ANALIZA IN KARTOGRAFSKI PRIKAZ DEJAVNIKOV VPLIVA NA DAVČNI IZPLEN NADOMESTILA ZA UPORABO STAVBNEGA ZEMLJIŠČA

ANALYSIS AND CARTOGRAPHIC PRESENTATION OF FACTORS IMPACTING TAX YIELD FROM THE CHARGE FOR THE USE OF BUILDING GROUND

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IZVLEČEK

Prihodki od nadomestila za uporabo stavbnega zemljišča, kot oblike davka na stavbna zemljišča, so eden najpomembnejših davčnih prihodkov lokalnih skupnosti v Sloveniji. Za sistem nadomestila za uporabo stavbnega zemljišča velja, da je zelo neenoten med občinami po vseh davčnih elementih. V članku na podlagi analize odlokov o nadomestilu za uporabo stavbnega zemljišča 211 občin identificiramo ter empirično preverjamo zakonsko in od občin arbitrarno določene dejavnike vpliva na davčni izplen nadomestila za uporabo stavbnega zemljišča. Z metodo multiple regresije in geografske obtežene regresije analiziramo vpliv izbranih dejavnikov na nacionalni ravni oziroma na ravni lokalnih skupnosti. Rezultati prve tovrstne raziskave so v podporo lokalnim skupnostim, načrtovalcem in odločevalcem na področju davčne politike. Rezultate v članku predstavljene raziskave prikazujemo tudi na tematskih kartah, s katerimi analiziramo prostorsko porazdelitev obravnavanih dejavnikov vpliva na davčni izplen nadomestila za uporabo stavbnega zemljišča. Prav dostop do podatkov ter ustrezne metode prikaza prostorskih in drugih podatkov namreč pomembno vplivajo na učinkovitost in pravilnost odločitev ter komunikacijo z deležniki na področju obdavčitve nepremičnin.

ABSTRACT

Revenue from the charge for the use of building ground as a type of tax is one of the most important sources of tax revenue for local communities in Slovenia. The system of charge for the use of building ground is greatly lacking in uniformity among municipalities in terms of all tax elements. In this paper, municipal ordinances on charges for the use of building ground in 211 municipalities are analysed to identify and empirically examine statutory factors and factors arbitrarily laid down by municipalities that impact tax yield from the charge for the use of building ground. The methods of multiple regression and geographically weighted regression were used to analyse the impact of the selected factors at the national level or the level of local communities. The results of the first study of this kind provide support to local communities, planners and decision-makers in the sphere of tax policy. The results of the study presented in this paper are also shown on thematic maps, by means of which we analyse the spatial distribution of the factors that impact the tax yield from the charge for the use of building ground. Access to data and a suitable method of representing spatial and other data are two things that greatly influence effective and correct decision-making and communication with stakeholders in the sphere of property taxation.

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1 INTRODUCTION

The transition from an area-based system of property taxation to an ad-valorem system of property taxation poses a great challenge for most countries in Eastern and Central Europe. Moreover, these countries also face the issues of excessively arbitrary and fragmented tax arrangements. In Slovenia, the existing system of levying property charges is out-dated, inconsistent, non-transparent, lacks uniformity and is ill-adjusted to the new economic conditions (Government of the Republic of Slovenia, 2013). In this regard, Zemljak (2013) argues that the charge for the use of building ground is not an appropriate basis for property taxation and points out that the administration of the charge system is largely at the arbitrary discretion of municipalities. Igličar (2012) emphasizes that the charge for the use of building ground is a typical institution of the collective ownership concept rather than the established system of private ownership. Moreover, the Constitutional Court of the Republic of Slovenia has in several instances found municipal ordinances on charges for the use of building ground to be constitutionally contentious. Given the importance of revenue from charge for the use of building ground, this also poses a significant risk for the fiscal stability of municipalities. In the past two decades, Slovenia has carried out a number of activities to build a contemporary property taxation system based on the market situation and replace the existing system, including the charge for the use of building ground. The Real Property Tax Act (Zakon o davku na nepremičnine, 2013) was the first systemic law to affect comprehensive and uniform regulation of property taxation. However, a decision of the Slovenian Constitutional Court's (Ustavno sodišče RS, 2014) fully repealed the Real Property Tax Act and lead to the reintroduction of the charge for the use of building ground.

The charge for the use of building ground is a mandatory charge which has all the elements of a tax on the use of building ground in specified areas. First introduced in the mid-1980s, the charge represents one of the most important sources of fiscal original revenue for local communities in Slovenia. The effective form of the charge for the use of building ground is stipulated in the 1984 Construction Land Act (Zakon o stavbnih zemljiščih, 1984) and the 1986 Agreement on harmonizing the criteria for defining areas subject to charge for the use of building ground and criteria for the assessment of the charge (Dogovor o …, 1986). The 1997 Construction Land Act (Zakon o stavbnih zemljiščih, 1997) retained the charge for the use of building ground only temporarily; as a transitional arrangement, until a new, updated property taxation has been legislated. The system of charge for the use of building ground is characterized by the lack of uniformity across municipalities. The analysis of municipal ordinances on charges for the use of building ground carried out in 211 municipalities in Slovenia (LAU-2) which levy the charge shows that the approaches of municipalities vary by all tax elements. The level of the charge is calculated with a scoring method where a certain value is attributed to one point. Municipal ordinances determine the number of points by individual criteria depending on the attributes of a property and its advantages or disadvantages. These criteria vary among municipalities due to natural, spatial, population, developmental, demographic and other factors. In accordance with the law, municipalities mostly take into account the minimum range of criteria, which includes the availability of public utilities on the building ground, location of the building ground, intended use and rational exploitation, and exceptional advantages with regard to generating income from economic activities. In addition to this, municipalities take into consideration a number of other factors which vary among municipalities. They also do not share a common approach to determining the number of points according to individual

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criteria or the value of one point. Municipalities also have different ways of determining allowances or exemptions from the charge.

According to data of the Ministry of Finance (2017), revenue from the charge for the use of building ground in 2016 averaged at 81 % of total municipal revenues from real property tax or 15.4 % of total municipal tax revenues. Despite the social, economic, legal and tax changes, the system of charges for the use of building ground has not changed much since its establishment to date. The charge for the use of building ground is levied in 211 local communities across Slovenia except in the Municipality of Rogašovci.

This paper identifies and empirically examines the factors impacting tax yield from the charge for the use of building ground at the national level and at the level of local communities. The aim of the study is to examine the impact of statutory factors and factors arbitrarily laid down by municipalities which impact the assessment of the charge for the use of building ground. An empirical analysis is used to test the hypothesis whether the key determinants impacting the level of assessed charge for the use of building ground are the factors laid down by the law or the factors laid down at the arbitrary discretion of municipalities. Thus, the goal of the study is to establish the correlation between the amount of assessed charge for the use of building ground per capita and the abundance of assessed charge for the use of building ground in relation to the total municipal tax revenue with the selected impact factors. The findings of this study should contribute to the debate on whether the charge for the use of building ground is a suitable way of taxing property, by shedding light on factors with the heaviest impact on the selected dependent variables and on whether their impact varies across space.

The scope of the influence factors examined throughout 211 municipalities demands the results be efficiently displayed to ensure qualitatively better comprehension. Our aim is to display the spatial patterns and principles of the examined influence factors through cartographic representations. The latter serve as an aid in analysing the spatial shifting of influence factors, as well as further researching and integrating the obtained results with demographic, environmental, fiscal and other municipal characteristics and their associated variables. The selected cartographic representations also enable the efficient depiction and comprehension of the spatio-temporal changes of the examined phenomena, ensure a more in-depth insight into the spatial relations entertained between the examined phenomena, as well as an analysis of the effects of systemic changes in the area in question. They enable the shaping of new knowledge, influence the increasing of awareness of fiscal policy and strategy makers concerning the most important factors that influence tax revenues on a national, as well as on a local level. This type of cartographic representations enable the strengthening of a dialogue between stakeholders in an area in question, and offer support to decision-makers in matters concerning property taxation. They represent an active response to the challenge of increasing the accessibility and utility of the results of the executed spatial analysis for the professional and lay public. The selected cartographic representations also offer support to the visual analysis and assessment of the hypotheses presented in the present article.

2 REVIEW OF RESEARCH TO DATE

Property taxation systems have been studied in numerous scientific studies (Almy, 2001; Bahl, Martinez-Vazquez and Youngman, 2010; Bird and Slack, 2007; Cho, Roberts and Lambert, 2017; Dove, 2017;

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Haveman and Sexton, 2008; Hou, Ren and Zhang, 2015; Mirrlees et al., 2011; Salm, 2017; Slack and Bird, 2014). Internationally, many studies have been conducted on factors impacting the tax base and consequently the tax burden related to property taxation. Apart from studies on the effect of property values and rent levels on property tax revenue (Anderson and McMillen, 2010; Bai, Li and Ouyang, 2013; Boyd, 2010; Charlot, Paty and Visalli, 2008; Lutz, 2008), many studies have been carried out dealing with the impact of a number of other factors on property tax revenues, e.g. the impact of employment changes on revenue from property taxation (Liro, Naroff and Fuchs, 1983), the effect of residential investment on nearby property values and revenue from property taxation (Cui, 2017; Ding, Simons and Baku, 2000; Vandegrift, 2016), the impact of brownfield areas on the value of property and tax revenue (Bardos et al., 2016; Haninger, Ma and Timmins, 2012; Mihaescu and vom Hofe, 2013) and the effect of new sports facilities on property values and tax revenue (Ahlfeldt and Kavetsos, 2011; Feng and Humphreys, 2012; Humphreys and Nowak, 2017). In addition to micro factors related to an attribute of a particular property or type of property, a number of studies also focus on macro factors; the impact of various social and economic factors at the state level and local level on revenue from property taxation (Dornfest and Bennett, 2012), for example the effect of population ageing (Das-Gupta, 2017; Felix and Watkins, 2013), the quality of government services (Lightner et al., 2012), the economic crisis (Alm and Leguizamon, 2017; Dadayan, Stenson and Boyd, 2012) and consumer spending (Surico and Trezzi, 2015). So far, most research on the charge for the use of building ground in Slovenia (Hašaj, 2002; Janež, Bogataj and Drobne, 2016; Kobetič, 2015; Malus, 2005; Modrijan, 2005; Polajnar, 2008; Rakar, Černe and Šubic Kovač, 2008; Viler, 2005; Živec, 2010) was focused on the examination of the technical bases for levying the charge, legal aspect of municipal ordinances, historical development of the charge and its implementation, and the comparison of municipal ordinances on the charge and the fiscal and guiding role of the charge for selected municipalities. Numerous studies examining the importance of GIS technology, spatial analyses and the cartographic representation of data in the field of property taxation have been conducted (Eeckhout and Guner, 2014; Franzsen and Youngman, 2009; Hamid et al., 2016; Javed et al., 2018; Morgan, Jensen and McLean, 2005; Payton, 2006; Smith Patterson and Siderelis, 1999; Talen, 1998).

3 EMPIRICAL RESEARCH

3.1 Methodology

The system of charge for the use of building ground is a heterogeneous system with various factors impacting its assessment or the revenue it generates. This is why an analysis of such a system should involve a holistic approach that takes into account as many relevant factors as possible (De Cesare and Ruddock, 2003; Famuyiwa and Otegbulu, 2012). The correlation between data on the assessment of the charge for the use of building ground and selected factors is analysed by using multivariate regression analysis at the level of the state. However, as such an approach does not give insight into the characteristics and impacts of individual examined factors at the local level, the analysis is extended to geographically weighted regression. Geographically weighted regression is a local spatial statistical method for the research of spatial heterogeneity or nonstationarity, which can be used to evaluate the predictive power of the regression model for each individual spatial unit and each explanatory variable (Brunsdon, Fotheringham and Charlton,

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1996; Charlton and Fotheringham, 2009; Liu, Khattak and Wall, 2017; Verbič and Korenčan, 2017). In the local regression model, the multiple regression equation is estimated for each spatial unit individually.

3.2 Data used

The data used in the study is taken from the year 2014 when a new systemic regulation of property taxation came in force. In 2013 numerous municipalities carried out changes in the system of the charge for the use of building ground. Later than that (and until the year 2017) changes of the system of the charge for the use of building ground were not possible due to the Slovenian Constitutional Court order (Ustavno sodišče RS, 2014). The data from the year 2014 represents an actual state of affairs and is as such a comparative starting point for the planned new sistemic regulation of property taxation in Slovenia. The study was carried out using data from the reference data sets of the Statistical Office, Surveying and Mapping Authority, Agency for Public Legal Records and Related Services, Ministry of Finance and the Financial Administration of the Republic of Slovenia. All data was collected at the level of individual municipalities.

3.3 Model building

Variables were selected on the basis of an examination of the legislative framework which defines certain factors that determine how municipalities develop the method, type and scale of charge assessment, and on the basis of an analysis of all municipal ordinances, including the criteria arbitrarily laid down by the municipalities themselves. The result of this arbitrariness is great heterogeneity of the charge system among municipalities. What also needs to be taken into account is heterogeneous structure of the phenomena observed: municipality surface area, number of inhabitants etc. A relevant selection of explanatory variables is therefore highly important, as they should be representative indicators of impacts on the selected dependent variables, assuming that the latter are impacted by others factors to a lesser degree. For the purposes of the study, two regression models were built. In model A, the dependent variable is the natural logarithm of the amount of assessed charge for the use of building ground per capita in a municipality, and it is used to examine which factors impact on the average level of assessed charge for the use of building ground. Model A takes the following form:

$$\ln(y_1) = \dot{b}_0 + \dot{b}_1 x_1 + \dot{b}_2 x_2 + \ldots + \dot{b}_{11} x_{11} + \dot{b}_{12} d_1 + \dot{b}_{13} d_2 + \varepsilon_1. \tag{1}$$

In model B, the dependent variable is the natural logarithm of the efficacy of assessed charge for the use of building ground in relation to the total tax revenue in a municipality, and it is used to examine what factors impact the efficacy of the charge within the structure of municipal financial revenue. Model B has the following form:

$$\ln(y_2) = \ddot{b}_0 + \ddot{b}_1 x_1 + \ddot{b}_2 x_2 + \ldots + \ddot{b}_{11} x_{11} + \ddot{b}_{12} d_1 + \ddot{b}_{13} d_2 + \varepsilon_2. \tag{2}$$

Values of dependent variable are not in normal distribution (frequency distribution is asymmetric towards the left), therefore we chose the values' natural logarithm and by doing so ensure a normal distribution of values. The same explanatory variables are used in both models (Table 1).

Buildings and parts of buildings for residential, commercial and industrial use, energy use, bars, restaurants and shops, and offices are classified with regard to their actual use in accordance with the clas-

sification of types of construction (Surveying and Mapping Authority of the RS, 2013). Land for the construction of buildings is building ground specified in the municipal spatial plan, or building ground within areas specified in the spatial elements of long-term and medium-term municipal land use plans, on which the construction of buildings is in fact possible or permissible as specified by the municipality. The development coefficient of municipalities is laid down by the law according to three groups of indicators: indicators of the development, degree of its endangerness and developmental potential of municipalities. The dummy variable d_1: Municipality status, is used to describe two types of status - the status of a city municipality (value 1; 11 municipalities in total) and other municipalities without this status (value 0). The dummy variable d_2: Exceptional advantage criterion (value 1: the municipality applies the exceptional advantage criterion; value 0: the municipality does not apply the criterion) refers to exceptional advantages for generating income from economic activities. Municipalities mostly consider the advantages of the location of business premises with regard to its potential for generating income from certain activities (particularly commerce, hospitality, crafts and trades, insurance business, financial services, service stations, gaming and similar) and its potential for intensive use of public utilities and other facilities and infrastructure that may reduce the costs of products and services.

Table 1:   Symbols and description of explanatory variables.

Variable	Symbol	Description
x_1	LP_dec_all	Number of decisions for legal persons relative to the total number of legal persons in a municipality.
x_2	NP_dec_all	Number of decisions for natural persons relatives to the total number of inhabitants in a municipality.
x_3	NP_RESID	Average surface area of building for residential use.
x_4	LP_area_B	Average surface area of building for commercial use.
x_5	Coef_d	Development coefficient of municipality.
x_6	IND	Surface area of buildings for industrial use in relation to the surface area of all buildings (in %).
x_7	ENERG	Surface area of buildings for energy-supply use in relation to the surface area of all buildings (in %).
x_8	BAR_SHOP	Surface area of bars, restaurants and shops in relation to the surface area of all buildings (in %).
x_9	OFFICE	Surface area of offices in relation to the surface area of all buildings (in %).
x_{10}	LCB	Surface area of land for the construction of buildings in relation to the surface area of the municipality (in %).
x_{11}	Revenue_ave	Average revenue of business entities in a municipality (in EUR).
d_1	Status_mun	Municipality status.
d_2	Advantage	Exceptional advantage criterion.

3.4 Cartographic presentation of factors impacting tax yield from the charge for the use of building ground

Cartography, the discipline dealing with the art, science and technology of making and using map, has since the dawn of modern civilisation been closely intertwined with the domain of real property manage-

ment, the right, restriction and responsibility, connected with real property, and real property valuation. The necessity for a user-appropriate representation of spatial data is rooted early in the process of human development and interpersonal communication (Kozmus Trajkovski, Domajnko and Petrovič, 2015; Ward Aber and Ward Aber, 2017). Cartography enables the proper abstraction (coding) of the actual state of the environment into a form that is suitable for transmission to the end user (map), as well as ensuring modes and possibilities for the end user to appropriately and correctly interpret the map (decoding), thereby gaining knowledge about the actual state of the area under examination (Petrovič, 2006). Franzsen and Youngman (2009) highlight the significance of ensuring, making available and cartographically depicting data from the domain of property taxation with the aim of better understanding the situation, more effectively understanding the differences between systems in various areas, and providing support to the improvement of the property taxation system. Smith Patterson and Siderelis (1999) highlight the importance of GIS technologies in the process of shaping and executing policies and strategies, as well as the representation of data in the domain of property taxation, with the aim of qualitatively better decision-taking and more effective cooperation with the general public.

When designing thematic maps (classic, electronic) attention to the design of the map's principal elements is necessary (Duka, 2007). Here, cartography utilises cartographic signs to ensure a uniform understanding of geographical diversity or individual real-world phenomena. These signs represent a special graphic language and enable communication between the map maker and its end user (Petrovič, 2006; Vasilev, 2006). We can also utilise them for the depiction of phenomena that are undetectable in real world, we can show their dynamics of changes, and mark the qualitative and quantitative characteristics of the displayed features. Colours, dots (Slocum et al., 2009), or simple geometric shapes (MacEachren, 1994) are, for example, used to that end.

Cartographic representations of the results of the analysis of influence factors (the value of the regression coefficients of particular variables) of the charge's tax yield are intended for specialised, as well as lay, public with the aim of more efficiently understanding the spatial distribution of the examined influence factors. Based on the objective, criterion and type of data that concerns the administrative units (municipalities), and the representation's target public, the cartogram has been selected as the most adequate means of presenting the results of the executed spatial analysis (Forrest, 2015; Hickin, 2014; Slocum et al., 2009). The values of the regression coefficients are here distributed into seven value segments (the municipality that does not dispense any charge is marked with the colour grey). It should be taken in consideration that value segments are of equal width. Each value segment is assigned one colour, namely in the range from dark blue to dark red, wherein the latter represents the value of the observed phenomenon in the highest value segment, which is marked in the key. A cartographic representation in the scale of 1 : 1,200,000 enables the display of the whole examined area (all municipalities). To ensure more efficient orientation, cartograms are equipped with the municipalities' initials (i.e.: LJ - The Municipality of Ljubljana, CE - The Municipality of Celje etc.).

4 RESULTS

4.1 Results of multiple regression analysis

Table 2 shows the data on regression models. Based on the results given by the regression analysis in both models, it was established that municipalities which assess the charge for the use of building ground to

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a higher share of legal persons in the municipality have higher revenue from the charge for the use of building ground per capita, and higher efficacy of the assessed charge in relation to the total tax revenue of the municipality. The fact that legal persons are the predominant contributors of the charge is also confirmed by the insignificance of the coefficient for variable x_2, given that taxing a higher percentage of natural persons in the municipality has no statistically significant effect on the efficacy of the tax collected. The analysis also reveals that in both models, the impact of the average surface area for residential use per taxpayer - natural person - is negative and statistically highly significant, indicating that municipalities adjust the tax burden regressively according to the size of residences.

Table 2:   Values of estimated regression coefficients and value of t-statistics.

		Model A (R^2 = 0.634)					Model B (R^2 = 0.661)				
		B	St. error	β	t	Sig.	B	St. error	β	t	Sig.
	Constant	2.177	0.360		6.045	0.000	0.269	0.360		0.748	0.455
x_1	LP_dec_all	0.014	0.005	0.160	2.861	0.005	0.011	0.005	0.124	2.306	0.022
x_2	NP_dec_all	0.002	0.005	0.022	0.340	0.734	-0.004	0.005	-0.056	-0.888	0.376
x_3	NP_RESID	-0.005	0.001	-0.246	-4.353	0.000	-0.006	0.001	-0.297	-5.464	0.000
x_4	LP_area_B	-7.6210^{-6}	0.000	-0.017	-0.365	0.715	-2.5510^{-6}	0.000	-0.055	-1.223	0.223
x_5	Coef_d	1.038	0.248	0.253	4.185	0.000	1.387	0.248	0.362	5.596	0.000
x_6	IND	0.025	0.005	0.330	5.424	0.000	0.025	0.005	0.314	5.365	0.000
x_7	ENERG	0.142	0.027	0.256	5.194	0.000	0.122	0.027	0.212	4.467	0.000
x_8	BAR_SHOP	0.031	0.009	0.187	3.509	0.001	0.025	0.009	0.147	2.873	0.005
x_9	OFFICE	0.045	0.022	0.138	2.033	0.043	0.055	0.022	0.160	2.451	0.015
x_{10}	LCB	0.016	0.015	0.050	1.102	0.272	0.026	0.015	0.075	1.728	0.086
x_{11}	Revenue_ave	-3.0810^{-7}	0.000	-0.114	-1.741	0.083	-3.3310^{-7}	0.000	-0.118	-1.884	0.061
d_1	Status_mun	0.455	0.163	0.148	2.790	0.06	0.387	0.163	0.121	2.372	0.019
d_2	Advantage	0.075	0.062	0.054	1.200	0.232	0.109	0.62	0.075	1.744	0.083

Note: The explanatory variable is statistically significant at the 5 % level of significance.

The research results show that more developed municipalities (measured by the development coefficient) collect a higher amount of charge per capita and that their revenue from the charge also accounts for a greater share of municipal tax revenue. Explanatory variables x_6: IND, x_7: ENERG, x_8: BAR_SHOP and x_9: OFFICE have an expected statistically significant and relatively strong positive effect on the dependent variable in both models. All four variables above are related to the type of activity conducted by the taxpayers, which is not a criterion with direct grounds in the legislative framework of the charge; it belongs to the set of arbitrary criteria that is very often used at the municipal level. The great significance of their role is shown by the relatively high value of the standardized coefficient β, which is in the top range by absolute value for energy-supply and industrial surface areas and thus one of the most important coefficients that can help explain the volume of charge yield among municipalities. The surface area of land for the construction of buildings in relation to the surface area of the municipality (x_{10}: LCB) has no statistically significant effect on the dependent variable in either of the

models. This statistically insignificant result may be attributed to the highly unequal treatment of such building ground among municipalities. Even though it is a statutory obligation, 75 municipalities out of 211 do not levy the charge for vacant building ground at all or, in some cases, its level or the value of points for vacant building ground is considerably lower than for built-up building ground (e.g. in the city municipalities of Maribor, Ptuj, Celje and Slovenj Gradec).

In view of the positive and statistically significant effect of the development coefficient of municipalities on both dependent variables, the status of city municipality also has an expected positive and statistically significant effect on the dependent variable in both regression models. The research results show that, in both models, the dummy variable for the presence of the criterion related to advantages for generating income (d_2) has no statistically significant effect on the dependent variable. This additionally proves the effect of municipal arbitrariness when assessing the charge for the use of building ground; municipalities more often take into account the activity of business entities, which is not laid down as a criterion by law, rather than its location and advantages for generating income, as could be expected from the legal basis.

4.2 Results of geographically weighted regression

Multiple regression analysis was used to analyse the factors impacting tax yield from the charge for the use of building ground at the national level (referred to below as the global regression model). Geographically weighted regression was used to analyse the characteristics of the model and the explanatory variables at the level of individual municipalities (local regression model). Here, the natural logarithm of the efficacy of assessed charge for the use of building ground in relation to the total tax revenue in a municipality was selected as the dependent variable (Model A). The application of geographically weighted regression should be based on the right choice of baseline assumptions associated with the factors considered (particularly the non-homogeneity of the universe of discourse) (Charlton, Fotheringham and Brunsdon, 2006; Fábián, 2014; Lin and Wen, 2011; White, 2010). The analysis of the spatial autocorrelation shows that it is most appropriate to take the fixed kernel with bandwidth β = 30,5 kilometres. The bandwidth β has been chosen on the basis of the analysis of neighbouring municipalities and the goal, with the view of AIC_C (corrected Akaike Information Criteria) value being as close to zero as possible (Grineski, Collins and Olvera, 2015). The spatial weights are defined in accordance with the Gaussian kernel method (Yang et al., 2016):

$$w_{i,j} = e^{-\beta d_{ij}^2}, \tag{3}$$

where d_{ij} is the distance between the centroid of municipality i and j. In accordance with recommendations (ESRI, 2016; Scott and Bennett, 2012), the dummy variables d_1 and d_2 were not included in the model. To avoid spatial autocorrelation and local multicollinearity, the variables x_2: NP_dec_all and x_9: OFFICE were not applied in the local model. An analysis of standard deviations of prediction errors in the local regression model as constructed above shows them to be within acceptable limits for a great majority of municipalities and that the model is reliable. Results of geographically weighted regression analysis are shown in Table 3.

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Table 3: Results of geographically weighted regression analysis.

Data		Value	Min.	Max.
R^2		0.748	0.523	0.974
Variable		Average value B	Min B	Max B
x_1	LP_dec_all	0.0154	-0.0079	0.0447
x_3	NP_RESID	-0.0046	-0.0110	0.0003
x_4	LP_area_B	-8.4210^{-6}	-3.7610^{-5}	3.1510^{-5}
x_5	Coef_d	1.7466	-0.4855	4.0186
x_6	IND	0.0309	0.0054	0.0533
x_7	ENERG	0.1403	-0.6693	0.3489
x_8	BAR_SHOP	0.0268	-0.0274	0.0907
x_{10}	LCB	0.0351	-0.0554	0.2155
x_{11}	Income_ave	-2.2610^{-7}	-1.5410^{-7}	9.1910^{-8}

The values of the determination coefficient for the local regression model show that, on average, it explains the variance of linear correlation between the dependent and selected explanatory variables better than the global model. Most of the unstandardized coefficients of explanatory variables (x_1, x_5, x_7, x_8, x_{10} and x_{11}) take negative as well as positive values. The average values of unstandardized coefficients of explanatory variables in local regression models share the same sign and very similar values, as they do in the case of global models. Next, thematic choropleth maps were used to depict the spatial distribution of the impact of selected explanatory variables at the municipal level which have the strongest statistically significant impact on the dependent variable in the global model, specifically x_3: NP_RESID, x_5: Coef_d and x_6: IND.
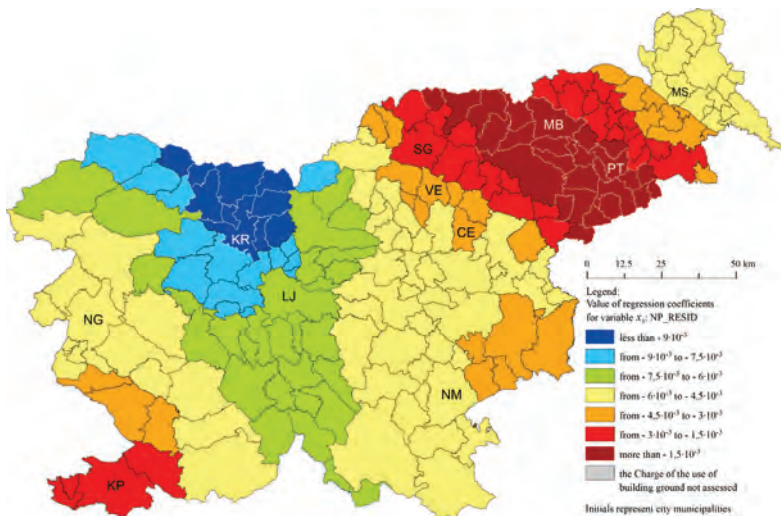

Figure 1: Spatial distribution of the regression coefficients of explanatory variable x_3: NP_RESID (number of decisions for natural persons relatives to the total number of inhabitants in a municipality).

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Figure 1 shows that the tax burden is adjusted in the most regressive way according to residence size particularly by municipalities in the Gorenjska (blue) and Osrednjeslovenska (green) statistical regions. Municipalities in the Gorenjska statistical region typically have a higher percentage of residences with a larger effective area (above 100 m²) than the national average. The opposite can be said about municipalities in the Podravska and Obalno-kraška statistical regions (red), where the tax burden is adjusted to residence size in a slightly less regressive way. In these municipalities, the percentage of residences with an effective area under 100 m² is also lower than the national average. In the Podravska statistical region, the percentage of residences in poor condition and the burden of housing costs are even above the national average, whereas for Gorenjska, both indicators are below the national average (Statistical Office of the Republic of Slovenia, 2017). Despite this, the analysis indicates lower regressivity. The cartographic representation in the Figure 1 provide a better understanding of the spatial distribution of values B_i of explanatory variable x_3.
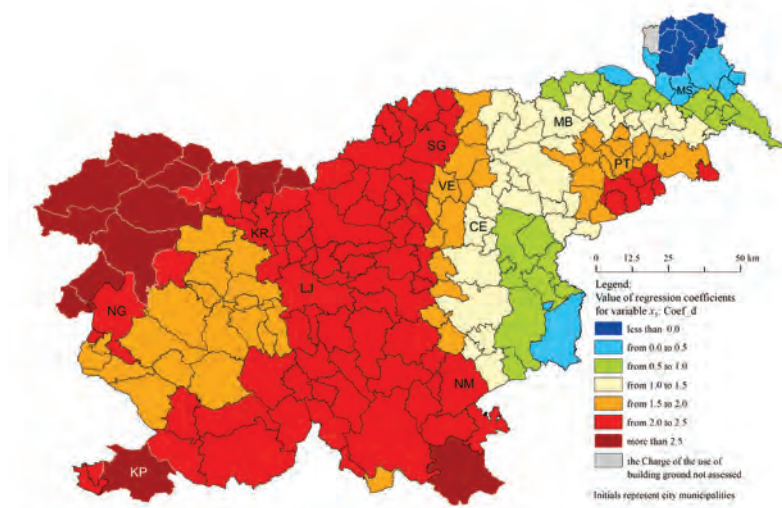

Figure 2: Spatial distribution of the regression coefficients of explanatory variable x_5: Coef_d (development coefficient of municipality).

Figure 2 shows that most municipalities in the central and western part of the country strongly link the burden of charge for the use of building ground to their relative development. These municipalities have a typically high percentage of inhabitants with a connection to the public sewerage. The criterion of availability of utilities on the building ground is also the most frequent criterion used by municipalities to assess the level of charge. Areas with a relatively low percentage of inhabitants with a connection to public sewerage (particularly Pomurska, partially Podravska and the eastern end of the Savinjska and Spodnjeposavska statistical regions - blue and green), do not link the burden of charges for the use of building ground to the relative development of the municipality. With the thematic map in Figure 2, we clearly show the change of the impact of the coefficient x_5 in space. There is also possible a more detailed comparative analysis of the factors that influence the development coefficient of municipality (eg. the development level of a public utility infrastructure).

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The distribution of regression coefficient values for variable x_6: IND (Figure 3) indicates the arbitrariness of municipalities as regards the criterion of intended use of building ground, and discrimination by activity. The impact of the explanatory variable x_6: IND is the strongest in the Podravska, Koroška and Savinjska statistical regions (red), which are characterized by a concentration of metal, metal product and electrical device production and food processing industry. On the other hand, municipalities in central Slovenia (blue) are characterized by the least strong impact of the explanatory variable x_6: IND. With the proposed colors on a thematic map (Figure 3), we show more clearly the effect of the variable x_6, such eg. with the data in the table. At the same time, we visual confirm the arbitrariness of municipalities in the selection of criteria.
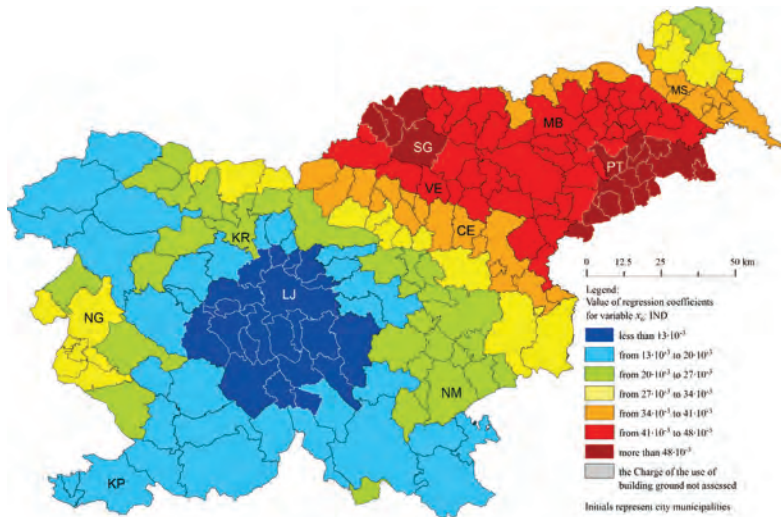

Figure 3: Spatial distribution of the regression coefficients of explanatory variable x_6: IND (surface area of buildings for industrial use in relation to the surface area of all buildings, in %).

5 CONCLUSION AND DISCUSSION

Property taxation systems are subject to constant change, where reforms of property taxation are generally more challenging for political rather than administrative and technical reasons (Brys, 2011; Slack and Bird, 2014). Like many countries in Eastern and Central Europe, Slovenia has for more than a decade been going through the process of changing over from an area-based system of property taxation to a market value-based (ad-valorem) system of property taxation. A major factor of the success of reforming a property taxation system is the quality of the existing system of property taxation. The success of reform also depends on the availability of relevant analyses of the existing and future state of the property taxation system and the presentation of its results.

This paper describes a study of the existing system of property taxation in Slovenia. The study identified and empirically examined the factors impacting tax yield from the charge for the use of building ground at the national and local level. The research results show that, despite the provisions of the Construction

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Land Act (1984; 1997) and the Agreement (Dogovor o …,1986), municipalities have retained considerable autonomy when it comes to determining the areas eligible for charge payment, the criteria and number of points by individual criteria.

The analysis results confirmed the hypothesis that, in addition to the factors laid down by law, the level of assessed charge for the use of building ground is also significantly impacted by factors laid down at the arbitrary discretion of municipalities. These are mostly factors that take into account criteria related to business activities (industrial activity, bars, restaurants and shops, offices and energy-supply activities). Their impact was furthermore confirmed by the statistically insignificant impact of the factor of exceptional advantage with regard to generating income from economic activities. A great lack of uniformity also marks the treatment of building ground, where plots of building ground with the same surface area within a municipality are usually burdened with different levels of the charge even when enjoying the same or very similar public benefits at a certain location. With this high level of discretion municipalities face potential threats that their charge assessment might be contested by courts due to the lack of legal basis, disproportionate tax burden and unequal treatment of taxpayers. Cartographic representations in the form of a cartogram were created for the representation of the results of the local regression analysis. The chosen approach of cartographic data representation has proven adequate regarding the objective, type of data and end users. The latter is confirmed by the fact that cartographic representations offer a more graphic display of the spatial distribution of the values of the chosen variables' regression coefficients, in contrast with, for example, a tabular representation of data. They enable a qualitatively better interpretation and comprehension of analysis results, as well as the comprehension of examined factors in connection to other spatial phenomena. This is the base upon which the suitability of their future use in the area in question is confirmed. Cartograms represent a starting point for further analyses and serve as support for the fiscal policy and strategy makers on a national, as well as on a local level.

The level of burden varies even more among the municipalities. Levels of the charge for the same type of property can vary by as much as tenfold or even one hundredfold. Attention has frequently been brought to the problem of burden disproportionality, also by the Constitution Court (Decision No. U-I-28/03, No. U-I-286/04, No. U-I-65/04-8, No. U-I-84/05 and others). The Constitutional Court also stated (Decision No. U-I-181/00), that the disproportional burden of the charge could be detrimental to the operations of business entities, which would be difficult to remedy in case of any unlawful section of the ordinance. An unequal burden of the charge can encourage unfair competition, loss of effectiveness and business performance.

Municipalities administer the charge by using their own data sets, which are usually not linked to official data sets and do not meet adequate quality standards. The charge system is managed by means of 211 (or 422 considering natural and legal persons separately) different and unconnected data sets (Grote, Borst and McCluskey, 2015). As a rule, reasons for appeals against decisions on charge assessment relate to incorrect or imperfect assessment of the actual situation. With the number of appeals steadily growing, this entails a major administrative burden and therefore expenses related to appeal processing procedures and the establishment of actual situations. The above risks could also lead to instable revenue from the charge. Inadequate quality of data and possible inconsistency of ordinance provisions with the law or even the Slovenian Constitution could lead to the charge not being levied. Given the importance of

revenue from charges for the use of building ground, this also presents a significant risk for the fiscal situation of municipalities.

The Government of the Republic of Slovenia is attempting to address these risks with a property tax reform, which is also relevant to efforts to improve the structure of individual taxes. Within this framework, Slovenia is planning further reforms of property taxation, in view of the fact that property taxes, as argued by many authors (Arnold, 2008; Arnold et al., 2011, Heady et al., 2009; Johansson et al., 2008), are the least detrimental to economic growth. The aim of reform is to correct the lack of uniformity presented in this paper and establish a modern, value-based tax which can serve municipalities as a both fiscal and spatial instrument. Its introduction could be assisted by the research results presented as support to decision-making processes in the area discussed and the management of challenges involved in introducing a new tax.

The results of this research are usable for all the key stakeholders in the sphere of the charge for the use of building ground. For decision-makers the results are usable in analyses of the actual state of affairs (deviation from the principles of modern taxation system, too strong arbitrariness of municipalities, etc.) and in improving (by standardising the system) the field in consideration. The results are also usable for the supervisory institutions, which can by the use of the results, improve their effectiveness (target orientation of the supervision, integrity and clarity of the system enable quality and right intervention). Municipalities can use the results of the research for the basis of preparation for the change of the charge for the use of building ground. The municipalities can use the results of the research mainly to standardize the system and to eliminate the arbitrariness, which is observed as too great differences in property taxation of similar properties in neighbouring municipalities. By the use of the research results the taxpayers of the charge for the use of building ground get an insight into the area in consideration. The results of the research in this way strengthen taxpayers' active and responsible citizenship, participation and effective social inclusion in the processes of improving the system of the charge for the use of building ground.

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ANALIZA IN KARTOGRAFSKI PRIKAZ DEJAVNIKOV VPLIVA NA DAVČNI IZPLEN NADOMESTILA ZA UPORABO STAVBNEGA ZEMLJIŠČA

OSNOVNE INFORMACIJE O ČLANKU

1 UVOD

Prehod iz sistema obdavčitve nepremičnin, temelječega na površini nepremičnine, v sistem, temelječ na vrednosti nepremičnine, je velik izziv v večini držav vzhodne in srednje Evrope. Poleg tega se v državah kažejo težave pretirane arbitrarnosti in razdrobljenosti davčnih režimov. Tudi v Sloveniji je obstoječi sistem obračunavanja dajatev nepremičnin zastarel, neenoten, nekonsistenten, nepregleden in neprilagojen novim ekonomskim razmeram (Vlada RS, 2013). Zemljak (2013) pri tem meni, da nadomestilo za uporabo stavbnega zemljišča ni ustrezna podlaga za obdavčitev nepremičnin, ter dodaja, da je upravljanje sistema nadomestila večinoma v arbitrarni pristojnosti občin. Nadomestilo za uporabo stavbnega zemljišča je, kot poudarja Igličar (2012), tipični institut družbenolastninskega koncepta, ne pa uveljavljenega sistema zasebne lastnine. Ustavno sodišče RS je tudi večkrat ugotovilo ustavno spornost občinskih odlokov o nadomestilu za uporabo stavbnega zemljišča. Glede na pomen prihodkov od nadomestila za uporabo stavbnega zemljišča to pomeni tudi pomembno tveganje za javnofinančno stabilnost občin. V Sloveniji je bila v minulih dveh desetletjih izvedena vrsta aktivnosti za oblikovanje sodobnega, na tržnih razmerah temelječega sistema obdavčitve nepremičnin, s katerim bi nadomestili obstoječi sistem, tudi nadomestilo za uporabo stavbnega zemljišča. Zakon o davku na nepremičnine (2013) je kot prvi sistemski zakon posegel v celovito in enotno urejanje področja obdavčitve nepremičnin. Na podlagi odločbe Ustavnega sodišča RS (2014), ki je Zakon o davku na nepremičnine v celoti razveljavilo, je v uporabo vrnjeno nadomestilo za uporabo stavbnega zemljišča.

Nadomestilo za uporabo stavbnega zemljišča je obvezna dajatev, ki ima vse elemente davka na uporabo stavbnega zemljišča na posebej opredeljenih območjih. Nadomestilo je bilo uvedeno sredi 80. let prejšnjega stoletja in je eden najpomembnejših javnofinančnih izvirnih prihodkov lokalnih skupnosti v Sloveniji. Veljavno obliko nadomestila za uporabo stavbnega zemljišča določata Zakon o stavbnih zemljiščih iz leta 1984 ter Dogovor o usklajevanju meril za določanje območij, na katerih se plačuje nadomestilo za uporabo stavbnega zemljišča, in meril za odmero tega nadomestila iz leta 1986. Z Zakonom o stavbnih zemljiščih iz leta 1997 je bilo nadomestilo za uporabo stavbnega zemljišča le začasno zadržano, kot prehodna ureditev do uzakonitve novega, sodobnejšega sistema obdavčitve nepremičnin. Za sistem nadomestila za uporabo stavbnega zemljišča je značilno, da med občinami ni poenoten. Izvedena analiza

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odlokov o nadomestilu za uporabo stavbnega zemljišča za vseh 211 občin v Sloveniji (LAU-2), ki nadomestilo odmerjajo, kaže, da se pristopi posameznih občin razlikujejo po vseh davčnih elementih. Višina nadomestila se določa z metodo točkovanja in določitvijo vrednosti točke. Občine z odlokom določijo število točk po posameznih merilih v odvisnosti od lastnosti zemljišča in njegovih prednosti oziroma slabosti. Ta merila se med občinami zaradi naravnih, prostorskih, poselitvenih, razvojnih, demografski in drugih dejavnikov razlikujejo. Občine v skladu z zakonskimi določili po večini upoštevajo minimalni obseg meril, tj. opremljenost stavbnega zemljišča s komunalnimi napravami, lego in namembnost ter smotrno izkoriščanje stavbnega zemljišča, in izjemne ugodnosti v zvezi s pridobivanjem dohodka v gospodarskih dejavnostih. Ob tem upoštevajo še niz drugih dejavnikov, ki pa se med občinami razlikujejo. Prav tako ni enotnega pristopa k določitvi števila točk po posameznih merilih, kakor tudi ne vrednosti točk. Občine neenotno določajo tudi oprostitve in olajšave plačevanja nadomestila za uporabo stavbnega zemljišča.

Po podatkih ministrstva za finance (2017) so prihodki od nadomestila za uporabo stavbnega zemljišča leta 2016 v povprečju znašali 81 % vseh prihodkov od davkov od premoženja občin oziroma 15,7 % vseh davčnih prihodkov občin. Kljub družbenim, ekonomskim, gospodarskim, pravnim in davčnim spremembam se sistem nadomestila za uporabo stavbnega zemljišča od uveljavitve do danes ni veliko spreminjal. Nadomestilo za uporabo stavbnega zemljišča se odmerja v vseh lokalnih skupnostih v Sloveniji, razen v občini Rogašovci.

V članku identificiramo in empirično preverjamo dejavnike vpliva na davčni izplen nadomestila za uporabo stavbnega zemljišča na nacionalni ravni in na ravni lokalnih skupnosti. Namen raziskave je proučevanje vplivov zakonsko ter od občin arbitrarno določenih dejavnikov na odmero nadomestila za uporabo stavbnega zemljišča. Z empirično analizo smo želeli preveriti hipotezo, ali so dejavniki, ki so določeni z zakonodajo, ključne determinante, ki vplivajo na višino odmere nadomestila za uporabo stavbnega zemljišča, ali pa so to dejavniki, katerih določitev je v arbitrarni pristojnosti občin. Posledično je cilj raziskave ugotoviti povezanost med zneskom odmerjenega nadomestila za uporabo stavbnega zemljišča na prebivalca in izdatnostjo odmerjenega nadomestila za uporabo stavbnega zemljišča v odnosu do celotnih davčnih prihodkov občine z izbranimi dejavniki vpliva. Na podlagi ugotovitev želimo prispevati k razpravi o primernosti obdavčitve nepremičnin z nadomestilom za uporabo stavbnega zemljišča s prikazom dejavnikov, ki najpomembneje vplivajo na izbrani odvisni spremenljivki, in ugotovitvijo, ali se njihov vpliv spreminja po prostoru.

Obseg obravnavanih dejavnikov vpliva v 211 občinah zahteva učinkovit prikaz rezultatov za njihovo kakovostnejše razumevanje. S kartografskimi prikazi želimo prikazati prostorske vzorce in zakonitosti obravnavanih dejavnikov vpliva. Slednje je v podporo analiziranju sprememb dejavnikov vpliva po prostoru ter nadaljnjemu raziskovanju in povezovanju dobljenih rezultatov z demografskimi, gospodarskimi, okoljskimi, fiskalnimi in drugimi značilnostmi občin ter s tem povezanimi različnimi tipi spremenljivk. Z izbranimi kartografskimi prikazi je mogoče

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učinkovito prikazati in razumeti tudi prostorsko-časovne spremembe obravnavanih pojavov, zagotoviti bolj poglobljen vpogled v prostorske odnose med obravnavanimi pojavi ter analizirati učinke sprememb sistema v prostoru. Z njimi je mogoče oblikovati nova znanja, ozaveščati pripravljavce davčnih politik in strategij na nacionalni in lokalni ravni. S tovrstnimi kartografski prikazi je mogoče okrepiti dialog med deležniki na obravnavanem področju ter zagotoviti podporo odločevalcem na področju obdavčitve nepremičnin. So aktiven odgovor na izziv za dvig dostopnosti in uporabnosti rezultatov izvedene prostorske analize tako za strokovno kot laično javnost. Izbrani kartografski prikazi tudi podpirajo vizualno analizo in presojo v prispevku zastavljenih raziskovalnih hipotez.

2 PREGLED DOSEDANJIH RAZISKAV

Sistemi obdavčitve nepremičnin so predmet številnih znanstvenih raziskav (Almy, 2001; Bahl, Martinez-Vazquez in Youngman, 2010; Bird in Slack, 2007; Cho, Roberts in Lambert, 2017; Dove, 2017; Haveman in Sexton, 2008; Hou, Ren in Zhang, 2015; Mirrlees et al., 2011; Salm, 2017; Slack in Bird, 2014). Izvedene so številne študije dejavnikov, ki vplivajo na davčno osnovo in posledično na davčno breme pri obdavčitvi nepremičnin. Ob študijah vpliva vrednosti nepremičnin in višine najemnin na prihodke od davka na nepremičnine (Anderson in McMillen, 2010; Bai, Li in Ouyang, 2013; Boyd, 2010; Charlot, Paty in Visalli, 2008; Lutz, 2008) so izvedene mnoge študije o vplivu številnih drugih dejavnikov na prihodke od davka na nepremičnine, na primer vplivu sprememb števila zaposlenih na prihodke od obdavčitve nepremičnin (Liro, Naroff in Fuchs, 1983), vplivu stanovanjskih naložb na vrednost bližnjih nepremičnin in prihodke od obdavčitve nepremičnin (Cui, 2017; Ding, Simons in Baku, 2000; Vandegrift, 2016), vplivu degradiranih območij na vrednost nepremičnin in prihodke od obdavčitve nepremičnin (Bardos et al., 2016; Haninge, Ma in Timmins, 2012; Mihaescu in vom Hofe, 2013) in vplivu novih športnih objektov na vrednost nepremičnin ter prihodke od obdavčitve nepremičnin (Ahlfeldt in Kavetsos, 2011; Feng in Humphreys, 2012; Humphreys in Nowak, 2017). Poleg mikrodejavnikov, vezanih na značilnost posamezne nepremičnine ali vrste nepremičnin, je vrsta raziskav osredotočenih tudi na makro dejavnike, tj. na vpliv različnih socialnih in ekonomskih dejavnikov na državni in lokalni ravni na prihodke od obdavčitve nepremičnin (Dornfest in Bennett, 2012), na primer vpliv staranja prebivalstva (Das-Gupta, 2017; Felix in Watkins, 2013), kakovost storitev javne uprave (Lightner et al., 2012), gospodarske krize (Alm in Leguizamon, 2017; Dadayan, Stenson in Boyd, 2012) ter osebne potrošnje (Surico in Trezzi, 2015). Večina do sedaj izvedenih raziskav o nadomestilu za uporabo stavbnega zemljišča v Sloveniji (Hašaj, 2002; Janež, Bogataj in Drobne, 2016; Kobetič, 2015; Malus, 2005; Modrijan, 2005; Polajnar, 2008; Rakar, Černe in Šubic Kovač, 2008; Viler, 2005; Živec, 2010) je usmerjenih v proučevanje strokovnih podlag za obračunavanje nadomestila, pravnega vidika občinskih odlokov, zgodovinskega procesa oblikovanja nadomestila in njegovo izvajanje, primerjavo občinskih odlokov o nadomestilu ter fiskalne in usmerjevalne vloge nadomestila za izbrane občine. Izvedene so številne študije, ki obravnavajo pomen GIS-tehnologije, prostorskih

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analiz in kartografskega prikaza podatkov s področja obdavčitev nepremičnin (Eeckhout in Guner, 2014; Franzsen in Youngman, 2009; Hamid et al., 2016; Javed et al., 2018; Morgan, Jensen in McLean, 2005; Payton, 2006; Smith Patterson in Siderelis, 1999; Talen, 1998).

3 EMPIRIČNA RAZISKAVA

3.1 Metodologija

Sistem nadomestila za uporabo stavbnega zemljišča je heterogen sistem z različnimi dejavniki vpliva na odmero nadomestila oziroma prihodke. Zato je treba pri analizi tovrstnih sistemov uporabiti holistični (celostni) pristop z upoštevanjem relevantnih dejavnikov (De Cesare in Ruddock, 2003; Famuyiwa in Otegbulu, 2012). Analizo povezanosti med podatki o odmeri nadomestila za uporabo stavbnega zemljišča in izbranimi dejavniki vpliva na odmero izvedemo z multivariatno regresijsko analizo na ravni države. Ker pa tovrstni pristop ne omogoča vpogleda v značilnosti in vplive posameznih proučevanih dejavnikov na lokalni ravni, analizo nadgradimo z geografsko obteženo regresijo. Ta spada v skupino lokalnih prostorskih statističnih metod za raziskovanje prostorske raznovrstnosti oziroma nestacionarnosti, pri čemer lahko vrednotimo napovedovalno moč regresijskega modela za vsako posamezno prostorsko enoto in pojasnjevalno spremenljivko posebej (Brunsdon, Fotheringham in Charlton, 1996; Charlton in Fotheringham, 2009; Liu, Khattak in Wall, 2017; Verbič in Korenčan, 2017). V lokalnem regresijskem modelu nadgradimo enačbo za multiplo regresijo za vsako prostorsko enoto posebej.

3.2 Uporabljeni podatki

V raziskavi uporabljeni podatki so za leto 2014, v katerem je bila z uvedbo novega davka na nepremičnine načrtovana najobsežnejša sprememba sistema obdavčite nepremičnin v Sloveniji. Navedeno leto je uporabljeno, ker je takrat pričela veljati nova sistemska ureditev obdavčitve nepremični. V letu 2013 so številne občine izvedle spremembe sistema nadomestila za uporabo stavbnega zemljišča. Kasneje (vse do leta 2017) spremembe sistema nadomestila za uporabo stavbnega zemljišča zaradi odločbe Ustavnega sodišča RS (2014) niso bile mogoče. Podatki iz leta 2014 tako predstavljajo aktualno stanje in primerjalno izhodišče za načrtovano novo sistemsko ureditev obdavčitve nepremičnin v Sloveniji. Za izvedbo raziskave so uporabljeni podatki iz referenčnih zbirk podatkov Statističnega urada RS, Geodetske uprave RS, Agencije RS za javnopravne evidence in storitve (AJPES), ministrstva za finance in Finančne uprave RS. Vsi podatki so zbrani na ravni posamezne občine.

3.3 Izgradnja modelov

Izbira spremenljivk temelji na proučitvi zakonodajnega okvira, ki določa posamezne dejavnike, na podlagi katerih občine oblikujejo način, vrsto in obseg obračuna nadomestila, ter na analizi

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vseh občinskih odlokov, vključno z merili, ki jih občine arbitrarno določajo same. Posledica navedene arbitrarnosti je velika heterogenost sistema nadomestila med občinami. Ob tem je treba upoštevati zelo neenotno strukturo posameznih opazovanih pojavov: površine občin, števila prebivalcev idr. Zaradi tega je ustreznost izbire pojasnjevalnih spremenljivk posebej pomembna, saj naj bi predstavljale reprezentativne kazalnike vplivov na izbrane odvisne spremenljivke, ob predpostavki, da je vpliv drugih dejavnikov nanje manjši. Za namen raziskave smo oblikovali dva regresijska modela. V modelu A je odvisna spremenljivka naravni logaritem zneska od-merjenega nadomestila za uporabo stavbnega zemljišča na prebivalca v posamezni občini, s katero želimo proučiti, kateri dejavniki vplivajo na povprečno odmerjeno višino nadomestila za uporabo stavbnega zemljišča. Model A ima obliko:

$$\ln(y_1) = \dot{b}_0 + \dot{b}_1 x_1 + \dot{b}_2 x_2 + \ldots + \dot{b}_{11} x_{11} + \dot{b}_{12} d_1 + \dot{b}_{13} d_2 + \varepsilon_1.$$ (1)

V modelu B je odvisna spremenljivka naravni logaritem izdatnosti odmerjenega nadomestila za uporabo stavbnega zemljišča v odnosu do celotnih davčnih prihodkov v posamezni občini, s katero želimo proučiti, kateri dejavniki vplivajo na izdatnost nadomestila v strukturi finančnih prihodkov občine. Model B ima obliko:

$$\ln(y_2) = \ddot{b}_0 + \ddot{b}_1 x_1 + \ddot{b}_2 x_2 + \ldots + \ddot{b}_{11} x_{11} + \ddot{b}_{12} d_1 + \ddot{b}_{13} d_2 + \varepsilon_2.$$ (2)

Vrednosti odvisne spremenljivke niso normalno porazdeljene (frekvenčna porazdelitev je asi-metrična v levo), zato izberemo naravni logaritem vrednosti, s čimer zagotovimo normalno porazdelitev vrednosti.

Preglednica 1: Oznake in opis pojasnjevalnih spremenljivk.

Spremenljivka	Oznaka	Opis
x_1	LP_dec_all	Število odločb pravnih oseb glede na število vseh pravnih oseb v občini.
x_2	NP_dec_all	Število odločb fizičnih oseb glede na število vseh prebivalcev v občini.
x_3	NP_RESID	Povprečna površina stavbe za stanovanjski namen.
x_4	LP_area_B	Povprečna površina stavbe za poslovni namen.
x_5	Coef_d	Koeficient razvitosti občine.
x_6	IND	Površina stavb za industrijske namene v odnosu do površine vseh stavb (v %).
x_7	ENERG	Površina stavb za namene energetike v odnosu do površine vseh stavb (v %).
x_8	BAR_SHOP	Površina lokalov v odnosu do površine vseh stavb (v %).
x_9	OFFICE	Površina pisarn v odnosu do površine vseh stavb (v %).
x_{10}	LCB	Površina zemljišč za gradnjo stavb v odnosu do površine občine (v %).
x_{11}	Revenue_ave	Povprečni prihodek poslovnih subjektov v občini (v EUR).
d_1	Status_mun	Status občine.
d_2	Advantage	Merilo izjemne ugodnosti.

V posameznih primerih se upoštevajo stavbe in deli stavb za stanovanjski, poslovni in industrijski namen, namen energetike, lokali, pisarne glede na dejansko rabo v skladu z enotno klasifikacijo vrst objektov (Geodetska uprava RS, 2013). Zemljišča za gradnjo stavb so stavbna zemljišča, določena v občinskem prostorskem načrtu, oziroma stavbna zemljišča v okviru območij, določenih v prostorskih sestavinah dolgoročnih in srednjeročnih družbenih planov občin, na katerih je gradnja stavb dejansko mogoča oziroma dopustna in jih določi občina. Koeficient razvitosti občine je zakonsko določen na podlagi treh skupin kazalnikov, in sicer: kazalnikov razvitosti, ogroženosti ter razvojnih možnosti občine. S slamnato spremenljivko Status občine sta opredeljena dva statusa, in sicer status mestne občine (vrednost 1; skupaj 11 občin) in druge občine, ki tega statusa nimajo (vrednost 0). Slamnata spremenljivka d_2: Merilo izjemne ugodnosti (vrednost 1: občina upošteva merilo izjemne ugodnosti; vrednost 0: občina tega merila ne upošteva) se nanaša na izjemne ugodnosti za pridobivanje dohodka v gospodarskih dejavnostih, kjer občine po večini upoštevajo ugodnost lokacije poslovnega prostora glede na možnost ustvarjanja dohodka v nekaterih dejavnostih (zlasti trgovini, gostinski dejavnosti, obrtni dejavnosti, zavarovalništvu, finančnih storitvah, bencinskih servisih, igralniški dejavnosti in podobnem) ter možnost intenzivnejše rabe komunalnih in drugih objektov ter naprav, ki lahko znižujejo stroške proizvodov in storitev.

3.4 Kartografski prikaz dejavnikov vpliva na davčni izplen nadomestila za uporabo stavbnega zemljišča

Kartografija, veda, tehnologija in umetnost o oblikovanju, izdelavi in uporabi kart, se vse od nastanka sodobnih civilizacij do danes tesno prepleta s področjem upravljanja nepremičnin, pravic, obveznosti in odgovornosti, povezanih z nepremičninami ter njihovim vrednotenjem. Potreba po prikazovanju prostorskih podatkov na uporabniku ustrezen način izhaja že iz zelo zgodnjih obdobij človekovega razvoja in medsebojnega komuniciranja (Kozmus Trajkovski, Domajnko in Petrovič 2015; Ward Aber in Ward Aber, 2017). Kartografija skrbi za ustrezno abstrakcijo in modeliranje (kodiranje) dejanskega stanja okolja v obliko, primerno za prenos do končnega uporabnika (karta), prav tako zagotavlja možnosti in načine, da končni uporabnik karto ustrezno in pravilno interpretira (dekodiranje) in tako pridobi vedenje o dejanskem stanju okolja, ki ga obravnava (Petrovič, 2006). Franzsen in Youngman (2009) izpostavljata pomen zagotavljanja dostopnosti in ustreznosti kartografskega prikaza podatkov s področja obdavčitve nepremičnin za boljše razumevanje stanja, učinkovitejše razumevanje razlik med sistemi v različnih okoljih ter podporo procesu izboljšav sistema obdavčitve nepremičnin. Smith Patterson in Siderelis (1999) poudarjata pomen GIS-tehnologije v procesu oblikovanja in izvajanja politik in strategij ter prikaza podatkov tudi na področju obdavčitve nepremičnin, za sprejemanje kakovostnejših odločitev in učinkovitejše sodelovanje z javnostmi.

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Pri oblikovanju tematskih kart (klasičnih, elektronskih) je treba biti pozoren na oblikovanje osnovnih elementov (Duka, 2007). Kartografija pri tem uporablja kartografske znake za enotno razumevanje geografske raznolikosti ali posameznih pojavov stvarnega sveta. Ti sestavljajo poseben grafični jezik ter omogočajo komunikacijo med izdelovalcem in uporabnikom karte (Petrovič, 2006; Vasilev, 2006). Z njimi lahko prikazujemo tudi pojave, ki jih v naravi ne zaznavamo, prikažemo lahko njihovo dinamiko, označujemo kvalitativne in kvantitativne lastnosti prikazanih elementov. Pri tem se uporabljajo na primer barve, pike (Slocum et al., 2009) ali enostavni geometrijski elementi (MacEachren, 1994).

Kartografski prikazi rezultatov analize dejavnikov vpliva (vrednost regresijskih koeficientov posameznih spremenljivk) na davčni izplen od nadomestila za uporabo stavbnega zemljišča so namenjeni tako strokovni kot laični javnosti za učinkovitejše razumevanje prostorske porazdelitve obravnavanih dejavnikov vpliva. Glede na namen, merilo in vrsto podatkov, povezanih z administrativnimi enotami (občinami), in ciljno javnost, ki ji je prikaz namenjen, je za prikaz rezultatov izvedene prostorske analize kot najprimernejši izbran kartogram (Forrest, 2015; Hickin, 2014; Slocum et al., 2009). Pri tem so vrednosti regresijskih koeficientov porazdeljene v sedem enako širokih razredov (s sivo je označena občina, ki nadomestila ne odmerja). Vsakemu vrednostnemu razredu je prirejena po ena barva, in sicer v barvnem razponu od temno modre do temno rdeče, pri čemer slednja predstavlja vrednost opazovanega pojava v najvišjem vrednostnem razredu, kar je označeno v legendi. Kartografski prikaz v merilu 1 : 1.200.000 omogoča prikaz celotnega območja obravnave (vse občine). Za učinkovitejšo orientacijo so na kartogramih dodane inicialke mestnih občin (na primer LJ – mestna občina Ljubljana, CE – mestna občina Celje idr.).

4 REZULTATI

4.1 Rezultati multiple regresijske analize

Preglednica 2 prikazuje podatke regresijskih modelov. Na podlagi dobljenih rezultatov regresijske analize v obeh modelih ugotavljamo, da imajo občine, ki nadomestilo za uporabo stavbnega zemljišča odmerijo višjemu deležu pravnih oseb, višje prihodke od nadomestila za uporabo stavbnega zemljišča na prebivalca in večjo izdatnost odmerjenega nadomestila v odnosu do celotnih davčnih prihodkov občine. Da so pravne osebe pretežni plačnik nadomestila, dodatno potrjuje tudi neznačilnost koeficienta pri spremenljivki x_2, saj odmera večjemu deležu fizičnih oseb nima statistično značilnega vpliva na izdatnost pobranega davka. Analiza tudi razkriva, da je v obeh modelih vpliv povprečne površine za stanovanjske namene na zavezanca – fizične osebe negativen in statistično močno značilen ter nakazuje, da občine davčno breme regresivno prilagajajo glede na velikost stanovanj.

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Preglednica 2: Vrednosti ocenjenih koeficientov regresije in vrednost t-statistike

		Model A (R^2 = 0.634)					Model B (R^2 = 0.661)				
		B	St. napaka	β	t	Sig.	B	St. napaka	β	t	Sig.
	Constant	2,177	0,360		6,045	0,000	0,269	0,360		0,748	0,455
x_1	**LP_dec_all**	0,014	0,005	0,160	2,861	0,005	0,011	0,005	0,124	2,306	0,022
x_2	**NP_dec_all**	0,002	0,005	0,022	0,340	0,734	-0,004	0,005	-0,056	-0,888	0,376
x_3	**NP_RESID**	-0,005	0,001	-0,246	-4,353	0,000	-0,006	0,001	-0,297	-5,464	0,000
x_4	**LP_area_B**	$-7,6210^{-6}$	0,000	-0,017	-0,365	0,715	$-2,5510^{-6}$	0,000	-0,055	-1,223	0,223
x_5	**Coef_d**	1,038	0,248	0,253	4,185	0,000	1,387	0,248	0,362	5,596	0,000
x_6	**IND**	0,025	0,005	0,330	5,424	0,000	0,025	0,005	0,314	5,365	0,000
x_7	**ENERG**	0,142	0,027	0,256	5,194	0,000	0,122	0,027	0,212	4,467	0,000
x_8	**BAR_SHOP**	0,031	0,009	0,187	3,509	0,001	0,025	0,009	0,147	2,873	0,005
x_9	**OFFICE**	0,045	0,022	0,138	2,033	0,043	0,055	0,022	0,160	2,451	0,015
x_{10}	**LCB**	0,016	0,015	0,050	1,102	0,272	0,026	0,015	0,075	1,728	0,086
x_{11}	**Revenue_ave**	$-3,0810^{-7}$	0,000	-0,114	-1,741	0,083	$-3,3310^{-7}$	0,000	-0,118	-1,884	0,061
d_1	**Status_mun**	0,455	0,163	0,148	2,790	0,06	0,387	0,163	0,121	2,372	0,019
d_2	**Advantage**	0,075	0,062	0,054	1,200	0,232	0,109	0,62	0,075	1,744	0,083

Opomba: ▢ Pojasnjevalna spremenljivka je statistično značilna pri 5-odstotni stopnji značilnosti.

Rezultati raziskave kažejo, da razvitejše občine (merjeno s koeficientom razvitosti) poberejo večji znesek nadomestila za uporabo stavbnega zemljišča na prebivalca. V razvitejših občinah prihodek od nadomestila za uporabo stavbnega zemljišča predstavlja tudi večji delež v davčnih prihodkih občine. Pojasnjevalne spremenljivke x_6: IND (površina stavb za industrijske namene glede na površino vseh stavb v občini), x_7: ENERG (površina stavb za energetske namene glede na površino vseh stavb v občini), x_8: BAR_SHOP (površina lokalov) in x_9: OFFICE (površina pisarn glede na površino vseh stavb v občini) pričakovano statistično značilno in razmeroma močno pozitivno vplivajo na odvisno spremenljivko v obeh modelih. Vse štiri navedene spremenljivke so vezane na vrsto dejavnosti zavezancev za nadomestilo, kar ni merilo, ki bi imelo neposredno podlago v zakonodajnem okviru nadomestila, temveč spada v nabor arbitrarnih meril na ravni občin. Kako pomembno vlogo imajo, kaže relativno visoka vrednost standardiziranega koeficienta β, ki je prav pri površinah za energetski in industrijski namen med največjimi po absolutni vrednosti in s tem med najpomembnejšimi pri pojasnjevanju obsega izplena proučevane davščine med občinami. Površina zemljišč za gradnjo stavb glede na površino občine (x_{10}: LCB) v obeh modelih nima statistično značilnega vpliva na odvisno spremenljivko. Statistično neznačilen rezultat lahko pripišemo izjemno neenotni obravnavi tovrstnih stavbnih zemljišč med občinami. Kljub zakonski obvezi 75 od skupaj 211 občin nadomestila od nezazidanih stavbnih zemljišč sploh ne odmerja ali je višina oziroma vrednost točk za nezazidana stavbna zemljišča bistveno nižja kot pri zazidanih stavbnih zemljiščih (na primer v mestnih občinah Maribor, Ptuj, Celje, Slovenj Gradec).

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Glede na pozitiven in statistično značilen vpliv koeficienta razvitosti občine na obe odvisni spremenljivki tudi status mestne občine pričakovano pozitivno in statistično značilno vpliva na odvisno spremenljivko v obeh regresijskih modelih. Rezultati raziskave so pokazali, da slamnata spremenljivka za prisotnost merila, vezanega na ugodnost za pridobivanje dohodka (d_2), v obeh modelih nima statistično značilnega vpliva na odvisno spremenljivko. S tem se dodatno potrjuje vpliv arbitrarnosti občin pri odmeri nadomestila za uporabo stavbnega zemljišča, kjer občine pogosteje upoštevajo dejavnost gospodarskih subjektov, ki ni v naboru zakonskih meril, manj pa lokacijo ter njeno ugodnost za pridobivanje dohodka, kar bi iz pravnih podlag pričakovali.

4.2 Rezultati geografsko obtežene regresije

Z multiplo regresijsko analizo smo analizirali dejavnike vpliva na davčni izplen nadomestila za uporabo stavbnega zemljišča na nacionalni ravni (v nadaljevanju opisan kot globalni regresijski model). Z geografsko obteženo regresijo analiziramo značilnosti modela in pojasnjevalnih spremenljivk na ravni posamezne občine (lokalni regresijski model). Pri tem za odvisno spremenljivko izberemo naravni logaritem izdatnosti odmerjenega nadomestila za uporabo stavbnega zemljišča v odnosu do celotnih davčnih prihodkov v posamezni občini (model A). Izvedba geografske obtežene regresije temelji na ustrezni izbiri izhodiščnih predpostavk, povezanih z obravnavanimi dejavniki (predvsem nehomogenost prostora obravnave) (Charlton, Fotheringham in Brunsdon, 2006; Fábián, 2014; Lin in Wen, 2011; White, 2010). Analiza pojava prostorske avtokorelacije kaže, da je najprimerneje izbrati stalno jedro s pasovno širino $\beta = 30{,}5$ km. Pasovna širina β je izbrana na podlagi analize sosednosti občin in cilja, da je vrednost AIC_C (popravljena vrednost informacijskega kriterija Akaike) čim bliže vrednosti 0 (Grineski, Collins in Olvera, 2015). Prostorske uteži so določene z metodo Gaussovega jedra (Yang et al., 2016):
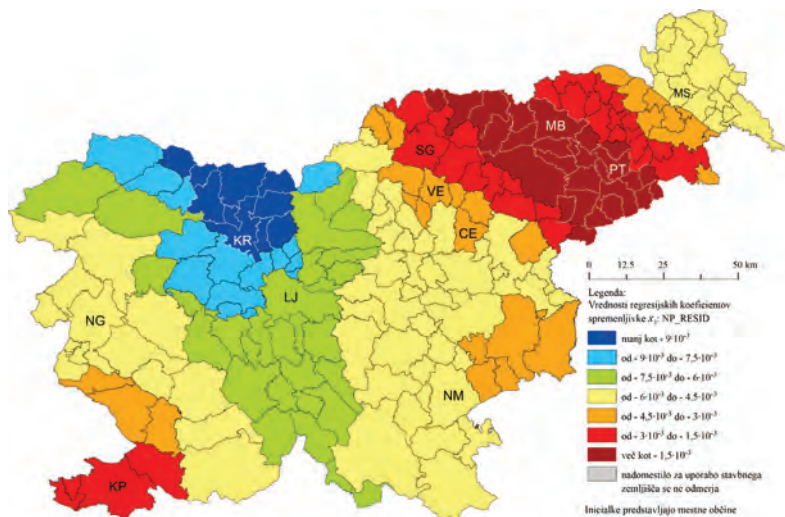
$$w_{i,j} = e^{-\beta d_{ij}^2},$$

(3)

kjer je d_{ij} razdalja med centroidom občine i in j. V skladu s priporočili (ESRI, 2016; Scott in Bennett, 2012) v model ne vključimo slamnatih spremenljivk d_1 in d_2. V izogib prostorski avtokorelaciji in lokalni multikolinearnosti v lokalnem modelu ne upoštevamo spremenljivk x_2: NP_dec_all in x_9: OFFICE. Analiza standardnih odklonov napak napovedi v tako zasnovanem lokalnem regresijskem modelu kaže, da so v veliki večini občin v sprejemljivih mejah ter da gre za zanesljiv model. Rezultati geografsko obtežene regresijske analize so prikazani v preglednici 3.

Vrednost determinacijskega koeficienta lokalnega regresijskega modela kaže, da v povprečju bolje pojasni varianco linearne povezanosti odvisnih z izbranimi pojasnjevalnimi spremenljivkami kot globalni model. Vrednosti večine nestandardiziranih koeficientov pojasnjevalnih spremenljivk ($x_1, x_5, x_7, x_8, x_{10}$ in x_{11}) so tako negativne kot pozitivne. Povprečne vrednosti nestanardiziranih koeficientov pojasnjevalnih spremenljivk lokalnih regresijskih modelov imajo enak predznak in zelo podobne vrednosti kot pri globalnih modelih. S tematskimi kartami prikažemo pro-

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storsko porazdelitev vpliva izbranih pojasnjevalnih spremenljivk na ravni občin, ki v globalnem modelu najbolj statistično značilno vplivajo na odvisno spremenljivko, in sicer x_3: NP_RESID, x_5: Coef_d in x_6: IND.

Preglednica 3: Rezultati geografsko obtežene regresijske analize

Podatek		Vrednost	Min.	Maks.
R^2		0,748	0,523	0,974
Spremenljivka		Povprečna vrednost B	Min B	Maks B
x_1	LP_dec_all	0,0154	-0,0079	0,0447
x_3	NP_RESID	-0,0046	-0,0110	0,0003
x_4	LP_area_B	$-8,4210^{-6}$	$-3,7610^{-5}$	$3,1510^{-5}$
x_5	Coef_d	1,7466	-0,4855	4,0186
x_6	IND	0,0309	0,0054	0,0533
x_7	ENERG	0,1403	-0,6693	0,3489
x_8	BAR_SHOP	0,0268	-0,0274	0,0907
x_{10}	LCB	0,0351	-0,0554	0,2155
x_{11}	Income_ave	$-2,2610^{-7}$	$-1,5410^{-7}$	$9,1910^{-8}$

Slika 1: Prostorska porazdelitev regresijskih koeficientov pojasnjevalne spremenljivke x_3: NP_RESID (povprečna površina stavbe za stanovanjski namen).

Slika 1 kaže, da občine predvsem na Gorenjskem (modra barva) in v osrednjeslovenski statistični regiji (zelena barva) najbolj regresivno prilagajajo davčno breme glede na velikost stanovanj. Za občine v gorenjski statistični regiji je značilno, da je delež stanovanj z večjo uporabno površino (nad 100 m²) višji od nacionalnega povprečja. Nasprotno velja za občine v podravski in obal-

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no-kraški statistični regiji (rdeča barva), ki davčno breme nekoliko manj regresivno prilagajajo glede na velikost stanovanj. V teh občinah je delež stanovanj z uporabno površino nad 100 m² tudi nižji od nacionalnega povprečja. Za podravsko statistično regijo ob tem velja, da sta delež stanovanj, ki so v slabem stanju, in obremenjenost s stanovanjskimi stroški celo nad nacionalnim povprečjem, medtem ko sta na Gorenjskem oba kazalnika pod povprečjem države (Statistični urad RS, 2017), kljub temu pa je iz analize razbrati manjšo regresivnost. Kartografski prikaz na sliki 1 omogoča boljše razumevanje prostorske porazdelitve vrednosti B_i pojasnjevalne spremenljivke x_3.
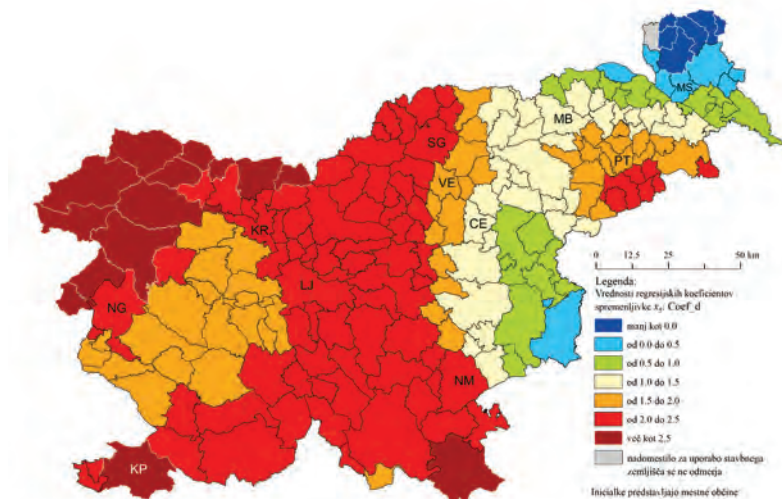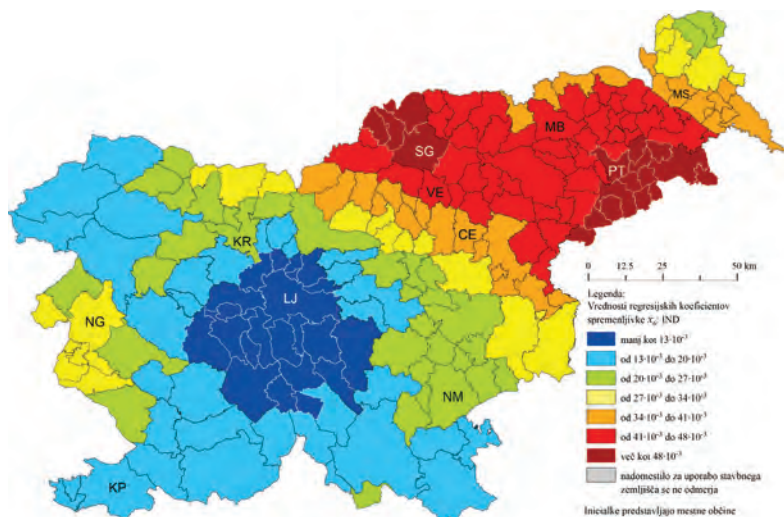

Slika 2:   Prostorska porazdelitev regresijskih koeficientov pojasnjevalne spremenljivke x_5: Coef_d (koeficient razvitosti občine).

Slika 2 kaže, da večina občin v osrednjem in zahodnem delu države breme z nadomestilom za uporabo stavbnega zemljišča zelo močno veže na relativno razvitost občine. Zanje je značilen visok delež prebivalcev, ki imajo priključek na javno kanalizacijo. Merilo opremljenosti stavbnega zemljišča s komunalnimi napravami občine tudi najpogosteje uporabljajo pri določitvi višine nadomestila. Območja z razmeroma nizkim deležem prebivalcev, ki imajo priključek na javno kanalizacijo (predvsem pomurska in del podravske ter vzhodni del savinjske in spodnjeposavske statistične regije – modra in zelena barva), bremena z nadomestilom za uporabo stavbnega zemljišča ne vežejo na relativno razvitost občine. S tematsko karto na sliki 2 nazorno prikazujemo spremembo vpliva pojasnjevalne spremenljivke x_3 v prostoru. Mogoča je tudi podrobnejša analiza dejavnikov, ki vplivajo na koeficient razvitosti občine (na primer raven razvoja javne gospodarske infrastrukture).

Porazdelitev vrednosti regresijskih koeficientov spremenljivke x_6: IND (slika 3) kaže na arbitrarnost občin glede merila namembnosti stavbnega zemljišča in diskriminacijo po dejavnostih.

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Vpliv pojasnjevalne spremenljivke x_6: IND je najizrazitejši v podravski, koroški in savinjski statistični regiji (rdeča barva), za katere je značilna koncentracija proizvodnje kovin in kovinskih izdelkov, električnih naprav ter prehransko-predelovalne industrije. Na drugi strani je za občine v osrednji Sloveniji (modra barva) značilno, da je vpliv pojasnjevalne spremenljivke x_6: IND najmanj izrazit. Z izbranimi barvami na tematski karti (slika 3) nazorneje prikažemo vpliv spremenljivke x_6 kot na primer s podatki v preglednici. Hkrati vizualno potrjujemo arbitrarnost občin pri izbiri meril.

Slika 3: Prostorska porazdelitev regresijskih koeficientov pojasnjevalne spremenljivke x_6: IND (površina stavb za industrijske namene v odnosu do površine vseh stavb (v %).

5 SKLEP IN RAZPRAVA

Sistemi obdavčitve nepremičnin so podvrženi stalnim spremembam, pri čemer so reforme na tem področju po navadi zahtevnejše iz političnih kot administrativno-tehničnih razlogov (Brys, 2011; Slack in Bird, 2014). V Sloveniji, podobno kot v številnih državah vzhodne in srednje Evrope, že več kot desetletje poteka proces prehoda iz sistema obdavčitve nepremičnin, temelječega na površini nepremičnine (*area-based*), v sistem, temelječ na tržni vrednosti nepremičnin (*ad-valorem*). Med pomembnejše dejavnike uspešnosti reform sistema obdavčitve nepremičnin spada kakovost obstoječega sistema obdavčitve nepremičnin. Uspešnost reform je odvisna tudi od razpoložljivosti ustreznih analiz obstoječega in prihodnjega stanja sistema obdavčitve nepremičnin ter predstavitve njenih rezultatov.

V članku prikazujemo študijo obstoječega sistema obdavčitve nepremičnin v Sloveniji, v kateri smo identificirali in empirično preverili dejavnike vpliva na davčni izplen nadomestila za uporabo

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stavbnega zemljišča na nacionalni in lokalni ravni. Rezultati raziskave kažejo, da so občine kljub določilom Zakona o stavbnih zemljiščih (1984; 1997) in Dogovora (1986) ohranile precejšen del samostojnosti glede določitve območij plačevanja nadomestila, meril in predpisovanja števila točk po posameznih merilih.

Z rezultati analize smo potrdili hipotezo, da ob dejavnikih, ki so določeni z zakonodajo, na višino odmere nadomestila za uporabo stavbnega zemljišča pomembno vplivajo tudi dejavniki, katerih določitev je v arbitrarni pristojnosti občin. To so predvsem dejavniki, pri katerih se upoštevajo merila, povezana s poslovnimi dejavnostmi (industrijska dejavnost, lokali, pisarne in dejavnost energetike). Njihov vpliv smo dodatno potrdili s statistično neznačilnim vplivom dejavnika izjemne ugodnosti v zvezi s pridobivanjem dohodka v gospodarskih dejavnostih. Velika neenotnost je tudi pri obravnavi stavbnih zemljišč, kjer so stavbna zemljišča z enako površino v občini po navadi obremenjena z različno višino nadomestila, tudi ko uživajo enake ali zelo podobne javne koristi na neki lokaciji. Občine z visoko ravnjo arbitrarnosti pri določanju meril v odloku o nadomestilu za uporabo stavbnega zemljišča se srečujejo s tveganjem, da sodišče takšen odlok razveljavi. Pojavlja se tudi tveganje glede nesorazmerne davčne obremenitve in neenake obravnave zavezancev za plačilo nadomestila za uporabo stavbnega zemljišča. Za ponazoritev rezultatov lokalne regresijske analize so bili izdelani kartografski prikazi v obliki kartogramov.

Izbrani pristop kartografskega prikaza podatkov se je glede na namen, vrsto podatkov in uporabnike izkazal kot primeren. Slednje se potrjuje s tem, da kartografski prikazi nazorneje kot denimo tabelarični način prikazujejo prostorsko porazdelitev vrednosti regresijskih koeficientov izbranih spremenljivk. Omogočajo kakovostnejšo interpretacijo in razumevanje rezultatov analize ter razumevanje obravnavanih dejavnikov v povezavi z drugimi prostorskimi pojavi. Na podlagi tega se potrjuje tudi primernost njihove prihodnje uporabe na obravnavanem področju. Kartogrami so izhodišče za nadaljnje analize ter so v podporo pripravljavcem davčnih politik in strategij tako na nacionalni kot lokalni ravni.

Velike so tudi razlike v obremenitvi med občinami. Razlika v višini nadomestila za istovrstno nepremičnino je lahko tudi več deset-, celo večstokratna. Na nesorazmernosti v obremenitvi je večkrat opozorilo tudi Ustavno sodišče RS (Odločba št. U-I-28/03, št. U-I-286/04, št. U-I-65/04-8, št. U-I-84/05 in druge). Ustavno sodišče RS navaja še (Odločba št. U-I-181/00), da bi imela nesorazmerna obremenitev z nadomestilom lahko škodljive posledice v poslovanju gospodarskega subjekta, ki bi jih bilo ob morebitni nezakonitosti odloka v izpodbijanem delu težko popraviti. Različna obremenitev z nadomestilom lahko spodbuja nepošteno konkurenco, izgubo učinkovitosti in poslovne uspešnosti.

Občine za upravljanje nadomestila uporabljajo lastne zbirke podatkov, ki navadno niso povezane z uradnimi in niso ustrezne kakovosti. Za vodenje sistema nadomestila je vzpostavljenih 211 (ali 422, če ločimo fizične in pravne osebe) različnih in nepovezanih zbirk podatkov (Grote,

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Borst in McCluskey, 2015). Pritožbeni razlogi glede odločb o odmeri nadomestila se praviloma nanašajo na napačno oziroma nepopolno ugotovljeno dejansko stanje. Slednje je ob stalni rasti števila pritožb pomembno administrativno breme ter prinaša stroške, vezane na postopek reševanja pritožb in ugotavljanja dejanskega stanja. Navedena tveganja imajo lahko za posledico nestabilnost prihodkov od nadomestila. Neustrezna kakovost podatkov in morebitno neskladje določil odloka z zakonodajo ali celo ustavo RS lahko privede do tega, da se nadomestilo ne odmeri. To je glede na pomen prihodkov od nadomestila za uporabo stavbnega zemljišča tudi pomembno tveganje za javnofinančni položaj občin.

Na navedena tveganja skuša vlada RS odgovoriti z reformo obdavčitve nepremičnin, ki je pomembna tudi v prizadevanju po izboljšanju strukture posameznih davkov. V okviru tega Slovenija načrtuje nadaljnje reforme področja obdavčitve nepremičnin, saj davki na nepremičnine, kot navajajo številni avtorji (Arnold, 2008; Arnold et al., 2011, Heady et al., 2009; Johansson et al., 2008), najmanj ovirajo gospodarsko rast. Cilj prenove je odpraviti prikazano neenotnost obdavčitve in dobiti moderen, na vrednosti nepremičnin zasnovan davek, ki ga bodo občine uporabljale kot fiskalni in tudi prostorski instrument, pri uvedbi katerega lahko prikazani rezultati raziskave zagotavljajo podporo v odločitvenih procesih na obravnavanem področju ter pri obvladovanju z uvedbo novega davka povezanih izzivov.

Rezultati raziskave so uporabni za vse ključne deležnike na področju nadomestila za uporabo stavbnega zemljišča. Odločevalci lahko posežejo po njih pri analizah stanja (odstopanja od načel sodobnega davčnega sistema, prevelika arbitrarnost občin idr.) in izboljšavah (poenotenje sistema) na obravnavanem področju. Nadzorne institucije lahko na njihovi podlagi izboljšajo svojo učinkovitost (ciljna naravnanost nadzorov, celovitost in preglednost nad sistemom omogoča kakovostno in pravilno ukrepanje). Občine lahko rezultate raziskave uporabijo kot podlago za pripravo sprememb na področju nadomestila za uporabo stavbnega zemljišča. Občinam so predvsem v pomoč pri poenotenju sistema in odpravi arbitrarnosti, ki se kaže tudi v prevelikih razlikah v obremenitvah nepremičnin s podobnimi lastnostmi med sosednjimi občinami. Zavezancem za plačilo nadomestila za uporabo stavbnega zemljišča rezultati raziskave omogočajo vpogled v stanje na obravnavanem področju, podpirajo tudi krepitev njihovega aktivnega in odgovornega državljanstva, participacije in učinkovite družbene vključenosti v procese izboljšav sistema nadomestila za uporabo stavbnega zemljišča.

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