FUNCTIONAL DECENTRALIZATION IN PORTUGUESE LOCAL GOVERNMENTS

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ABSTRACT

As a result of the dramatic growth in functional decentralization processes in Portuguese municipalities, this study examines public services delivery in the 308 Portuguese local governments existing in 2011. By using Biplot analyses, the aim of this study is to analyse the Portuguese functional decentralization processes by population ranges and service type. The results show that functional decentralization is more often used in the largest cities, mainly because of the need to meet citizens' demands and moreover, the opportunistic use by politicians since they could transfer part of the expenditure and debt to these newly created agencies. In addition, the results show that water, urban planning, cultural and economic services are the most decentralized. By contrast, decentralized agencies are not used for the provision of health services in any municipality, and protection, social and environment services are decentralized in very few municipalities.

Keywords: local governments, decentralization, public services, indebtedness

INTRODUCTION

In the 1980s, the large bureaucracies that characterize most states across the world were seen as a threat to the efficiency of public administrations. Thus, the theory of new public management (NPM) was an attempt to overcome the problems of large bureaucracies through private sector mechanisms (Haynes, 2003). It is characterized by the principles of economy, efficiency, and effectiveness, and it aims to allow public administrations to manage public resources efficiently.

One of the main reforms proposed by the NPM theory is the functional decentralization processes used for public service delivery. This process consists of governments creating autonomous entities to provide citizens with public services. These new entities have autonomous characteristics and management systems, but continue to form part of the public administration since this maintains the decision-making and control capacity. The main advantage is that they can specialize in certain services and they are closer to citizens. Thus, they know their preferences and needs to a greater extent (Hayek, 1945).

Since the 1990s, there has been a general increase in the creation of these agencies around the world (Cuadrado-Ballesteros et al., 2012). In the specific case of Portugal, functional decentralization processes have gained importance at the local level in recent years, in an attempt to improve municipal management and productive efficiency, taking advantages of the flexibility and financial management rules of decentralized entities (Tavares & Camoes, 2007). Accordingly, because of the growth in the number of decentralized entities in Portugal (Carvalho et al., 2013), the aim of this paper is to show the situation of Portuguese public service delivery at the local level by population range and service type, since we have not found previous papers that carry out this task. Then, we introduce some reasons explaining the Portuguese situation in relation to local public services, proposing the basis for future empirical research. These reasons are mainly related to the size and indebtedness of local governments.

To achieve these aims, we consider the 308 local governments that existed in Portugal in 2011. We divide our sample into population ranges (fewer than 5,000 inhabitants, between 5,000 and 10,000, between 10,000 and 20,000, between 20,000 and 50,000, and more than 50,000 inhabitants). The year under review is the most recent for which information is available (2011).

The results show the strategic use of functional decentralization; the biplot analysis illustrates that functional decentralization tends to be used by local governments of municipalities with more than 50,000 inhabitants, since these agencies are closer to citizens, therefore allowing their demands to be met. In addition, large municipalities tend to be more indebted (Mitchell, 1967; Pettersson-Lidbom, 2001; Ashworth et al., 2005; Hagen & Vabo, 2005). Thus, local politicians may use these agencies to transfer part of the indebtedness and at the same time increase the public revenues through public fees instead of taxes. Authors such as Cuadrado-Ballesteros et al. (2013b) found for the Spanish case that functional decentralization is used to overcome indebtedness restrictions imposed on local governments and increase the public revenues associated with the real cost of the public service delivery. Taxpayers do not perceive an increase in incomes, because it is carried out not through taxes, but rather through fees and public charges collected by public companies, leading to "citizens' myopia".

Moreover, by taking into account the typologies of public services provided by Portuguese local governments, the results show that decentralized agencies are usually used to provide water, urban planning, cultural, and economic services. Functional decentralization is not used for health services in any municipality, and protection, social, and environmental services are decentralized in very few cases. Thus, services entailing a high level of human assets are provided by the local government itself to a greater extent, instead of transferring the service delivery to decentralized entities. In this way, greater productive efficiency is achieved, since local officials may claim credit for delivering human and social public services (Tavares & Camoes, 2007).

This paper is divided into four further sections. The next section presents the basic ideas of NPM and functional decentralization processes. The third section describes public administration in Portugal. In the fourth section, we present the results of several analyses to show the use of these processes in Portuguese local governments. Finally, we present the main conclusions and reflections derived from this study.

THEORETICAL FRAMEWORK

Functional decentralization occurs when the public administration (central or under central) creates smaller, more flexible, and business-oriented entities (Aberbach & Rockman, 1999), such as companies, organizations, and foundations for public service delivery. In this paper, we focus on decentralized agencies created at the local level. These entities have their own legal personality, with an autonomous management system, but continue to form part of the public administration – in this case local governments – which enjoy the decision and control capacity to a large degree.

The decision on whether to provide public services in-house or to create decentralized public bodies could be taken through a cost perspective (Tavares & Camoes, 2010). When services are provided in-house, bureaucratic monopoly inefficiencies arise. In addition, a "discretionary budget" problem may lead bureaucrats to request a greater necessary budget (Niskanen, 1971), and "influence costs" may arise since the number of employees and hierarchy levels would also increase (Bendor, 1985; Miranda & Lerner, 1995).

Decentralized agencies may avoid these costs; they are smaller, more flexible, and business-oriented entities (Aberbach & Rockman, 1999) that may avoid the typical rigidities of public administrative systems. From the view of the new public management theory[1], these agencies may improve their efficiency in attaining goals (Boyne, 1996) and streamlining bureaucratic processes (Niskanen, 1971), modernizing the traditional public sector. In addition, these entities produce faster service provision (Downs, 1967), because they are closer to citizens and therefore more aware of their preferences and needs

(Hayek, 1945). The fact that the management units are smaller and more flexible as a result of less normative rigidity makes them more dynamic and leads users to express greater satisfaction than with traditional bureaucracies. Furthermore, functional decentralization reinforces the delegation of responsibilities, which may inhibit the ability of public officials to manage public resources opportunistically (Pollit & Bouckaert, 2000).

However, when public services are provided by an autonomous public organization, transaction costs may appear (Tavares & Camoes, 2010) in economic and political terms (Rodrigues et al., 2012). Following Williamson (1989, p. 142), transaction costs are "comparative costs of planning, adapting and monitoring task completion under alternative governance structures".

Economic transaction costs are derived from the uncertainty involved in decentralizing decision-making, since bounded rationality and opportunism can occur. This situation leads to negotiating, monitoring, and enforcing contract costs (Brown & Potoski, 2003a, 2003b; Rodrigues et al., 2012), since decentralization may involve excessive fragmentation of the public sector, producing poor coordination and overlapping functions and use of resources (Rhodes, 1994). In other words, a greater number of entities represent a greater cost, derived largely from control mechanisms to avoid the previous problem, so functional decentralized administrations may be more expensive than large bureaucracies (Andrews & Boyne, 2009).

Furthermore, in the specific case of local governments, political transaction costs arise in relation to the credibility of the local government in a contractual exchange (North, 1990; Dixit, 1996; Rodrigues et al., 2012). The desire for re-election is very influential in the case of the political market, in which, following public choice theory, agents interact to achieve their goals (Downs, 1967; Niskanen, 1971). Information asymmetries between politicians and citizens (Lindstedt & Naurin, 2008) favour politicians, who act opportunistically with the aim of being re-elected (Osborne & Slivinski, 1996; Dixit & Londregan, 1998). When local governments create decentralized agencies, they lose political control, but this is compensated for by greater

flexibility in service delivery and greater satisfaction of citizens/voters. Thus, functional decentralization may occur either when voters will be more satisfied or when it will improve the productive efficiency (Tavares & Camoes, 2007).

In view of these arguments, local governments carry out a balance analysis of the costs/benefits when they choose how to provide public services. In short, public services will be decentralized if the risk arising from this transfer is insignificant or the potential exists to achieve great gains in productive efficiency through greater operational and financial flexibility (Tavares & Camoes, 2007). In fact, functional decentralization processes have become particularly important around the world (Molinari & Tyer, 2003; Utrilla, 2007; Cuadrado, 2008). The empirical evidence shows that municipalities that carry out functional decentralization processes for local service provision improve the quality of life (Sanderson, 1996; Marshall, 2004; Cuadrado-Ballesteros et al., 2012), social welfare (Hong, 2011), and income distribution (Gupta, 2004), as well as reducing the public deficits (Vengroff & Reveron, 1997).

Decentralized entities have acquired special significance in public administrations that suffer from difficult economic situations (Domínguez, 1999; García, 2000) as a means of delivering public services that satisfy citizens' needs as well as masking less altruistic objectives (i.e. politicians might use decentralized agencies for their own benefits). Concretely, governments may decentralize in order to avoid budgetary restraints by transferring part of their debt expenditure to the newly created entities (Bennett & Dilorenzo, 1982, 1984; Blewett, 1984; Marlow & Joulfaian, 1989; Bunch, 1991; Escudero, 2002; Grossi & Mussari, 2008; Prado-Lorenzo et al., 2009; Grossi & Thomasson, 2011; Cuadrado-Ballesteros et al., 2013a, 2013b). Alternatively, they can be used to generate income through fees and public charges instead of using other forms viewed less favourably by citizens/voters, such as tax increases (Monasterio et al., 1999; Prado-Lorenzo et al., 2009). Citizens' myopia leads them to believe that local governments are providing more/better public services with the same resources, which positively influences politicians' images (García-Sánchez et al., 2011).

LOCAL GOVERNMENTS IN PORTUGAL

Portuguese state organizations are characterized by the existence of local entities, defined as an area containing a group of people, endowed with representative organisms (art. 236 of the Constitution of the Portuguese Republic). Among these local entities are municipalities, which are responsible for the management of local public services, ensuring the interests of their respective populations. Throughout history, many Portuguese local governments have played a central and decisive role in the organization of the state, which is apparent in the diversity of areas that have participated (Carvalho, 2011).

Municipalities have great importance in the context of public decisions, with an increasing transfer of responsibilities and competences from the central government. Currently, they have jurisdiction over different public services (art. 13 of Law 159/99 of 14th September): urban planning, energy, transport, education, culture and technology, sports, social services, health, civil and municipal police protection, waste collection and treatment, consumer protection, and external cooperation. They are composed of two bodies, namely the Municipal Assembly and the City Council, the latter of which is the executive body responsible for the daily management of municipal affairs and implements the decisions taken by the Municipal Assembly.

Moreover, in Portuguese local governments, two sectors coexist: an administrative sector and a business sector. The latter is composed of local public companies, local public business entities, local corporations, and inter-municipality entities. There are also a number of "municipalized services", generally related to the integral water cycle (water collection, supply, and sewage treatment). The public funds vary according to the form (Tavares & Camoes, 2011). The creation of these entities for public service delivery represents a functional decentralization process, which has gained importance in Portugal in recent years,[2] despite it being a traditionally centralized country[3] (Carvalho et al., 2013). Their activities, creation, extension, and extinction have been updated recently by Law 50/2012 of 31st August.

In Portugal, the functional decentralization process has become relevant since the Municipal and Inter-municipal

Corporations Act of 1998 was adopted (Tavares & Camoes, 2007), since this law allowed the transfer of in-house public service delivery to decentralized entities. The increase in this method of service delivery is justified by the growth in the local business public sector, which materialized via the increasing number of municipal companies. However, in its orientation towards greater decentralization, the state cannot lose its true sense of existence, retaining its regulatory, monitoring, and referee function and seeking to promote to society the best possible balance between the use of resources and the collective interests and individual freedom.

In general, Portuguese decentralized entities are similar to those of other countries, such as Sweden and Spain, but different from those of Italy, where such agencies are normally joint stock companies that can be, and often are, traded on the stock exchange (Argento et al., 2010). In Portugal, as in Sweden and Spain, decentralized agencies are wholly owned by municipalities, and none are listed on any stock exchange.

Portuguese municipalities tend to be large and are highly dependent on the expenditure of the central administration (Carvalho et al., 2013). This situation has led them to create such agencies in order to meet the demands of their citizens in a better way. In addition, these new methods of public service delivery result from the attempt to improve local public management and make their organizational systems flexible, thereby circumventing administrative law (Tavares & Camoes, 2010). Decentralized agencies are being created to avoid control from authorities such as the Court of Accounts, the Inspector General of Territorial Administration and the General Inspectorate of Finance (Oliveira, 2001).

Accordingly, previous studies show the opportunistic behaviour of local politicians, who enjoy broad freedom to establish an adequate governance structure of service delivery to achieve political efficiency, which translates into electoral gains (Tavaes & Camoes, 2011). They transfer part of the expenses and debts of local governments to decentralized agencies, so the public finances seem healthier (Bennett & Dilorenzo, 1982, 1984; Blewett, 1984; Marlow & Joulfaian, 1989; Bunch, 1991; Escudero, 2002; Grossi & Mussari, 2008; Prado-Lorenzo et al.,

2009; Grossi & Thomasson, 2011; Cuadrado-Ballesteros et al., 2013a, 2013b). This allows them to circumvent the legal constraints on public expenditure (Tavares & Camoes, 2007, 2010).

In addition, local governments may create decentralized entities to generate revenues through fees and public charges, receiving income in a different way from taxes. Citizens believe that local governments are providing more or better public services without increasing the taxes. In relation to local revenues, financial dependency is a problem in Portuguese local governments. According to Carvalho et al. (2013), around 60% of their public revenues come from central grants and transfers (this percentage increases to 70% in the smallest municipalities). The central government has transferred great competencies to local governments, but not financial capacity in terms of taxes. Thus, local governments could create decentralized agencies with the aim of receiving public fees and charges that increase their financial independency. Different authors have shown that public companies have emerged as an attractive source of revenues, since they charge public service delivery directly to citizens, who see these companies as "private organizations" but not as part of the local government (Rubin, 1988; Tyer, 1989; Molinari & Tyer, 2003).

Another reason to create decentralized agencies is related to population size. Large municipalities' behaviour differs from that of smaller municipalities, since the demand for public services is higher. Large municipalities are expected to use decentralization processes to a greater extent since they need a higher degree of specialization to satisfy citizens' needs (Montesinos et al., 2010).

ANALYSIS OF FUNCTIONAL DECENTRALIZATION IN PORTUGAL

The aim of this study is to describe the degree of functional decentralization in Portugal in relation to the level of liquid indebtedness as well as the typology of public services provided by local governments.

Population and Variables for the Analysis
        We analyse the 308 Portuguese municipalities existing in 2011. Specifically, we obtain information on functional decentralization, liquid indebtedness, and service type, based on Carvalho et al. (2013). The financial yearbook of Portuguese municipalities, based on the accounts of 308 national government agencies, is a document of great value for the analysis of aggregate municipalities on budgetary, financial, economic, and equity position information. The variables included in the analysis are:

Decentralization: Following previous decentralization studies (Tavares & Camoes, 2007, 2010; Cuadrado-Ballesteros et al., 2012, 2013a, 2013b, 2013c, 2013d), we measure decentralization by the number of decentralized entities (public companies, public business entities, public corporations, and municipalized services) affiliated with each municipality.

Public services: Based on the classification criteria proposed by Miller and Miller (1991), the different public services provided by Portuguese local governments are represented by a dummy variable, which takes 1 if a specific service is decentralized and 0 otherwise. This criterion has been used previously by Prado-Lorenzo and García-Sánchez (2006) and Cuadrado-Ballesteros et al. (2012). Specifically, services are grouped into water, waste, culture, social services, health services, environment, economic services, transport, urban planning, protection, and others. Table 1 shows the public services included in each typology.

Table 1
Analyzed services

Water	Water cycle (sanitation, water supply, etc.)	Water
Urban waste	Comprehensive management of municipal waste and road cleaning	Waste
Culture, education and sports	Management education, training centres, cultural activities, sports, cultural facilities, shopping facilities and sports facilities	Culture
Social and human services	Social services, funeral services	Social
Health care	Hospitals	Health
Environmental services	Management of urban environment (parks, gardens)	Environment
Companies, trade and tourism	Business support, promotion of economic activity, employment, tourism, markets and slaughterhouses	Economic
Transport	Urban transport, bus stations, maritime and railway transport	Transport
Urban planning	Public works, land development, parking, architecture, housing management, lighting, infrastructure maintenance	Urban Planning
Citizens' protection	Protection services (police, fire, civil defence, etc.)	Protection
Others	Administration, energy management, and others	Others

Source: Authors from the proposal of Miller and Miller (1991), Prado-Lorenzo and García-Sánchez (2006), Cuadrado-Ballesteros et al. (2012).

Indebtedness: With the aim of showing whether politicians engage in opportunistic behaviours, namely by transferring part of their expenditures and debt to decentralized agencies, we use the level of indebtedness of the local government. This is measured by the liquid indebtedness ratio, calculated as follows:

$$\text{LiqIndeb} = \frac{\text{Total Debt} - (\text{Debt to receive} + \text{Cash})}{\text{Incomes in } t - 1}$$

        This measure is in accordance with article 36 of Law 2/2007, regarding local finances, which defines liquid indebtedness according to the concept of financial needs of SEC95 as the difference between financial liabilities and assets. We use this ratio as the level of indebtedness because the Portuguese Local Finances Law refers to it when it imposes indebtedness limitations. Concretely, it is posited in article 37 of Law 2/2007 from 15th January that:

"the amount of total liquid indebtedness of each municipality, on 31st December of each year, shall not exceed 125% of the revenue from municipal taxes, from the holdings of the financial equilibrium fund, the participation in taxes on personal incomes and the participation in the results of entities of local business sector."

In this regard, we believe that this is a valid measure of the level of local governments' indebtedness. Other authors, such as Carvalho and Teixeira (2007), Ribeiro (2013), and Ribeiro and Jorge (2013), have previously used this proxy.

Population: The number of inhabitants by municipality. The analysis is carried out by dividing the 308 municipalities into population ranges: fewer than 5,000 inhabitants, between 5,000 and 10,000, between 10,000 and 20,000, between 20,000 and 50,000, and more than 50,000 inhabitants. These divisions are made because there are large disparities in the characteristics of municipalities (Carvalho et al., 2013), which require us to create subgroups or subsamples to conduct the analyses (Benito et al., 2010; Navarro et al., 2010; Guillamón et al., 2011; Navarro-Galera & Rodriguez-Bolívar, 2011; Cuadrado-Ballesteros et al., 2013a, 2013b).

Global Analysis
        Table 2 shows the descriptive statistics of these variables. In general, Portuguese municipalities are characterized by a high dimension, as shown by the average value of POPULATION, in line with the findings of Carvalho et al. (2013). However, the standard deviation is quite high, representing the existence of very small municipalities.

The mean value of INDEBTEDNESS is positive, indicating that, on average, Portuguese municipalities support liquid indebtedness. The standard deviation is quite high, too, representing large differences in the level of indebtedness. The minimum value is -140, showing that some municipalities have no liquid indebtedness. In general, small municipalities enjoy a better situation in this regard (Carvalho et al., 2013), as shown in Graph 1.

Table 2

Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
POPULATION	308	35268.91	59170.08	430	547733
INDEBTEDNESS	308	124.4123	209.6322	-140	3308
DECENTRALIZATION	308	1.042208	1.86206	0	23
WATER	308	0.1461	0.3538	0	1
WASTE	308	0.0162	0.1266	0	1
CULTURE	308	0.2143	0.411	0	1
SOCIAL	308	0.0292	0.1687	0	1
HEALTH	308	0	0	0	0
ENVIRONMENT	308	0.0519	0.2222	0	1
ECONOMIC	308	0.1883	0.3916	0	1
TRANSPORT	308	0.039	0.1938	0	1
URBAN	308	0.1299	0.3367	0	1
PROTECTION	308	0.0097	0.0984	0	1
OTHERS	308	0.0455	0.2086	0	1

Graph 1
Decentralization and Indebtedness by population

Decentralization ■   Indebtedness ■
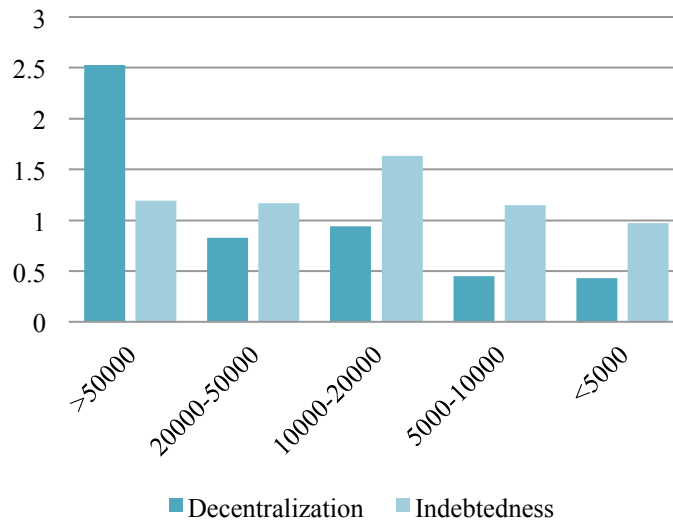
The mean value of DECENTRALIZATION is 1.04, indicating that local governments tend to create a decentralized entity to provide certain public services on average. The mean values for the dummies that represent the different services provided show us that in general these are created to provide cultural, water, economic, and urban services. It is noteworthy that no decentralized agencies provide health services and very few are created for protection services. Section 4.3 provides a more detailed analysis by the typology of service.

By examining Graph 1 more thoroughly, we can deduce a pattern of behaviour between the liquid indebtedness levels and the degree of municipal decentralization, except for the case of the largest municipalities (over 50,000 inhabitants). In other cases, the higher is the degree of functional decentralization, the higher is the level of liquid indebtedness. This finding might suggest the use of these decentralized agencies for opportunistic purposes, such as transferring part of their indebtedness (Bennett & Dilorenzo, 1982, 1984; Blewett, 1984; Marlow & Joulfaian, 1989; Bunch, 1991; Escudero, 2002; Grossi & Mussari, 2008; Prado-Lorenzo et al., 2009; Grossi & Thomasson, 2011;

Cuadrado-Ballesteros et al., 2013a, 2013b). Alternatively, they might be used to generate incomes from fees and public charges instead of increasing taxes, which is not supported by citizens/voters (Monasterio et al., 1999; Prado-Lorenzo et al., 2009). Such citizens' myopia leads us to assume that local governments are providing more or better public services with the same resources, improving the political images and prestige of politicians (García-Sánchez et al., 2011).

In the specific case of municipalities with over 50,000 inhabitants, the degree of decentralization is higher, although the liquid indebtedness ratio remains more or less similar to that of the other local governments. The use of decentralized agencies in this case is because of the need to meet higher demands. Larger municipalities are expected to use decentralization processes to a greater extent, since they need a higher degree of specialization to satisfy the needs of all their users (Montesinos et al., 2010). Furthermore, we use the Mann–Whitney U, Wilcoxon W, and normal distribution Z non-parametric tests to show the differences between the groups of analysis, specifically between local governments that use functional decentralized agencies to provide public services and those that do not. These tests are statistically relevant at the 99% and 90% confidence levels for the variables POPULATION and INDEBTEDNESS, respectively. This allows us to reject the null hypothesis of equality between groups for these variables, meaning that local governments tend to use functional decentralization according to their population size and their level of indebtedness.

Table 3
Nonparametric tests of mean differences for two independent samples

	Population	Indebtedness
Mann-Whitney U	6917,500	10540,500
Wilcoxon W	18242,500	21865,500
Z	-6,314	-1,676
Statistical significance (confidence level)	99%	90%

Biplot analyses: The biplot methodology is a statistical technique that graphically depicts a data matrix X (nxp), being n individuals – rows – that are analysed in relation to p characteristics – columns (Vicente-Villardón, 2001). The individuals are the 308 Portuguese local governments and the characteristics considered in this study are the population, the level of indebtedness, and the level of functional decentralization. The biplot offers a visual representation of individuals and characteristics in the same reference system, using vectors. More concretely, the representations show points and vectors (Gower & Hand, 1996); points represent individuals (local governments in this study) and vectors represent the characteristics of these individuals (population, indebtedness, and decentralization in this case), as shown in Figures 1, 3, 5, 7, and 9. The origin coincides with the mean value of all the characteristics. Vectors with a small angle are highly correlated and show similar behaviours, and if they have opposite directions, they are highly correlated in an inverse sense. The interpretation of the figures could be conducted based on the closeness of points and vectors: if a point is close to a vector, then this characteristic has a high value for the individual. The distance among points shows the variability of individuals in the analysis.

The first approximation to the biplot technique was proposed by Gabriel (1971). However, it was argued that the approach of this author does not represent individuals appropriately. Then, Galindo (1985) proposed a new biplot approach, called the HJ-Biplot, which provides a representation of multivariate data, representing individuals and characteristics with the same quality (Galindo, 1985, 1986). In this study, we use the software developed by Vicente-Villardón (2010) to implement the HJ-Biplot.[4]

We use the biplot technique because it easily represents the differences and similarities among Portuguese local governments according to the use of functional decentralization in a visual way. This technique is related to principal component and factorial analysis, but the advantage of biplot analysis is that it allows the visualization of individuals and characteristics in the same space; thus, it is possible to see correlations among

individuals, among characteristics, and between individuals and characteristics. The biplot technique provides a representation of multivariate data, unlike the scatter plot, which shows the distribution of only two variables (Gabriel, 1971; Gabriel & Odoroff, 1990).

Using the HJ-Biplot method instead of other conventional techniques, such as principal component and factor analysis, we gain important advantages. The axes in principal component analysis are combinations of variables, but they do not appear on the plots, so important information is lost, such as the situation of individuals with respect to characteristics (González-Cabrera et al., 2006). Thus, biplot analysis is more representative in showing the situation of Portuguese local governments according to public service delivery. In the area of research on the local public sector, this technique has been used previously by Cuadrado-Ballesteros et al. (2013c) and García-Sánchez et al. (2013).

Figures 1, 3, 5, 7, and 9 show the biplot analyses of municipalities according to the population ranges. The individuals are municipalities and the variables are DECENTRALIZATION, INDEBTEDNESS, and POPULATION. To understand the relationships between individuals and variables, we need to project the points (municipalities) on the vectors (variables). If the projection falls on the continuous line illustrated in the figure, then the relationship between the individual and the variable is positive, and it is negative otherwise.

Following this interpretation, for municipalities with over 50,000 inhabitants (Figure 1), the largest and most indebted local governments tend to create decentralized agencies to provide public services, such as the case of Lisboa, Esponsende, Sintra, Vila Nova de Gaia, Porto, and Loures. For these municipalities, the two previous arguments may apply: both the use of decentralized agencies opportunistically by politicians and the need to create them to meet the demands of citizens, who are more numerous than in other municipalities. Other relationships can also be observed; for example, some local governments decentralize their public service delivery because they are large, although their level of liquid indebtedness is not as high as that

of the other municipalities (Aveiro, Santarem, Santa María da Feira, Matosinhos). By contrast, others decentralize for different reasons, unrelated to either size or indebtedness (Castelo Branco, Vila Real, Viseu, Faro, Figueira da Foz). These local governments may create decentralized agencies due to an imitation effect or because they are tourist cities that need to meet increased demands at specific times (Diez-Ticio & Mancebón, 2003; García-Sánchez, 2006).

Figure 3 shows the representation for municipalities with populations between 20,000 and 50,000 inhabitants. In this case, municipalities decentralize to a lesser extent and there is no association between the three variables at once. Local governments create decentralized agencies owing to demand (Guarda, Elvas, Bragança, Marinha Grande, Olhao), indebtedness (Portalegre, Povoa de Lanhoso, Lagos, Entroncamiento, Celorico da Basto, Vila da Paia da Vitoria, Fundao), or neither (Beja, Mealhada, Sao Joao do Maadeira, Mirandela, Tavira, Peniche).

The representation for municipalities with populations between 10,000 and 20,000 (Figure 5) is curious, since most of them show a similar trend towards no decentralization. Most of those that create these agencies do so for reasons of indebtedness, such as Santa Comba Dao, Vouzela, Vila Franca do Campo, Obidos, Vieira do Minho, and Resende (among others).

A similar situation is observed for municipalities with populations of between 5,000 and 10,000 inhabitants (Figure 7). The few decentralized entities are created for reasons of indebtedness, such as Velas, Meda, Porto Santo, Alfandega da Fe, Povoaáo, Sao Vicente, Vila do Porto, Madalena, and Sousel. Another small group is characterized by a higher population (10,000 maximum) and a higher level of indebtedness than the other municipalities. They tend to create decentralized entities for reasons of population size and indebtedness, such as Celorico da Beira, Vinhais, Melgaço, Miranda do Douro, Nisa, Almeida, and Pinhel. The other municipalities in this group, which are the vast majority, tend to use decentralization processes to a lesser extent.

Finally, smaller municipalities (fewer than 5,000 inhabitants) are represented in Figure 9. In general, these local governments rarely decentralize services. The few local governments that have decentralized public services are more liquid indebted (Rio Maior, Vimioso, Castanheira de Pera, Lajes do Pico, Santa Cruz de Grandiosa, Mora, Cuba, Vida de Rei, Sao Roque do Pico, and Porto Moniz).

In summary, decentralized entities are created by the largest cities to a greater extent, mainly owing to opportunistic behaviour by politicians. This is because they transfer part of their indebtedness to these newly created agencies, as previous authors have evidenced in other countries (Bennett & Dilorenzo, 1982, 1984; Blewett, 1984; Marlow & Joulfaian, 1989; Bunch, 1991; Escudero, 2002; Grossi & Mussari, 2008; Prado-Lorenzo et al., 2009; Grossi & Thomasson, 2011; Cuadrado-Ballesteros et al., 2013a, 2013b). In this way, the local public finances seem to be healthier. In addition, as their populations are larger than those in other municipalities, they have to satisfy more needs through public services. Thus, according to Montesinos et al. (2010), they tend to create decentralized entities that offer more specialized services and are more flexible and closer to citizens, with the aim of improving the public service delivery and meeting all the citizens' needs. Small municipalities tend to use different modes of public service delivery. It is possible that local services are provided directly by the local government, since the demand is lower than that in other municipalities. This situation occurs in other countries, such as Spain (Cuadrado-Ballesteros et al., 2013c).

Analysis by Services

Graph 2 shows the average values of the dummy variables that represent the different typologies of public services by population ranges. It can be seen that when municipalities are small, they tend to use decentralization processes to a lesser extent, especially for social, environmental, and protection services. Protection services are provided by decentralized agencies only in the largest municipalities (more than 50,000 inhabitants) and social services in municipalities with populations over 10,000. From this graph, another conclusion

can be drawn: water services (collection, supply, and sewage treatment) are highly decentralized in municipalities with more than 50,000 inhabitants, as well as urban planning and public transport services. Economic services (related to business, business development, tourism, etc.) tend to be decentralized by all municipalities.

Graph 2
Decentralized public services
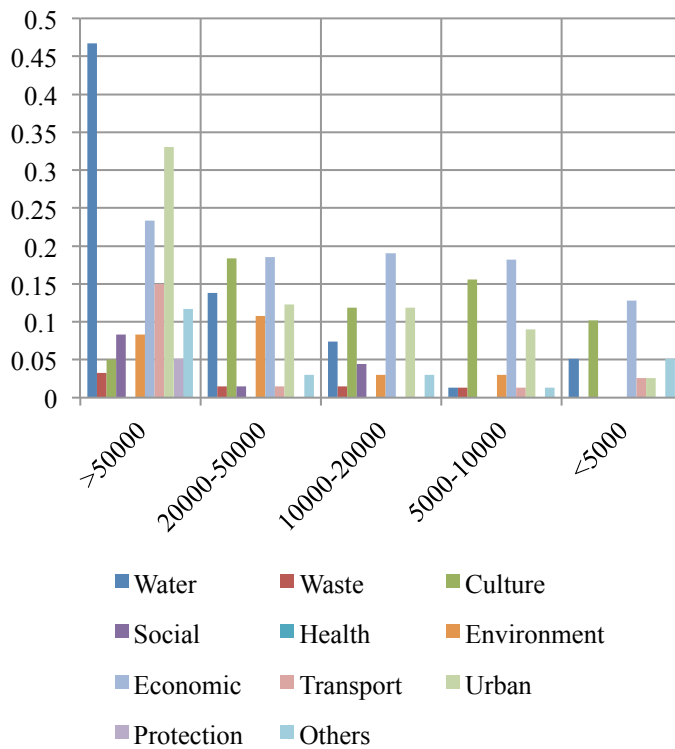
In addition, several biplot analyses are carried out to explain the behaviour of municipalities by service type (Figures 2, 4, 6, 8, and 10). In this case, we use a specific biplot technique, called the logistic biplot, because the characteristics are measured using dummy variables. More concretely, matrix X (nxp) shows information on n individuals (i.e. 308 Portuguese local governments) and p characteristics, which correspond to

the typologies of public services shown in Table 1: water, waste, culture, social services, health services, environment, economic services, transport, urban planning, protection, and others. All of them are dummy variables that take the value 1 when public services are provided by decentralized agencies and 0 otherwise.

The interpretation is similar to that of the HJ-Biplot, with the assumption that variables are represented only when their relation with individuals is statistically relevant. In other words, services that do not appear in the figures are not statistically significant at the 95% confidence level in explaining the behaviour of local governments (i.e. local governments do not create decentralized agencies for the delivery of these public services). To implement the logistic biplot, we use the algorithm proposed by Vicente-Villardón et al. (2006). It is related to factor analysis for binary data, latent trait analysis, and item response theory, but it visually represents the relationships between individuals (local governments) and characteristics (public services provided by decentralized agencies), in an easy and intuitive way.

The results in Figure 2 (municipalities over 50,000 inhabitants) are consistent with those in Graph 2, since most decentralized services are water and urban planning as opposed to social, protection, or environmental services. The next group of municipalities, with populations between 20,000 and 50,000 inhabitants (see Figure 4), tends to decentralize public services to a lesser extent, and those that do so focus mainly on water, culture, and economic services. Economic and cultural services are the most decentralized in the case of municipalities with populations under 20,000 inhabitants, along with urban services, as Figures 6, 7, and 8 show. Municipalities with populations under 5,000 inhabitants rarely use functional decentralized entities.

In summary, water, urban planning, cultural, and economic services are the most decentralized by Portuguese local governments. In particular, the largest cities tend to use decentralized agencies for water and urban planning service delivery. Economic and cultural services are provided using decentralized entities, especially in medium-sized and small municipalities. This situation is similar to that of other countries,

for example Spain, according to Cuadrado-Ballesteros et al. (2013c). However, none of the local governments use decentralized agencies to provide health services in Portugal. In the case of Spain, these entities are usually special organizations called public foundations, and there are few of them. Finally, functional decentralization for protection and environmental service delivery is used by very few Portuguese local governments. This is probably because, as in Spain, these services tend to be externalized (contracting with a private company) (Cuadrado-Ballesteros et al., 2013c).

CONCLUDING REMARKS

As a consequence of the dramatic growth in functional decentralization processes in Portuguese local governments, the purpose of this study is to examine the current situation of public service delivery in this country by population range (fewer than 5,000 inhabitants, between 5,000 and 10,000, between 10,000 and 20,000, between 20,000 and 50,000, and more than 50,000 inhabitants) and public service type. We analyse the 308 Portuguese local governments in 2011 via several biplot representations, proposing some reasons for such situations related to the population size and the level of indebtedness.

The results show that functional decentralization is more important in the largest cities. This could be due to two reasons. First, large municipalities need to create decentralized agencies to meet the demands of citizens. As a result, decentralized entities know citizens' needs in more depth, since they are more flexible and closer to the population. Second, large municipalities tend to be more indebted. Thus, politicians use opportunistically decentralized agencies with the aim of transferring part of their expenditure and indebtedness to them, increasing the public revenues associated with the real cost of the public service delivery. This has an important effect on citizens' behaviour, since taxpayers do not perceive an increase in taxes, as they pay fees and public charges collected by public companies. This situation could be called "citizens' myopia", which causes citizens to have a good image of their politicians,

because local governments meet all the citizens' demands but "do not increase taxes".

By taking into account the different typologies of public services provided by Portuguese local governments, the results show that water, urban planning, cultural, and economic services are the most decentralized services, in contrast to social, protection, and environment services. Functional decentralization is not used for health services in any municipality, and protection, social, and environmental services are decentralized in very few cases. Following Tavares and Camoes (2007), services entailing high levels of human assets are provided by the local government itself, with the aim of achieving greater productive efficiency, since local officials may claim credit for delivering human and social public services (Tavares & Camoes, 2007).

These results contribute to the extant public service delivery research, illustrating the situation in a particular country, Portugal. We think that it is important to continue this analysis since we have not found papers that analyse this topic in Portugal. However, functional decentralization has gained importance in Portugal in recent years, increasing the number of municipal companies. We propose different reasons to explain the situation of public service delivery in this country: (i) large municipalities create decentralized agencies to meet the demands of citizens and satisfy their needs; (ii) politicians may create decentralized agencies opportunistically, to transfer part of their expenditure and indebtedness to them, increasing the public revenues through public fees and charges instead of taxes; and (iii) services with a high level of human assets are provided in-house with the aim of achieving greater productive efficiency.

Nonetheless, this paper presents some limitations associated with the data used in the analysis, which can be tackled in future research. The data only refer to the year 2011 and it would be interesting to consider a longer period of time in order to obtain more robust results. In addition, the biplot methodology allows the visualization of individuals and characteristics in the same space, representing in this case the differences and similarities among Portuguese local governments according to the use of functional decentralization. However,

causal relationships and effects cannot be proposed, since it is a descriptive and not a predictive technique. Biplots are useful for graphically describing the data or for displaying results provided by more formal models.

In this respect, this paper presents great interest for future researchers who could overcome the shortcomings of the present study. It would be interesting to analyse the evolution of functional decentralization processes, not only in 2011 but also to contemplate the differences before and after the economic and financial crisis. In addition, it would be interesting to compare countries in Europe or around the world, specifically in Southern Europe, taking into consideration socioeconomic and cultural aspects. Finally, this study proposes theoretically different reasons to explain the situation of Portuguese local governments. It would be very interesting to test these reasons empirically, especially in relation to the opportunistic use of decentralised entities by politicians in the case of Portugal.

NOTES

1. One of the main characteristics of new public management theory is its critical view of the traditional bureaucracies and management structures of public administrations while well-known management techniques to avoid rigidities and traditional public weaknesses are available in the private sector (Haynes, 2003; Cuadrado-Ballesteros et al., 2013b). Thus, public sector reforms follow entrepreneurial "best practices" (Yamamoto, 2003). The integration of the two models (public and private) may positively influence public administrations and therefore citizens (Gunn, 1987). It is intended to replace highly inefficient large bureaucracies and public management organizational systems (Dunleavy, 1991; Pierre & Guy, 2000).
2. Rising from 34 decentralized agencies in 1991 to over 300 in 2011.
3. Local public expenditure accounts for only about 15% of the GDP compared with 24% on average in the EU, which shows the strong financial centralization.
4. Other software exists to implement the biplot technique, developed by Rohlf (2000).

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Appendix A
Figures from the Biplot Analyses

Figure 1
Biplot municipalities with population over 50,000

Figure 2
Logistic Biplot municipalities with population over 50,000

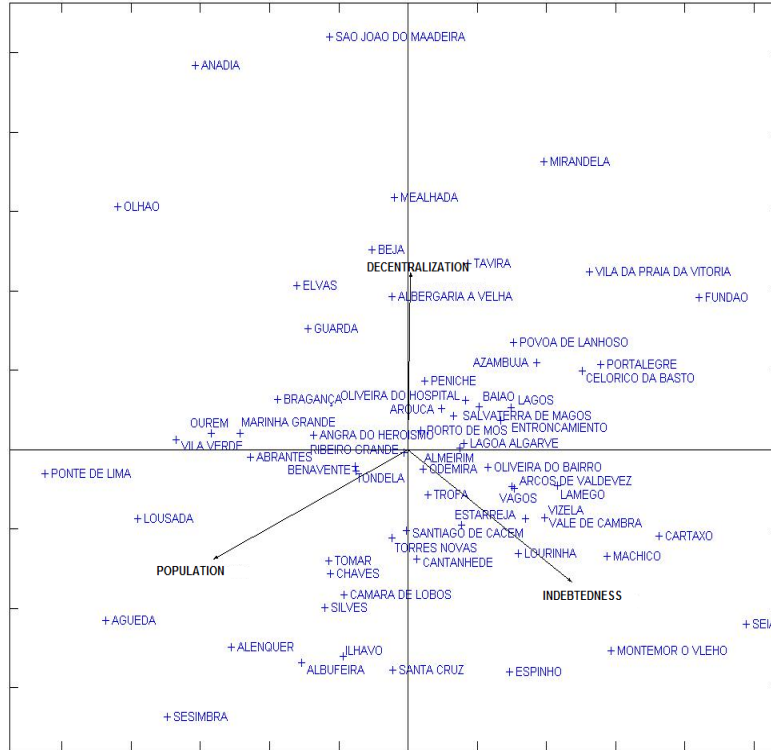Figure 3
Biplot municipalities with population 20,000-50,000

Figure 4
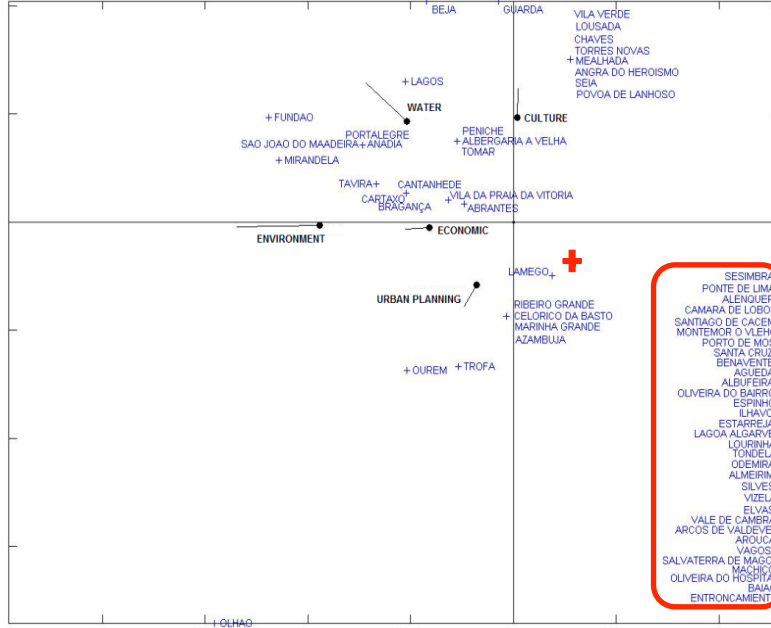*Logistic Biplot municipalities with population 20,000-50,000*

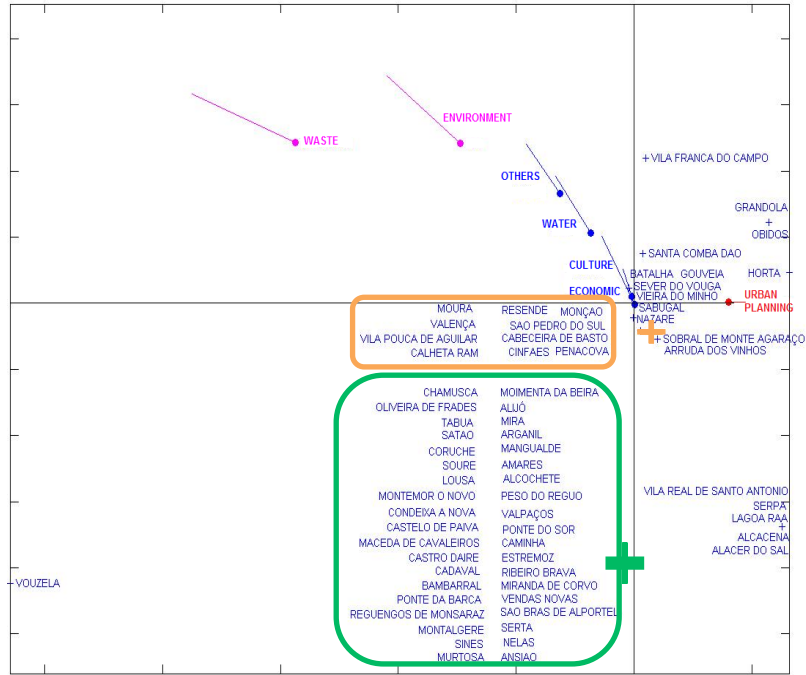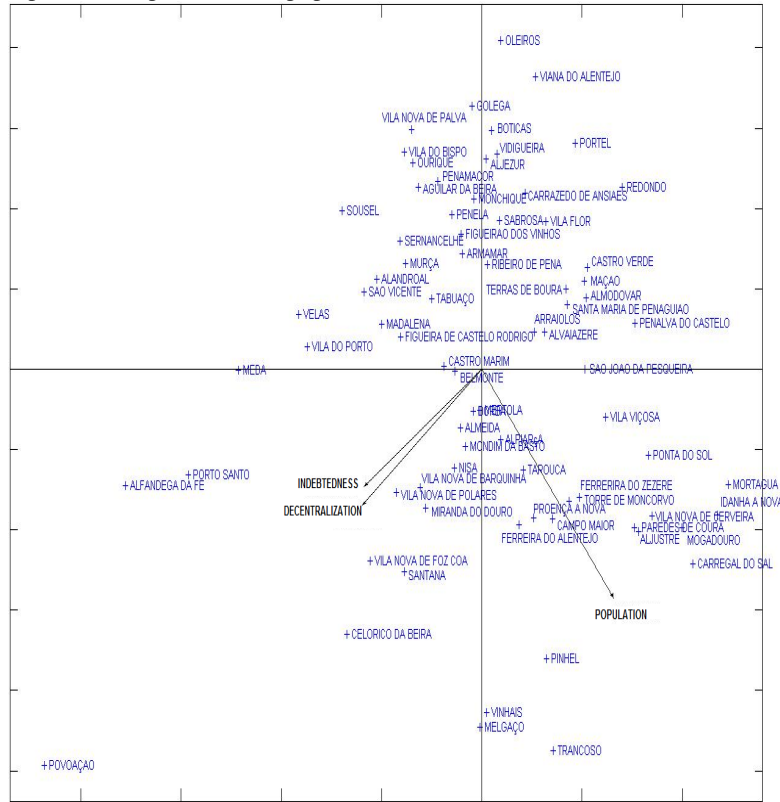Figure 5
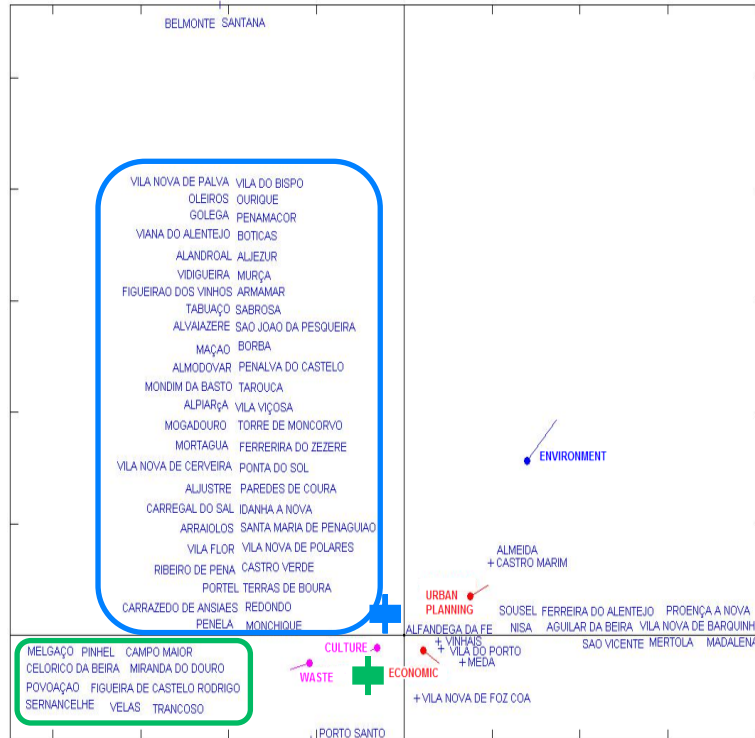*Biplot municipalities with population 10,000-20,000*

Figure 6
Logistic Biplot municipalities with population 10,000-20,000

Figure 7
Biplot municipalities with population 5,000-10,000

Figure 8
Logistic Biplot municipalities with population 5,000-10,000

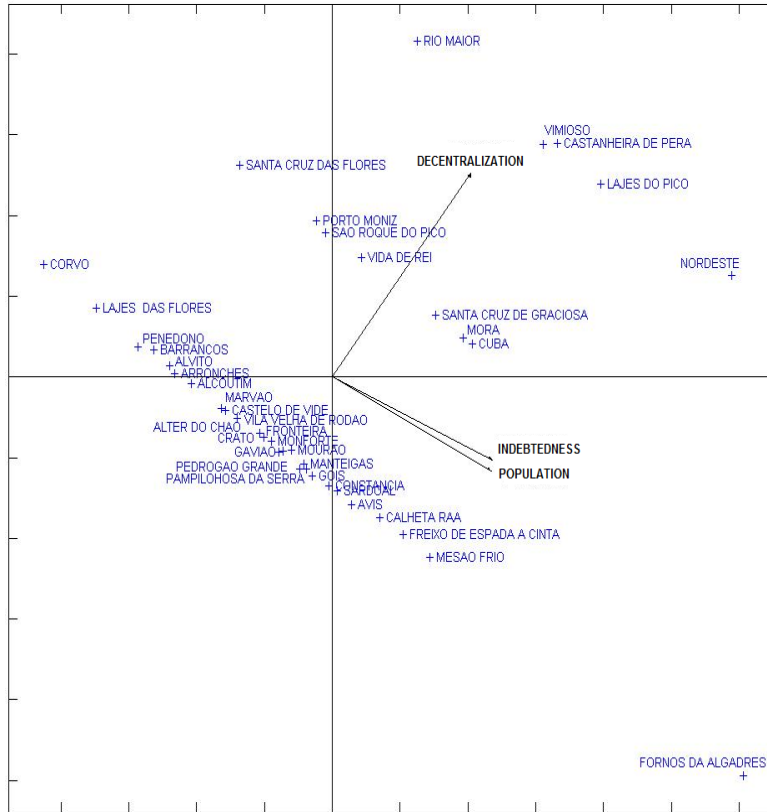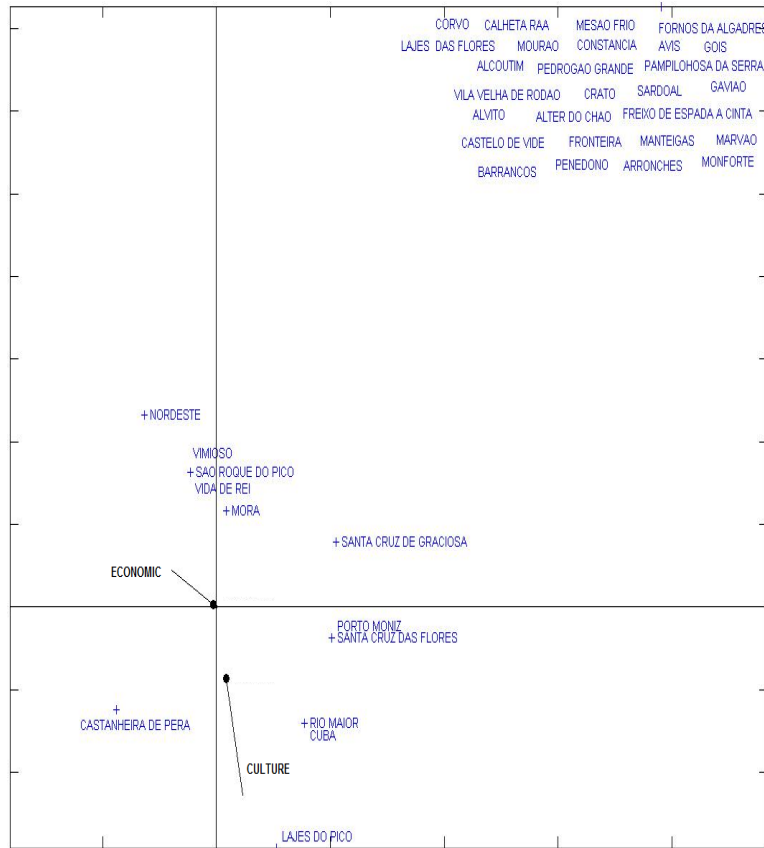Figure 9
Biplot municipalities with below 5,000

Figure 10
Logistic Biplot municipalities with below 5,000