

Second homes and local socio-economic development: the case of Croatia

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Abstract This paper contributes to the discussion on the impact of second homes growth on host areas by providing an analysis of the relationship of second home development and local socio-economic development in Croatia. For that purpose, we used regression and cluster analysis while the local government level was used as the unit of analysis. The results show that second home development in Croatia is associated with increased dynamism of the local economy, particularly with higher local budget income per capita. Concerning the social components of the local development, the analysis revealed that second home development is positively connected to the local educational structure and the population index change. The research findings also indicate that second homes and tourism have independently a positive effect on the local socio-economic development, but the combination of the intensive second home development with the intensive tourism development produces the effect of synergy that additionally stimulates local socio-economic development.

Keywords Second homes · Socio-economic development · Tourism · Regression analysis · Cluster analysis · Croatia

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1 Introduction

Constant growth in the number of dwellings for vacation in Europe as well as in other parts of the world (Janoschka and Haas 2013; Roca 2013) is the evidence suggesting that irresistible attraction of a sojourn in a second home primarily for pleasure still remains highly appealing. The same could be said for Croatia, as it has been experiencing a continuous expansion of second homes for almost 50 years. According to the last census in 2011, there were 249,243 second homes in Croatia and they represented 11% of the national housing stock (Ostroški 2015). A comparison with the results from the 2001 census which recorded 182,513 second homes shows that the number of second homes rose by 36% in the last inter-census period. Considering that the number of occupied dwellings rose by about only 5% over the same period, it is understandable why the expansion of second homes becomes an increasingly important factor of socio-spatial transformation of settlements in Croatia.

The circumstance that second homes are unevenly distributed over the national territory contributes additionally to the transformational power of second home expansion. A well-known bias in the selection of a destination is one of the main characteristics of second home development, and the vicinity of natural, amenity-rich landscapes or recreational amenities is very often the most important factor to consider when selecting the address for a second home (Marjavaara and Lundholm 2016; Rye and Berg 2011). This is the reason why in Croatia, the second home phenomenon is mostly concentrated in coastal areas; in 2011, second homes comprised as much as 30% of housing stock in a couple of coastal counties (Ostroški 2015).

The practice of second home use has been changing along with its development. In the early stage of its development, escaping into contrasting space was one of the basic features of the second home use (Coppock 1977), and second homes were usually very modest, sometimes even substandard (Hall and Müller 2004). In recent times, a complementary strategy (Halfacree 2011) has been more in use; second home owning has been often connected with specific multilocal lifestyles (Weichhart 2015) and characteristics of second homes often do not lag behind to that of permanently occupied dwellings (Rye and Berg 2011).

Regardless of the change in practice of second home use, the development of second homes has not lost its transformational power. Changes in the landscape have been and will remain the most visible mark that second home development leaves behind. Besides, the consequent growth in the number of second home users tends to influence other aspects of everyday life of host community, foremost, the accessibility and quality of local services and infrastructures (Farstad 2016; García-Andreu et al. 2015). Even though the balance of positive and negative outcomes of second home development has often been the focus of research, it is still not sufficiently known. Similarly, in Croatia, the advantages and disadvantages of second home growth are largely unknown (Miletić 2011). The fact that spatial development plans in Croatia do not recognise nor control massive growth in second home ownership (Ursic et al. 2016) indicates that this phenomenon has rather been neglected. In this study, we intend to fill some of these gaps by focusing on the segment of that phenomenon. More precisely, the following analysis concentrates on the question how second home development is related to the vitality of host areas. Two research aims are targeted in this study. The first aim is to determine the degree of association between second home development and local socio-economic development. The second aim is to investigate whether any similarities exist among the local government units regarding the levels of both the second home and local socio-economic development.

The paper is organised in the following sections: after a brief introduction, the second homes and transformation of settlements provides a review of the literature addressing the impact of second homes on the transformation of settlements. In the Sect. 3, an overview of approaches to measuring local socio-economic development in Croatia is presented. Thereafter, the data and methodology used in the analysis are described in Sect. 4. In the Sect. 5, statistical analyses are conducted and the results are provided. Then, the results are discussed in detail, and finally conclusions and recommendations for future research are provided.

2 Second homes and transformation of settlements

When exploring the changes resulting from the expansion of second homes, a large number of empirical researches focus on the assessment of the costs and benefits experienced by a host area (Barnett 2014; Farstad and Rye 2013; Kauppila 2009; Marjavaara 2007b; Oliveira Roca et al. 2011). With this approach, it has been attempted to find the answer, more or less explicitly, to the question asked more than thirty years ago (Coppock 1977)—are second homes a curse or blessing? So far, there is no single answer to this question.

The effects of changes are determined by the character and pattern of second home usage, which is a rather complex and multilayered phenomenon, as evidenced by the number of its varied types and occurrences (Opačić 2011). Hall and Müller (2004) differentiate second home types based on its function (weekend and vacation homes) and origin (purpose-built and converted homes). The latter dichotomy, differentiating between purpose-built second homes and those resulting from the conversion of a primary residence, is especially illustrative of the fundamental ambivalence of the outcomes of second home expansion. More precisely, some partial analyses (Casado-Diaz 2004; Miletić 2006; Mottiar 2006) showed that the 'curse' is considerably more frequently associated with purpose-built second homes. This type of construction is more common for amenity-rich areas (Adamiak 2016; Kauppila 2009) and occurs very often in clusters, which means that it intensively uses space. Its primary characteristic is that it introduces urban construction styles (houses of higher volume and density) into rural settings. Large scale developments of this kind, more often than not, have negative impacts on the both natural and cultural landscapes (Adamiak 2016). This is particularly prevalent in the case of unplanned development of second homes (Gartner 1987; Miletić 2006). Conversely, there are second homes created through the reuse of recycled existing residential stock (abandoned flats or those previously used as permanent living spaces) that is more common for ordinary rural areas (Kauppila 2009) and which is seen as a form of revitalisation of the settlement authenticity (Gallent et al. 2005). This ambivalence reveals that the relationship between second homes and space is often contradictory. On the one hand, the quality of space and specificity of landscape are important guiding criteria when selecting the location for a second home, and on the other hand, the expansion of second homes often degrades the quality of a given space and its environment, sometimes to the extent that could be described as the irreparable destruction of the initial source of attraction (Gartner 1987).

But the increase in the number of second homes does not transform the space alone. Second homes and their use, directly or indirectly, affect local economies too, exerting some impact on local markets; in the first place, on demand and supply of goods and services (Oliveira et al. 2015). Therefore, taking a broader view of the economic dimension, it could be said that the increase in the number of second homes becomes reflected in

the dynamics and direction of the local development. For instance, some analyses show that second homes bring incomes to the local community and stimulate sectors that are not directly connected with the tourist industry, which is important for the overall stability of the local economy (Mottiar 2006; Müller 1999). However, as Adamiak et al. (2015) reported, second homes could also bring some negative economic impacts, such as additional expenditures for infrastructure maintenance or property price inflation.

Furthermore, expansion of second homes is likely to have effects on certain social processes in a host area that may be either positive or negative depending on the characteristics of the phenomenon. On the one hand, greater concentration of international visitors or an increasing number of elite-owned second homes can lead to the process of gentrification and associated social fragmentation, and consequently creates social distance between temporary inhabitants and local residents (Brida et al. 2009; Paris 2009). On the other hand, in cases where aspirations for a second home draw upon one's desire to restore one's native ties (Rogić 1990) or to create new ones (Huijbens 2012), there is a greater capacity for social integration of temporary inhabitants into a local community. For Gallent (2015), broader social benefits associated with the second home are created by establishing simultaneous relationships between the place of permanent residence and that of temporary dwelling. Residential multilocality, or as Halfacree (2012) calls it 'dynamic heterolocalism' of second home owners, contributes to host community by 'bridging social capital and enhancing a community's capacity to deal with key socio-economic challenges' (Gallent 2015, p. 106).

The relationship between second home development and local community development in rural (non-metropolitan) US counties, was the focus of the study by Winkler et al. (2015). Regarding the selected economic variables, the results of their analysis showed that density of second homes was associated with decreasing income, increasing poverty rates, and increasing income inequality of local residents. With regard to social aspects, the analysis revealed that density of second homes was associated with a smaller increase in burglary rates and decrease in the accessibility of primary health care. Stedman et al. (2006) have also identified some impacts of second home development on the transformation of rural communities in the USA. Their study showed that a greater share of second homes was associated with the decrease in levels of social capital index, whereas there was no evidence of the association with changes in natural-resource employment.

In the study by Winkler et al. (2015), the authors' conclusion that 'recreational housing is associated with a combination of positive and negative economic, social, and environmental circumstances' (p. 491) perhaps best sums up the presented empirical insights on this issue. However, leaving aside the mixed results from previous studies of impacts of second home development, the most salient finding of this literature review is that growing second home development, in one way or another, transforms the settlement.

3 Measuring local socio-economic development in Croatia

Measurement of existing socio-economic development level plays a very important role in determining future development plans and actions for a country. However, despite the frequent use of the term 'socio-economic development', the measures of socio-economic development are still not well defined (Milenkovic et al. 2014). Consequently, many different indicators have been arbitrarily chosen and used to estimate achieved socio-economic development level. In most cases, the achieved socio-economic development

level of a country is observed through the gross domestic product (GDP) value and its components, such as GDP per capita, GDP growth, import of goods and services (as per cent of GDP), as well as export of goods and services (as per cent of GDP) (World Bank 2014). Considering that GDP incorporates only economic growth, and therefore covers only economic aspect of development, other indicators should also be taken into account when evaluating socio-economic development. Indicators that can be used as social indicators include primary school completion rates, literacy rates, and unemployment rates (Dowrick et al. 2003; Paetzold 2013; Mlachila et al. 2014). Furthermore, it is becoming common that more indicators are combined together and used as aggregate indices of the overall socio-economic development level of a country (United Nations Development Programme 2015).

In order to achieve balanced national socio-economic development, it is necessary to observe socio-economic development at lower level than that of a country. For the purpose of tracking socio-economic development level in all territories of its member states, the European Union has developed Nomenclature of Territorial Units for Statistics (NUTS). Unfortunately, using this system in Croatia, the lowest disaggregation level for which data are available are counties (Žmuk 2015). It would be more effective if the socio-economic development is observed at the lowest level of local government.

There are currently 556 local government units (LGUs) in Croatia, 429 of them have the status of municipality and 127 the status of city. In 2010, following the Act on Regional Development (Official Gazette 2009) and the Government decision (Official Gazette 2010a), a new classification system of LGUs according to their socio-economic development level was officially introduced. That classification was based on the value of development index proposed by Puljiz (2006). The development index is calculated as the weighted average of the following five standardised indicators: unemployment rate, personal incomes per capita, budget incomes of local and county units per capita, population change, and educational attainment rate. The highest weights have the indicators unemployment rate (0.30) and personal incomes per capita (0.25), whereas the other three indicators have weight of 0.15. The standardisation of the development index values is conducted using the following equation:

$$X_{i,\text{stand.}} = \frac{x_i - x_{\min}}{x_{\max} - x_{\min}}, \quad (1)$$

where x_i is the indicator value for i th LGUs, x_{\min} is the smallest indicator value among LGUs, x_{\max} is the largest indicator value among LGUs (Official Gazette 2010b).

Although of this new 'down to top' approach to regional development, which undoubtedly has a lot of advantages (Maleković and Puljiz 2010), the development index has several disadvantages. Marčević (2015) agrees that the development index is a very important indicator for the introduction of new development policies and research about regional development in Croatia. However, Marčević (2015) also emphasises that there are no theoretical or practical official documents that are dealing with the development index content and weights. Perišić and Wagner (2015) have investigated the sensitivity of the development index with regards to its methodology and concluded that using a multivariate approach would be a better way to estimate weights. Furthermore, they have highlighted the problem of the development index values which are considered to be outliers. Perišić and Wagner (2015) have also detected the problem of multicollinearity and therefore suggested that procedures and indicators used in its construction of the Croatian development index should be reconsidered. They also suggested a change of the standardisation approach (Perišić and Wagner 2015).

4 Data and method

Owing the limitations of the development index of the Croatian LGUs mentioned above, our analysis is based on a disaggregated approach. That means that the relationship between second homes and local socio-economic development will be examined individually with the five basic indicators used for the calculation of national development index: ‘average yearly per capita personal income’, ‘average yearly budget per capita income of local government units’, ‘average yearly unemployment rate’, ‘educational attainment rate’ (the proportion of educated population in the total population aged 16–65 years), and the ‘index of population change’ (in the period 2001–2011). The development of second homes will be captured by two main indicators: ‘number of dwellings for vacation per 100 occupied dwellings’, and ‘index of change in the number of dwellings for vacation’ (in the period 2001–2011). Here we used the census definition which classifies second home as any dwelling that is used exclusively for vacation and recreation (Ostroški 2015). In addition, the analysis will include two control variables that may appear to be related to the dependent variables: ‘number of tourist overnight stays per capita’ and ‘population size’. The detailed list of selected variables is provided in Table 1.

The basic unit of analysis in this study is the local government unit (LGU), i.e. the municipality and city. However, since the second home phenomenon is mainly concentrated in rural areas and small cities (Miletić 2011; Nouza et al. 2013), in this analysis the focus was directed at LGUs that have up to 15,000 inhabitants. More precisely, the analysis included 519 LGUs containing 214,667 dwellings for vacation, or 86% of total number of dwellings for vacation in Croatia in 2011. The descriptive statistics for all nine observed variables are shown in Table 2.

To determine the extent to which second home development and local socio-economic development are linked, which is the first research aim, correlation and linear regression analyses were employed. The variables identified as important for the understanding of the association between the local socio-economic and second home development are used in the cluster analysis in order to inspect the typology of LGUs and to make comparisons between the clusters, which is the second research aim.

Table 1 List of observed variables

Variable category	Variable description
Socio-economic development	Average yearly personal income per capita in EUR, in the period from 2010 to 2012
	Average budget income of local government units per capita in EUR, in the period from 2010 to 2012
	Average unemployment rate, in %, in the period from 2010 to 2012
	Educational attainment rate, population aged 16–65, in %, in 2011
	Population change, indices, comparison between 2011 and 2001
Second home development	Number of dwellings for vacation per 100 occupied dwellings, in 2011
	Change in the number of dwelling for vacation, indices, comparison between 2011 and 2001
Control variables	Number of tourist overnight stays per capita in 2014
	Population size in 2011

Table 2 Descriptive statistics for local government units with less than 15,000 inhabitants ($N = 519$) and for all nine observed variables. *Source:* Authors' calculation

Variable	Statistics					
	Mean	Median	Std. dev.	Coeff. of var.	Min	Max
Average personal income per capita	2843	2781	780	27	959	4884
Average budget income of local government units per capita	262	173	231	88	30	1365
Average unemployment rate	19	17	9	49	5	55
Educational attainment rate	68	68	11	16	32	90
Index of population change	94	93	12	12	64	187
Number of dwellings for vacation per 100 occupied dwellings	38	14	71	187	0	832
Index of change in the number of dwellings for vacation	202	120	424	211	0	5150
Number of tourist overnight stays per capita	33	0	102	315	0	1462
Population size	3849	2823	3050	79	239	14,936

5 Results

5.1 Correlation and regression analysis

In order to investigate the relationship between the observed variables, a correlation matrix has been formed. Results are presented in Table 3 which shows that the variable 'number of dwellings for vacation per 100 occupied dwellings' has the strongest correlation with the variables 'average local budget income per capita', 'educational attainment rate' and 'population change'. When compared to other variables, the variable 'number of dwellings for vacation per 100 occupied dwellings' has a weak correlation with the variable 'average unemployment rate' and a very weak correlation with the variable 'average personal income per capita'. The variable 'index of change in the number of dwellings for vacation' seems to have a very weak or no correlation with all observed socio-economic development variables. The variable 'population size' has the strongest correlation with the variables 'average personal income per capita' and 'educational attainment rate'. However, it has very weak correlations with other socio-economic development variables. When observing the overall correlation matrix, it can be concluded that the main sources of very weak correlations are the variables 'the change in the number of dwellings for vacation' and 'population size'.

After correlation analysis, the regression modelling and analysis were conducted. The dependent variables used in the regression analysis were the variables that describe socio-economic development (average personal income per capita, average local budget income per capita, average unemployment rate, educational attainment rate, and population change). As a result, five different linear regression models were formed. In each of them, the variables 'number of dwellings for vacation per 100 occupied dwellings' and 'index of change in the number of dwellings for vacation' were used as independent variables, while 'number of tourist overnight stays per capita' and 'population size' were used as control variables. Table 4 shows the basic regression results for each of the five regression models.

Table 3 Correlation matrix, Pearson's correlation coefficient, 9 observed variables, $N = 519$. *Source:* Authors' calculation

Variable	Average personal income per capita	Average budget income of local government units per capita	Average unemployment rate	Educational attainment rate	Index of population change	Number of dwellings for vacation occupied dwellings	Index of change in the number of dwellings for vacation	Number of tourist overnight stays per capita	Population size
Average personal income per capita	1	.497	-.685	.709	.309	.106	-.100	.208	.281
Average budget income of local government units per capita	.497	1	-.474	.543	.432	.564	-.043	.639	-.009
Average unemployment rate	-.685	-.474	1	-.552	-.313	-.255	.143	-.308	-.054
Educational attainment rate	.709	.543	-.552	1	.462	.305	-.071	.383	.291
Index of population change	.309	.432	-.313	.462	1	.367	-.064	.269	.157
Number of dwellings for vacation occupied dwellings	.106	.564	-.255	.305	.367	1	.001	.367	-.152
Index of change in the number of dwellings for vacation	-.100	-.043	.143	-.071	-.064	.001	1	-.027	-.040
Number of tourist overnight stays per capita	.208	.639	-.308	.383	.269	.367	-.027	1	-.074

Table 3 continued

Variable	Average personal income per capita	Average budget income of local government units per capita	Average unemployment rate	Educational attainment rate	Index of population change	Number of dwellings for vacation occupied dwellings	Index of change in the number of dwellings for vacation	Number of tourist overnight stays per capita	Population size
	.281	-.009	-.054	.291	.157	-.152	-.040	-.074	1

Table 4 Regression analyses results, $N = 519$. Source: Authors' calculation

Dependent variable	Regression models				
	Average personal income per capita	Average budget income of local government units per capita	Average unemployment rate	Educational attainment rate	Index of population change
Constant	2491.375**	153.588**	21.316**	60.671**	88.530**
Number of dwellings for vacation per 100 occupied dwellings	0.871	1.286**	-0.024**	0.037**	0.056**
Index of change in the number of dwellings for vacation	-0.152*	-0.015	0.003**	-0.001	-0.001
Number of tourist overnight stays per capita	1.513**	1.128**	-0.022**	0.034**	0.018**
Population size	0.078**	0.007**	-0.0003*	0.001**	0.001***
<i>F</i> -ratio	21.542**	151.733**	21.840**	55.068**	33.233**
<i>R</i> square	0.144	0.541	0.145	0.300	0.205
Adjusted <i>R</i> square	0.137	0.538	0.139	0.295	0.199
Durbin-Watson	1.817	1.899	1.802	1.863	2.036
Average VIF	1.091	1.091	1.091	1.091	1.091

* Significant at the 0.05 level (2-tailed)

** Significant at the 0.01 level (2-tailed)

The regression results and *F*-ratios from Table 4 show that all five linear regression models are statistically highly significant. However, the variable 'index of change in the number of dwellings for vacation' is statistically significant only in two regression models. Conversely, the variable 'number of dwellings for vacation per 100 occupied dwellings' is statistically highly significant in four regression models. Accordingly, it can be concluded that the variable 'number of dwellings for vacation per 100 occupied dwellings' has a greater impact on socio-economic development than the variable 'index of change in the number of dwellings for vacation'. The control variables 'number of tourist overnight stays per capita' and 'population size' are both statistically significant in all five regression models, whereas the variable 'population size' has a somewhat lower level of importance in predicting the criterion variables. The values of coefficients of determination, which are given in Table 4, reveal that there are some other variables that, except the chosen second home and tourism sectors variables, affect local economic performance. However, here only the relations to the second home and tourism developments are observed.

5.2 Cluster analysis

In order to determine similarities among LGUs regarding the association between second home development and socio-economic development, the method of hierarchical cluster analysis was used. The cluster analysis resulted in the clusters of LGUs with nearly the same characteristics or nearly the same variable values when the LGUs within a cluster are observed, but in very different variable values in comparison with the LGUs in other

clusters. The hierarchical clustering method applied Ward's method with squared Euclidean distances as a measure of distance. Furthermore, it has been decided that a solution with four clusters will be observed. The selection of variables included in the cluster analysis was based on the results of both the correlation and regression analyses. More precisely, the cluster analysis included all five socio-economic variables, one second home development variable ('number of second homes per 100 occupied dwellings') and one control variable ('number of tourist overnight stays per capita'). Before the variables were used in the cluster analysis, their values have been standardised by using a z-score approach. The basic statistics values of the observed variables for each cluster are shown in Table 5. It should be noted that the statistical measures are given in the original variable measures.

In the first cluster, there are LGUs which are not attractive either for second homes or for other types of tourism. A group formed by 145 LGUs have, on average, low density of dwellings for vacation (8.72 per 100 occupied dwellings) and a negligible average number of tourist overnight stays (0.03 tourist overnight stays per capita). Furthermore, the LGUs from Cluster 1 have an average personal income per capita of 2068.07 EUR, average local budget income per capita of 118.56 EUR, average unemployment rate of 29.76%, educational attainment rate of 57.20%, and their population decreased by 14.19% in 2011 compared to the population size in 2001. These values place the LGUs from Cluster 1 among the least developed LGUs in Croatia.

The main characteristic, specific for the LGUs from Cluster 2, is that they are attractive for second home use but not for other types of tourism. The cluster includes 232 LGUs that are characterised by the increased presence of dwellings for vacation (29.07 per 100 occupied dwellings) but their average number of tourist overnight stays is relatively low (7.08 tourist overnight stays per capita). Additionally, the LGUs from Cluster 2 have average personal income per capita of 2820.67 EUR, average local budget income per capita of 198.77 EUR, average unemployment rate of 17.33%, educational attainment rate of 67.02%, and their population decreased by 5.10% in the period 2001–2011. All these values are within the national average.

The 88 LGUs from Cluster 3 are not only attractive for second home use but also for other types of tourism. This is suggested by the increased presence of dwellings for vacation (26.34 per 100 occupied dwellings) and by the increased average number of tourist overnight stays (27.24 tourist overnight stays per capita). The LGUs in this cluster have average personal income per capita of 3898.77 EUR, average local budget income per capita of 379.98 EUR, average unemployment rate of 11.61%, educational attainment rate of 79.05%, and their population decreased by 0.43% in 2011 compared to the population size in 2001. The LGU's from Cluster 3 in comparison with Clusters 1 and 2 achieved higher level of socio-economic development, while compared to the national scale, they are somewhere above the average.

Cluster 4 contains 54 LGUs which are extremely attractive for second home use as well as for other types of tourism. Compared to the other three clusters, the LGUs from Cluster 4 have the highest density of dwellings for vacation (174.39 per 100 occupied dwellings) and the highest number of tourist overnight stays (237.65 tourist overnight stays per capita). The values of the analysed socio-economic development variables are also worthy of notice. The only thing which disturbs superiority of the LGUs from Cluster 4 is the fact that they have average personal income per capita of 3297.47 EUR, which is lower than the average personal income per capita of the LGUs from Cluster 3. However, the LGUs from Cluster 4 have average local budget income per capita of 724.43 EUR, average

Table 5 Basic statistics of cluster members, hierarchical clustering approach, Ward's method, squared Euclidean distances, $k = 4$ clusters, $g = 7$ variables, $N = 519$.
Source: Authors' calculation

Cluster	Statistics	Average personal income per capita	Average budget income of local government units per capita	Average unemployment rate	Educational attainment rate	Index of population change	Number of dwellings for vacation per 100 occupied dwellings	Number of tourist overnight stays per capita
1	N	145	145	145	145	145	145	145
	Average	2068.07	118.56	29.76	57.20	85.81	8.72	0.03
	SD	338.17	56.30	6.81	8.32	6.07	13.62	0.19
2	N	232	232	232	232	232	232	232
	Average	2820.67	198.77	17.33	67.02	94.90	29.07	7.08
	SD	495.07	136.11	6.78	7.10	11.15	35.64	20.24
3	N	88	88	88	88	88	88	88
	Average	3898.77	379.98	11.61	79.05	99.57	26.34	27.24
	SD	423.29	184.71	3.94	4.79	8.81	26.67	38.83
4	N	54	54	54	54	54	54	54
	Average	3297.47	724.43	10.80	80.65	104.85	174.39	237.65
	SD	742.71	249.10	4.57	5.16	13.99	140.74	220.85
Total	N	519	519	519	519	519	519	519
	Average	2842.82	261.78	19.15	67.73	94.19	38.04	32.52
	SD	779.59	231.41	9.39	10.90	11.66	70.96	102.38

unemployment rate of 10.80%, and educational attainment rate of 80.65%. Furthermore, only Cluster 4 has recorded average population increase in the period 2001–2011 (4.85%).

The comparison of development related variables in the four described clusters reveals that a higher level of second home development is accompanied by a higher level of socio-economic development. Furthermore, the differences in the development levels between the clusters tend to be considerably higher. The greatest difference in the second home and socio-economic development can be found when comparing the LGUs from Clusters 1 and 4. For example, compared to Cluster 1, Cluster 4 scores 57% higher average personal income per capita, five times higher local budget income per capita, 63% lower unemployment rate, 40% better educational attainment rate, and 22% higher population change index.

6 Discussion

This study is an attempt to contribute to an understanding of the effects of second home development on host areas. To attain this, two research aims were set. The first aim was to determine to what extent the development of second homes is associated with the local socio-economic development. The second research aim was to determine whether there is any similarity among the LGUs regarding the level of second home development and the local socio-economic development. Thus, LGUs were used as the unit of analysis; however, only the LGUs with less than 15,000 inhabitants were analysed. The analysis was conducted on the following groups of variables: socio-economic development variables (personal income per capita, local budget income per capita, unemployment rate, educational attainment rate, index of population change), second home development variables (number of dwellings for vacation per 100 occupied dwellings, index of change in the number of dwellings for vacation), and covariates (number of tourist overnight stays per capita, population size). Our analysis offers several insights.

Concerning the first aim, the results of correlation analysis showed that the selected indicators of local socio-economic development are more associated with the density of second homes than with the increase in the number of second homes between 2001 and 2011. The correlation analysis also revealed association of all local socio-economic indicators with the local tourism development (measured as the number of tourist overnight stays per capita), as well as the association of several indicators of local socio-economic development with the population size of a LGU. Therefore, in the second step we used regression analysis to learn more about the relationship between second home development and local socio-economic development, after controlling for the effects of local tourism development and population size. Five separate models, one for each indicator of the local socio-economic development as separate dependent variable, were developed. The results of regression analysis showed that, after controlling for the covariates, the second home development affects each of five selected indicators of the local socio-economic development.

More precisely, the density of second homes had higher effect on local socio-economic development than the change in their number in the period 2001–2011. The strongest positive effect of a high density of second homes was observed on the local government budget's income per capita. This result is not in accordance with the findings by Brida et al. (2009) about the low impact of second homes on additional income for the municipalities in the Italian province of South Tyrol. The principle governing funding of local budgets in

Croatia obviously brings higher income from second homes. In Croatia, in addition to public utility fee that is usually paid for each building, second home owners contribute to the local budget by paying the annual second home tax which may be imposed by the local government, and also by paying the tax on buying a second home. In some cases, the sum of these budget items may exceed half of the LGU total budget (Miletić 2006; Opačić 2008). In other words, second homes could be a plentiful source of budget income, and the connection between an abundant local budget and local development is often straightforward. In this scenario, more second homes means more money in a local budget, which further means more money for investing in social infrastructure and community facilities. However, checking for correctness of that equation is beyond the scope of this study.

Furthermore, the regression analysis showed that higher density of second homes was associated with lower unemployment rate. This result suggests that, in Croatia, second homes bring more dynamism to the local economy. But, different from the situation in rural areas of the USA, where higher density of second homes was associated with lower average personal income (Winkler et al. 2015), such association has not been found in our study. Our analysis shows only a minor negative relationship between the index of change in the number of second homes and average personal income.

Concerning the educational attainment rate, the regression analysis showed that it was affected by the level of second home development. The higher density of second homes is associated with a larger share of persons with secondary and higher education. This positive effect on local educational structure could be a result of the direct influence of migration and conversion from temporary into permanent residents—some studies shows that temporary residents often have higher educational attainment than permanent residents (Armoogum 2014; Marjavaara 2007a). Or, second home development could have an indirect influence on educational attainment of locals through its impact on local labour market. Jobs in the service and construction sectors typically require a secondary education, and we used the indicator of education attainment that shows cumulative percentage of residents with secondary and higher education. However, being either directly or indirectly influenced, the educational structure is one of the basic indicators of human capital of local communities (Kaplanis 2010), which means that, in Croatia, the higher density of second homes is positively associated with the accumulation of local human capital.

Additionally, the regression analysis showed that the higher density of second homes is associated with the higher values of the population change index. As the population change index shows only the difference in size of population between 2001 and 2011, we do not know whether the density of second homes is connected with natural population change, with net migration, or with both. Consequently, this result only revealed that the LGUs with higher density of second homes have a better demographic situation than the LGUs without second homes or with lower density of second homes. In other words, second home development does not contribute to depopulation in Croatia. Given that Croatia is witnessing a negative demographic trend for several decades (Živić et al. 2005), this is an encouraging finding.

Regarding our second research aim, the results of the cluster analysis revealed that LGUs were grouped into four clusters based on the character of the relationship between density of second homes and indicators of local socio-economic development. Since our analysis identified tourism as a factor in local socio-economic development, the variable 'tourist overnight stays per capita' as a basic indicator of tourism development was also included in the cluster analysis. The analysis indicates that the ratio of density of second homes and presence of other types of tourism has impact on the separation between

clusters which is useful in identifying similarities among LGUs regarding the association between density of second homes and indicators of local socio-economic development. The comparison of the first two clusters is particularly interesting for that specific purpose, because both clusters recorded a low number of tourist overnight stays per capita, whereas they differed in the density of second homes. The second cluster had an increased density of second homes, and this second cluster achieved better socio-economic development indicators. This finding directly supports the perspective which emphasises the positive impacts of second home development on host communities (Gallent 2013; Hoogendoorn and Visser 2015; Oliveira Roca et al. 2011).

In other words, the results of cluster and regression analyses suggest that, in Croatia, the density of second homes is positively associated with local socio-economic development and vitality of host areas. An equally important finding is that the association exists independently of development of other types of tourism. However, the cluster analysis revealed that the best socio-economic development indicators have been recorded in the cluster in which intensive second home development and the intensive tourism development were overlapping. Specifically, the fourth cluster, comprising the LGUs where the number of second homes exceeded that of occupied dwellings, and with more than 200 tourist overnight stays per capita, achieved the best results in four out of five socio-economic development indicators. It has to be pointed out that the values of socio-economic development indicators recorded in the fourth cluster correspond to those recorded in the more developed Croatian LGUs (Perišić and Wagner 2015).

7 Conclusions

The findings of this research suggest that, in Croatia, the density of second homes is positively associated with several indicators of local socio-economic development with the greatest effect observed on local economic conditions. It is suggested that second home development is significantly positively related to the local budget revenues and to dynamism in the local economy. Besides, second homes are associated with the selected social components of local development, where density of second homes is positively connected to the educational structure and the population index change. The extremely high density of second homes is also associated with local repopulation, which is in accordance with the findings reported in several case studies focused on second home expansion (García-Andreu et al. 2015; Marjavaara 2007a; Miletić 2006).

The relationship between second homes and tourism in the context of local development also came into focus, and the analysis demonstrated their positive correlation—a larger number of tourist overnight stays per capita is accompanied by a higher density of second homes. However, the coefficient of correlation indicated a somewhat weak relationship between these two variables suggesting that, in Croatia, second home development took place to an important degree independently of tourism. Additionally, the regression analysis shows that second home development is associated with the indicators of local socio-economic development independently of the level of local tourism development. However, the cluster analysis reveals that the LGUs with the highest socio-economic development indicators are those in which intensive development of both second homes and tourism took place. Summing up these results, perhaps the most important contribution of this study is the finding that second home development and tourism development independently have a positive effect on the local socio-economic development, but the

combination of the intensive second home development with intensive tourism development produces the effect of synergy that additionally stimulates local socio-economic development.

Finally, our analysis shows that, in Croatia, the second home development took place in a large number of LGUs, and in about 10% of them, second home development has become one of the key factors in local socio-economic development. These findings are a strong argument in favour of the thesis that the growth of second home ownership is becoming an increasingly important factor of socio-spatial transformation of settlements in Croatia.

The selection of indicators for the analysis is its main limitation. Using the elements from the disaggregated index of local socio-economic development, our focus was narrowed. The use of some other indicators may produce different results, particularly when measuring social aspects of local development. For that reason, future studies should pay more attention to the impact of second home growth on other social components of local development. Such insight would help the development of strategies aimed at improving well-being of local communities affected by second home development.

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