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## AZ EURÓPAI IDŐS LAKOSSÁG SZOKÁSAIBAN JELENTKEZŐ ELTÉRÉSEK DIFFERENCES IN ELDERS' HABITS AMONG EUROPEAN COUNTRIES

A 21. század egyik legjelentősebb demográfiai folyamata Európában az előregedő társadalom. Az elemzések általában olyan makrogazdasági kérdésekre koncentrálnak, mint például a jóléti rendszer fenntarthatósága. Kutatásunk az Európában élő idősök szokásaiban jelentkező különbségek elemzésére összpontosít, mégpedig a 2010-es időmérleg felmérések eredményeit felhasználva. Európa országaira vonatkozólag klaszterelemzést készítettünk számos napi tevékenységre vonatkozó változót felhasználva. Két klasztert különböztettünk meg. Európa északi és nyugati része tartozik az első csoportba. A második klaszter pedig magában foglalja a dél- és közép-európai országokat. Három csoportot hoztunk létre a tevékenységekből, hogy térképen is ábrázolni tudjuk az egyes országok közti különbségeket. A legjelentősebb eltérés a társadalmi tevékenységekben mutatható ki. Ez utóbbi kulturális és jóléti különbségben gyökerezik.

Aging population is one of the most significant demographic processes in the European countries in the 21st century. The analyses usually concentrate on macro issues such as sustainability of welfare system. Our research focuses on analyzing the differences of elders' habits in Europe according to results of time use surveys in 2010. We have made a cluster analysis of European countries using several variables about daily activities. Two clusters can be distinguished. Northern and Western part of Europe belongs to the first group. The second cluster includes Southern and Central European countries. We created three groups of activities to highlight the diversity of countries using map visualization. The most significant difference could be shown in social activities. It enroots in cultural and welfare background.

### INTRODUCTION

In the European Union and the most part of the whole world one of the biggest issues is aging population. It is a huge challenge for the society and the economy as well. According to the

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European Commission (2020) the proportion of people over 65 will be almost 30% by 2060. As the elderly layer of the society is getting larger, the proportion of younger generation is decreasing. This demographic process puts significant burden on pension systems, health care and elderly care systems. One solution and way to disburden the care systems is active aging. The aim is a more active and healthier pensioner life perspective. It is important, because elder people could be active on labour market. In this way labour market impacts could be moderated. By being more active, people's health condition is getting better which means a relief for health care system, too. In 2012 European Union started to promote active aging, and the Council of the European Union (2012) addressed guiding principles for that purpose. The key points of that are employment, participation in society and independent living.

In our research we focused on the time management of the pensioners in 17 European countries. We analyzed the time use survey from 2010. The aim of the investigation was to find patterns among countries and to observe the possible differences among the created groups.

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## LITERATURE REVIEW

Active aging and the security of elderly people has broad literature. We chose those which directly connect to our research question.

Hoff (2008) investigated the poverty and social exclusion of older people in Europe. He pointed that the risk of poverty has diverging trends among European countries. Poverty has huge effect on standard of living, life and health quality for elders. The author listed good examples to boost social and economic inclusion of elder people such as the Finnish "workability" policy, women's early retirement program from Czech Republic (rewarding having more children) etc. He argued that social participation of elder people is indispensable. The author gave several good examples and directions to social policy makers.

Walker (2008) showed that the life expectancy has increased decades by decades and it has connection to welfare in Western Europe. Active aging is not a new phenomenon, this has been reality in policy from 80s. Walker argued that the policy makers in employment, health, pensions, and education areas should take into consideration the active aging seriously. He outlined seven key principles: activity, prevention, inclusion, solidarity, rights, strategy, national and cultural diversity. He highlighted the differences between the North and South.

Rechel et al (2013) argue that ageing of European populations presents new challenges. The numbers of older people with cancer, fractured hips, strokes, and dementia will increase, and many older people will have multimorbidities. They think various policy options have to improve the health, long-term care and welfare systems in Europe and to help people to stay healthy and active in old age.

Ahtonen (2012) argues that the demographic change in Europe will not disappear, more attention must be paid to the structure of the health and care sectors, social services, labour markets. Healthy and active ageing should be promoted as a key part of the solution. She calls this process turning the 'silver' economy into gold because older people can create demand for new services and products supporting the maintenance of healthy, independent lives. If increased life expectancy is coupled with healthy ageing, and contributes to the labour market and society, this

will reduce pressure on health and social services, and especially on public budgets. European Innovation Partnership on Active and Healthy Ageing launched in 2011 had the objective to increase the number of Healthy Life Years (HLY) - an indicator used to estimate how many years a person can expect to live without illness or disability.

Foster and Walker (2015) also wrote about the concept of active aging and how the European Union implemented it in policy making. One of the main points for a common solution is also the last, seventh key point, the national and cultural diversity. Diversity is not a national phenomenon, it is occurred within countries, too. Because of this reason, they suggested an eighth point relating to flexibility in policy making. The eight points are important to decrease the burden on economic, health care and social care system.

Bowling (2008) analyzed older people's perceptions of active ageing. She made face-to-face interview survey with 337 people aged more than 65 living at home in Britain. According to result, the most common perceptions of active ageing were maintaining physical health and functioning (43%), leisure and social activities (34%), mental functioning and activity (18%) and social relationships and contacts (15%).

Ellwardt et al (2014) studied why countries of European Union differ in amounts of social contacts of older adults. They analyzed individual-level data from the European Social Survey combined with country-level data from Eurostat. They found that income inequality and old-age poverty reduce the likelihood of having a close contact. Welfare spending, specifically expenditure on care for older adults and health services, has the potential to cancel out some of these negative effects.

## DATA

Time use survey is used to register the daily activities and the time spent within a defined period in chronological order. Time use surveys are harmonized in the Member States of the EU and data collections are carried out every ten years. Unfortunately, Eurostat publishes only the data for year 2010, the results are not available for 2000. We downloaded time use survey data relating to elder people (with age of more than 65 years) for the following EU and non EU countries: Belgium, Germany, Estonia, Greece, Spain, France, Italy, Luxembourg, Hungary, Netherlands, Austria, Poland, Romania, Finland, United Kingdom, Norway and Serbia. Time spent for a specific activity is expressed in hours and minutes. We converted the data to minutes, and we selected the most significant activities according to the time spent. This dataset was the base for our analysis. We wanted to show how elder people spend their time and what the differences are among countries.

## METHODOLOGY AND RESULTS

In order to explore regional differences, we have chosen the method of cluster analysis with software SPSS. We selected the option of K-means cluster with cluster number of 2. This is suitable because we have only seventeen countries and groups with nearly the same number of cases are formed. We also created hierarchical cluster analysis for standardized variables, it had the same result.

- The first cluster includes the Northern and Western part of Europe, namely Belgium, Germany, Netherlands, Finland, United Kingdom and Norway.

- The second cluster includes Southern and Central European countries: Estonia, Greece, Spain, France, Italy, Luxembourg, Hungary, Austria, Poland, Romania and Serbia.

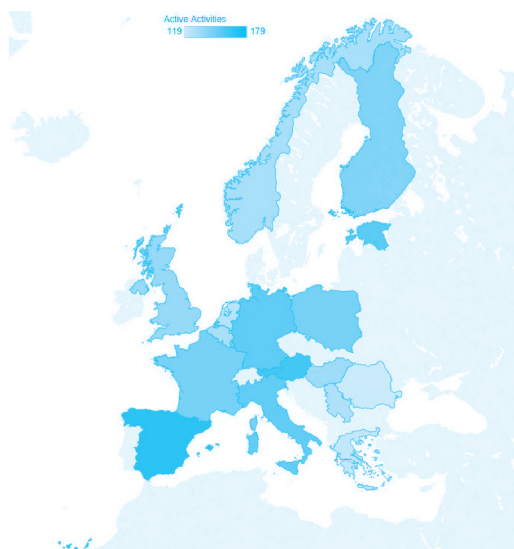
The result is consistent with the literature. The two clusters reflect the cultural and national differences between the Northern and the Southern-Eastern countries.

## GROUPS OF ACTIVITIES

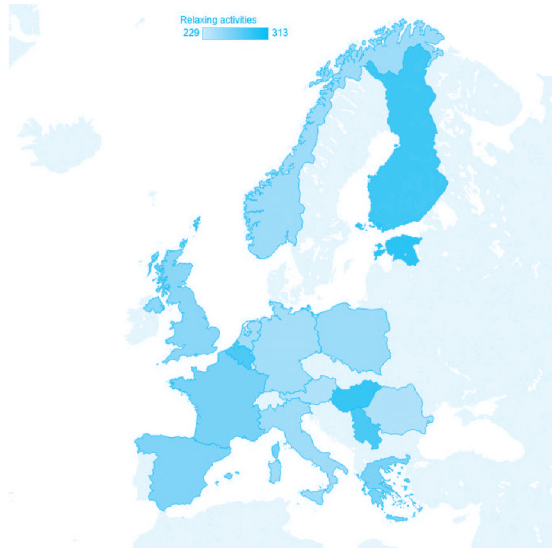
To show the differences between the clusters we summarized the activities. The aim is to create three types of activities which are closely linked to active aging concept. The three types are active, social and relaxing activities. Active way of living and the relaxing time could provide and support better health condition. Social activities contribute to mental health and social inclusion.

Active activities contain sport and outdoor activities, shopping, food management and gardening. All the activities which are relevant movements in case of elder people. The most significant sport is walking. These movements could help to reach and maintain better health condition. In this way in active aging concept the burden on health care system could decrease. The other useful consequence of active way of living connects to labour market. If someone has good health condition, then labour market presence could be lengthened. As figure 1 shows the highest three values belong to cluster two: Spain, Austria and Estonia. It is clear the picture is mixed. The differences in that case are not too sharp. The average in the first cluster is 148 and 144 minutes in the second cluster. We saw that, the highest values belong to the second cluster, the average is even lower. The reason is that there are outlier countries in active activities with low values: Romania, Greece and Serbia. The standard deviation among Southern and Central European countries is high.

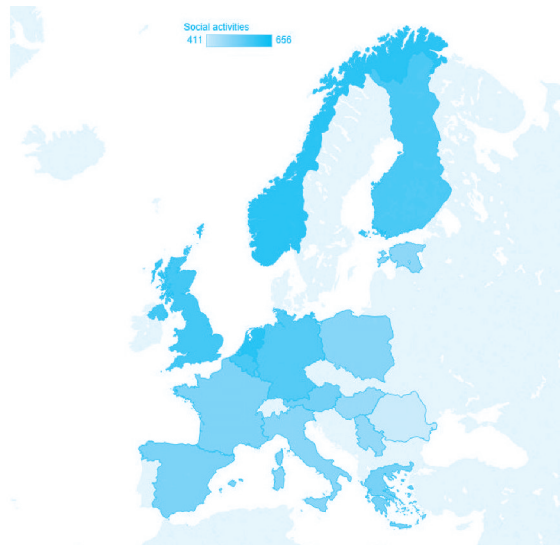
Figure 1: Active activities



Source: own construction

**Figure 2: Relaxing activities**

Source: own construction

**Figure 3: Social activities**

Source: own construction

After all the movements we summarized the relaxing activities. In that category we put resting, reading and television watching. Sleeping is not here, because we would like to show extra relaxing actions. The effect of relaxing time to mental and physical health condition is not unambiguous.

Reading, resting could be useful, effect of television watching is controversial. The main point, relaxing is not movement, this is the basic idea here. As the impact, the result is also mixed. There are no sharp differences among countries. The top three values belong to Estonia, Hungary and Finland. If we concentrate on the big picture, the map shows darker (higher) shades in Southern and Central European countries except for Finland. The averages of clusters are almost the same, around 270 minutes.

The third group is social activities. Social activities have the most significant role in question of social inclusion and exclusion. It was significant issue in literature review, too. In this group we summarized leisure, social interactions, visiting feasts, cultural and entertainment activities, hobbies and computing. Computing could be questionable, but we thought it is important because of the revolution of digitalization. We found the sharpest difference in that category. As you see on the map in Figure 3, the highest values belong to the first cluster, Northern and Western part of Europe. The top six values belong to the six countries of the first cluster. It means that the lowest value in that cluster is higher than the highest value in Southern and Central European countries. If we look at the averages, the difference could become more expressed. In the first cluster it is 625 minutes, while in the second cluster it is just 521 minutes.

### ANOVA ANALYSIS OF ACTIVITIES

At the last point of analysis, we made ANOVA (Analysis of Variance) tests to investigate the differences between the clusters. The null hypothesis of the test is that all the groups have the same average. It means that there is no difference between the groups of countries.

An F-statistics is computed for each observed variable. Using p-value, we can determine whether the two groups differ regarding the given variable. Based on the final cluster centers, characteristics of habits of elderly people can be clearly determined. The following table shows the effects, we made our decision on 5% significance level.

Table 1: Results of ANOVA

Difference between the clusters	Activities of elder people
Significant	Personal care, Sleeping, Household and family care, Food management, Gardening and pet care, Shopping and services, Leisure, social and associative life, Entertainment and culture, Resting, Sports, Computing, Hobbies, Reading others, Travel
Not significant	Eating, Household management, Participatory activities, Visiting Feasts, Other social activities, Walking and hiking, Reading books, TV, Radio and music

Source: own calculation

The difference between the two clusters can be analyzed with the value of final cluster centers regarding to selected, significant variables. We can realize that the elder people of the first cluster spent less time on personal care, sleep and family care, but they have more time on leisure, social and associative life and related travel. They spent more time on sport and outdoor activities, reading (except books), too. Other activities, such eating, running the household, caring the

pets, walking the dog, shopping, walking and hiking have or TV and radio habits do not have any significant differences in the two groups.

It is interesting that there is a significant difference in sleeping. Climatic reasons probably matter here, just think of the siesta of the Mediterranean countries.

Elderly people in Southern and Central Europe take part more actively in family care than Western and Northern Europe which can be caused by economic and cultural factors. In return, they have less time on leisure, social and associative activities and sport and other outdoor activities.

As we mentioned earlier, the remarkable number of variables with significant difference comes from social activities. ANOVA tests verified that, in Western and Northern Europe elderly people spend more time with social activities such as leisure, social and associative life, entertainment and culture. It could result in a more balanced, mentally healthier way of living. The factors behind this phenomenon could be welfare differences, cultural and traditional background.

We argue that the significant differences in habits may influence the health issues, quality of life and well-being of elderly people. The measure of these effects is not the subject of our study.

We have to mention that, the survey is from 2010. This year is after the financial crisis, before the sovereign crisis in Europe. It could have influence on results.

## CONCLUSIONS

We analyzed the European time use survey to find patterns in elderly age groups' habits and way of living. By cluster analysis we could create two clear groups for time use in the Northern and the Eastern-Southern part of Europe. The most significant differences occurred in social participatory, family care and activeness. As we highlighted in literature review social inclusion is a significant issue in case of active aging. Activeness, sport activities, gardening contributes to better health condition. These factors and differences among countries originate from cultural traditions and economic status. A common purpose for European countries could be increasing the social inclusion and the activeness to have mentally and physically healthy pension life perspective. The time use of elderly people could be useful for decision makers to establish a sustainable and functioning active aging concept in which they consider the national and economic differences within the European Union.

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