

Measuring Efficiency at the Regional Level: A Data Envelopment Analysis Approach

SUNČANA SLIJEPCHEVIĆ

Abstract European countries have been continuously under the pressure to improve public balances and efficiency of public spending. Economic crisis which started during 2007 weakened public finances at the state and local level in countries all over the world. In Croatia local government budgets are still below the pre-crisis level in many local government units. This paper empirically examines efficiency of public expenditures at the regional level. Performance has been investigated by developing a composite indicator of output. Spending efficiency at the regional level was analysed using Data Envelopment Analysis methodology. Results suggest that there are large differences at the regional level in using resources to provide public services. The results show that the local government units in the least efficient county should on average decrease their expenses by 55 percent, while achieving the same performance to become efficient.

Keywords: • efficiency • performance • Data Envelopment Analysis
• regional level

CORRESPONDENCE ADDRESS: Sunčana Slijepčević, Ph.D., The Institute of Economics, Zagreb, Trg J. F. Kennedyja 7, 1000 Zagreb, Croatia, email: suncana@eizg.hr.

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1 Introduction

Economic crisis which started during 2007 weakened public finances at the state and local level in countries all over the world. Usually, investments and tax revenues drop, budget deficit widens and/or public debt increases (Jonas, 2013; Levine, Justice and Scorsone, 2013; Slijepčević, 2018). In addition, local economies were challenged with the increase in unemployment and business closures, while investment decreased as the consequence of the economic crisis (OECD, 2009; Guidoum and Soto, 2010). Local government were forced to adapt to new circumstances and to a more difficult fiscal stance that was caused by the crisis. This paper analyses performance and efficiency of local government units at the regional level in the period after the financial crisis. Thus, paper investigates success of municipalities, cities and counties in providing services to residents in a certain county and the efficiency of using resources was observed. The following hypotheses were tested. First, there are significant differences in performance and efficiency at the regional level. Second, there is positive link between level of development and performance, but there is no correlation between level of development and efficiency at the regional level. The aim of the paper is to analyse the performance and the efficiency of providing public services at the regional level and to investigate if there is an efficiency gap between small and large local government units. Performance of counties has been investigated by developing a composite indicator of output. The spending efficiency of 20 counties in Croatia was analysed using Data Envelopment Analysis (DEA) for estimating production frontier. DEA enables to calculate the difference between efficiency of each county and the best-practice frontier.

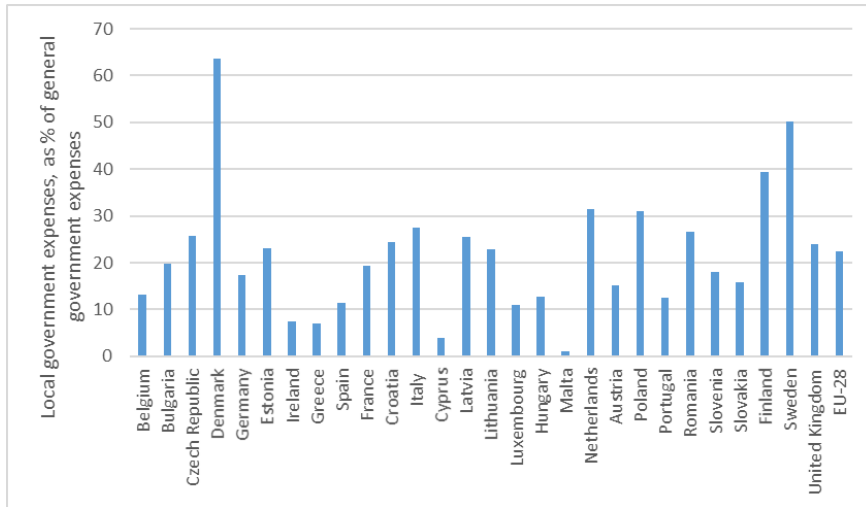
Measuring efficiency in the public sector has become important after a significant increase in the public expenditures of the most developed countries and the question of economic and social effects of using such large resources. In most of the studies, the efficiency analyses of individual sectors were made. Recent analysis has been made in the health sector (Gupta and Verhoeven, 2001; Linna et al., 2006; Pilyavsky and Staat, 2008; Kocisova et al., 2018; Kludacz-Alessandri, 2018), education (Afonso and St.Aubyn, 2005) and wastewater sector (Blaeschke and Haug, 2018). More general estimation of efficiency of the local government which include data for several sectors has been conducted for Czech Republic (Štátná and Gregor, 2015), Italy (Io Storto, 2013; Vidoli and Fusco, 2018), Portugal (Afonso and Fernandes, 2006), Finland (Loikkanen and Susiluoto, 2005), Spain (Benito et al., 2010), Slovenia (Pevcin, 2014), Turkey (Kutlar et al, 2012) and Belgium (Geys and Moesen, 2009; De Borger et al., 1994, De Borger and Kerstens, 1996). This paper contributes to the scarce literature dealing with the use of financial resources by local government units in the post-transition European countries which has been seriously hit by the 2008 financial crises. The novelty of this research is also in examining the relationship between the level of local economic development, performance and efficiency.

The analysis of the efficiency of expenses at the regional level in Croatia has been carried out in two main steps. In the first step, performance indicators that reflect the results in six selected services have been calculated, and based on that, the aggregate indicator of performance of local government units at the regional level was calculated. In the second step, DEA was carried out with a main goal to evaluate efficiency of using resources.

The paper is structured as follows. The next part of the paper describes the main features and differences between counties in Croatia. Methodology and data used for measuring performance and efficiency at the regional level has been described in the third part of the paper. Fourth part of the paper describes results and gives recommendation. Paper ends with the final conclusions.

2 Fiscal stance and development of local government units in Croatia

Most European countries have conducted at least partial decentralization reforms over the past 20 years, and part of responsibilities and/or resources have been transferred to the local levels of government. However, IMF (1998) stress that decentralization reforms in most of the transition countries where conducted by the method of trial and errors and is some cases with the lack of appropriate transfer of responsibilities which caused that some local public service sometimes remained the responsibility of central government and vice versa. The level of decentralization in European countries measured by the share of total expenses of local government in the consolidated general government expenses oscillate between 1 percent in Malta and 63.6 percent in Denmark in 2016 (Figure 1). In Croatia, the decentralization process started in 2001, but it stopped and it is not yet completed (Jurlina Alibegović et al., 2013; Slijepčević, 2018). In 2016, the share of local government expenses in total general government expenses in Croatia was only slightly above the EU-28 average and amounted to 24.3 percent. However, the total budget of local government units in Croatia has been decreasing since the 2008 economic crises. Total expenses of local government units were in 2017 in 14 counties (70 percent) lower than in the 2008.

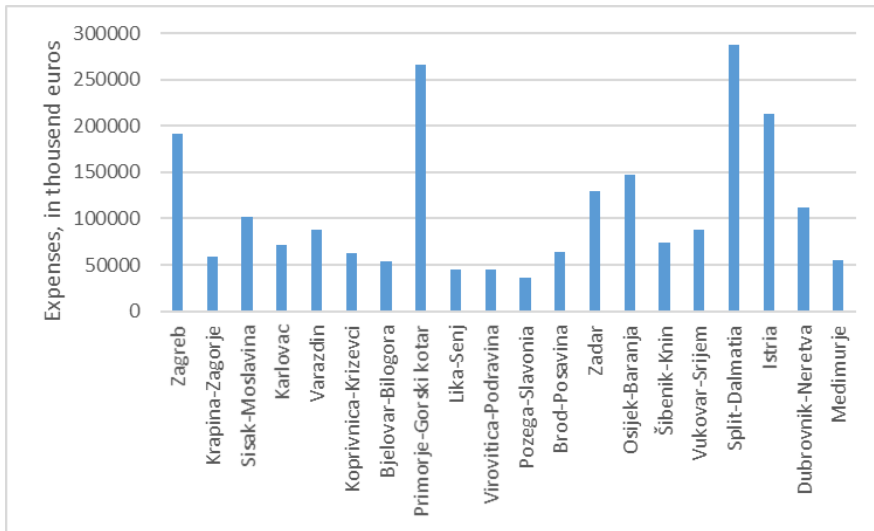
Figure 1: Expenses of local-government units in European countries, 2016

Source: Eurostat.

Literature raises the issue of the impact of fiscal decentralization on growth and whether decentralization reduces the ability of the central state to achieve financial control and conduct stabilization policy measures during the time of an economic crisis. Bartolini et al. (2018) on the sample of OECD countries prove that fiscal decentralization is not an obstacle to sound fiscal position and macroeconomic stability. Literature analysing the impact of the crisis on the behaviour of local units in spending resources is rare. This paper focuses on analysing the performance and the efficiency of local government spending. The territory of Republic of Croatia consists of 429 municipalities and 126 towns at the local level, the City of Zagreb and of 20 counties at the regional level, which makes a total of 576 sub-national units. This paper focuses on analysing the efficiency at the regional level, meaning that the analysis covers summary data for municipalities, towns and counties, but observed at the regional level. The City of Zagreb is excluded. Total local government revenues (without the City of Zagreb) in Croatia were 5 percent lower in 2017 than in 2008.

Data in Figure 2 shows that there are large differences in the size of budgets at the regional level in Croatia. Average expenses of local government units in Croatia in the period 2015-2017 oscillate between 36 thousand euros in Požeška-Slavonia County and 288 thousand euros in Split-Dalmatia County. In relation to the number of inhabitants of the county, the expenses range between 405 euros in Brod-Posavina County and 1,025 euros in Istria County.

Figure 2: Expenses of local-government units, average 2015-2017



Source: author, based on the Ministry of Finance data.

It is characteristic for all countries, and not just for Croatia, that there is an increasing demand for government services, but also that financial constraints are emerging because of insufficient resources for performing all functions and responsibilities and for securing all goods and services of the public sector. That is the reason to try to realize the maximum efficiency of using limited resources.

3 Data and methodology

Efficiency can be measured by comparing inputs (resources) in relation to the obtained outputs (results). It can be considered that efficiency is achieved when it is not possible to increase the results with a given level of expenses, i.e. resources have been efficiently used when, with the same expenses, it is not possible to achieve greater benefits for the inhabitants. Efficiency means the ability to achieve the outputs and realize the desired effects in relation to the resources invested in achieving outputs and outcomes.

The foundation for the development of DEA was set by Farrell (1957), while Charnes, Cooper and Rhodes (1978) developed a DEA methodology known as CCR model. Data envelopment analysis (DEA) is non-parametric technique which is based on linear programming. DEA assumes a convex production frontier (Afonso and Fernandez, 2006). It enables to compare the relative efficiency of several units, in this case counties. DEA enables to calculate the relative efficiency for each unit and to

measure how much each decision making unit can decrease the inputs without changing the outputs.

The DEA allows comparison of the efficiency of different units in a way that determines the most efficient unit by calculating the optimal combination of inputs to produce the outputs and setting such a decision-making unit as the best practice. This unit is on the efficiency frontier. Then the ineffectiveness of each other decision-making unit is measured in relation to the most efficient one. This method is used to evaluate the comparative efficiency of homogeneous organizational units. The purpose of measuring the efficiency with DEA is to estimate how much it is possible to reduce the resources invested without the change of outputs, or to what extent the results can be increased without investing additional resources. The relative efficiency score is within the range 0-1 where 1 means that decision making unit is 100 percent efficient.

Efficiency is the ratio between weighted sum of outputs and weighted sum of inputs. According to Charnes et al. (1978) relative efficiency for each decision making unit could be calculated by solving the following mathematical problem:

$$\max \frac{\sum_{r=1}^s u_r \cdot y_{r0}}{\sum_{i=1}^m v_i \cdot x_{i0}}$$

$$\text{subject to: } \frac{\sum_{r=1}^s u_r \cdot y_{rj}}{\sum_{i=1}^m v_i \cdot x_{ij}} \leq 1, \quad j = 1, \dots, n$$

$$u_r, v_i \geq 0$$
(1)

where m and s are known inputs and outputs for each decision making unit and v_i ($i = 1, \dots, m$) and u_r ($r = 1, \dots, s$) are weighted inputs and weighted outputs.

The goal of solving the mathematical problem showed above is to obtain the weights for inputs and outputs that maximize the ratio of decision making unit which has been evaluated.

As explained by Cooper et al. (2007) decision making unit can be considered to be efficient if efficiency score is 1 and there exist at least one optimal v^* , u^* with $u_r, v_i > 0$. Otherwise, decision making unit is considered to be inefficient.

This paper analyses the relative efficiency at the regional level. The analysis has been conducted taking into account six dimension of performance of local government units at the regional level. Thus, the composite indicator of performance of local government at the regional level have been calculated. Selection of variables used to calculate composite performance indicator at the regional level is primarily based on the relevant literature, on the availability of data and on the selection of public functions for which the local government units in Croatia are responsible. In the case

where data were available for longer period, data for the last three years was used in order to get more reliable results.

As a measure of general administrative services provided to inhabitants in the county, data regarding the total number of residents have been used. Since official data about the number of inhabitants have been available for 2011, this indicator has been calculated as the average value of number of inhabitants according to Census 2011 data and the projection on the number of inhabitants in the county for the period 2015-2017.

Local government units have been responsible for preschool education. Conducted decentralization reform in Croatia resulted that the expenses for material costs and capital investments in primary education were transferred to the budgets of 32 large and/or financially stronger towns and counties, as well as the expenditures for material costs and capital investments in secondary education that were transferred to county budgets. As a measure of education in the county, data about the preschool and primary school education has been used. So the indicator of education has been calculated using data about number of children per kindergarten and number of children per primary school in the county.

As suggested by the Afonso and Fernandez (2006) results in providing social services have been proxy with the number of residents older than 65 years since data about the social services for the elderly on the regional level are not available. Same indicator has been also used by Štátná and Gregor (2015) for analysing efficiency of local government in Czech Republic and Pevcin (2014) for analysing efficiency of sub-national government in Slovenia.

From the local perspective, among the most important part of environmental protection is the waste collection. Data about the percent of the population served with waste collection within the county is used as the indicator for waste collection.

Improvements in the quality of life for local residents, which incorporates cultural services are also very important. As the indicator of cultural offer in the county, data about the number of cinemas and libraries in the county have been used. Indicator of performance of local government units in providing cultural services to the citizens has been calculated using data on the number of cinemas per capita and number of libraries per capita in the county.

As a measure of local government investment in the infrastructure data on the road network density in the county has been used.

List of measures of output has been described in table 1. All the data have been standardized and sub-indicators have been calculated for each of the six selected

public functions. Equal weights have been given to each variable and each sub-indicator in the model.

Table 1: List of output measures for selected services

| Local service | Measure |
|---|--|
| General administrative services provided to inhabitants | Number of inhabitants in 2011 Projection of number of inhabitants 2015-2017 |
| Education | Number of children per kindergarten, average 2015-2017 Number of children per school, average 2015-2017 |
| Environmental protection | Percent of the population served with waste collection, 2016 |
| Infrastructure | Road network density, average 2015-2017 |
| Culture | Number of cinemas per inhabitant in county, average 2015-2017 Number of libraries per inhabitant in county, average 2015-2017 |
| Social services | Number of inhabitants in county + 65 years old, 2011 |

Source: author

As a proxy of used input, total expenses of local government units in the county per capita have been used. Analysis is based on the data on total expenses of local government units for the last three years. Data on the total expenses of local government units consist from expenses of municipalities, towns and county. Although some of the authors use the total expenses as the input variable instead per capita expenses, counties in Croatia are different in size measured with the number of inhabitants. So, using data on total expenditures would result in getting the least efficient local government units those which have the largest expenditures. Looking on average, county with the largest total expenses has almost eight times larger expenses than those with the smallest total expenses.

4 Results

The goal of the paper is to examine the differences in performance and efficiency in using resources to provide public functions at the regional level. As explained in the previous part of the paper, performance of local government units at the regional level is measured with 9 variables. Thereby, two variables refer to the measurement of education, two relate to general administrative services, one to providing social service, two relate to cultural facilities, one to infrastructure, while one relates to environmental protection within the county. Differences between counties have been briefly described with the following table. Counties differ considerably in the size of inhabitants. Number of inhabitants is oscillating between 51 thousand in Lika-Senj County and almost 455 thousand in Split-Dalmatia County according to the Census 2011 data. Also, data shows the high regional differences in terms of the expenses.

Table 2: Descriptive statistics

| Variable | Valid N | Mean | Minimum | Maximum | Std.Dev. |
|--|---------|-------------|------------|-------------|------------|
| Preschool education, on 1000 children | 20 | 8 | 5 | 14 | 3 |
| Elementary school, on 1000 children | 20 | 5 | 3 | 9 | 1 |
| Number of inhabitants, 2011 | 20 | 174,744 | 50,927 | 454,798 | 98,899 |
| Number of inhabitants, 2015-2017 | 20 | 168,297 | 46,822 | 451,600 | 98,706 |
| Number of inhabitants 65+ | 20 | 31,796 | 12,224 | 79,599 | 17,155 |
| Percent of the population served with waste collection | 20 | 98 | 86 | 100 | 3 |
| Road network density, m/km ² | 20 | 520 | 336 | 939 | 164 |
| GDP per capita, in euros | 20 | 8,687 | 5,849 | 18,336 | 2,883 |
| Total local government expenses per capita, in euros | 20 | 617 | 405 | 1,025 | 184 |
| Total local government expenses, in euros | 20 | 109,521,542 | 36,126,908 | 287,550,051 | 74,554,287 |

Source: author.

Table 3. presents the results of performance of local government units at the regional level in providing selected services. Results suggest that there are significant differences at the regional level in providing selected public functions. Especially large differences can be noticed in cultural services and general administrative services. 60 percent of counties have below average offer of cultural facilities. Also, 65 percent of counties have general administrative services proxied by the total population in the county below average. This is the result of a small number of inhabitants and the trend of depopulation in those counties. Education indicator is below average in 40 percent of the counties, while social services indicator is below average in 65 percent of the counties. The smallest differences between counties can be seen in environmental protection due to the fact that between 95 and 100 percent of citizens have been served with waste collection. 60 percent of counties have below average indicator for infrastructure. Istria County is the only one which have above average results in all analysed areas implying the good performance of Istria County compared to other counties in Croatia.

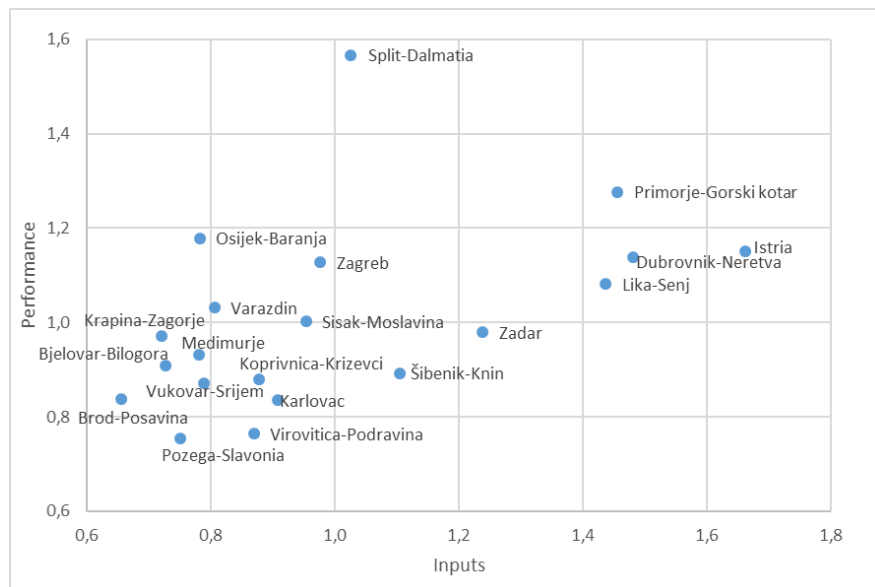
Table 3: Performance of sub-indicators at the regional level

| County | Education | General administration services | Social services for elderly | Environment | Infrastructure | Culture |
|-----------------------|-----------|---------------------------------|-----------------------------|-------------|----------------|---------|
| Zagreb | 0.68 | 1.84 | 1.62 | 1.02 | 1.03 | 0.58 |
| Krapina-Zagorje | 1.06 | 0.76 | 0.75 | 0.98 | 1.53 | 0.75 |
| Sisak-Moslavina | 0.84 | 0.96 | 1.08 | 0.97 | 0.77 | 1.39 |
| Karlovac | 0.99 | 0.73 | 0.88 | 1.01 | 0.80 | 0.60 |
| Varazdin | 0.77 | 1.01 | 0.95 | 0.98 | 1.81 | 0.67 |
| Koprivnica-Krizevci | 1.25 | 0.66 | 0.66 | 1.01 | 1.15 | 0.55 |
| Bjelovar-Bilogora | 1.31 | 0.67 | 0.71 | 1.02 | 0.86 | 0.88 |
| Primorje-Gorski kotar | 0.90 | 1.71 | 1.80 | 1.02 | 0.83 | 1.41 |
| Lika-Senj | 1.51 | 0.28 | 0.40 | 1.01 | 0.65 | 2.64 |
| Virovitica-Podravina | 1.14 | 0.48 | 0.47 | 1.02 | 0.82 | 0.66 |
| Pozega-Slavonia | 1.22 | 0.44 | 0.45 | 0.88 | 0.73 | 0.81 |
| Brod-Posavina | 1.01 | 0.89 | 0.90 | 1.02 | 0.86 | 0.36 |
| Zadar | 1.16 | 0.99 | 1.01 | 1.02 | 0.95 | 0.75 |
| Osijek-Baranja | 1.14 | 1.73 | 1.66 | 1.02 | 0.76 | 0.76 |
| Šibenik-Knin | 1.12 | 0.62 | 0.77 | 1.02 | 0.74 | 1.09 |
| Vukovar-Srijem | 1.05 | 1.00 | 0.99 | 0.98 | 0.75 | 0.47 |
| Split-Dalmatia | 0.94 | 2.64 | 2.43 | 1.02 | 1.12 | 1.25 |
| Istria | 1.15 | 1.21 | 1.20 | 1.02 | 1.20 | 1.12 |
| Dubrovnik-Neretva | 0.88 | 0.71 | 0.70 | 1.02 | 1.12 | 2.40 |
| Medimurje | 0.96 | 0.66 | 0.57 | 1.01 | 1.53 | 0.86 |
| Average | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |

Source: author

Total performance has been calculated giving the equal weights to each sub-indicator presented in the table 3. Figure 3. shows the performance in comparison to the used resources in each county. Split-Dalmatia County serves as the good example. However, it has to be noted that Split-Dalmatia County has larger number of inhabitants compared to other counties which had impact on the sub-indicator general administrative services proxied by the number of inhabitants. Although such an approximation is usually used in other literature measuring efficiency, it has to be stressed that larger number of inhabitants only reflects the greater need for general administrative services, but not that the citizens really receive a quality service. However, in the literature it is generally assumed that the number of inhabitants reflects some general administrative services, as well as all other services for which better data do not exist (Narbón-Perpiña and De Witte, 2018). Split-Dalmatia County has the highest performance, followed by Primorje-Gorski kotar, Istria and Osijek-Baranja counties. The lowest performance measured with selected indicators are in Požega-Slavonia, Virovitica-Podravina and Brod-Posavina counties. Požega-Slavonia County has a low level of all sub-indicators except education, while Virovitica-Podravina and Brod-Posavina County have below average level of all sub-indicators except education and environmental protection.

Figure 3: Performance at the regional level

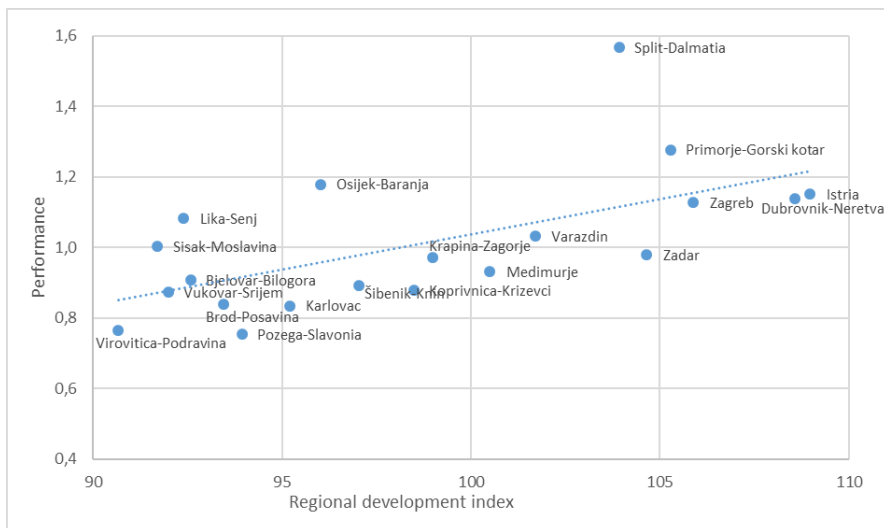


Source: Author.

Level of the development of counties can be measured with the official development index of regional self-government units (Act on Regional Development of Republic

of Croatia, 2014, 2017). Development index can be calculated as a composite index based on six indicators (Regulation on development index, 2017). These are: unemployment rate, income per capita, income of local/regional budget per capita, change in the number of inhabitants, rate of education and ageing index. The results indicate that the achieved efficiency at the regional level is not related to the level of development measured with the development index. On the other hand, there is a link between the local government performance and the development. The counties that achieved better results measured by the composite performance indicator presented in the paper are at the same time more developed counties.

Figure 4: Performance and development

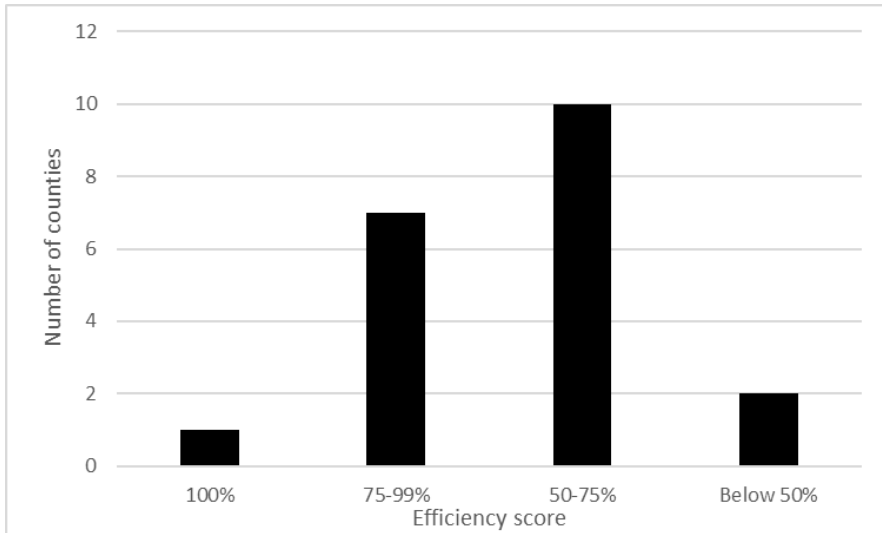


Source: Author.

Based on all this data, efficiency of local government units at the regional level in Croatia has been calculated. There are significant differences in the level of efficiency. Only one county has efficiency score 1. On the opposite side, two counties should decrease the expenses by more than 50 percent to come to the frontier and achieve the maximum efficiency. These are Lika-Senj and Istria counties. The reason for low efficiency score of Istria County lies in the high level of total expenses of local government units which is highly above the average even when it is analysed in per capita terms. Lika-Senj County has the low level of total expenses of local government units, but also very low number of inhabitants in the county. Compared to Split-Dalmatia County, Lika-Senj County has 9 times lower number of inhabitants. These results imply that the level of efficiency depends on the number of inhabitants.

Table 4: Efficiency scores

| County | Efficiency scores | Rank |
|--------------------------|-----------------------|------|
| Zagreb | 0.76 | 8 |
| Krapina-Zagorje | 0.88 | 3 |
| Sisak-Moslavina | 0.69 | 10 |
| Karlovac | 0.60 | 13 |
| Varazdin | 0.84 | 4 |
| Koprivnica-Krizevci | 0.66 | 12 |
| Bjelovar-Bilogora | 0.82 | 6 |
| Primorje-Gorski kotar | 0.57 | 15 |
| Lika-Senj | 0.49 | 19 |
| Virovitica-Podravina | 0.57 | 14 |
| Pozega-Slavonia | 0.66 | 11 |
| Brod-Posavina | 0.84 | 5 |
| Zadar | 0.52 | 17 |
| Osijek-Baranja | 0.99 | 2 |
| Šibenik-Knin | 0.53 | 16 |
| Vukovar-Srijem | 0.72 | 9 |
| Split-Dalmatia | 1.00 | 1 |
| Istria | 0.45 | 20 |
| Dubrovnik-Neretva | 0.50 | 18 |
| Medimurje | 0.78 | 7 |
| Average efficiency score | 0.65 | |
| Lowest efficiency score | 0.45 (Istria) | |
| Highest efficiency score | 1.00 (Split-Dalmatia) | |

Figure 5: Efficiency at the regional level

Source: Author.

Database for analysing efficiency at the regional level is rather scarce and disable more detail analysis. Some sub-indicators have been analysed using only proxies and for some there are no available data at the regional level at all which disables more deeper analysis. Size of county measured by the number of inhabitants affects the level of efficiency implying that more deep investigation of sources of inefficiency would be necessary. On the one hand, higher number of inhabitants increase the cost, while on the other hand using this variable to proxy some service leads to higher performance.

Efficiency gap between some counties can be partly explained. Kalb et al. (2012) show that the efficiency is usually underestimated in local government units with higher tourist activity due to higher expenses. Same explanation can be valid for Croatia where results show that most of the counties with lower level of efficiency are those in Adriatic Croatia. Counties in Adriatic Croatia have a higher and an increasing level of tourist activity, larger number of tourist accommodation facilities which increase their expenses. Despite all this, results reveal that half of the local government units tends to exhibit average inefficiency in the range 25-50 percent.

5 Conclusions

Croatia, like most other European countries, is challenged with the necessity to reduce and change the structure of public spending. Demand for services is increasing, while due to financial crisis financial situation of a large number of local government units

is poor. In many cases they have inadequate resources for performing all functions and for securing all goods and services to their citizens. The expectations that citizens have from the local community are increasing. The process of decentralization has resulted in the transfer of tasks to local government, but without the complete transfer of financial resources. Such reform increased the need to improve rational use of resources to provide adequate levels of public service to the citizens. That is why there is a need to identify opportunities to improve efficiency.

Results of measuring efficiency shows that there are large differences between the county on the efficiency frontier and counties with the lowest level of efficiency in using the resources to provide public services. The results show that the local government units in the least efficient county should on average decrease their expenses by 55 percent, while using the same expenses to become efficient.

Looking on average, there is large distance between average efficiency and frontier. On average, performance is achieved at the 35 percent larger expenses than at the frontier. Average distance from the best practice frontier is in Croatia higher than in some other European countries, such as Germany (Karb et al., 2011), Italy (Lo Storto, 2013) and Slovenia (Pevcin, 2014). Although it has to be noted that methodological differences between papers exist and interpreting only efficiency scores, while disregarding other differences could lead to potential wrong conclusion.

The results of analysis confirm that there is the positive link between level of development and performance, but there is no correlation between level of development and efficiency at the regional level. Similarly, as Kalb et al. (2011) for Germany, this paper also show that underestimation of efficiency can occur in those regions which have a higher tourist activity. Results also imply that counties which have a higher level of total expenses of local government units per capita usually have a lower level of efficiency. These results are in line with those from Afonso and Fernandes (2006) for Portugal.

It has to be noticed that this analysis is performed on the limited number of variables which have been available for Croatia. It gives an overview of the level of performance and efficiency and differences between counties. However, to better analyse the sources of inefficiency it would be necessary to conduct analysis of the more detail data particularly for social services. Also, more detail data about the expenses of local government units would be necessary to better analyse efficient use of resources. Thus, this research opens additional questions for future investigations.

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Appendix:**Table 5:** Data description and sources

| Variable | Data description | Sources |
|--|---|-------------------------------|
| Total expenses of local government units | Total annual expenses of local self-government units. Sum of total expenses of municipalities, towns and county | Ministry of Finance |
| Preschool education | Number of kindergarten per 1,000 children | Croatian Bureau of Statistics |
| Number of inhabitants, 2011 | Number of inhabitants according to 2011 Census | Croatian Bureau of Statistics |
| Number of inhabitants, 2015-2017 | Projection of the number of inhabitants | Croatian Bureau of Statistics |
| Elementary school | Number of elementary schools per 1,000 children | Croatian Bureau of Statistics |
| Number of inhabitants 65+ | Number of inhabitants older than 65 years according to 2011 Census | Croatian Bureau of Statistics |
| Population served with waste collection | Percent of the population served with waste collection | Croatian Bureau of Statistics |
| Road network density, m/km ² | The length of the roads divided by the area of the county | Croatian Bureau of Statistics |
| GDP per capita, in euros | Gross domestic product in county per capita | Croatian Bureau of Statistics |
| Cinemas per capita | Number of cinemas per 100,000 inhabitants in the county | Croatian Bureau of Statistics |
| Libraries per capita | Number of libraries per 100,000 inhabitants in the county | Croatian Bureau of Statistics |

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