Seniors' Life Satisfaction in Regions of the Czech Republic

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Abstract. The main aim of this paper is to analyse the seniors' life satisfaction in 14 Czech regions with respect to the two age groups of seniors – younger (50–65 years) and older (over 65 years) and their gender. The outputs of this study detect the regions with the highest and lowest levels of seniors' satisfaction. The main source of data is the results of the investigation (EU-SILC). The analysis is based on the corresponding methodology. The results of the satisfaction measurements in regions are compared using the cluster analysis, which is a statistical method grouping the Czech Republic regions into clusters. The similarity and correlation in terms of satisfaction between the regions is shown by a dendrogram. The results presented are the first unique probe into the issue of satisfaction of seniors in respective regions of the Czech Republic.

Keywords: Life satisfaction · Seniors · Regions

1 Introduction

1.1 Demographic Developments in the European Union Compared with that of the Czech Republic

The aging of the population will be a key demographic problem in many European countries. Eurostat projections indicate that the aging population will reach an unprecedented level over the following 50 years in 31 European countries [1]. Europe is the continent with the oldest population in the world. Comparable demographic situation in the world can only be found in Japan, where the forecasts for the following 20 years are consistent with the demographic projections in Europe - declining birth rate and declining mortality will, together with a decline in illness and disability, increase longevity. A large number of European countries are even characterized by the lowest birth rate and the highest life expectancy from the global perspective [2].

Eurostat further states that EU27 population will increase (compared to 2010) from 501 million to 525 million in 2035, in 2040 up to 526 million and then it will start to decline to 517 million in 2060. The increasing proportion of the population aged 65+ from 17 % in 2010 to 30 % in 2060 and the share of the population 80+ from 5 % in 2010 to 12 % in 2060 is also expected [3]. The transformation of the mostly young society to the society controlled by older age cohorts takes place throughout the EU. It

is obvious that the development along these lines will have an impact on the future social and public policies associated with the aging population and the quality of this age group everyday life. This situation will require major adjustments in many aspects of the society - from the family to the labour market [2].

Even though the society is aging, this phenomenon is not identical across borders and nations. The developed Western nations experience an enormous growth in population age and the birth rate falls. In contrast, the developing countries experience significant fertility rate. The developing countries, however, are aging much faster than the developed countries - in the next 50 years more than 80 % of seniors will live in the developing country (which is 20 % more than in 2005). Thus, the future will not be dominated by modern technologies, but by the global competition of human capital [4].

An increase of the number of inhabitants in the age group 55+ will also take place in the Czech Republic in the coming years. In 2013, this age group was represented by 3,265,972 inhabitants. Until 2023 the representation of this age group should have increased by 330 thousand. In contrast, the development of the part of population in pre-productive age can be considered as steadily evolving [5]. The number of economically dependent people will, due to unfavourable demographic trends, get almost doubled by 2050, in case of the failure to increase the employment of people aged 50+ [6].

1.2 Active Aging

Along with the aforementioned demographic situation the term active aging is increasingly alluded to. The term was defined by WHO as a process that serves to provide optimal opportunities for health, participation and security in society, in order to ensure the highest quality of life for older people. The concept of active aging enables older people to realize their potential for physical, social and mental well-being throughout their lives and to participate in society. At the same time, however, society provides them with adequate protection, security and care in case of need [7].

Life conditions in the old age cannot be separated from the previous stages of life, and health in the old age is largely influenced by the living conditions in both childhood and adulthood. It is important to pay particular attention to the situation of those seniors who were in various ways disadvantaged during their lives. Each of the steps that will be implemented in response to population aging should thus foster intergenerational solidarity and cohesion. MoLSA in its document *Preparing for aging* mentions that for the successful functioning of the concept of active aging it is essential that the people at a young age become interested in this issue, because this is a process that will accompany them during lifetime [8].

The old age represents a moment of development in which some psychological and physical losses are very likely to happen and smooth adaptation to new situation can constitute a key role in successful aging. The factors found to influence life satisfaction include age, gender, income and education levels [9].

Life satisfaction is defined as the satisfaction of psychological and social needs of the individual, while well-being rather reflects the subjective life experience. The term quality of life includes both the above terms. There is a relationship between life satisfaction and state of health, experienced life dissatisfaction thus affects the psychosomatic condition of the individual [10].

The place where one lives is one of the factors influencing life satisfaction. The satisfaction with the quality of the immediate surrounding environment is directly proportional to the level of satisfaction with opportunities for relaxation and rest. A certain influence of environment, living conditions in the city manifests itself in the health of citizens, too [11].

Life satisfaction is also affected by the size of government expenditures, hence the city/village authorities. Effective leadership and management of expenditures have a positive effect on life satisfaction, while satisfaction decreases with lower quality leadership and higher expenditures. The influence is stronger in case of left-wing leadership. Particularly low and middle-income groups, men, feel this. Government capital formation and social expenditures have no significant impact on life satisfaction of citizens [12]. The city is the place where diverse cultures meet and interact. Lifestyle is developing in the city; it is shaped by the cultural aspects, growth of consumption, and a variety of housing concepts [13].

1.3   Czech Seniors in the City and in the Village

Besides population aging there is another significant global trend, and that is the process of urbanization. The number of people living in cities is constantly increasing - more than half the world's population lived in cities in 2007. Along with the growing population in cities, there is also a rising share of people older than 60 who live in these cities. The proportion of older people living in cities in developed countries is around 80 %. In developing countries seniors will make up a quarter of the total urban population in 2050. Aging of population and urbanization are the culmination of successful development of society in the last century [14].

If the cities try to be friendly to the seniors, it is necessary to adapt the infrastructure and services so as they are easily accessible to seniors with their specific needs and abilities.

If old people live in hazardous environment or in environment with physical barriers, it may lead to the fact that they do not get out too often, which leads to isolation, depression, poor physical condition and mobility problems [15].

The process of aging is described as the process of shrinking the area – the area which the individual covers decreases, but there is an increase of contact with the immediate surroundings What is this neighbourhood made up of is becoming increasingly important for seniors, as it is this neighbourhood which determines the quality of his life [16].

According to USAID, 74 % of the total population lives in cities in the Czech Republic [17]. Approximately 74 % of seniors live in the cities in the Czech Republic. The results of their research, which concerns the life of seniors in the three largest cities in the Czech Republic show that 70 % of seniors living in these cities have a generally positive attitude towards the changes happening in their cities. It has also been shown that seniors have relatively low mobility and high bond to their home and its immediate surroundings. From a broader perspective, the life of seniors in cities is found to be positive in terms of good availability of services and shops, but on the other hand it entails specific risks [18].

Gentrification which is one of revitalization processes appears to be one of the problematic factors. City centres are becoming attractive zones which attract economic and cultural capitals into city centres (called Yuppies). Yuppies moving into the central parts of cities increase the attractiveness of these areas, and that brings increasing property prices, rents and nearby services with it, which leads to pushing the original inhabitants - among others, seniors (especially lonely ones) – away from their original homes [19].

The studies dealing with the conditions of seniors' life in different districts of Prague state that the rate of residential satisfaction of seniors is influenced by a combination of physical changes in the environment, functional structure and composition of the population with a strong bond to the place of residence and poor capacity of seniors to adapt to the changes. In these researched sites there is a significant restructuring, which entails a number of positive and negative changes in the lives of seniors. Better conditions for pedestrian movement in central and inner parts of the city and proximity of nature and green areas in housing estates are examples of positive aspects of urban restructuring on the lives of seniors. Reducing seniors' satisfaction with the availability and price levels of basic civic amenities in the city centre belong to the negative effects of restructuring. In all areas surveyed uncertainty of seniors is high in terms of neighbourly assistance because of the frequent replacement of the residents in houses [20].

It is necessary to pay more attention to seniors who live in villages. Urbanization and migration of young people seeking work from villages to cities may cause old people to remain alone in rural areas with limited access to both health and social services [15].

The rural seniors are often at a disadvantage compared with the urban seniors, especially in the view of lower income, lower education and worse access to public transport or health services [21, 22]. The rural seniors tend to be in worse mental and physical condition. Many of them would like to maintain their physical and mental condition, but they cannot find appropriate environment and mentoring for that [23].

The aim of this study is, based on available data (from a database of European Union Statistics on Income and Living Conditions - EU-SILC), to analyse the seniors' life satisfaction in 14 Czech regions with respect to the two age groups of seniors - younger (50–65 years) and older (over 65 years) and gender of seniors. This is the first study of seniors' satisfaction in the Czech regions. We assume that the outputs of this study will allow us to detect the regions with the highest and lowest levels of seniors' satisfaction and will be the basis for further in-depth analysis of life satisfaction and formulation of seniors' satisfaction factors in particular districts and regions of the Czech Republic.

2   Methodology

The main source of data is the results of the investigation (EU-SILC). The analysis will be based on the corresponding methodology and calculations will apply to the last year with available data, therefore, to 2013. 8,434 of senior citizens participated in the survey. The conversion factor for the entire population of the Czech Republic for

modular data was used for further work with the data, and Pearson coefficient was applied to test the differences among individual groups of respondents.

Data analysis is focused on seniors' life satisfaction. It is expressed on the scale from 0 to 10 (0 - dissatisfaction, 10 - great satisfaction). It will reveal the total satisfaction of seniors, also with respect to gender and age.

The results of the satisfaction measurements in regions are compared using the cluster analysis, which is a statistical method grouping the Czech Republic regions into clusters. This is hierarchical clustering, which generates a system of subsets. A cluster may be defined by similarities or dissimilarities. Several different approaches exist to measuring distance or similarity. This paper uses the Euclidean distance between two vectors Y and Z:

$$\sqrt{\sum_{i=1}^{k}(y_i - z_i)^2} \qquad (1)$$

Objects will be clustered by the distance or similarity using the nearest-neighbour or complete linkage method based on the equation:

$$v(S^h, S^k) = \min(v_{ij})$$
$$i \in S^h, j \in S^k, \qquad (2)$$

where v is a measure of similarity between clusters, S^h and S^k denoting clusters h and k at a given clustering stage.

The distance between two clusters is determined by the longest distance between two objects each being in a different cluster. The result of a cluster analysis is a dendrogram, which is a cluster diagram. A dendrogram shows, which regions are similar and correlated in terms of satisfaction [24–26]. The calculations of the analysis were done using the Statistica 12 software by Statsoft.

3   Results

In this section we present the differences in life satisfaction in 14 regions of the Czech Republic, the average for the whole country was also calculated. The first chart compares the results of life satisfaction in the whole country and in 14 regions of the Czech Republic with respect to respondents' age (Fig. 1), the respondents were divided into two categories: younger seniors (50–65) and older seniors (65 - over), axis y presents satisfaction rate (0 - dissatisfied/and 8 - satisfied). The results show that seniors, regardless of the exact age, are rather satisfied with life in the Czech Republic (the average for the entire study population of seniors is 6.4). Similar levels of satisfaction were reported even in the other regions, with the exception of regions Karlovy Vary and Pardubice, where the level of satisfaction of seniors was the lowest (Karlovy Vary 5.8, Pardubice 5.6). Conversely, the highest level of satisfaction was expressed by seniors in Liberec (6.7) and Hradec Kralove (6.9). In most regions perception of

satisfaction between the two groups of respondents which were surveyed - younger and older - coincided. Larger differences between younger and older seniors were recorded in the Karlovy Vary region, the average satisfaction of younger seniors was 5.5, while the average satisfaction of older seniors reached the level of 6.1. Older seniors were also happier in the Liberec Region (6.7) compared to younger seniors (6.4). Conversely, in the Pardubice region younger seniors (5.9) feel more satisfied than older seniors (5.2). The difference between younger and older respondents was also tested. At the 5 % significance level the difference between the two groups of respondents was confirmed. Positive evaluations expressing that respondents are satisfied or rather satisfied (the range includes items 8, 9, 10) with life in the Czech Republic generally was expressed by less than 55 % of younger and 45 % of older respondents (Pearson coefficient 0.02).
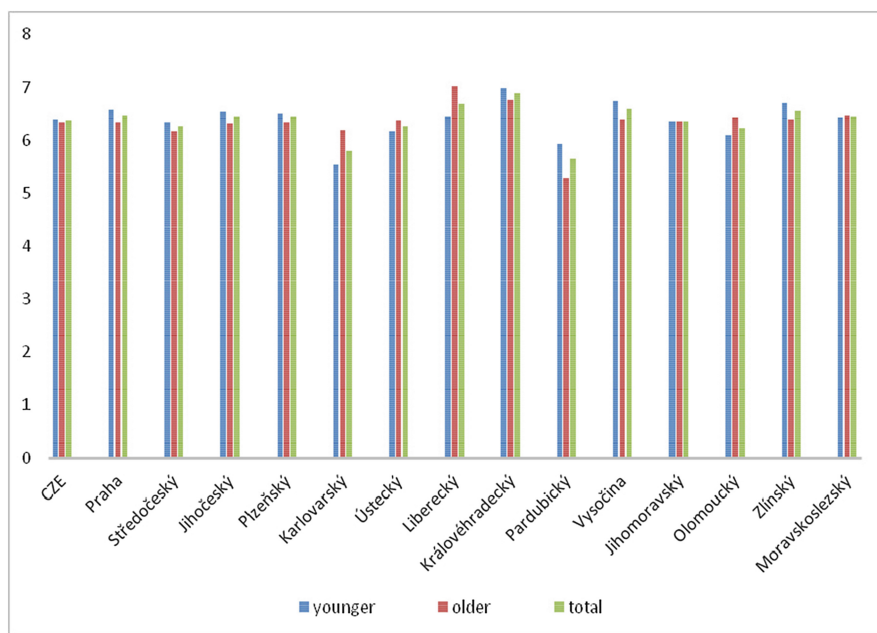

Fig. 1. Overall life satisfaction in respective regions by age (Source: authors. (Notes: translation of axis x: *Praha* – Prague, *Středočeský* – Central Bohemian Region, *Jihočeský* – South Bohemian Region, *Plzeňský* – Pilsen Region, *Karlovarský* – Karlovy Vary Region, *Ústecký* – Usti Region, *Liberecký* – Liberec Region, *Královéhradecký* – Hradec Kralove Region, *Pardubický* – Pardubice Region, *VysoNina* – Highlands Region, *Jihomoravský* – South-Moravian Region, *Olomoucký* – Olomouc Region, *Zlínský* – Zlin Region, *Moravskoslezský* – Moravian-Silesian Region)) (Color figure online)

Furthermore, the results of life satisfaction in the whole Czech Republic and in 14 regions of the Czech Republic with regard to the gender of the respondents were examined (Fig. 2), axis y again shows satisfaction rate (0 - dissatisfied/and 8 - satisfied).

The average results for the whole Czech Republic and for individual regions for all respondents are identical with the previous case (see Fig. 1). In most regions the level of satisfaction between two surveyed groups of respondents - men and women - was identical. Larger differences among seniors with regard to gender were recorded in regions South Bohemia (men - 6.3, women - 6.6), Pilsen (men - 6.2, women - 6.6) and Karlovy Vary (men - 5.6 women - 6.0), the average satisfaction was higher in women than in men in these regions. Only in Hradec Kralove region men (7.1) are happier than women (6.7).

The difference between men and women was also tested. At the 1 % significance level the difference between the two groups of respondents was confirmed. Positive evaluation expressing that respondents are satisfied or rather satisfied (the range includes items 8, 9, 10) with life in the Czech Republic generally was expressed by 55 % of female seniors and 45 % of male seniors (Pearson coefficient 0.01).
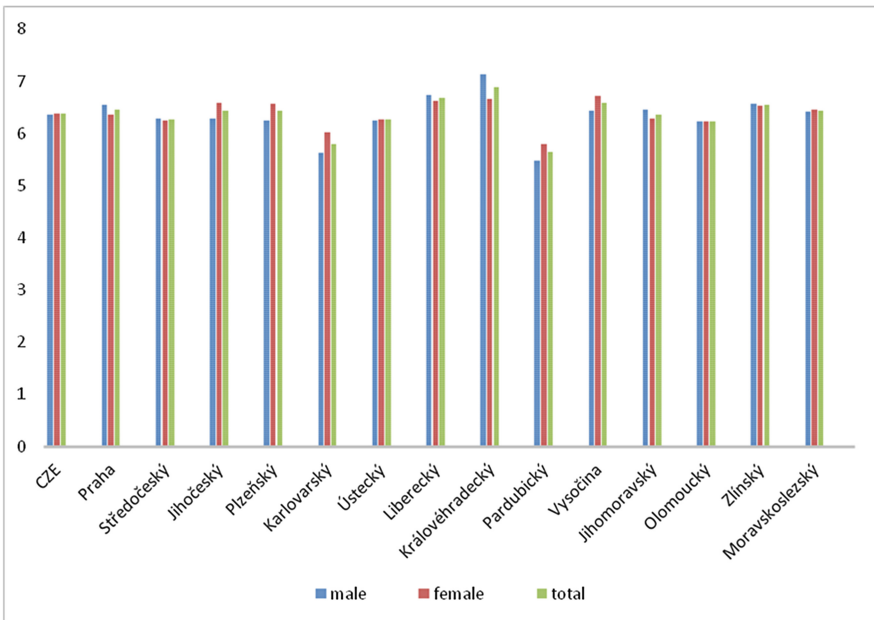

Fig. 2. Overall life satisfaction in respective regions by gender (Source: authors. (Notes: translation of axis x: *Praha* – Prague, *Středočeský* – Central Bohemian Region, *Jihočeský* – South Bohemian Region, *Plzeňský* – Pilsen Region, *Karlovarský* – Karlovy Vary Region, *Ústecký* – Usti Region, *Liberecký* – Liberec Region, *Královéhradecký* – Hradec Kralove Region, *Pardubický* – Pardubice Region, *Vysočina* – Highlands Region, *Jihomoravský* – South-Moravian Region, *Olomoucký* – Olomouc Region, *Zlínský* – Zlin Region, *Moravsko-slezský* – Moravian-Silesian Region)) (Color figure online)

In the group of seniors surveyed cluster analysis of regions was also conducted with respect to life satisfaction in the respective regions. "Cluster analysis groups objects into clusters so that objects belonging to the same cluster were close to each other

(similar) and objects belonging to different clusters were distant (different)." 4 It resulted in dendrogram of regions of the Czech Republic. (see Fig. 3).

Looking at the whole chart, it is clear that two clusters are formed on the midlevel of clustering: the right part of dendrogram consists of a cluster of regions Liberec, South Bohemia, Central Bohemia, Hradec Kralove, Usti, and Prague. The central part of dendrogram consists of predominantly Moravian regions: South Moravia, Moravia-Silesia, Olomouc, Zlin, Highlands. Regions Pardubice, Karlovy Vary, and Pilsen stand aside other regions on the left part of dendrogram. With respect to the assessment of life satisfaction in respective regions, it is clear that the right part of dendrogram is formed by regions, where the level of satisfaction was generally described as being higher compared to the central and left parts of dendrogram. The Usti Region which is generally considered to be one of the poorest and economically weakest regions of the Czech Republic is worth mentioning. Cluster analysis, however, merged the Usti Region with the Hradec Kralove region, which was evaluated as a region for rather enjoyable life by all senior groups surveyed. We can therefore assume that life satisfaction in a given region is not only subject to the economic situation in
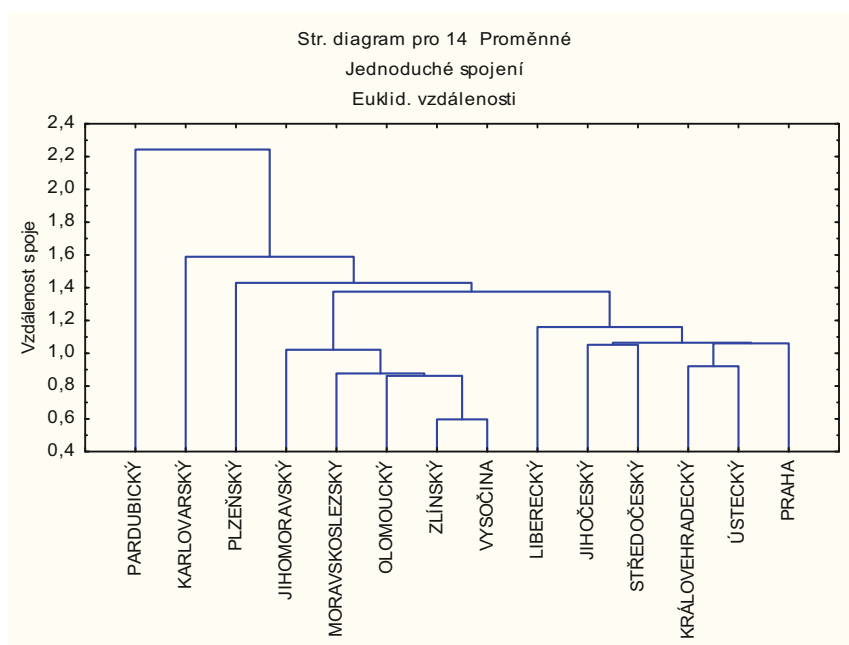

Fig. 3. Dendrogram of the Czech Republic regions based on satisfaction in the senior-citizen group (Source: authors. (Notes: translation of the title: Diagram for 14 variables, Simple link, Euclidean distances; translation of axis y: Link distance; translation of axis x: *Pardubický* – Pardubice Region, *Karlovarský* – Karlovy Vary Region, *Plzeňský* – Pilsen Region, *Jihomoravský* – South-Moravian Region, *Moravskoslezský* – Moravian-Silesian Region, *Olomoucký* – Olomouc Region, *Zlínský* – Zlin Region, *VysoNina* – Highlands Region, *Liberecký* – Liberec Region, *Jihočeský* – South Bohemian Region, *Středočeský* – Central Bohemian Region, *Královéhradecký* – Hradec Kralove Region, *Ústecký* – Usti Region, *Praha* – Prague))

the region, we can only speculate on the reasons for satisfaction. The presented results do not allow us to interpret the facts. In further research, it would be appropriate to analyse the respective factors of satisfaction in detail.

The clustering of Moravian regions and the Highlands offers numerous interpretations, the Moravian regions being close to each other in terms of economy, culture, and history with common features such as observing traditions, religiosity, with the population mostly engaged in farming (Olomouc, Moravia-Silesia Region) and viticulture (South Moravia and Zlin Region), etc.

4   Conclusion

The aim of this study was the analysis of secondary data (from a database of European Union Statistics on Income and Living Conditions - EU-SILC) dealing with the life satisfaction of seniors in 14 Czech regions with respect to two age groups of seniors - younger (50-65 years) and older (over 65 years) and their gender.

The results of the analysis of the different perception of satisfaction among seniors of different ages suggest that less than 55 % of younger and 45 % of older respondents (Pearson coefficient 0.02) expressed a general positive evaluation of life satisfaction in regions of the Czech Republic. The difference among men and women was also tested; at the 1 % significance level the difference between the two groups of respondents was confirmed. Positive evaluation expressing general satisfaction was stated by 55 % of female and 45 % of male seniors (Pearson coefficient 0.01).

Cluster analysis produced interesting results; it detected several groups (clusters) of regions, which are perceived by seniors in a similar way. These early results show that the proximity of respective regions is influenced by the proximity and similarity of both economic and cultural history, another common feature is respect for the folk traditions, religiosity, or secularization of the population, focusing on farming, or industrial tradition etc. The results presented are the first unique probe into the issue of satisfaction of seniors in respective regions of the Czech Republic. The authors have already been working on further analysis of available data, which will allow more detailed clarification of the differences in life satisfaction in different parts of the Czech Republic with regard to respective areas of life satisfaction of seniors. We believe that a detailed analysis of life satisfaction/dissatisfaction in respective regions of the Czech Republic is a necessary initial prerequisite for the design of concrete measures to improve the lives of seniors in our country and that it will contribute significantly to the promotion of active aging.

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