

Viability of the municipal companies in the provision of urban infrastructure services

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Abstract

The current research discusses the organisational and institutional model of municipal companies in the provision of urban infrastructure services in Portugal. The recent law that came into force defining the legal regime for the local business sector, as well as the growing notion that the new public management models represent great advantages in comparison with the bureaucratic model that characterized the traditional public administration, make this an up to date and relevant matter. The description of this model of local public services provision is based on three steps: the analysis of the results obtained from a nationwide inquiry on municipal companies, their grounds and viability; a SWOT analysis referring to the model of municipal company; and the determination of the total factor productivity (TFP) of these organizations using the index number theory, in order to evaluate their performance. Although the concept of municipal company is based on noble principles and, in theory, it shows advantages towards other means of services provision, the conclusions of this study are very negative to the model, revealing that, in fact, the aimed benefits are not achieved.

Keywords: inquiring; municipal company; SWOT analysis; total factor productivity; viability.

1. Introduction

The concept of municipal company, according to what is stated in the legal regime for the local business sector, involves three kinds of companies, municipal, inter-municipal and metropolitan, which represents a significant change to the configuration considered in the former law n. 58/98. The current research includes a socio-economical analysis, contextualizing the municipal companies and was strengthened by the cooperation of several of these companies.

The matter of the viability of municipal companies must be addressed from different perspectives, in that the goals of these companies are not only to aim for financial balance, but also to promote local and regional development, which is not necessarily associated with economical interests.

Regarding the services of general economic interest (SGEI), a different approach must be used, as in these situations the managers' concerns should not only be providing a better service, but that it comes with fewer charges for the users as well. Municipalities, as well as municipal companies, hold a significant responsibility towards the development and administration of territories, as they are beginning to be the primary foundation for local and regional management.

The current research is organized as follows. After this brief introduction, in the second chapter some considerations about the municipal company model in Portugal are made. In the third chapter the inquiry and SWOT analysis results are exposed, and in the fourth section of this research the total factor productivity (TFP) variation of these entities is discussed. Finally, in the fifth chapter the major conclusions are presented.

2. Context

2.1 The local administration

Local administration represents a subdivision of the public administration and works as the link between the public sector and the citizens. In Portugal, the municipalities, civil parishes and administrative regions (yet to be created) are considered local autarchies. There are 308 municipalities, 278 located on the continent and 30 on the Madeira and Azores Autonomous Regions. These municipalities are composed by 4259 parishes (4050 on the continent and 209 on the islands). Adding up to these, there are still other forms of autarchic organization, such as inter-municipal communities for general purposes, municipal associations for specific purposes, parish associations, major metropolitan areas, urban communities, municipal services with autonomy and municipal and inter-municipal companies.

As a consequence of the decentralization process of responsibilities and duties performed by the public administration, it is up to the autarchies (mainly to the municipalities) to offer a great amount of public services (with tendency to increase).

In order to achieve the expected goals of efficiency, equity, and citizens' welfare, the autarchies rely on different models of local public services management encompassing direct public management, indirect public management or private management.

2.2 Kinds of local public services and enterprise organization

The public authorities should allow or even favor the pursuit of general interest missions, by enforcing very specific public service obligations to the entities which produce them. These services of general interest (SGI) represent activities that may or may not possess economic interest, but are always bounded by public service obligations. The different generating models of local public services in Portugal are exposed in the figure 1:

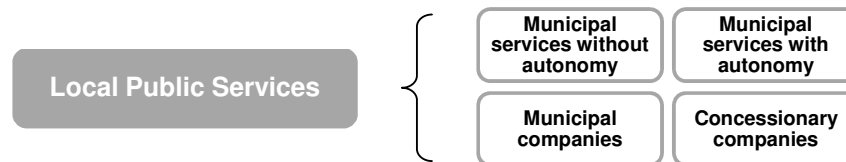


Figure 1 – Local Public Services types

The supporters of public service management by municipal companies (indirect public management), consider municipal services (direct public management) to be obsolete and incapable of an efficient response to the requirements. In fact, autarchy leaders are several times obliged to establish municipal companies with the single purpose of overcome bureaucratic obstacles or legal restrictions. Actually, it does not seem like the most legitimate reason for the creation of companies, even so it is an extremely usual situation.

Municipal companies can be entirely owned by the municipalities (or municipal associations for the inter-municipal companies), or partially owned by municipalities alongside other public organizations or may even result of public-private partnerships (PPP). These partnerships are of the institutional kind and imply the cooperation between the public and private sectors in a distinct entity. While opting for the creation of a municipal company, one attempts to proceed in positive vertical disintegration of local

power in order to achieve a greater degree of specialization. With an enterprise management model it is expected that the accomplishment of a certain activity leads to gains of quality and added rationality. Concessionary companies of local public services (private management) fall in the merely contractual kind of PPP, meaning that the partnerships are based on purely short-term contract relations.

2.3 The legal regime for the local business sector

The new law n. 53-F/2006, of 29 December 2006, (which came into force on January 1st, 2007) approves the legal regime for the local business sector and revokes the law n. 58/98. The legislation allows the constitution of municipal, inter-municipal and metropolitan companies. In short, this diploma stipulates that companies with a dominantly mercantile purpose or that perform merely administrative activities cannot be created. The corporate purpose of these entities is obligatorily framed in one of the three following dimensions:

- Provision of services of general interest (in this case, SGI with economic interest);
- Local and regional development promotion (in this case, SGI without economic interest);
- Concession management.

Municipal companies which carry out activities with economic interest should only charge enough to cover operating costs and the costs of renewal and replacement (accomplish break even), while companies that carry out activities without economic interest should strive to break even.

The legal regime for the local business sector still obliges the entities enclosed by it which perform activities in the scope of regulated sectors, to submit to the regulation powers of the respective sector regulators (Gonçalves, 2007).

2.4 State of the art in Portugal: n. of municipal and inter-municipal companies

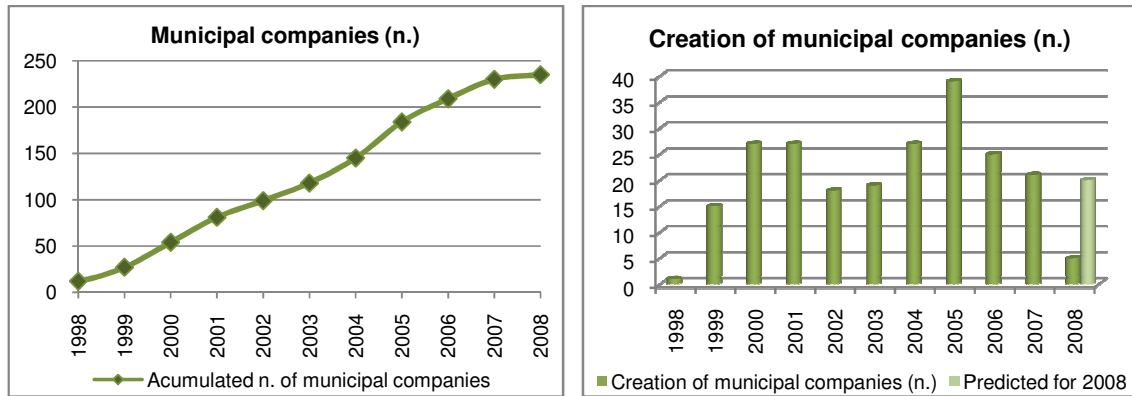
Through the conducted survey, it is now known that there are 235 municipal and inter-municipal companies in Portugal, distributed by 129 municipalities. The most important information withdrawn from the elaborated data base is synthesized in table 1:

Table 1 – Relevant information about the municipal companies in Portugal

Municipal companies (n.)	Municipalities with municipal companies (n.)	Municipality with the highest n. of municipal companies	Average n. of municipal companies by municipality	Average n. of municipal companies by municipality with municipal companies
235	129	Lisboa and Cascais (8)	0,76	1,82

After the approval of the former law 58/98 (which allowed the establishment of companies within the municipal scope) there was an explosion of the number of the companies participated or, at least, controlled by municipalities. On one hand, by the time the first law came into force (1998) there were already 11 “municipal” companies. On the other hand, when the legal regime for the local business sector came into force, there were 209 of these entities.

As seen in figure 2, the amount of municipal companies in Portugal tends to grow continuously, without having reached a stabilization level of the number of entities. Regarding the creation of these companies throughout the years since 1998, one realises that it has not been constant (check figure 3). In fact, there have been significant oscillations from year to year mainly due to the electoral cycles.



Figures 2 and 3 – Progress of the number of municipal companies and their creation since 1998 in Portugal

Knowing the temporal development of the creation of municipal companies in Portugal it is now pertinent to evaluate their geographical dissemination. Figure 4 illustrates this issue:

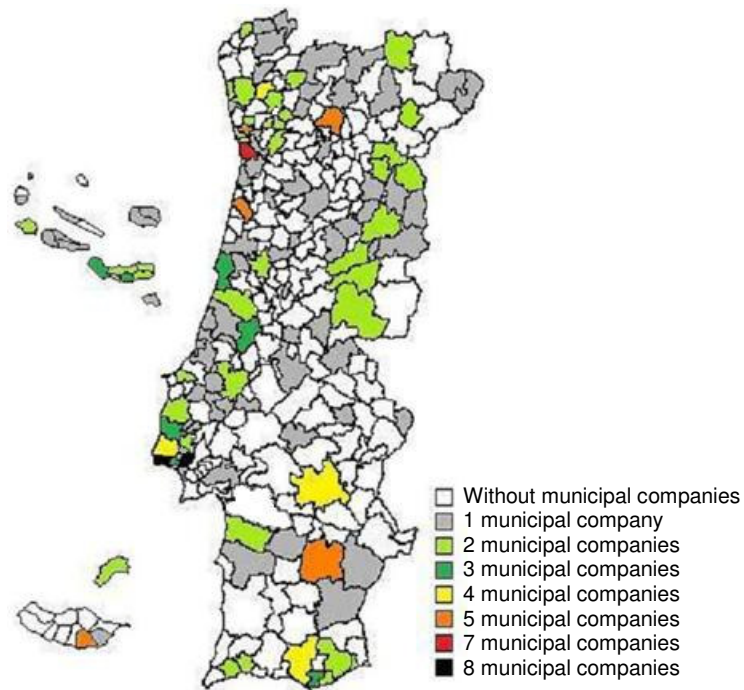


Figure 4 – Spatial distribution by municipality of municipal companies in Portugal

The provision of municipal or inter-municipal public services by municipal companies is relatively well distributed throughout the national territory. Despite what is usual in economical activities, there is not a remarkable distinction between the countryside and coastal regions of the country.

2.5 Clusterization – definition of the different ranges of these companies

All the competences that municipalities can delegate on municipal companies are stipulated on the law n. 159/99, of 14 September 1999, were grouped in 7 separate clusters (see figure 5). Clusters A and B gather the “provision of services of general interest” activities, while clusters C, D, E and F comprise the “local and regional development promotion” activities. In cluster G one can find the companies that raised some suspicion on their legality.

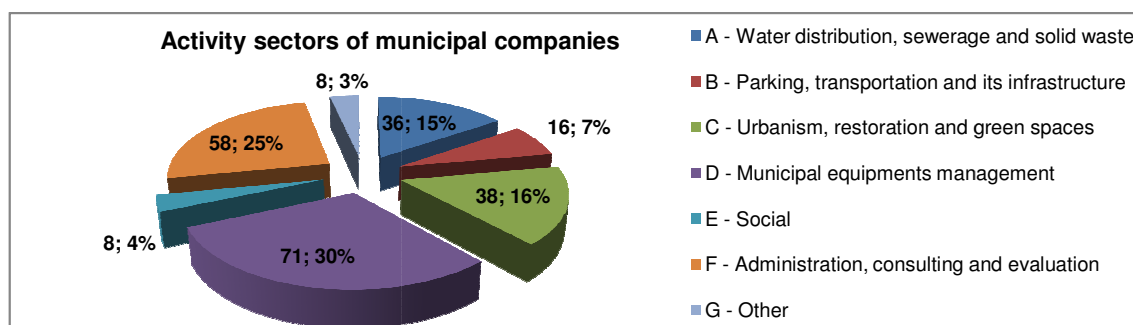


Figure 5 – Distribution of municipal companies by activity sector

3. Analysis

3.1 Data gathered within the companies

To avoid a big dispersion of data, the inquiry was only sent to 4 of the 8 groups or ranges of action in which the universe of municipal companies was divided (the chosen clusters agglomerate 63% of the total of municipal companies). So, the inquired clusters were the following:

- Group A – Water distribution, sewage and solid waste;
- Group B – Parking, transportation and its infrastructure;
- Group C – Urbanism, restoration and green spaces;
- Group F – Administration, consulting and evaluation.

The level of participation of the companies in the survey was around 27%, corresponding to a total of only 20 companies, which are enumerated in table 2:

Table 2 – Companies which answered the inquiry

Group A		Group B		Group C		Group F	
Company	Municipality	Company	Municipality	Company	Municipality	Company	Municipality
AGERE	Braga	EMEL	Lisboa	GEBALIS	Lisboa	EDEAF	Alfândega da Fé
Águas de Coimbra	Coimbra	MoveAveiro	Aveiro	HABISOLVIS	Viseu	EMIA	Azambuja
AMBILITAL	Santiago do Cacém	Parques Tejo	Oeiras	Lisboa Ocidental	Lisboa	INOVA	Cantanhede
EMARP	Portimão	TUB	Braga	Ribeira Grande +	Ribeira Grande	MERVAL	Vila Real
EMAFEL	Felgueiras			SRU Cova da Iria	Ourém		
				SRU Oriental	Lisboa		
				Vila Real Social	Vila Real		

An attempt was made to formulate specific questions which enabled to clarify some aspects of the companies' performance. Some of the questions are pertinent for any public or private company. Others deliberately look to enlighten the specificities of the municipal company model. The following list enumerates summarily the major conclusions resulting from the analysis made on the gathered data:

- The charges reduction for the clients are not the priority, meaning that, if a service begins to be provided by a municipal company, the users theoretically start to pay more for a better service;

- There is an excessive dependency on the shareholder (city council) and, consequently, the purpose of endowing the management of these services of a greater enterprise vision, fades away;
- The companies are, in general, very self-centred and not so focused on the targeted clients;
- Sometimes the clients of these type of companies are the city councils themselves, which generates a conflict of interests hard to manage;
- About 63% of the companies are managed by a board of directors who accumulate responsibilities in other entities, frequently in the city councils;
- It seems that, in general, the creation of a municipal company does not seem to give dynamism to a pre-existing activity or service, but to create a new one or manage it differently.

3.2 SWOT analysis to the model of municipal company

At first, to go on about competitive market forces in the local business sector does not seem to make a lot of sense. In fact, the absence of that competitive environment can be, in itself, a justificatory factor for a certain lack of productivity within these organisations. It is sometimes stated that public companies do not possess survival instinct. As these companies operate in monopolistic sectors and therefore without the adequate stimuli towards innovation, aim for excellence and other, normally imposed by competition, it does not mean that a scenario analysis cannot be performed, to evaluate, at a strategic level, the characteristics of these institutions that can make this model viable.

In order to analyse this scenario, the SWOT matrix presented in figure 6 was made with the aim of identifying **“Which are the advantages of the municipal company institutional model compared to the other models”**

	Helpful to achieving the objective	Harmful to achieving the objective
Internal origin (attributes of the organization)	<ul style="list-style-type: none"> - Social concerns - Know-how - Good information management - Enterprise vision of the business - Service contracts and following negotiations made easy by the proximity to the political power - Possibility of revision or extinction of the service providing contract in case of bad performance or conjuncture changes - Good credit capability, considering the shareholder (city council) - Proper philosophy and enterprise values, in a way, framed by the legislation 	<ul style="list-style-type: none"> - Poor economical sustainability - High dependency on local politic power - Grey areas in the types of workers' company contracts - Budget restrictions can stand in the way of contracting qualified personnel - Low innovation ability - Little motivation for continuous improve
External origin (attributes of the environment)	<ul style="list-style-type: none"> - Emergent markets in rural areas - New public procurement methods - Some society reluctance on the establishment of a purely capitalist culture - The new performance evaluation culture can render these companies more efficient - Recent legislation indicates, supposedly some stability at this level 	<ul style="list-style-type: none"> - Weak reputation before public opinion - Lack of a competitive environment - Instability generated by electoral cycles - Certain political decisions can, at any time, completely change the regions' organizational model (for instance, the Regionalization) - In case of lack of economical viability of the municipal companies, the concessionary services model can gain more followers

Figure 6 –SWOT matrix applied to the model of municipal companies

The analysis carried out seems to show that the municipal company model possesses enough qualities to be a viable choice in the future. There are, however, certain aspects that need to be worked on. In conclusion, it is necessary to take action on the weak features of these companies, granting this option even greater viability.

4. Total factor productivity

Productivity is defined as the ratio between the outputs produced and the inputs consumed. Traditionally, the total factor productivity (TFP) has been referred to as the actual outputs increase, not explained by the inputs increase. It is an extension to the partial productivity measure concept, including all the inputs and outputs (Marques, 2008). To include all the inputs and outputs, TFP is defined as stated in the equation 1, meaning the ratio between the sum of all the weighted outputs (y) and the sum of all the weighted inputs (x), where M and N represent the outputs and the inputs total number, and a_i and b_j are the outputs and the inputs weights, respectively.

$$PTF = \frac{\sum_{i=1}^M a_i y_i}{\sum_{j=1}^N b_j x_j} \quad \text{Equation 1}$$

4.1 Index numbers

The index numbers integrate the non-parametric, non-frontier techniques for determination of the TFP, therefore ignoring the technical inefficiency (and also the allocative inefficiency), but benefiting from calculation simplicity and less demands when it comes to the data requirements (Coelli, *et al.*, 2005).

An index number (or just index) defines the relation between two states of a certain dimension which may vary in time and/or space. The indexes permit to measure prices and quantities in time, as well as to compute their differences between firms, industries, regions or countries.

The most well known indexes numbers are the Laspeyres, Paasche, Fisher and Törnqvist indexes. Due to their properties, Törnqvist and Fisher indexes are more suitable for the TFP computation, although Törnqvist is the most commonly used.

4.2 Case-study

In order to achieve the aimed goals of this study, the choice fell into the study of the cases in which the municipal services with autonomy were extinguished to give place to municipal companies. The companies which fulfil these premises are the ones shown in table 3. Historically, Portuguese municipal services with autonomy have always preferably provided water and sewerage services.

Table 3 – Case-studies for the TFP calculation

Municipalities	Companies	Type	Private associate	Creation
Beja	EMAS	Municipal	No	2002
Braga	AGERE	Municipal	Yes	1999
Coimbra	Águas de Coimbra	Municipal	No	2003
Covilhã	Águas da Covilhã	Municipal	No	2006
Esposende	EAMB	Municipal	No	2005
Faro	FAGAR	Municipal	Yes	2005
Guimarães	VIMÁGUA	Inter-municipal	Yes	2002
Portimão	EMARP	Municipal	No	2001
Vila Nova de Gaia	Águas de Gaia	Municipal	No	1999
Vila Real	EMARVR	Municipal	No	2004

Hence, the study involved 10 service providers (rigorously there are 20 service providers: 10 municipal services with autonomy which originated 10 municipal companies), for a period of 14 years, between 1994 and 2007. Every case-study of the TFP change refers to the water and sewerage services. As TFP measures the ratio between every output (output index) and input (input index) representing the decision making units (DMU), it is necessary to define a calculation model which includes them in an adequate aggregation level and that characterizes the productive process. Following the research performed by Marques (2008), the adopted outputs and inputs are the ones presented in table 4:

Table 4 – Inputs and outputs used for the TFP calculation

Inputs	Outputs
a) Employees (n.)	a) Revenue water volume (m ³)
b) Capital cost (10 ³ €)	b) Water costumers (n.)
c) Operation and maintenance cost (10 ³ €)	c) Sewerage users (n.)r

The inputs are weighted by their respective costs and the outputs are weighted by the corresponding incomes.

Figure 7 illustrates the accumulated value of TFP for each DMU in the 1994-2007 period. Figure 8 shows the accumulated variation of the input and output indexes, as well as the TFP for the same period. Törnqvist indexes were used for these graphic figures.

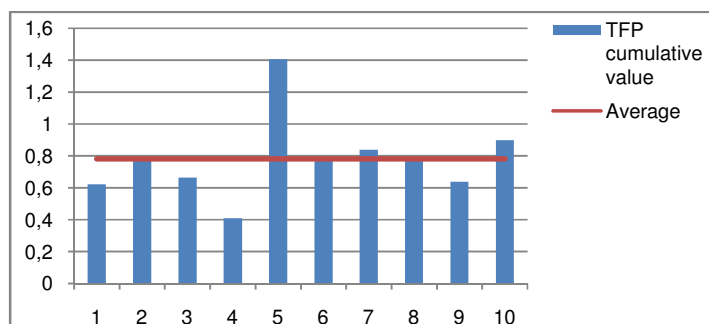


Figure 7 – Accumulated value of TFP for each managing entity

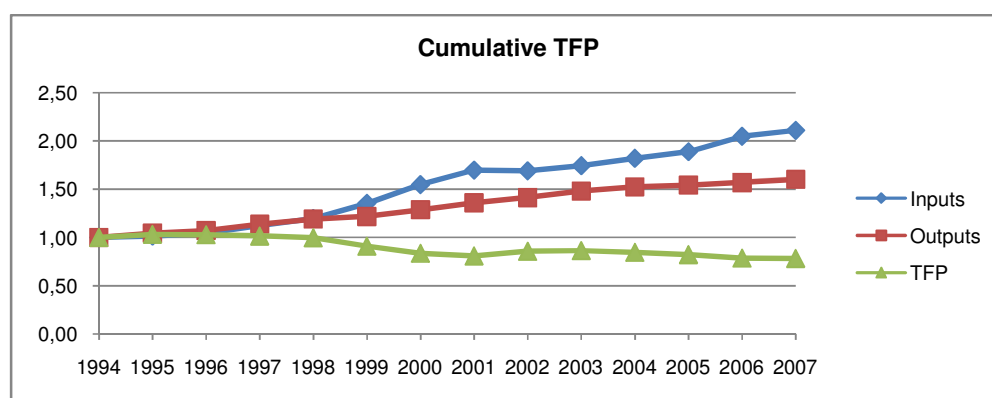


Figure 8 – Accumulated variation of the input and output indexes, as well as the TFP

The conclusions drawn from a global analysis on the calculated values are that the results are very negative for the municipal company model. The TFP varied between the lowest value of 0,4089 for the company “Águas da Covilhã” and the highest value of 1,4076 for the EAMB company (or between a minimum of 0,4062 and a maximum of 1,4097, considering the Fisher indexes). As observed in table

5, only one out of the thirteen DMU had a positive value. The main statistic parameters are displayed in table 6. The average value of productivity drop was, approximately 1,56% per year.

Table 5 – Distribution of the managing entities by productivity value

Gap	OU
<0,5	Águas da Covilhã
0,5 – 0,6	–
0,6 – 0,7	EMAS; Águas de Coimbra; Águas de Gaia
0,7 – 0,8	AGERE; FAGAR; EMARP
0,8 – 0,9	VIMÁGUA; EMARVR
0,9 – 1	–
>1	EAMB

Table 6 – Statistic description of the results

Average	Standard Deviation	Median	Minimum	Maximum
0,7816	0,2599	0,7775	0,4089	1,4076

There are two fundamental issues regarding the analysis of the TFP evolution for the studied DMU to begin with. The fact that TFP computation does not integrate directly the quality of the provided services may arise some suspicion in a sense that maybe, in the past, TFP values for municipal services with autonomy are very high due to the deterioration of the service quality (opposed to the municipal companies, which could show low TFP due to quality improvement). On the other hand, while comparing the accumulated TFP value between different municipal companies, one has to take into account that the starting point is not the same for all of them. This implies that the growth margins are distinct and individual for each DMU which means that, for example, the improvement of 1% in the TFP of each DMU can demand different effort levels (Marques, 2008).

Keeping in mind the fact that the number of entities for which the TFP was calculated is somewhat reduced (the evaluation was the possible considering the purposes and the restrictions inflicted to the study), as well as the fact that the method has limitations and the explanatory factors have an important relevance, the study is conclusive enough. When nine in ten municipal companies show TFP values smaller than the unit, the negative results magnitude is enlightening. These results lead to the conclusion that, even so the preliminary theoretical forecasts didn't show it, the municipal companies possess a lower level of productivity than the one hold by the former municipal services with autonomy.

5. Conclusions

The municipal company institutional model involves good principles that should be stimulated. However, problems related to the lack of independency of these entities from the political powers and the overlap of functions between the municipal companies and the municipalities result in inefficiencies and waste of public financial resources. Competition promoting measures and performance incentive mechanisms easy to apply and control should be implemented.

Despite the great improvements imposed by the new law and its greater adequateness to the needs of both the municipalities and the citizens (the most important stakeholders), regulations are missing on the legal regime for the local business sector regarding the relation between the size of the companies and the size (or capability) of the municipalities.

Municipal companies represent a solution for the autarchy leaders who do not want to give up the control and management of the services but intend to be more including and “go farther” than what is possible by the usual municipal mechanisms.

One of the primary problems of the public management model associated to the municipal companies in Portugal has to be with the control of their activity. The court of auditors has the means to monitor the activity of these companies and it proceeds on doing it by the management reports approval. But the analysis of the global scenario escapes its responsibilities. On other hand, it is difficult to institute an entity that effectively can have some intervention and regulation power over the municipal companies without harming the municipalities’ responsibilities and duties. It is noticed that, most of the times, the necessary technical studies which express the economic viability of the units are not made, or simply need more development and technical competence.

It is necessary to promote competition between municipalities, creating a ranking which represent the economical and social performance of the services provided to the citizens, irrespectively of being provided by municipal companies, concessionary services or any other type of organizations. The classification should be fairly simple and publicized, in order to have an impact in the public opinion, and then, on the decisions of the local power.

This study leads up to the conclusions that the municipal companies (indirect management) present worst results than the direct management solutions, particularly the ones with autonomy. Knowing that, in general, new services or of greater quality are obtained with the institution of municipal companies, the truth is that it succeeds at the cost of a great input (resources consumed) and final cost increase. This decision is taken without the previous consultation of the users, thus with no assurances about the availability of the citizens to pay more for the services.

The municipal company model makes sense, it should be defended and improved. The little age of the formula, as well of the legal regime associated with it, brings some hope to the model. Nevertheless, it is necessary to establish greater requirements in the primary studies of financial-economic viability, as well as on the effective activity control, so that this solution can survive.

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