

[URBAN AMENITIES AND INTERNAL MIGRATION IN SLOVAKIA]

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ABSTRACT

The research presented in this paper involved an analysis of urban amenities and general trends of internal migration in the Slovak Republic. Analysis for the evaluation of data quality on registered migration, individual-level data on internal migration moves 1996-2011 has been used. Regarding the data for 1996-2011, internal migration files include place of origin, birth year (or age), sex, ethnicity, educational attainment, marital status. In our research we used software SPSS 19 for Windows and MapInfo Professional 9. The methodology used for research included descriptive statistics, correlation analysis and regression model. For our research we divided urban amenities into four categories local goods, cultural amenities, aesthetics and environmental amenities. We used the number of single immigrants to cities in 2011 under 35 years of age with university degrees, since this variable could be used as a proxy for creative class (Niedomysl, Hansen, 2009), i.e. the part of population which value urban amenities most. The results show that some of the chosen urban amenities can be important factors for internal migration in the Slovak Republic. This thesis discusses the following questions: Is there any relationship between urban amenities and migration of young single immigrants with university degree in Slovakia?

Urban amenities

Amenity migration, the movement of people for pleasure rather than economic reasons, has become a major phenomenon in XXI century. The concept of amenity is ambiguous and not formally defined. This concept can be defined in different ways. Nathaniel Lichfield (1988) wrote in “Economics in urban conservation” that any moment in time, any society is using its general heritage from the past, namely all that it inherits from its forebears. This is very varied in character. It can be categorised in relation to concept of the urban and regional system as follows:

Physical stock

- (a) natural resources: land, with its minerals, agricultural and timber products, animal and bird life; the water, with its fish and plant life; the environment in sun, air, rain, climate;
- (b) man-made: works and buildings which are attached to the land (immobile);
- (c) man-made: works which are not attached to walls and buildings (mobile).

Activities

- (a) consumption: quantity and kind of goods and services available to people for their standard and quality of life;
- (b) production: way in which society has learned to provide the goods and services for consumption;
- (c) religion: relation with the God(s) of the country and the institutions which serve that relation;
- (d) arts: graphic, music, dance, literature, film, plays;
- (e) knowledge: accumulated and transmissible through education and training of all kinds;
- (f) folklore: collective memory of past generations, absorbed through the family, teachers, etc.;
- (g) tradition: carrying out activities in a manner reminiscent of previous generations.

Urban amenities is a complex phenomenon, and literature on it can be preliminarily classified based on different distinct aspects. In the real-world economy utilities or profits are higher in some locations than in others. In such a situation, the economy will tend to move toward equilibrium, with economic agents migrating toward locations that offer superior prospects. Consumer migration, in particular, could lead to population flows

toward high-amenity regions, where housing prices and incomes may not yet have adjusted so as to cancel their amenity advantages. From studying regional population growth in the period 1970 – 2000, Jordan Rappaport (2007) in “Moving to nice weather” concludes that migration did indeed flow toward regions with nice weather.

According to Clark T.N. (2004), the most important single challenge is the emphasis in each parts on consumption, amenities, and culture as drivers of urban policy. There is considerable evidence about how these drive people to move to or from different cities and regions, and how they are especially critical in attracting innovative persons – the creative class people that Florida (2002) stresses as catalysts in making the modern economy and high tech hum. Erickcek and McKinney (2004) note, small cities are more often seen as lacking the particular ‘growth-facilitating amenities’ attractive to young.

Clark (2003) classifies amenities into two categories, natural and built. He suggested that the total population moves toward amenities, controlling up to 20 variables in multiple regressions for U.S counties. According to his analysis, college graduates are more numerous where there are fewer natural but more built amenities. The elderly concentrate in areas with natural amenities. Clark and Hunter (1992) attempted to integrate all three categories of determinants of migration into a life-cycle frame work. Empirical findings generated from a countrywide model of white male migration, over the period 1970 to 1980, reveal that all three types of determinants are important. Specifically, economic opportunities are most influential for males during their working years. Arntz (2010) said that interregional unemployment differentials only exert a significant effect on the migration behavior of less skilled job seekers.

The group of academics and scientists is mainly lured by bottom-up developments in academia and science, favorable working conditions, and the prestige of the host institution (Mahroum 2000). Chen and Rosenthal (2008) also found that migrants between ages 20 to 35, regardless of marital status, highly educated households move towards places with higher quality business environments. But after age 50, regardless of education, married couples move away from places with favorable business environments and towards places with highly valued bundles of consumer amenities. Amenities are also found to follow a life-cycle pattern with older migrants more attracted to amenable locations than their younger cohorts. Finally, state income and death taxes display life-cycle effects, working males in their peak earning years are detracted by high income

taxes, while all migrants aged 55 to 69 avoid counties in states with high inheritance and estate taxes (Clark and Hunter, 1992). Gottlieb (2004) analyzed the dynamics of labor supply in the 100 largest metropolitan areas in the U.S. based on their population in Census 2000. This analysis focused primarily on the cohort aged 25-to-34 in 2000. Nationally, 79 percent of this age group was in the labor force in 2000, and only 11 percent was enrolled in college or graduate school. Compared to older workers (aged 35-to-64), young workers migrated more often to high-amenity.

Jennifer Roback extends previous works on the influence of amenities on local wages and rents by introducing different types of workers. Demographic theories have suggested that migration is selective, with different people responding differently to incentives of migration and to push and pull factors in different areas. Studies of the determinants of migration commonly have been formulated in the context of individual utility maximization, with the expected utility hypothesis at least implicitly underlying most studies (Greenwood, MJ. 1997). Given an individual's personal characteristics, including accumulated job skills, general labor market conditions and employment composition will help determine the probability of gaining employment during a period of job search. Prevailing conditions in land and housing markets may also be important, and state and local taxes and the associated availability of public goods may be critical for certain potential migrants. Topological, climatological, and environmental amenities may enter into many decisions. Possibly, the potential for natural and technological hazards could affect migration decisions. Moreover, the values of such amenities may be reflected at least partly in labor and land markets (Greenwood, MJ. 1997).

Murdock et al. (1984) suggest that economic factors may provide the best explanations for migration patterns in some areas in some time periods and for some age groups, while at other times or for other groups ecological or amenity or familial ties will provide the best explanations for migration patterns. The presence of institutions of higher education in receiving areas have been shown to attract migration by Sahota (1968) and Greenwood (1969), and to retard migration from sending areas by Sahota (1968) and Beals, Levy and Moses(1967). Economic factors, including high wages and diverse occupational opportunities typically associated with urban employment, are important to young adults (Morgan and Robb, 1981; Mueser et al., 1988). Furthermore, some of the detractors of

city life, such as high crime rates, are less of a concern for young adults who tend to be less risk-averse than older adults.

Long (1988) looked at the relationship between age and reasons for moving, expecting that stages in the life cycle would help explain the reasons people relocate. He found the proportion of individuals citing job transfers as the main reason increased with age, peaking when respondents were 35 to 40 and then declining as respondents aged. The proportion of migrants who moved to take a new job was highest for those under 30 years of age and gradually drops as age increases. The percent of migrants who cited climate as the main reason was much greater for those over 50. Likewise, moves to be near relatives were greater for older respondents, growing increasingly important after age 45. Williams and Jobes (1990) found that households with higher socioeconomic status generally mentioned both economic and quality of life factors in their reasons for migrating while lower socioeconomic status families cited only quality of life factors. They suggest that migration that is motivated by noneconomic factors involves some rejection of conventional values, at least for all but the very affluent.

Greenwood and Cormely (1971) and Cebula (1974) found that Americans were attracted by a temperate climate. Pollution, health services, crime rates and housing stock have also been shown to be related to migration in the expected directions; Cebula and Vedder (1973), and Pack (1973). Heaton, Clifford and Fuguitt (1981) suggested that economic factors are more important determinants of migration for the young than for the elderly. Howell and Fese (1983) illustrated that a majority of migrants in the United States were motivated by preference for particular kinds of housing and communities. Graves (1979) and Graves et.al (1982) found evidence suggesting that amenities affect people's migration decisions. Clark and Cosgrove (1991) found that both economic factors and amenity differentials were significant factors in explaining regional migration.

Although many studies have underscored that amenities are not strong factors in explaining the migration of human capital, some empirical evidence has emerged to support a positive relationship between two factors. Scott's (2010) paper demonstrates that the migration patterns of 13 different categories of migrant engineers over the period 1994-1999 have been examined in a primary effort to assess the relative weight of jobs and amenities in shaping destination choices. The research described that at least for the case of engineers, migrants of working age are drawn primarily to locations whose economic

structure and job opportunities correspond closely to their particular professional expertise, and that amenities have virtually no impact on these relationships. If the amenities hypothesis had even some secondary validity in helping to explain the migration patterns of US engineers, he would expect to find at least marginal echoes of it in his analysis. An exception to these remarks is represented by engineers who are close to retirement or are actually retired, and in this instance, warmer winters do have some positive though far from overshadowing influence on the direction of migration. It may be, too, that the positive role of the commuting rate in these regressions reflects some kind of amenity value in the sense that many engineers evidently choose to reside in suburban areas adjacent to major employment centers.

For better understanding of urban amenities we follow Glaeser et al. (2001) and include two proxies for the amenity value of cities: the number of people working in trade, hotels and restaurants as a proxy for the supply of shops facilities, and the number of hotel stays per capita as a proxy for tourist attractions. However, direct indicators for amenities are possibly preferable. Natural amenities such as open spaces, rivers, beaches, scenic lakes, mountain vistas, and mild temperatures are widely believed to be important factors considered by migrants, as are the types of amenities that are provided only in larger cities. Glaeser, Kolko and Saiz (2000) argue that there are four particularly critical urban amenities.

First, and the most obvious one is the presence of a rich variety of services and consumer goods. The Internet, and before it the revolution in catalogue sales in the 1980s, means that manufactured goods really are national goods. However, restaurants, theatres and an attractive mix of social partners are hard to transport and are therefore local goods. Cities with more restaurants and live performance theatres per capita have grown more quickly over the past 20 years both in the U.S. and in France. In cities with more educated population, rents have gone up more quickly than wages since 1970—the natural interpretation of this fact is that while productivity has risen in places with more educated workers, quality of life has risen faster.

The second amenity is aesthetics and physical setting. Little evidence exist on the role of architectural beauty, but it does seem that more attractive cities have done better since last decades. Weather - measured by January temperature or precipitation—is the single most important determinant of population or housing price growth at the county level. Physical

attributes of a community that make life more pleasant appear to be increasingly valued by consumers (Glaeser, Kolko and Saiz, 2000).

The third critical amenity is good public services. Good schools and less crime are also linked with urban growth. Berry-Cullen and Levitt (1999) show that exogenous increases in crime reduce population growth. Dropout rates among teenagers (controlling for the education level of adults and the poverty rate) are strongly negatively correlated with growth from 1970 to 1990. Schools and low crime also appear to be important in attracting a highly educated workforce. If education then creates further growth (as suggested by Glaeser et al,1995), there will be multiplier effects on these amenities.

The fourth vital amenity is speed. In a sense, the range of services (and jobs) available in a metropolitan area is a function of the ease with which individuals can move around. As time becomes more valuable, individuals will particularly avoid areas where transport costs are high. Indeed, the movement to edge cities and the decentralization of employment have increased commuting distances but often decreased commuting times relative to traditional downtowns. But this increasing value of time has also produced a radical shift within traditional cities. Areas close to the central business district have succeeded as outer areas have failed.

A few researches have demonstrated relationship between amenities and highly educated immigrants. Some of them are shown in Table 1 along with the method and dependent variable used. Studies of the relationship between different amenity packages and educated people are less clear than studies on the relationship between workers and amenities, because there is no universal agreement as to what defines an amenity package.

Table 1: Method and dependent variable used in the empirical studies

Authors	Method	Dependent Variable
Arntz (2010)	Logistic Regression	movers with a college or university degree
Glaeser and Saiz (2003)	Regression model	persons 25 or older with a bachelor's degree and above

Hansen, Ban, and Huggins (2003)	Survey and logistic regression	college graduates
Florida (2002, 2002a)	Regression model	persons with a bachelor's degree and above
Kordrzychi (2001)	Regression model	college graduates

Source: Arntz (2010), Glaeser and Saiz (2003), Hansen, Ban, and Huggins (2003), Florida (2002, 2002a), Kordrzychi (2001)

Methods of research and data

As mentioned in the theory, there are multiple aspects that influence the decision to migrate. We only investigated some of these aspects in our empirical strategy. Although an approach that would encompass all urban amenities would be invaluable, there is no study to date that incorporates all categories of urban amenities. In our research we used softwares SPSS 19 for Windows and MapInfo Professional 9. The Steps for Research process:

1. Descriptive statistics are used to describe the basic features of the data in the study, we demonstrated general trends of immigration in Slovak Republic from district to district.
2. We are using correlation analysis, where we are describing relationships between urban amenities and migration, also between urban amenities and numbers of inhabitants.
3. In last step of our analyses we have used multiple regression model. Regression analysis has been used to test relationships between amenities and migration for answering our research question.

We have selected five variables representing different aspects of urban amenities, namely restaurants as a proxy for the supply of local goods, availability of historical centers for aesthetics, theatres and galleries for the availability of cultural amenities, and pollution for environment. Number of people with magister, engineer, PhD degree in cities we used as a “creative class” (“creative atmosphere” or “people meeting people”).

Control variables may be related to other effects and must be taken into account in analyzing the relationships between the movement of migrants and amenities to minimize a confounding of results. The control variables used were divided into two categories: economic condition and size effect. We used the level of unemployment in the surrounding districts as a control variable for the role of job related mobility. For size control variable we used the number of inhabitants.

As a dependent variable we used the number of single immigrants to cities in 2011 under 35 years of age with university degrees. This variable could be used as a proxy for creative class (Niedomysl, Hansen, 2009), i.e. for the part of population which value urban amenities most.

As the availability of the data at the city level is very limited in Slovak Republic, this research has a rather exploratory character at this stage. In our analysis we have focused on 40 cities (see Table 2) with more than 20.000 inhabitants. Using this limit, the analysis allows us to exclude those cities with high urban amenities such as spa cities or touristic centers with small numbers of inhabitants. We expect that the locations with higher urban amenities will attract more migrants.

Table 2. List of cities in the SR with more than 20000 inhabitants

Bánovce nad Bebravou	Martin	Ružomberok
Banská Bystrica	Michalovce	Senica
Bardejov	Nitra	Snina
Bratislava	Nové Mesto nad Váhom	Spišská Nová Ves
Brezno	Nové Zámky	Šaľa
Čadca	Partizánske	Topoľčany
Dubnica nad Váhom	Pezinok	Trebišov
Dunajská Streda	Piešťany	Trenčín
Hlohovec	Poprad	Trnava
Humenné	Považská Bystrica	Vranov nad Topľou
Komárno	Prešov	Zvolen
Košice	Prievidza	Žilina
Levice	Rimavská Sobota	Liptovský Mikuláš
Lučenec		

For the evaluation of data quality on registered migration, individual-level data on internal migration moves in 1996-2011 have been used. Data are not available for years earlier than 1996 because the computerized records, as well as the original data collection forms have not been preserved by the Statistical Office of the Slovak Republic. Regarding the data for 1996-2011, internal migration files include place of origin, birth year (or age), sex, ethnicity, educational attainment, marital status. We also examined the migration decisions of individuals between 1996 and 2011 using personal-level data. From personal data, we have the figure of 1.353.230 immigrants during 1996-2011.

Data for urban amenities are available just for the last few years. Generally, we are using data for urban amenities from Statistical Office of the Slovak Republic, except the numbers of theaters and numbers of restaurants. Data for theaters we acquired from the portal thatre.sk (2012) and data for restaurants are obtained from the portal restauracie.sme.sk (2012).

General trends of internal migration in Slovak Republic

The human capital theory of migration has emphasized the distinction between the determinants of migration and other individual characteristics, for selected migrants. More specifically, migration may be viewed as a phenomenon involving a selective process. Usually it is considered that the demographic factors, such as age and sex, have a major selective influence on migration propensities. In SR the total number of migrants have increased from 68 424 people in 1996 to 76 017 in 2011. Slovakia is a country with very low intensity of internal migration. According to Jurčová (2012) in 2011, 85,4 thousand persons changed their residence within the Slovak Republic, which was by 3,5 thousand less than in 2008. The structure of internal migration is relatively stable. Migration from municipality to municipality in the district formed 43% of all migrations, migration from district to district within the region formed almost 30% and about 1/4 fell on migration from the region to the region. The migration on district level shows that there is a greater concentration of population into fewer districts. Only 22 districts showed increase of the population in internal migration in 2011. These are mostly the districts of western

Slovakia. The largest increase has steadily Senec, the migration gain in 2011 reached almost 30 %. Behind him apart followed district of Pezinok (9.9‰) and Malacky (8,2 ‰) in the suburban area of Bratislava and in the eastern Slovakia it was the district of Košice - okolie (4,7 ‰) (Jurčová,2012).

Age, in particular, affects internal migration in a regular way, especially in developed countries. The age structure of a migration may also be examined by using migration data. The average age of internal migrants have increased from 27 years in 1996 to 29 years in 2011 (Figure 3). Immigration has always been age selective, for example during last 15 years the number of immigrants between 18 to 35 years old constituted 565057, whereas the total number of internal immigrants was 1190304. Apparently, young people migrate more than old people and we can see rapid growth of the migrant number starting at the age of 18. Two graphs in Figure 1. indicate changing patterns by age for 1996 and 2011, and as seen, in 2011 by comparison not only the number of migrants has changed, but also their average age.

As demonstrated in Figure 2, divorced and widow/widower immigration level for the considered period less than 9000 persons annually. Widow/widower immigrant decreased by 27 percent. The number of married immigrants also decreased during 1996-2011. The interesting feature of the immigration pattern was the rapid increase of the single immigrants number in Slovakia, amounting to 28,9 percent.

Total number of single and married immigrants during 1996-2011 was 524473 and 519922, respectively. Divorced immigrants tended to migrate more at the age of 30-35 years old, as illustrated in Figure 3. The same Figure suggests increasing numbers of widow/widower migrants after reaching the age of 75 years old. Graph of single immigrants younger than 18 shows that child immigration decreased. Another interesting relationship was found between ages of single and married immigrants; when migration of the married persons started to increase, that of the single immigrants decreased. After dynamic decrease of the intensity and the number of marriages until 2001. Irregularity in the evolution of marriage was also confirmed by the last three years.

Variables

Variables included in the Correlation analysis were:

UNI35_SINGLE_2011: number of single immigrants with university degree under 35 per 1000 inhabitants. Data source: The Statistical Office of the Slovak Republic (2011)

THEATRE_new_1000: number of theatres in cities per 1,000 inhabitants. Data source: portal thatre.sk (2012)

HIST_CENTRE: existence of the historical centre in city, categorical variable 0/1. Data source: The Statistical Office of the Slovak Republic (2011)

RESTAURANTS_1000: number of restaurants per 1000 inhabitants. Data source: portal restauracie.sme.sk (2012)

GALLERY_new_1000: number of galleries in cities per 1000 inhabitants.

UNEMPL_RATE_2011: unemployment rate at the district level. Data source: The Statistical Office of the Slovak Republic (2011)

ENVIRO_2010: CO2 t/km2 at the district level. Data source: The Statistical Office of the Slovak Republic (2010)

UNIDEGREE: number of people with magister, engineer, PhD degree in cities per 1000 inhabitants. Data source: The Statistical Office of the Slovak Republic (2011)

PARKS: Public parks km2 per 1000 inhabitants. Data source: The Statistical Office of the Slovak Republic (2012)

INHAB: number of inhabitants in cities. Data source: The Statistical Office of the Slovak Republic (2011)

Correlation analysis

We are used number of single immigrants with university degree under 35 for our analyses¹. The correlation coefficient between unemployment rate and migration of young single highly educated immigrants constituted -0,477 in our analysis. The Pearson's correlation coefficient between parks and migration of young single highly educated immigrants also is negative. Young single immigrants with university degree under 35 positively correlated with theaters, galleries and restaurants. Correlation coefficient is high

¹ We selected for analysis 40 cities, where population is more than 20000.

for restaurants than for theaters and galleries. Not significant correlations exist in just between young single highly educated immigrants and parks. Relationship between young single immigrants with university degree under 35 and inhabitants is positively correlated and Pearson's correlation coefficient is 0,762. Pearson's correlation coefficient is close to 1. For this reason, we can conclude that there is a strong relationship between our young single immigrants with university degree under 35 and numbers of inhabitants in cities variables.

The Pearson's correlation coefficient between the total numbers of inhabitants and the number of inhabitants with university degree is 0,597 and coefficient of significance is 0. Because of this, we can conclude that there is a statistically significant correlation between these two variables. Relationship between total numbers of inhabitants and number of restaurants per 1000 inhabitants in our correlation is 0,479. Correlation coefficient of numbers of inhabitants and galleries is 0,204; and Sig. (2-tailed) value is 0,206; so it has not a significant level. Pearson's correlation coefficient negative for numbers of inhabitants in cities and parks also for unemployment rate, but correlation coefficients are significance. Correlation between total numbers of inhabitants and theatres is 0,476; coefficient of significance is 0,002. This value tell us there is a statistically significant correlation between numbers of inhabitants and theaters. In Table 6. correlation coefficient for parks have a significance value for unemployment rate, numbers of inhabitants, numbers of inhabitants with university degree, immigrants with university degree under 35, restaurants and numbers of theaters. Restaurants have a negative correlation coefficient with parks and unemployment rate. The Pearson's correlation coefficients between restaurants and another variables is a significant, except with galleries is not significant. Relationship between numbers of migrants with university degree under 35 per 1000 inhabitants and number of restaurants per 1000 inhabitants in our correlation is 0,627. Numbers of inhabitants with university degree have a significance correlation with young immigrants with university degree under 35, numbers of inhabitants, parks, restaurants and not significant correlation with unemployment rate and galleries. Correlation coefficient with significance value between numbers of inhabitants with university degree and restaurants is 0, 594. Galleries have not a significant or strong correlation coefficient with other variables. Correlation coefficient between theaters and parks is -0,696 and significant (2-tailed) value is 0.

Table 2. Pearson Correlation coefficients between urban amenities and young single immigrants with university degree under 35 (See: 3.5.1 Variables)

Correlations

		UNEMPL_RAT E_2011	ENVIRO_2010	PARKS	INHAB	UNI35_SINGL E_2011	RESTAURANT S_1000	GALLERY_ne w_1000	THEATRE_ne w_1000	UNIDEGR EE
UNEMPL_RAT E_2011	Pearson Correlation	1	-,102	,290	-,320*	-,477**	-,385*	-,088	-,309	-,162
	Sig. (2-tailed)		,531	,070	,044	,002	,014	,590	,052	,316
	N	40	40	40	40	40	40	40	40	40
ENVIRO_2010	Pearson Correlation	-,102	1	-,325*	,442**	,032	,088	-,027	,141	,077
	Sig. (2-tailed)	,531		,041	,004	,844	,589	,870	,385	,636
	N	40	40	40	40	40	40	40	40	40
PARKS	Pearson Correlation	,290	-,325*	1	-,665**	-,458**	-,412**	-,053	-,696**	-,584**
	Sig. (2-tailed)	,070	,041		,000	,003	,008	,747	,000	,000
	N	40	40	40	40	40	40	40	40	40
INHAB	Pearson Correlation	-,320*	,442**	-,665**	1	,762**	,479**	,204	,476**	,597**
	Sig. (2-tailed)	,044	,004	,000		,000	,002	,206	,002	,000
	N	40	40	40	40	40	40	40	40	40
UNI35_SINGLE _2011	Pearson Correlation	-,477**	,032	-,458**	,762**	1	,627**	,212	,476**	,543**
	Sig. (2-tailed)	,002	,844	,003	,000		,000	,189	,002	,000
	N	40	40	40	40	40	40	40	40	40
RESTAURANT S_1000	Pearson Correlation	-,385*	,088	-,412**	,479**	,627**	1	,003	,313	,594**
	Sig. (2-tailed)	,014	,589	,008	,002	,000		,985	,049	,000
	N	40	40	40	40	40	40	40	40	40
GALLERY_new _1000	Pearson Correlation	-,088	-,027	-,053	,204	,212	,003	1	-,001	,086
	Sig. (2-tailed)	,590	,870	,747	,206	,189	,985		,997	,599
	N	40	40	40	40	40	40	40	40	40

	N	40	40	40	40	40	40	40	40	40
THEATRE_new _1000	Pearson Correlation	-,309	,141	-,696**	,476**	,476**	,313	-,001	1	,419**
	Sig. (2-tailed)	,052	,385	,000	,002	,002	,049	,997		,007
	N	40	40	40	40	40	40	40	40	40
UNIDEGREE	Pearson Correlation	-,162	,077	-,584**	,597**	,543**	,594**	,086	,419**	1
	Sig. (2-tailed)	,316	,636	,000	,000	,000	,000	,599	,007	
	N	40	40	40	40	40	40	40	40	40

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Regression model

In general, our model explains relatively well the internal urban migration in Slovakia. The coefficient of determination was 0,816 with an adjusted R Square of 0,760. ANOVA test shows that the model as a whole is statistically significant.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,903 ^a	,816	,760	,2373168	2,176

a. Predictors: (Constant), UNIDEGREE, ENVIRO_2010, GALLERY_new_1000, UNEMPL_RATE_2011, HIST_CENTRE, THEATRE_new_1000, RESTAURANTS_1000, INHAB, PARKS

b. Dependent Variable: UNI35_SINGLE_2011

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7,469	9	,830	14,735	,000 ^a
	Residual	1,690	30	,056		
	Total	9,158	39			

a. Predictors: (Constant), UNIDEGREE, ENVIRO_2010, GALLERY_new_1000, UNEMPL_RATE_2011, HIST_CENTRE, THEATRE_new_1000, RESTAURANTS_1000, INHAB, PARKS

b. Dependent Variable: UNI35_SINGLE_2011

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		

1	(Constant)	-,097	,334		-,292	,773
	PARKS	,754	,413	,260	1,826	,078
	UNEMPL_RATE_2011	-,013	,007	-,165	-1,819	,079
	ENVIRO_2010	-,003	,001	-,306	-3,266	,003
	HIST_CENTRE	,028	,098	,029	,285	,777
	RESTAURANTS_1000	,237	,103	,261	2,286	,029
	THEATRE_new_1000	1,867	1,166	,184	1,601	,120
	INHAB	5,604E-6	,000	,803	6,176	,000
	GALLERY_new_1000	,152	,296	,042	,514	,611
	UNIDEGREE	-,443	1,828	-,030	-,242	,810

a. Dependent Variable: UNI35_SINGLE_2011

Unemployment rate and number of inhabitants with university degree are negatively associated with the migration; however both variables are not statistically significant. Standardized coefficient for environment amenities also negative but significant.

Parks, historical centre, restaurants, theatres and galleries are positively associated with the migration, but are also not statistically significant. The model also reveals that the number of inhabitants and environment amenities have a high value of standardized coefficients and both are statistically significant.

Beta coefficient for restaurants higher than unemployment rate, theatres and galleries also have a statistically significant value. The model suggests that urban amenities explain larger part of the migration of highly educated single people in Slovakia than such traditional factor as labour market (measured by unemployment level). Locations offering more urban amenities seem to attract more young single people with university degree. For city planners it means that the focus on the availability and quality of local services could bring important impulses for urban growth. Inflow of young educated single migrants will lead to increase of human capital and this in turn will result in higher stages of local growth. In scatter plot we can see that the Bratislava and Nitra have extremes value. Graf of P-P plot demonstrated that the generally our model is significant.

Conclusion

Slovakia is a little country with small cities and the research on urban amenities is significantly constrained by the lack of statistical data on local level. In this study, urban amenities are defined as facilities related to environmental amenities, cultural amenities and local goods. The interesting aspects of migration trends are the rapid increase in number of young single educated migrants 1996-201. Following the methodology of Glaeser and Size (2003) and Florida (2002) we have used regression analysis to assess the relationship between urban amenities and migration. The regression analysis of the migration of young single educated people explains 76 percent of the migration variability. City size, availability of local goods and environmental amenities attract migrants in Slovakia and suggest that urban amenities make up part of the migration reasons of highly educated single people in Slovakia than such traditional factor such as employment opportunities (measured by the unemployment level). If a reliable set of relationships exists, the government would have a better insight into the amenity investments required to support or advance economic development.

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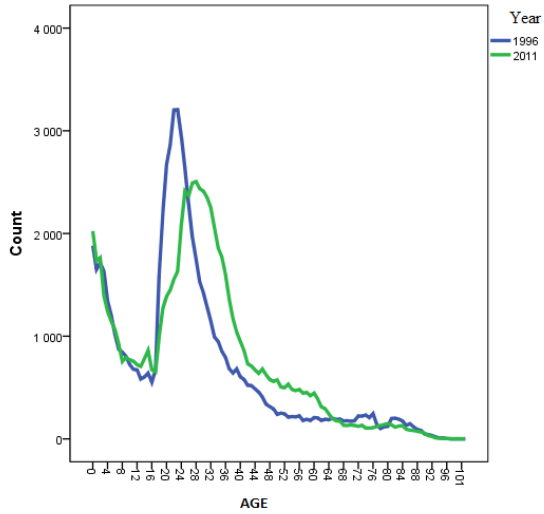
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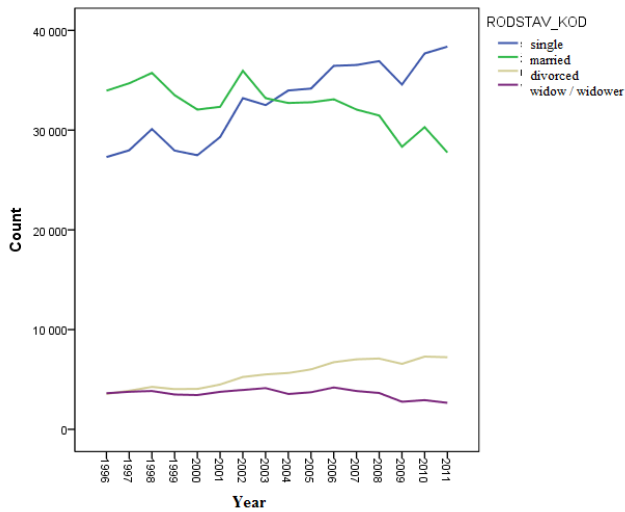
Appendix

Figure 1. Internal immigrants by age (1996, 2011, total number of migrants)



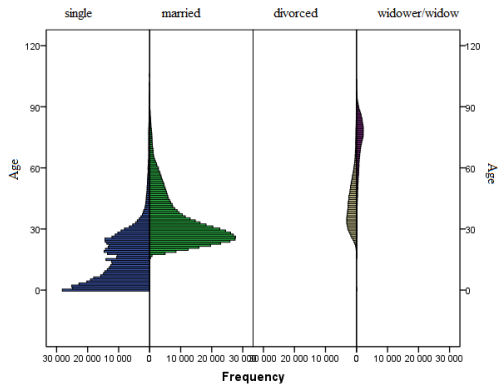
Source: Own elaboration based on data from Statistical office of SR

Figure 5. Internal immigrants by Marriage status (1996-2011, district level)



Source: Own elaboration based on data from Statistical office of SR

Figure 3. Age structure of immigrants by Marriage status during 1996-2011,(district level)



Source: Own elaboration based on data from Statistical office of SR

