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Viability of Municipal Companies in the Provision of Urban Infrastructure Services¹

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Abstract

This article discusses the organisational and institutional model of municipal **company** in the provision of urban infrastructure services in Portugal. The law recently enacted which defined the legal regime for the local business sector, as well as the growing awareness that the new public management models represent great advantages in comparison with the bureaucratic ones that characterise the traditional public administration, make this a current and relevant issue. **For the purpose of investigating the viability of this provision model, this research encompasses three complementary analyses. Firstly, the results obtained from a nationwide questionnaire on the features of municipal companies are described. Secondly, a SWOT matrix is constructed to examine the model of municipal company and, thirdly, the total factor productivity (TFP) of**

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these organisations is determined using the index number theory, in order to evaluate their performance and compare it with that of the traditional bureaucratic model. Although the concept of municipal company is based on noble principles and, in theory, it shows advantages compared to other means of service provision, this research points to very negative results regarding the model and leads to the conclusion that the aimed benefits are not achieved in Portugal. There are many causes contributing to this effect, but the political ~~use~~-usage of these companies and the lack of technical competence are presumably two of the most important significant ones.

Keywords: Municipal company; SWOT analysis; Total factor productivity; Urban infrastructure services; Portugal

1. INTRODUCTION

The Portuguese local public sector has been facing major difficulties caused by the continuous increase of its competences and growing budget restrictions. Local or regional management responsibilities are expanding beyond their traditional competences into other areas such as health and education. Furthermore, the lack of resources demands higher performance from service providers. One of the consequences drawn directly from this requirement is that public services with economic interest will have to fully recover the cost of the services supplied (Stumm, 1997).

Continuous budget restrictions imposed to municipalities as well as the consequential lack of capacity to invest in new infrastructures due to debt limitations, are threatening

to delay the local and regional development if the models of service provision adopted are not innovative or highly efficient. The decentralisation of assignments and competences enforced by ~~the~~ central administration require a better allocation of tasks to ensure that these are performed by the most appropriate organisational structure (Ramos, 2007). This subject is addressed thoroughly in the current article, where a profound analysis is made as an attempt to learn if the municipal company model is viable in Portugal ~~and if it is~~therefore able to answer the requirements referred to.

The concept of municipal company, according to what is stated in the legal regime for the local business sector in Portugal, involves three kinds of companies (~~municipal, inter-municipal and metropolitan~~) which can be created under two modalities, respectively under ~~the private or the public laws~~. It represents a significant change to the configuration considered in the former law (1998) which allowed, for the first time, ~~for~~ the creation of these corporations. This study, based on a recent academic research (Cruz, 2008), includes a socio-economical analysis, ~~placing the municipal companies in the context of the Portuguese public administration~~ and measuring their performance. ~~It tries to investigate the main benefits of the municipal companies in providing infrastructure services like water distribution, sewerage, urban waste and transportation.~~ For this purpose three different methodologies were used. First of all, the results obtained from a questionnaire sent to the municipal companies were examined. Although the sample was small, the pattern of the answers allowed for some good conclusions about the model. Then, a SWOT matrix of the municipal company model was built. Taking into account the results of the questionnaire, the references and the contacts and interviews with the different stakeholders, ~~the model based on this tool was~~

analysed. At last, the performance of ~~the~~ municipal companies was computed and compared with that of the previous model by means of total factor productivity (TFP).

As ~~the~~ productivity ~~increasing~~ increase is several times seen as the best way to provide value for money, the decisions-makers may have here a good support.

The matter of the viability of municipal companies must be addressed from different perspectives, since the goals of these companies **include** seeking financial balance **and** promoting local and regional development, which is not necessarily associated with economical interests (Carvalho *et al.*, 2006). Regarding the services of general economic interest, as the principles of user-pay and polluter-pay should be fulfilled, a different approach must be taken. In these situations, the managers' concerns should not only be providing a better service, but also offering it with lower charges for the users. Municipalities and, by delegation, the municipal companies, hold a significant responsibility towards the development and administration of territories, as they are the primary foundation for local and regional management.

As already stated, **this** paper investigates the viability of ~~the~~ Portuguese municipal companies in the provision of urban infrastructure services. It makes several **contributions to** the literature. At first, it presents the structure of the local public administration in Portugal, describing its context, competencies and the influence on public enterprises in providing the services of general interest. ~~Like this~~ Hence, the paper can be particularly important not only for Portugal but also for other Latin countries in Europe, Africa and America where the administrative structure is quite similar.

Secondly, ~~the~~ this study highlights the benefits and the major problems in the

implementation of ~~the~~ new public management principles at the local administration level-, ~~It~~ which might be useful for future reforms of the local government. Thirdly, the paper compares the productivity change of some services of general interest, primarily as municipal services and after as municipal companies by means of the TFP technique using index numbers. As far as we know, this kind of evaluation ~~has not been carried out until now in the local public administration. However, there are several studies analysing the performance of the municipalities or of the activities provided by them~~ they provide (water, waste, transportation, urban traffic,...) but not the shift from in-house services provision to a municipal corporate-type ~~organization~~ organisation (corporatisation). For example, exclusively on municipalities, researches on performance are found in Spain (Prieto and Zofio, 2001), Belgium (Geys and Moesen, 2009), Norway (Revelli and Tovmo, 2007), Greece (Athanasopoulos and Triantis, 1998), USA (Moore et al., 2005), Brazil (Sampaio and Stosic, 2005), Australia (Worthington, 2000) and many others, but we did not come across any studies on corporatisation.

The current research is organised as follows. After this introduction, in the second section some considerations about the municipal company model in Portugal are made. In the third section the questionnaire results carried out and a SWOT analysis performed are presented, and in the fourth section of the article the TFP change of these entities computed between 1994 and 2007 ~~is computed and examined~~. Finally, the concluding remarks are drawn in the fifth section.

2. LOCAL ADMINISTRATION CONTEXT IN PORTUGAL

2.1 Local government bodies

Local administration represents a subdivision of ~~the~~ public administration and works as the link between the public sector (the State) and the citizens. In Portugal, the municipalities, civil parishes and administrative regions (yet to be created) are considered local government bodies. **There are 308 municipalities and 4,259 parishes.** Adding up to these, there are also other forms of local organisation, 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 companies.

As a consequence of the decentralisation process of responsibilities and duties performed by ~~the~~ public administration, it is up to the local government (mainly to ~~the~~ municipalities) to offer a great amount of public services (with tendency to increase). However, the form and extent of decentralisation has varied greatly. Conventionally, a distinction is made between the political decentralisation to a locally elected body with some degree of autonomy and some local revenue sources of its own, and deconcentration, that is, administrative decentralisation to local agents of the central state (Devas and Delay, 2006).

Local government activity is more than a simple market management process. **It** requires the ability to manage political interests and **citizens' concerns** as well (Bel *et*

al., 2007). Thus, the local government based on efficiency, equity and citizens' welfare rely on different models of local public services management, encompassing direct public management, indirect public management or private management. However, while improved efficiency is an important factor in local public service management, it remains a means and not an end in itself (Quirk, 2005).

2.2 Local public services and entrepreneurial organisation

The different models of local public services provision in Portugal are displayed in figure 1. The supporters of public service management by municipal companies (indirect public management) consider municipal services (direct public management) to be obsolete and incapable of generating an effective response to the requirements. In fact, local government leaders are ~~many times~~ often compelled to establish municipal companies with the single purpose of overcoming bureaucratic obstacles or legal restrictions. Actually, this is not the most legitimate reason for the creation of municipal companies but it is an extremely usual situation. Note that like in other Latin countries, there are two institutional designs concerning municipal services in Portugal, one (*Serviços Municipalizados*) with autonomy (administrative and financial) and other without autonomy (*Serviços Municipais*). Although none of them have got corporate entity, the latter has no separate accounts.

Municipal companies can be entirely owned by ~~the~~ municipalities (or by their associations), or partially owned by municipalities alongside other public organisations or may also result from public-private partnerships (PPP). These partnerships are of the

institutional type and imply the cooperation between the public and private sectors in a distinct entity although always **with public** control (majority of shareholders or other form of control). **By opting for the creation of a municipal company, a positive vertical disintegration of local power is put into practice so that a greater degree of specialisation is achieved.** With an **enterprise management model** it is expected that the accomplishment of a **given** activity leads to gains of quality and value for money.

Concessionary companies of local public services (private management) **are included** in the contractual type of PPP, meaning that the partnerships are based **purely on** medium or long-term contractual relationships where the private company is responsible for the service of general interest. This option also shows growing prominence in Portugal in **different areas.**

2.3 The legal regime for the local business sector

The recent law 53 of 2006 (which came into force on January 1, 2007) **approved** **approves** the legal regime for the local business sector and **revoked-revokes** the law 58 of 1998. This legislation **offered-offers** local officials additional discretion in personnel and financial management by allowing the transference of in-house service production to newly formed municipal corporations (Tavares and Camões, 2007). As referred to, the latest legislation **allows for** the constitution of municipal, inter-municipal and metropolitan companies. These companies can be set up in two different ways, one associated almost entirely with the private law (commercial companies) and other considering some important principles of the administrative law (public companies).

Besides, this diploma stipulates that companies with a **dominant mercantile purpose or that simply perform** administrative activities cannot be created. The corporate purpose of these entities is compulsorily framed in one of the three following dimensions:

- Provision of services of general interest (as a rule with economic interest);
- Local and regional development promotion (**usually** services of general interest without economic interest);
- **Concessions management.**

In compliance with the law, municipal companies **carrying** out activities with economic interest should only charge enough to cover **either** operating costs **or renewal and replacement costs** (accomplish break even), **whereas companies that fulfil** activities without economic interest should strive to break even. The latest legal regime for the local business sector also **compels entities performing** activities in the scope of regulated sectors to submit themselves **to the powers of regulatory authorities** (Gonçalves, 2007). Consequently, municipal companies responsible for the provision of water, **sewage and solid waste activities as well as for transportation are subject, since 2007, to the intervention of sector-specific regulators.** Besides, the creation of municipal companies **demands**, at all times, the approval by the municipal parliament of their **statutes as well as an economic and financial feasibility study.**

2.4 Municipal companies figures

A survey was carried out involving all ~~the~~ municipalities in Portugal. After analysing the results, 235 municipal companies in Portugal were found, distributed by 129 municipalities (until April 2008). The most important information collected from the database compiled is summarised in table 1.

After the approval of the former law of 1998 (which allowed for the establishment of companies within the municipal scope) there was a “boom” in the number of municipal companies. By the time the first law came into force (1998) there were already 11 “municipal” companies and when the legal regime for the local business sector became effective in 2006, 209 of these entities were known.

As observed in figure 2, the number of municipal companies in Portugal tends to grow continuously, without having reached a stable number. The creation of these companies throughout the years, since 1998, has not been constant (see figure 3). In fact, significant oscillations have occurred from year to year mainly due to the electoral cycles.

In addition to analysing the date of the establishment of municipal companies in Portugal, it is also relevant to examine their geographical distribution. Figure 4 illustrates this issue. Municipal companies are ~~relatively well~~ somewhat evenly distributed all over the national territory. In opposition to what is usual in economical

activities, **no remarkable distinction between the countryside and coastal regions of the country is observed.**

2.5 Clusterisation

All the competences that municipalities can delegate to municipal **companies were** grouped **into** 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 atypical companies that raised some doubt on their legality.

3. MUNICIPAL COMPANIES SURVEY

3.1 Data gathered within the companies

In order to allow municipal companies to participate in the research and also to gain a better insight into their features, a questionnaire was prepared and sent to a specific set of municipal companies. To avoid a wide dispersion of data, the questionnaire was only sent to 4 of the 7 groups (the clusters adopted comprise **63 per cent of the total number** of municipal companies). The clusters inquired were the following:

- Group A – Water supply, sewerage and solid waste;
- Group B – Parking, transportation and their infrastructures;
- Group C – Urbanism, refurbishment and green spaces;

- Group F – Administration, consulting and evaluation.

The groups were inquired taking into account the aim of studying the municipal companies' viability in the provision of infrastructure services (water, sewerage, urban waste and transportation). The inclusion of group F intended to consider as well municipal companies with ~~competencies~~ competences opposed to the former groups to compare the differences.

Considering the number of questionnaires sent to the companies, the level of participation in the survey was around 27 per cent, corresponding to a total of 20 companies, displayed in table 2.

The questionnaire comprised twenty questions from which the first nine intended to globally characterise the municipal companies **with regard to their objectives** and management model. The remaining eleven were of multiple choice and tried to constitute the basis for a qualitative and quantitative analysis of this model of public management. The questions ~~relative~~ referring to the qualitative information aimed to shed light on certain aspects of the companies' performance and **on political issues related to them**. Some of these questions could be applied to any public or private company, while others were **specific to municipal companies**. For instance, the municipal companies were queried on subjects like the nature of the supervision performed by the city councils within the companies and on who really evaluated the company's performance. Moreover, the conducted survey ~~conducted~~ focused on other matters like the political affinity of the members of the executive office and how **often**

different positions are held by the same people. As far as the quantitative information section is concerned, the goal was to generically evaluate the evolution of the charges set by the companies, as well as other relevant indicators. Any additional quantitative information referred to in this paper was withdrawn from the activities and account reports provided by the companies inquired. The major conclusions drawn from the analysis made on the data gathered are presented next:

- The charges reductions for ~~the~~ customers 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 with an ambitious vision and independence, fades away;
- The companies are, in general, very self-centred and do focus on the targeted customers;
- Sometimes the customers of these type of companies are the city councils themselves, which generates a conflict of interests hard to manage;
- About 63 per cent of the companies are managed by a board of directors who also hold responsibilities in other entities, frequently in ~~the~~ city councils;
- It seems that, in general, the creation of a municipal company does not give dynamism to a pre-existing activity or service, but it is rather the creation of a new one or just a different way of managing it.

3.2 SWOT analysis

At first, to criticise competitive market forces in the local business sector **does not seem to make much sense**. In fact, the absence of that competitive environment can be, in itself, a justifying cause for a certain lack of efficiency and productivity within these organisations. It is sometimes stated that public companies do not have a survival instinct (Ramos, 2007). As these companies operate in monopolistic sectors and therefore without the adequate incentive towards innovation and efficiency, 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 make this model viable.

To analyse this scenario, a SWOT matrix, given in figure 6, was built with the aim of identifying “*Which are the advantages of the municipal company institutional model compared to the other models*”. The construction of the SWOT matrix comprises the determination of ~~the~~ municipal companies’ attributes (strengths and weaknesses) and of **the operational environment’s** attributes (opportunities and threats).

The performed analysis ~~performed~~ seems to show that the municipal company model has enough qualities to be a viable choice for the provision of urban infrastructure services in Portugal. There are, however, certain aspects that need **to be worked on**. In conclusion, it is necessary to take action regarding the weak features of these

companies, yielding this option even greater viability. According to the study carried out it is suggested that, in theory, the only model able to compete with the municipal company one is the concessionary service model (PPP of contractual type). However, some conditions, such as the company size and its nature, ~~the~~it's geographical area, ~~the~~ demography and others, can influence the decision of which model to choose.

4. PERFORMANCE EVALUATION OF MUNICIPAL COMPANIES

4.1 Introduction

This section intends to compute the productivity of a set of municipal companies which provide urban infrastructure services and compare it with the recent past where these services were supplied directly by the municipalities through municipal services with autonomy. As the productivity rise is often the best way of providing value for money, here we try to prove if any change in ~~the~~ productivity trend takes place with the transformation of ~~the~~ municipal services into municipal companies. If this is attested in an unquestionable way, maybe it is the most important reason to ~~defend~~support the municipal company model in the provision of urban infrastructure services, that is, water supply, sewage, urban waste or transportation **activities**. Conversely, if the productivity declines **in spite of an improvement** in the quality of the service provided, this option should be analysed carefully.

4.2 Productivity computation

Productivity is defined as the ratio between the outputs produced and the inputs consumed. Productivity is frequently computed by total factor productivity (TFP). Traditionally, 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. In fact, as stated in Coelli *et al.* (2005): ‘A *TFP index measure change in total output relative to the change in the usage of all inputs. A TFP index is preferred over partial productivity measures, such as output per unit of labour, since partial measures can provide a misleading picture of performance*’. TFP is defined in the next equation by 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 number**, and a_i and b_j are the outputs and the inputs weights, respectively.

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

4.3 TFP Index numbers

The i Index numbers integrate the non-parametric and non-frontier techniques for determination of the TFP. Therefore, they ignore the technical inefficiency and the allocative inefficiency, but benefit from calculation simplicity and from being less demanding when it comes to data requirements (Coelli, 1998). 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 index numbers enable us to measure prices and quantities in time, as well as to compute their differences between firms, industries, regions or countries.

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

4.4 Data collection and model specification

In order to achieve the aimed goals of this research, 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 been preferred in the provision of drinking water supply and sewerage services. There are few municipal services with autonomy responsible for urban waste and transportation.

Hence, the study involved 10 service providers (rigorously there were 20 service providers, respectively 10 municipal services with autonomy which originated 10 municipal companies), for a period of 14 years, between 1994 and 2007. **Owing to the lack of credible** and relevant information in other sectors, like transportation and solid waste, every case-study of TFP change estimation refers to the water and sewerage services.

As TFP measures the ratio between every output (output index) and input (input index) representing the service providers, it is necessary to define a calculation model which includes them in an adequate aggregation level and that characterises the productive process. The inputs and outputs of the model adopted are the ones presented in table 4.

The inputs are weighted by ~~the~~their respective costs. The outputs are weighted by the corresponding revenues, that is, by the revenues of water sales, by the meter tariff income and the other incomes from the water service and by the income charge from ~~the~~ sewerage service. The input staff includes the number of employees at the end of each year in full time equivalent. The cost of this input is determined by means of the ratio between ~~the~~ staff costs and the number of employees' ~~number~~. The CAPEX is measured through the net assets. Its price is established through the CAPEX, obtained by the sum of the depreciation plus the interest expenses, conveyed as a percentage of the net assets. The last of the inputs is the OOPEX and it is measured through the operation and maintenance costs (OPEX) after deducting ~~the~~ staff costs. This input is weighted by means of a deflator price index that reflects the consumer price index. The CAPEX and OOPEX quantities are measured in monetary units with 2007 reference prices.

As shown in table 5, both the inputs and ~~the~~ outputs have grown substantially either in quantities or in prices for the period studied. The sound growth observed in CAPEX and OOPEX inputs can be essentially justified by improvements in the quality of service and coverage level (great investments were made in that period).

4.5 Productivity results

Figure 7 illustrates the accumulated value of TFP change for each municipal company in the ~~period~~ 1994-2007 period. Figure 8 shows the accumulated change of the TFP, input and output indexes for the same period. The Törnqvist indexes were used in these computations.

The conclusions drawn from a global analysis ~~of the~~on calculated values are that the results are very negative for the municipal company model. The TFP changed 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 presented in table 6, only one out of ten municipal companies had a positive value. The main statistical parameters of the TFP computations are displayed in table 6. The average value of productivity drop was approximately 1.56 per cent per year.

4.6 Is productivity increasing with the municipal company model?

There is a fundamental issue regarding the analysis of the TFP evolution for the municipal companies studied which was not accounted for. In fact, the TFP computation does not integrate directly the change of the quality of service provided, which may cause some suspicion. Probably, in the past, the values of TFP change for ~~the~~ municipal services with autonomy were positive due to the deterioration of quality of service (unlike ~~the~~ municipal companies, which were able to show low TFP thanks to quality improvement).

However, despite the fact that the number of entities for which the TFP was calculated is somewhat reduced (due to the purposes and **restrictions of the study**), the limitations of the method and the importance that the explanatory factors might have, the study is conclusive enough. **Bearing in mind that** nine out of ten municipal companies show TFP values lower than the unit, the negative results magnitude is revealing. These results lead to the conclusion that ~~the~~ municipal companies have a lower level of productivity than the level held by the former municipal services with autonomy, although the preliminary theoretical forecasts did not point it out.

5. CONCLUDING REMARKS

The municipal company institutional model involves good principles that should be encouraged. However, problems related to the lack of independence of these entities from the ruling political powers and the overlapping 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. The application of benchmarking can be a useful tool in these monopolistic sectors as well (Marques and Witte, 2009).

In spite of the **significant** improvements imposed by the recent law and its greater suitability to the needs of the municipalities and citizens (the most important stakeholders), regulations are absent from the legal regime for the local business sector regarding the relationship between the companies' size and the municipalities' size (or ability).

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

One of the primary problems of the public management model associated with ~~the~~ municipal companies in Portugal is related to the control ~~of their~~ activity. The court of auditors has the capability to monitor the activity of these companies and proceeds on doing it by ~~the~~-random inspection and auditing reports. But the analysis of the global scenario is outside the scope of its responsibilities. Moreover, it is difficult to set up an entity that can effectively have some intervention and regulation power over ~~the~~ municipal companies without **putting at risk** the municipalities’ responsibilities and duties (the local autonomy is a Constitutional principle). It is noticed that most of the times the necessary technical studies which prove 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 **by creating** a ranking which represents the economical and social performance of the services supplied to the citizens, irrespective of being provided by municipal companies, concessionary services or any other type of organisations. The classification should be fairly simple and publicised, in order to have an impact in ~~the~~-public opinion, and then, on the decisions of the local power. The adoption of “name and shaming” strategies might have very good outcomes (Marques and Simões, 2008).

This study leads to the conclusions that ~~the~~ municipal companies (indirect management) present worse 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 **the model** succeeds at the cost of a great input (resources consumed) and a final cost increase. This decision is taken without the previous consultation of the users, thus with no assurance about the willingness of the citizens to pay.

The municipal company model makes sense and it should be defended and improved. The young age of the formula, as well as 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 economic and financial **feasibility, in addition** to the effective activity supervision, so that this solution can survive efficiently.

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Table 1 – Information about the municipal companies in Portugal

Municipal companies (no.)	Municipalities with municipal companies (no.)	Municipality with the highest number of municipal companies	Average number of municipal companies by municipality	Average number of municipal companies by municipality with municipal companies
235	129	Lisbon and Cascais (8)	0.76	1.82

Table 2 – Companies which answered the questionnaire

Group A		Group B		Group C		Group F	
Company	Municipality	Company	Municipality	Company	Municipality	Company	Municipality
AGERE	Braga	EMEL	Lisbon	GEBALIS	Lisbon	EDEAF	Alfândega da Fé
Águas de Coimbra	Coimbra	MoveAveiro	Aveiro	HABISOLVIS	Viseu	EMIA	Azambuja

AMBILITAL	Santiago do Cacém	Parques Tejo	Oeiras	Lisboa Ocidental	Lisbon	INOVA	Cantanhede
EMARP	Portimão	TUB	Braga	Ribeira Grande +	Ribeira Grande	MERVAL	Vila Real
EMAFEL	Felgueiras			SRU Cova da Iria	Ourém		
				SRU Oriental	Lisbon		
				Vila Real Social	Vila Real		

Table 3 – Municipal companies used for the TFP calculation purpose

Municipalities	Companies	Type	Private partner	Starting date
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	No	2002
Portimão	EMARP	Municipal	No	2001
Vila Nova de Gaia	Águas de Gaia	Municipal	No	1999
Vila Real	EMARVR	Municipal	No	2004

Table 4 – Inputs and outputs adopted for TFP calculation

Inputs	Outputs
a) Staff	a) Revenue water volume
b) Capital cost (CAPEX)	b) Water customers number
c) Other operation and maintenance cost (OOPEX)	c) Sewerage users number

Table 5 – Average value of the variables in 1994 and 2007 and their change in this period

	1994		2007		Change (%)	
	Quantities	Prices	Quantities	Prices	Quantities	Prices
Outputs						
Revenue water (m ³); (€/m ³)	5,156,976	0.487	6,261,667	0.872	21.4	79.2
Water customers (no.); [€/ (no. × year)]	32,236	18.13	50,707	50.79	57.3	180.2
Sewerage users (no.); [€/ (no. × year)]	16,483	31.88	43,929	81.66	166.5	156.1
Inputs						
Staff (no.); [€ / (no. × year)]	162	8,993	172	20,307	6.5	125.8
OOPEX (10 ³ €)*; (-)	1,556	0.681	5,987	1.000	284.7	46.9
CAPEX (10 ³ €)*; (-)	20,568	0.065	55,286	0.070	168.8	8.3

* Updated at 2007 prices

Table 6 – Distribution of the municipal companies by productivity interval

Interval	Municipal company
<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 7 – Statistical description of TFP results

Average	Standard Deviation	Median	Minimum	Maximum
0.7816	0.2599	0.7775	0.4089	1.4076



Figure 1 – Local public services types

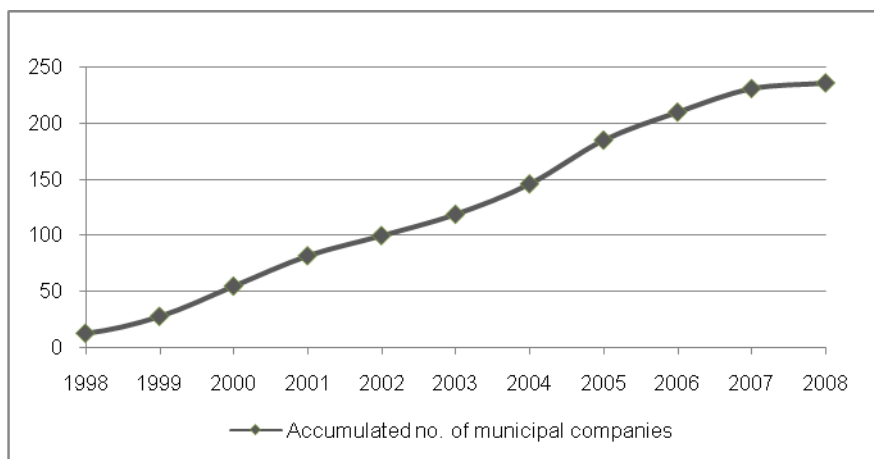


Figure 2 – Evolution of the number of municipal companies in Portugal from 1998 to April 2008

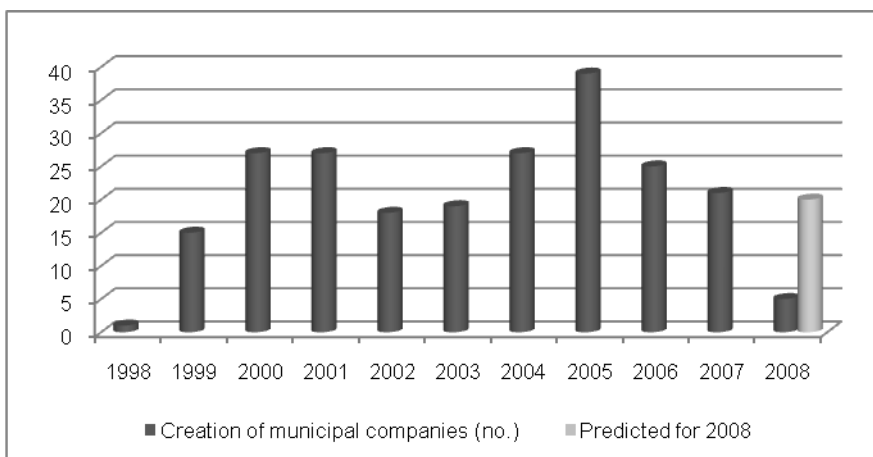


Figure 3 – Creation of municipal companies in Portugal from 1998 to April 2008

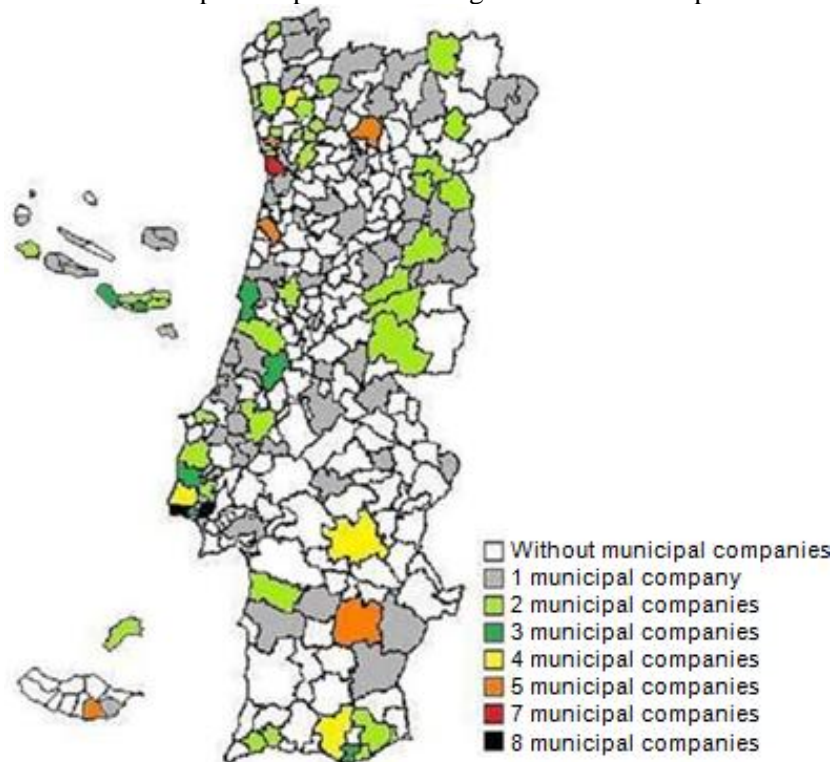


Figure 4 – Geographical distribution of municipal companies in Portugal by municipality

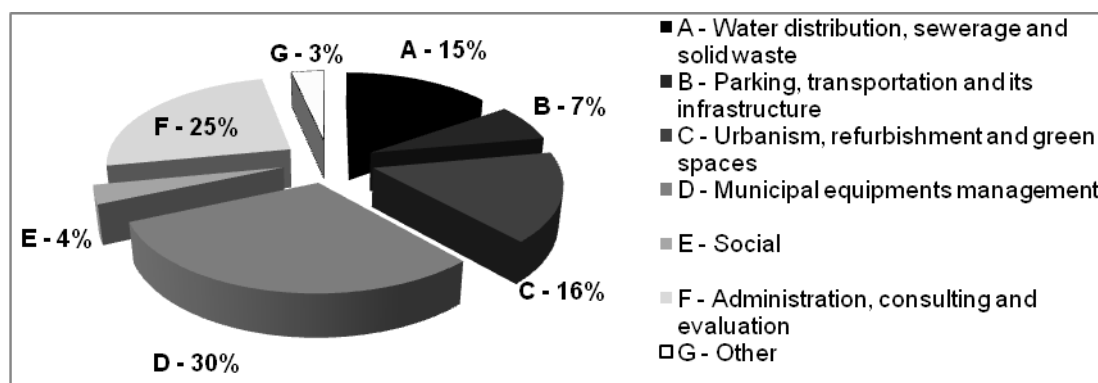


Figure 5 – Percentage of municipal companies by area of activity

	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 improvement
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 analysis of the municipal company model

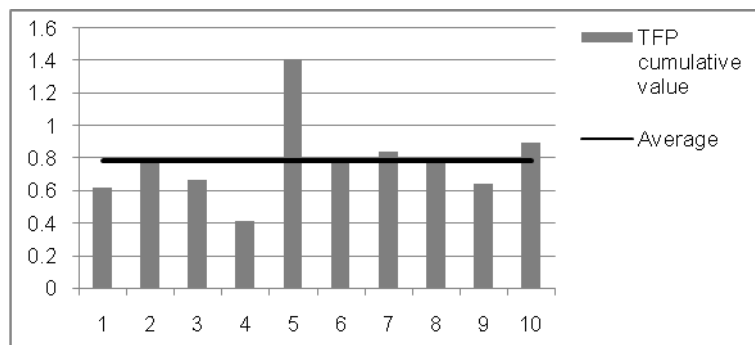


Figure 7 – TFP accumulated value for each municipality company

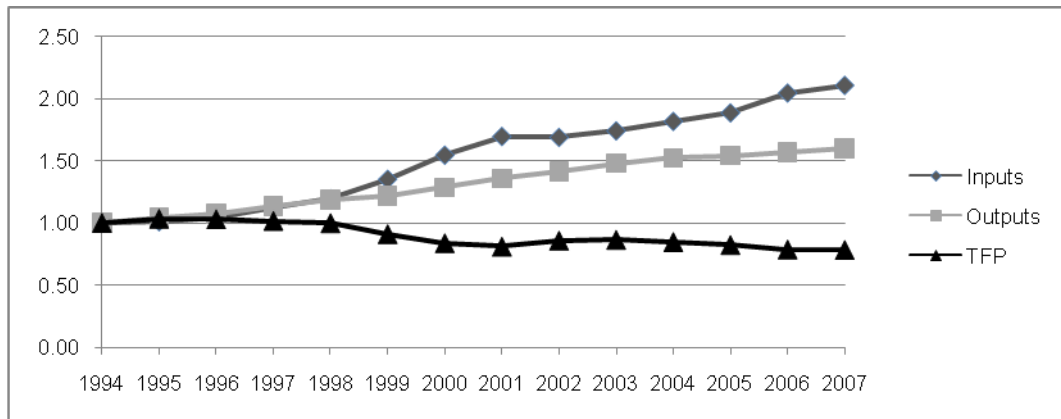


Figure 8 – Accumulated change of the TFP, input and output indexes