SOCIO-DEMOGRAPHIC STRUCTURE OF OLOMOUC FROM THE POINT OF VIEW OF THE QUALITY OF LIFE

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Abstract

The main aim of the article is an analysis of the interactive relationships between the inner socio-demographic structure of the city of Olomouc and the quality of life. The partial aim is the study of the complex inner socio-demographic structure of the city and typology of the areal units of the city carried out on the basis of multivariate statistical methods, particularly on the basis of the factor and cluster analyses. The study has been compiled at the level of basic areal units. The outcomes of the quantitative investigation are further confronted with the subjective perception of the quality of life by way of data from the field research.

Key words: Quality of life, factor analysis, inner structure of the city, factor ecology, Olomouc.

INTRODUCTION

The interest in dealing with the issues of the quality of life has been recently increasing. The quality of life in urban spaces and the analysis of their inner structure rank among frequently researched topics abroad; however, in the Czech Republic the topic is still not discussed to a great extent. Initial works about the quality of life, whether from psychological or environmental point of view, appeared in the 1960s, others were introduced in the 1970s by geographers studying the spatial differentiation of social indicators (Smith 1973; Knox 1975) which focused on individual quality of life indicators, such as income, property, employment, an aspect of housing and quality of environment in a place of residence, physical and mental health, education, social belonging, opportunities for recreation and spending the free time. By researching these indicators in various spatial scales from international to intra-urban level and analysing geographical differences of living conditions, scientists try to answer the question "who gets what and where" (Smith 1979).

Also Pacione (1982) argues that the meaning of the term quality of life differs according to the context. This term is generally used in connection with selected indicators of living conditions or the environment (air and water pollution, or the quality of housing), or some attribute of the population, such as health or education.

The main objective of our study is a detailed analysis of socio-demographic environment of the city, which represents the first step in the research of the objective dimension of the quality of life. It is usually followed by the research of the quality of living conditions, which is not reflected in this article, however. The partial goal of the article is thus to interlink the research of the quality of life with the research of the inner structure of the city, though aimed mainly at the social and demographic area, and join the factor of the quantitative analysis of the selected phenomena (objective level of the quality of life) with the factor of the subjective perception of the quality of life by the inhabitants themselves.

The quality of life, similarly as the sustainable development, is without doubt an interdisciplinary term used in sociology, psychology and in economic disciplines. Geography, as a complex science, is able to approximate the ideal and balanced interdisciplinary approach of the concept of the quality of life, whereas other scientific disciplines can deal with the quality of life only within their limits, i.e. within their narrower concepts. The geographical approach towards the quality of life, mainly from the point of view of the human geography (Ira and Andráško 2007), draws upon the study of the interactions between man and nature, or the environment, and upon the study of the spatial inequality, which is typical of this phenomenon. And thus we again get to the centre of the attention of geography, by means of which we explore its spatial differentiation.

In the study we are going to aim at the analysis of the urban environment of the city of Olomouc since it is the very analysis of interactions between man and urban environment that forms the main axis of the research of the quality of life. Works by for example M. Pacione (2003), I. van Kamp et al. (2003), C. A. Lanteigne (2005), D. A. Gauthier (2005) and R. J. Rogerson (1995) deal with the spatial differentiation in various, not only European cities. Many authors (Andráško 2005, 2006, Andráško and Ira 2007, Rogerson 1995) understand the study of the quality of life as a two-dimensional issue – from the point of view of the objective concept (where we analyze selected indicators on the basis of methods which are often multidimensional) and the subjective concept (perception by the individual participants – inhabitants). Some authors (e.g. Cummins 1997) admit even multidimensional approaches. Since the 1970s the authors, when studying the quality of life, have been mentioning in their works the significance of socio-demographic structure of a city (Bunge 1973; Smith 1979; Pacione 1986), while using methods of the so-called factor ecology. We have been trying to use a similar concept in our study – while using selected multidimensional statistical methods – namely the factor and cluster analyses – we eliminate a great deal of input variables by extracting "new" factors, a kind of "hidden" coefficients standing in the background, and

we carry out the typology of the areal units of a city. Such approach, i.e. such method embedded in geographical literature as early as in the 1960s which was also due to the development of information technologies, enabled to solve complex numerical tasks. Among the most important foreign works dealing with factor ecology can be considered e.g. works by Schmida and Tagashira (1964), Murdie (1969), from more recent authors e.g. Bezák (1987) or Węcławowicz (2003). Concerning Czech scientists who applied the factor analysis in their research we could mention V. Toušek, M. Viturka (1979), J. Vystoupil (1987) or the sociologist P. Matějů (1980) and recently also O. Mulíček (2006) with his work on the city of Brno. Authors who have dealt with the factor ecology, very often managed to get 3-4 factors from input variables which helped them to evaluate the socio-demographic environment. These factors include a level of education and employment in various sectors of the economy, or a factor connected with variables dealing with age structure of the population (Bezák 1987; Pacione 1986). It can be assumed that our study will lead to similar conclusions.

In the article the data from 2001 Population and Housing Census are used. These data are the most recent because 2011 Census results are not available. After the publication of 2011 results the study can be updated.

METHODOLOGY OF THE STUDY

As was already mentioned above, the area of interest was the city of Olomouc within its administrative boundaries – also for the reason that usually the quality of life is dealt within an administratively defined area of a given municipality (e.g. Andráško 2008; Ira and Andráško 2008; Ira 2003 and 2005 in the city of Bratislava). An essential methodological step was also the selection of the units of inner division of a researched area, which is both dependent on the geographical scale of the area and on the accessibility or possibilities of measurement of the required data. Smaller inner areal units generally mean a smaller distortion rate; thus we would set aside the problem of the so-called ecological distortion, but then another problem would arise – the

accessibility of data. For this reason the basic urban units were selected as the partial units of inner division – in Olomouc there are altogether 82 of these. Their application seems to be more effective then working with individual city neighbourhoods which in the case of Olomouc are of different character. When examining the social and demographic aspect, it is necessary to eliminate from the analysis areal units with complete absence or minimal residential function. Twenty-seven units with population of fewer than 200 inhabitants were excluded from the analysis, so further on we are going to work only with 55 basic urban units.

The main selected method, the factor analysis, gives the article the semblance of a quantitative study. The method originates from the psychometry; it consists in identification and elimination of irrelevant information included in variables and in replacement of a great deal of input characteristics by a smaller number of factors. The method of factor analysis is a suitable tool for identifying and measuring the social dimensions, their spatial schemes in urban units of the city though it has many opponents who argue that these approaches lack explanations why these disparities occur. For our purposes this approach is optimal because we focus on spatial differentiation of demographic and social indicators and not on causes.

The selection of individual indicators should cover selected structures of inhabitants and households such as age and education, their social and economic status (employment in sectors, selected facilities etc.). Pacione (1986) in his factor ecology aimed at the city of Glasgow chose 59 variables which enabled him to extract the most significant components. Andráško (2006, 2007) chose for his socio-demographic analysis 25 variables in his work which dealt with areal differentiation of the quality of life in the urban parts of Bratislava. In order to confront the results we wanted to select the same indicators; however, we had to make minor modifications. We made identical Andráško's indicator of "farmers" with the proportion of economically active people in agriculture out of the total number of economically active people. This variable tends to be very varied in the basic urban units in Olomouc. In some

units the proportion exceeded the level of 20%. Another variable which was changed was the exclusion of the proportion of the Romani population since this aspect is not as significant for this area as it is in the case of Bratislava. The reason is also that the given data is not reliable as only a minimum of Romanis state their nationality. At last it is 24 indicators that enter the factor analysis (see the following overview) × 55 basic urban units.

An overview of variables entering the factor analysis:

1 Children – proportion of persons aged 0-14 years out of the total number of inhabitants.
2 Seniors – proportion of persons aged 65 and more out of the total number of inhabitants.
3 Persons in productive age – proportion of persons in productive age out of the total number of inhabitants.
4 Divorced persons – proportion of divorced persons out of the total number of inhabitants.
5 Widowed persons – proportion of widowed persons out of the total number of inhabitants.
6 Size of households – average number of persons sharing one household.
7 One-member households – proportion of one-member households out of the total number of households.
8 Families with children – proportion of families with dependent children out of the total number of family households.
**9 Incomplete families** – proportion of incomplete family households out of the total number of family households.
10 Economically active persons – proportion of economically active persons out of the total number of inhabitants.
11 Unemployed – proportion of unemployed out of the total number of economically active persons.
12 Enterpreneurs – proportion of enterpreneurs out of the total number of economically active persons.
13 Persons working in agriculture – proportion of economically active persons working in agriculture out of the total number of economically active persons.
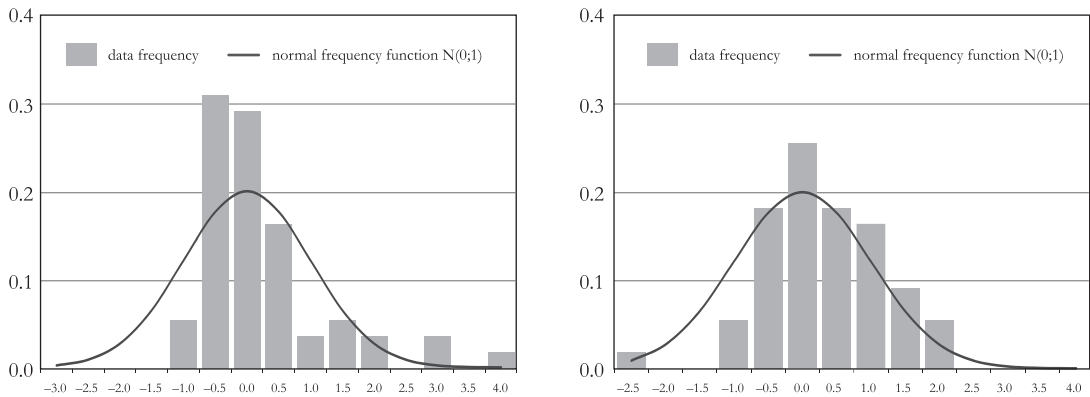
Figure 1 Logarithmic transformation of the variable No. 13 with the Gauss curve interlay
(on the left before the transformation, on the right after the transformation). Source: own elaboration.

14 Persons working in industry – proportion of economically active persons working in industry out of the total number of economically active persons.

15 Persons working in service sector – proportion of economically active persons working in service sector out of the total number of economically active persons.

16 Persons working in selected services – proportion of economically active persons working in selected services (trade, vehicle repair, hotels and restaurants, transport, storehouses and communications) out of the total number of economically active persons.

17 Persons with only primary education – proportion of persons with only primary education out of the total number of persons aged 15 and more.

18 Persons with secondary education without GCSE – proportion of persons with secondary education without GCSE out of the total number of persons aged 15 and more.

19 Persons with university education – proportion of persons with university education out of the total number of persons aged 15 and more.

20 Number of persons per one room – average number of persons living in one room.

21 Living area for one person – average living area of permanently inhabited flats for one person.

22 Ownership of cottage – proportion of persons living in households owning recreational cottages out of the total number of inhabitants.

23 Ownership of car – proportion of persons living in households owning a car out of the total number of inhabitants.

24 Ownership of computer with internet connection – proportion of persons living in households owning a computer with internet connection out of the total number of inhabitants.

To reach the correct results and to eliminate distortion all the input variables were supposed to show accordance with the normal (Gauss) distribution. That is why their accordance with the normal distribution $N(0;1)$ was tested at the $\alpha = 0.05$ significance level by means of the Kolmogor-Smirnov and χ^2-tests. The Gauss distribution with the mean value of $\mu = 0$ and the standard deviation of $\sigma = 1$ was selected with respect to the standardization of all variables (i.e. transposition at "new" variable with 0 as the mean and 1 as the standard deviation). All the 24 variables showed accordance with $N(0;1)$ with the exception of the proportion of economically active persons in agriculture out of the total number of economically active persons. For this reason the logarithmic transformation of this indicator was used – then its normality was accomplished (see Figure 1).

The matrix 55 (basic urban units) $\times$ 24 (variables) enters the factor analysis. As the method of the factor presupposition we are going to use the main components method, which basically means that "new" factors are in fact main components

Table 1 Extracted factors and their proportion at the dispersion of the original information.
Source: own elaboration.

Factor	Factor value	Proportion at the dispersion of the original information (%)
I	6.2	26.0
II	5.5	23.0
III	4.1	17.2
IV	1.8	7.3

(the only significant ones). These were left to rotate using the "varimax" method and for every original variable we set the individual factor weight representing the relationship of the input indicators to the new factors. Even though the multidimensional methods rank among the exact approaches, they include a certain amount of subjectivity. In our case this subjectivity consists in determining the number of new factors. Finally we extracted four factors so that we would at least express 75% of variability of original variables (see Table 1). At the same time the first two factors account for almost half of the dispersion of the original information.

Values of the so-called factor scores for the new four variable for each areal units were calculated. These data were then used as the source data for the cluster analysis, which again is a multivariate statistical method, thanks to which we carried out the typology of the basic urban units. The important thing was to put into one cluster similar elements that would be at the same time as different as possible from elements from other clusters. The cluster analysis is also to a certain extent subjective, namely in determining the optimum number of clusters. To carry out a typology into four groups has proved as the most relevant.

RESULTS

The input presuppositions about the existence of similar factors as in the case of not only Czech and Slovak cities have come true. In compliance with Andráško (2006, 2007), Bezák (1987), Mulíček (2005), Pacione (1986) we have received factors (see Table 2) describing the educational and professional status of the population or the factor of the so-called "dissolved families and equipment". The first of the four new factors, which accounts for over one fourth of the dispersion of the original information, can be termed as the indicator of age and the size of household. It is positively and very highly correlated with the proportion of persons in productive age (factor burden value of 0.93), with the proportion of economically active persons (0.94) and with the size of household (0.71). As opposed, the following indicators showed a very low value of the factor weight: the proportion of widowed persons (-0.82), the proportion of one-member households and the proportion of persons aged 65 and more (both -0.85 or -0.83). It signifies that areal units with a higher value of the factor score show a more favourable age structure as far as the proportion of the productive population is concerned and that they are occupied by households comprising more than one member. In units with a low value of the score the situation is different.

Units with higher values of the score of the first factor are situated in the immediate hinterland of the central part of the city – namely the housing estates of Lazce, Nové Sady, Nová Ulice and partly also Povel, and also the suburbs of Olomouc, in neighbourhoods of village character (e.g. Lošov, Radíkov, Droždín or Topolany). This corresponds with the fact that the highest concentration of the productive population lives close to the city centre, in the suburbs the high value of the score is determined by the structure of the housing stock (a large proportion of houses influencing the size of households). Average values of the factor can be found for example in the very centre of the city

Table 2 Extracted factors and factor weights of the individual variable.
Source: own elaboration.

| Factors and variables	Factor weights	Factors and variables	Factor weights
Factor I – "age and size of households"		*Factor III – "educational-professional" factor*	
Economically active population	0.94	Persons with secondary education	0.91
Persons in productive age	0.93	Persons with basic education	0.71
Size of households	0.71	Economically active in industry	0.67
One-member households	−0.85	Persons with university education	−0.95
Seniors	−0.83	Economically active persons in services	−0.90
Widowed persons	−0.82	Ownership of a cottage	−0.76
Factor II – "dissolved families and equipment"		*Factor IV – "families with children"*	
Number of persons per one room	0.87	Children	0.89
Divorced persons	0.81	Families with children	0.85
Incomplete households	0.77		
Unemployed persons	0.70		
Living area per person	−0.81		
Ownership of a car	−0.72		
Economically active persons in agriculture	−0.51		

and also in neighbourhoods of Neředín, Pavlovičky and Bělidla. The lowest values in neighbourhoods of Hejčín, Černovír, in the housing estate of Povel-jih and in Chválkovice, which is also due to the fact that an old people's home is located in this unit.

The second factor can be best summed up under the term of "dissolved families and equipment." It corresponds significantly with the proportion of divorced persons (factor score of 0.81), the proportion of incomplete households (0.77), unemployed (0.70) and also with the number of persons per one room (0.87). On the contrary the size of the living area for one person (−0.81) relates negatively to it. In this case the higher value of the factor score of the basic areal unit means a concentration of socially negative aspects, a higher proportion of divorced or unemployed persons and incomplete households. This factor is represented mainly in central parts of the city; towards the suburbs the values of the factor quickly decrease. It is partly due to the fact that

a relatively large percentage of economically active persons in agriculture work in the peripheral units of the city and this variable is correlated with the second factor (factor score of −0.51).

The best term for the third extracted variable would probably be the educational-professional factor. It is intertwined with all the researched variables concerning education – with the proportion of persons with university education the connection is very negative (−0.95), with the proportion of people with secondary and primary education it is positive (0.91; 0.71). The professional part of the factor is represented by the proportion of persons working in industry (0.67, i.e. a positive value of the score) as opposed to the significantly negative value as in the case of persons working in services (−0.90). The third factor negatively correlates with the ownership of a cottage (−0.76). Higher values of the factor signify an above-average proportion of persons with primary and secondary education, decreasing values suggest increasing
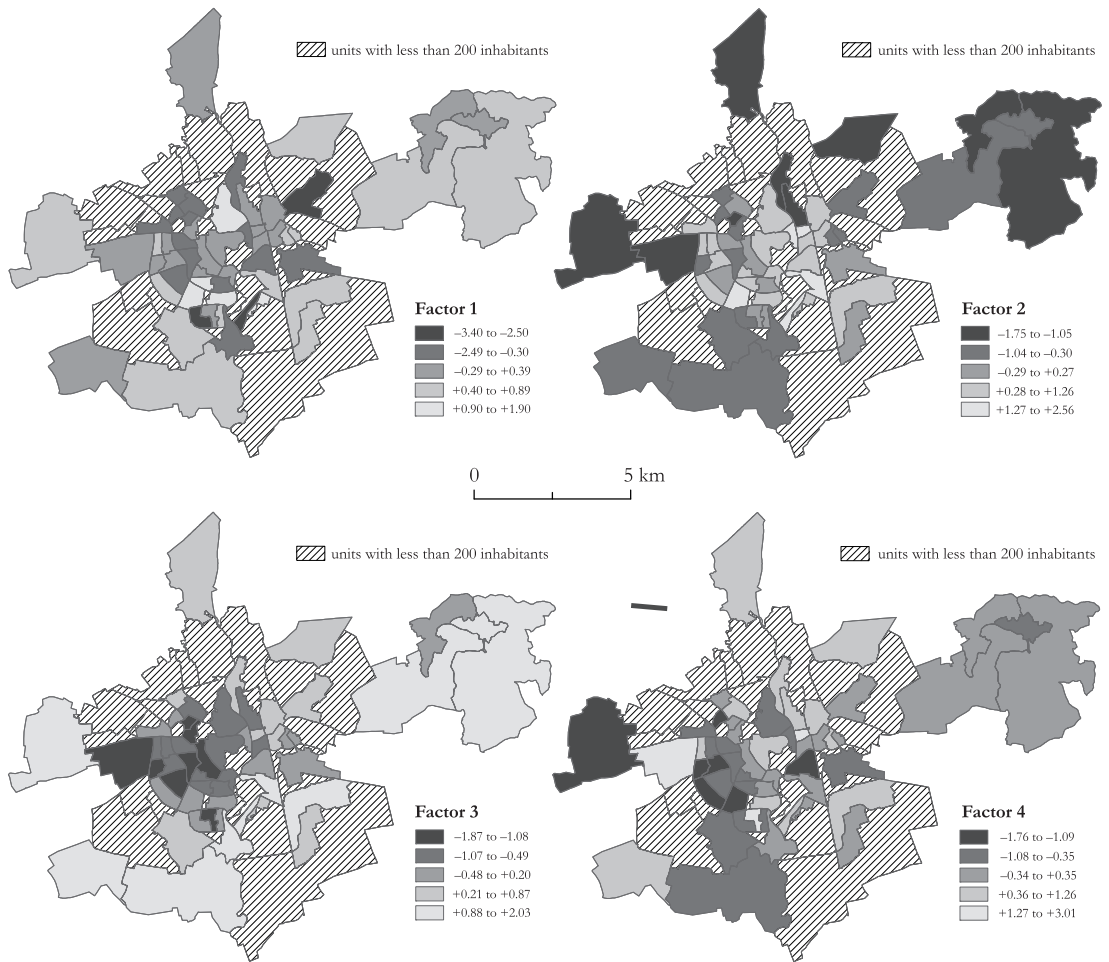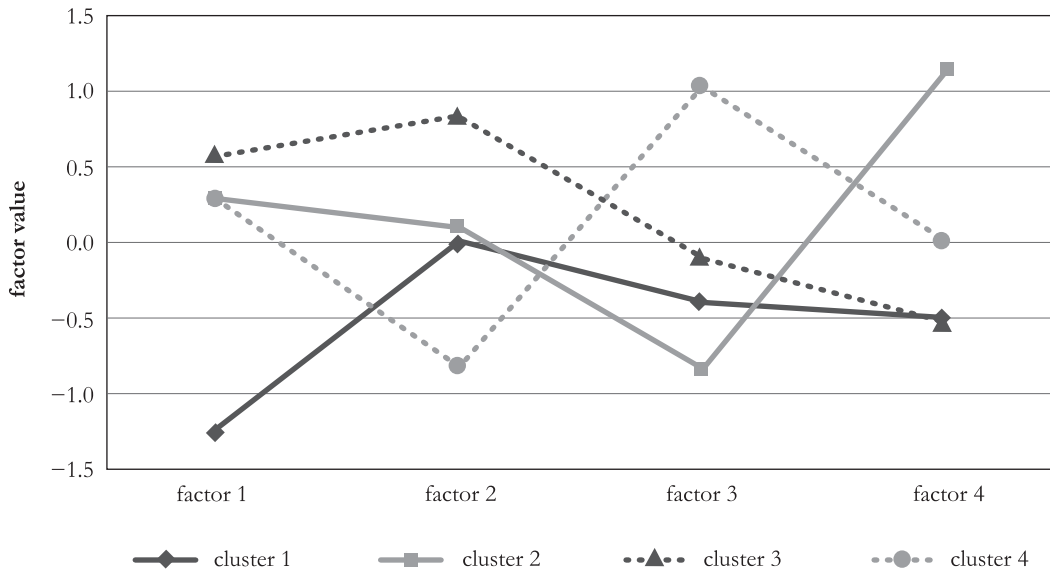
Figure 2 Values of the individual factor scores for the basic areal units in Olomouc. Source: own elaboration.

proportion of persons with university education and a higher proportion of persons working in services as opposed to persons working in industry. Spatial differentiation of the third factor was expected, units with low values of the score are situated in central parts of the city - the longer the distance from the city centre, the higher the values of the score.

The last, i.e. the fourth factor (which accounts for more that 7% of the original information) is positively correlated with the proportion of children aged 0-14 (the score value of 0.89) and with the variable of "families with children" (the proportion of family households with dependent children out of the total number of family households). Units with

a high value of the factor, i.e. with an above-average proportion of families with children, are situated irregularly – mainly in neighbourhoods of Neředín, Nové Sady, Nedvězí, Černovír, Týneček and Bělidla. Among the areas with a low value of the score are the following basic areal units: Stupkova, Pionýrská, Topolany, Kosmonautů and partly also Povel.

A simple typology of all the 55 researched basic areal units has been carried out using the cluster analysis method (according to values of the corresponding four factors). Characteristic features of the individual categories are stated in Table 3, graphs of the mean values of clusters with respect to the factor are presented in Figure 3.

Figure 3 Mean values of clusters with respect to the individual factors. Source: own elaboration.

Table 3 Characteristic features of the individual clusters.
Source: own elaboration.

Category	Characteristic features	Examples of basic areal units
Cluster 1	Significantly low values of the first factor suggest a high proportion of seniors, widowed persons and one-member households at the expense of productive part of the population, practically the lowest proportion of families with children of all categories and slightly above-average educational structure.	Housing estates of První pětiletky, Povel-jih, Sobieského, also the streets of Přichystalova, Kosmonautů, Českobratrská and part of Hodolany.
Cluster 2	An average proportion of persons in productive age, the highest proportion of families with children, above-average educated persons working mainly in the tertiary sector.	Hejčín, Šantova, Neředín, Bělidla, housing estate of Nové Sady.
Cluster 3	Slightly above-average proportion of productive population together with a high concentration of "negative" social characteristics, such as unemployment, high divorce rate and a high percentage of incomplete households.	Lazce, Pavlovičky, streets of Stupkova, Kpt. Nálepky, Pionýrská, Varšavské and Tererovo náměstí
Cluster 4	An average proportion of persons in productive age mainly with primary education, a smaller proportion also with secondary education, the proportion of families with children does not exceed the average values, a higher proportion of employment in the primary sector, an above-average living area per one person.	Areas on the periphery of the city, e.g. Droždín, Holice, Chomoutov, Svatý Kopeček, Radíkov, Lošov, Nedvězí, Nemilany, Slavonín, Topolany, Týneček – often areas having village character.
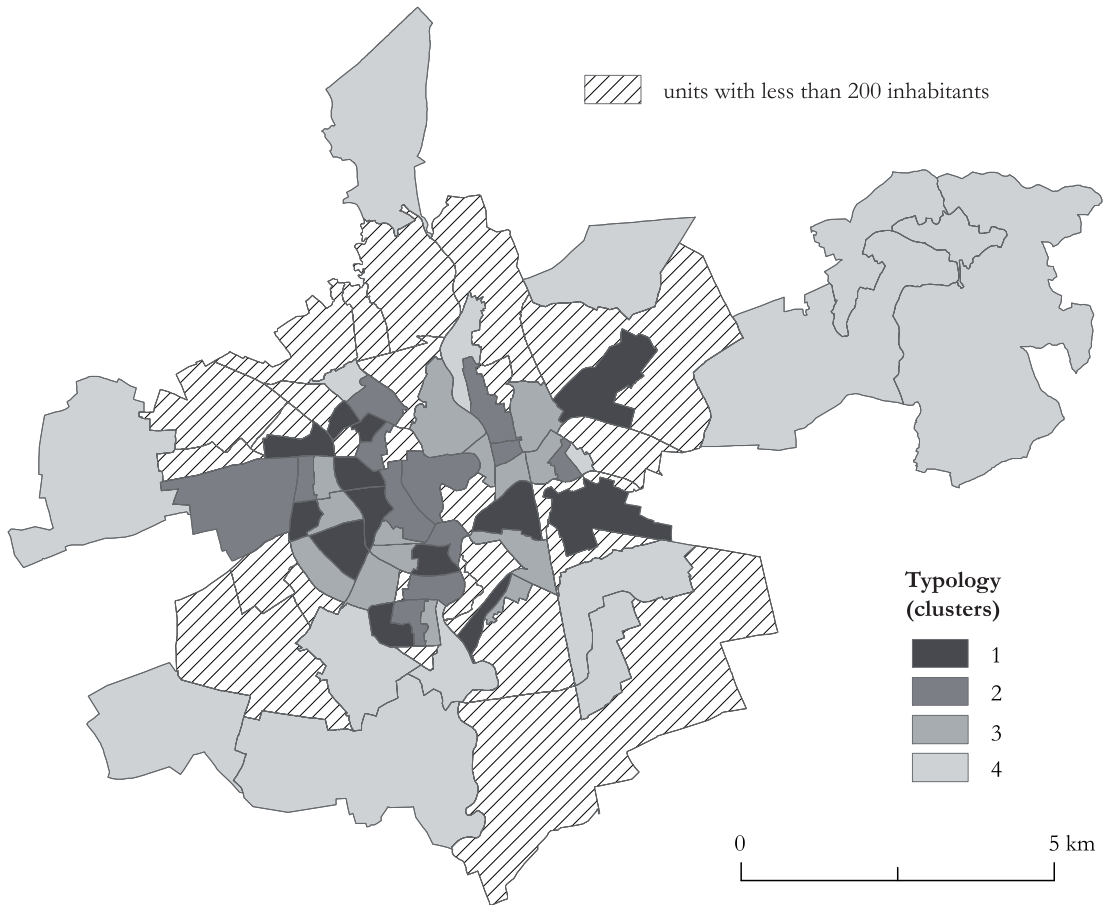
Figure 4 Distribution of the individual types in the city. Source: own elaboration.

CONCLUSION

The results of the study are not very surprising and can be considered as a kind of verification of the primary hypotheses. An analogous structure of indicators extracted using the method of factor analysis corresponds with the findings in works dealing with similar topics, as has been stated above. Studies aimed at factor ecology of cities have also reached similar results. There are differences only in the values of the proportion of dispersion of the original indicators and in the values of the factor scores of the individual variables.

To evaluate objectively the quality of life in different types of spatial units is not easy and it is not possible to generalize. Nevertheless, before a comparison

with the subjective perception the brief summary can be introduced. It emerged that due to the objective dimension of quality of life, the crucial factor is "dissolved families and equipment". In units of high values of factor score of it can be expected lower quality of life than in units with low values. This is primarily a matter of the third cluster, especially the areas Lazce, Stupkova, Kapitána Nálepky, Pionýrská and Tererovo náměstí, which are mostly the oldest neighbourhoods of the city of Olomouc. The lower quality of life can be expected also in the population from the first cluster which is associated with low score given to the first factor represented by high proportion of one-membered households and widowed persons. On the contrary, the quality of life in the fourth cluster units is expected to be higher thanks to above-average size of living area per

person, because the quality of housing is an important aspect of quality of life. The second category which generally speaking includes educated population with a high proportion of families with children, can be evaluated in a similar way. In the following paragraph the results are confronted with the primary outputs of subjective perception of quality of life we have already published (Kladivo et al. 2009).

These outputs also show how variously individual demographically and socially differentiated groups perceive the quality of life and environment they live in. The analysis of the perception of quality of life revealed that there is no difference in evaluation by men and women, but some differences can be found in evaluation by people of different ages. The trend is that young people are more satisfied than the older ones. The relatively high rating was given also by people with university education. As it was assumed the inhabitants of suburbs (especially the units from the fourth category) evaluate quality of life more positively than others (especially the quality of housing and its environment), and the same above-average evaluation was made also by inhabitants of the second cluster units. However, it depends also on other factors, such as the quality of housing stock, environment of housing, access to employment and services, etc.

The whole study can be considered as an initial study of the issues of the quality of life aimed at one of the indispensable partial phases of research. Understanding areal structure of the city with respect to its demographic and social indicators is essential. More research will deal with analyses of the housing stock, the environment and other factors that will contribute to the comprehensive picture of the quality of life in Olomouc.

Acknowledgement

References

Andráško, I. 2005: Dve dimenzie kvality života v kontexte percepcií obyvateľov miest a vidieckých obcí. In **Vaishar, A., Ira, V. eds.** *Geografická organizace Česka a Slovenska v současném období.* Ústav geoniky Akademie věd ČR, Ostrava, pp. 6-13.

Andráško, I. 2006: Sociálno-demografická dimenzia kvality života v Bratislave (vo svetle multivariačnej analýzy). In *Folia Geographica, Prírodné vedy* XLV, 10, 10-17.

Andráško, I. 2007: *V nútorná štruktúra mesta z hľadiska kvality života.* Dissertation thesis. Comenius University, Bratislava.

Andráško, I. 2008: Hlavné komponenty spokojnosti s kvalitou životných podmienok v mestských štvrtiach Bratislavy. In **Kallabová, E., Smolová, I., Ira, V. et al.** *Změny regionálních struktur České republiky a Slovenské republiky.* Ústav geoniky AV ČR and UP v Olomouci, Brno, pp. 74-79.

Bezák, A. 1987: Sociálno-priestorová štruktúra Bratislavy v kontexte faktorovej ekológie. *Geografický časopis* 39, 272-292.

Bunge, W. 1973: The geography of human survival. *Annals of the Association of American Geographers* 63, 275-295.

Cummins, R. A. 1997: *Comprehensive Quality of Life Scale – Adult.* School of Psychology, Deakin University, Melbourne.

Gauthier, D. A. et al. 2005: *Quality of Life in Regina: A Pilot Study.* Canadian Plains Research Center, University of Regina.

Ira, V. 2003: Changing intra-urban structure of the Bratislava city and its perception. *Geografický časopis* 55, 91-107.

Ira, V. 2005: Quality of Life and Urban Space (case studies from city of Bratislava, Slovakia). *Europa* XXI, 12, 83-96.

Ira, V., Andráško, I. 2007: Kvalita života z pohľadu humánnej geografie. *Geografický časopis* 59 (2), 159-179.

Ira, V., Andráško, I. 2008: Quality of Life in the Urban Environment of Bratislava: two Time-Spatial Perspectives. *Geografický časopis* 60 (2), 149-178.

Kladivo, P. et al. 2009: Vybrané aspekty kvality života Olomouce a blízkého zázemí. In **Lipský, Z., Popková, K., Poštolka, V., Šmída, J. eds.**: *Geodny Liberec 2009. Výroční mezinárodní konference České geografické společnosti Liberec 25.–29. 8. 2008, Česká republika. Sborník příspěvků*. Liberec: Technická univerzita v Liberci, Fakulta přírodovědně-humanitní a pedagogická, p. 87-94.

Knox, P. 1975: *Social well being: a spatial perspective*. The Clarendon Press, Oxford.

Knox, P. 1987: *Urban social geography: an introduction*. Harlow (Longman).

Lanteigne, C. A. 2005: *Quality of Life in Cities*. Unpublished Master thesis. The University of New Brunswick.

Matějů, P. 1980: Vývoj sociálně prostorové struktury Prahy v letech 1930–1970 ve světle faktorové analýzy. *Sociologický časopis* XVI, 572-592.

Mulíček, O. 2006: *Faktorová analýza – příklad Brna* [online]. Brno: Masarykova univerzita. [cit. 2011-03-28]. Available from http://everest.natur.cuni.cz/akce/segregace/publikace/Mulicek.pdf

Murdie, R. A. 1969: *Factorial ecology of metropolitan Toronto 1951-1961: An essay on the social geography of the city* (Research Paper 116). Department of Geography, University of Chicago.

Pacione, M. 1982: The use of objective and subjective measures of quality of life in human geography. *Progress in Human Geography* 6, 495-514.

Pacione, M. 1986: Quality of life in Glasgow: an applied geographical analysis. *Environment & Planning*, A 18, 1499-1520.

Pacione, M. 2003: Urban environmental quality and human wellbeing – a social geographical perspective. *Landscape and Urban Planning* 65, 19-30.

Rogerson, R. J. 1995: Environmental and Health-Related Quality of Life: Conceptual and Methodological Similarities. *Social Science and Medicine* 41, 1373-1382.

Rogerson, R. J. 1999: Quality of Life and City Competitiveness. *Urban Studies* 36, 969-985.

Schmid, C. F., Tagashira, K. 1964: Ecological and demografic indices: a methodological analysis. *Demography* 1 (1), 194-211.

Smith, D. M. 1973: *The geography of social well being in the United States: an introduction to territorial social indicators*. New York: McGraw Hill.

Smith, D. M. 1979: Inner-city deprivation: problems and policies in advanced capitalist countries. *Geoforum* 10, 297-310.

Toušek, V., Viturka, M. 1979: Metoda faktorové analýzy a její aplikace ve výzkumu prostorových struktur. *Zprávy GGÚ ČSAV* (Brno) 5-6, 132-148.

Van Kamp, I., Leidelmeijer, K., Marsman, G., De Hollander, A. 2003: Urban environmental quality and human well-being: towards a conceptual framework and demarcation of concepts; a literature study. *Landscape and Urban Planning* 65, 5-18.

Vystoupil, J., Węcławowicz, G. 1987: The internal structure of Katowice and Ostrava: Comparative studies in factorial ecology. *Sborník ČGS* 92, 1-18.

Węcławowicz, G. 2003: *Geografia społeczna miast (zróžnicowanie społeczno-przestrzenne)*. Wydawnictwo Naukowe PWN, Warszawa.

Résumé

Socio-demografická struktura Olomouce z pohledu kvality života

Článek řeší problematiku interakčních vztahů mezi vnitřní socio-demografickou strukturou města Olomouce a kvalitou života. Tomuto tématu, a kvalitě života obecně, není v české geografické literatuře narozdíl od té zahraniční dosud věnována velká pozornost, do popředí zájmu geografů se dostává až v posledních letech. Dosáhnout zmíněného cíle se pokoušíme prostřednictvím podrobného a komplexního studia socio-demografické struktury města založeného na aplikaci vícerozměrných statistických metod, tedy postupem, pro který se v geografické literatuře používá označení faktorová ekologie města. Její výsledky následně porovnáváme s vnímáním kvality života samotnými obyvateli v jednotlivých prostorových jednotkách. Výzkum sociální a demografické stratifikace je mnohými autory považován za prvotní krok ve výzkumu objektivní dimenze kvality života ve studovaném území, tento přístup zastáváme i my.

V první části jsme vybrali 24 proměnných, pomocí kterých vyjadřujeme prostorovou diferenciaci sociálních a demografických jevů ve městě. Ty následně

vstupují do faktorové analýzy, díky které se nám podařilo extrahovat 4 faktory popisující tři čtvrtiny rozptylu původní informace. Tyto faktory a jejich struktura jsou v souladu s faktory, se kterými se setkáváme v podobně zaměřených pracích. Prostorové jednotky (disponující příslušnými hodnotami faktorových skóre) následně klasifikujeme aplikací klastrové analýzy. Výsledkem je typologie městského prostoru (základních sídelních jednotek) do čtyř kategorií.

Objektivně a jednoznačně vyhodnotit kvalitu života v jednotlivých námi identifikovaných typech prostorových jednotek není snadné a není možné generalizovat. Přesto před komparací se subjektivním vnímáním můžeme výsledky faktorové ekologie stručně shrnout. Předpokládáme, že klíčovým socio-demografickým faktorem, který determinuje kvalitu života z objektivního hlediska, je druhý extrahovaný z faktorové analýzy. Bezprostředně se váže na zastoupení neúplných domácností, rozvedených a nezaměstnaných osob a rovněž na některé ukazatele vybavenosti (např. osobním automobilem). V jednotkách s vysokými hodnotami faktorového skóre u tohoto ukazatele lze očekávat nižší kvalitu života, než v jednotkách ostatních. Jedná se především o třetí typovou kategorii zahrnující stará Olomoucká panelová sídliště. Naproti nim stojí území čtvrtého typu, většinou okrajové části Olomouce, často stále s převažujícím venkovským charakterem, kde zaznamenáváme nejen nízké hodnoty druhého faktoru, ale taktéž příznivé hodnoty čtvrtého faktoru (vyšší zastoupení rodin s dětmi) a dalších dílčích charakteristik, jako je např. velikost bytu a další.

Zjištěné závěry konfrontujeme s tím, jak vnímají kvalitu života obyvatelé jednotlivých demograficky a sociálně diferencovaných skupin (odlišné hodnocení lidí vzhledem k věku, dosaženému vzdělání apod.). Z prostorového hlediska jsme v souladu s předpoklady zjistili vyšší hodnocení kvality života mezi obyvateli olomouckých předměstí (především jednotek čtvrtého shluku). Zjištěné výsledky však nelze přeceňovat, neboť kvalita života závisí na řadě dalších aspektů, jako jsou např. kvalita bytového fondu, životní prostředí, dostupnost služeb atd., kterými se budeme v budoucnu dále zabývat, abychom přispěli ke komplexnímu obrazu kvality života ve městě. V tomto článku prezentovaný výzkum socio-demografického prostředí považujeme za první, nezbytný a zásadní krok.