THE DURATION OF FINANCIAL STRESS: A FACTOR IMPACTING ON THE IMPLEMENTATION OF NPM-DELIVERY FORMS IN LOCAL GOVERNMENT

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Structured Abstract

Purpose

Financial stress as an explanatory factor is a recurrent feature in research into the contracting out/decentralisation of local public services, although previous empirical studies are not unanimous in their conclusions. Our understanding of the influence of financial crises on these processes could be enhanced by the use of a dynamic methodology taking into account the following three aspects: the duration of the financial stress, the time-lag between the crisis and the response made, and the effectiveness of this action.

Design/methodology/approach

The present study introduces three main innovations regarding the methodology employed to study financial stress: a) The consideration of the duration of a financial stress as a key factor in promoting changes in the provision of public services; b) The effectiveness of the measures taken; c) Time lag: we take into account a greater time horizon in which the local authority may implement policies of business-like and organisational changes.

Findings

To date, the methods used to measure the effects of changes in service delivery forms, as a means of alleviating financial stress, have not reflected the true nature of the phenomenon. The results obtained with this new approach confirm that the methodology applied is correct and effective in Spanish local governments for the period 1999-2007.

Originality/value

This study reveals that local authorities facing a financial stress of two, three or four years' duration present percentages of decentralisation and contracting out that are significantly higher than is the case with local authorities with a one-year crisis and which implement the same processes. This confirms the need to carry out studies including the duration of financial crises as a determinant factor in processes of change.

Keywords: Local governments; outsourcing; decentralisation; financial stress.

1. Introduction

Studies of financial stress have multiplied in response to the current economic and financial crisis. In general, when any crisis occurs, it must be identified, and its effects foreseen and alleviated (Christensen et al., 2011).The effects of the present crisis on the public administration are mainly reflected in a stricter control of budgets and deficits (López-Hernández et al., 2012). In view of this situation, it is necessary to identify the underlying characteristics or specific features of the crisis, and to seek formulas or strategies aimed at achieving greater efficiency (Balaguer-Coll et al., 2007; Balaguer and Prior, 2009; Rutgers and van der Meer, 2010). Moreover, in the area of local public administration, particular emphasis should be placed on forms of public management that enable the costs of service provision to be reduced, and thereby reduce financial stress.

Accordingly, one of the mechanisms applied to address the current financial stress is the use of measures based on New Public Management (NPM). Among other questions, NPM seeks to improve management within the public administration by applying formulas derived from the private sector, through changes in the organisational structure and the way in which services are provided (Hood, 1991, 1995; Laughlin and Pallot, 1998; Van Helden, 2000). The aim of this is to achieve a market-oriented outlook, and thus increase efficiency, effectiveness and productivity, by the use of contracting out, or through changes in the organisational structure, creating organisms that are more flexible and less hierarchic, which delegate the decision-taking process, and which achieve greater agility in organisation processes and therefore, greater efficiency and effectiveness in the provision of public services in order to make a more economical use of resources (Karp, 2005; Diefenbach, 2009).

However, empirical evidence is unclear as to whether situations of financial stress are responsible for provoking changes in management attitudes (Levin and Tadelis, 2005; Bel and Fageda, 2007; Zullo, 2009; Zafra-Gómez et al., 2013). Thus, in studies in which financial stress is a significant factor, this fact might be considered "casual" and not "causal", because most such studies have only considered whether the administration in question is affected by financial stress, and whether in a specific year it implements changes in the delivery form of its services. But various aspects remain unexamined. Firstly, we must consider this question: does the administration really implement a change in how services are provided, in order to reduce its costs and at the same time reduce its financial stress? If this is answered positively, it must be possible to show that the administration in question has reduced financial stress by changing the way in which its services are managed. And this issue has not been addressed in previous studies. Secondly, in practice, it is difficult to accept the premise that if an authority faces a financial stress during only one year, it will implement processes to change its forms of service delivery (by contracting out or decentralisation) in that very same year. It seems logical to believe, rather, that any change toward a decentralised or externalised management pattern would be more likely if the local authority were undergoing a longer-lasting financial stress. Thirdly, and as observed by Bel and Fageda (2007), most studies aimed at identifying the factors motivating the decision to contract out services have little explanatory power, perhaps due to methodological difficulties in expressing the dynamic nature of contracting-out decisions. This difficulty arises, in part, because the data for explanatory variables do not refer to the year in which the contracting-out decision was made, but rather to the period in which the data were collected. In this same sense, Van Helden (2000) carried out a critical review of the above hypothesis, inquiring whether there are reasons for assuming a time lag between the dependent variable (application of NPM) and the independent variable (financial stress).

In view of the above considerations, perhaps a different methodology is needed to determine the true cause-and-effect relation between episodes of financial stress and the changes made in the management of public services. Accordingly, the principal goal of this study is to test the effectiveness of a different approach to measuring the latter relation. The revised methodology presented in this paper is based on three main areas: firstly, we evaluate the duration of financial crises, in the understanding that the longer they last, the more possibilities there will be for changes to be undertaken in the management of public services – "*Duration*". Secondly, in order to determine whether there really is a relation between financial stress and changes in the management of public services, we examine whether local authorities have improved their situation vis-à-vis the financial stress in the year following the application of changes made to the management of public services – "*Effectiveness*". Finally, we evaluate a time lag to reflect the dynamics of the decision to make changes, and its effect on reducing the financial stress – "*Time lag*".

The rest of this paper is structured as follows. In Section 2, we examine the theoretical framework for financial stress with respect to processes of change toward other forms of management, implemented as part of NPM theory. Here, too, we formulate the fundamental hypotheses proposed. Section 3 describes the methodology applied, while Section 4 constitutes the empirical study and analyses the results obtained. The final section presents the main conclusions drawn.

2. Financial crises and changes to NPM-delivery forms. Developing a theoretical framework and related hypotheses

In the academic literature, the question of financial crises is not a new one. Those experienced by cities such as Cleveland and New York in the 1970s and early 1980s led to the development of indicators to measure and predict when a local authority might be facing financial stress. Efforts to evaluate cities' financial problems in the USA continue (Kloha et al., 2005a; 2005b) and models have been developed by many other countries, for example in Australia (Dollery et al., 2006) the UK (Audit Commission, February 2007), Israel (Carmeli, 2008) and Spain (Zafra-Gómez et al., 2009b), in which diverse concepts are used to determine whether a local authority is undergoing financial stress (in its different manifestations and terminology, such as fiscal crisis, financial stress, fiscal distress, fiscal emergency or financial condition; Honadle, 2003).

Different financial stress situations have given rise to actions aimed at alleviating or overcoming them (Carmeli, 2008), and such actions have often been implemented with reference to NPM ideas. Specifically, as observed by Hood in an important article published in 1995 (page 102), "NPM is often interpreted as a response to fiscal stress and resistance to extra taxes". He also remarked that the governments facing the poorest debt indicators and the largest deficits will be those most likely to implement management policies based on NPM.

However, a very broad range of actions fit within the NPM framework. Following Diefenbach (2009), of the five major areas into which NPM measures may be classified (*Business environment and strategic objectives; Organisational structures and processes; Performance; Management and measurement systems; Management and managers and Employees and corporate culture*) we will discuss two of them: *Business environment and strategic objectives*, and *Organisational structures and processes*. Within these two broad types, we consider the aspects related to changes in the provision of public services, since these are the two main ways to reduce costs and achieve higher levels of efficiency (Andrews 2011).

Within each major area, we focus particularly on questions concerning how local public services are provided. The first, *Business environment and strategic objectives*, includes the outsourcing and privatisation of public services, while the second, *Organisational structures and processes*, includes decentralisation processes and the re-organisation of corporate units to create more flexible structures. Authors such as Hood (1991), Pollitt and Summa (1997), Pollitt and Bouckaert (2004), Gruening (2001) and Barzelay (2001) have described and categorised the overall features of the NPM transformations brought about in government organisations.

These two NPM postulates, in particular, are examined because, fundamentally, reforms have been based on changes in how public services are managed, either through the adoption of market mechanisms such as contracting out, or by the creation of decentralised bodies, such as agencies or public firms (Hood, 1987, 1991; Diefenbach, 2009), with the stated purposes of improving effectiveness and efficiency in the provision of public services, and of reducing costs (Osborne and Gaebler, 1992; Hood, 1995; Pollit, 1995; Boyne, 1998; Mora and Montesinos, 2007; Bel and Warner, 2008; Christensen and Lægreid, 2008; Bel and Fageda, 2010).

Regarding decentralisation processes, one of the precepts of NPM is the necessity for public organisations, when they grow beyond a given size, to create public agencies or other, decentralised, bodies capable of taking on the task of providing services. This decentralisation is also undertaken in policy provision, which is indeed a result of externalities and the scale effects associated with policies and local preferences. Decentralisation, thus, is understood to be the creation of specific units for the provision of given services, these units being granted an independent budget and having decision-making powers, and hence constituting organisations that are more amenable to control by professional managers (Andrews, 2011), and featuring the transfer of responsibility for planning and management, and the transfer of resources from the central government (regional or local), to other agencies (Rondinelli, 1981;

Smith 1985; Brusca et al., 2012). According to NPM philosophy, organisations that have decentralised the services they provide obtain better results than those that have not, being more flexible and providing a closer, more personalised service (Boyne, 1996).

The other main field addressed under NPM is that of *Business environment and strategic objectives*. According to NPM, if local government is confronted with a situation of financial stress, it should orient public services toward the application of market techniques (Stark, 2002). A common means of doing so is via the externalisation of public services with the aim of improving effectiveness and efficiency in the provision of public services (Osborne and Gaebler, 1992; Hood, 1995; Peters, 2000; Van Helden and Jansen, 2003; Bel and Warner, 2008).

With respect to the factors accounting for the contracting out process, Bel and Fageda (2007) observed that one of the hypotheses most commonly analysed and empirically tested in the literature is the relationship between financial stress (tax burden, legal limitations on local tax levels and the size of transfers from central to local government) and privatisation; in some cases a positive relation has been found (Ferris 1986; Nelson, 1997; Kodrzycki, 1998; Hebdon and Jalette, 2008). These studies suggest that local officials consider privatising or utilising intergovernmental arrangements to provide services, and often respond to fiscal problems by such means (Mouritzen and Nielsen, 1988; International City Management Association, 1989; Morgan and Hirlinger, 1991).

However, the results of these studies have not been conclusive, as there is no clear-cut evidence at an international level that the variable "financial stress" plays a real part in influencing processes of contracting out (Bel and Fageda, 2007). One of the reasons put forward for this is that financial stress occurring in any given year might not constitute a sufficient argument for implementing changes in the provision of public services. Local authorities might only intensify such processes of change when the crisis appears to be longer lasting, and take steps to overcome the crisis as time goes on (Van Helden, 2000). This theory was also expressed by Ansell et al. (2010), who observed that one of the aspects of a crisis that needs to be established is that of its duration, given that the above-mentioned processes of change may be implemented over a period of several years. This concept, in the present study, is termed the *duration.*

Furthermore, in previous studies of the relation between financial stress and changes in local administration management, the effectiveness of such changes, i.e. whether they produce an improvement in the authority's financial situation, has not been tested. This situation arises because, in general, very few studies have addressed the impact on performance – and on financial stress, in this case – from the application of NPM-based techniques (Queeneville et al., 2010). This concept, in the present study, is termed the *effectiveness*.

Finally, as observed by Warner and Hebdon (2001), Bel and Fageda (2007) and González-Gómez and Guardiola (2009), local government contracting is not a simple decision and requires a dynamic view of contracting behaviour over time. However, the cited studies merely observe whether the provision of services was public or private when the data were compiled, not taking into account the moment at which the decision was taken to change the public management type (in other words, these studies do not reflect the time elapsed between the change from one type of management to another). This concept, in the present study, is termed the *time lag*.

Considering all the approaches that have been proposed, i.e., taking into account the duration, the effectiveness of the measures taken and the time lag, the first aim of the present study, as set out in Hypothesis 1, is to determine whether there are differences between local authorities that, after a short-term financial stress, implement processes of management change (that is, contracting out or processes of horizontal decentralisation via agencies, public firms, etc.) and other authorities that are not undergoing any such crisis situation and have also made management changes. In this sense, we propose an initial hypothesis to demonstrate the need for a new model, one addressing the duration of financial crises.

H_1: *The percentage of NPM service delivery form (contracting out / decentralisation) processes implemented by local authorities facing short-term financial stress is equal to that implemented by local authorities that have never faced such a crisis.*

The next step – to test the effects of the duration of the financial stress on the decision whether or not to change the way in which public services are managed – is tested through the second hypothesis. As stated above, we believe local authorities facing long-term financial stress would tend to present a higher proportion of change in the way services are provided than would authorities facing short-term financial stress and which implement the same processes. Accordingly, the second hypothesis to be tested is as follows:

H_2: *The percentage of NPM service delivery form (contracting out / decentralisation) processes implemented by local authorities facing long-term financial stress is greater than that implemented by local authorities facing short-term financial stress.*

3. Methodology

3.1. How can we measure financial stress?

The evaluation of financial performance (Benito and Brusca, 2007) in countries such as the USA, Australia and the UK has been based on the concept of financial condition. Efforts continue in different countries to develop and design systems capable of evaluating and detecting financial crises (Kloha et al., 2005a; 2005b). In Australia, as observed by Dollery et al. (2006), local authorities are currently subject to fiscal tension, and in the UK, the Audit Commission published a document in 2007 stating that the evaluation of financial condition should be based on the fundamental necessity of solid financial management, ensuring the availability of the resources needed to maintain the priorities established by city halls and to improve the services provided (Audit Commission, 2007). On the other hand, as Chapman (2008) indicates, municipalities must achieve a fiscal balance between their income and the expenses incurred in meeting the demand for public sector services.

In the present study, we consider that a more extensive and appropriate concept for assessing the financial health of local administration is that of financial condition (Groves et al., 2003). For the GASB (1987), financial condition is the ability of managers to provide services to citizens, meeting present and future obligations. This ability is related to variations in the local authority's assets, to the sustainability of its funds and to differences in its cash balances (GASB, 1999). For Greenberg and Hillier (1995) and CICA (1997), the concept of financial condition is associated with a series of indicators concerning sustainability, flexibility and vulnerability. Groves et al. (2003), however, focus on the concept of solvency and develop this via the following four yardsticks: a) cash solvency – liquidity and cash management, i.e. the entity's ability to generate sufficient liquidity to pay its debts; b) budgetary solvency – the organisation's ability to generate sufficient income to meet its budgetary obligations; c) long-term solvency – the government's ability to meet the payment of all its long-term obligations, and thus obtain a long-term view of its financial condition; d) service-provision solvency – the provision of a suitable quality and quantity of services to the population.

Therefore, we have identified four significant areas for studying financial condition: short-term solvency, flexibility (the organisation's capability to respond to changes in the economy or in its financial circumstances, via modifications to public debt, Benito et al., 2012), budgetary sustainability (an organisation's ability to maintain, promote and protect the social welfare of the population, employing the resources at its disposal) and financial independence (the level of dependence on external funding received via transfers and grants). The indicators used to measure the different aspects of financial condition are shown in the Appendix, and are fundamentally based on budgetary indicators and indicators of balance, the principle element comprising the financial information published by local authorities, which is an essential instrument for assessing the financial accountability of public bodies (Goddard, 2004; Bastida and Benito, 2006).

3.2. Design of the dynamics of the method

In order to test the above hypotheses, in this section we develop the corresponding methodology. Specifically, various phases in the methodological process are identified. The first step consists in developing an indicator capable of measuring when a local authority is undergoing financial stress. The literature consulted contains various proposals for developing such indicators (Brown, 1993; Mercer and Gilbert, 1996; Kloha et al., 2005a; Audit Commission, 2007; Zafra-Gómez et al., 2009a). Most of them are based on calculating the aggregate indicator in relation to a sample, but distinguishing between authorities exclusively on the basis that the value obtained for a given authority is a good or a bad one, with the exception of the Audit Commission's star rating system and the article by Zafra-Gómez et al. (2009a) which distinguished four degrees of assessment for each indicator. Among these options, we believe that of Zafra-Gómez et al. (2009a) to be the most appropriate for calculating an indicator of financial stress, as it is adapted to the Spanish context, which is the geographic area in which the methodology presented in this paper is applied.

In order to create the indicator, we included the value in absolute terms for each of the years in question and for each of the seven budgetary and financial indicators (see Appendix, Table 1). Thus, we identify the value applicable to the city council with respect to each indicator; for example, if the municipal cash position is negative, i.e. the town cannot pay its bills, this fact will be reflected in the index.

The next step is to standardise these values. As the different indicators may present very heterogeneous values, they must be translated into a single, nominal scale, containing a maximum and a minimum value. To do this, and for each of the seven indicators proposed, if a city council presents a value that is among the 25% lowest in the sample, it is given a score of 1 point; if this value is between the 25% and 50% limits, it is given a score of 0.5 points; if it is between 50% and 75%, it is given a score of 0.25 points; if its value is above 75%, it is given a score of 0 points[1].

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[1] A similar procedure to define a rating of different units when there are a number of indicators that can result in a different score for each unit was developed by Georgopoulos (1986), whose proposal basically consisted in ordering the units according to the level of each of the seven indicators. Then, by summing the number of the position obtained in each indicator the overall ranking for each unit can be obtained. This method is straightforward to apply and offers useful statistical properties (i.e. the quartile or the decile position of each unit in the distribution). In this respect, too, Brown (1993) developed the 10-point test of financial condition, using ten financial ratios for each city. The cities were then grouped by quartiles, and each quartile was assigned a score, ranging from -1 to +2. The cities located in the most favourable quartile (with the highest ratio) are awarded two points, those in the second-highest quartile

Thus, taking into account that seven indicators are calculated, a local authority will obtain a total of 7 points (the maximum) if the value of its indicators is always below that marking the 25% lowest values in the sample, and 0 points (the minimum) if it always exceeds the 75% limit. Although four levels are created, a penalty is imposed on the local authorities that are located in the worst-performing sector of the scale of values. On the basis of these seven indicators, a local authority is assigned a maximum possible total of 7 points. Thus, the assessment scale for determining whether a local authority is facing financial stress is as follows:

- A score of 0–1.5 means that the local authority's financial health is excellent and no action is required
- 1.6–2.5 means that the situation is good, although open to improvement.
- 2.6–3.5 means that the local authority requires monitoring.
- 3.6–5.0 means that the local authority faces some financial tension, and it should be beginning to take corrective measures.
- 5.1-7.0 means that the local authority is in a situation of financial stress and should undertake remedial action as a matter of urgency.

As can be seen, a score of 2.6 or more means that a local authority may face certain financial tensions, to a greater or lesser extent, while a score of 7 would mean the authority had obtained the worst values in all seven indicators.

As an example, Table 1 shows how the financial stress indicator was created for the city of Barcelona for the year 2007. It can be seen that Barcelona's position is quite good, with a strong position according to most indicators, and that its percentile ranking is the best with respect to NSI, while the worst result is obtained for debt, i.e., the

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are given one point, those in the quartile just below the median receive zero points, and those in the bottom quartile lose a point. The maximum score possible is 20 points (indicating good fiscal health) and the minimum is –10.

TVFCI indicator. By summing all the values for the second row in Table 1, we find that Barcelona city hall would obtain a score of 1.75, and thus be very far from experiencing a situation of financial stress.

[INSERT TABLE 1]

Having defined the indicator of financial stress, the second phase consists in introducing the concept of duration, which is used in this study to refer to the number of years a local authority has been undergoing financial stress, taking time horizons of 1, 2, 3 and 4 years[2], these figures representing the values that may be assigned to this concept. These values are related to the political cycle, i.e., the maximum single period during which a political group may govern. As observed by Van Helden (2000, p. 89), "It seems reasonable to suppose that the financial stress has to be gradually eliminated within a medium-long period of four years which is in accordance with the four-years period of the municipal election". Accordingly, a local government will attempt to overcome financial crises of these durations, while those extending over a longer period are considered chronic. But, how should we proceed in order to determine whether a city council is undergoing a financial stress situation of 1, 2, 3 or 4 years? We addressed this question by observing the indicators obtained by the city during the period in question, and considered whether during a given year the municipal authority presented values (on the above-described scale) above 2.6. From this point, we then observed the behaviour of the indicator during the following years, and finalised this study in the year in which the council achieved an improvement over the previous one. We term this process *effectiveness*, i.e., it must be shown that the council has alleviated the situation of financial stress. Then, in the year in which this improvement was achieved, or in the previous one (should there be a time lag), we must observe whether the council

[2] In the formulation of the hypotheses, the one-year time period is described as short term, and periods exceeding one year are referred to as long term.

undertook a process of outsourcing or decentralisation. If an improvement was achieved, but during this period no outsourcing or decentralisation measures were taken, then other reasons for the improvement must be sought, and in this case, the council no longer forms part of our study.

As an example, let us discuss the situation of the city of Madrid for the period 2003-2007. Madrid city council obtained a financial stress index for 2003 and 2004 of 3.25, and one of 3.5 for 2005, while for 2006 this score improved to 2.8. Therefore, we observe a financial stress *duration* of 3 years (from 2003 to 2005) and an improvement in 2006, i.e., a certain degree of *effectiveness* of measures taken to reduce the financial stress. However, was this effectiveness due to outsourcing or decentralisation processes implemented in 2005 or in 2006 (*time lag*)? The answer is 'yes': during this period Madrid city council created a public agency and outsourced services, while in the early years of the crisis (2003 and 2004), no such measures were taken. If we had applied the methodology used in the studies mentioned above, we would only have found that Madrid had a 1-year crisis in 2003, 2004 or 2005, while if the studies had been carried out in 2003 or 2004, we would have concluded that, faced with a situation of financial stress, Madrid city council had not taken any action based on outsourcing or decentralisation in 2003 or in 2004 to alleviate such a crisis. Therefore, we would have considered that financial stress was not a variable that influenced processes of outsourcing or decentralisation. This corroborates the conclusions reached by Bel and Fageda in their 2007 article, stating the need for cross-sectional research in analysing the factors that influence privatisation processes.

In summary, therefore, the present study introduces three main innovations regarding the methodology employed to study financial stress as a trigger of processes of business-like and organisational change, as proposed under NPM:

1) The consideration of the *duration* of a financial stress as a key factor in promoting changes in the provision of public services.
2) The *effectiveness* of the measures taken. After a financial stress has occurred, we examine whether the measures taken bring about an improvement, i.e. we determine the existence or otherwise of a cause-and-effect relation.
3) *Time lag*: we take into account a greater time horizon in which the local authority may implement policies of business-like and organisational changes.

The application of this methodology to possible scenarios is shown in Figure 1.

[INSERT FIGURE 1]

3.3. Statistical methodology

We now test the first two hypotheses proposed, by means of contingency tables. This approach is taken because we are using categorical variables, considered with nominal data. The use of contingency tables is particularly appropriate when nominal or qualitative variables are available, assuming that one variable depends on the other (the independent and/or explanatory variable). The study of percentages is the correct methodology for measuring such effects, when the use of multivariate methods is not viable, because we are only studying the behaviour of two variables, a continuous one (financial stress) and decentralisation and outsourcing processes, which require dummy variables (taking a value of 0 or 1).

4. Application to Spanish local government

4.1. Data and variables

Public administration in Spain is structured into three levels: central government, 17 regional (autonomous) governments and 8,110 local government authorities. This situation constitutes a clear example of the application of new and varied powers by local government authorities. The date employed correspond to the period 1999-2007, which is divided into two sub-periods coinciding with the electoral cycles 1999-2003 and 2003-2007. However, for the analysis to be comprehensive, we must study whether during the first period (1999-2003) the local authorities were already facing a financial crisis, originated during the previous years 1996-1998, and thus the real period to be analysed would have began in 1996 (for example, a local authority may have overcome its financial stress by 2000, but the situation could have begun in 1998 or 1999, and so during 2000, its crisis would have lasted two or three years, respectively, and not one year, as would be the case if we counted from 1999). Thus, we obtained a different number of cases for each of these periods, because over time Spanish local authorities increased their level of transparency in the presentation of financial information. Specifically, we obtained a sample of 1,113 local authorities for each of the years comprising the first study period, and a total of 2,284 authorities for the second period. However, the study refers to the entire period; for example, a local authority may have entered a period of financial stress in 2000 and this may have lasted until 2003.

For each year within these (electoral cycle) periods, we evaluated the indicator of financial stress, and determined the duration of the financial stress in the local authorities for which data were available. We then examined, in each period, whether the financial situation of these authorities had improved, and whether during the time elapsed they had carried out a process of contracting out or decentralisation. Following the methodology set out in the present paper, Table 2 shows the very limited number of cases of each of the four types of financial stress for the two periods, in which the local authority alleviated its situation of financial stress either by contracting out or by decentralisation. In addition, we excluded from this sample the very few local authorities that presented a "short reprieve", such as a single year without stress between two periods, as the intention of these authorities was not the reduction of financial stress but rather to effect a change toward other forms of management.

[INSERT TABLE 2]

The above table reveals illustrates the need to use the methodology adopted, for various reasons. Firstly, because it is precisely the local authorities that suffered a two or three-year situation of financial stress (2YFS or 3YFS) which carried out the highest proportions of contracting out and/or decentralisation. In the case of four-year financial stress (4YFS), the situation seems to have become chronic. The second reason is that earlier studies seeking to determine whether financial stress is a critical factor in contracting out failed to take into account whether the local authority in question subsequently obtained an improvement; instead, they included all of the authorities studied, irrespective of whether or not their situation of financial stress was alleviated. This highlights the idea that the methodology applied previously has probably failed to adequately address the nature of this phenomenon.

The following data sources were utilised: firstly, with respect to financial stress, economic, financial and budgetary data were obtained from the Directorate General for Financial Coordination with Regional and Local Authorities (DGCFCAEL, Spanish Ministry of Finance). The second database consulted concerned the diverse modes of management applied in implementing decentralisation (agencies, public firms). This information was obtained from a general database of local entities maintained by DGCFCAEL.

Finally, as this database does not disclose whether the public service has been contracted out, a purpose-built one was constructed incorporating the announcements published by local authorities in the various Official Provincial Gazettes (BOP) with the aim of contracting out certain services.

On the basis of the above information, we created a wide-ranging database with multiple sources, containing information on a large number of local authorities located in all areas of Spain.

4.2. Results

The results shown in the following tables reflect the analysis of the local authorities: 1,113 in the first period and 2,284 in the second. But this does not mean all these cases are analysed, because a municipality can present financial stress several times during a single period, for example, there may be a one-year financial crisis, and a subsequent three-year one. Accordingly, the total number of cases is higher, as shown in Tables 3 and 5.

Hypothesis 1

Tables 3 and 4 show the results of the tests of this hypothesis. Table 3 shows that there were 143 cases in which it was found that the local authority underwent a one-year financial crisis and implemented an outsourcing/decentralisation process, while 434 suffered no financial crisis and also carried out such processes. After comparing the ratios for the various options shown and the level of significance of the chi-square statistic, we must reject the hypothesis of independence between the variables 1YFS and No Financial Stress. This finding means that the two variables are similar and therefore we accept Hypothesis 1; thus, with respect to the implementation of decentralisation /

contracting out processes, there is no difference between those local authorities facing a short term financial crisis and those not facing any such crisis.

[INSERT TABLE 3 AND 4]

Hypothesis 2

Tables 5 and 6 show the tests applied to the second hypothesis. Table 5 shows that the number of cases with financial stress lasting two or more years and in which processes of outsourcing / decentralisation were carried out is higher by 55% than the number of cases with a one-year financial stress when such measures were taken. These differences are confirmed by the chi-square test. It can be seen that the value of the chi-square statistic is greater than 0.05, which means that we cannot reject the hypothesis of independence between the 1YFS and 2-3-4YFS variables, i.e., the variables are not related, and also as the percentage of NPM service delivery form (contracting out / decentralisation) processes implemented by local authorities facing long-term financial stress is greater than that implemented by local authorities facing short-term financial stress (see Table 2), Hypothesis 2 is accepted.

[INSERT TABLE 5 AND 6]

The results obtained for the above two hypotheses confirm that any study of whether financial stress is a factor tending to produce changes in the organisation of public services, via contracting out or via decentralisation, must take into account the duration of financial crises.

5. Discussion and Conclusions

Numerous studies have identified financial stress as a determinant factor in decisions on contracting out. However, these studies have also revealed the very limited explanatory power of the methodology employed to date. Accordingly, this methodology must be revised to better reflect the dynamics of contracting out / decentralisation processes. The present study aims to do so by means of a new methodology based on the use of three parameters: the *duration* of financial crises; the *effectiveness* of the measures adopted to reduce financial stress; and the *time lag*, the extensive period from when the decision is taken to adopt remedial measures until the moment at which they become effective.

The changes proposed for studying financial stress as a pivotal factor in a process of change toward NPM delivery form are thus very necessary; most prior studies are based on the use of descriptive, transversal models, to examine whether the existence of a one-year situation of financial stress motivates the adoption of changes in the management of municipal services. With this methodology, however, financial stress might be considered more a "casual" event than a "causal" one. For this reason, we introduce the concept of duration, defined as the time during which a local authority faces financial stress. In addition, we examine whether the measures introduced by the local authority (including not only contracting out but also decentralisation) are effective and produce a real alleviation of the situation of financial stress. Finally, we examine two specific years to see whether a local authority has changed the way its services are managed: the final year of the financial stress and the following one, in which any improvement is observed.

The above methodology was applied to a large set of Spanish local authorities for the period 1999-2007. For each year, we examined whether these authorities faced financial stress and if so, determined its duration. In these cases, the methodology developed for this study was applied, and its validity tested with respect to a set of two hypotheses.

The results obtained show that local authorities faced with one-year financial stress changed the way in which services were provided in a way statistically similar to that of those with no such financial stress. This finding shows that, to date, the methods used to measure the effects of changes in service delivery forms, as a means of alleviating financial stress, have not reflected the true nature of the phenomenon.

To complete our examination of this question, we show that local authorities facing financial stress of two, three or four years' duration present percentages of decentralisation and contracting out that are significantly higher than is the case with local authorities with a one-year crisis and which implement the same processes. This confirms that when studying fiscal stress as a determinant variable of processes of decentralisation or contracting out, it is necessary to take into account a greater number of years to explain this relationship. This fact could explain why no such fiscal stress-contracting out relationship has been detected by most studies conducted in the USA, which only examined data for a single year (i.e., they were cross-sectional studies). Thus, studies should also address the duration of financial crises as a determinant factor in processes of change, together with the other aspects discussed in the present paper. Indeed, the duration of the current global financial crisis confirms the need to consider the length of time during which it has been taking place, in order to analyse the options or alternatives open to public authorities to implement an appropriate solution.

In view of the methodological proposal described here, and the findings made, consideration should be given in future research to applying a more advanced methodology, introducing dynamism into the method used to study the influence of financial stress on the implementation of changes in service delivery forms. This is known as duration or survival analysis, and would effectively reflect the complexity of the scenario in question, by taking into account the time taken by local governments in deciding to contract out / decentralise their services when situations of financial stress are encountered. It would also establish whether the passage of time influences the factors that affect such decisions, a question that is especially important during periods of economic and financial crisis such as the present, which has had a severe effect on these local governments' sources of income and has forced them to take closer control of budgets and to place greater emphasis on reducing their budget deficits.

Another factor that could be of interest to consider is that of the experience of previous years in implementing processes of contracting out / decentralisation. Municipalities with experience in this area could probably reorganise their systems and projects more quickly than those lacking this background. In the short term, at least, this might also enable the former to obtain better results.

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