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## **HUMAN VALUES. CORRESPONDENCE ANALYSIS OF ATTITUDES OF YOUNG AND OLDER PEOPLE**

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**Abstract:** The main purpose of this article is to show the possibilities of the application of correspondence analysis in indicating differences between young and older people in attitudes to major life values. The respondents represent many countries and they differ where cultural, social, demographical and political systems are concerned. Different techniques of correspondence analysis were used to identify interactions between variables. Simple correspondence analysis indicated geographical differences in perception of the most important features within each age group. Introduction of the doubled ratings into the study allowed to identify not only the best, but also the lowest rated features. At the same time the use of concatenated contingency tables enabled identification of the most important features for both the younger and older inhabitants of selected countries.

**Key words:** correspondence analysis, human values, differences between generations.

### **1. Introduction**

The main purpose of this article is to show the possibilities of the application of correspondence analysis in indicating differences between young and older people in attitudes to major life values. Respondents represent many countries and they differ considering cultural, social, demographical and political systems.

The presented research was conducted on the basis of European Social Survey 2008 [*European Social...* 2008] (data from 2010 will be available at the beginning of 2011).

The term “young people” considers those people who are under 25 years of age, have begun their careers, have no family or recently set up a family. Older people are over 59 with significant experience of work and family.

Older people were born before 1948. Considering the problem globally, some of them belong to a generation of baby-boomers, but the significant majority of these people were born during or before the Second World War. Young people were born after 1985. Social, political and cultural differences are indicated in the analysis of adolescence periods of persons participating in the study. All these reasons could have an influence on shaping the most important life values for these two generations.

## 2. Correspondence analysis

The main idea of correspondence analysis is to present the results of data analysis in the best way. This method is used to indicate associations between categories of nominal variables. Such a definition of the method shows that the correspondence analysis allows a very wide examination of the variables measured on the lowest scale.

Simple correspondence analysis (SCA) is a method based on contingency table (which means that SCA deals with two variables described by several categories) and singular values decomposition (SVD is made for the matrix of standardized residuals, which means the matrix of weighted differences of profiles to the rows' and columns' center)<sup>1</sup>. The coordinates for the row and column categories can be calculated after SVD. The number of coordinates will be equal to the number of full dimensional space  $K = \min(r - 1; c - 1)$  (where  $r$  is a number of row categories,  $c$  is a number of column categories). Graphical presentation of categories is made in  $K$ -dimensional space, mostly  $K = 2$ . Associations between categories are interpreted after the projection of points on the chosen space.

SCA is not only used to investigate associations between categories of nominal variables but also for variables measured on higher scales, for example: ordinal scale. In such an analysis, a single question (object) and respondent or expert can be defined as a category. The analysis can be done in two ways. Examination of:

- matrix of ranking ordered objects given by respondents,
- doubled ratings matrix,

is carried out using technical solutions of SCA.

The idea of doubling is to allocate two complementary sets of data for each rating scale, one labelled as the “positive” or “high” pole of the scale and the other – the “negative” or “low” pole” [Greenacre 1993].

Using concatenated contingency tables is possible in the case of SCA. This table can be built, if there are several contingency tables with one joint variable. In the concatenated table in columns there are categories of joint variable and in rows there are categories of other variables. Contingency tables are placed one under the other. M. Greenacre suggested that one of the analyzed variables “can be considered as variable to be described, or dependent variable, whereas the others are describing variables, or independent variables” [Greenacre 1994, p. 143].

The study uses correspondence analysis approach used for the characteristics of a rank ordering and for a concatenated contingency table.

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<sup>1</sup> Detailed information about all technical aspects of CA and how to interpret the scatter of points can be found in [Stanimir 2005].

### 3. The scope of the study

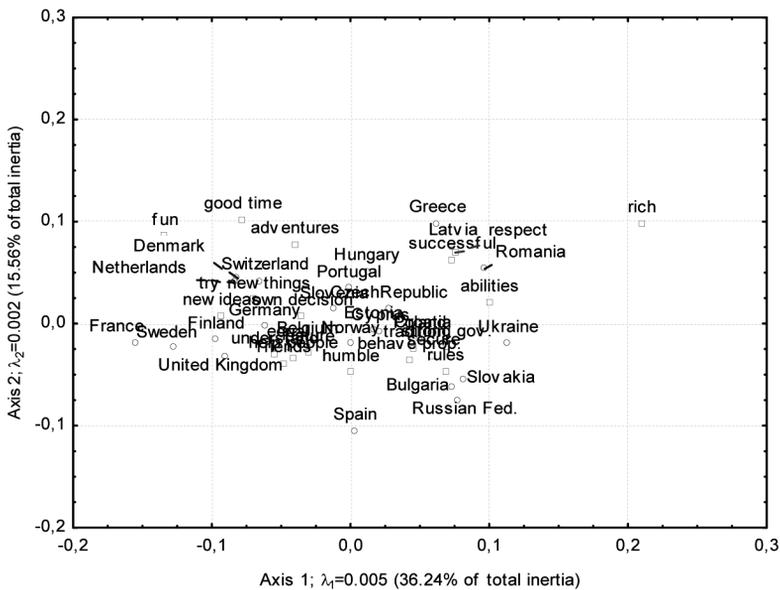
The data on which the analysis was conducted was taken from the ESS. This panel study has been carried out since 2002. It concerns different areas of life: media and social trust, politics, subjective well-being, social exclusion, religion, national and ethnic identity, welfare attitudes, aging, gender, human values. 21 variables were taken into account (variables are related to private life as well as politics, environment, impact on other people, subordination to the rules):

- 1) important to think new ideas and being creative (new ideas – NI);
- 2) important to be rich, have money and expensive things (rich – RI);
- 3) important that people are treated equally and have equal opportunities (equal opportunities – EQ);
- 4) important to show abilities and be admired (abilities – AB);
- 5) important to live in secure and safe surroundings (secure – SEC);
- 6) important to try new and different things in life (try new things – TNT);
- 7) important to do what one is told and follow the rules (rules – RU);
- 8) important to understand different people (understand – UND);
- 9) important to be humble and modest, not to attract attention (humble – HUM);
- 10) important to have a good time (good time – GT);
- 11) important to make own decisions and be free (own decision – OD);
- 12) important to help people and care for others well-being (help people – HP);
- 13) important to be successful and that people recognise achievements (successful – SUC);
- 14) important that government is strong and ensures security (strong government – SG);
- 15) important to seek adventures and have an exiting life (adventures – ADV);
- 16) important to behave properly (behave properly – BP);
- 17) important to get respect from others (respect – RESP);
- 18) important to be loyal to friends and devoted to people close to you (friends – FR);
- 19) important to care for nature and environment (nature – NAT);
- 20) important to follow traditions and customs (traditions – TR);
- 21) important to seek fun and things that give pleasure (fun – FUN).

### 4. SCA of young and older people attitudes of major life values

First analysis shows the human values most important for people from different countries.

Figure 1 presents the results of SCA provided for older people ranking. The data table is  $26 \times 21$ . The dimensionality of this table is 20. The two-dimensional map accounts for 51.8% of the total inertia (variance) in the table.



**Figure 1.** Most important human values – older people

Source: own study based on ESS data.

In Figure 1, points representing such human values as “important to be rich, have money and expensive things” and “important to seek fun and things that give pleasure”, “important to seek adventures and have an exiting life”, “important to have a good time” concern all the analyzed countries (but on opposite sites of the map). Therefore, it should be noted that these human values are not important for older people. Map enlargement allows a precise indication of the characteristics of individual countries (Figure 2):

- it is very important for older residents of the Netherlands, Denmark and Switzerland to try new things;
- in Finland older people always want to have new ideas;
- the point representing older Germans is between such human values as: new ideas, try new things, make own decision and be free, people are treated equally; but this location is not close enough to be able to conclude that any of these values best describes Germans;
- for older people in Belgium the most important are: treating people equally, care for nature and environment, helping people and care for others well-being;
- for Poles and Croatians over 59 tradition, secure and strong government are important;
- following rules is very important for Bulgarians and Slovaks;
- having respect and successful life rank high in Latvia and Romania;
- in France, Sweden, and Spain it is impossible to depict most significant human values.

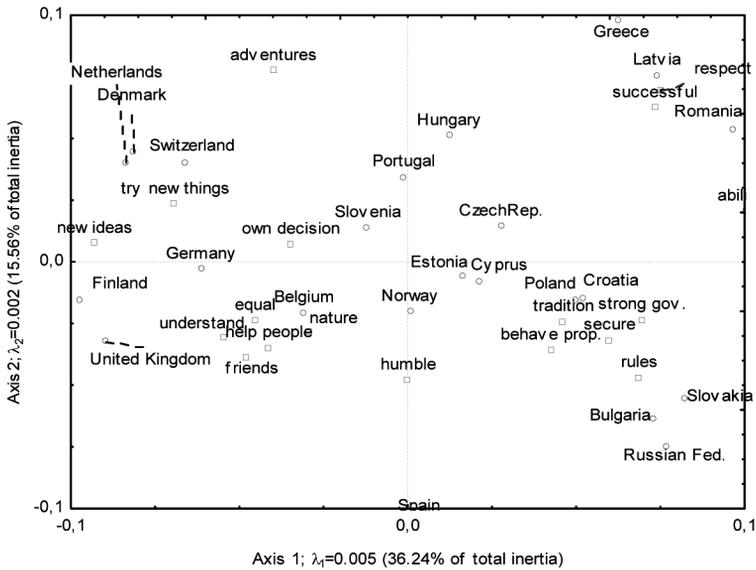


Figure 2. Figure 1 enlargement

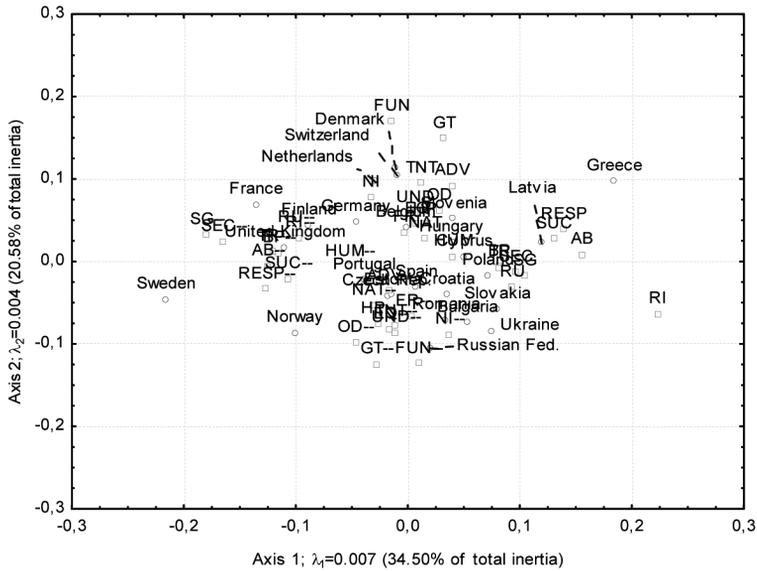
Source: own study based on ESS data.

In the next step of this study negative variables rankings were introduced to extend the analysis (marked with a double minus following variables names on Figures 3, 4, 7, 8). The results of SCA of the doubled ratings matrix are presented in Figure 3 (map enlargement in Figure 4).

The data table used in this analysis is  $26 \times 42$ . The dimensionality of this table is 25. The two-dimensional map accounts for 56.08% of the total inertia (variance) in the table. The results of this analysis are better than the previous ones. Points representing Sweden and Greece are far from other countries and any human values (see Figure 3). This means that none of the positive or negative ratings of human values are characteristics of the inhabitants of these two countries. In the map in Figure 3 the positive rating of “important to be rich, have money and expensive things” is far from any country, which means it is not an important human value for any older people. Positive ratings of human values are mostly situated in the positive part of both axes, opposite to the negative ratings of these values. For Latvians it is important in life “to get respect from others” and “to be successful and that people recognize achievements.” Older Poles appreciate behaving in life properly, following traditions and customs, and living in secure and safe surroundings.

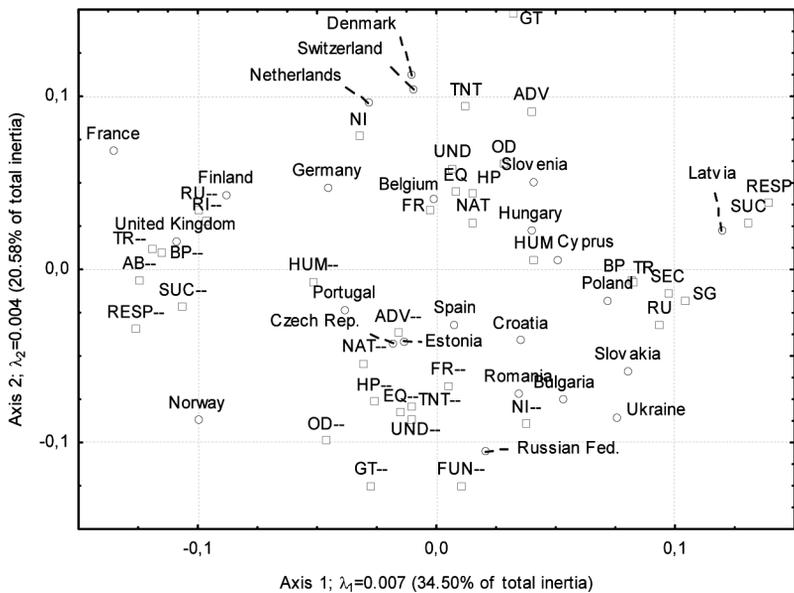
The next question is: have young people from corresponding countries the same opinions on life?

The first analysis conducted for young people used a  $26 \times 21$  data table. The dimensionality of this table is 20. The one-dimensional presentation explained 34.93% of total variance. The quality of the two-dimensional map is higher and



**Figure 3.** SCA of positive and negative ratings of human values – older people

Source: own study based on ESS data.

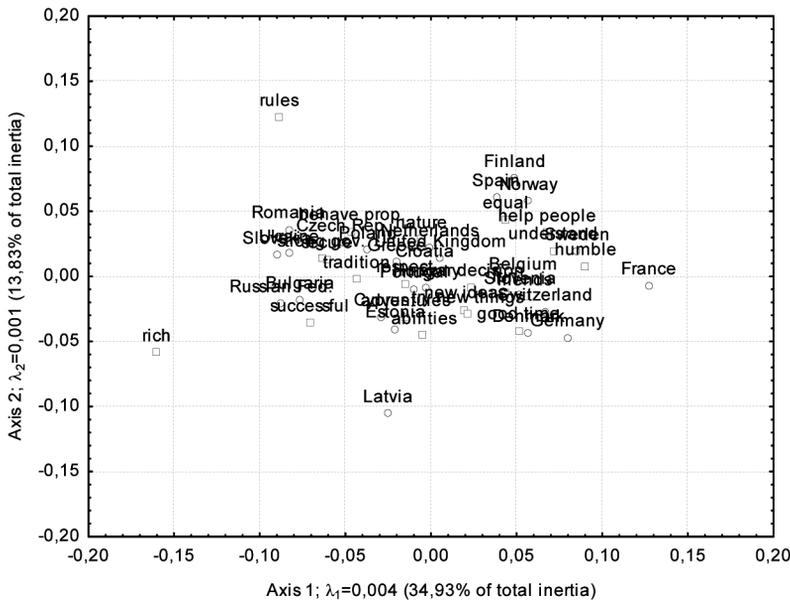


**Figure 4.** Figure 3 enlargement

Source: own study based on ESS data.

accounts for 48.76% of the total inertia (variance) in the table. The results of this analysis are shown on the map in Figure 5.

In Figure 5 points presenting such human values as: “important to be rich, have money and expensive things” (like in the previous analysis), “important to do what one is told and follow the rules” and the point representing Latvia is far from the other points. This means that these two human values do not describe the inhabitants of any of the countries. Young Latvians do not show preference to any of the selected human values.



**Figure 5.** Most important human values – young people

Source: own study based on ESS data.

For young Swedes “to be humble and modest, not to attract attention” and “understand different people” are important in life. Finns, Spaniards and Norwegians indicate as the most important human value “that people are treated equally and have equal opportunities.” Residents of Slovenia, as well as Switzerland, show that the most important things in life are “to be loyal to friends and devoted to people close to you” and “fun or things that give pleasure.” Young Danes are also a community that indicates that “to have a good time” plays an important role in their lives. The inhabitants of Cyprus and Estonia appreciate as human values: “showing abilities and being admired” and “seeking adventures and having an exciting life.” For young Portuguese and Hungarians it is important to get respect from others. Environmental protection is the most important value in life for the Dutch. Young Czechs and Poles prefer a strong government which ensures security, secure and safe surroundings,

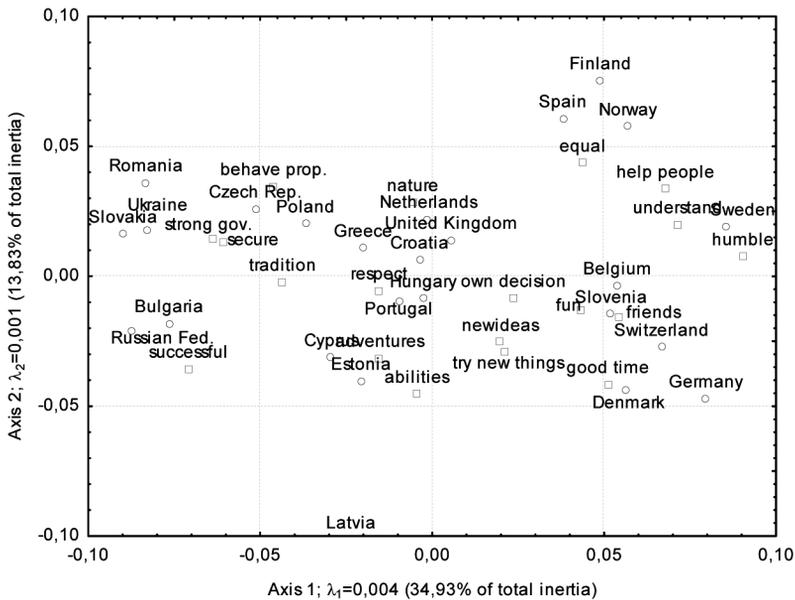


Figure 6. Figure 5 enlargement

Source: own study based on ESS data.

and behaving properly. “To be successful” is important for young Russians and Bulgarians.

As with older people SCA of doubled ratings matrix was conducted for young people. The data table used in this analysis is  $26 \times 42$ . The dimensionality of this table is 25. The two-dimensional map explains 57.78% of the total inertia (variance) in the table. The results of SCA of doubled ratings matrix are presented in Figure 7 (map enlargement in Figure 8).

The Greeks and Swedes did not indicate any human values which were very important to them, but they were closer to the positive ranking than to the negative. Similar to the results of SCA of the matrix of doubled older people ratings, the positive ranking of variable “to be rich, have money and expensive things” is not important for any young people. The negative ranking of this variable is characterized by young French people. The negative rankings of the following variables: secure and safe surroundings, to be successful, government should be strong and ensure security, to be humble and modest, to understand different people, to help people and care for others well-being, to be loyal to friends and devoted to people close to them are not characteristic of the inhabitants of any country. Young Estonians believe that it is not important for them “to try new and different things in life” and “to think new ideas and being creative”. Portuguese and Croats reject the need for making their own decisions and being free. The negative assessment of a few variables, such as:

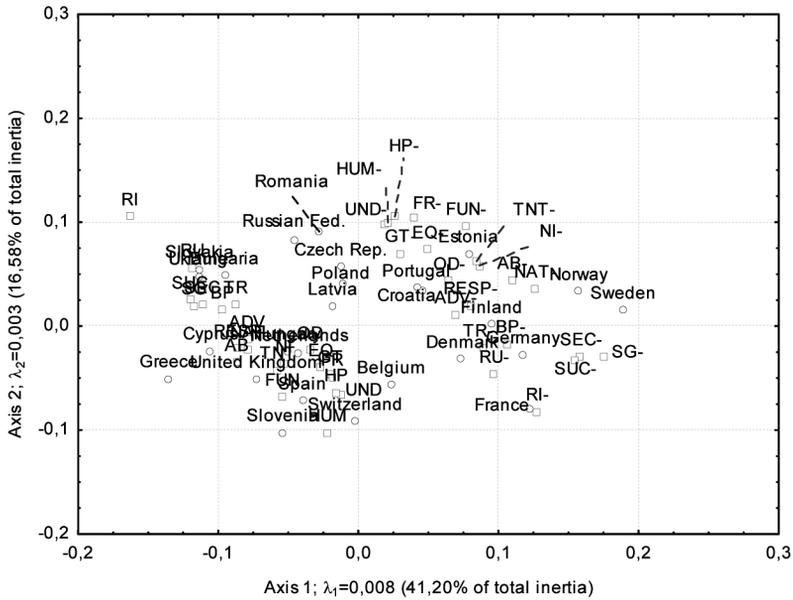


Figure 7. SCA of positive and negative ratings of human values – young people

Source: own study based on ESS data.

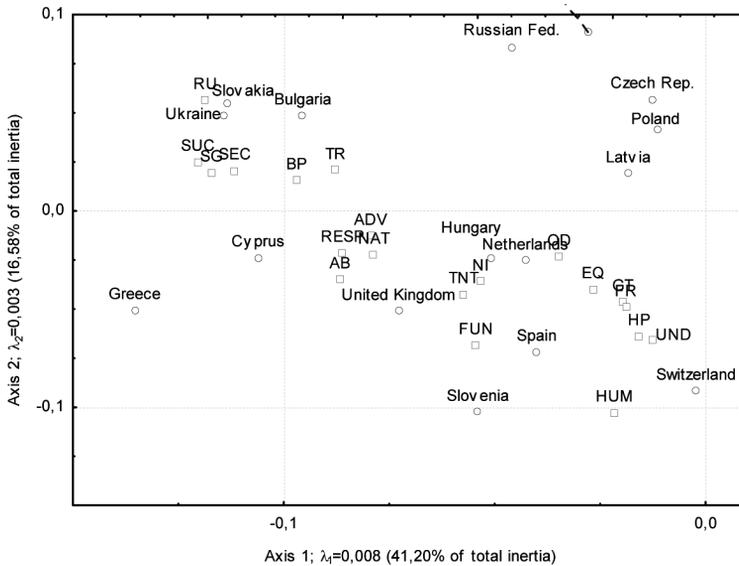


Figure 8. Enlargement of Figure 7

Source: own study based on ESS data.

“to follow traditions and customs,” “to behave properly” and “to do what one is told and follow the rules,” are typical of Finns, Germans and Danes. Norwegians give a low assessment to the care for nature and environment.

Using the enlarged figure (Figure 8), it can be shown that the positive ranking of the analyzed characteristics is held by: Belgians (“important to understand different people, important to help people and care for others well-being”), Swiss (“important to understand different people, important to be humble and modest, not to attract attention”), Spanish people and Slovenes (“important to seek fun and things that give pleasure”), Dutch people (“important to make own decisions and be free”), British (“important to show abilities and be admired, important to try new and different things in life”), inhabitants of Cyprus (“important to show abilities and be admired, important to get respect from others”), Slovaks and Ukrainians (“important to do what one is told and follow the rules”), Bulgarians (“important to follow traditions and customs”).

The assessments of the Poles, Czechs, Russians, Romanians and Latvians are centred between the negative and positive rankings of the analyzed human values.

## **5. CA of concatenated tables of young and older people opinions of human values**

This analysis was based on ratings of older and young people for all human values, and conducted at the same time. Human values were a dependent variable. Focusing on this analysis shows the positions on the map of all categories, which means: categories representing persons from two age groups from different countries (52 points) and important things in life (21 points). The data table used in this analysis is  $52 \times 21$ . The full space of the analyzed associations is 20-dimensional. The reduction of the dimensionality to a two-dimensional map saved 65.91% of the total inertia. The results of CA of concatenated tables are presented in Figure 9 (Figure 10 presents the right part of Figure 9, Figure 11 presents the left part of Figure 9). The points representing young persons are on the right part of the map, opposite to the points representing older people. On the basis of the concatenated tables, it is not possible to conduct the analysis of associations between categories of independent variables.

Once again, wealth and possession of expensive things are not an important factor in life for the young or older people in any country. Its location on the right side of the map suggests that younger respondents assessed higher this factor than did the older. All the French people, older Swedes, Spanish people and Russians do not have clearly defined the most important human values.

Young people from the analyzed countries may be divided into three groups:

- oriented to spectacular success: Russians, Slovaks, Romanians, Ukrainians, Bulgarians, Czechs and Poles (important human values: “to show abilities and be admired,” “to be successful and that people recognize achievements”);



- creative: Finns, Norwegians, Swedes (“important to think new ideas and being creative”);
- fun-oriented: the Danish people, Swiss, Germans (“important to seek fun and things that give pleasure,” “important to have a good time,” “important to try new and different things in life”).

The ratings assigned by young people from other countries lie between these three groups.

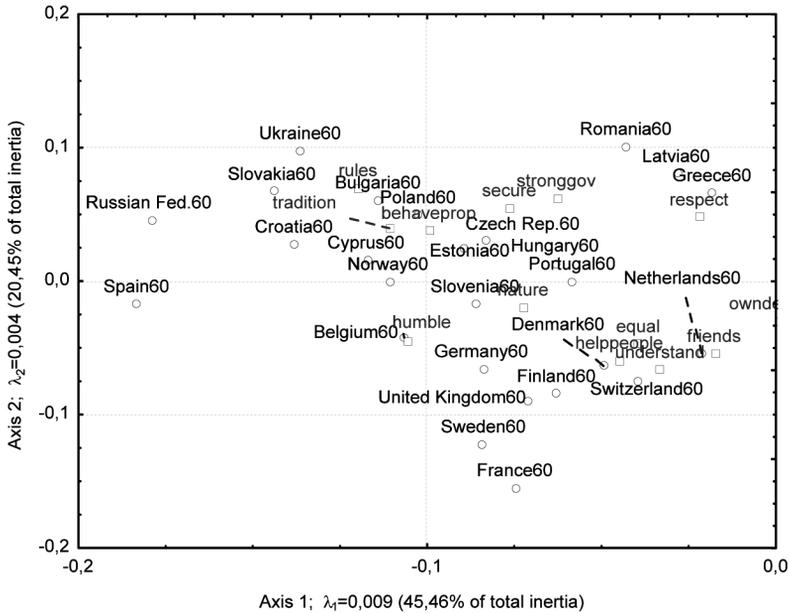


Figure 11. Enlargement of Figure 9 – left side

Source: own study based on ESS data.

For older people it is possible to define more groups:

- responsible: Slovaks, Ukrainians, Croatians, Bulgarians, Poles, Czechs and Estonians (important human values: “to do what one is told and follow the rules,” “to follow traditions and customs,” “to behave properly,” “to live in secure and safe surroundings,” “strong government, which ensures security”);
- caring for nature: Slovenes, Portuguese and Hungarians;
- humble persons: Belgians;
- positive attitude to other people: Swiss, the Danish people, Finns (“important to help people and care for others well-being”, “important to understand different people”, “important to be loyal to friends and devoted to people close to you”, “important that people are treated equally and have equal opportunities”)
- for Latvians and Greeks the most important is “to get respect from others”.

The Germans and the British may be classified in the two last groups. The point presenting “important to make own decisions and be free” lies between the clusters of younger and older people. It implies that this is a feature equally important for both age groups.

## 6. Summary

The presented techniques of correspondence analysis allowed multidimensional study of human values perception by younger and older people from different countries.

Simple correspondence analysis indicated geographical differences in the perception of the most important features within each age group. The introduction of the doubled ratings into the study allowed to identify not only the best, but also the lowest rated features. The use of concatenated contingency tables enabled the identification of the most important features for both the younger and older inhabitants of selected countries.

Once all the studies had been carried out, it turned out that young and older people do not value the same characteristics in every country. There are significant differences in the perception of the most important elements of life. The main differences are presented in Table 1.

**Table 1.** Most important human values – on the basis of SCA

Country	Older people	Young people	Country	Older people	Young people
1	2	3	4	5	6
Belgium	equal, nature, understand, <b>friends</b> , help people	fun, <b>friends</b>	Croatia	tradition, strong government, secure, behave properly	respect
Bulgaria	Rules	Successful	Hungary	–	respect
Switzerland	try new things	Friends	Latvia	<i>respect, successful</i>	–
Cyprus	–	Adventures	Netherlands	try new things	nature
Czech Republic	–	behave properly, strong government, secure	Norway	nature, humble	equal
Germany	<i>new ideas, try new things, own decision, equal</i>	–	Poland	tradition, <b>strong government, secure, behave properly</b>	<b>behave properly, strong government, secure</b>
Denmark	try new things	good time	Portugal	–	respect

1	2	3	4	5	6
Estonia	–	adventure, abilities	Romania	abilities	–
Spain	–	equal	Russian Federation	–	successful
Finland	new ideas	–	Sweden	–	humble, understand
France	–	humble	Slovenia	own decision	friends, fun
United Kingdom	–	–	Slovakia	rules	strong government, secure
Greece	<b>respect</b> , successful	<b>respect</b>	Ukraine	abilities	strong government, secure

Source: own study.

The same characteristics of young and older people were identified only in a few countries (for example in Poland). In most countries, people of different ages indicated different human values. In this study there are also countries whose citizens did not indicate any of the analyzed human values. In some countries a group of inhabitants highlighted the most important human values, and in others they did not (for example in Germany, older people had indicated many important human values, and young people in Germany are not characterized in any way).

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## **ANALIZA KORESPONDENCJI W BADANIU POSTAW OSÓB MŁODYCH I STARSZYCH WOBEC WYBRANYCH ASPEKTÓW ŻYCIA SPOŁECZNEGO**

**Streszczenie:** Głównym celem artykułu jest wskazanie możliwości zastosowania analizy korespondencji do wskazania różnic w ocenie wartości życiowych, dokonanej przez młodych i starszych ludzi. Respondenci reprezentują kraje, w których występują różnice społeczne, kulturowe, demograficzne i polityczne. Zastosowanie odmiennych technik analizy korespondencji umożliwiło wskazanie interakcji między zmiennymi. Klasyczna analiza korespondencji wskazała na występowanie geograficznych różnic w postrzeganiu najważniejszych cech przez osoby młodsze i starsze. Wprowadzenie analizy na podstawie macierzy rang podwójnych rozszerzyło wykonywaną ocenę na wskazanie nie tylko najlepszych, lecz także najgorzej ocenianych zmiennych. Wykorzystanie łączonej tablicy kontyngencji umożliwiło przeprowadzenie analizy najważniejszych cech dla osób młodych i starszych jednocześnie.

**Słowa kluczowe:** analiza korespondencji, wartości życiowe, różnice pokoleniowe.