FISCAL DECENTRALIZATION AND IMPACT ON ECONOMIC GROWTH IN THE REPUBLIC OF CROATIA

Robert Matić

PhD, CEO, Maroni Ltd., Mate Balote 11, 51000 Rijeka, Croatia; e-mail: osiguranje@maroni.hr

ABSTRACT

Fiscal decentralization is the transfer of responsibility between the provision of public services and sources of financing by the central government to lower levels of government, with the outcome depending on how the process itself is devised and implemented. Proper and balanced implementation of fiscal decentralization leads to economic growth, achieving economic goals that can bring economic benefits. In addition to economic benefits, decentralization could lead to greater accountability, transparency, and citizen engagement, which would also improve the level of democracy in society. Since 2002, the Republic of Croatia has secured a significant amount of financial resources through the system of tax revenue sharing and aid allocation, which has significantly improved the fiscal capacity of all local units. The impact of fiscal decentralization in the Republic of Croatia on economic growth was tested using a panel analysis. From the results obtained, there is a significant positive relationship between fiscal decentralization and economic activity, and based on the results obtained, it can be concluded that fiscal decentralization in the Republic of Croatia had a positive impact on economic growth. This also confirms the role of lower levels of government established to improve the quality of life of citizens by deciding on the provision of local public services close to where they are provided and close to the users, providing better education, social and health services and infrastructure, thus positively influencing economic growth. In further research, it is necessary to focus on the creation of a better system of financing lower levels of government and on the fiscal autonomy of local units in the Republic of Croatia, in order to make the impact of fiscal decentralization on economic growth even more evident and to have as much influence as possible on the even development of the Republic of Croatia.

***Key words**: Republic of Croatia, fiscal decentralization, economic growth*

1.   INTRODUCTION

Fiscal decentralization is a set of measures aimed at increasing the revenues or fiscal autonomy (autonomy in collecting their own revenues) of local units (Falleti, 2005). Fiscal decentralization is concerned with the level of government at which taxes are introduced and collected, the level of government at which individual expenditures are made, and how the vertical fiscal imbalance is corrected (Litvack et al., 1998:6). It refers to the allocation of responsibilities (including sectoral functions) and own revenue sources to lower levels of government – local units (Smoke, 2003). It is defined by the transfer of fiscal power from central to sub-central (regional and local) government (Ebel and Yilmaz, 2002).

In recent decades, many countries around the world have devolved fiscal and political powers to lower levels of government. According to a study of a sample of 75 developing countries conducted by Garman et al. (2001), more than 80% of the countries studied had undergone some form of devolution of powers by the beginning of this millennium, and the situation is similar in developed countries. The Regional Authority Index (RAI) compiled by Hooghe et al. (2010) for 42 democratic and semi-democratic countries shows that 70% of countries have been decentralized since 1950 (Martinez-Vazquez et al., 2017).

Fiscal decentralization is very often promoted because it indirectly contributes to economic growth and is an important component of the development strategies of developed and underdeveloped countries. Thus, the European Charter of Local Self-Government (1985) also emphasizes the principle of subsidiarity as one of the basic principles of the European administrative and political system, which promotes the decentralization of power and the strengthening of the role of local authorities. According to the principle of subsidiarity, decisions should be made at the closest level responsible for solving a particular problem. The subsidiarity principle aims to ensure that powers and responsibilities are not unnecessarily centralized at higher levels of government and that local authorities are respected as key actors in decision-making processes. Fiscal decentralization is expected to have a positive impact on various macroeconomic indicators, including economic growth. When properly implemented, fiscal decentralization leads to balance in all policy areas, and there is evidence that decentralized tax systems can contribute to economic growth that achieves economic goals, serving as a tool for resource allocation, stabilization of economic development, and redistribution of income.

The impact of fiscal decentralization on economic growth also depends on several institutional and macroeconomic variables that are often prerequisites for fiscal decentralization to produce a positive outcome. Therefore, studies of the impact of fiscal decentralization on economic growth at the level of a single country level provide more meaningful and positive results than studies that include multiple countries in the sample. This is most likely because institutional and fiscal measures can be better controlled for in a single-country study. Since the Republic of Croatia has not been the subject of such studies, the purpose of this paper is to determine the impact of fiscal decentralization at the county level in a broader sense (including cities and municipalities) on GDP growth in Croatia. There is a need to analyze the quantitative

results of economic development of local units in the long term and to determine whether the decentralized system in Croatia is more efficient than the centralized one. The subject matter of scientific research also emerges from the defined: explore, analyse and identify relevant characteristics of the relationship between the degree of fiscal decentralization and economic growth. It is assumed that the lower levels of government should have generated economic growth through their budgets, as well as all budgetary recipients, extra-budgetary recipients and companies that they have founded, and it is assumed that increasing the degree of fiscal decentralization has a positive impact on economic growth in Croatia. If this is not the case, serious consideration should be given to transferring some of the tasks performed by the lower levels of government to the private sector or to recentralizing individual tasks.

Economic growth is expressed by an increase in the level of gross domestic product (GDP), a slightly more accurate method of GDP per capita, and is used as a standard measure in compilations of development levels between countries.

The impact of fiscal decentralization on economic growth is examined using panel analysis. A number of studies examined the relationship in question and reached different conclusions. Some studies have obtained a positive impact of fiscal decentralization on economic growth, while other studies have obtained a negative or no impact between the observed variables, and there is no consensus on the existence or direction of the link between fiscal decentralization and economic growth. Better information of local authorities about the heterogeneous public needs of the population leads to a reduction of costs and a more efficient delivery of public services that correspond to the real preferences of the population. Thus, fiscal decentralization enables a more efficient allocation of resources, leading to faster economic growth. There are arguments that highlight the negative aspects of fiscal decentralization, namely that fiscal decentralization limits economic growth because it causes vertical imbalances, promotes macroeconomic instability and regional inequalities, and weakens the role of central government stabilizers. Decentralization is also believed to have a positive impact on economic and social development by creating the conditions for better activation of endogenous development factors.

Although there are studies that observe the impact of changes in the tax structure on Croatian economic growth, they relate to the importance of different types of taxes at the national level (Buterin et al., 2023), so it can be concluded that the issue of the impact of fiscal decentralization has been insufficiently addressed in Croatia. Moreover, the impact of fiscal decentralization on economic growth has not been "calculated" so far and the parallel goal of this work is to bring the subject closer to the Croatian public or part of the academic circles of economic science, so that the right choice of the form of public administration best achieves the administrative conditions for the fulfillment of public needs, which directly affects the conditions for economic growth, development and ultimately the overall prosperity of the entire nation.

The introduction is followed by a literature review of the effects of fiscal decentralization on economic growth in previous studies. The third chapter deals with fiscal decentralization in the Republic of Croatia. Chapter 4 deals with the methodology and covers the sample,

variables, and model. Chapter 5, as usual, provides an analysis of the results. The conclusion summarizes the main findings and makes appropriate suggestions for economic policy.[1]

2.   LITERATURE REVIEW

Fiscal decentralization has been the subject of research by scholars especially since the beginning of the second half of the twentieth century (e.g., Tiebout, 1956; Musgrave, 1959; Stigler 1957; Oates, 1972; Brennan and Buchanan, 1980). Oates' decentralization theory refers to the fact that the unit of government closest to its citizens can best direct and adjust its consumption to local preferences and thus provide the public services that meet the needs of its residents. For local governments to be autonomous they should have the power and the right to raise their own revenues, i.e., they must be able to set the tax rates and bases for those revenues they collect (Grdinić et al., 2019). This is the essence of fiscal decentralization (Ebel and Yilmaz, 2002). The main reasons for implementing the fiscal decentralization process are to increase the public's awareness of their role in the decision-making process and the need for quality management of local public finances. In order to achieve fiscal decentralization to the greatest extent possible, local self-government units must provide the most generous sources of funding possible to enable the delivery of all public services within their area of operation. This also promotes greater competition among local self-government units to provide as many and better public sector services as possible to their citizens (Oates, 1999).

It is often argued that fiscal decentralization increases economic efficiency because local governments are in a better position than the central government to deliver public services due to their proximity and information advantage. In addition, decentralized spending can lead to greater "consumer efficiency" (Thiessen, 2003). Since needs are different in each local unit, resources can be saved by diversifying the services provided according to local preferences (Martínez Vázquez and McNab, 2003). Population mobility and competition among local governments in the provision of public services ensure that the preferences of local communities and local governments are aligned (Tiebout, 1956). Fiscal decentralization is likely to trigger horizontal and vertical competition (Tiebout, 1956) at lower levels of government, forcing the authorities to focus on the efficient production of public goods and services (Brennan and Buchanan 1980; Thiessen, 2003). Fiscal decentralization is also seen as a way to increase democratic participation in the decision-making process, allowing for greater transparency and accountability (Ebel and Yilmaz, 2002). Because local officials are in close proximity to the consumers of the services they provide, they can meet local needs more efficiently than officials at the national level, resulting in greater economic efficiency.

The normative settings of the theory of fiscal federalism suggest that decentralization increases allocative efficiency and, as a result, leads to economic growth. Theoretically, greater fiscal autonomy may be associated with higher output per unit of labor and higher growth rates (Brueckner, 2006). However, numerous studies examining the relationship between economic growth and decentralization are unable to conclude whether decentralization

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[1]   This work originated from the doctoral thesis of the author.

is the cause or the consequence of economic growth (Bahl and Linn, 1992, adapted from Drezgić et al., 2012:2). However, there is clear evidence of a relationship between the degree of decentralization and economic development, in a context where economically more developed countries also have higher levels of decentralization (Drezgić et al., 2012:2).

The process of fiscal decentralization has become a global trend, with a large number of countries with different geographical locations and social regulation at a certain stage of implementation of the system. The list of advantages and disadvantages of fiscal decentralization in the literature is almost inexhaustible. Economic theorists have recognized the following advantages of fiscal decentralization: when implemented at the local level, it is more efficient to provide public goods and services (Tiebout, 1956), local governments are "closer to the people" (Oates, 1972), the supply of local public goods can be matched with costs and preferences (Oates, 2008), positive competition between local authorities (Tanzi, 1996), strengthening the efficiency of the public sector and joint cooperation between different levels of fiscal government in the delivery of public services (Jurlina Alibegović, 2002), and reducing the burden on state administration (Jurlina Alibegović, 2002). Academics also highlight political reasons as an advantage of fiscal decentralization, as it promotes even development and reduces regional inequalities.

The deficiencies of fiscal decentralisation mentioned in the theory are the following: Corruption, the quality of local administration determined by political criteria (Tanzi, 1995; according to Bajo and Alibegović, 2008:39), the lost benefits of economies of scale (Rosen and Gayer, 2010), the devolution of central bureaucracy to the local level, with local politicians making more discretionary decisions (Prud'homme, 1995), the inadequate and inefficient degree of fairness of the decentralised system resulting from the influence of the tax system, opening space for harmful tax competition (Prud'homme, 1995; Tanzi, 1996), and the lack of implementation capacity (human, financial, and technical).

Buchanan (1980), Oates (1972), and Tiebout (1956) began a theoretical analysis of the effects of fiscal decentralization on economic growth, while empirical research did not begin until the 1990s (Oates, 1995; Davoodi and Zou, 1998; Zhang and Zou, 1998). There are a large number of studies that examined the relationship between economic growth and fiscal decentralization and reached different conclusions.

Empirical research on the relationship between decentralization and growth comes to different conclusions. A meta-analysis of about 30 studies concludes that there is no strong support for a positive or negative impact of fiscal decentralization on growth (Baskaran et al., 2016). Single-country studies provide more conclusive and positive results than studies that include multiple countries in the sample, most likely because institutional and fiscal policies can be better controlled for in a single-country study. Revenue decentralization is mainly associated with more positive outcomes in terms of impact on economic growth than expenditure decentralization (Asatryan and Feld, 2015). Many studies organized by the OECD show that decentralization has a positive but economically weak impact on productivity (Blöchliger et al., 2013). Finally, recent studies show that decentralization leads to lower income inequality (Stossberg and Blöchliger, 2017).

Table 1 presents a literature review of the effects of fiscal decentralization on economic growth in individual countries. These are primarily federations, but some analyses also cover countries with unitary arrangements.

Table 1. Impact of fiscal decentralization on economic growth

Authors (Year)	Sample	Period	Results
Akai and Sakata (2002)	50 US states	1992–1996	Decentralization has a positive impact on the GDP of the federal states.
Akai, Nishimura and Sakata (2004)	50 US states	1992-97	Fiscal decentralization has a positive impact on economic growth and a negative impact on economic instability (volatility)
Carrion-i-Silvestre et al. (2008)	Spain	1980-1998	Fiscal decentralization has a positive impact on regional and national economic growth. The impact of the expenditure side is stronger than revenue
Feld, Kirchgässner and Schaltegger (2004)	26 Swiss cantons	1980-1998	The decentralization of expenditure and revenue has no impact on economic growth.
Hammond and Tosun (2006)	United States of America	1970-2000	A relatively weak or negative relationship in rural areas, as opposed to a positive impact in urban areas.
Jing and Zou (2005)	China	1979-93 and 1994-99	Since 1979-93, decentralization of expenditure has been negative for growth, while the decentralization of revenues is positive for growth. Between 1994 and 1999, decentralization of expenditure has no impact on growth, while the decentralization of revenue has a negative impact on growth.
Lin and Liu (2000)	China	1970-93	Fiscal decentralization has a positive impact on economic growth.
Malik, Hassan and Hussain (2006)	Pakistan	1971-2005	The decentralization of expenditure and revenue has a positive and significant impact on economic growth.
Nguyen and Anwar (2011)	61 provinces in Vietnam	1997–2007	The impact of decentralising expenditure on economic growth in Vietnam was negative, while the impact of decentralising revenues on economic growth was positive.

Qiao et al. (2008)	28 provinces of China	1985–1998	Fiscal decentralization has increased growth, but the relationship between the two variables is unlinear.
Xie, Zou and Davoodi (1999)	50 US states	1948-1994	Non-significant coefficients for the decentralization of expenditure for local and federal states, which may imply that the current level of fiscal federalism is in line with the maximisation of growth.
Zhang and Zou (1998)	28 provinces in China	1980-1992	A higher degree of fiscal decentralization in terms of increasing the share of lower expenditure in total government expenditure, resulted in lower economic growth at local level, i.e. provincial level.
Zhang and Zou (2001)	16 states in India	1970-1994	Positive link between per capita indicators of fiscal decentralization (measured in expenditure) to the economic growth of the federal states in India.
Siliverstovs and Thiessen (2015)	22 regions in France	2002 - 2008	Fiscal equalization (transfers to regions) has a positive impact on economic growth

Source: Systematisation of author

Akai and Sakata (2002), Akai, Nishimura, and Sakata (2004), Carrion-i-Silvestre et al. (2008), Hammond and Tosun (2006), Lin and Liu (2000), Malik, Hassan and Hussain (2006), Qiao et al. (2008), and Zhang and Zou (2001) found a positive relationship between the fiscal decentralization indicators used and economic growth in their empirical studies, as shown in Table 1. The above works imply that the impact of fiscal decentralization on economic growth depends on the perceived dimension of decentralization, and most of the results on the impact of expenditure decentralization indicate a negative impact on economic growth, while the results for revenue decentralization are opposite.

3. FISCAL DECENTRALIZATION IN CROATIA

The process of fiscal decentralization in Croatia began in 2001, when some of the local units assumed certain decentralized tasks and the responsibility for financing health, education, fire departments and social welfare was transferred to the counties and cities. Not all local units assumed responsibility for funding decentralized functions, but only those with the highest fiscal capacity. The conditions for the start of the fiscal decentralization process have been gradually created since 1994 through political and administrative decentralization processes, as fiscal decentralization is directly dependent on the development of the financing system of local units. Several phases can be distinguished in the development of fiscal decentralization in the Republic of Croatia: The first phase lasted from 1994 to 2001 – administrative and political decentralization, the second phase lasted from 2001 to 2007 – fiscal decentralization,

the third phase lasted from 2007 to 2015 as part of the reform of the fiscal decentralization system, and a fourth phase lasted from 2015 to the present, which is associated with the new system of financing local and regional self-government (Bajo and Primorac, 2014; Bajo et al., 2020:115).

The formal conditions for decentralization were created by the adoption of the Law on Financing of Local Self-Government Units and Administration (NN 117/1993), which established the revenues of local units. During this period, the financing of local units was mostly centralized, which meant that local authorities had limited autonomy in collecting revenues and determining the use of the collected funds. This period is characterized by the creation of a legal framework that established the division of fiscal and administrative powers between the central government and local units (Bajo and Bronić, 2004).

Although the distribution coefficients of tax revenues (especially income tax) have changed in the past, since 2007 the system for financing local units has increasingly relied on income tax. The corporate income tax becomes entirely a government revenue, while the personal income tax is largely left to local authorities. The government redirects part of the revenue from the Compensation Fund for decentralised functions to the lower levels of government to ensure the financing of decentralised functions up to the level of the minimum financial standard. The inclusion of local units in the special financing system, which includes local units on islands with a joint financing agreement for capital projects of interest to island development, is expanded. Under the state aid system, support for municipalities and cities in areas of special state care and in mountainous areas is introduced to replace corporate income tax revenues that have been left to the central government through changes in the distribution of tax revenues.

The new Law on Financing of Local and Regional Self-Governing Units (NN 127/17) regulates the source of funds and financing of tasks falling within the self-governing scope of local and regional self-governing units, distribution of income tax revenues, the fiscal equalisation of local and regional self-governing units, and financing of decentralised functions (Article 1). With respect to the previous law, the following issues were the subject of significant developments: Income tax revenues become fully the revenues of local and regional self-government units (including income tax on interest income), the state takes over most of the financing of decentralised functions, the criteria for granting subsidies established in the Act on the Execution of the State Budget of the Republic of Croatia are abolished, and a new model of financial equalisation is introduced, financed by the share of income tax. In addition, the new Act on the System of State Administration (NN 66/19) transferred the tasks of state administration to the counties as of January 1, 2020, which is an important step in the decentralisation process. The regional self-government units were given the opportunity to respond directly to the needs of citizens and provide them with faster and more efficient service.

4.   SCIENTIFIC RESEARCH METHODOLOGY

Due to the longitudinal (panel) nature of the database, Arellano-Bond's (1991) Generalized Method of Moments (GMM) is used in the empirical part of the paper. Since the dependent variable (GDP (per capita)) has a dynamic character (the current values of the variable depend on previous values), the analysis is performed with dynamic panel models. The Arellano-Bond assessment also makes it possible to control for the problem of endogeneity.

The linear dynamic panel, containing the explanatory variables Xit as well as the lagged endogenous variable $Y_{i,t-1}$, can be plotted as follows:

$$Y_{1t} = \mu + \gamma Y_{it-1} + \beta_1 X_{it1} + \beta_2 X_{it2} + \cdots + \beta_k X_{itK} + \alpha_i + \varepsilon_{it},$$

$$i = 1, \dots N, \qquad t = 1, \dots \ T, \qquad k = 1, \dots K \tag{1}$$

where N is the number of counties and T is the number of observed periods, x_{itk} s the value of k-th of the independent variable, the i-th observation unit in period t, $y_{i,t-1}$ is the value of the dependent variable (logarithmic value of the variable GDP per capita) of the i-th observation unit over period t-1, α_i is the fixed or random effect different for each unit of observation; μ is a constant member, $\beta_1, \dots \beta_k$ and γ are the parameters to be evaluated, it being understood that the ε_{it} route errors are independent and identically distributed random variables with mean 0 and variance σ_δ^2.

Instrument variables are used to eliminate individual effects and the problem of autocorrelation of the dependent variable within the empirical method used. For an instrument variable to be valid, the following mandatory criteria should be met:

1. Not correlated with error; $cov\ (X_{it}, \epsilon_i) = 0$
2. Should be partially and sufficiently strongly correlated with the instrumented variable $Y_{i,t-1}$

This empirical analysis uses well-known methods to select instrumental variables. Different authors have used different approaches, for example Anderson and Hsiao (1982) as instrument for $Y_{i,t-1} - Y_{i,t-2}$ use $Y_{i,t-2}$ or $\Delta Y_{i,t}$. The logic of using these instruments is as follows: the differential value of error at time $t-1$ is correlated with the differential value of the dependent variable at time $t-1$, but the differential value of the error at time $t-1$ is not correlated with the differential value of the dependent variable at time $t-2$. Arellano and Bond (1991) further develop the above-mentioned method by increasing the number of instruments. Possible instrumental variables over different time periods are as follows:

Period	Equation	Available instruments
t = 3	$\Delta Y_{i3} = \alpha\, \Delta Y_{i2} + \cdots$	Y_{i1}
t = 4	$\Delta Y_{i4} = \alpha\, \Delta Y_{i3} + \cdots$	Y_{i1} i Y_{i2}
t = 5	$\Delta Y_{i5} = \alpha\, \Delta Y_{i4} + \cdots$	Y_{i1}, Y_{i2} i Y_{i3}

A larger number of instruments increases the efficiency of the estimator, but care should be taken that the number of instruments does not exceed the number of groups of individuals N. After evaluating the model, special attention was given to two diagnostic tests. The first test, Hansen's (1982) J-test, tests the validity of the instruments. Rejection of H0 means that the restrictions for the GMM are overidentified. If the p-value of Hansen's test is less than 0.05, the null hypothesis that the instruments are valid is rejected; in this case, the number of instruments should be limited. However, caution should be exercised if the p-value is too high (ideally less than 0.25), as this is a sign that the model has some problems (Roodman, 2009).

The second test is the AR test, which checks for the presence of an autocorrelation error to a second lagged value. More specifically, it tests whether the differential error of first and second order is autocorrelated. It is desirable not to reject H0 for the second order, which would mean that the error is not seriously autocorrelated and that the conditions of the moments are well defined. The Sargan test is used to identify the problem of autocorrelation of errors in levels. The basic assumption of almost all econometric models is that there should be no autocorrelation of errors (Roodman, 2009).

The observed sample of lower levels of government represents counties in a broader (aggregate) sense, including the budgets of counties and the budgets of all municipalities and cities in the territory of these counties. For the Republic of Croatia, the period under consideration covers the years 2002-2018, when the process of fiscal decentralization officially began. The econometric calculations were performed using the STATA software package. For the analysis of data for the Republic of Croatia, data from the Ministry of Finance, the Croatian Statistical Office, and the Croatian National Bank were used. The larger (aggregated) county-level model covers all counties in the Republic of Croatia: Primorsko-goranska, Zagrebačka, City of Zagreb, Koprivničko-križevačka, Ličko-senjska, Brodsko-posavska, Šibensko-kninska, Sisačko-moslavačka, Međimurska, Dubrovačko-neretvanska, Virovitičko-podravska, Osječko-baranjska, Požeško-slavonska, Vukovarsko-srijemska, Bjelovarsko-bilogorska, Krapinsko-zagorska, Karlovačka, Zadarska, Istarska, Splitsko-dalmatinska, Varaždinska between 2002 and 2018 (N=21, T=17). The time coverage results from the fact that the process of fiscal decentralization in Croatia started in 2002, and given the smaller number of groups in the model (N=21), it was not possible to cover a longer period, and the last reference year is 2018, so that the number of instruments does not exceed the number of groups. This is a balanced panel.

A dependent variable, as is common in such surveys, is GDP per capita (Iimi, 2005; Ebel and Yilmaz, 2002; Davoodi and Zou, 1998; Feld et al., 2004) and its logarithmic transformation – lgdp_percapita, since the logarithmic version facilitates interpretation and allows analysis in relative (rather than absolute) terms.[2]

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[2]   The logarithmic transformation facilitates interpretation because there is no need to take care of the sizes in which the variable is expressed and using the logarithmic transformation of dependent variables is a ratio of relative rather than absolute measures. For the same reasons, logarithmic values of the dependent variables were used by the following authors: Blöchliger (2013), Martinez-Vasquez, McNab (2006), and Feld et al. (2004).

To examine the interactions between the degree of fiscal decentralization and economic growth, it is necessary to define what economic growth is. Economic growth is defined as an increase in actual net national income (output) and is used as a standard measure in compilations of the level of development between countries (Dragičević, 1991). Economic growth is mainly expressed by GDP (gross domestic product) or somewhat more precisely by the GDP per capita method. GDP shows the total production value of all final goods and services in a country per year. It follows that GDP shows the ability of a society to meet its needs for goods used as an object of market exchange (Reić and Mihaljević Kosor, 2014:157).

For the independent variables, i.e., the indicators of decentralization in the model, the following were used based on the experience of previous studies:

- Share of lower government revenue less aid in total general government revenue less aid (in %) – *share_revenue_total*
- Ratio of lower government expenditure to general government expenditure per capita (in %) – *share_expenditure_percapita*
- Transfers/assistance in total lower government revenues (in %) – *transfers*

As decentralization can manifest itself in many different ways, there is no single measure of degree of decentralization. Enikolopov and Zhuravskaya (2007), Baskaran (2010), Oates (1985) and de Mello (2000) consider that the revenue/expenditure ratios of local and government (although with considerable shortcomings[3]) can serve as very good relative indicators of fiscal decentralization. The indicator of fiscal decentralization as a share of lower government spending in general government spending has been used by the following numerous authors in their work: Davoodi and Zou (1998), Thießen (2003), Martinez-Vasquez and McNab (2006), Enikolopov and Zhuravskaya (2007), Iimi (2005), Blöchliger et al. (2013), Gemmell et al. (2013), Akai, Nishimura, Sakata (2004), Kim (2018) and others. The indicators used to decentralise revenues used were: Ebel and Yilmaz (2002), Thießen (2003), Feld et al. (2004), Fredriksen, (2013), Rodriguez-Pose and Ezcurra (2011), Malik et al. (2006), Rodriguez-Pose and Kroijer (2009) and others. In the analysis, the number of groups (N) was limited to 21, which allowed the use of only one control variable in order to ensure that the number of instruments does not exceed the number of groups. In this case, inflation was used as a control variable because it has been most frequently used as a control variable in previous works and it can be concluded that it has a very significant impact on price developments and thus GDP in each county. In previous works, the control variable inflation has been used by the following authors: Nguyen and Anwar (2011), Basqueran and Feld (2009) and Blöchliger, H. (2013).

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[3] The fundamental shortcoming of those measures is the disregard for the degree of control (autonomy) of local units over the determination of tax rates and tax bases (Meloche et al., 2004), and the disregard of own revenue in relation to total revenue or revenue and expenditure decisions (Ebel and Yilmaz, 2002).

5.   EMPIRICAL DATA AND RESULTS OF ANALYSIS

The results of the survey conducted, which covered 21 counties of the Republic of Croatia, are presented below. The descriptive statistics for these variables are presented in Table 2.

Table 2. Descriptive statistics of variables in the model

Variables		Mean	Std. Dev.	Std.Nor.	Min	Max	N. of observations
lgdp_c~a	overall	10.99669	0.3128144	0.028446	10.30908	12.02084	N = 357
	between		0.2752238	0.025028	10.64263	11.78434	n = 21
	within		0.1597158	0.014524	10.47684	11.32814	T = 17
transfers	overall	25.76228	11.141	0.432454	0.0544397	58.34456	N = 357
	between		10.39993	0.403688	1.238017	42.15574	n = 21
	within		4.563375	0.177134	9.676378	46.05541	T = 17
share_r..	overall	0.67507	1.03406	1.531785	0.0791992	5.809987	N = 357
	between		1.05048	1.556109	0.1149504	4.9457	n = 21
	within		0.1239654	0.183634	−0.2824711	1.53936	T = 17
share_e	overall	13.52305	4.850149	0.358658	6.90857	29.4023	N = 357
	between		4.687605	0.346638	8.440784	25.35448	n = 21
	within		1.593075	0.117804	7.358449	18.51405	T = 17
inflat_	overall	1.95882	1.641547	0.838027	−1.1	6.1	N = 357
	between		0	0.000000	1.958824	1.958824	n = 21
	Within		1.641547	0.838027	−1.1	6.1	T = 17

Source: Self-creation by the author

The second column contains average sizes for individual counties (all years and all counties) from which the mean values for a given variable can be read. For example, aids (transfers/ assistance in total revenues of lower government levels (in%)) are typically around 25.76 %, while for example the mean value for share_expenditure_percapita (relationship of lower government expenditure to the general government expenditure per capita (in %)) is 13.52 %. The values for all other variables can also be read in the table. Furthermore, the third column contains information on standard deviations; between (indicates average variations between different countries/countries) and within (indicates average variations within one group over several years). Since the standard deviation is an absolute measure, the fourth column calculates the relative measure (standard deviation divided by the average in the first column).

Table 2 shows that the difference (variation) between groups is greater than over time. The logarithmic value of the GDP per capita variable varies more between groups (from 10.64 to 11.78). Only for the control variable *inflat_* (annual inflation) are the variations more

pronounced over time, since the inflation values are the same for each county in a given year. The transfer variable (transfers/assistance in the total revenues of lower government levels) shows greater variations between groups (counties), indicating the diversity of sources of funding for lower levels of government in Croatia and the different fiscal capacities. Also, the variable the *share_revenue_total* (the share of lower government revenue less aid in total general government revenue less aid (in %)) shows greater variation at the county level, again indicating different sources of financing for lower levels of government, where individual units have a high share of funding from aid granted by central government. Looking at the variable the *share_expenditure_percapita* (relationship of lower levels of government expenditure to the general government expenditure per capita (in %)), we can conclude that the fluctuations between the groups are larger than over time, as the funds allocated to the lower levels of government have not changed too much since the beginning of the fiscal decentralization process (2002).

According to the hypothesis that increasing the degree of fiscal decentralization has a positive effect on economic growth in Croatia, the coefficient with the transfer variable is expected to be negative, as the high share of aid leads to limited autonomy of lower levels of government in collecting revenues and determining the use of the collected funds. Positive coefficients are expected for the *share_revenue_total* and variable *share_expenditure_percapita* as the assumption that fiscal decentralization has a positive impact on economic growth by creating assumptions for better activation of endogenous development factors, which is preliminary justified. It is estimated to have a positive coefficient of because if GDP/ per capita grew in year t-1, it is expected that growth will continue in the following year as well; and vice versa. As regards the control variable, the inflation coefficient is expected to be positive. The above is summarized in Table 3.

Table 3. Expected impact of independent and control variable in econometric testing for the Republic of Croatia

Independent variable	Expected impact on dependent variable
transfers	–
share_revenue_total	+
share_expenditure_percapita	+
Control variable	
inflat_	+

Source: Self-creation by the author

Table 4 presents the coefficients α_0 estimated by the pooled OLS method, the fixed effects model and the difference GMM model. The *difference GMM* estimator is significantly downward biased, the coefficient is 0.85, as the coefficient obtained by fixed effects (downward biased) is 0.83, while the pooled OLS (upward biased) is 0.88, which is significantly more distant. It

can therefore be concluded that the use of the *system GMM* estimator provides additional benefits for the county-level analysis and therefore the *system GMM* is used.

Table 4. Results of the estimation of the coefficients of the lagged dependent variable in the model (using the pooled OLS, the fixed effects model and the difference-GMM model)

	α_0	Standard error	p-value
Pooled OLS	0.8787836	0.0185562	0.000
Fixed effects	0.8285836	0.0094488	0.000
Difference GMM	0.8562888	0.0254326	0.000

Source: Self-creation by the author

The results of estimating the parameters from equation (1) using the system GMM estimator can be found in Table 5.

Table 5. Results of the analysis of the impact of fiscal decentralization on economic growth in Croatia

	Coefficients	Standard error	p-value
lgdp_capita	0.8774602	0.0183454	0.000***
transfers	−0.000808	0.0003685	0.040**
share_revenue_total	0.0057009	0.0022865	0.022**
share_expenditure_percapita	0.0044758	0.0011576	0.001***
inflation	0.0004633	0.0017491	0.794
_cons	1.337693	0.1974189	0
AR(1)	−2.57	Z	0.010
AR(2)	0.11	Z	0.912
Hansen test	20.77	Chi2 (15)	0.144
Number of groups (N)	21		
Number of instruments	21		

Note: the t-test values are calculated on the basis of White heteroscedasticaly consistent standard errors
Asterisks *, **, ***, indicate relevance at 10 %, 5 % and 1 % level of significance

According to the results in Table 5, all coefficients except the control variable are statistically significant, at 5 % level of significance. Of these, *lgdp_capita$_{t-1}$* and the share_expenditure_percapita are significant at 1 %, while the variables share_revenue _total and transfers are significant at 5 %. The control variable is not significant, so it can be concluded that there is no additional inflation effect on the independent variables in the model and the resulting coefficients can be considered unbiased. Moreover, the coefficient for the variable *lgdp_capita$_{t-1}$* (lagged dependent variable) is positive, which is expected and amounts to 0.87. This means that if GDP per capita in t−1 (last year) is 1 % higher, then the GDP per capita in t (this

year) will be 0.85 % higher, assuming the values of the other variables remain unchanged. It also points to the fact that today's level of economic growth is also dependent on its previous values.

Secondly, the impact of the variable *transfers* (transfers/assistance in total lower government revenues) on GDP per capita is negative, which is also expected. If aid is one percentage point higher, then GDP per capita is on average 0.081 % lower (as an approximation) if all other conditions remain unchanged.

The coefficient with the *share_revenue_total* (the share of lower government revenue less aid in total general government revenue less aid) is positive as expected. If the share of revenue of lower government less aid in total general government revenue less aid is 1 percentage point higher, GDP per capita is 0.57 % higher on average (as an approximation).

Finally, the impact of the variable *share_expenditure_percapita* (ratio of lower government expenditure to general government expenditure per capita) is positive as expected at 0.0044. Thus, if ratio of lower government expenditure to general government expenditure is 1 percentage point higher, GDP per capita would be expected to be 0.44 % higher (as an approximation), provided that all other variables remain unchanged.

The model meets all required diagnostic tests. The Hansen statistical test yields a p-value of 0.144, which does not reject H0 (that the instruments are valid). Since the p-value also does not exceed 0.25 (the limit above which one should be cautious about results), it can be concluded that the instruments used in the model are correct. As for the Arellano-Bond autocorrelation test, – for AR (1) H0 is rejected (no autocorrelation) and for AR (2) H0 is not rejected at 5 % significance. Therefore, the results of the AB and the Hansen test show that the model is valid. Moreover, the number of instruments in the model is 21, which corresponds to the number of groups (N = 21 counties), which was achieved by using the "collapse" option in STATA.

Since 2002, Croatia has been providing a significant amount of financial resources through the system of tax revenue sharing and granting subsidies, which has significantly improved the budgetary capacity of all local units. The results show that there is a significant positive relationship between fiscal decentralization and economic activity, and it can be confirmed that increasing the degree of fiscal decentralization has a positive impact on economic growth in Croatia. Based on the results, it can be concluded that fiscal decentralization in Croatia has a positive impact on economic growth. This confirms the important role of lower levels of government established to improve the quality of life of citizens by deciding on the provision of local public services close to the place where they are provided and close to the users, providing better education, social and health services and infrastructure, which has a positive impact on economic growth. The negative impact of the transfer variable confirms the view that local individuals can only provide public services effectively if they also have the power to dispose "own" tax revenues and decide the tax rates on their revenues.

6.   CONCLUSION

Fiscal decentralization is the transfer of responsibilities for public service delivery and financing by the central government to lower levels of government, with the outcome depending on how the process itself is devised and implemented. Proper and balanced implementation of fiscal decentralization leads to economic growth, the achievement of economic goals that can bring economic benefits, and is also critical because it enables lower levels of government to independently determine their spending and revenues, and allows for the sharing of spending authority and revenue sources among national, regional, and local authorities. The mere implementation of fiscal decentralization has generated a great deal of academic research over the years that has attempted to clarify which measures can be reconciled with basic economic principles. The outcome of fiscal decentralization depends to a large extent on how the implementation process itself was designed and implemented, as well as on the capacity of lower levels of government and the quality of multilevel governance. Evidence shows that decentralization can contribute to economic growth if properly implemented and balanced across policy areas. In addition to the economic benefits, decentralization could lead to greater accountability, transparency and citizen participation, thus improving the level of democracy in society.

Since 2002, Croatia has been providing a significant amount of financial resources through the system of tax revenue sharing and granting subsidies, which has significantly improved the budgetary capacity of all local units. The results show that a positive relationship between fiscal decentralization and economic activity is evident. The results suggest that fiscal decentralization in Croatia has had a positive impact on economic growth. This confirms the important role of lower levels of government, which were established to improve the quality of life of citizens by deciding on the provision of local public services close to the place where they are provided and to the users, and by providing better education, social and health services and infrastructure, which has a positive impact on economic growth. The negative impact of the transfer variables confirms the view that local units must have the power to dispose "own" tax revenues and decide the level of tax rates on their revenues in order to be able to provide public services in an efficient manner. This also shows that there is a need to give lower levels of government more authority in revenue collection and to reduce funding through transfers granted. In conclusion, the indicators of revenue and expenditure decentralization have a positive impact on economic growth, which confirms the hypothesis that increasing the degree of fiscal decentralization has a positive impact on economic growth in Croatia.

At a time when economic policy seeks to achieve higher growth rates, local sector activity must be part of the potential to achieve this goal. This can be achieved primarily through a greater role of local entities in investment, with greater financial capacity being essential, as on it depends the real ability to meet the needs of residents living in the area. The fiscal autonomy of local self-government should be as broad as possible, so that local units have a sufficient financial base and are able to decide independently on expenditures for projects and activities without financial support (transfers) from the central government. Such fiscal

autonomy would expand the scope of local activities and provide more resources to fund existing public services in local self-governments. Further research should focus on creating a better system of financing lower levels of government and on the fiscal autonomy of local units in the Republic of Croatia, so that the impact of fiscal decentralization on economic growth is even more pronounced and to influence the even development of the Republic of Croatia as much as possible.

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FISKALNA DECENTRALIZACIJA I UTJECAJ NA EKONOMSKI RAST U REPUBLICI HRVATSKOJ

Robert Matić
Dr. sc., član uprave, Maroni d.o.o., Mate Balote 11, 51 000 Rijeka, Hrvatska; *e-mail:* osiguranje@maroni.hr

SAŽETAK

Fiskalna decentralizacija jest prijenos odgovornosti između pružanja javnih usluga i izvora financiranja od strane središnje države na niže razine vlasti čiji ishod ovisi o načinu razrađenosti i provedenosti samog procesa. Pravilna i ravnotežna provedba fiskalne decentralizacije trebala bi dovesti do ekonomskog rasta čime se postižu ekonomski ciljevi kojima se mogu ostvariti ekonomske koristi. Osim ekonomskih koristi, decentralizacija bi mogla dovesti do veće odgovornosti, transparentnosti i angažmana građana, čime bi se poboljšala i razina demokracije u društvu. Republika Hrvatska je od 2002. godine sustavom dijeljenja poreznih prihoda i dodjelom pomoći osigurala znatan dio financijskih sredstava kojima se fiskalni kapacitet svih lokalnih jedinica uvelike poboljšao. Utjecaj fiskalne decentralizacije u Republici Hrvatskoj na ekonomski rast testirao se korištenjem panel analize. Iz dobivenih rezultata vidljivo je da postoji signifikantan pozitivan odnos između fiskalne decentralizacije i ekonomske aktivnost te se na temelju dobivenih rezultata može zaključiti da je fiskalna decentralizacija u Republici Hrvatskoj djelovala pozitivno na ekonomski rast. Isto potvrđuje i samu ulogu nižih razina vlasti koje su i osnovane kako bi poboljšale kvalitetu života svojih građana kroz odlučivanje o pružanju lokalnih javnih službi blizu mjesta njihova obavljanja i blizu korisnika pružajući bolje obrazovne, socijalne, zdravstvene usluge te kvalitetniju infrastrukturu utječući pozitivno na ekonomski rast. U daljnjim istraživanjima potrebno je fokusirati se na kreiranje kvalitetnijeg sustav financiranja nižih razina vlasti te na fiskalnu autonomnost lokalnih jedinica u Republici Hrvatskoj kako bi efekti fiskalne decentralizacije na ekonomski rast bili još izraženiji te kako bi se što više utjecalo na ravnomjerni razvoj Republike Hrvatske.

Ključne riječi: *Republika Hrvatska, fiskalna decentralizacija, ekonomski rast*