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The inquiry into the economic life of Croatian municipalities

Ivana Rašić Bakarić[1], *Hrvoje Šimović*[2], *Maruška Vizek*[3]

Abstract

The aim of this paper is to analyze the main determinants of the economic life in Croatian municipalities. For that purpose, we collected data related to the municipal budgets and business results of entrepreneurs registered in 427 municipalities during 2007-2011 period. In order to determine and study the variations in municipal economic outcomes related to the size of municipalities, their administrative status (municipalities belonging to the areas of state national concern, hill and mountain areas, and island areas), their geographic location and dominant political party in the municipality, we apply multivariate statistics methods (Levene's test of variance homogeneity, ANOVA, and Sheffe post-hoc test). The results suggest that size of the municipalities explains the variation related to municipal fiscal capacity and average net earnings of inhabitants living in municipalities. The political affiliation of a mayor is related to the differences in the relative amount of aid granted from the central government budget, fiscal capacity and indebtness, while the differences in administrative status of municipalities account for discrepancies observed in employment, average net earnings, indebtedness, central government aid, and expenditures for social protection. The basic conclusion of research is that Croatian municipalities differ significantly in the majority of the analyzed economic determinants and that current administrative status should be subject to the general local government reform, not only in special status and number of local units but also in fiscal equalization process.

Key words: *municipalities, local government, variance analysis, entrepreneurship*

JEL classification: *C21, H70, L25*

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[1] *Research Associate, Institute of Economics Zagreb, J.F. Kennedy sq. 7, 10000 Zagreb, Croatia. Scientific affiliation: regional and urban economics, multivariate analysis, macroeconomics. Phone: + 385 1 2362 229. E-mail: irasic@eizg.hr.*

[2] *Associate Professor, Faculty of Economics & Business, University of Zagreb, J.F. Kennedy sq. 6, 10000 Zagreb, Croatia. Scientific affiliation: public finance, fiscal policy, tax system. Phone: + 385 1 2383 170. E-mail: hsimovic@efzg.hr.*

[3] *Senior Research Associate at Institute of Economics Zagreb and lecturer at Zagreb School of Economics and Management, Zagreb, J.F. Kennedy sq. 7, 10000 Zagreb, Croatia. Scientific affiliation: applied macroeconomics, international finance, housing economics, business cycles research, international economics. Phone: + 385 1 2362 212. E-mail: mvizek@eizg.hr.*

1. Introduction

Croatian territory is divided into 20 counties and the capital city with the special status. Counties are further divided into 127 cities and 429 municipalities, whereby some cities and municipalities have a special administrative status as areas of special national concern (in the remainder of the text designated as ASNC), hill and mountain areas (in the remainder of the text designated as HMA) and island areas (in the remainder of the text designated as IA). Such level of administrative atomization in a relatively small country that has only 4,284,889 inhabitants (DZS, 2012), and a total land area of 56,594 square kilometers suggests many problems and paradoxes.

In this paper we focus on the analysis of economic life in 427 Croatian municipalities[4]. Database built for the purpose of the research presented in this paper provides the following numerical description of these municipalities. Out of 427 municipalities, altogether 222 have a special administrative status (either ASNC, HMA or IA), thus suggesting that 52 percent of all municipalities are located in areas of the country that are either underdeveloped or potentially hindered either due to historical or geographical reasons. The pronounced atomization becomes apparent if we take into account that there are 36 municipalities which have less than 1,000 inhabitants, while at the same time only 53 municipalities have more than 5,000 inhabitants. In many cases, municipalities are too small to be able to financially sustain themselves, and as a consequence they could not exist without the state aid. For example, in 2011, in 47 municipalities central government aid accounted for more than 50 percent of total revenue, while at the same time 34 municipalities spent more than 70 percent of their total revenues on wages of municipal employees and material expenses. In the 2007-2011 period central government transferred altogether 3.7 billion Kuna (or 1.1 percent of GDP in 2012) to municipalities as a central budget aid. Paradoxically, there were even ten municipalities in which the number of employees in municipal administration in 2011 surpassed the number of employees in incorporated sector in the same year. Obviously, in the case of Croatia, the need to have a more decentralized territorial and administrative division in order to be able to fully meet the needs of the local population is in deep collision with the basic condition of fiscally sustainable local government units. Thereby, the problem is not only the inadequate territorial division, but also the lack of fiscal autonomy that would increase the municipal fiscal capacity. As Bajo and Jurlina Alibegović (2008) claim, in the majority of cases, local government units cannot independently change the bases and rates taxes they collect, nor can they spend their non-tax revenues for purposes other than prescribed by the central government.

The main aim of this paper is to analyze the economic life of Croatian municipalities. Thereby, the term „economic life“ encompasses both the fiscal position and the

[4] Two municipalities (Prgomet and Marijanci) are left out of the analysis due to lack of data. For details please consult the fourth section of the paper.

fiscal sustainability represented by various municipal budget indicators, and entrepreneurial activity proxied by main business indicators of incorporated sector registered in the given municipality. In other words, we will analyze budget performance and the business sector performance in 427 municipalities in order to detect any variations in economic life that stem from differences in municipalities' size, geographic position, special administrative status and political structure. To the best of our knowledge, this is the first paper in the literature that performs a statistical analysis of main economic indicators of Croatian municipalities, and one of the few that provides statistical analysis of local government units in Croatia in general. Due to diverse database collected for the purpose of this research, we are able to provide not only comprehensive and multifaceted analysis of various aspects of economic activity of local government units (including fiscal capacity, indebtedness, business sector performance, employment, entrepreneurship, and net income), but also give insights into political economy of those units.

The main hypothesis of the paper is that there is a significant economic difference among Croatian municipalities mainly caused by complex administrative arrangement and inadequate fiscal equalization system. For the purpose of testing before mentioned hypothesis and achieving mentioned goals, the paper is structured as following. After introduction, we provide an overview of an institutional framework of Croatian municipalities and summarize the existing literature on economic activity in those municipalities. The third part of the paper briefly discusses the statistical method applied in this paper, while the fourth part describes the main features of database used in the analysis. The fifth part gives an overview of the main findings of the statistical analysis, while the final part of the paper offers concluding remarks.

2. Literature review

Before literature review, it is necessary to give a short analysis of normative framework as well as sources of financing of Croatian municipalities. Besides the central government level, there is a regional and a local level of government in Croatia, or units of local and regional self-government. Counties are units of regional self-government, whose main activities are related to the affairs of regional importance (e.g. education, health care system, physical and urban planning, infrastructure etc.). Cities and municipalities are units of local self-government, and they carry out activities with a local scope which directly tend to the needs of citizens, such as social care system, primary health care, primary education, culture etc. As already mentioned in the Introduction, Croatia has 20 counties, 127 cities and 429 municipalities. The capital, City of Zagreb, has a special status of both a county and a city.

Constitution and domain of work of local units are regulated with the Act on Local and Regional Self-Government. Municipality is a unit of local self-government which is established for an area of several populated places which represent a natural,

economic and a social unit, and which are interconnected with common interests of citizens (Article 3, Act on Local and Regional Self-Government, OG 33/01, 60/01, 106/03, 129/05, 109/07, 125/08, 36/09, 150/11, 144/12 and 19/13). Municipalities make up the greatest share of the total number of local self-government units.[5]

Economic life of municipalities is also dependent on the normative framework, which defines the authority and the system of (public) financing of municipalities. Sources of funds and financing activities in the work field of local self-government are regulated with the Act on the Financing Units of Local and Regional Self-Government. Furthermore, the Act on Budget defines planning, drafting, adopting and executing budgets, asset and debt management, public debt management, borrowing and State and local and regional units' guarantees, budget relations in the public sector, accounting, budget control and other questions related to public finance management. This is a complex institutional framework with numerous overlaps.[6]

Considering the goal of this paper, fiscal decentralization system[7] affects greatly the economic efficiency of municipalities. Out of 23 observed variables in the study, 13 of them are directly or indirectly generated out of fiscal data (see Table 2). Changes in the administrative-territorial structure were frequent and mostly based on political, and not on economic or administrative criteria (Čavrak, 2009: 171-172; Koprić, 2010: 374-376). Thus, fiscal relations between the central and lower levels of government were conducted without a detailed and clearly set long-term strategy. Local units often received special status based on different criteria. This special status also affects the fiscal position of local units.[8]

[5] The number of municipalities in Croatia is large and continuously growing. In the period 1993-2012 69 new municipalities were created (Koprić, 2010: 374). Exceptionally large number of cities and municipalities in Croatia represents an economic, fiscal and administrative obstacle for optimal economic development (Ott&Bajo, 2001; Ott, 2002; Jurlina Alibegović et al., 2010; Koprić, 2010).

[6] It should be mentioned that besides the basic legislation, there are numerous other acts, regulations, rule books, charters and other rules which regulate the area of municipalities in Croatia (e.g. forests, agriculture, public-private partnerships, concessions, public procurement etc.), and which are very important for the economic life of local units. For a quality legislation overview, see Bratić (2008: 125-133).

[7] Fiscal decentralization refers to the transfer of authority and responsibility for the provision of public services, from central to lower levels of Government, i.e. the transfer of authority to collect certain taxes and determine the allocation of collected funds in accordance with clearly set criteria (Tanzi, 1996: 297; Litvack et al., 1998: 8).

[8] Act on Regional Development (OG 159/09) form 2009 has introduced new legal and strategic framework for regional development. Further, new assessment and categorization of local units in five groups was developed according to development index. In November 2013 Croatian Government announced and started parliament procedure for five new acts which define tax reliefs and government aid for less developed areas. It can be expected that form 2014 the concept of tax reliefs and financial aids for local units with a special status (ASNC and HMA) will be abandoned, i.e. the new concept according to development index will be introduced. In that way each local unit (city or municipality) can acquire a certain aid if it's underdeveloped, regardless of former special or regular status.

The local government units with special administrative status include: 185 local units on the Area of Special National Concern (ASNC) (30 cities and 155 municipalities), 45 local units on Hill and Mountain Areas (HMA) (12 cities and 33 municipalities), and 50 local units on islands (15 cities and 35 municipalities) with signed agreement on common financing of capital projects which are of interest for the development of islands.[9] Depending on the type of special status, this status enables local units different incentive measures, e.g. for demographical renewal, protection of the environment and education. Special status grants local units a preferential treatment in terms of distributing personal income tax and profit tax breaks. Also, municipalities make up the largest share in the total number of local self-government units in Croatia with a special status.

As previously mentioned, local units with special status have a favored position when it comes to the distribution of personal income tax as shared tax. Table 1 shows the allocation of personal income tax for the period 2007–2011. Personal income tax is the basic instrument of (vertical) fiscal equalization in Croatia. Another type of tax distributed between central and local government is real property transfer tax (in the ratio 40:60). These taxes make up over 90% of tax revenues, which is approximately 60 percent of total revenues of municipalities in Croatia in the observed period (Ministry of Finance, 2013). It can be concluded from the latter that the fiscal position of municipalities in Croatia is greatly affected by own tax revenues which are primarily reflected through the personal income tax, and indirectly through the number of employed residents in the area.

Besides the distribution of tax revenue, (horizontal) fiscal equalization is conducted through aid from the Central Government. Both current and capital aids are in average always less than 10% of total local units' revenue (Ministry of Finance, 2013). When analyzing the central government aid distribution, Primorac (2013) concludes that it plays a significant role in accomplishing goals of regional politics, as opposed to fiscal equalization policy.

It is important to emphasize that the profit tax was also a shared tax, i.e. an instrument of fiscal equalization, however, from 2007 on, profit tax belongs exclusively to Central Government's budget. In order to avoid losses in ASNC and HMA on this basis, according to the Act on Execution of Government Budget[10], this amount is redeemed through central government aids. Generally speaking, Act on Execution of Government Budget for an individual fiscal year defines aid to all local units, as well as the criteria for the calculation and distribution of grant from

[9] Act on Areas of Special National Concern (OG 86/08, 57/11 and 51A/13) and Act on Hill and Mountain Areas (OG 12/02, 32/02, 117/03, 42/05, 90/05 and 80/08). The City of Zagreb as the capital has the special status as well.

[10] Act on Execution of Government Budget is passed for every fiscal year. In case of an amending budget, the Act is supplemented throughout the year.

the Government budget to the units of the first and the second group of ASNC (for more detail, see Bronić, 2008 and 2010).

Table 1: Distribution of personal income tax revenues in the period 2007–2011.*

– in %

Distribution of PIT revenue	Standard distribution		Islands**		ASNC and HMA*** (2007–2011)
	1.1.2007–1.7.2008	1.7.2008–2011	1.1.2007–1.7.2008	1.7.2008–2011	
Central government	–	–	–	–	–
County	15.0	15.5	15.0	15.5	10.0
City/municipality	52.0	55.0	52.0	55.0	90.0
Decentralized functions	12.0	12.0	12.0	12.0	–
Equalization fund	21.0	17.5	–	–	–
Common capital projects	–	–	21.0	17.5	–

Note: * On 1 March 2012 new changes in the personal income tax distribution have been made for all local units except for ASNC and HMA. Furthermore, the Table shows data only related to municipalities. Thus, the City of Zagreb, which also has the special status, has been deliberately left out.; ** Local units on islands with an agreement on common financing of capital projects which are of interest for the development of islands.; *** ASNC – Areas of Special National Concern, HMA – Hill and Mountain Areas.

Source: Authors according to the Act on the Financing Units of Local and Regional Self-Government, OG 117/93, 69/97, 33/00, 73/00, 127/00, 59/01, 107/01, 117/01-correction, 150/02, 147/03, 132/06, 26/07, 73/08 and 25/12

The goal of this paper was to examine economic life of municipalities. Economic life is defined as the fiscal efficiency of municipality and the business efficiency of entrepreneurs who do business in that municipality. Nature of the impact of ruling political parties on the economic outcomes in the municipalities, as well the impact of various municipal administrative status on those outcomes are also the subject of this analysis. In that context, what follows is literature overview, foremost of the empirical research in Croatia dealing with the aforementioned topics.

Although analytical background for measuring economic effects of fiscal decentralization is rather large (e.g. Scott 2009; Huther i Shah, 1998), empirical studies on this topic in Croatia are relatively scarce. As far as we are aware, there is only one paper that uses methods of inferential statistics on the efficiency analysis in Croatia. Rašić Bakarić et al. (2014) conducted a statistical analysis of basic efficiency indicators of Croatian cities. Analysis was conducted on a sample of 127 Croatian cities, and equal importance was given to the evaluation

of efficiency of city self-governments and the efficiency of entrepreneurs doing business in those cities. Differences in economic efficiency due to city size and location of the municipality in greater geographical regions are especially carefully examined. Besides that, the impact of ruling political parties on the outcome of economic processes is also analyzed. Results of the analysis show statistically significant differences in the economic efficiency of cities. There are especially large discrepancies in the economic efficiency of large and small cities, as well as between North-Western Croatian cities and the rest of the country.

Other empirical research is mostly concerned with the problem of fiscal equalization. Bajo and Bronić (2007) examine the existing model of fiscal equalization on a sample of 5% of the population of cities and municipalities in 2004, and conclude that the existing system of fiscal equalization does not lower fiscal inequalities that exist between cities and municipalities. Bronić (2010) made similar conclusions, by examining the aid system for counties in 2005. Besides aforementioned empirical papers, there is a significant number of mostly reviews dealing with the broader aspect of local finance and local budget (e.g. Ott & Bajo, 2001), questions of fiscal relations between certain levels of government (e.g. Jurlina Alibegović, 2006), questions of local borrowing (e.g. Drezgić, 2004; Primorac, 2011), questions of transfer of authority, responsibility and funds onto units of local and regional self-government (Ott et al. 2002; Jurlina Alibegović et al. 2010; Petak, 2012).

Not many papers dealing with the topic of efficiency of entrepreneurs on a local level have been found in the Croatian literature. Marković et al. (2013) have analyzed the performance of enterprises entitled to tax relief in the ASNC and provided an overview of financial resources (tax revenue) which state authorities have waived to facilitate a more competitive business performance. Stojčić (2012) finds positive and significant relationship between export intensity and the firms' location in small urban areas or free trade zones. There is a set of papers dealing with regional or local economic development (see Čavrak, 2009), but they exclude the analysis of business activities of entrepreneurs on this level. Čavrak (2004) includes the results from a field study based on questioners about the characteristics of entrepreneurial capacities in ASNC. Results of the research point to deficit of local 'entrepreneurial capacities', i.e. the lack of human resources and entrepreneurial climate in ASNC. That points to unequal entrepreneurial chances in relation to other parts of Croatia. There are certain papers offering suggestions on the statistical framework for regional development assessment in Croatia, as well as the selection of arguments for measuring regional (under)development (Cziraky, 2005; Puljiz, 2009).

Literature offers several papers partially dealing with the effect of ruling political parties on the outcome of economic processes in local units. Bratić (2008) analyzed the decision-making process in local budgets in Croatia, by questioning local councilors and interviewing competent authorities of local government in Croatia.

It can be concluded from the results that the executive local power plays the greatest role in the adoption of local budgets, whereas the role of representative government is weak. Research does not point to differences in budget (fiscal) variables in relation to certain ruling parties. However, there are two studies on political-budget cycles on a city and county level in Croatia (Mačkić 2013 and 2014). Both studies confirm the existence of opportunity business-budget cycles in the observed cities and counties in Croatia.

3. Methodology

The aim of the statistical analysis conducted in this paper is to determine whether the variation of economic outcomes in Croatian municipalities is determined by the size of the municipality, its geographic location, its administrative status, and the political party of a municipality's mayor. In order to test these assumptions we use the Levene's test for variance homogeneity, one-way analysis of the variance (ANOVA) or t-test and the Scheffe post hoc test.

The empirical analysis is divided into four segments. In the first segment we test the differences in mean values of variables representing several aspects of economic life in municipalities which can be attributed to the differences in the size of the municipalities. We consider the municipalities with 2,500 inhabitants or less as small municipalities. On the other hand, municipalities with 5,000 inhabitants or more are assumed to be large, while municipalities that have more than 2,500 and less than 5,000 inhabitants are considered medium size municipalities. In the second segment we test the variation of economic outcomes in municipalities which may stem from the difference in its administrative status. Thereby, we differentiate between four groups: ASNC municipalities, HMA municipalities, IA municipalities, and municipalities without the special administrative status. The third segment of the analysis investigates the relationship between the political structure and economic activities in municipalities. By political structure we assume the political party to which a mayor of the municipality belongs to. We differentiate four different political parties or party groups: Croatian Democratic Union (CDU), Social Democratic Party (SDP), regional parties, and other parties. The last segment of the statistical analysis assesses the influence of geographic location of municipalities on the variation in basic economic municipal indicators. Thereby, we define two geographical regions; Adriatic Croatia and Continental Croatia, as these regions correspond to the current NUTS classification (Nomenclature of territorial units for statistics).

The univariate test procedures of ANOVA and t-test are appropriate when the following basic assumptions are met: the distributions of the populations from which the samples are selected are normal and the variances of the distributions in

the populations are equal (the assumption of homogeneity of variance) (Aczel and Sounderpandian, 2009.). As this analysis is conducted on a sample size larger than 30 cases (427 Croatian municipalities), the normality does not need to be tested. In other words, as long as the sample is based on 30 or more observations, the sampling distribution of the mean can be safely assumed to be normal[11] (Bahovec and Erjavec, 2009.). Leven's test is used for testing the hypothesis that the variances in the groups are equal. If Leven's test shows that the variances are roughly equal ($p>0.05$, null-hypothesis is accepted), the one-way ANOVA (or t-test) with post-hoc comparisons can be estimated (Coakes, 2005).

4. Data and empirical analysis

In order to analyze the economic activity in Croatian municipalities, it is necessary to bring together and combine several data sets because we are interested in several dimensions of economic life of municipalities, with each dimension being represented in a separate data set. Namely, for all municipalities under the analysis we obtained data on the realization of the municipal budget, number of employees in municipal administration, entrepreneurial business results and employment in incorporated sector, number of inhabitants residing in a given municipality, average net wage in incorporated sector and crafts and free-lance professions, and the political party of the major of the municipality. Indicators related to the realization of municipal budgets and the data on the number of employees in municipal administration are taken from the data base on realization of the local government units´ budgets compiled and published by the Ministry of Finance of the Republic of Croatia (Ministry of Finance of the Republic of Croatia, 2013). Data related to average net wages comes from the Croatian Tax Authority. Basic business performance indicators of entrepreneurs registered in individual municipalities are collected, compiled and published by Financial Agency (Financial Agency, 2013). That data set contains the following business indicators: total revenues, number of entrepreneurs, number of employees, and net profit for each municipality for any given year. The data on the number of inhabitants in municipalities are taken from Croatian Census (Central Bureau of Statistics, 2012), while the data on the politically party of the municipalities´ mayor are obtained through the internet search.

Out of altogether 429 municipalities in Croatia, our data set entails 427 of them. Two municipalities (Prgomet and Marijanci) are excluded from the analysis because they are not covered in data compilation process of the Financial Agency,

[11] It stems from Central Limit Theorem which says that given random and independent samples of N observations each, the distribution of sample means approaches normality as the size of N increases, regardless of the shape of the population distribution.

which means that for those two municipalities there are no available data on entrepreneurial business performance. We use altogether 22 variables which are constructed from the indicators available in our conjoined database. The source and the manner of calculation of the variables are explained in Table 2.

Table 2: The description of dependent variables

The name of the variable	Variable definition	Data sources	Data range	Mean value	Standard deviation
Population	Number of inhabitants of the municipality	CBS	2007–2011	2,960.7	1,985.5
Entrepreneurial revenue per employee	Average per capita revenue of all enterprises registered in the municipality divided by the average number of persons in paid employment, in the period 2007–2011, (expressed in thousands HRK)	FINA	2007–2011	505.5	291.4
Entrepreneurial revenue per inhabitant	Average per capita annual revenue of all enterprises registered in the municipality, in the period 2007–2011, (expressed in *t*housands HRK)	FINA and CBS	2007–2011	41.0	63.5
Entrepreneurship	Average per capita number of legal entities registered in the municipality, in the period 2007–2011	FINA and CBS	2007–2011	1.2	1.2
Employment in incorporated sector	Average number of persons in paid employment in the period 2007–2011 expressed as a share of the population of the municipality, (%)	FINA and CBS	2007–2011	7.9	9.0
Net profit	Average net profit of legal entities registered in the municipality divided by the average number of enterprises, in the period 2007–2011, (expressed in thousands HRK)	FINA	2007–2011	0.6	0.5
Net profit – dummy variable	1= average net profit in the period 2007–2011 positive; 0= average net profit in the period 2007–2011, negative	FINA	2007–2011	–	–
Average net wage in incorporated sector	Average monthly net wage received by an inhabitant of a given municipality employed in incorporated sector, (expressed in HRK)	Croatian Tax Authority	2007–2011	3.398	489

The name of the variable	Variable definition	Data sources	Data range	Mean value	Standard deviation
Average net wage in crafts and free-lance professions	Average monthly net wage received by an inhabitant of a given municipality employed in a craft or working in a free-lance profession (expressed in HRK)	Croatian Tax Authority	2007–2011	3.335	841
Budget balance	Total average municipal budget revenues minus total average municipal budget expenditures in the period 2007–2011, (as % of total average revenues)	Ministry of Finance	2017–2011	0.3	13.0
Budget balance – dummy variable	1= average budget balance in the period 2007–2011, positive; 0= average budget balance in the period 2007–2011, negative	Ministry of Finance	2007–2011	–	–
Indebtedness	Total receipts from borrowing in the period 2002–2011 (as % of total average revenues)	Ministry of Finance	2002–2011	13.0	23.1
Indebtedness – dummy variable	1 = municipality was borrowing money in the period 2002-2011; 1 = municipality wasn't borrowing money in the period 2002–2011	Ministry of Finance	2002–2011	–	–
Central government aid	Average share of central government grants expressed as a share of the municipality's own revenues, (%)	Ministry of Finance	2007–2011	27.9	17.9
Tax revenues	Average tax revenues expressed as a share of the total municipality's budget revenues, in the period 2007–2011, (%)	Ministry of Finance	2007–2011	43.7	16.5
Subsidies	Average expenditures for subsidies expressed as a share of the total expenditures of the municipal budget in the period 2007–2011, (%)	Ministry of Finance	2007–2011	1.5	3.3
Employment in municipal administration	Average share of employment in the local government bodies in the total number of persons in paid employment, in the period 2007–2011, (%)	Ministry of Finance	2007–2011	14.4	26.7

The name of the variable	Variable definition	Data sources	Data range	Mean value	Standard deviation
Expenditures for employees and material costs	Average expenditures for material and labour costs expressed as a share of the total budgetary expenditures, in the period 2007–2011, (%)	Ministry of Finance	2007–2011	48.2	14.8
Expenditures for housing	Average per capita expenditures for housing, in the period 2007–2011, (expressed in thousands HRK)	Ministry of Finance and CBS	2007–2011	769.3	845.8
Expenditures for environmental protection	Average per capita expenditures for environmental protection, in the period 2007–2011, (expressed in thousands HRK)	Ministry of Finance and CBS	2007–2011	192.8	354.5
Expenditures for education	Average per capita expenditures for education, in the period 2007–2011, (expressed in thousands HRK)	Ministry of Finance and CBS	2007–2011	228.3	263.1
Expenditures for religion, culture and recreation	Average per capita expenditures for religion, culture and recreation, in the period 2007–2011, (expressed in thousands HRK)	Ministry of Finance and CBS	2007–2011	232.8	316.0
Expenditures for social protection	Average per capita expenditures for social protection, in the period 2007–2011, (expressed in thousands HRK)	Ministry of Finance and CBS	2007–2011	136.4	147.4

Source: Authors

All variables except Indebtedness are given as averages for the 2007-2011period, while Indebtedness is a sum of total debt accumulated during 2002-2011 period. We decided to average indicators in order to smooth out their pronounced variation across time and thus obtain a more representative indicator of economic and fiscal performance of individual municipalities. We must also note that three variables are dummy variables which 0 and 1 values refer to having a deficit or surplus (Budget balance), having net loss or net profit (Profitability), or not being able to borrow money or being able to borrow money (Indebtedness). Incorporating dummy variables into the analysis is another way to deal with pronounced variation of average values of variables across municipalities (this variation is clearly evident when observing mean and standard deviation values of variables presented in Table 2).

5. Results and discussion

As mentioned above, the empirical analysis is divided into four separate segments. This study applies one-way ANOVA (or t-test)[12] and the Scheffe's post hoc test in order to detect any variations in economic life of municipalities that stem from differences in their size, geographic position, special administrative status and political structure. Prior to ANOVA test, the Levene's test for equality of variances is performed, in order to assess variance homogeneity, which is a precondition for parametric tests such as the t-test and ANOVA. The results of the Levene's test are presented in the Appendix. ANOVA (or t-test) is conducted only for the variables for which equal variance assumption of the observed groups was met. In addition, one has to note that only statistically significant results of estimated tests are presented.

Table 3: One-way ANOVA and t-test

Variable	Municipality by size		Special administrative status		Political party of the Mayor		Region	
	df	F	df	F	df	F	df	t
Population	–	–	3	4.791*	–	–	425	3,565*
Central government aid	–	–	3	43.491*	3	10.238*	–	–
Indebtedness – dummy variable	–	–	3	2.754**	–	–	–	–
Expenditures for social protection per inhabitant	–	–	3	4.658**			–	–
Employment in incorporated sector	–	–	3	5.242*	–	–	425	-2,844*
Entrepreneurial revenue per inhabitant	–	–	–	–	–	–	425	-2,097**
Tax revenues	2	21.571*	–	–	3	3.840*	–	–
Indebtedness	–	–	–	–	3	2.802**	–	–
Net wage in incorporated sector	2	6.359*	3	19.341*	3	9.400*	–	–

Note: *significant at the 1% level, **significant at the 5% level of significance.

Source: Authors' calculation

In the first segment of the analysis the variation in variables representing municipal economic life which can be attributed to variation in the size of the municipalities was tested. Table 3 contains the results of this analysis.

[12] As the t-test is limited to comparing means of two groups and one-way ANOVA can compare more than two groups, the t-test is considered as a special case of one-way ANOVA.

Table 4: Results of post-hoc Scheffe test

Variable	Group	Type of municipality	Mean difference	Std. Err.	sig.
Tax revenues	Small	Medium	-7.42*	1.7	0.000
		Large	-14.18*	2.4	0.000
	Medium	Small	7.42*	1.7	0.000
		Large	-6.75**	2.5	0.027
Net wage in incorporated sector	Large	Small	263.60*	74.0	0.002
		Medium	206.10**	76.9	0.028
Population	Without special status	ASNC	634.08**	208.9	0.028
		HMA	422.99	367.5	0.723
		Islands	1056.57*	358.3	0.035
Employment in incorporated sector	ASNC	HMA	-3.0	1.7	0.361
		Islands	-6.1*	1.7	0.004
		Without special status	-2.2	0.9	0.134
Indebtedness – dummy variable	ASNC	HMA	-0.1	0.1	0.669
		Islands	-0.1	0.1	0.934
		Without special status	-0.15**	0.1	0.047
Central government aid	ASNC	HMA	9.28**	3.0	0.024
		Islands	17.75*	2.9	0.000
		Without special status	18.57*	1.7	0.000
	HMA	ASNC	-9.28**	3.0	0.024
		Islands	8.5	3.8	0.177
		Without special status	9.29**	2.9	0.020
Expenditures for social protection per inhabitant	ASNC	HMA	-12.2	27.9	0.979
		Islands	-8.9	27.2	0.991
		Without special status	48.97**	15.5	0.020
Net wage in incorporated sector	ASNC	HMA	-578.65*	88.3	0.000
		Islands	-280.35**	86.2	0.015
		Without special status	-275.87*	49.1	0.000
	HMA	ASNC	578.65*	88.3	0.000
		Islands	298.3	111.7	0.069
		Without special status	302.78*	86.4	0.007
Central Government Aid	CDU	SDP	11.07*	2.6	0.000
		Regional parties	13.99*	3.7	0.003
		Other parties	5.50	2.0	0.060
Tax revenues	SDP	CDU	7.31**	2.4	0.029
		Regional parties	8.77	4.0	0.185
		Other parties	8.66*	2.7	0.017
Indebtedness	CDU	SDP	-9.23	3.4	0.063
		Regional parties	3.18	4.9	0.936
		Other parties	-1.63	2.7	0.945
Net wage in incorporated sector	CDU	SDP	-210.38*	70.5	0.032
		Regional parties	-482.77*	101.8	0.000
		Other parties	-64.33	55.3	0.716
	Regional parties	SDP	272.38	116.0	0.139
		CDU	482.77*	101.8	0.000
		Other parties	418.43*	107.4	0.002

Note: *significant at the 1% level, **significant at the 5% level of significance.

Source: Authors' calculation

The obtained results indicate that there is significant difference in the share of tax revenues in the municipality's budget revenues and in the net wages paid in incorporated sector across the different size of municipality. In a one-way ANOVA, a significant F value indicates that there are differences in the means, but it does not tell us where those differences are. In order to detect the differences one has to apply the post-hoc analysis[13], i.e. the Scheffe test.[14] The statistically significant results of the Scheffe test are shown in the Table 4. For each pair of groups the difference between groups means is displayed, the standard error of that difference and the significance level of that difference. The results indicate that small municipalities have statistically lower tax revenues share in total revenues when compared to medium and large size municipalities. Also medium size municipalities have statistically lower tax revenue compared to large municipalities (for descriptive statistics by groups see Table 5). The difference is particularly striking when comparing the ratio of tax revenues for small and large municipalities, as the difference is 14.2 percent in favor of large municipalities. This difference suggests that smaller municipalities have significantly lower fiscal capacities when compared to large municipalities. However, it is interesting to note that although their fiscal capacity is lower, small municipalities do not differ from other municipalities in terms of budget balance, indebtedness or central government aid.

Regarding net earnings of municipality inhabitants in Croatia, results of the Scheffe test show that the average net wage paid in incorporated sector in large municipalities is statistically different (higher) than net earnings paid for employees in incorporated sector living in small municipalities and medium size municipalities. This result undoubtedly detects one of the sources for differences in tax revenues between municipalities of different size, as income tax is a main source of municipal budget income. Moreover, since average net wage in large municipalities is on average 8 percent higher when compared to small municipality, one can also conclude that small municipalities are on average economically more underdeveloped, while their inhabitants potentially more exposed to poverty.

[13] Post hoc tests are designed to compare all different combinations of the treatment groups.

[14] Sheffe test is usually used with unequal sample size, which is the case with this data set (Jones, J., 2009). Concepts of Statistics – Scheffe' and Tukey Tests. [Report]. Richmond, Virginia, Richmond Community College. URL: http://people.richland.edu/james/lecture/m170/ch13-dif.html [August 13, 2012].

Table 5: Descriptive statistics of the variables by groups of municipalities (arithmetic means by groups of municipalities)

Group	Type of municipality	N	Population	Indebtedness (%)	Tax revenues (%)	Central government aid (%)	Expenditures for social protection per inhabitant (000 Kuna)	Employment in incorporated sector (%)	Entrepreneurial revenue per inhabitant (000 HRK)	Net wage in incorporated sector (HRK)
Size	Small	219	–	–	39.2 (16.49)	–	–	–	–	3,344.8 (478.7)
	Medium	155	–	–	46.6 (15.4)	–	–	–	–	3,402.3 (488.8)
	Large	53	–	–	53.4 (13.2)	–	–	–	–	3,608.4 (484.7)
Special status	ASNC	154	2,674.6 (1.619.3)	–	–	39.0 (17.1)	158.2 (174.2)	6.07 (9.8)	–	3,198.2 (480.8)
	HMA	33	2,885.7 (2.252.4)	–	–	29.7 (15.1)	170.4 (113.1)	9.12 (7.78)	–	3,776.9 (526.2)
	Island	35	2,.252.1 (2.358.5)	–	–	21.3 (16.3)	167.1 (129.8)	12.2 (7.9)	–	3,478.6 (446.3)
	Without special status	205	3,308.7 (2.066.7)	–	–	20.4 (14.4)	109.2 (127.6)	8.3 (8.3)	–	3,474.1 (435.1)
Political party	SDP	56	–	20.8 (26.5)	50.4 (13.5)	20.5 (15.1)	–	–	–	3,537.9 (513.8)
	CDU	240	–	11.6 (22.6)	43.1 (17.3)	31.5 (17.3)	–	–	–	3,327.5 (445.1)
	Regional parties	24	–	8.4 (14.0)	41.7 (14.8)	17.5 (12.7)	–	–	–	3,810.3 (564.7)
	Other political parties	107	–	13.2 (23.1)	41.8 (15.6)	26.0 (18.9)	–	–	–	3,391.8 (498.7)
Region	Adriatic Croatia	268	2,522.0 (2.014.1)	–	–	–	–	9.5 (7.2)	49.3 (54.9)	–
	Continental Croatia	159	3,221.1 (1.925.1)	–	–	–	–	6.9 (9.7)	36.1 (67.6)	–

Note: standard deviation in parenthesis. Dummy variable is excluded.

Source: Authors' calculation

In the second segment of our analysis, we test the variation of economic outcomes in municipalities which may stem from the difference in its administrative status. As mentioned above, there are four groups of municipalities: municipalities with ASNC, HMA, IA and municipalities without the special administrative status. Results of the one way ANOVA (see Table 2) show that there are significant differences in six variables across the four types of administrative status of municipalities: number of inhabitants, central government aid, indebtedness, employment in incorporated sector, the amount of social protection expenditures per inhabitant, and average net wages in incorporated sector.

In the next step, we carry out post hoc Scheffe test to compare all groups with each other. We found a significant difference in favor of municipalities without special administrative status considering the number of inhabitants. The group of municipalities without special status has been found to have statistically larger population size than the group of ASNC municipalities and the group of island municipalities.

In addition, the Scheffe test results shows that there is a significant difference in favor of IA when compared to ASNC in relation to the employment in incorporated sector. In fact, IA municipalities exhibit the highest share of employed persons in total population when compared to other groups of municipalities probably due to tourism related activities. Statistical differences between other municipality groups related to incorporated employment were not found. Indebtedness of municipality was measured by a dummy variable, so there are two groups of municipalities, municipalities being able to borrow money, and municipalities not being able to borrow money. Results suggest ASNC municipalities have statistically lower capacity to borrow additional funds than municipalities without special administrative status. However, no statistically significant differences were found among other groups of municipalities.

The most interesting results were obtained for the variation of central government aid across municipalities with different administrative status. As illustrated in Table 3, amount of received central government aid varies significantly depending on special administrative status of the municipality. As indicated by the Scheffe test results, ASNC are more dependent on government aid than the HMA, the IA municipalities, and municipalities without special status. This result should not come as a surprise when considering the fact that ASNC municipalities on average receive the highest amount of aid (39 percent of their own revenues), while municipalities without the special status receive the lowest amount of aid (20 percent of their own revenues). Scheffe test results also indicate that the HMA municipalities are more dependent on central government aid than the group of municipalities without special status.

Regarding expenditures for social protections, the ASNC municipalities have significantly higher level of those expenditures than the group of municipalities

without special administrative status ($p<0.05$). There aren't found statistical differences across other three municipality groups for social protection expenditures. This in turn means that ASNC municipalities are more successful than HMA municipalities in alleviating the effects of poverty which is more prevalent in those areas. The analysis of the variation of net wages across municipalities related to the difference in their administrative status suggests that net wages in ASNC are statistically lower when compared to municipalities without special administrative status, HMA, and IA municipalities. Additionally, net wages in HMA municipalities are statistically higher than net wages in municipalities without special status (the wage difference is 9 percent in favor of HMA). This result, coupled with the fact that average employment in HMA is higher when compared to ASNC and municipalities without special administrative status, suggests one of the two following conclusions. Either tax benefits related to HMA status (profit tax breaks) had a positive effect on entrepreneurial activity in HMA municipalities, thus resulting in higher employment and wages, or HMA municipalities in effect do not need the special administrative status.

In the third segment of the empirical analysis we examine how economic performance in Croatian municipalities may vary in relation to the political party to which a mayor of the municipality belongs to. According to the one-way ANOVA the statistically significant differences across four groups of municipalities were found with the following variables**:** central government aid, tax revenues, indebtedness, and net wages (see Table 3). The results of the Scheffe test (see Table 4) show that the municipalities whose mayor is a member of the CDU have statistically higher share of governmental aid in municipal revenues than the municipalities whose mayor belongs to the SDP, regional party or to other political parties. The obtained results also indicate that there is significant difference in the share of tax revenues in the municipality's budget revenues across political affiliation of a mayor. The municipalities whose mayor is a member of the SDP were found to have statistically higher share of tax revenues in local budget revenues than the municipalities whose mayor is a member of the CDU or other political parties. As illustrated in Table 3, municipality indebtedness also varies significantly depending on the political affiliation of the mayor. Namely, municipalities whose mayor belongs to the SDP have higher level of debt than the municipalities whose mayor is a member of the CDU. In addition, the group of municipalities whose mayor belongs to the CDU has been found to have statistically lower net wages paid in incorporated, when compared to municipalities whose mayor belongs to SDP and regional political parties. This could suggest that voters in more underdeveloped municipalities on average prefer the CDU to other political parties. Moreover, municipalities whose mayor belongs to the regional parties have higher level of net earnings paid in incorporated sector than the municipalities whose mayor is a member of CDU or of other political parties.

In the fourth part of the empirical analysis we test the variation of economic outcomes in municipalities which may stem from the difference in its geographic position. Results of the t-test show that there a significant difference in favor of municipalities located in Adriatic Croatia considering the employment in incorporated sector ($p<0.01$) and the entrepreneurial revenue per inhabitant ($p<0.05$). On the other hand municipalities located in Continental Croatia have been found to have statistically larger population size than municipalities from Adriatic Croatia ($p<0.01$). No other differences which stem from wider geographical location of municipalities emerge.

6. Conclusion

The results indeed suggest that Croatian municipalities differ significantly in terms of their fiscal capacity, distribution of central government aid, indebtedness, employment, and average net wage paid to municipal inhabitants. The results suggest that the large municipalities have higher fiscal capacity, measured by the ratio of tax revenues in total municipal revenues, when compared to other groups of municipalities. This result suggest that a reform of local government units focused on more cost effective and fiscally sustainable administrative division, should encompass the enlargement of current municipalities, as this enlargement would inevitably increase their fiscal capacity and autonomy. The analysis also showed that the part of the difference in fiscal capacity of municipalities of various size stems from the variation in the net wage level in those municipalities. Further, the political affiliation of a mayor is related to the differences in the relative amount of aid granted from the central government budget, fiscal capacity and indebtedness, while the differences in administrative status of municipalities account for discrepancies observed in employment, average net earnings, indebtedness, central government aid, and expenditures for social protection. There are interesting findings regarding the variation of the central government aid granted to municipalities. Particular ASNC and HMA statistically differ in terms of received aid when compared to other municipalities and between themselves. Thereby, ASNC municipalities receive the highest amount of aid, which is in relative terms double in size when compared to municipalities without special administrative status. To resolve mentioned problems and diversities, a general local government reform and the reform of fiscal equalization process should be conducted more in favor of general approach, abandoning special statuses and aimed more to equalization of fiscal needs not fiscal capacities.

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Analiza ekonomskog života hrvatskih općina

Ivana Rašić Bakarić[1], *Hrvoje Šimović*[2], *Maruška Vizek*[3]

Sažetak

Cilj ovog članka je analizirati temeljne sastavnice ekonomskog života u hrvatskim općinama. U svrhu izrade analize prikupljena je baza podataka za 427 općine koja sadrži podatke o izvršenju proračuna općina i poslovanju poduzetnika registriranih u općinama u razdoblju od 2007. do 2011. U analizi se koriste metode multivarijantne statistike (Levenov test homogenosti varijance, ANOVA i Sheffeov post-hoc test), kako bi se utvrdile i proučile razlike u ekonomskim rezultatima koje nastaju zbog veličine općina, administrativnog statusa općine (općine koje potpadaju u područja posebne državne skrbi, brdsko planinska područja, otočna područja naspram općinama koje taj status nemaju), pripadnosti općine većim administrativnim jedinicama i regijama te stranačke pripadnosti načelnika općine. Rezultati analize sugeriraju da veličina općina objašnjava varijaciju u fiskalnom kapacitetu općina i prosječnoj plaći zaposlenih koji žive u općinama. Politička pripadnost načelnika općina povezana je s razlikama u primljenoj pomoći od središnje države, zaduženosti, i fiskalnog kapaciteta, dok posebni administrativni status općina objašnjava odstupanja u razini zaposlenosti, prosječne neto plaće, državne pomoći i rashoda za socijalnu zaštitu općina. Osnovni zaključak rada je da se hrvatske općine značajno razlikuju u većini promatranih ekonomskih pokazatelja te da bi postojeći administrativni status trebao biti predmetom opće reforme lokalne samouprave, ne samo u pogledu posebnih statusa i broja lokalnih jedinica nego i u pogledu procesa fiskalnog izravnanja.

Ključne riječi: *jedinice lokalne samouprave, općine, analiza varijance, poduzetništvo*

JEL klasifikacija: *C21, H70, L25*

[1] *Znanstvena suradnica, Ekonomski institut Zagreb, Kennedyjev trg 7, 10000 Zagreb, Hrvatska. Znanstveni interes: regionalna i urbana ekonomija, multivarijantna analiza, makroekonomija. Tel.: + 385 1 2362-229. E-mail: irasic@eizg.hr.*

[2] *Izvanredni profesor, Ekonomski fakultet, Sveučilište u Zagrebu, Kennedyjev trg 6, 10000 Zagreb, Hrvatska. Znanstveni interes: javne financije, fiskalna politika, porezni sustav. Tel.: + 385 1 238 3170. E-mail: hsimovic@efzg.hr.*

[3] *Viša znanstvena suradnica na Ekonomskom institutu Zagreb i predavač na Zagrebačkoj školi ekonomije menadžmenta u Zagrebu, Kennedyjev trg 7, 10000 Zagreb, Hrvatska. Znanstveni interes: primijenjena makroekonomija, međunarodne financije, ekonomika nekretnina, poslovni ciklusi, međunarodna ekonomija. Tel.: + 385 1 2362-212. E-mail: mvizek@eizg.hr.*

Appendix

Table A1: Levene's test* of equality of error variances, municipalities by size

Variable	F	df1	df2	Sig.
Population	79.469	2	424	0.000
Entrepreneurial revenue per employee	2.110	2	424	0.123
Entrepreneurial revenue per inhabitant	0.028	2	424	0.973
Entrepreneurship	8.667	2	424	0.000
Employment to population ratio incorporated sector	0.289	2	424	0.750
Net profit	13.886	2	424	0.000
Net profit - dummy variable	0.905	2	424	0.405
Budget balance	1.597	2	424	0.204
Budget balance – dummy variable	0.671	2	424	0.512
Indebtedness	6.095	2	424	0.002
Indebtedness – dummy variable	0.604	2	424	0.547
Net wages in incorporated sector	0.336	2	424	0.715
Net wages in crafts	2.387	2	424	0.093
Central government grants	7.942	2	424	0.000
Tax revenues	1.584	2	424	0.206
Subsidies	5.730	2	424	0.004
Employment in municipal administration	10.742	2	424	0.000
Expenditures for employees and material costs	6.791	2	424	0.001
Expenditures for housing	6.586	2	424	0.002
Expenditures for environmental protection	10.029	2	424	0.000
Expenditures for education	1.761	2	424	0.173
Expenditures for religion, culture and recreation	4.077	2	424	0.018
Expenditures for social protection	1.788	2	424	0.169

Note: *Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

Source: Authors calculation

Table A2: Levene's test of equality of error variances, municipalities by special administrative status

Variable	F	df1	df2	Sig.
Population	1.465	3	423	0.224
Entrepreneurial revenue per employee	4.387	3	423	0.005
Entrepreneurial revenue per inhabitant	1.759	3	423	0.154
Entrepreneurship	4.272	3	423	0.005
Employment to population ratio incorporated sector	0.638	3	423	0.591
Net profit	0.850	3	423	0.467
Net profit - dummy variable	1.768	3	423	0.153
Budget balance	2.894	3	423	0.035
Budget balance – dummy variable	4.316	3	423	0.005
Indebtedness	4.799	3	423	0.003
Indebtedness – dummy variable	2.133	3	423	0.095
Net wages in incorporated sector	0.308	3	423	0.819
Net wages in crafts	15.434	3	423	0.000
Central government grants	1.399	3	423	0.243
Tax revenues	3.571	3	423	0.014
Subsidies	2.611	3	423	0.051
Employment in municipal administration	33.079	3	423	0.000
Expenditures for employees and material costs	0.926	3	423	0.428
Expenditures for housing	6.298	3	423	0.000
Expenditures for environmental protection	12.118	3	423	0.000
Expenditures for education	15.663	3	423	0.000
Expenditures for religion, culture and recreation	4.401	3	423	0.005
Expenditures for social protection	2.396	3	423	0.068

Note: *Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

Source: Authors calculation

Table A3: Levene's Test* of Equality of Error Variances, municipalities by political party of the mayor

Variable	F	df1	df2	Sig.
Population	5.421	3	423	0.001
Entrepreneurial revenue per employee	1.242	3	423	0.294
Entrepreneurial revenue per inhabitant	7.592	3	423	0.000
Entrepreneurship	6.661	3	423	0.000
Employment to population ratio incorporated sector	3.773	3	423	0.011
Net profit	0.299	3	423	0.826
Net profit - dummy variable	0.971	3	423	0.406
Budget balance	0.646	3	423	0.586
Budget balance – dummy variable	1.310	3	423	0.271
Indebtedness	2.174	3	423	0.090
Indebtedness – dummy variable	20.018	3	423	0.000
Net wages in incorporated sector	1.783	3	423	0.150
Net wages in crafts	3.619	3	423	0.013
Central government grants	2.406	3	423	0.067
Tax revenues	1.639	3	423	0.180
Subsidies	0.824	3	423	0.481
Employment in municipal administration	2.375	3	423	0.070
Expenditures for employees and material costs	0.226	3	423	0.878
Expenditures for housing	5.877	3	423	0.001
Expenditures for environmental protection	5.859	3	423	0.001
Expenditures for education	5.695	3	423	0.001
Expenditures for religion, culture and recreation	8.391	3	423	0.000
Expenditures for social protection	2.849	3	423	0.037

Note: *Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

Source: Authors calculation

Table A4: Levene's Test of Equality of Error Variances, independent t-test, municipalities by geographical region

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Upper	Lower
Population	Equal variances assumed	0,033	0,855	3,565	425,0	0,000	699,1	196,1	313,7	1.084,5
	Equal variances not assumed			3,525	320,0	0,000	699,1	198,4	308,9	1.089,3
Entrepreneurial revenue per employee	Equal variances assumed	1,562	0,212	-1,122	425,0	0,263	-32,7	29,2	-90,0	24,6
	Equal variances not assumed			-1,013	240,4	0,312	-32,7	32,3	-96,3	30,9
Entrepreneurial revenue per inhabitant	Equal variances assumed	0,127	0,722	-2,097	425,0	0,037	-13,3	6,3	-25,7	-0,8
	Equal variances not assumed			-2,210	385,1	0,028	-13,3	6,0	-25,1	-1,5
Entrepreneurship	Equal variances assumed	43,745	0,000	-11,174	425,0	0,000	-1,2	0,1	-1,4	-1,0
	Equal variances not assumed			-9,671	211,7	0,000	-1,2	0,1	-1,5	-1,0
Employment to population ratio incorporated sector	Equal variances assumed	0,041	0,840	-2,844	425,0	0,005	-2,5	0,9	-4,3	-0,8
	Equal variances not assumed			-3,065	404,8	0,002	-2,5	0,8	-4,2	-0,9
Net profit	Equal variances assumed	12,293	0,001	2,804	425,0	0,005	0,1	0,0	0,0	0,2
	Equal variances not assumed			2,777	321,7	0,006	0,1	0,0	0,0	0,2
Net profit – dummy variable	Equal variances assumed	1,061	0,304	0,753	425,0	0,452	34,4	45,7	-55,4	124,2
	Equal variances not assumed			0,859	424,4	0,391	34,4	40,0	-44,3	113,1
Budget balance	Equal variances assumed	0,003	0,956	0,550	425,0	0,583	0,7	1,3	-1,8	3,3
	Equal variances not assumed			0,519	275,1	0,604	0,7	1,4	-2,0	3,4
Budget balance – dummy variable	Equal variances assumed	0,132	0,717	-0,179	425,0	0,858	0,0	0,0	-0,1	0,1
	Equal variances not assumed			-0,179	332,3	0,858	0,0	0,0	-0,1	0,1
Indebtedness	Equal variances assumed	2,525	0,113	0,718	425,0	0,473	1,7	2,3	-2,9	6,2
	Equal variances not assumed			0,750	376,0	0,454	1,7	2,2	-2,7	6,0
Indebtedness – dummy variable	Equal variances assumed	0,542	0,462	-1,059	425,0	0,290	-0,1	0,1	-0,2	0,0
	Equal variances not assumed			-1,058	331,0	0,291	-0,1	0,1	-0,2	0,0

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Upper	Lower
Central government grants	Equal variances assumed	16,652	0,000	2,303	425,0	0,022	4,1	1,8	0,6	7,6
	Equal variances not assumed			2,120	254,6	0,035	4,1	1,9	0,3	7,9
Tax revenues	Equal variances assumed	4,322	0,038	1,399	425,0	0,163	2,3	1,7	-0,9	5,6
	Equal variances not assumed			1,445	365,9	0,149	2,3	1,6	-0,8	5,5
Subsidies	Equal variances assumed	0,136	0,713	0,071	425,0	0,943	0,0	0,3	-0,6	0,7
	Equal variances not assumed			0,080	424,9	0,936	0,0	0,3	-0,5	0,6
Employment in municipal administration	Equal variances assumed	0,580	0,447	-0,252	425,0	0,801	-0,7	2,7	-5,9	4,6
	Equal variances not assumed			-0,234	261,1	0,815	-0,7	2,9	-6,4	5,0
Expenditures for employees and material costs	Equal variances assumed	3,739	0,054	-1,491	425,0	0,137	-2,2	1,5	-5,1	0,7
	Equal variances not assumed			-1,434	293,3	0,153	-2,2	1,5	-5,2	0,8
Expenditures for housing	Equal variances assumed	136,674	0,000	-9,538	425,0	0,000	-733,8	76,9	-885,0	-582,6
	Equal variances not assumed			-7,904	188,2	0,000	-733,8	92,8	-916,9	-550,7
Expenditures for environmental protection	Equal variances assumed	79,741	0,000	-7,432	425,0	0,000	-248,4	33,4	-314,1	-182,7
	Equal variances not assumed			-6,091	183,0	0,000	-248,4	40,8	-328,8	-167,9
Expenditures for education	Equal variances assumed	35,709	0,000	-7,357	425,0	0,000	-182,7	24,8	-231,6	-133,9
	Equal variances not assumed			-6,350	210,1	0,000	-182,7	28,8	-239,5	-126,0
Expenditures for religion, culture and recreation	Equal variances assumed	63,695	0,000	-8,357	425,0	0,000	-245,3	29,4	-303,0	-187,6
	Equal variances not assumed			-6,773	178,0	0,000	-245,3	36,2	-316,8	-173,8
Expenditures for social protection	Equal variances assumed	7,137	0,008	-3,607	425,0	0,000	-52,5	14,5	-81,1	-23,9
	Equal variances not assumed			-3,270	242,8	0,001	-52,5	16,0	-84,1	-20,9

Source : Authors calculations