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Interrelationship of migration and housing in Slovakia

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Abstract. Labour mobility is one of the factors that positively influence the balance of the labor market and employment and thus, economic growth. Milton Friedman, in his speech (1968) to the American Economic Association, communicated that the natural rate of unemployment depends on the degree of labor mobility in the economy. In this article we examine the interdependencies between migration and housing in Slovak Republic. Most residents commute to work in Bratislava and Trnava regions and migration between the other regions is not as pronounced. Low migration of population in Slovak Republic is strongly affected by high percentage of private ownership in the housing sector, which is arresting work force trapped in unemployment. In regions of high unemployment it is also high percentage of dwellings owned by households, affecting possibility of employment in other regions, because they have insufficient income to procure reality in the area with availabale work places as there is no sector of rental housing assuch. Based on the forecasts of the house prices development this status in the next 5 years will not change.

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JEL Classification: R31, R21, R23

1. INTRODUCTION

Since the end of the WWII, Slovak Republic had to solve many significant social and political problems that affected the migration flows with their major influence on the labour market functioning. The political regime change during the 1990s resulted in inevitable transformation of the economic, social and political system, and concurrently encouraged new conditions and challenges that had not played an important role before. Major destruction of the labour market and efforts made to maintain a lifestyle pushed ahead flexibility and migration for work that had been regulated before mainly through investment and residential

policy. As compared to other EU countries, Slovak Republic reported relatively low internal migration rate, with the trends mainly affected by the suburban planning and strong east-western direction. The region around the Slovak capital city Bratislava is migration-profitable, mainly because of its economic power and spatial location close to Czech Republic, Hungary and Austria. Migration trends have been to large extent supported by major regional differences in Slovakia. Despite the highest migration decline, the Eastern and South-eastern Slovak regions with their smaller scale of urban planning, struggling with high unemployment rates, reported the highest citizens´ migration rate; most of domestic migration is directed from the metropoles to suburban and rural areas. This movement results from the efforts to obtain housing under favourable pricing that is rather complicated in big cities. Smaller settlements in Bratislava and Košice surroundings are the main recipients of this domestic migration movement. Conclusions of a few international research studies indicate that regional differences in the financial availability of housing, rental form of housing and apartment price represent one of major barriers in migration for work purposes (Oswald, 1999; Meen, 2002; Shiller, 2013). High housing prices in the developed regions of Slovakia represent the factor preventing labour force migration from less developed regions with lower housing costs. Such significant differences in housing costs caused the situation when labour force migration is not worth it, despite higher wages in the regions with lower unemployment rate, thus, people remain in their regions as job seekers. Disharmony between the job offers and availability of housing at acceptable price represents a huge barrier to labour force movement (Bezák, 2005, p. 187-205). Such disharmony could be alleviated by the public rental sector, targeting mainly the citizens' groups with lower incomes, but this sector covers only 3% (Housing Europe, 2015, p. 80) of all the apartments in the country. Majority of these apartments are owned by towns and municipalities and a self-governing region is competent and fully autonomous in terms of apartments' allocation in its ownership. Through the Slovak Ministry of Transportation and Building as an authority responsible for the state housing policy direction, the state defines the fundamental conditions to be met by a person interested in renting out such an apartment, methodically influencing the town and municipality managing authorities in order to apply equal and non-discriminatory approach to apartments for all groups of citizens. Foreign experience shows that a small share of rental apartments paralyzes the labour market and hinders labour force mobility (Jansen, 1970, p. 3-35).

We have to state that many scientific studies deal separately with migration and its social consequences, and only a few of them interpret the housing factor in the context of migration processes. Therefore, we decided to analyze these interdependencies in more detail here.

2. THEORETICAL BACKGROUND AND LITERATURE OVERVIEW

The term „migration" can be primarily interpreted as mechanical (physical) shift of the population in the form of changed residency, or otherwise caused movement of population in the monitored territory (Favara, & Imbs, 2009; Ferreira, Gyourko, & Tracy, 2008; Csámpai, & Haládik, 2002, p. 35). Considering the social consequences, it is distinguished domestic migration (inside the state borders) and international migration (crossing the state borders). Haas (2008) expanded the migration flows depending on psychological, labour, and other social- economic motives of individuals.

In Slovakia, Bezák (2002, 2005) mainly dedicated his work to the regional migration flows, offering the most complex view on the migration flows in Slovakia.

Allen and Hamnett (eds. 1991) stated on the example of Great Britain that the increasing difference at own housing prices (at relatively unchanging regional differentiation in income) between UK regions could represent a major obstacle at the increase of migration for job opportunities. Salt stated that the increasing

own housing prices reduce the rate of persons who can afford buying own house or apartment, and concurrently reduce migration of families, resulting in the increasing rate of families travelling to work in relatively long distances. The increasing own housing prices mean the increased movement-related transaction cost, which contributes to lower mobility and the tendency of families to travel to work in relatively long distances. (Sunega, Lux, & Mikeszová, 2010, p. 28)

Henley (1998) deals with the relation of low real-estate value as an obstacle at higher mobility for work. According to Henley, low mobility significantly reduces the labour market ability to engage vacancies. It is mainly caused by the fact that potential migrating workers are blocked by low real-estate rate compared to high unemployment rate at their residency area, disabling them to purchase a new housing in the location of their potential future work with higher wages.

Rychtárik and Krčmár (2013) pointed out the labour market effect, helping explain the differences at housing availability in the Slovak regions. Böheim and Tailor (1999, 2002) came to conclusion that increasing or high real-estate prices in the regions with higher unemployment rate cause reduced flexibility and labour force migration, since the real-estate owners refuse to get rid of future higher potential capitalization of the real-estate. Šprocha (2011) pointed out the restricted housing building as one of the most important factors affecting the volume and intensity of domestic migration in Slovakia in the 90-s of the previous century, resulting in the increase of real-estate prices up to almost impossibility to buy a land.

3. PURPOSE AND METHODOLOGY

The scientific article is aimed at analyzing the mutual correlation between the migration and housing in Slovakia, based on the empirical research. As we stated before, migration represents one of the fundamental mechanical movements of the population with rather long-term/ permanent single change at residency as a major characteristics. Statistics of the domestic migration of the population in Slovakia includes any and all changes of permanent addresses of persons with permanent stay status in Slovakia. Domestic migration can be defined as a spatial relocation of persons through the administration borders of particular territorial units, associated with the change at permanent residency (stay) within the territory of the Slovak Republic.

Evaluating the housing quality, we shall refer to the population census 2011 and subsequent updates published by the Slovak Statistical Office on regular basis. Development of the average real-estate prices in Slovakia and in the Slovak regions was drawn from the National Bank of Slovakia (NBS) data. Thanks to ARIMA statistical modelling and NBS data, we estimated the development trend in the real-estate average prices per 1 m^2.

Within the housing quality analysis, we have focused on the selected factors that could significantly affect the housing quality, namely:

– housing fund ownership forms in Slovakia,
– housing fund according to building period,
– number of built and completed apartments in particular Slovak regions,
– growth of GDP and number of commenced apartments´ building in Slovakia,
– price growth of real-estate intended for housing in Slovakia and its regions,
– growth of registered unemployment rate in the regions of Slovakia.

We applied classical migration analysis methods in the scientific article. To monitor the migration among the administrative regions, we chose the size of migration flows from one to another territorial unit NUTS III – self-governing regions.

For purposes of quality and quantity analysis, we used the Slovak Statistical Office data from the population census 2011, and NBS data; as well as the databases for the prediction of selected indicators development through the auto-regression model ARIMA.

4. RESULTS AND DISCUSSIONS

The society development is dynamic and affected by many factors that cause changes. Such changes to be accepted to ensure haelthy development of the society and to adapt the way which will does not jeopardize the quality of life of the inhabitants of the country. The subject of a scientific paper as a migration and housing, is actually in the Slovakia problem that is necessary to be addressed. It is mainly the availability of jobs in accordance pleased to dwell, to prevent the social decline.

According to population of most recent official census 2011, the Slovak Republic had 5,397,036 citizens in 2011. The Housing Fund consisted of 1,070,790 houses and 1,994,897 apartments; i.e. both houses and apartments´ number had increased by 33,053 (houses), i.e. by 3.2 %, and by 98,343 (apartments), i.e. by 5.2 % compared to the census 2001. As for category of houses, detached houses (90.5 %) exceeded the category of apartment houses (6.1 %) and other houses (3.4 %).

Table 1

Houses and apartment Slovak Republic and regions

Territory/Region	Houses			Apartmens		
	2011	%		2011	of which in habitation	
		houses	residential buildings		inhabited	uninhabited
Bratislava	81 929	82.1 %	13.0 %	279 184	264 629	14 202
Trnava	131 016	91.5 %	4.8 %	206 987	184 059	21 263
Trenčín	124 369	90.5 %	6.8 %	229 107	199 546	27 691
Nitra	173 976	92.3 %	4.5 %	270 953	236 923	32 376
Žilina	144 948	92.2 %	5.0 %	246 046	214 934	29 497
Banská Bystrica	140 187	90.4 %	6.2 %	258 488	222 606	34 175
Prešov	142 758	90.7 %	5.3 %	244 115	219 651	22 810
Košice	131 607	90.6 %	6.1 %	260 017	234 350	23 715
SR	1 070 790	90.5 %	6.1 %	1 994 897	1 776 698	205 729

Remarks: **Detached house** is a building intended for habitation; it can consist of max. 3 independent apartments, max. two ground floors and an attic floor. **Apartment house** is a building intended for habitation; it can consist of 4 and more independent apartments accessible from the common corridor or staircase. Detached houses that don´t meet the characteristics above are also considered apartment houses. **Apartment** is a housing room or set of rooms incl. accessories, arranged as a single functional whole with the locking system, intended for permanent staying. Living rooms in hostels, pensions, nursing houses, etc. are also considered apartments in case of fulfilling permanent stay function based on the rent assessment issued by the local municipal office, if replaceable for another apartment.

Source: Statistical office of the Slovak Republic.

Ownership structure of the Housing Fund has significantly changed upon its privatization conducted pursuant to Act No. 182/1993 Coll. on Ownership of Residential and Non-Residential Premises as amended. Pursuant to Housing Europe (2015, p. 80) private ownership by physical individuals represents 90.5 % of total Housing Fund, while private rental sector covers 3 %, municipalities own 3 % of the Housing Fund through the public rental sector, and other owners represent 3.5 % of the Housing Fund. Private

ownership of the Housing Fund hugely prevails in the Slovak Republic, implying question whether or not the low population migration has been strongly affected just by the 90.5 % of the Housing Fund in the private ownership, and thereby retaining potential labour force in the unemployment trap.

The smallest part of the Housing Fund is owned by municipalities. Region Bratislava has only 3,317 municipal apartments, followed by region Banská Bystrica with 3,203 municipal apartments, region Žilina with 3,940 municipal apartments, and region Trnava with 4 587 municipal apartments. This fact only proves that small number of the municipal rental housing sector has affected low work migration rate.

In the terms of international comparison, Slovakia ranks among the countries with higher congestion. According to EU assessment, a household is considered overcrowded where more than 1 person lives in 1 room. Congestion rate in Slovakia reached 40 % of total population that is twice the average value of EU countries (20 %). Interestingly, double the young Slovak people live with their parents, compared to other EU countries (27.5 %) or EU zone countries (26.5 %). As much as 52 % of young people of age within 25-34 still lives with their parents in Slovakia (Gábriš, 2012); mainly because of unstable labour market, reflected in the economic opportunities, and other reasons, for example missing rental apartments, high prices of real-estate, slouch, study and work abroad, etc.

Housing fund in Slovakia ranks among those youngest in Europe: average age of the apartments in apartment houses refers to 38.3 years vs 45.7 years in detached houses (The Slovak Statistical Office, 2013, p. 4), but certain built-in materials, structures and technology equipment approach the end of life and their systematic reconstruction is required. The Slovak Republic reported the most intensive housing building era during period of years 1946 - 1960, when more than 177,000 houses were built. Intensity of housing building has significantly dropped since then.

The number of finished apartments represents another indicator in our research, affecting migration of the population. Total 174,293 apartments were finished in Slovakia during period of years 2005 - 2015, hereof 154,762 (88.5 %) apartments in the private sector and 11.5 % in the public sector. Evaluating particular years, the development was rather irregular with most apartments (10.8 % of total number of finished apartments during the monitored period) finished in 2009. Total 15,471 apartments were finished in 2015 (8.9 % of total number of finished apartments during the monitored period), which was by 4.1 % more than in 2005, but by 17.9 % less than in 2009.

Table 2

Completed dwellings by type of ownership in the Slovak Republic

Apartmens/year	**2005**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Completted dwelings	14 863	18 834	17 076	14 608	15 255	15 100	14 985	15 471
- of which public ownership	2 103	2 356	2 519	1 568	1 545	1 065	680	354
- of which private property	12 760	16 478	14 557	13 040	13 710	14 035	14 305	15 117

Source: Statistical office of the Slovak Republic

Number of finished apartments doesn´t correspond to actual Housing Fund increments, since it should be adjusted according to reduced number of apartments. The Housing Fund had been reduced by 15,397 apartments during period of years 2005 – 2015. The following figures demonstrate the situation in the Slovak regions during the mentioned period of years: Most finished apartments were reported in the region Bratislava – 51,576. In region Trnava, it was by approx. 50 % less – 27,400, in region Žilina it was 21,425 apartments and 17,744 apartments in region Prešov. Regions Trenčín and Nitra reported almost the same

figures – 16,404 apartments finished in region Trenčín and 16,079 apartments in region Nitra. Least apartments were finished in region Banská Bystrica – 10,984 and a few more in region Košice – 12,681.

Most apartments were finished in the regions with the lowest recorded unemployment rate, and vice versa. This phenomenon was caused by instability on the labour market and thereby financial unavailability of apartments. We can see the likelihood of finding a job from the assumption that the likelihood of finding a job is high in the region with low unemployment rate, which significantly impacts the housing needs satisfaction.

Table 3

Unemployment rate in the regions of the Slovak Republic (%) (entry 31.12.)

Territory	2005	2009	2010	2011	2012	2013	2014	2015	2016*
Bratislava	2.60	4.36	4.63	5.41	5.72	6.17	6.13	5.34	4.58
Trnava	7.15	8.37	8.17	8.88	9.43	9.16	8.03	6.71	4.41
Trenčín	6.80	10.13	9.51	9.95	10.89	10.74	9.56	7.71	5.91
Nitra	11.39	11.72	11.76	13.27	14.08	12.52	11.21	9.71	7.08
Žilina	9.33	10.89	10.86	11.91	12.79	12.51	10.91	8.86	6.91
Banská Bystrica	18.32	19.19	18.86	19.83	20.81	18.26	17.22	14.94	12.70
Prešov	15.77	18.29	17.75	18.95	20.66	19.35	17.45	15.50	13.93
Košice	17.50	17.30	16.78	18.76	19.58	17.23	15.92	14.39	12.72
SR	11.36	12.66	12.46	13.59	14.44	13.50	12.29	10.63	8.78

* entry 30.11.

Source: Statistical office of the Slovak Republic

Development of residential real-estate prices in the Slovak republic

Housing apartments´ availability is generally defined by comparing the housing prices and the income. Real-estate price has been lately a frequently sought indicator by seller and buyers, as well as credit institutions, economic analysts and international institutions; mainly because of possible real-estate price impact on financial and economic stability.

In Slovakia, real-estate prices are monitored by NBS on basis of data published by the Slovak National Association of Brokers and the Slovak Statistical Office, working with consolidated data of the Internet portal Real-Estate Price Map. Despite of not uniform methodology applied, we can state that the average housing price development trend is relatively stable from long-term point of view.

In the latest period except 2015, the Slovak Republic reported year-to-year drop at average housing prices. This slight price drop, along with stable situation in the Slovak households´ income, caused that Slovakia has appeared among the countries with standard income sufficient for procurement of an apartment at prices generated on the housing market on long-term basis.

Proportion of price/ income was by almost 14 % smaller in the mid of 2014 in Slovakia than its long-term average value (Cár, 2015, p. 12). The situation turned in 2015 with a slight increase at the average housing prices compared to 2014 as a result of rather dynamic average price increase of apartments and drop at the average prices of detached houses.

Relatively stable development of the average housing prices has been accompanied with gradual scissors opening in the developments average prices of apartments and houses since the beginning of 2013. This trend has even sharpened during the last year, and currently refers to 324 €/m², i.e. double the figure compared to 2013. Current average price of 1 m² of an apartment is by almost a third higher than an average price per 1 m² of a detached house. (Cár, 2016, p. 1)

Table 4

Average property prices (€/m²)

Year	SR	Year	of which								Apartmens	Houses
		2002=100	BA	TT	NR	TN	ZA	BB	KE	PO		
2015	1 227	207,3	1 693	830	556	633	753	712	946	745	1 355	1 081
2014	1 216	205,4	1 648	823	580	629	782	740	920	765	1 293	1 096
2013	1 226	207,1	1 660	826	585	642	776	737	928	787	1 288	1 115
2012	1 237	209,0	1 661	824	612	657	760	764	971	803	1 297	1 118
2011	1 251	211,3	1 677	834	624	695	757	769	975	822	1 315	1 109
2010	1 291	218,1	1 726	850	620	685	790	791	941	826	1 333	1 156
2009	1 344	227,0	1 749	937	709	759	864	789	922	899	1 375	1 206
2008	1 511	255,2	1 972	1 006	744	830	945	851	1 137	1 051	1 574	1 270
2007	1 238	209,1	1 666	799	517	612	709	686	812	747	1 276	1 130
2006	1 000	168,9	1 376	712	387	473	507	512	581	612	998	1 004
2005	856	144,6	1 148	648	365	345	452	422	522	592	841	915
2004	954	161,1	1 285	659	573	630	439	505	779	505	932	977
2003	827	139,7	1 180	400	405	437	504	472	490	465	815	839
2002	592	100,0	779	370	361	457	404	356	462	359	602	582

Notes: BA – Bratislava region; TT – Trnava region; NR – Nitra region; TN – Trenčin region; ZA – Žilina region; BB – Banská Bysrica region; KE – Košice region; PO – Prešov region.

Source: National Bank of Slovakia.

Table 5

Average equivalent disposable household income (Eur/month)

Territory	2005	2009	2010	2011	2012	2013	2014	2015
Bratislava	458,84	681,17	734,07	713,95	778,17	734,40	805,32	714,23
Trnava	358,45	534,00	576,88	610,04	637,69	607,38	637,50	625,05
Trenčín	337,40	512,00	572,25	593,94	674,01	632,31	660,26	632,77
Nitra	307,31	497,25	553,19	550,21	600,71	572,04	599,99	593,34
Žilina	342,18	529,33	570,91	606,37	636,79	626,52	607,01	594,72
Banská Bystrica	338,10	493,08	527,29	558,36	592,20	585,28	585,66	581,71
Prešov	288,99	457,00	491,84	517,58	555,88	535,32	561,33	563,15
Košice	344,26	516,67	530,08	543,08	603,05	583,85	575,29	584,41
SR	343,62	524,08	565,23	581,60	629,63	605,54	623,69	607,73

Source: Statistical office of the Slovak Republic

With ARIMA statistical modelling and based on the available data, we estimated the development trend of an average price per 1 m² of land. Accordingly, the price should slightly increase till the end of 2017, and stabilize afterwards. This situation depends on the housing loan interest rate development; the interest rates reached the lowest value for the last 20 years, and they should gradually rise with the increasing Slovak households´ indebtedness, further affecting the real-estate price level.

The subject of modelling was a time series of house prices for which the data are available for the period from the first quarter 1996 to second quar Societyter 2016, totalling 80 observations. Due to the relative shortness of the time series are modelled results of the analysis and design of ARIMA model to estimate the evolution of house prices as an experimental.

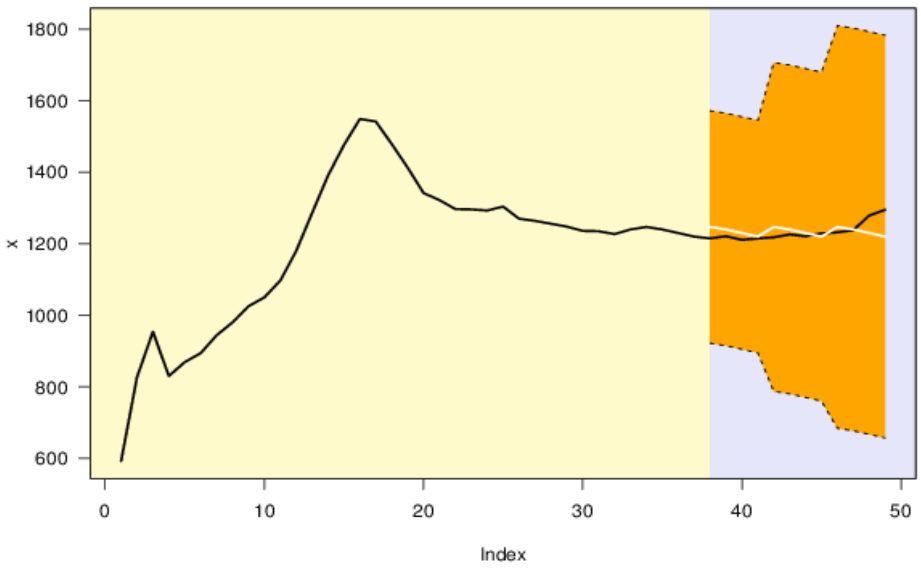

Figure 1. ARIMA extrapolation developments in house prices for 95 % confidence interval (Q1/2002 - Q2/2019)

Source: autors

As we already indicated, the Slovak households get indebted with the increasing intensity of the investments in real- estate, having impact on the wealth level. One third of the households in Slovakia is indebted (with the debt median value 3,200 € per an indebted household) vs 44 % of households indebted in EU zone (with the debt median value 21,500 € per an indebted household). Share of total debt on total indebted households´ assets in Slovakia is one of the lowest amongst the EU zone countries, with the median value lower than 7 %, vs 22 % in the whole EU zone. Compared to the other EU countries, most indebted Slovak households report the lowest share of total debt on their gross annual income, despite of having the lowest income level in EU; namely 23 % vs 62 % in EU.

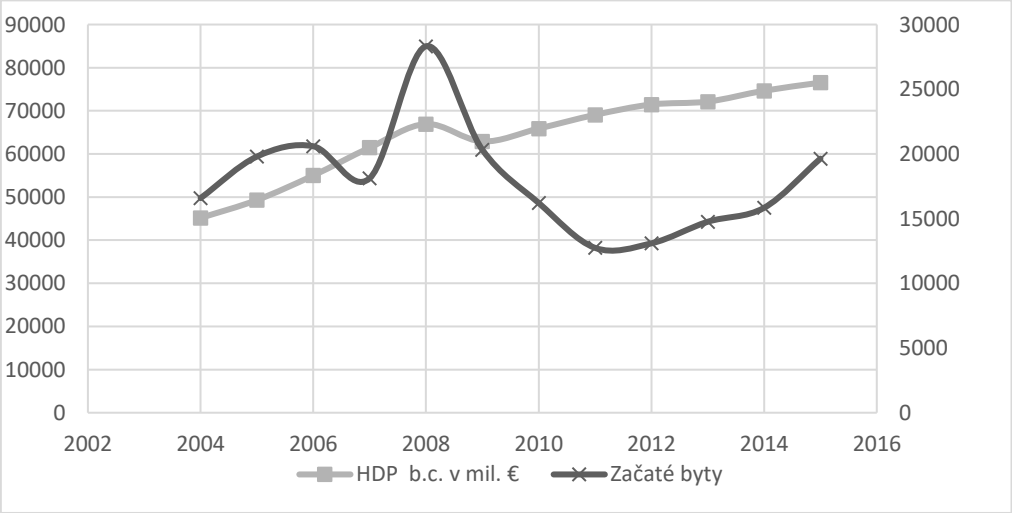

Figure 2. Gross domestic product and the number of started flats in the Slovak Republic

Source: autors

Along with the development of real-estate prices, our survey deals with the development of the number of commenced apartments building and the development of GDP. The trend of these parameters is shown on the picture No. 3 and the curve representing the development of the number of commenced apartments building during period of years 2008 – 2011 has significantly decreasing trend, starting to rise in 2011. Regarding GDP development, we reported increasing trend from 2009, proving that the housing building cycle changes at more slowly rate with major delay, mainly as a result of careful investments in real-estate by both households and companies.

Analys of of migration flows between regions in Slovakia

Migration between countries refers to a double-way process. To follow migration between the self-governing regions, we chose the size of migration flow from one to another territorial unit NUTS III – self-governing regions. The groups of individuals create the migration flows, or „streams", that allow us to analyze expressions of this phenomenon in particular Slovak self-governing regions.

Based on the migration balance, we can state that the highest transfer of the migrating persons headed to the region Bratislava during period of years 2009-2015 (21,873 persons), which has made this region the most attractive one in the terms of domestic migration, and the region Trnava (9,714 persons). This trend definitely resulted from the development level of the regions and their low unemployment rate. In 2013, Bratislava region became the 6th wealthiest region in EU with GDP per capita referring to 184 % of the EU average in the buying force parity. These figures ranked the region Bratislava on the 6th place within EU28 (NUTS II). Furthermore, we reported the 3rd highest migration balance in the Nitra region (852 persons) and we expect the trend to even increase in this self-governing region because of major investment in the automotive industry. The highest negative migration balance was reported in the region Prešov (- 9,134 persons) and the region Banská Bystrica (- 5,191 persons), caused mainly by lack of job opportunities and generally unfavourable labour market situation, and higher concentration of Roma ethnic citizens, associated with lower than average affiliation to employment.

Table 6

Net migration (person)

Territory	2009	2010	2011	2012	2013	2014	2015
Slovak republic	4 367	3 383	2 966	3 416	2 379	1 713	3 127
Bratislava	4 444	4 370	4 537	4 374	4 229	4 758	6 161
Trnava	1 553	1 590	1 433	1 238	1 265	1 157	1 478
Trenčín	-430	-502	-424	-401	-481	-623	-638
Nitra	392	392	160	519	-17	-144	-450
Žilina	64	-262	-150	-219	-99	-484	-438
Banská Bystrica	-432	-491	-676	-652	-949	-823	-1 168
Prešov	-1 066	-1 241	-1 421	-1 062	-1 106	-1 568	-1 670
Košice	-158	-473	-493	-381	-463	-560	-148

Source: Statistical office of the Slovak Republic

In spite of unambiguous migration definition, disharmony between an individual´s permanent residence stay and usual residence stay remains a big problem. Many persons actually stay at other address that their formally registered residence address as a result of failed housing market, lack of financially acceptable Housing Fund, extensive spread of various forms of apartment rentals and living in rented apartments as sub-tenants. We don´t consider this fact extremely significant, since analogical disharmony has been reported also with other statistical data, e.g. the unemployment, etc. Monitoring the number of

owned apartments and the unemployment rate, we can state that their percentage share is huge in the regions with high unemployment rate. We applied correlation coefficient to verification of the correlation analysis, identifying the following facts.

Analysis of the housing quality in different regions as well as the analysis of migration flows between regions in the Slovakia conjured up several questions:

1. Is there a link between the housing quality in different regions and migration flows between them?
2. Which factors promote migration flows and which create barriers?

To answer it, we created a specific database in Excel, which included indicators recorded in the regions regarding: the form of housing ownership, the size of living space, the number of completed flats, tidal population in individual regions, the volume of migration, the efficiency of migration and net migration. To verify relational analysis, we used the correlation coefficient, through which we discover the following facts:

1. We confirmed the association between the number of completed dwellings in regions and migration trends. The number of completed dwellings strongly correlated with tidal population in the region, with the volume of migration, the effectiveness of migration as well as migration balance.
2. Ownership of dwellings also has significant impact on symptoms of migration from one region to another. This impact is reflected both - in relation to the volume of migration, as well as to the efficiency of migration and the migration balance. (Correlation coefficient in the interval <0.4783295 to 0.7443831> <-0.489421 - -0.812523>). The various forms of home ownership as apartments in homes, apartments in family houses, municipal housing and cooperative apartments, or another form of ownership, have a decisive impact on migration.

Table 7

The correlation coefficient between the number of completed apartments and migration of population (2009-2015)

Variables	Correlation coefficient
The number of completed dwellings - the influx of population	0,888375
The number of completed apartments - depopulation	0,860984
The number of completed apartments - balance of migration	0,898148

Source: autors

We reported rather strong correlation between monitored migration balance and the average price of real estate (1 m^2) in the Slovak Republic as a whole. Correlation between the number of apartments finished in particular Slovak regions and migration trends was confirmed. Number of finished apartments strongly correlated with the population inflow and outflow in the region, as well as to the migration balance.

We chose two regions for purposes of the survey, both with the highest migration balance. Correlation coefficient reached 0.004031 in the region Bratislava, confirming the theory of region attractiveness in the terms of average wage, even at high real –estate prices. In the region Trnava with correlation coefficient 0.602556, we reported positive migration balance associated with favourable job offers, resulting in real-estate price increase.

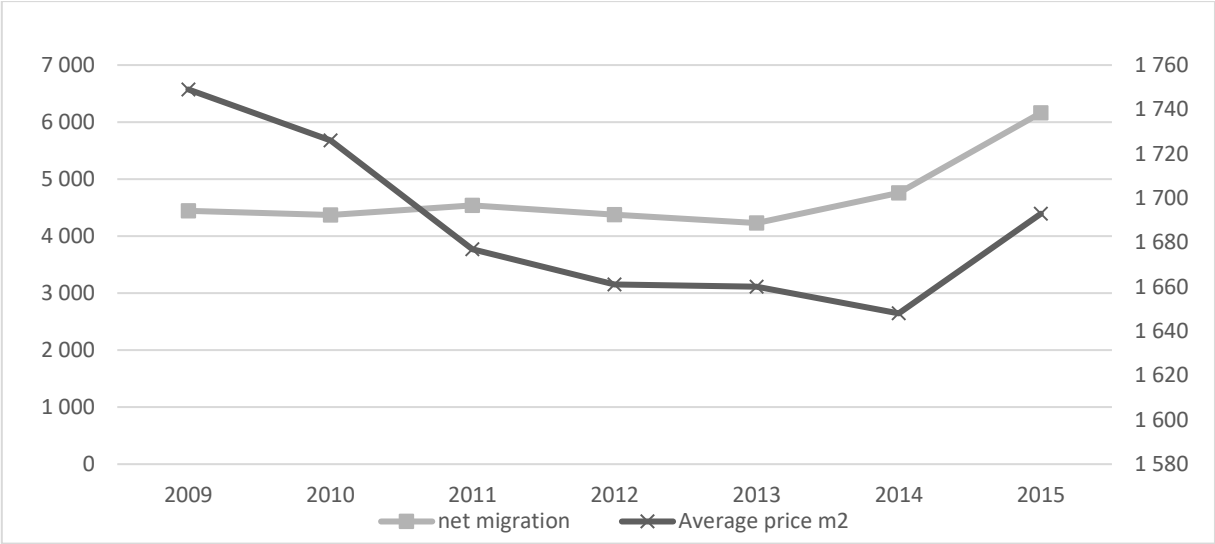

Figure 3. Net migration and housing prices in the Bratislava region

Source: autors

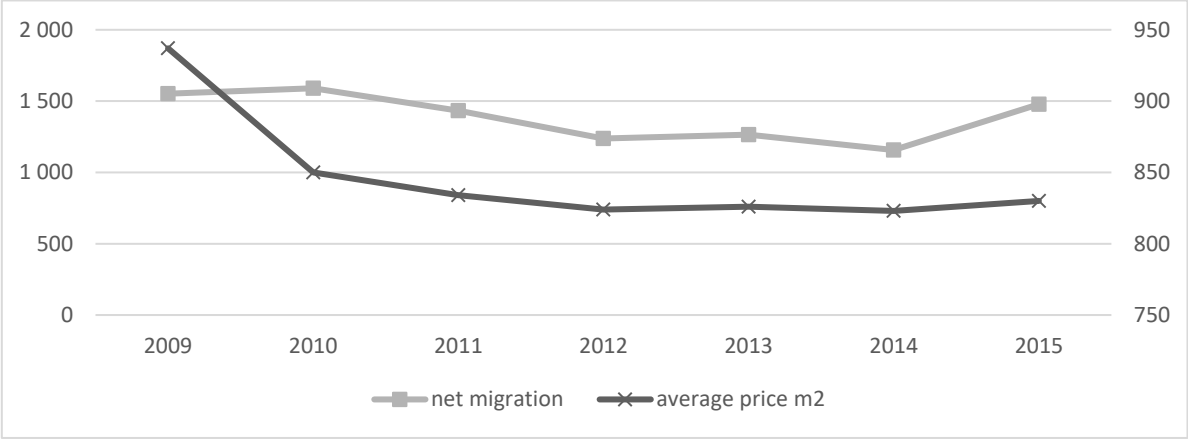

Figure 4. Net migration and housing prices in the Trnava region

Source: autors

Migration is mainly caused by the population efforts to obtain financial sources to satisfy its fundamental needs, which is impossible to do from the unemployment allowances on long-term basis. Migration flows between particular Slovak regions have been influenced also by the number of vacancies.

Headcount of job seekers per 1 job is the highest in the region Bratislava. There were more vacancies than job seekers in 2008 when all Slovak regions reported the lowest job seekers headcount and the highest number of vacancies. Total 43 job seekers applied for a vacancy in the region Prešov. Until 2012, headcount of job seekers per 1 vacancy had increased to more than 100 in the said region. The situation improved during the following three years when most of the Slovak regions reported the increase at vacancies and gradual drop in job seekers´ headcount. However, no region has managed to reach the level 2008 when most vacancies were reported in the public administration sector, followed by the industry and trade sectors. Until 2015, share of jobs on the industrial sector had slightly dropped in favour of the public administration sector in most regions except Trenčín and Žilina where the vacancies in the industrial sector had increased.

On one hand, the unemployed make effort to find a job in other region than their permanent residence but there is no desire to invest in the rental type housing, since often high housing prices in well-developed regions are just the factor that prevents from labour force migration from less developed regions with lower housing prices. Such significant difference in the housing prices causes that the labour force migration doesn´t pay off despite of higher wages in the regions with low unemployment rate, and an individual remains in the region of residence as a job seeker. Such disharmony could be alleviated by the public rental sector.

5. CONCLUSIONS

Migration and housing subject matter is in the spotlights in relation to the Slovak economy development. The housing policy in Slovakia is oriented more to the support of owned housing, corresponding to 90.5 % share. High proportion of people in Slovakia who own their apartments/ detached houses causes unwillingness to migrate for work and thereby retains labour force in the unemployment trap. Owned housing is considered the standard in the Slovak Republic. For most people, it is the largest and also the most valuable investment of a lifetime. Rental housing is rated mostly as "social housing" for socially weaker sections of society. In the economically more developed countries are less preferred owner-occupied housing, rental housing makes up 70 %, and is used by all social classes. The share of private ownership of real estate is growing in the poorer country. It is not then surprising that most rental housing is in Germany, Austria and least in Romania, Bulgaria, which is privately owned almost 100 % of the apartments. The greater popularity of rental housing in economically developed countries is due to the mentality that it is in these countries more inclined opportunities for labor migration. People in these countries are often changed not only the work itself, but mainly place their professional action. With such a lifestyle would be to own housing overcast. The experience of countries with a healthy housing market indicate that the appropriate linkage between housing, mobility and employment can be ensured only by a functioning market environment for fair participation of the public sector.

In an international comparison by means of the Eurostat database, we can conclude that the Slovak Republic in the rate of internal migration is significantly lagging behind other developed countries of the European Union. However we must emphasize that a number of methodological reasons, this comparison is not entirely relevant. This stems mainly from the fact that the measurement of migration in the Slovak Republic following the change of residence abstracted from labor migration, the migrant groups who do not change resides mainly in the absence of private ownership on real estate at the point of discharge of professional duties. Trends of internal migration in the Slovak Republic are influenced mainly by the process of suburbanization, causing migration from east to west of the country and from metropolitan centers to suburban areas, which is mainly due to the financial affordability of housing. High housing prices in developed regions is a factor that hinders emigration of labor from less developed regions with lower housing prices. This price difference makes despite the higher pay available in regions with low unemployment rates are ultimately paid labor migration and remain in their region as a job seeker. This discrepancy could alleviate the public rental sector, which in Slovakia is considerably minor.

The absence of a functioning market for public rental flats mainly for weaker income groups is associated with high unemployment in the country. Since the market is available to only a small amount of cost-affordable apartments, mobility between regions is very small. Important role here should play the state that would create a system of different functional support of the construction of public rental housing, respectively, supports labor mobility as well as tax incentives for private rental providers. Our vision is to promote housing construction especially for the economically active population in regions with an

abundance of job opportunities that could move to work away from their permanent residence. For housing policy, this mainly means the removal of obstacles to the development of the housing market and apply effective forms of public support for housing construction and the housing market. As the amount of public funding is limited, the ability to decide their effective use.

The combination of improved housing affordability, along with an increase in housing affordability and housing, may be one of the major factors of dynamic growth in the volume and intensity of migration to the more developed regions of the Slovak Republic.

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