards to the local economic growth. The only significant influence is in 2008 and 2009. Capital expenditures were cut in 2009, as the population income growth slowed down severely, but from 2010 this relation become non-significant. In the same way, population growth has no significant influence on our dependent variables, except a negative influence on personnel expenses until 2013, which is hard to understand. We can wonder if cities that suffer from a decline in population tend to act as employer to limit population exodus. This type of behavior is not any longer significant in 2014/2015. Is it the sign of a late awareness of the financial constraints relative to the crisis?

In Italy, local factors have a greater influence on the variation of municipal own revenues. The variation of municipal own revenues is positively associated to the variation of local income (except for years 2010/2011), maybe because Italian municipal revenues (e.g. municipal additional income tax, service fees that are linked to users' income such as kindergarten and social services fees) are more linked to population income than French ones. But it is not influenced by population trend. Moreover, personnel expenses and other current expenditures are significantly influenced by local economic factors: the higher is the local economy growth, the higher the increase in personnel and other current expenditures, with a higher magnitude for the latter. Nevertheless this is limited only to 2008/2009 and 2012/2013, leaving some doubts to interpretations of possible causes. At last, economic growth was a significant factor of vulnerability for capital expenditures only in 2008/2009 and not in the

[4] This result might be the consequence of using the macroeconomic ISP cutbacks instead of the (unavailable) specific ISP cutback for each municipality.

other periods. This can be explained by the exacerbation of fiscal consolidation austerity policies, especially ISP (Ifel 2016), that have drastically reduced investments in infrastructure and give priority to urgent capital expenditure (e.g., road maintenance, earthquake prevention, etc.), which were implemented in relation to specific municipal assets rather than in response to perceived external factors of vulnerability.

Internal factors

Internal factors of vulnerability have a major influence on financial policies adopted. Such internal factors as financial dependency, budget rigidity or short term financial health influence some of the financial policies decisions in a quite similar way across the two countries. On the contrary, long term financial health do not influence any financial policy decisions the same way between France and Italy. Other have different effects on coping capacities in the two countries. We now discuss these results in detail.

The first factor that have a significant influence on financial policy decisions, in Italy as in France, is the level of financial dependency. Throughout the 2008 to 2015 period, Italian and French municipalities seem to be concerned by their resilience and their autonomy as they are inclined to increase their own revenues in case of high financial dependency (except in the 2010/2011 period for Italy). But on the other hand, a city with a high financial dependency doesn't come necessarily with reduction in expenditures. Indeed, we observe either a non significant relationship between financial dependency and variation in expenditures, or some positive relationships meaning that an increase in dependency is associated to an increase in expenditures. This may be explained by the idea that municipalities tend to consider that they will be supported in any case by central governments in the future or simply feel less pressure from their citizens (as their revenues mainly comes from grants) in terms of costs reduction. We may thus label this behavior as "parasitic". In France, this is true throughout the entire period analyzed for personnel expenses but not for other current expenditures. Whereas in Italian municipalities, the influence of financial dependency on personnel expenses is not any longer significant from 2012, but other current expenditures seems to be affected the same way along the entire period except in correspondence of 2012/2013. Therefore, while France has a stable behavior over time (positive influence of financial dependency on personnel expenditures) Italy has even a stronger "parasitic" behavior as there is a positive influence of financial dependency on both personnel and other current expenditures, but that has stopped in correspondence to the harsher national austerity period of 2012/2013. Contrary to Italian cities, financial dependency has a significant and quite stable influence on capital expenditures in France, describing a patter where French municipalities' investments are heavily supported by the central state.

Budget rigidity influences significantly the decisions on municipal own revenues and personnel expenditures in both countries. When the rigidity is high, we observe a tendency to reduce personnel expenditures, but at the same time to increase other current expenditures. It suggests a drift to outsourcing (to the private sector, to state owned enterprises or to other local governments). The more rigid the budget, the higher is the probability of outsourcing. This is observed for the whole period in Italy, and at least until 2011 for France. In both countries and throughout the period, a higher rigidity is also strongly associated with an increase in own revenues, certainly resulting from the need to have more resources to contrast rigidity. In Italy, budget rigidity does not significantly influence capital expenditures, except from 2014 where its influence becomes negative. On the contrary, in France, budget rigidity significantly pushes to an increase in capital expenditures from 2010. We wonder if French

cities when facing the rigidity of their current expenditures and the few solutions offered to decrease it, decide to invest to create a new dynamism and new own revenues that can bring back some flexibility to the management. With the risk that capital expenditures create future current expenditures that rigidify even more the budget in the future. In Italy ISP policy has been the most important driver of capital expenditures until recently (Ifel, 2016), therefore one possible explanation is that municipalities with a lot of personnel may represent those old-fashioned municipalities which are also less dynamic in terms of new investments even after the harsher austerity period.

The level of short term financial health has a strong but very different influence between countries, on municipal own revenue and current expenses decisions. But its influence on capital expenses is mostly non-significant (except a positive influence in 2014/15 in Italy). In France, all current expenditures, in a predictable way, tend to increase when the municipality is in good financial health. However, from 2014, short term financial health influence on personnel expenses turns non-significant. This latter phenomenon may have an explanation. When state grants have begun to decrease in 2014 (see Table 1), most cities underwent a decrease in their gross operating balance and intended to decrease their current expenditures, focusing on other spending than personnel ones as they are very rigid on the short term. In Italy municipality which benefit from a good short term financial health are inclined to increase their expenditures, but reducing their personnel expenditures and increasing more than proportionally other current expenditures. This might be explained by the long lasting attention of the central government via specific regulations on the reduction of personnel expenditures. Therefore when municipal governments decide to increase their current expenditures as they have room for manoeuvre, they prefer other current expenditures than personnel expenditures.

As expected, we observe that in Italy a worsen financial health pushes towards an increase of municipal own revenues, except from 2014. This might be explained by a change of behavior after the profound local fiscal reforms of 2012 and 2013, so as municipalities do not see municipal own revenues increase as the conventional option in case of financial difficulties. But in France the opposite happens. Short term financial health has, until 2013, no significant influence on own revenues, and then a significant positive influence. We interpret this result as the sign that municipalities in bad financial situation, with a low gross operating balance, have difficulties to maintain their own revenues, whereas the ones with a high gross operating balance may have anticipated the State disengagement started in 2014 and have chosen to keep reinforcing their own revenues.

Concerning the influence on financial policy decision of long-term financial health measured by debt load in relation to current revenues, we observe once more a very contrasted situation between France and Italy. In France, debt load has the predicted effect on own revenues and capital expenditures, all over the period. A higher debt burden pushes mayors to increase municipal own revenues and decreases capital expenditures, therefore depicting a prudent financial management. But on the other side, the debt burden has a surprising positive influence on decision related to personnel costs, and has no impact on other current expenditures. Municipalities do not view current cost cuts has a way to finance future debt repayment, depicting indeed a not so prudent financial management. In Italy, the relationships between debt burden and dependent variables are to a great extent non-significant and this may be explained by the consideration that municipal debt is not an issue any more for several municipalities, as it has decreased constantly (and already fully eliminated in several instances) and thus does not impact on mayors' decisions on budgeting (Ifel, 2016).

4.3 Patterns of resilience and their evolution throughout the global financial crisis

Thanks to the discussion before, and the results on the main combinations of expenses and revenues (see Table 5), we now discuss the different resilience patterns across France and Italy.

Table 6 - Most frequent combinations of revenues and expenditures

Periods	2008-2009		2010-2011		2012-2013		2014-2015	
Country	France	Italy	France	Italy	France	Italy	France	Italy
5 most frequent combinations*	2222 (19.60%)	2222 (12.99%)	2222 (24.04%)	2121 (13.29%)	2222 (26.10%)	2121 (16.58%)	2211 (21.53%)	1111 (14.55%)
	2221 (18.22%)	1221 (12.87%)	2221 (17.32%)	1111 (12.58%)	2221 (15.75%)	2122 (15.33%)	1211 (12.45%)	2111 (11.53%)
	1221 (10.26%)	2221 (10.92%)	2211 (10.14%)	1121 (11.33%)	1222 (13.05%)	1111 (12.51%)	2221 (11.94%)	2121 (11.40%)
	1222 (8.73%)	1222 (7.99%)	2212 (9.37%)	2122 (8.83%)	1221 (9.73%)	1121 (10.84%)	2212 (11.48%)	2112 (10.00%)
	2211 (8.52%)	1121 (6.66%)	1222 (4.94%)	2111 (7.41%)	2212 (8.72%)	1122 (8.72%)	2222 (7.76%)	1112 (9.83%)

Note:
* 1 = decrease (or stagnation) of the dependent variable; 2 = increase.
1st character: MOVVAR evolution
2nd character: PEVAR evolution
3rd character: CUREXPVAR evolution
4th character: CAPEXPVAR evolution
Example:
1212 = MOVVAR decreases, PEVAR increases, CUREXPVAR decrease, CAPEXPVAR increases

In France, until 2014, the most common strategy for municipalities was to finance a growth in all expenditures with an increase in taxes and own municipal revenues. From 2014, and with the decrease in State grants, we note an attempt to answer decreasing revenues with a decrease in other current and capital expenditures. These different behaviors suggest different resilience patterns in each period, and an evolution of vulnerability perception that have turned to an adaptation of the resilience patterns.

Around 20% of French municipalities show a contentedness pattern until 2013, as defined by Steccolini et al. (2017b). They appear as relatively wealthy and protected by the government and therefore not particularly vulnerable at the onset of the crisis. Their favorable environmental conditions may have encouraged them to downplay emerging and increasing vulnerabilities and to not invest in building anticipatory and coping capacities. They behave like contented organizations, which, resting on their laurels, had not anticipated the crisis, hoping to weather the storm relying on their buffering capacities. These latter are mainly tax increase until 2014 (2222 behavior). In the long term, however, Steccolini et al. (2017b) warn that this may translate into increased vulnerability and the need to take stronger actions in developing coping capacities. Our study suggests a changing decision-making concerning

their personnel expenses decisions. In the first period, just after the crisis, only a minority of municipalities relied on a mix of buffering capacities, increasing revenues and cutting capital and other expenditures (2211). This may denote some more developed anticipative capacities, and an attempt to answer rapidly to the financial crisis effects. It can be municipalities with a pattern of resilience that could be qualified of pro-active or constrained. This pattern has become the most frequent one in the last period, whereas the contented pattern became a minority one. In France, rigid personnel expenses prevent from developing coping capacities such as flexibility. Notably, and as shown in

Figure 2, there has been a permanent increase in personnel expenses whatever the period, and the resilience patterns.

On the contrary, Italian municipalities show a different awareness from 2010. Italian municipalities seem to have behaved mainly as contended organizations (2222) in the period 2008-2009, when they were at the beginning of the global financial crisis but still not heavily affected. From 2010, cutting personnel expenses is often used to create more flexibility to cope with the crisis, and is often coupled with an increase in other current expenditures suggesting outsourcing decisions. We also note a cut of capital expenses in the most frequent strategies, especially due to central state fiscal limits (2121), denoting a buffering or even an adaptive capacity. In the last period (2014/2015) the most frequent strategy may be defined as a transformative coping capacity (Steccolini et al., 2017a) since the majority of municipal governments have applied a financial policy (1111) of reduction in all dimensions (own revenues, personnel, other current expenditures, capital expenditures).

These different patterns suggest different resilience patterns inside each country but also between countries. Moreover Italian municipalities appear to have reacted sooner to the crisis. They seem to have anticipated the pathway from buffering to more sophisticated adaptive and transformative capacities than France. However, the national changing institutional environment may explain the greater variation of most frequent patterns in Italy.

5. Conclusions

The quantitative cross comparative analysis discussed above gives us the possibility to glimpse some initial conclusions about the influence of national, local and internal vulnerability factors onto financial policy decisions at the municipal level taken in time of austerity. First of all evidence suggests that municipalities react to national economic trends depending on the municipal austerity policies imposed by the central government. Grants represent an important mechanism, but it is perceived as an important factor of vulnerability and receive a similar answer in terms of financial policy decisions only when there is a clear message by the central state that structural and heavy austerity policies are put in place. In fact, having experienced austerity measures starting from the beginning of the period, Italian municipalities considered variation in grants as an important vulnerability factor along the entire period analyzed. A behavior which is similar to what has been labeled as a transformative coping capacity seems in place: when the State imposes a decrease in grants, own revenues are reduced together with a reduction in personnel expenditures and other current expenditures. In France there seems to be a similar behavior (with the exception of other current expenditures) starting only from 2014, when national austerity policies became harsher.

Second, local vulnerability factors considered in this study and that previous literature has considered being relevant, seem not significant in both countries. In certain cases, the non-significance is limited to the great majority of certain sub-periods and this may reveal that these factors are less important since in certain periods they are hide by others more influential. Population growth and local economic growth seems mostly not influential on financial policies. This might be explained by the consideration that population and economic local trends might influence long term financial policies, while here we are focused on short-term decisions. Further studies that widen the spectrum of financial policies in the long run could try to answer this question.

Third, all internal vulnerability factors have differentiated impacts on financial policy decisions depending on national context. The policies adopted, considered as combination of the dependent variables, are different. In case of a high financial dependency French municipalities tend to react by increasing their own revenues, increasing personnel expenditures, and increasing capital expenditures, depicting a behavior where municipalities try to be more autonomous to expand their expenditures capacity. Slightly differently, Italian municipalities increase their own revenues and increase current expenditures other than personnel. In answer to bad short-term financial health, French municipalities tend to decrease personnel expenditures and other current revenues, while Italian municipalities count more on a policy which mix municipal own revenues increase and decrease of current expenditures coupled with insourcing (increase of personnel) policies. We argue that administrative cultures, vertical dispersion of authority, and state-level austerity policies in reaction to crisis (other than grants reduction) play a great role.

Fourth, and perhaps the more relevant outcome of this comparative study, we also found some cross-national stable (or nearly stable) over time behavior in reaction to some vulnerability factors. State-level and other governments austerity policies via grants have the same impact over time in the two countries in terms of personnel expenditures: a reduction of grants is reflected on a (minimal) reduction of personnel expenditures. This may reveal that municipalities receiving less financial resources from the central state tend to adopt adaptive coping capacities by trying to reduce the rigid part of their current expenditures as they are worried of future stable decreased level of grants. The fact that the magnitude is very limited might be explained by the idea that of expenditures stickiness (Cohen et al. 2015), or the idea that cost reduction are more difficult to attain especially with reference to such politically problematic expense (Levine 1978). The latter explanations might be also valid for another important evidence. A bad short term financial health pushes all municipalities over time to reduce other current expenditures. We may argue that when municipalities feel in danger from a short term financial distress, they adopt buffering coping capacities by reducing that part of current expenditure that can be decreased without causing organizational or political instability. Finally, Budget rigidity influences significantly the decisions on municipal own revenues and personnel expenditures in both countries. When the rigidity is high, we observe a tendency to increase municipal own revenues and reduce personnel expenditures. It thus seem that in both countries municipalities tend to implement more adaptive or transformative coping capacities in order to decrease the high budget rigidity via a higher fiscal autonomy and reduction of the rigid part of current expenditures.

The implications are twofold. On one hand, the cross-country statistical analysis helps to understand what factors considered in previous one-country studies are relevant for financial policy decision making independently from the national context. On the other had, it may be of interest to domestic policy-makers, but also for supra-national policy-makers, such as the European Commission. Cross-national trends might be helpful to understand whether the European Commission may define cross-national policies to mitigate or to steer specific reactions to crisis by municipalities. Further studies may go in two separate directions. First, future studies should consider long term financial policies by studying a wider temporal spectrum. Second, our study might be extended to other countries.

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