Original scientific paper

THE PRICE DIFFERENCES OF HOUSING IN REGIONAL CONDITIONS IN SLOVAKIA. THE EVIDENCE FROM THE SPATIAL DATA

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Abstract

The research paper's main objective was to evaluate factors and disparities in the housing real estate market in regional conditions in Slovakia. For this purpose, a multiple linear regression (ANCOVA) model was employed. The results showed a statistically significant relation to factors affecting real estate housing. Economically, the most favorable housing locations are in cities and urbanized areas; in turn, the worst are in the countryside and periphery. The most expensive are city apartments, followed by the chalets and detached houses in the countryside. Higher housing supply in location makes the overall market more attractive, thus increasing the prices. Increasing distance from the local CBD and missing motorway in the region (LAU2 level) decreases the prices. The housing prices are heavily skewed towards Bratislava and the western part of Slovakia (except the Kosice metropolis), maintaining a significant regional gap between Central and East Slovakia. Overall results reflect differences in regional income and living standards in Slovakia.

Keywords: house estate market, regional disparities, regional factors, urbanization

INTRODUCTION

The population often moves and looks for housing in areas with access to jobs and services. The proximity of these areas generally lowers transaction costs, sparking the demand for housing and upwardly pressing the real estate market prices.

The paper aims to evaluate price differences in housing in the regional conditions of Slovakia. The regional disparities in Slovakia are also influenced by the prices and rents of dwelling sites, which in turn affect the affordabi0lity of housing. Location theories shall provide the theoretical basis for understanding factors affecting housing affordability and real estate rents and prices. The empirical part of the paper is based on the cross-sectional sample of real estate representing the bidding market prices provided by the real estate agencies. Price differentials are gauged by considering various factors affecting the market prices.

The paper's novelty is based on linking the traditional concepts anchored in location theories with empirical evidence varying across the regions and types of estates to extract the factors determining the market prices. A multiple linear regression model combining the quantitative and categorical variables (often called ANCOVA) was employed for the research. The model captures the economic, social, and geographic factors influencing real estate prices in Slovakia's regional conditions. The primary sample for the empirical investigation is based on the real estate data provided by business agencies in Slovakia. The sample was collected over the first quarter of 2024 on the regional level LAU1 (district), comprising $n = 1022$ units. The paper is organised as follows:

1. First, the theoretical part of the paper includes an analysis of the housing market in Slovakia and the EU
2. Second, the paper elaborates on location theories and empirics about real estate differences depending on economic and geographical factors
3. Methodological framework and research methods are outlined.
4. Research results are presented, especially the model fit and subsequent statistics.
5. Discussion and conclusions of the study are provided

The paper's results should provide a robust approach to understanding the factors involved in the determination of the prices in the real estate market in Slovakia. Based on the paper's results, recommending policies for housing affordability may be addressed.

THEORETICAL BACKGROUND

The importance and factors influencing the housing market

Bonnefoy and Krieger (2002) define housing quality as the physical state of an individual's dwelling and the quality of the social and physical surroundings where the dwelling is situated. According to globally recognised standards, suitable housing is defined by its affordability, livability, accessibility, location, and cultural appropriateness (Cohre, 2004).

The European Commission and other European Union institutions do not have jurisdiction over housing rights, and their resolution is entirely in the hands of the member states. Access to safe and affordable housing is a fundamental requirement for the prosperity of European citizens and society (Hegedüs et al., 2016).

The application of the right to housing is associated with two elements: the accessibility and affordability of housing. There is a fundamental distinction between the concepts of housing affordability and housing accessibility. Affordability can be assessed in various ways, leading to different interpretations of the problem and the most effective solutions (Pittini, 2012). Affordability is a market-based concept tied to the ability to pay. Housing is deemed

affordable for those who can pay for it, and thus, they gain access to it. Conversely, those who cannot afford housing do not have this access. Accessibility, however, is a humanitarian concept. Housing accessibility fundamentally signifies the goal of ensuring housing rights for all. Within this concept, housing is not a market good but a right that must be guaranteed for everyone. Access to housing pertains to the entire population, including those groups who often face limitations in exercising their rights to adequate housing in various ways (Sendi, 2011). According to Atfield (2013), housing affordability should not be mistaken for affordable housing, which is typically a specific type of housing intended to be cost-effective for low-income demographics. Affordable housing is more of a strategy to mitigate some of the demand related to recognised housing affordability issues.

The issue of housing unaffordability, particularly in prosperous metropolitan areas of the Czech and Slovak Republics, is a significant problem stemming from various social, economic, political, behavioural, and historical factors. Another contributing factor is the high degree of land ownership fragmentation, which is evident both technically (i.e., land size, quantity of land) and legally (numerous co-owners of the same, often small, land) (Machajdiková, 2010). Land fragmentation ownership involves the geographical scattering of land owned by the same individual, the inefficient configuration of land, their inadequate accessibility, and so on.

The economic theory considers housing as an economically 'scarce' factor. The economic scarcity of such goods implies their economic value, which can be realised through the market. Demand for housing is closely related to urbanisation. Urbanisation means the process of the cities' relative and absolute growth. Often, it was preceded by industrialisation, which relates to the scientific-technical revolution and economic development. Šilhánková (2007) distinguishes several types of urbanisation: 1) Direct urbanisation comprises moving from rural areas to urban. This type of urbanisation is typical for developing countries; 2) Indirect urbanisation means extensive population growth in the urban areas, which leads to further inner and outer movement within these areas; 3) Suburbanization is a term coined for suburb expansion. Other related concepts include urban sprawl, de-urbanization, and re-urbanisation, all connected with quantitative and qualitative settlement changes that profoundly impact the housing and real estate market.

The real estate market is where various agents pursue their economic interests. Wilhelmsson (2020) and Hott and Monnin (2008) point out several factors influencing housing prices. Interest rates exert a direct influence on property prices and an indirect effect on bank loans. Along with the population growth, inflation, income, investments and real estate taxes indirectly impact housing prices.

Lu and Shen (2022) examined the effect of urban leverage on housing prices in China, focusing on its influence on credit availability. Interestingly, this effect was not observed in third- and fourth-tier cities. A differential analysis further revealed that purchasing restraint policies intensified the negative influence of urban leverage on housing prices. The study underscores the significance of urban leverage as a critical factor influencing housing prices.

In their study, Bao and Shah (2020) examined the influence of home-sharing platforms, with a specific focus on Airbnb, on neighbourhood rental prices. The results of their investigation suggested that Airbnb's impact on rental costs is contingent upon the unique characteristics of each neighbourhood. The researchers advocated for policymakers to develop and implement customised strategies. These strategies aim to mitigate the platform's detrimental effects while capitalising on its economic advantages.

In an average household, housing costs constitute a significant portion of total expenses (Campbell & Cocco, 2007). In the US, housing expenditures represented about a quarter of the total household income (Bertaut & Starr-McCluer, 2002), while in Great Britain, this proportion was 35% (Guiso & Haliassos, 2001).

Income inequality also influences housing expenditure. Those with lower incomes struggle to afford adequate housing for their families. Conversely, wealthier individuals, who possess greater purchasing power, tend to occupy new areas (Soseco et al., 2017), effectively displacing those with lower incomes (Parra-Peña et al., 2013).

Baranoff (2016) discovered that families often gravitate towards neighbourhoods with similar households, further escalating housing prices and pushing out lower-income households.

The combination of low income and high rent can lead to adverse outcomes. Tunstall et al. (2013) reported that substandard housing conditions can impact child development and adult health. Yap (2015) found that lower-income individuals are often forced to relocate to unsafe areas or city outskirts. Even when factories relocate to these peripheral areas, they often do not provide employment opportunities for the poor due to specific recruitment criteria. The poor are vulnerable to natural disasters and climate change impacts in these hazardous locations.

Variations in regional mobility and living costs may counterbalance some of the escalating inequality between workers with high and low skill levels (Moretti, 2013). Conversely, rising housing expenses can intensify income disparity following housing costs (Albouy et al., 2016). Fluctuations in rental and housing prices can profoundly impact income inequality after housing costs. Changes in housing expenditure across the income distribution can also be triggered by demographic shifts, such as the proportion of single households, alterations in living space quality, or how income distribution affects individuals' access to housing support

and rent regulation (Belfield et al., 2015). A crucial yet under-researched question is whether, and if so, to what degree and why income inequality after housing has increased more than income inequality before housing (Saez & Zucman, 2016). This question directly affects consumption inequality, savings behaviour, and wealth accumulation. Furthermore, it is vital to evaluate the prospects of younger generations (Goodman & Mayer, 2018).

The comparison of incomes between homeowners and renters is not straightforward, as the income of homeowners includes not only the estimated rental value of the home minus the actual housing expenditure but also the capital gains and losses on housing wealth (Frick & Grabka, 2003). When we adjust homeowners' incomes by net imputed rents and capital gains, we observe that this only slightly alters the trends in inequality, both in terms of levels and changes over time. (Knoll et al., 2017).

Real estate market within the scope of the location theories

In the Marshall Principles of Economics (1920), the neoclassical theory of market equilibrium explains housing prices through the relationship between supply and demand in the real estate market. This causes the market to be diverse and complex, and its dynamics are affected by various factors such as demand, supply, economic conditions, legal regulations, and financing conditions (Marshall, 2013). Location theories substantially impact the real estate market, including apartments, houses and other commercial objects. In early literature, the concept of location was often related to distance. The relevance of housing within the scope of these theories is that housing prices decline as distance from the central business district (CBD) increases due to lower accessibility and higher transport costs. This basic urban model focused on the fundamental trade-off between accessibility and space in residential choice and was promoted by Alonso (1964), Mills (1967) and Muth (1969). In this context, the only spatial characteristic of a location is its distance from the CBD (Fujita & Thisse, 2002). The distance from the CBD incurs transport costs, which leads to the trade-off between the land value, which is the crucial concept in classical urban economics – the bid-rent curve (or bid-rent function).

Christaller (1933) contributed to this field with his central place theory. The market, transfer, or administrative principles may create the city's hierarchy. The theory helps to explain the hierarchy of urban centres and how accessibility to services and amenities can influence housing prices (Blažek & Uhlíř, 2021). The New economic geography developed micro-behaviorally based explanations of patterns of economic agglomeration in space. Two implications of this theory are that reducing transportation and communication costs leads to more significant agglomeration (through a 'home market effect') and that agglomeration patterns can continue to evolve as transportation and communication costs change (Donaghy,

2009). The NEG helped explain the price differences in housing because of agglomeration economies in cities, which drive house prices and rents.

Housing is not one of the areas harmonised by the EU legislation; however, regulations in different areas directly influence the formation of housing policy. At the state level, legislative changes have taken some measures to support investment in housing, social housing and infrastructure development to reduce regional disparities and stimulate internal mobility related to employment support. (ÚPSVR, 2020) The concept of social housing is commonly used across European countries, though its interpretation can vary. In Slovakia, the rental market is quite restricted – relatively small and unsupported, and concerns municipalities capable of providing only a small amount of social housing, adds Bajzíková and Bajzík (2020). On the other hand, Swedish municipalities must ensure housing for their residents. Publicly owned housing is rooted in a longstanding welfare state tradition Magnusson and Turner (2008). Housing costs are the basis for providing a rent allowance related to social assistance. Vagac (2013) notes that housing market conditions and housing policy are some of the economic factors that influence, among other things, internal labour mobility in Slovakia, with job opportunities usually concentrated in prosperous regions. Affordable housing can be seen as a barrier for many potential workers from less developed regions.

DATA AND METHODS

For the study, a sample of data from secondary sources was processed. The primary data source was real estate agencies providing current data on the prices of short-term and long-term residential spaces in various regions of Slovakia. The difference between short-term and long-term residential spaces is their occupation status – short-term spaces are used for short-term occupation (like chalets), and long-term spaces are used for permanent occupation (e.g. apartments and detached houses).

Because long-term data is unavailable, we have chosen the most recent records that are not older than 3 months. The cross-sectional data collection was conducted from January to March 2024. Subsequently, the data were categorised into qualitative classes while simultaneously collecting data on the factor variables that form the model's independent variables. For the study purposes, a multiple linear regression (ANCOVA) model was adopted, combining quantitative (house prices, distances, supply) and qualitative (type of dwelling, motorway in district, population density, location) variables. The reason is apparent: the housing price structure and variance are conditioned by various factors, which can be

approximated using quantitative and dummy variables. The choice of variables was primarily driven by data availability at the given regional level. Formally, it has been observed $x_i = x_1, x_2, \dots, x_n$ estates in $y_i = y_1, y_2, \dots, y_n$ Slovak municipalities. In the total $n = 1022$ sample units were collected. Approximately 5% of sample data was excluded because of extreme values. Those records in which the standard deviation from the sample median exceeded the multiple of three were excluded. A multiple linear regression model including qualitative – so-called dummy variables – was used for the study. The model "Housing Price" can be formalised as follows:

$$E(y|d,x) = D\alpha + X\beta + e \quad (1.0)$$

When $y = D\hat{\alpha} + X\hat{\beta} + \hat{e}$ (1.1)

When y is a vector of observation of the dependent variable – real estate price in €/m2 and vector of independent variables

$D_1 = \begin{cases} 1 \\ 0 \end{cases}$ if the motorway is in district, 0 otherwise

$D_2 = \begin{cases} 1 \\ 0 \end{cases}$ if appartment, 0 otherwise

$D_3 = \begin{cases} 1 \\ 0 \end{cases}$ if detached house, 0 otherwise

$D_4 = \begin{cases} 1 \\ 0 \end{cases}$ if chalet (weekend house), 0 otherwise

$D_5 = \begin{cases} 1 \\ 0 \end{cases}$ if the locality is in urban centre area, 0 otherwise

$D_6 = \begin{cases} 1 \\ 0 \end{cases}$ if the locality is in a n urban cluster area, 0; otherwise

$D_7 = \begin{cases} 1 \\ 0 \end{cases}$ if the locality is in a rural area, 0; otherwise

$D_8 = \begin{cases} 1 \\ 0 \end{cases}$ if location is in Bratislava region, 0 otherwise

$D_9 = \begin{cases} 1 \\ 0 \end{cases}$ if location is in West Slovakia region, 0 otherwise

$D_{10} = \begin{cases} 1 \\ 0 \end{cases}$ if location is Central Slovakia region, 0 otherwise

$D_{11} = \begin{cases} 1 \\ 0 \end{cases}$ if location is in East Slovakia region, 0 otherwise

x_1 – distance of estate from CBD of city district

x_2 – supply of similar estates (same function type) in a given municipality (per 1000 citizens)

The estimation of the model's matrix of estimators is given by

$$\hat{\beta} = (X'X)^{-1}X'y \quad (1.2)$$

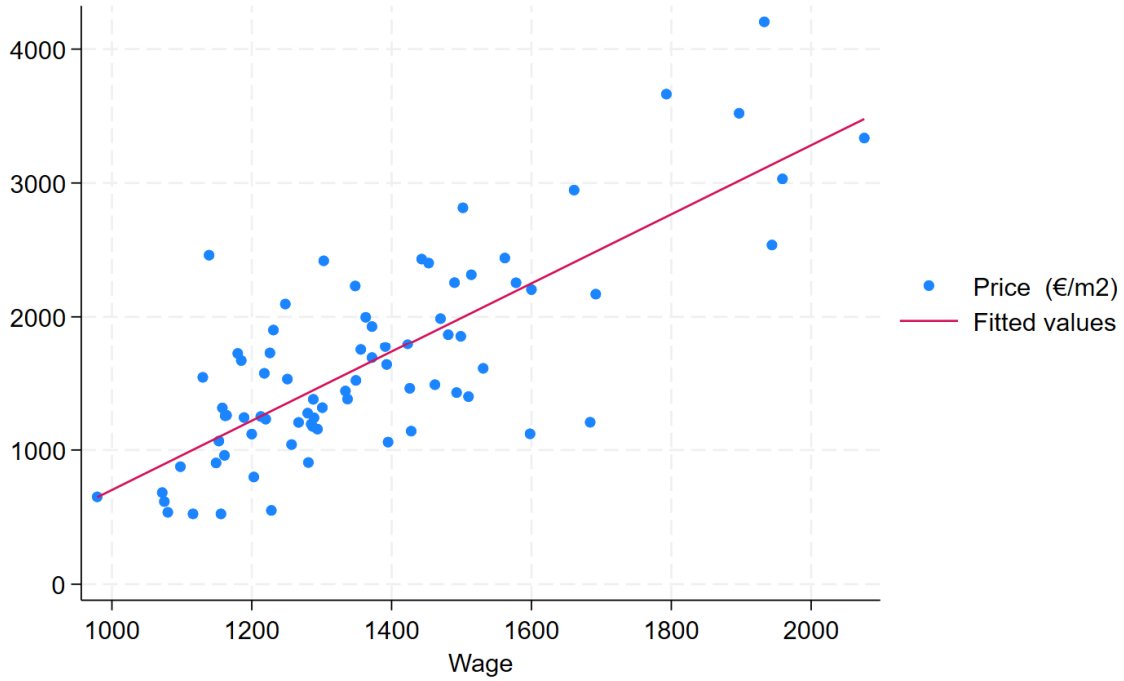
Or using the robust estimator

$$\hat{V}_r(\hat{\beta}) = (X'X)^{-1}\left(\frac{N}{N-k}\sum_i \hat{u}_i^2 x_i x_i'\right)(X'X)^{-1} \quad (1.3)$$

RESULTS

We approach the presentation of the results in several steps. First, the relationship between housing prices and income on the regional (LAU2) level should be investigated. For this purpose, locations in the research sample were matched with their respective districts, and the median housing price per district was computed. The regional median price of housing against the average wage was plotted.

Figure 1 The relationship between the price per m2 of housing and average regional wage

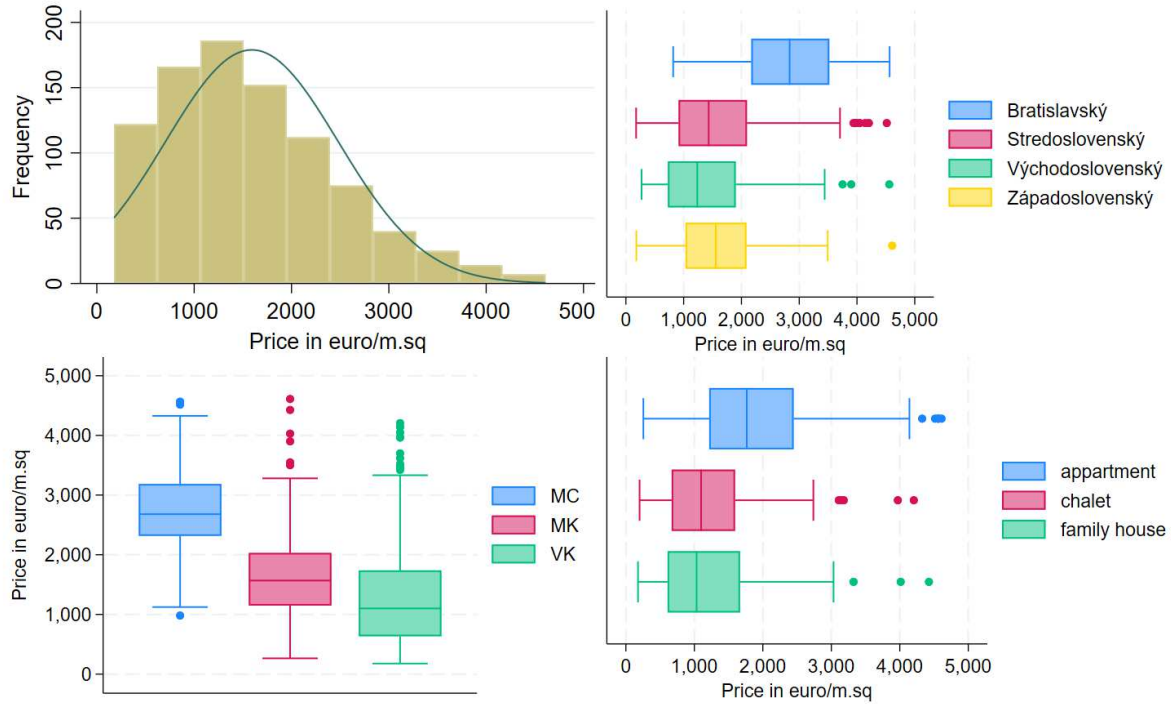


Source: Re/Max Slovakia, 2024

Fig.1 shows the relation between housing and average wage at the regional (LAU2) level. The chart shows the relatively tight bond between both variables; the correlation coefficient became $r = 0{,}775$ which is considered a strong correlation. Generally, we may say that a higher wage in the region means a higher price of housing (€/m2).

Next, housing is analyzed regionally. Regional housing is grouped by location, region, degree of urbanization, and type.

Figure 2 Comparison of housing in the regional scope of Slovakia



Source: Re/Max Slovakia; Georeal s.r.o., 2024

Fig. 2 shows a comparison of housing in Slovakia's regional scope. Fig. 2 (upper left) shows the probability distribution of locations by housing price (€/m2). The distribution represents a right-skewed pattern, showing a concentration of locations in the lower-value levels. The skewness and kurtosis suggest some data heterogeneity. Next, figure (upper-right) shows the distribution of housing prices by the region (NUTS 2 level). The box plot chart shows the highest average housing price in the Bratislava region, followed by the Western-Slovakia region (Západoslovenský kraj). Other regions (Central Slovakia and Eastern Slovakia) show similar values with long whiskers and outliers.

Fig.2 (lower left) shows price distribution by the degree of urbanisation. The box plot chart shows the highest average price of housing in urban centres (MC), followed by urban clusters (MK) and rural areas (VK). All plots show long whiskers, highlighting the data variability. Finally, the lower right chart shows price distribution by the type of housing. On average, the most expensive is apartments, followed by detached houses and chalets. Box plots show long whiskers with outliers suggesting the data variability.

In the following section, the "Housing price" model, including statistical inference, is presented. It is necessary to note that, in terms of the functional form of the regression model, a so-called "log-lin" model was applied, in which the dependent variable (price) is expressed

in logarithmic form. This is due to reduced potential heteroscedasticity in the observations of the dependent variable. Then the parameter of the independent variable expresses the ratio between the relative change in the dependent variable and the absolute change in the independent variable. If we multiply the parameter by 100, we obtain a percentage expression. Moreover, when using qualitative variables in the model, the "first category" within each qualitative variable must be "omitted" to avoid perfect collinearity between the variables. Consequently, the other categories within the examined qualitative variable represent the difference compared to the first category of the qualitative variable, expressed in percentages.

Table 1 Results of the ANCOVA model

lnprice	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
supply	.02	.002	8.84	0	.016	.025	***
CBD_dist	-.009	.002	-3.66	0	-.014	-.004	***
Motorway	.208	.038	5.49	0	.133	.282	***
Housing :							
Detached	-.428	.049	-8.67	0	-.524	-.331	***
Chalets	-.229	.058	-3.93	0	-.344	-.115	***
Urbanisation:							
MK	-.384	.039	-9.88	0	-.461	-.308	***
VK	-.525	.055	-9.47	0	-.633	-.416	***
Region:							
Stredoslovenský	-.398	.05	-7.89	0	-.497	-.299	***
Východoslovenský	-.347	.06	-5.75	0	-.465	-.229	***
Západoslovenský	-.186	.059	-3.13	.002	-.302	-.069	***
Constant	7.997	.063	126.84	0	7.873	8.12	***

Mean dependent var	7.170	SD dependent var	0.631
R-squared	0.391	Number of obs	880
F-test	75.510	Prob > F	0.000
Akaike crit. (AIC)	1272.880	Bayesian crit. (BIC)	1325.459

**** p<.01, ** p<.05, * p<.1*

Source: Own processing based on Re/Max Slovakia and Georeal s.r.o. data, 2024

In Tab. 1, the results of the "Housing Price" model are shown. From a general perspective, the model can be considered highly statistically significant at the given significance level of $F = 75.51; p < .001$ $p = .00000$. The coefficient of determination $R^2 = 0.391$ assessed as an average explanatory power of the model. However, as Acock (2018) states, in socio-economic research, even an R^2value greater than 0.3 can be considered a "strong" explanatory power. Additionally, the research is based on cross-sectional data collected at the local level, where many potential factors could not be assessed or would be redundant, as observations from the same locations often appear. Finally, real estate prices are also influenced by inertia in

development, while the model is based solely on cross-sectional data and does not account for lagged variables.

From the perspective of the individual results of the model, all factors represented by the independent variables were statistically significant ($p < .01$). Regarding quantitative variables, the supply of similar properties within a locality tends to increase property prices (on average by 2% per square meter), which was expected since real estate agencies prefer locations with prevailing market demand. Additionally, district connectivity to highways tends to increase property prices by up to 20% per square meter, highlighting regional disparities within the regions. Increasing the distance from the central business district (CBD) within a given district tends to decrease property prices by -1% per kilometre.

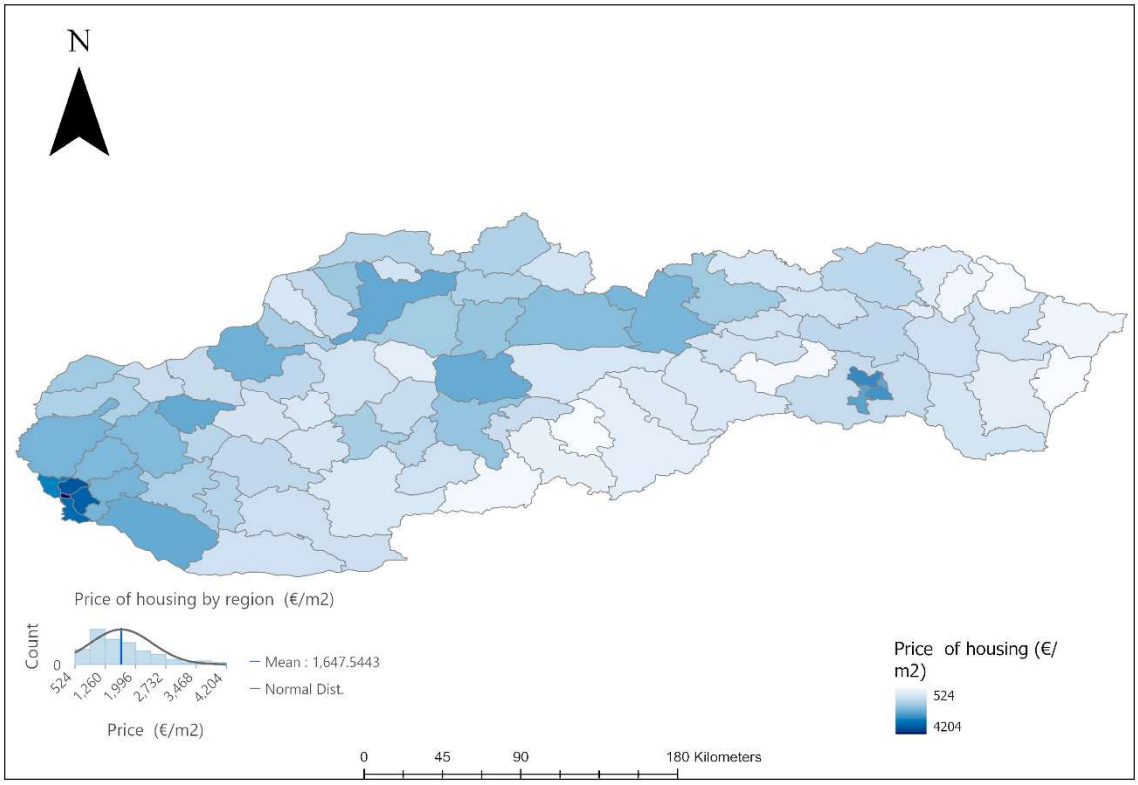
For the categorical variable "residential objects," the highest price per square meter is paid for apartments, followed by houses, which are, on average, 43% cheaper per square meter, and recreational houses, which are about 23% cheaper than apartments. The relatively large price differences between these types of properties can be explained by often outdated detached houses in rural areas, where only the land is expected to be used, and the house price is often low. In the case of recreational cottages, the spatial remoteness from the district town may play a role in determining the price.

For the categorical variable "degree of urbanization," the highest housing prices are in cities (urban centers), while prices decreased by up to 38% in urban clusters and by up to 53% on average per square meter in rural areas, emphasizing the differences between urban and rural areas.

The categorical variable "Region" expresses the differences in housing prices between regions at the NUTS2 level. As expected, the highest housing prices are in the Bratislava region, followed by the Western Slovak region, which decreased by 19%; the Eastern Slovak region, which decreased by 35%; and the Central Slovak region, which decreased by up to 40%. Surprisingly, average housing prices in the Eastern Slovak region are 5% higher than in the Central Slovak region.

Finally, the regional housing distribution may be evaluated through the GIS application. For this purpose, ArcGIS Pro 3.2 was used.

Figure 3 Price of housing distribution on regional level (LAU2)



Source: Processed in QGIS based on Re/Max Slovakia and Georeal s.r.o. data, 2024

Fig.3 shows the price distribution of housing on a regional level (LAU2). We may observe the spike in metropolitan regions like Bratislava (Western Slovakia) or Kosice (Eastern Slovakia), followed by clustering of prices around Bratislava on the West and North of Slovakia. In turn, the Southern-Eastern and far-eastern parts of Slovakia experience the lowest housing prices on average, further highlighting the regional disparities in income and living standards across Slovakia.

DISCUSSION

The paper aimed to investigate housing price differences and factors influencing housing in Slovakia's regional conditions. The results have pointed to stark differences, highlighting the traditional regional gap between the western part of Slovakia, namely Bratislava, and the far east, except the Kosice metropolis. These city metropolises have become clear outliers. Speaking about the regional level (NUTS 2), the price differences have moderated. The Bratislava region gained a clear edge; however, other regions (West et al.) have similar housing prices. The unique position of Bratislava in the Slovakian urban hierarchy was

highlighted in several studies by Car (2018), Dluhoš (2017), Messner and Zavadil (2014). NBS (2020) pointed out that differences between the price/rent of estate assets are primarily caused by the unique position of Bratislava in the system of cities in Slovakia.

A multiple regression (ANCOVA) model was used to model the housing prices. The results indicated a statistically significant relationship between housing prices, housing supply, and distance from the CBD among the quantitative variables. Regarding the supply of similar housing, the results may disagree with classical economic theory; however, the abundant housing supply should also signal the active real estate market in the location. Regarding distance from the CBD, the results show a decline in housing prices when moving outwardly from the CBD because of rising transport costs. This dependency was proved in many empirical sources, for instance, by Fujita&Thisee (2002) Glumac et al. (2019), Shimizu et al. (2017) and Combes et al. (2018).

Among the other qualitative factors, considering several types of housing (apartments, detached houses and chalets), on average, the most expensive dwellings can be found in cities, followed by chalets and detached houses. The notable price difference between the houses and chalets may seem odd, but it may manifest in current trends. Nowadays, weekend housing is becoming more attractive, so weekend houses in favourable locations have seen increased prices. Relatively low prices of detached houses result from the sampling; many represent obsolete houses, while mainly, the lot retains the value based on the location's attraction. Similar results were found by van Doorn et al. (2019) in major European cities where the urbanization trends result from demographic and technological changes. This situation leads to market crises due to decreasing affordability, driving many talented people out of major cities.

Furthermore, the presence of motorways in the region and the increasing urbanisation stimulate demand, pushing upward housing prices. This conclusion is quite reasonable; for instance, access to the motorway in the region means improving the technical infrastructure, which is associated with increasing estate prices. For instance, the southern and southeastern parts of Slovakia are mainly missing motorways, and in turn, housing prices are among the lowest in Slovakia. Naess (2006) and Combes et al. (2018) found similar conclusions about the physical improvements in regions and their link to real estate prices.

CONCLUSION

The study's topic was regional price differences in the housing estate market in Slovakia. For the study, a robust sample of dwellings was collected based on real estate agencies' public biddings. The housing price model was assembled considering both quantitative and qualitative factors affecting the house estate prices. The results pointed to a statistically significant relation between the price of a dwelling and local market supply (increase by 2 % per m2) and rising distance from the CBD (decrease by 1% per m2). Among the qualitative factors, the presence of the motorway in the region tends to increase the price of housing (by 20% per m2); among the types of housing, the most expensive are apartments, which are mostly located in cities, followed by the weekend houses (chalets) and detached houses (located mainly on the countryside). The study furthermore points to relatively big regional price differences in housing. There are stark differences based on the degree of urbanisation; the dwellings located in semi-urban areas (urban clusters – MK) recorded a 38,4% drop, and dwellings in the countryside had a 52,5% drop in the price compared to urban centres (MC). Highlighting the regional level (NUTS2), the differences are more modest; Central (Stredoslovenský) and Eastern (Východoslovenský) Slovakia regions are on the similar levels, both represent up to 40% drop in prices compared to Bratislava region. Western (Západoslovenský) Slovakia regions mark up to 20% price drop compared to Bratislava region.

This study is far from exhaustive; the analysis could, therefore, be extended to further model adjustments and gauging, for instance, employing the factor interactions or sample stratification to find more insights into regional housing conditions in Slovakia.

Housing affordability in Slovakia and the EU is currently one of the most pressing social challenges over time. The state should employ more effective tools for increasing access to adequate housing for selected social groups. Currently, the tools used (e.g., state-supported housing saving schemes, State Fund for Housing Development) have so far failed to stem housing price increases. Recently adopted, the new program “State-supported Rental Housing” aims to increase the supply of dwellings for social groups with difficult access to housing. However, the program is still in its infancy. In the past, such initiatives were plagued by bureaucracy and financial inefficiencies, which underscores the challenge of this topic.

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