QUANTITATIVE ANALYSIS OF FINANCIAL INDICATORS FOR MUNICIPALITIES: COMPARISON BETWEEN PORTUGAL (Bragança District) AND SLOVENIA[1]

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Abstract

From the characterization of Local Authority financing models and structures in Portugal and Slovenia, a set of financial and generic budget indicators has been established. These indicators may be used in a comparative analysis considering, in Portugal, the Bragança District and, in Slovenia, municipalities of similar population size. The research identified significant differences, in terms of financing sources due to some discrepancy on financial models and competences of municipalities on each country.

Keywords: *Financial Indicators; Municipalities; Quantitative Analysis; Public Accounting.*

1. Introduction

The Bragança District is located in the northeast of Portugal, Northern Region, occupying an area of approximately 6.595 Km^2, the equivalent to 7.4% of the country (Figure A.1). The capital of District - Bragança - is 217 km from Porto, the second largest town in Portugal, and 107 km and 169 km from the Spanish towns of Zamora and Salamanca respectively (Abrunhosa, 2002). The Bragança District is administratively divided in twelve municipalities and 299 parishes located in the north-eastern part of Trás-os-Montes. According to the 2001 census, the total resident population is 148.833 inhabitants (INE; 2004).

Slovenia is a coastal Alpine country in southern Central Europe bordering Italy on the west, the Adriatic Sea on the southwest, Croatia on the south and east, Hungary on the northeast, and Austria on the north (Figure A.2). It covers a total area of 20.273 km² and about 2 millions inhabitants (Wikipedia, 2007). This country became independent from Yugoslavia in 1991 that make it a very young democracy compared to Portugal. There are twelve Slovenia's statistical regions that exist solely for legal and statistical purposes. Nowadays, Slovenia is divided into 210 municipalities (*občine*, singular *občina*), of which eleven have urban status: Celje, Koper, Kranj, Ljubljana, Maribor, Murska Sobota, Nova Gorica, Novo Mesto, Ptuj, Slovenj Gradec and Velenje. The most populated city is it capital - Ljubljana, with 276.313 inhabitants (svlr.gov.si, 2007). For this research, in 2003 and 2004, we considered 193 municipalities. About a half of municipalities had less than 5 thousand inhabitants and that, on average, a Slovene municipality had 10 thousand inhabitants.

The objective of this paper is to compare some financial indicators for Portuguese and Slovene municipalities, given the characteristics of Local Authority financing models and structures in Portugal and Slovenia, and to perceive if there are significant differences between these countries. We considered the twelve Bragança District municipalities, in Portugal, and Slovene municipalities of similar population size.

We used financial indicators based on revenues that allow us to recognize the financing structure of the municipalities. These indicators are, for instance, the total revenues, *per capita*, current revenues, *per capita*; capital revenues, *per capita*; and Municipal funds (transferred from state budget), *per capita*. We also compared in relative (percentage) numbers, such us relation between Current Revenues (CUR) and Total Revenues (TR); Capital Revenues (CAR) relative to TR; Municipal Funds (MF) to TR; or Tax Revenues (TxR) to TR.

Discriminant analysis was used to analyze relationships between a non-metric dependent variable and metric or dichotomous independent variables. Discriminant analysis attempts to use the independent variables to distinguish among the groups or categories of the dependent variable. We used to study which of this variable -Current Revenues (CUR), Capital Revenues (CAR) and Municipal Funds (MF) - discriminate between Portugal and Slovenia group. According to the all analysis we found one statistically significant discriminant function, making it possible to distinguish among the two groups defined by the dependent variable.

This paper is organized as follows: first, we describe the jurisdiction of municipalities in each country. In the next section we explain procedure of sharing the Municipal Funds (funds transferred from state budget). Then, the basic definitions and

postulates of the development of a system of indicators are described in the section four. Next, we present the empirical analysis of comparison of financial indicators for Portuguese and Slovene municipalities by the descriptive analysis and discriminant analysis. Some concluding remarks are given in the final section.

2. Jurisdiction of Municipalities

2.1. Portugal

Law No. 142/85, of 18 November, establishes the process for the formation of municipalities, but it does not mention the competences and jurisdiction of the municipal bodies. Law No. 159/99, of 14 September, and Law 169/99, of 18 September, the latter amended by Law 5-A/2002 of 11 January, aim to establish the framework for transferring competences and jurisdictions to local authorities and the legal system regulating the work of municipal and parish bodies respectively.

According to Art. 2, No. 1 of Law 159/99 of 14 September, the transfer of competences and jurisdiction to local authorities aims to strengthen national cohesion and inter-regional solidarity, and to promote efficiency in public administration. Within this point of view, No. 5 of the same Article states that power of the following nature, must be granted to the local authority body: "*a) Consultation; b) Planning; c) Management; d) Investment; e) Supervision; f) Licensing.*" The transfer of competences and jurisdiction can be done, according to Art. 5 of the same Law, taking into account three issues. The first relates to issues of an exclusively municipal nature. The second relates to issues integrated within regional action programs. The last one relates to issues integrated within national action programs.

Regarding municipal jurisdiction, No. 1 of Art. 13, Law 159/99 of 14 September, states that "*Municipalities enjoy jurisdiction in the following fields: "a) Rural and urban equipment; b) Energy; c) Transport and Communications; d) Education; e) Heritage, Culture and Science; f) Sport and Leisure; g) Health; h) Social Action; i) Housing; j) Civil Protection; l) Environment and Sanitation; m) Consumer Protection; n) Growth Promotion; o) Town and Country Planning; p) Municipal Police; q) External Cooperation*".

At the present time, the Law 2/2007 of 15th January is the legislation in force about municipalities financing and competences that repeal the previous Law. However, as the data reports the years 2003 and 2004 we decided to work under the Law 159/99 which was in force at that time.

2.2. Slovenia

Basic definitions of the competences of municipalities. The economic conditions stem from the statutory definition of Slovene municipality which defines its competences and responsibilities with:

- The principle of managing budgetary funds according to the sound business practices;
- The principle of preserving assets and the principle of limited disposition of assets (public infrastructure, public good may not be alienated);

- The principle of responsibility towards the efficient realisation of tasks falling within the competence of municipalities.

Although the budget expenditures of Slovene municipalities and according to their functional purposes, we can see that municipalities enjoy jurisdiction in the following field:
- Administration;
- Defence;
- Public policy and security (fire protection);
- Economic activities;
- Environmental protection;
- Housing activity and spatial development;
- Health care;
- Recreation, culture and activities of non-profit organisations
- Education;
- Social security.

3. Municipalities' Financing

3.1. Portugal

3.1.1. Municipalities and Local Finance

The No. 1 of Art. 238 of the Portuguese Constitution establishes that Local authorities have their own assets and finance. This autonomy is highlighted right from the first law concerning finance (1979), to the present Law No.42/98 of August 6, amended by the fourth time by Law No. 94/2001 of August 20. Note that No. 1 of Art. 2, Law 42/98 of 6 August, points out that Municipal and Parish bodies have jurisdiction to manage their assets and finance.

According to Art. 2 of Law 42/98 of 6 September, the core elements characterizing asset and financial autonomy of local authorities are:

"…2. The tutelage over local authorities' assets and financial management is merely inspective…;

3. Parishes and municipalities' financial autonomy is based on the following powers of their bodies:

a) To conceive, approve and modify the Plan's options, budgets and other provisional documents;

b) To prepare and approve accountability documents;

c) To collect and spend income allocated to them by law, and to organize and process all expenses legally authorized;

d) To manage their own assets and others under their responsibility."

It should be noted that according to No. 1 of Art. 4, Law 42/98 of 6 August, Municipalities enjoy jurisdiction over taxation allocated to them by law.

3.1.2. Sharing Public Funds

Vertical and horizontal financial balance is, according to No. 5 of Art. 1, Law 42/98 of August 6, is attained by sharing public funds between the State and Local

Government. This sharing is calculated using the 33% simple mathematical equation relating to income from the Corporate Tax (IRC), Income Tax (IRS) and VAT (IVA). According to No. 1 of Art. 10, including changes contemplated in Law 94/2001 of August 20, Municipal and Parish bodies are entitled to receive 30.5% of the above-mentioned calculation, and this will be distributed as follows:
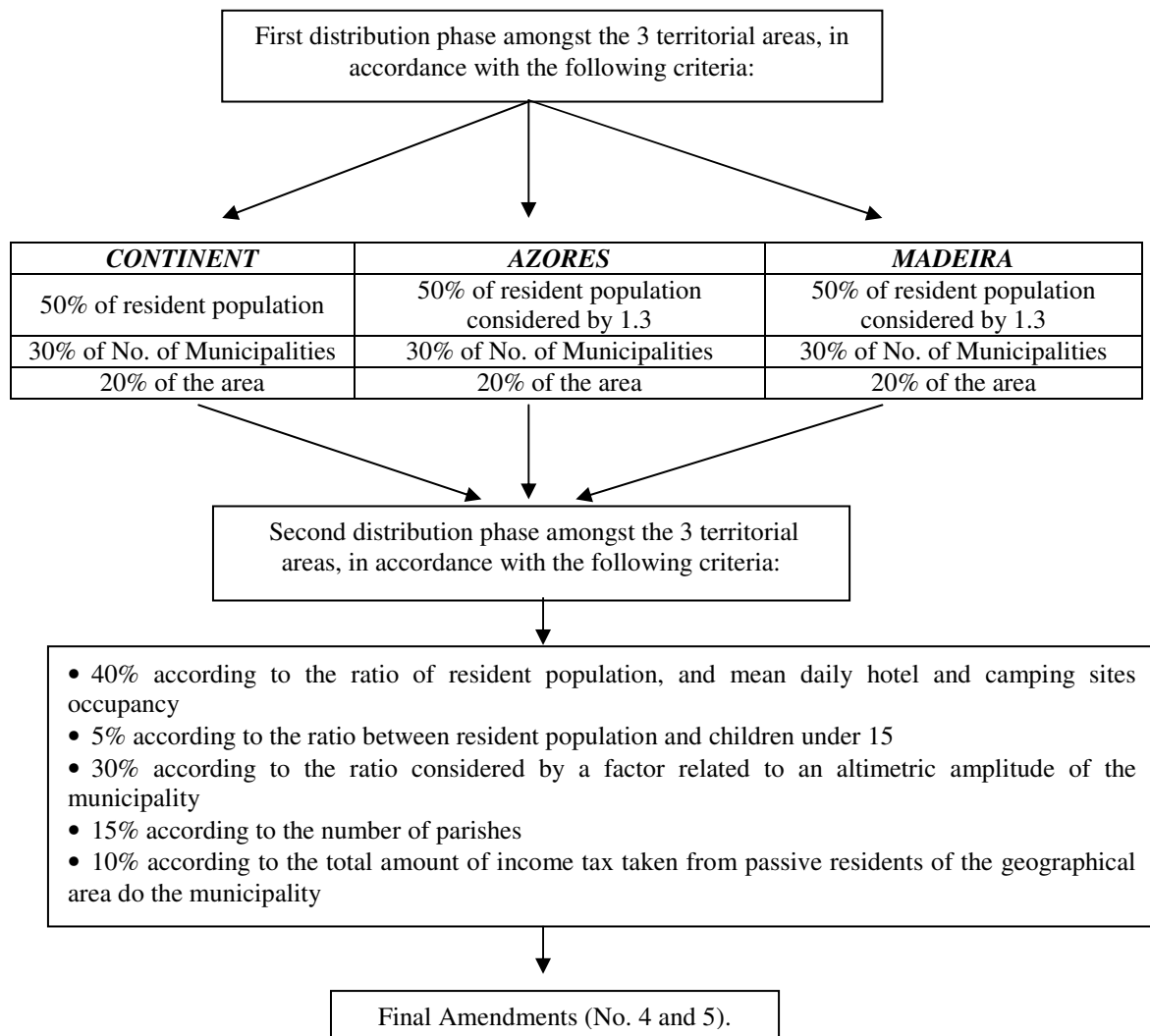
"a) 4.5% as Municipal Base Fund (FBM) …;

b) 20.5 % as Municipal General Fund (FGM)…;

c) 5.5 % as contribution towards the Municipal Cohesion Fund (FCM).…".

According to No. 2 of the same article, Parishes are entitled to the 2.5% left, called *Parish Financing Fund* (PFF).

The aim of the FGM is to "…*grant municipalities the financial means to carry out their functions, according to their level of investment and operation.*" (Art.11 of Law No. 42/98 of August 6).

According to No. 12 of Art. 4, Law 42/98 of August 6, the distribution of this fund can be represented as illustrated in Figure 1.
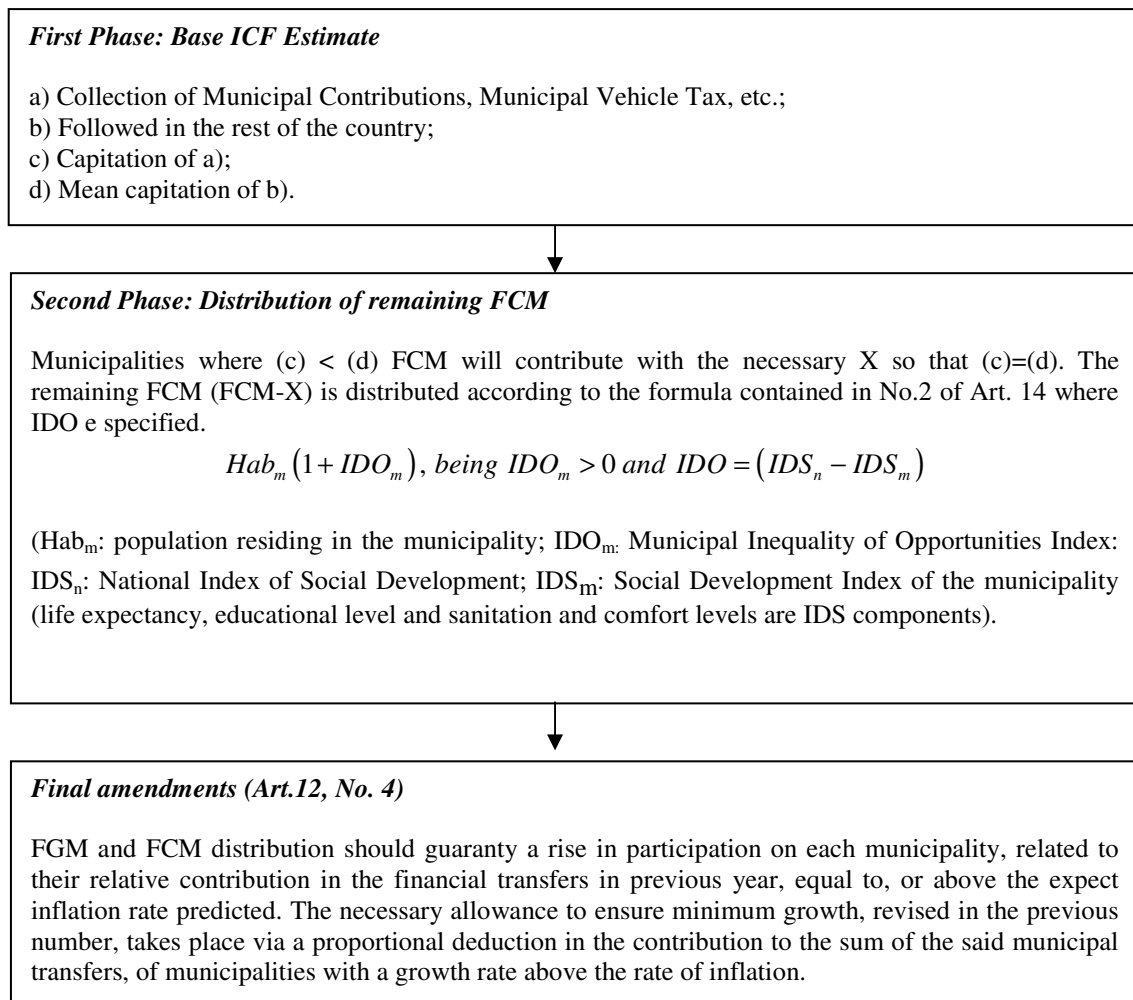
Figure 1: FGM Distribution.

First distribution phase amongst the 3 territorial areas, in accordance with the following criteria:

CONTINENT	AZORES	MADEIRA
50% of resident population	50% of resident population considered by 1.3	50% of resident population considered by 1.3
30% of No. of Municipalities	30% of No. of Municipalities	30% of No. of Municipalities
20% of the area	20% of the area	20% of the area

Second distribution phase amongst the 3 territorial areas, in accordance with the following criteria:

• 40% according to the ratio of resident population, and mean daily hotel and camping sites occupancy
• 5% according to the ratio between resident population and children under 15
• 30% according to the ratio considered by a factor related to an altimetric amplitude of the municipality
• 15% according to the number of parishes
• 10% according to the total amount of income tax taken from passive residents of the geographical area do the municipality

Final Amendments (No. 4 and 5).

Source: Adapted from Leandro (1999).

Regarding FCM, No. 13 of Art. 1, Law 42/98 of August 6, points out that it aims to strengthen municipal cohesion, enabling the reduction of asymmetries and benefiting less developed municipalities. This fund is distributed based on the Tax Deficiency Index (ICF) and Unequal Opportunities Index (IDO), which can show situations of inferiority in comparison with the national average. The ICF relates to the mean national capacity to collect municipal taxes and their respective capacity. The IDO will be the positive difference for residents of each municipality, including inequality of access to health care, comfort and basic sanitation, amongst others. According to Art. 14, the distribution of this fund can be represented as illustrated in Figure 2.

Figure 2: FCM Distribution.

First Phase: Base ICF Estimate

a) Collection of Municipal Contributions, Municipal Vehicle Tax, etc.;
b) Followed in the rest of the country;
c) Capitation of a);
d) Mean capitation of b).

Second Phase: Distribution of remaining FCM

Municipalities where (c) < (d) FCM will contribute with the necessary X so that (c)=(d). The remaining FCM (FCM-X) is distributed according to the formula contained in No.2 of Art. 14 where IDO e specified.

$$Hab_m\left(1+IDO_m\right), \text{ being } IDO_m > 0 \text{ and } IDO = \left(IDS_n - IDS_m\right)$$

(Hab$_m$: population residing in the municipality; IDO$_m$: Municipal Inequality of Opportunities Index: IDS$_n$: National Index of Social Development; IDS$_m$: Social Development Index of the municipality (life expectancy, educational level and sanitation and comfort levels are IDS components).

Final amendments (Art.12, No. 4)

FGM and FCM distribution should guaranty a rise in participation on each municipality, related to their relative contribution in the financial transfers in previous year, equal to, or above the expect inflation rate predicted. The necessary allowance to ensure minimum growth, revised in the previous number, takes place via a proportional deduction in the contribution to the sum of the said municipal transfers, of municipalities with a growth rate above the rate of inflation.

Source: Leandro (1999:136).

Concerning FBM "...*it aims to give municipalities the minimum financial capacity to operate, and is shared equally amongst al municipalities*" (Art.10-A of Law No. 42/98 of August 6).
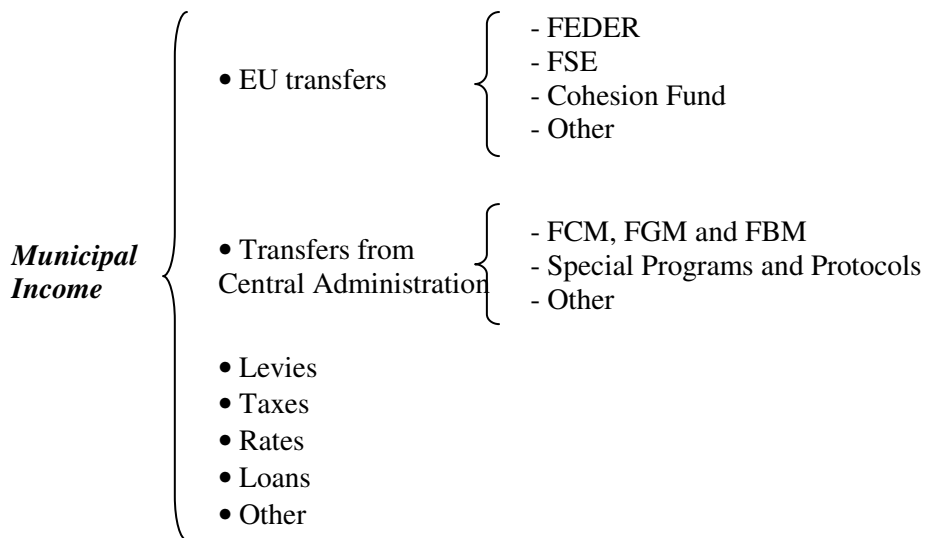
3.1.3. Municipalities' Own Income

The own income of municipalities is defined in articles 16 to 22 of Law 42/98 of August 6, and are divided in the following sources:

- Taxes designated by law, such as municipal contributions, municipal vehicle tax, etc;
- Local tax levied according to the law;
- Taxes and licences;
- Taxes, rates and fees from services supplied;
- Income from own property, movable and immovable, managed by the municipality;
- Fines and penalties dictated by law;
- Capital gains allocated by law to the municipalities;
- Loans, including the issued of municipal bonds;
- Inheritances, bequests, donations and other;
- Income from the transfer of owned property, movable and immovable;
- Share of company gains and other positive results of other bodies where the municipality has interests;
- Other, established by law.

Nevertheless, we must consider No. 4 of Art. 2 of Law No. 42/98 of August 6, which states that any levies or contributions created by municipalities will be deemed null if they are not contemplated in the law.

In general terms, and according to the income of municipalities, these can be presented according to the types included in Figure 3.

Figure 3: Municipality Types of Income.

Source: Adapted from Bravo and Vasconcelos (2000).

3.2. Slovenia

3.2.1. Financial Equilisation

The procedure for calculating financial equalisation is laid down in the Financing of Municipalities Act (1994). As the starting point for calculation of financial equalisation, the Act defines the value of average resources per inhabitant (at the state level) or resources of appropriate expenditure per inhabitant (ZP), which on average enable a municipality to normally perform its statutorily defined tasks. The Act also lays down the procedure for calculating appropriate expenditure resources (PP_i) for an individual

municipality i (i=1,2,...,193) taking into account specific elements which may influence the level of budget expenditures in individual municipalities (e.g. roads, area, population age).

The amount of PP_i is calculated for each municipality (i=1,2,...,193) by the following equation:

$$PP_i = \left(0.70 + 0.05C_i + 0.05P_i + 0.16M_i + 0.04S_i \right) ZP \times O_i$$

Where by the following shall mean:

PP_i - appropriate volume of funds for the financing of the local needs of an individual municipality;

C_i - ratio between the per-capita length of local roads in an individual municipality and the per-capita length of local roads in Slovenia;

P_i - ratio between the per-capita area of the municipality and the per-capita area of Slovenia;

M_i - ratio between the share of the population under the age of 15 in the entire population of an individual municipality and the average of these shares in Slovenia as of 1 January of the year in which the amount of appropriate expenditure is determined for the subsequent year;

S_i - ratio between the share of the population over the age of 65 in the entire population of an individual municipality and the average of these shares in Slovenia as of 1 January of the year in which the amount of appropriate expenditure is determined for the subsequent year;

ZP - appropriate per-capita expenditure;

O_i - number of persons whose permanent residence in an individual municipality as of 1 January of the year in which the amount of appropriate expenditure is determined for the subsequent year on the basis of data from the central population register.

The basic sum of all coefficients shall be 1.00. The amount of PP_i is calculated for each municipality once for the next year.

The Financing of Municipalities Act defines appropriate expenditure as the amount of funds which enables municipalities regular execution of all obligations laid down by the Constitution and laws. The Act defines the following as not falling within the range of appropriate expenditure:

1. Expenditure in the field of social activities: in primary schools - food not falling; within the standard meals, awards, activities in the field and holidaymaking;
2. Publishing of the municipal bulletin;
3. Investment activities in the field of economy and housing;
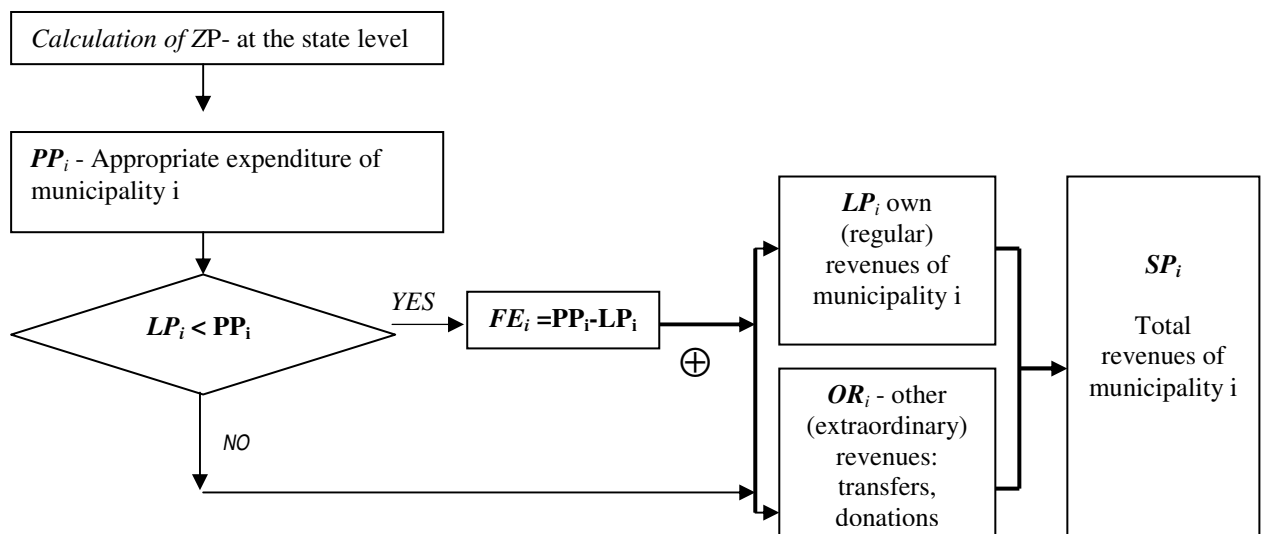4. Promoting economic development;
5. Ecological programmes.

In addition to determining the amount of appropriate expenditure, it is important to establish the amount of regular revenues of municipalities when determining the amount of financial equalisation resources. The procedure for the assessment of regular own revenues of municipalities (LP_i) is laid down on the basis of the budget revenues in previous years and the assets of municipalities, which represent the basis for their regular revenues. The municipalities whose calculated regular own revenues are lower than appropriate expenditure resources ($LP_i<PP_i$) are entitled to the allocation of

additional funds from the state budget, i.e. to financial equalisation (FE_i). Financial equalisation (FE_i) is therefore the difference between the calculated appropriate expenditure (PP_i) and the funds from regular own revenues (LP_i).

The funds of regular own revenues (LP_i) and the funds of financial equalisation ($_{FEi}$) together form the municipality's funds (SP_i) for smooth performance of tasks falling under its responsibility. These funds do not comprise additional funds which the municipalities may receive from other occasional sources (e.g. donations).

The entire procedure of determining the amount of financial equalisation is presented in Figure 4.

Figure 4: Scheme of determining the amount of financial equalisation in municipalities.

The described calculations are carried out before the beginning of the financial year, and the municipalities receive financial equalisation on a monthly basis.

4. Financial Indicators for Municipalities

4.1. Basic Definitions and Postulates of the Development of a System of Indicators

Indicators are user-relevant numerical information (Siegwart, 1990:12). As numerical information, indicators can be expressed in the form of:

- size of parameters of the discussed phenomenon (state in a time moment, extent of a phenomenon within a period);
- relative numbers, such as: structures (breakdown of a whole into component parts, e.g. wages by sex), coefficients (comparison of various content-related phenomena, e.g. wage per employee), and indexes (comparison of phenomena of the same type between units or between periods, e.g. index of an average wage in two companies), and
- other indicators of phenomenon dynamics (coefficients, growth rates, etc.), interrelation between phenomena (correlation and determination coefficients), expressed by different coefficients adapted to the needs of comparisons of different phenomena (in a numerator, parameters which positively contribute to the

discussed phenomenon, and in a denominator, parameters which, when increasing, decrease the value of the discussed phenomenon. (Devjak & Merzelj, 1997; 1998)

Indicators are used in the process of decision preparation for comparisons within the system framework and/or comparisons with the external systems. Comparisons within the system framework are carried out especially from the aspect of:

- comparisons of values of indicators of various periods or moments;
- comparisons of planned and achieved values of indicators;
- comparisons of normatively determined values of indicators with the planned and achieved ones (indicators of environmental pollution, standards of service performance, etc.).

Comparisons of a business system with other systems - benchmarking analyses (within the same business system or with the external systems):

- according to one indicator - single-criterion comparisons;
- according to several indicators - multi-criteria comparisons. (Devjak & Merzelj, 1997; 1998)

Literature contains numerous definitions concerning the development of a system of indicators of managerial information systems or controlling functions. These do slightly differ among themselves; however, one can identify certain common requirements with regard to the characteristics of a system of indicators:

- information on relevant areas;
- interrelation and consistency;
- definition of the state and development of the system. (Devjak & Merzelj, 1997; 1998)

A system means that a formed group of relevant indicators represents a whole: the indicators are defined so as to allow comparisons and analyses of mutual relations for states and processes of the system (Dworatschek, 1971:23 and Siegwart, 1990:33).

According to Horvath (1996:546), a system of indicators is an organized group of interrelated indicators, which ensures comprehensive information on a certain area. Thus, a user has to have at his disposal a group of indicators, which will provide him with full information on a certain area.

To develop a system of indicators, we have to take into account the following facts presented by a number of different authors:

- indicators have to be understandable to users, or else they do not represent information to them (Dworatschek, 1971:46 and Schott, 1991:19);
- user-relevant information is all that information, which the user requires to successfully perform his tasks (Kaplan & Norton, 2000:22);
- indicators have to enable the development of quantitative models for analysis and optimisation of decisions (Ossadnik, 1998:27, 57, 58);
- cause-consequence relationships between indicators (from the models) have to be as recognizable as possible (Kaplan & Norton, 2000:313);
- a system of indicators has to enable defining of the system's basic goals and monitoring of their realisation (Kaplan & Norton, 2000:21).

When forming the criteria of indicators' distribution, one can use the basic definition of information, i.e. information is a purpose-directed and addressed message (Turk, 1979:12), on the basis of which a user makes a decision. This indicates that a user has to have access to all those indicators in a system of indicators, which relate to the areas

of his competence. It has to be taken into account that all indicators, which are not related to the area of user's competence, do not represent information for the user; these messages represent only (neutral) data to him. (Devjak & Merzelj, 1997; 1998)

There are certain risks related to the development of a system of indicators, due to which the significance of a system of indicators is often decreased (Siegwart, 1990:123):

- systems with a too large emphasis on accounting: indicators are often produced only on the basis of accounting records and balance sheet data (accounting analyses of predominantly past operations), therefore there are too few elements of forecasting and too few indicators developed on the basis of the data and information not falling within the accounting framework;

- too few projections - forecasts of trends in the progress of events, too many indicators related to past events (problems of time delays);

- problems of expressing qualitative properties by means of indicators (therefore, frequent omissions or incorrect presentations);

- the problem of a right choice of indicators; the problem of an insufficient number of indicators is as dangerous as the problem of a too large and inconsistent system of indicators, which blurs the point of the message;

- an isolated use of a system of indicators within professional groups, due to which the system of indicators does not contribute to the management efficiency; the problem of lack of understanding or difficulties related to accessibility (unsuitable and incomprehensible presentations, awkwardness in definitions of indicators, complexity of computer tools, etc.);

- accuracy of interpretation and logic control; inconsistency often misleads the users of indicators (not understanding the contents, incomparability, wrong conclusions) when preparing the decisions, and thus does not allow logic controls of indicators' values, which can lead to errors in the system and consequently to its uselessness;

- assessments of values of quantities outside the system of indicators; the system of indicators does not cover all areas to the same extent (various reasons), therefore the system has to comprise as many indicators as to ensure those basic areas, which allow further implementation of composed indicators and certain special forms of indicators.

The majority of problems are caused by the definition of the indicators' contents structure. The most general principle of developing a system of indicators says that indicators are developed for every phenomenon, where we want to carry out management functions. In general, these are planning and controlling. Of course, we have not gained much with this, since we have not defined the minimum extent and the areas, for which indicators have to be developed.

Systematic study of the development of indicators presupposes that these have to comprise (Devjak & Merzelj, 1997; 1998):

- indicators of the system's state,
- indicators of processes, and
- indicators of relations between phenomena in the system and in the environment.

In general, the practice distinguishes between two typical structures within systems of indicators: numerically logically hierarchically (pyramid like) structured indicators, and indicators structured by areas (Groll, 1991:20). The systems of pyramid like organized

indicators are structured from the synthetic/basic indicator(s) of a business system downwards. The indicators of lower levels are determined according to the principle of mathematical composition of elements of indicators of upper levels. The systems of indicators structured by areas do not have a pyramid structure, but include all those indicators required for the picture about a certain area of a business system to be complete. The areas, for which indicators are developed, are classified according to:

- functions of the system (e.g. business functions in a company);
- organizational units, and
- programs (e.g. production programs, service programs).

Systems of indicators are most often developed from the system of accounting indicators. Numerous systems expose only economic and financial aspects, but lately, also development areas, areas of relations with partners (satisfaction), and attitude towards environment have been introduced into these systems (Devjak & Merzelj, 1997; 1998).

The systems of indicators, developed on the basis of accounting data, are known under the following names (Horvath, 1996: 548 and Siegwart, 1990:36):

- DuPont System - system of indicators based on return on investment (ROI) as a primary indicator;
- Z-score System - system of indicators based on return on equity and complemented with the indicators of growth rates of operation volume, employment and success;
- Return and Liquidity System - system of indicators based on two synthetic indicators, return and liquidity.

There are also systems of indicators, which the companies compose according to the areas, which reflect important (to them) characteristics of company's success. Thus, Groll (1991:171) specifies indicators classified by areas:
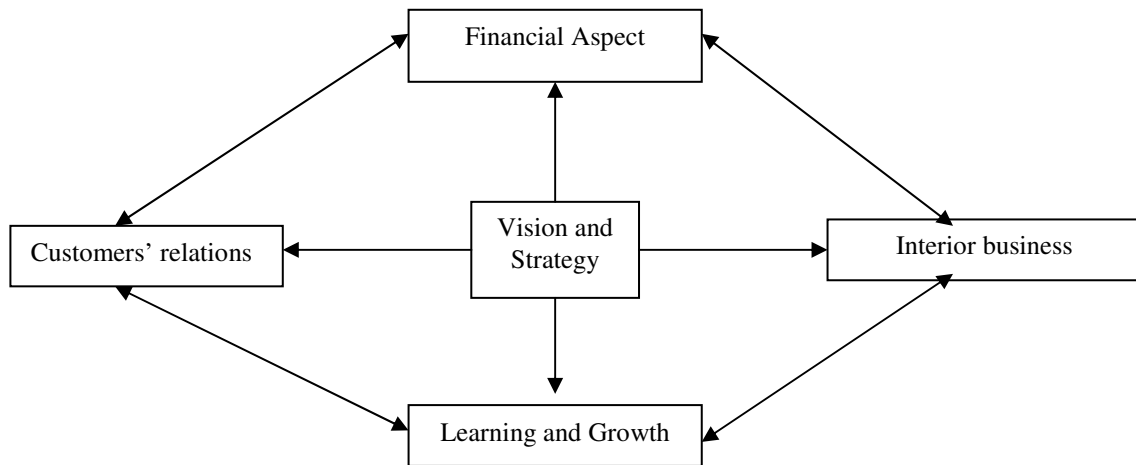
- indicators of return;
- indicators of revenues and economy of operation;
- indicators of labour force economy;
- indicators of productivity;
- indicators of investment activity;
- cost indicators.

A special and lately very popular approach to the development of a system of indicators has been developed by the authors Kaplan and Norton, currently named as Balanced Scorecard (Kaplan & Norton, 2000:22). Here, the system of indicators is defined as a strategic managerial system for implementation of a business strategy. This system lays emphasis on cause-consequence relations of indicators and on the balance of the system of indicators. It consists of financial and non-financial indicators, which are composed so as to present financial consequences of decisions about (non)financial changes. It is constructed on a downward basis, where the mission and strategies are converted into global goals and indicators of areas and units. The indicators are organized into the following structure:

- financial aspect,
- aspect related to customer relations,
- aspect related to interior business processes, and
- aspect related to learning and growth.

With each aspect, it is necessary to define: general goals, indicators, financial goals and initiatives.

Figure 5: Outline of the basic structure of a balanced scorecard.

Source: Based on Kaplan and Norton (2000:21).

4.2. Financial Indicators for Municipalities

During the last decade, performance in the public sector has been studied with special eagerness in all developed countries. In this time, a general criterion of assessing the implementation of public sector tasks has prevailed. John Rouse (Kester, 1993:73-104) defines three basic criteria of public sector performance measurement. Performance is defined by simultaneous fulfillment of three criteria: economy, efficiency, effectiveness. In literature, this triple criterion is designated by "3E" criterion and given a common name "Value for Money" - VFM. When assessing the public sector performance, the formation of indicators for the "3E" criteria rests on the fundamental meanings of individual criteria. Their basic definitions allow defining of indicators in individual activities of administration. On the basis of their explanations, we can sum up (Allen & Tommasi, 2001:441):

- **Economy** expresses costs for performed service and thus frequently demonstrates other organizational characteristics of a service provider and his capacities;
- **Efficiency** denotes the volume of services or things performed by an organizational unit with regard to capacities, or in other words, what capacities would suffice to carry out the discussed volume of services or things;
- **Effectiveness** expresses the achieved effects or success in service performance. The services performed are measured with the satisfaction of users of services and with the achieved benefit of the service. Effectiveness is frequently hard to be measured due to non-measurable effects of service performance (e.g. in a school, it is not only the achieved knowledge of pupils that counts, but also socialization, etc.). Effectiveness assessment involves also the assessment of service quality.

Performance of a public sector unit cannot be assessed absolutely, but relatively. Successful implementation of the tasks falling within the competence of a public sector and users' satisfaction are the basic criteria in measuring the performance of a public sector organizational unit. Especially in the public sector, measuring of performance is not possible with one indicator; each organization has to develop a suitable system of indicators to this end   (Argenti, 1993:59.)

According to Devjak and Merzelj (1997, 1998), the performance of a public sector organization can be for a chosen system of criteria assessed from the following aspects:
- fulfillment of performance criteria according to the set goals - standards (e.g. waiting time),
- comparison of organization with similar ones (e.g. organization's place among organizations classified according to the values of a chosen criterion),
- for a chosen organization, changing of the criterion value within a time period (tendency of changing of the criterion reveals improvement or deterioration of operation).

The indicators are formally divided according to the contents of their message. Thus, they can be simple (elementary or analytical indicators determined for an individual quantity, usually calculated per conditional unit) or composed or synthetic indicators. Synthetic indicators offer a more expansive presentation of the performance of the observed unit, whereas analytical indicators have a clearer representation. There must be as few synthetic indicators as possible, yet clarified through a system of analytical indicators.

The basic structure of the budget indicators system of the Slovene municipalities proposed by Devjak and Merzelj (1997, 1998), comprises (www.fu.uni-lj.si):
- **synthetic** indicators,
- **analytical** indicators of budget revenues, and
- **analytical** indicators of budget expenditure, which was introduced to the public and which was created according to the data possibilities.

These indicators are expressed in relative numbers for annual periods. All synthetic indicators are based on the data used with the analytical indicators. The available Slovene data allow them to present the achievements of a municipality in the following areas: financial independence and activities, developmental and economic efficiency and harmonisation (management) of the budget expenditure and budget revenues.

The analytical indicators of budget revenues comprise the basic areas of budget revenues and give a more general overview of formation of budget revenues. They include 17 indicators for all basic groups.

Indicators of budget expenditure are classified into groups of tasks falling within a municipality's competence. For each task, two indicators are presented in the system, namely for the total expenditure and for the part of the expenditure, which the municipalities use for current performance of the chosen task. The difference between the total budget expenditure and the expenditure for current performance of tasks is the investment expenditure. These indicators are not stated since they vary considerably with time and do not express any important rules. The value of the investment expenditure can be assessed by the user him/herself if he/she calculates the difference between the total expenditure and the expenditure for the current tasks.

In the following section we will compare some analytical financial indicators for Bragança District municipalities (from Portugal) and equivalent Slovene municipalities in terms of inhabitants.

5. Analysis of financial indicators for municipalities: comparison between Portugal and Slovenia

5.1. Data and Methodology

As previously mentioned, the Bragança District consists of twelve municipalities and Slovenia has 210 municipalities, but in this country in 2003 and 2004 there were merely 193 municipalities. As it not possible to compare directly the administrative organization of both countries we decided to compare only in terms of number of inhabitants. Hence for comparison purposes we do not consider the Slovene municipalities (SM) with more than 37.000 inhabitants. Also we divided the Portuguese and Slovene residents in five intervals (less than 5.000; from 5.001 to 10.000; from 10.001 to 15.000; from 15.001 to 20.000; more than 20.001). The data sources were the Bragança District Municipalities Budgets and financial documents and for Slovenia, we used the data published in the website of Administration Faculty of Ljubljana University.

As most of the Portuguese municipalities (of Bragança District) do not present their financial documents by functional classification as Slovene ones, specially the expenditures, we centred our study in revenues because it was more comparable between these countries. The Portuguese municipalities (PM) usually present expenditures by economic classification.

The study was developed in two phases: first we made a descriptive analysis using analytical indicators (absolute numbers *per capita*) and synthetics indicators (in relative figures), that we present ahead. Two years (2003 and 2004) were used in the analysis since PM started to implement public accounting rules as preconized by the POCAL in 2002 but only in 2003 all the Bragança District municipalities presented their financial documents with new rules. Seeing that after 2005 we were not able to collect data for all municipalities, we used solely 2003 and 2004. In the second phase, we applied the discriminant analysis (DA) to determine which variables discriminate between two or more naturally occurring groups. We considered two groups: Portugal and Slovenia. The fundamental assumptions of DA are: (*i*) the observations are a random sample; (*ii*) each group is normally distributed, DA is relatively robust to departures from normality; (*iii*) the variance/covariance matrix for each group is the same and (*iv*) each of the observations in the initial classification is correctly classified - training data - (Pestana & Gageiro, 2003). In our work, DA was used to investigate which of these variables - Current Revenues (CUR), Capital Revenues (CAR) and Municipal Funds (MF) - discriminate between Portugal (1) and Slovenia (2) group, in the year 2004.

The descriptive analysis was made with analytical indicators and synthetic indicators of revenues. But first we had to adjust Portuguese and Slovene data to compare it. The analytical indicators were as follows:

- Total revenues, *per capita*: calculated with total revenues (of all municipalities in the interval), in a year, divided by the total residents (in this interval);
- Current revenues, *per capita*: calculated with Current revenues (of all municipalities in the interval), in a year, divided by the total residents (in this

interval). Notice that for PM we had to deduct the current municipal funds to be comparable to Slovene ones given they do not include this amount in their current revenues;

- Capital revenues, *per capita*: calculated with Capital revenues (of all municipalities in the interval), in a year, divided by the total residents (in this interval). For SM we include the item related with grants received in the capital revenues. For Portuguese ones, we deducted the municipal funds;

- Municipal funds, *per capita*: calculated with Municipal funds (of all municipalities in the interval), in a year, divided by the total residents (in this interval);

- Tax revenues, *per capita*: calculated with total tax revenues (of all municipalities in the interval), in a year, divided by the total residents (in this interval). For SM we include the following items taxes on income and profit, taxes on property, domestic taxes on goods and services, and other taxes. For Portuguese ones, we considered Municipal Tax on the Purchase of Property (SISA or IMTI), Municipal Tax on Property (IMI) or Municipal Contribution; Vehicle tax and other taxes: Indirect Tax (Taxes on Markets (including street markets), Plots of Land for Development, Road Tax, Gun Licensing, Bikes);

- Income from property, *per capita*: calculated with (current) income from property (of all municipalities in the interval), which comprise participation in profits of public companies and public financial institutions, revenues from participation in profits of other companies and financial institutions, revenues from interests, and revenues from property, in a year, divided by the total residents (in this interval);

- Sale of Goods and Services, *per capita*: calculated with (current) sale of goods and services (of all municipalities in the interval), which covers revenues from sales of goods and services (revenues of administration), in a year, divided by the total residents (in this interval);

- Other Current Revenues, *per capita*: calculated with other current revenues (of all municipalities in the interval), which includes all other current revenues, in a year, divided by the total residents (in this interval).

The synthetic indicators were as follows:

- Percentage of current revenues to total revenues, calculated with current revenues (of all municipalities in the interval), in a year, divided by total revenues (in this interval). This indicate the percentage of own source of financing;

- Percentage of capital revenues to total revenues, calculated with capital revenues (of all municipalities in the interval), in a year, divided by total revenues (in this interval). This indicate the percentage of external source of financing;

- Percentage of Municipal funds to total revenues, calculated with municipal funds (of all municipalities in the interval), in a year, divided by total revenues (in this interval). This indicator gives us the level of a municipality's connection with state budget;

- Percentage of tax revenues to total revenues, calculated with tax revenues (of all municipalities in the interval), in a year, divided by total revenues (in this interval). This indicator gives us, in a certain way, the level of a municipality's

independence as it presents us the percentage of total revenues due to tax revenues;

- Percentage of tax revenues to total current revenues, calculated with tax revenues (of all municipalities in the interval), in a year, divided by total current revenues (in this interval). This indicator shows the percentage of current revenues due to tax revenues.

Other synthetic indicators used were percentage of current revenues due to income from property; percentage of current revenues due to sales of goods and services and percentage of current revenues due to other current revenues.

In the following sections we present the analysis of data, first the descriptive analysis and after the discriminant analysis.

5.2. Comparison between Portuguese and Slovene Financials Indicators

As we can see in Table 1, financing indicator, *per capita*, as given by Total Revenues, *per capita*, is higher for PM than for Slovene ones (it varies between €1.817 and €806,7, for PM and €557,9 to €645,2 for SM). Comparing the year 2003 with 2004, we observe that this indicator had increased for all SM but had different behaviour for Portuguese ones. PM with less than 5.000 inhabitants and more than 20.001 inhabitants decreased total revenues, *per capita*. The other PM had increased the total financing indicator.

In terms of sources of financing (current revenues, capital revenues or municipal funds), SM presented, in general more than twice the Portuguese current revenues, in both years. Municipalities with more than 10.000 and less than 15.000 inhabits are those with bigger difference (almost 2.7 times), in 2003; the lower difference is for municipalities with less than 5000 residents (in 2003). In 2004, the highest difference (almost 2.8 times) was in the interval of 10.000-15.001, and the lowest was for municipalities with more than 20.001 inhabitants. PM had more transferred funds (Municipal Funds) than SM but we observe the same behaviour in both countries in relation to this indicator (bigger municipalities receive less municipal funds than smaller ones).

In terms of synthetic indicators we can observe (Table 2) that the percentage of current revenues to total revenues for SM is much bigger than for Portuguese ones (and even bigger for more populated ones). A different behaviour is experienced with capital revenues to total revenues. PM have more revenues from capital items (we can infer that PM resort to external sources, mainly bank debt[2]) than Slovene ones.

The level of a municipality's connection with state budget, as given by the percentage of total revenues due to tax revenues is higher for SM and very low for Portuguese ones. While for the interval of less than 5.000 residents the level of independence, in 2003, is 4,0% for Portuguese ones; for Slovene ones is 42%, decreasing in 2004. The indicator increased in 2004 for PM with more than 20.001 residents (13,1% compared to 9,8% in 2003) but still very underneath the Slovene indicator (which is above 63%).

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[2] Portuguese Municipalities usually do not issue bonds.

Table 1: Financial Indicators *per capita*.

Intervals of Residents	Group	Total Revenues (1)		Current Revenues (2)		Tax Revenues (3)		Income from Property (4)		Sale of Goods and Services (5)		Other Current Revenues (6)		Capital Revenues (7)		Municipal Funds (8)	
		2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004
Less than 5.000	1	1817.0	1539.4	182.3	126.3	72.8	27.4	33.1	36.3	25.7	28.1	50.7	34.5	500.5	346.3	1006.4	1066.8
5.001-10.000	1	1200.4	1269.0	165.6	170.4	34.9	30.1	11.3	8.8	55.4	68.8	64.0	62.7	303.1	268.5	731.7	775.7
10.001-15.000	1	1143.4	1170.4	143.1	149.6	28.5	25.9	13.1	13.7	43.7	50.5	57.7	59.4	268.9	254.3	731.4	766.5
15.001-20.000	1	909.8	930.9	161.7	202.4	51.6	33.4	1.3	1.4	43.6	45.1	65.2	122.5	238.4	194.2	509.8	534.2
More than 20.001	1	894.5	806.7	226.9	269.7	87.9	105.9	32.6	38.2	61.1	62.5	45.2	63.1	304.9	156.9	362.8	380.1
Less than 5.000	2	588.0	625.9	317.9	348.7	247.2	261.4	37.2	38.8	5.7	6.4	25.6	42.0	23.7	38.9	246.4	238.2
5.001-10.000	2	565.6	645.2	377.0	419.6	295.8	318.3	37.6	41.2	7.1	8.4	34.3	51.6	18.5	48.5	170.1	177.1
10.001-15.000	2	557.9	618.6	384.7	426.1	317.8	344.5	31.3	34.3	4.0	2.5	28.6	44.8	33.2	28.8	140.0	163.7
15.001-20.000	2	593.4	609.5	405.1	448.3	329.6	359.8	29.4	33.2	2.5	3.2	41.0	52.2	53.8	37.8	134.5	123.3
More than 20.001	2	567.9	611.1	461.1	499.5	366.0	387.3	53.8	56.3	1.1	1.1	36.5	54.7	22.1	20.5	84.7	91.1

Table 2: Financial Indicators in %.

Intervals of Residents	(2)/(1)		(7)/(1)		(8)/(1)		(3)/(1)		(3)/(2)		(4)/(2)		(5)/(2)		(6)/(2)	
	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004
Less than 5.000	10.0%	8.2%	27.5%	22.5%	55.4%	69.3%	4.0%	1.8%	9.3%	21.7%	4.2%	28.7%	3.3%	22.2%	6.4%	27.3%
5.001-10.000	13.8%	13.4%	25.3%	21.2%	61.0%	61.1%	2.9%	2.4%	5.8%	17.7%	1.9%	5.2%	9.2%	40.4%	10.6%	36.8%
10.001-15.000	12.5%	12.8%	23.5%	21.7%	64.0%	65.5%	2.5%	2.2%	4.9%	17.3%	2.3%	9.2%	7.5%	33.8%	9.9%	39.7%
15.001-20.000	17.8%	21.7%	26.2%	20.9%	56.0%	57.4%	5.7%	3.6%	11.0%	16.5%	0.3%	0.7%	9.3%	22.3%	13.9%	60.5%
More than 20.001	25.4%	33.4%	34.1%	19.5%	40.6%	47.1%	9.8%	13.1%	19.8%	39.3%	7.3%	14.2%	13.7%	23.2%	10.2%	23.4%
Less than 5.000	54.1%	55.7%	4.0%	6.2%	41.9%	38.1%	42.0%	41.8%	77.8%	75.0%	1.8%	11.1%	11.7%	1.8%	8.0%	12.1%
5.001-10.000	66.7%	65.0%	3.3%	7.5%	30.1%	27.4%	52.3%	49.3%	78.5%	75.9%	1.9%	9.8%	10.0%	2.0%	9.1%	12.3%
10.001-15.000	68.9%	68.9%	6.0%	4.7%	25.1%	26.5%	57.0%	55.7%	82.6%	80.8%	1.0%	8.0%	8.1%	0.6%	7.4%	10.5%
15.001-20.000	68.3%	73.6%	9.1%	6.2%	22.7%	20.2%	55.5%	59.0%	81.4%	80.2%	0.6%	7.4%	7.3%	0.7%	10.1%	11.6%
More than 20.001	81.2%	81.7%	3.9%	3.4%	14.9%	14.9%	64.4%	63.4%	79.4%	77.5%	0.2%	11.3%	11.7%	0.2%	7.9%	11.0%

5.3. Discriminant Analysis

As above mentioned we used Discriminant Analysis to investigate which of these variables - Current Revenues (CUR), Capital Revenues (CAR) and Municipal Funds (MF) - discriminate between Portugal (1) and Slovenia (2) group, in 2004. The number of cases in each group is larger than the number of independent variables (3), satisfying the minimum requirement. However, the number of cases in each group is less than the preferred minimum of 20 cases. A caution should be added to the interpretation of the analysis. For the statistical analysis we used SPSS.

According Table 3 we can see all variables are normally distributed, at 5% level. We used the Shapiro-Wilk test because the sample size, in our case, is less than 50 (Pestana & Gageiro, 2003).

Table 3: Test of Normality (Shapiro-Wilk test).

	Statistic	df	Sig.
CUR	0,911	10	0,342
CAR	0,864	10	0,090
MF	0,883	10	0,182

The Wilks' Lambda is a reflectance of a variables importance. Lambda varies from 0 to 1, with 0 meaning group means differ (thus the more the variable differentiates the groups), and 1 meaning all group means are the same. The F test of Wilks' lambda shows which variables' contributions are significant (Pestana & Gageiro, 2003).

Therefore, the smallest Wilks' Lambda and the greatest significance relate the most important variable. This relationship is demonstrated in the following table, where Wilks' lambda is significant by the F test for CUR, CAR, and MF.

Table 4: Tests of Equality of Group Means.

Variables	Wilks' Lambda	F	df1	df2	Sig.
CUR	0,139	49,375	1	8	0,000
CAR	0,166	40,328	1	8	0,000
MF	0,278	20,779	1	8	0,002

The DA assumes homogeneity of covariance matrices between groups and Box's M test tests the homogeneity of covariances assumption. Discriminant function analysis is robust even when the homogeneity of variances assumption is not met, provided the data do not contain important outliers. For our data, the test is significant so we conclude the groups do differ in their covariance matrices, violating an assumption of DA.

Table 5: Box's Test of Equality of Covariance Matrices.

Box's M		27,024
F	Approx.	2,616
	df1	6
	df2	463,698
	Sig.	0,017

The Table 6 shows the eigenvalues. The larger eigenvalue, the more of the variance in the dependent variable is explained by that function. Since the dependent in our study has only two categories, there is only one discriminant function. However, if there were more categories, we would have multiple discriminant functions and this table would list them in descending order of importance. The second column lists the percent of variance explained by each function. The third column is the cumulative percent of variance explained. The last column is the canonical correlation, where the squared canonical correlation is the percent of variation in the dependent discriminated by the independents in DA. Sometimes this table is used to decide how many functions are important (eigenvalues over 1, percent of variance more than 5% is significant, cumulative percentage of 75%, canonical correlation of 0,6 is significant). This issue does not arise here since there is only one discriminant function, though we may note its canonical correlation is not high.

Table 6: Eigenvalues.

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	57,553	100,0	100,0	0,991

This second appearance of Wilks' Lambda serves a different purpose than its use in the table above (Table 6). In the table below it tests the significance of the eigenvalue for each discriminant function. In our case there is only one and the Wilks' Lambda statistic for the test of function 1 (chi-square=26,455) had a probability of <0.000 which was less than or equal to the level of significance of 5%. The significance of the maximum possible number of discriminant functions supports the interpretation of a solution using 1 discriminant function.

Table 6: Wilks' Lambda.

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	0,017	26,455	3	0,000

The standardized discriminant function coefficients in the table below serve the same purpose as beta weights in multiple regressions: they indicate the relative importance of the independent variables in predicting the dependent.

Table 7: Standardized Canonical Discriminant Function Coefficients.

Variables	Function
	1
CUR	2,011
CAR	-7,345
MF	8,625

The structure matrix, Table 8, shows the correlations of each variable with each discriminant function. In this case, there is only one discriminant function. We do not interpret loadings in the structure matrix unless they are 0.30 or higher. Based on the

structure matrix, the predictor variables strongly associated with discriminant function 1 which distinguished between two groups are CUR (0.33).

Table 8: Structure Matrix.

Variables	Function 1
CUR	0,327
CAR	-0,296
MF	-0,212

The table below is used to establish the *cutting point* for classifying cases. According the values present in that table, the best cutting point is half way between the values of the functions at group centroids (that is, the average) because the two groups are of equal size.

Table 9: Functions at Group Centroids.

GRUPOS	Function 1
1	-6,785
2	6,785

The Table 10 present the result of checking "Fisher's" under "Function Coefficients" in the "Statistics" option of discriminant analysis. Two sets (one for each dependent group) of unstandardized linear discriminant coefficients are calculated, which can be used to classify cases. This is the classical method of classification, though now little used.

Table 10: Classification Function Coefficients.

	GRUPOS	
	1	2
CUR	0,399	0,895
CAR	-0,380	-2,294
MF	0,215	0,834
(Constant)	-66,939	-218,473

The table below is used to assess how well the discriminant function works, and if it works equally well for each group of the dependent variable. In this study the original cases was correctly classified (100%).

We found one statistically significant discriminant function, making it possible to distinguish among the two groups defined by the dependent variable. Moreover, the original classification accuracy surpassed the by chance accuracy criteria, supporting the utility of the model.

Table 11: Classification Results.

		GRUPOS	Predicted Group Membership		Total
			1	**2**	
Original	Count.	1	5	0	5
		2	0	5	5
	%	1	100,0	0,0	100,0
		2	0,0	100,0	100,0

Note: 100,0% of original grouped cases correctly classified.

6. Conclusions and Future Research

This paper compares some financials indicators in the perspective of financing sources (revenues) between Portuguese municipalities (all municipalities of Bragança District) and Slovene municipalities with similar population size. The analysis was made with analytical indicators (absolute numbers per inhabitant) and synthetic indicators (relative numbers), using descriptive analysis in the years 2003 and 2004 and the discriminant analysis in 2004 to identify if there are significant differences between the two countries.

The remarkable conclusions, from the descriptive analysis, are as follow: the Total Revenues, *per capita*, was higher in Portugal when compared to Slovenia. This difference was bigger for municipalities with less population density (it was almost three times the total revenues *per capita* of Slovene municipalities, in the interval of less than 5.000 residents). Such fact may be justified by the significant weight of municipal funds (namely the cohesion fund, as the Portuguese municipalities, in this research, are inserted in the interior region with low economic development). The weight of capital revenues in total revenues was higher in Portugal than in Slovenia, conversely we noticed the opposite for current revenues. This may show the dependence of Portuguese municipalities from external financing sources (specifically bank financing) whereas in Slovenia own source of financing (current revenues) was the most significant. Through Discriminant analysis we noticed significant differences between Portuguese municipalities and Slovene ones, being the current revenues the variable that most distinguish the two countries which seems to corroborate the previous descriptive analysis.

This research has some limitations, namely we considered only the Portuguese municipalities of the Bragança District and analysed simply the revenues (given the difficulty in collect data of Portuguese municipalities' financial statements functionally classified). In this manner, future research may be done by spreading the study to all Portuguese municipalities and compare it with all municipalities of Slovenia as well as dividing the municipalities in interior region and seaside. Another line of future research could be to expand the analysis to expenditure.

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APPENDIX A

Figure A.1: Portugal and the Bragança District (With location of the 12 municipalities).

Source: Abrunhosa, (2002).

Figure A.2: Slovenia Map.

Source: (http://images.google.pt/slovenia map).