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## FACTORS AFFECTING THE WORKING LIFE LENGTH OF OLDER PEOPLE IN THE EUROPEAN UNION \*

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**Abstract.** Despite the fact that population ageing in the European Union is in full swing, and policy makers are pushing for extending of working lives, there is a group of older people, whose employment potential in labor market ends up dormant. The phenomenon of early retirement is worthy of a deeper research from the point of view of human resources management, as employers facing issues of digital economy often lose a skilled workforce and labor market is depleted of the potential of this group. The article is focused on the research of three factors in relation to the desire to retire early: "job satisfaction", "job physical demands" and "afraid health limits ability to work before regular retirement in job". The influence of selected factors on the desire of workers to retire early is specified through quantitative analysis of data from the SHARE - Survey of Health, Aging and Retirement in Europe. Chi-squared test of independence, Cramér's V for dependence tightness and standardized (adjusted) Pearson residuals are used for analyzes. Results show the strongest intensity of dependence in relation to the desire to retire early with the job satisfaction factor. There is a weak dependence tightness in factors of the job physical demands and the individuals' health limits within professional performance. The analysis shows that it is very important that employers try to make their employees satisfied with job, because the consequences of such an effort are reflected in the employees' decision making whether to stay in job or to leave labor market through early retirement.

**Keywords:** early retirement; older people; questionnaires

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## **1. Introduction**

There are various reasons for extending the working lives of older people in the European Union (EU). The aging of countries' populations (Belloni et al. 2019) and retirement policies (Stiller et al. 2021) that take this phenomenon into account are probably the initial impulses for the growing proportion of economically active people in the labor market. On the one hand, in addition to policies to prolong working lives, gradual retirement or active aging, there is a group of people whose employment potential remains untapped in the labor market and prefers early retirement. Monitoring the early retirement phenomenon is important from the point of view of human resources management to identify trends and causalities of older people's learning and development to keep them competitive in the digital economy and to capture the changes in the labor market structure as well. What are the factors and motives influencing the working life of older people who opt for this non-mainstream solution?

This article is focused on the research of factors of job satisfaction, physical demands of work performed and individuals' health limits within professional performance in relation to the decision to early retirement in selected EU countries. The presumption of the chosen relationships is based on the assertion that job dissatisfaction (Jackson et al. 2018), physical demands (Sundstrup et al. 2021) and deteriorating health (Axelrad 2018; Qvist 2021) result in early retirement. Data for this research come from the SHARE database - Survey of Health, Aging and Retirement in Europe. The aim of the article is to specify the impact of selected factors on the desire of workers to retire early through quantitative analysis. The paper continues as follows: theoretical background, research objective and methodology, results and discussion, conclusions.

## **2. Theoretical background**

The employment of older people is at the heart of researchers' attention, mainly due to the global phenomenon of population aging. The very phenomenon of longevity (European Commission, Eurostat 2020) or age structure (Kumar et al. 2021) is an essential factor with regard to active economic life. Literature review is focused on factors related to the extending of working lives of older people in the labor market and on factors influencing early retirement.

The factors and reasons for extending the working life of older people in retirement age are diverse. On the one hand, there is a group that indicates the lower importance of factors of financial motivation and job stability (Łaszkiewicz, Bojanowska 2017) and higher job satisfaction, and on the other one that needs to ensure or increase a sufficient income and pension base (European Commission, Eurostat 2020), or preferring the well-being of state-guaranteed social benefits: financial benefits, health care, the opportunity to reconcile work and family responsibilities (Aidukaite, Blaziene 2021). The decision to work at an older age may stem from self-confidence in one's own work performance in conjunction with adequate health (You, Lee 2021; Kalenkoski, McCarty 2021), in flexibility of work attendance (Principi et al. 2018), in a vision of qualified, decent and sustainable work that makes sense (Fournier et al. 2018), but also for fear of losing dignity by acquiring retired status for men (Daye 2005) or lower income (Principi et al. 2018; Moskvina 2022). One reason may be financial incentives for employers to employ older people (Focarelli, Zanghieri 2005). Older people who choose to work in retirement age are mainly employed part-time (Vodopivec, Arunatilake 2011; European Commission, Eurostat 2020; Mao, Normand 2022) or decide to start a business (Wahrendorf et al. 2017; European Commission, Eurostat 2020) when they experience a higher level of life satisfaction (Axelrad et al. 2020). Education and training (McNair 2006; Fuchs 2013; Rutkiene, Lengvinienė 2016; Kadlecova 2018; Midtsundstad, Nielsen 2019; Ambarova, Zborovsky 2019; Blien, Hirschenauer 2020) is an important and supportive prerequisite for older people remaining economically active in the labor market. Another decisive factor in prolonging the working life of older people is their health status (Wahrendorf et al. 2016; Wahrendorf et al. 2017; Ćwirlej-Sozańska et al. 2018; Neary

et al. 2019; Cristea et al. 2020). Older people in European countries, where GDP growth and unemployment are higher, retire later (Axelrad 2018). The reasons for extending the working life of women from a gender perspective are colleagues, job description, opportunity for development and advancement, positive contribution to the running of the organization, challenging work challenges, flexible working conditions, small group work (Edge et al. 2017) and fertility (Stafford et al. 2019).

On the contrary, non-extension of older people's working lives is reflected in the most common reasons for leaving the last job, such as normal retirement, end of service, dismissal or redundancy, illness or disability, early retirement, childcare or incapacity for adults, personal or family reasons (European Commission, Eurostat 2020). The low participation of older people in the labor market is strongly linked to the culture of retirement (Jansen 2013; Jansen 2018), but also to the desire to remain on well-deserved rest and a sense of moral responsibility for vacating the younger generation of workers (Principi et al. 2018). Discrimination of older people in the labor market is a significant demotivating factor in working life (Brazienė, Mikutavičienė 2015; Sobolewska-Poniedzialek, Niewiadomska 2016; Topgul 2016; Pawera, Jančíková 2017; Krajňáková, Vojtovič 2017; Kozina, Zangieva 2018; Amorim et al. 2019; You, Lee 2021). The cause (Edge et al. 2017) and consequence (Whitley, Popham 2017) of deciding not to continue working life in old age tends to deteriorate, but mental decline has not been reported in the cognitive abilities of retired individuals who have acquired a difficult career working with people (Meng et al. 2017). Widowing plays an important role in not prolonging working life (Schreiber 2018) as well. From a gender perspective, the reasons for not prolonging the working life of older women are social and leisure activities, caring for relatives, level of education and employment, social class, status, negative social norms and prejudices about aging (Edge et al. 2017), traditional gender role in employment (Van der Horst et al. 2017; European Commission, Eurostat 2020) and increased early retirement (Fischer, Müller 2020). Groups of low-skilled women working in industry or occupations who require low or average skills and those living with a non-working partner are less likely to prolong working lives (Hardy et al. 2018).

Early retirement in European countries is preferred where there is a low gross domestic product growth and / or deteriorating health conditions (Axelrad 2018). The low and middle income classes of Norway are stimulated by the tax system for early retirement (Hernoes et al. 2000) and for males it is caused by low autonomy in their job as well (Blekesaune, Solem 2005). In Croatia, the reasons for early retirement are employment in the private sector, low quality of life, lower education and deteriorating health (Badun, Smolic 2018). Topa et al. (2018) point to the importance of reasons for early retirement such as the timing of the employer's pension, organizational pressure, financial security, deteriorating health. Rheumatoid arthritis is a specific reason for early retirement due to medical conditions in Portugal (Luis et al. 2020). Moreira et al. (2018) found that the most likely reason for early retirement is a disproportionate effort and appreciation at work. Risk factors for early retirement in Denmark are working in poor health, previous periods of unemployment and poor quality of work (Qvist 2021).

### **3. Research objective and methodology**

The EU labor market is beginning to show labor shortages at present. Based on forecasts of population development and aging, it can be assumed that labor shortages in the EU will increase in the future (Eurostat 2022). Approaches that allow employers to keep employees in their jobs for as long as possible will therefore become increasingly important. The work skills, abilities and competences of employees who retire early are not fully used. It is possible to assume that a significant part of employees who retire early would be willing to stay in work if certain conditions are met. A change in their decision could be positive for both the employer and the labor market.

The research is focused on the quantitative analysis of the data of the SHARE (2022) questionnaire - Survey of Health, Aging and Retirement in Europe. The aim of the article is to specify the influence of selected factors on the desire of workers to retire early. Selected factors are: "satisfied with (main) job", "job physically demanding",

"job afraid health limits ability to work before regular retirement in (main) job". These factors are included in the SHARE questionnaire survey in the form of questions. The rationale for the choice of factors is given in the section below. The quantitative analysis is aimed for verification of dependencies between the desire to retire early and selected factors. There is expressed the intensity of the dependence between them in the next step. Finally, the analysis is focused on the relationships significance. Thus, based on the answers to the questions related to the factors, it is found out whether it is possible to anticipate what the answers will be to the desire to retire early. Research can provide employers with important information related to influencing employees' desire to retire early.

The source of the data researched is the answers within the systematic questionnaire survey SHARE - Survey of Health, Aging and Retirement in Europe, which is aimed at people aged 50 and over in Europe. The survey is organized regularly and the answers are published. The first wave of research was conducted in 2004. This research is primarily based on a questionnaire survey focused on Employment and Pensions. Data from the Wave 8 are used, which was conducted in 2019 and 2020 (Börsch-Supan et al. 2013; Gruber et al. 2014; Bergmann, Börsch-Supan 2021, Börsch-Supan 2022; Börsch-Supan, Gruber 2022). The research is limited to the EU countries that were involved in the SHARE survey. Thus, the answers of respondents are used from the following EU countries: Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Romania, Slovakia, Slovenia, Spain and Sweden. Switzerland and Israel are European countries in which a questionnaire survey is also conducted. However, focus is on EU countries, so the results of the questionnaire survey from both countries are not used.

This is process how the dependent random variable is chosen. Initial focus in the survey is on respondents' desire to retire early. It is found out from the answer to the question from the questionnaire "Employment and pensions": "Are you looking for early retirement in (main) employment?". Respondents' answers could be: "Rejection", "I don't know", "Yes" and "No".

This is process how the independent random variables are chosen. There are many factors that affect the desire to retire early. Job satisfaction is important when making decisions. This is determined in various ways. One of them is "the balance between efforts and rewards in the last job" (Schnalzenberger et al. 2014). Another option is to evaluate job satisfaction based on the subjective feeling of workers. The research is focused on the subjective feelings of workers. It is used the answer to the question "satisfied with (main) job. Job satisfaction may depend on a variety of factors. It is limited both by the employee and by the type of work. Thus, the intention is to find out whether satisfaction or dissatisfaction with job directly depend on the physical abilities of the worker or on the complexity of the job. Because of this reason, it is paid attention to the health possibilities of workers and the physical demands of job as well.

The research is focused on three factors:

- "satisfied with (main) job",
- "job physically demanding",
- "afraid health limits ability to work before regular retirement in (main) job", which are evaluated on the basis of the subjective feeling of workers.

It can summarized from the mentioned above that the following research issues are addressed:

- 1/ How does "satisfied with (main) job" affect the desire to retire early?
- 2/ How does "job physically demanding" affect the desire to retire early?
- 3/ How does "job afraid health limits ability to work before regular retirement in (main) job" affect the desire to retire early?

The procedure is as follows:

- Null and alternative hypotheses are formulated.
- Null hypotheses are verified by the Chi-squared test of independence. The p-value is expressed in addition and conclusion of hypothesis testing is made.
- The dependence tightness (intensity) is expressed by the Cramér's V coefficient.
- It is identified where the relationship is occurred by using standardized (adjusted) Pearson residuals (Vomáčka 2022).

Part of the quantitative analysis of the questionnaire results is the testing of statistical hypotheses using Chi-squared test of independence, Cramér's V for dependence tightness and standardized (adjusted) Pearson residuals, which are used to determine how the relationships indicate.

Chi-squared ( $\chi^2$ ) test of independence is used to analyze the relationship between the nominal random variable: "satisfied with (main) job", which has the values "Refusal", "Don't know", "Yes" and "No" and other random variables. The null hypothesis of  $H_0$  is that there is no dependence between the random variables. An alternative hypothesis  $H_1$  is that there is a dependence between random variables. The statistics of  $\chi^2$  shall be expressed on the basis of empirical figures in a contingency table and on the basis of expected numbers based on the relationship

$$\chi^2 = \sum_{i=1}^R \sum_{j=1}^S \frac{(n_{ij} - m_{ij})^2}{m_{ij}},$$

where  $R$  is the number of rows and  $S$  is the number of columns,  $n_{ij}$  are empirical numbers in the  $i$ -th row and in the  $j$ -th column of the contingency table,  $m_{ij}$  are the expected (theoretical) values. Statistics of  $\chi^2$  take values from the interval  $\langle 0, n(q-1) \rangle$ , where  $q$  is the minimum of the number of rows and the number of columns in the contingency table,  $n$  is the file range. Statistics of  $\chi^2$  have  $(R-1)(S-1)$  degrees of freedom ( $df$ ). A prerequisite for the use of Chi-squared test of independence is that the expected numbers do not have a value of less than 5 in at least 80% of the fields and values of at least 1 occurred in the other fields (Řezanková 2007).

The dependence tightness (intensity) is expressed on the basis of the coefficient  $\phi$ , which can be derived from the Bravais-Pearson correlation coefficient  $r$  (Claus, Ebner 1988). If at least one random variable is dichotomous, then the coefficient  $\phi$  is equal to the Cramér's V (Řezanková 2007). It is applied that:

$$\phi = \sqrt{\frac{\chi^2}{n}},$$

$$V = \sqrt{\frac{\chi^2}{n(q-1)}},$$

where  $q$  is the minimum of the number of rows and the number of columns in contingency table,  $n$  is the number of units. Statistical hypotheses testing is evaluated on the basis of the p-level. The analyzes are made in the Statistica and SPSS programs.

Standardized (adjusted) Pearson residuals are used to find out where the relationship is. It allows to find out in which parts of the contingency table the relationship between random variables indicates itself. Adjusted residuals are residuals divided by standard error of estimate. Standardized residuals are expressed in units of standard deviation above or below the average.

#### 4. Results and discussion

Regarding the goal of the research:

- Null and alternative statistical hypotheses are formulated. Their aim is to verify the relationship between the desire to retire early and the three selected factors.
- In the next step dependence tightness (intensity) is verified.
- More detailed indication of relationship itself is defined if there is a relationship between the random variables. Conclusions are drawn by comparing the number of actual responses with the counts of expected values.

In the case of "satisfied with (main) job", it is assumed that if respondents are dissatisfied with job, it leads to earlier retirement (Jackson et al. 2018). More precisely, if the respondents are not satisfied with the job, then to the question "Early retirement" the actual values of the answers "Yes" are more frequent than expected and less often than expected are the answers "No". At the same time, it is assumed that if the respondents are satisfied with the work, they answer "Yes" to the question "Early retirement" less often than expected and answer "No" more often than expected.

In the case of "physically demanding job", it is assumed that when respondents answer "Strongly agree" and "Agree", they answer "Yes" to the question "Early retirement" more often, that they want to retire early and less often answer "No" as is expected.

In the case of "afraid health limits ability to work before regular retirement in (main) job", it is assumed that when respondents answer "Yes" they answer "Yes" to the question "Early retirement" more often, they want to retire early and less often they answer "No" as expected.

##### Null hypothesis 1H0

There is no dependence between the random variables "Satisfied with (main) job" and "Early retirement".

##### Alternative hypothesis 1H1

There is a dependence between the random variables "Satisfied with (main) job" and "Early retirement".

"Satisfied with (main) job" has the following answer options: "Strongly agree", "Agree", "Disagree", "Strongly disagree", "Refusal" and "Don't know".

**Table 1.** Contingency table

Satisfied with (main) job	Early retirement		Sum
	Yes	No	
Strongly agree	636	1792	2428
Agree	1312	1186	2498
Disagree	287	63	350
Strongly disagree	55	11	66
<b>Sum</b>	<b>2290</b>	<b>3052</b>	<b>5342</b>

Source: own calculations based on data from Börsch-Supan et al. (2013), Gruber et al. (2014), Bergmann, Börsch-Supan (2021), Börsch-Supan (2022), Börsch-Supan, Gruber (2022), SHARE (2022)



There are excluded answers where respondents did not know or did not want to comment. The answers: "Refusal" and "Don't know" are excluded for both random variables. The research is based on the answers from 5342 respondents. 2925 for females (54.75%) and 2417 for males (45.25%) of the total number of respondents.

The number of responses is given in the contingency table (Table 1.). None of the expected values is less than 5. The lowest expected value is 28.293. The condition for using the Chi-squared test of independence is met. There are expressed contingency tables in the Statistica program from the data, calculated the expected value (Table 2.), calculated the chi-squared statistic value (Table 2.) and the p-level (Table 2.).

**Table 2.** Expected values

Pearson's $\chi^2$ : 633.633, df=3, p=0.000			
Satisfied with (main) job	Early retirement		Sum
	Yes	No	
Strongly agree	1040.831	1387.169	2498.000
Agree	1070.839	1427.161	2428.000
Disagree	150.037	199.963	66.000
Strongly disagree	28.293	37.707	350.000
<b>Sum</b>	<b>2290.000</b>	<b>3052.000</b>	<b>5342.000</b>

Source: own calculations based on data from Börsch-Supan et al. (2013), Gruber et al. (2014), Bergmann, Börsch-Supan (2021), Börsch-Supan (2022), Börsch-Supan, Gruber (2022), SHARE (2022)

Based on the p-level, the null hypothesis  $H_0$  is rejected and the alternative hypothesis  $H_1$  is accepted. There is a dependence between the random variables "Satisfied with (main) job" and "Early retirement". Cramér's V is used to express the dependence tightness (intensity). Its value is 0.344. The p-level is less than or equal to 0.001. The coefficient  $\phi$  is statistically significant. It can be stated that there is a weak to medium dependence between the random variables "Satisfied with (main) job" and "Early retirement".

Based on standardized (adjusted) Pearson residuals (Table 3.), it can be concluded that respondents who answered the question "Satisfied with (main) job" that they are "Strongly agree" to the question "Early retirement" answered "Yes" less often than expected and more often as expected they answered "No". For the other positive answers (i.e. "Agree") to the question "Satisfied with (main) job", the actual values of the answers "Yes" to the question "Early retirement" were more frequent than expected and the answers "No" were less often than expected. Similar tendencies were observed when respondents answered "Satisfied with (main) job" with "Disagree" or "Strongly disagree".

**Table 3.** Adjusted residuals/Standardized residuals

Adjusted Residual/Standardized residual		
Satisfied with (main) job	Early retirement	
	Yes	No
Strongly agree	-22.5/-12.5	22.5/10.9
Agree	13.4/7.4	-13.4/-6.4
Disagree	15.3/11.2	-15.3/-9.7
Strongly disagree	6.7/5.0	-6.7/-4.3

Source: own calculations based on data from Börsch-Supan et al. (2013), Gruber et al. (2014), Bergmann, Börsch-Supan (2021), Börsch-Supan (2022), Börsch-Supan, Gruber (2022), SHARE (2022)

It can be concluded from the stated above that workers who are dissatisfied with job in both levels tend to retire early to a greater extent, respectively to a lesser extent not to retire early than expected.

The degree of statement is important for workers who are satisfied with their job. Only workers who are "Strongly agree" with their job tend to retire less often than expected or more often not to retire early. In the case of "Agree" answers, the tendencies are similar to those in which the workers are not satisfied with the work.

It follows that employers should care about employees being significantly satisfied ("Strongly agree") with their job. If employees are dissatisfied with job of various degrees, then for the employer, this means that employees will want to leave to early retirement more than expected.

#### Null hypothesis 2H0

There is no dependence between "Job physically demanding" and "Early retirement".

#### Alternative hypothesis 2H1

There is a dependence between "Job physically demanding" and "Early retirement".

"Job physically demanding" has the following answer options: "Strongly agree", "Agree", "Disagree", "Strongly disagree", "Refusal" and "Don't know".

**Table 4.** Contingency table

Job physically demanding	Early retirement		Sum
	Yes	No	
Strongly agree	591	530	1121
Agree	691	736	1427
Disagree	619	981	1600
Strongly disagree	390	806	1196
<b>Sum</b>	<b>2291</b>	<b>3053</b>	<b>5344</b>

Source: own calculations based on data from Börsch-Supan et al. (2013), Gruber et al. (2014), Bergmann, Börsch-Supan (2021), Börsch-Supan (2022), Börsch-Supan, Gruber (2022), SHARE (2022)

The answers where respondents did not know or did not want to comment are excluded. The answers: "Refusal" and "Don't know" are excluded for both random variables. There are used answers total of 5344 respondents (Table 4.). None of the expected values is less than 5. The minimum expected value is 480.58. The condition for using the Chi-squared test of independence is met.

Based on the p-level (Table 5.), the null hypothesis 2H0 is rejected and the alternative hypothesis 2H1 is accepted. There is a dependence between the random variables "Job physically demanding" and "Early retirement". Cramér's V is used to express the intensity of the dependence. Its value is 0.280. The p-level is less than or equal to 0.001. The coefficient  $\phi$  is statistically significant. It can be stated that there is a weaker intensity of dependence between the random variables than in the case of the dependence between the random variables "Satisfied with (main) job" and Early retirement ".



**Table 5.** Expected values

Pearson's $\chi^2$ : 125.229, df=3, p=0.000			
	Early retirement		
Job physically demanding	Yes	No	Sum
Strongly agree	480.578	640.422	1121.000
Agree	611.762	815.238	1427.000
Disagree	685.928	914.072	1600.000
Strongly disagree	512.731	683.269	1196.000
<b>Sum</b>	<b>2291.000</b>	<b>3053.000</b>	<b>5344.000</b>

Source: own calculations based on data from Börsch-Supan et al. (2013), Gruber et al. (2014), Bergmann, Börsch-Supan (2021), Börsch-Supan (2022), Börsch-Supan, Gruber (2022), SHARE (2022)

Based on standardized (adjusted) Pearson residuals (Table 6.), it can be concluded that respondents who answered "Strongly agree" and "Agree" in connection with "Job physically demanding" answered the question "Early retirement" "Yes" more often than expected and instead answered "No" less often than expected. The opposite situation was with the answers "Disagree" and "Strongly disagree".

**Table 6.** Adjusted residuals/Standardized residuals

Adjusted residual/Standardized residual		
Job physically demanding	Early retirement	
	Yes	No
Strongly agree	7.5/5.0	-7.5/-4.4
Agree	5.0/3.2	-5.0/-2.8
Disagree	-4.0/-2.6	4.0/2.2
Strongly disagree	-8.1/-5.4	8.1/4.7

Source: own calculations based on data from Börsch-Supan et al. (2013), Gruber et al. (2014), Bergmann, Börsch-Supan (2021), Börsch-Supan (2022), Börsch-Supan, Gruber (2022), SHARE (2022)

### Null hypothesis 3H0

There is no dependence between "Afraid health limits ability to work before regular retirement in (main) job" and "Early retirement".

### Alternative hypothesis 3H1

There is a dependence between "Afraid health limits ability to work before regular retirement in (main) job" and "Early retirement".

"Afraid health limits ability to work before regular retirement in (main) job" has the following answer options: "Strongly agree", "Agree", "Disagree", "Strongly disagree", "Refusal" and "Don't know".

**Table 7.** Contingency table

Afraid health limits ability to work before regular retirement in (main) job	Early retirement		Sum
	Yes	No	
Yes	1326	2133	3459
No	649	3449	4098
<b>Sum</b>	<b>1975</b>	<b>5582</b>	<b>7557</b>

Source: own calculations based on data from Börsch-Supan et al. (2013), Gruber et al. (2014), Bergmann, Börsch-Supan (2021), Börsch-Supan (2022), Börsch-Supan, Gruber (2022), SHARE (2022)

The answers where respondents did not know or did not want to comment are excluded. The answers: "Refusal" and "Don't know" are excluded for both random variables. There are used answers total of 7557 respondents (Table 7.). None of the expected values is less than 5. The minimum expected value is 904. The condition for using the Chi-squared test of independence is met.

**Table 8.** Expected values

Pearson's $\chi^2$ : 491.807 df=1, p=0.000			
Afraid health limits ability to work before regular retirement in (main) job	Early retirement		Sum
	Yes	No	
Yes	904.000	2555.000	3459.000
No	1071.000	3027.000	4098.000
<b>Sum</b>	<b>1975.000</b>	<b>5582.000</b>	<b>7557.000</b>

Source: own calculations based on data from Börsch-Supan et al. (2013), Gruber et al. (2014), Bergmann, Börsch-Supan (2021), Börsch-Supan (2022), Börsch-Supan, Gruber (2022), SHARE (2022)

Based on the p-level (Table 8.), the null hypothesis  $H_0$  is rejected and the alternative hypothesis  $H_1$  is accepted. There is a dependence between the random variables "Afraid health limits ability to work before regular retirement in (main) job" and "Early retirement". Cramér's V is used to express the intensity of the dependence. Its value is 0.255. The p-level is less than or equal to 0.001 (Table 8.). The coefficient  $\phi$  is statistically significant. It can be stated that between the random variables there is a weaker intensity of dependence than in the case of "Satisfied with (main) job" and "Job physically demanding".

**Table 9.** Adjusted residuals/Standardized residuals

Adjusted Residual/Standardized residual		
Afraid health limits ability to work before regular retirement in (main) job	Early retirement	
	Yes	No
Yes	22.2/14.0.	-22.2/-8.3
No	-22.2/-12.9	22.2/7.7

Source: own calculations based on data from Börsch-Supan et al. (2013), Gruber et al. (2014), Bergmann, Börsch-Supan (2021), Börsch-Supan (2022), Börsch-Supan, Gruber (2022), SHARE (2022)

Based on standardized (adjusted) Pearson residuals (Table 9.), it can be concluded that respondents who answered "Yes" in relationship with "Afraid health limits ability to work before regular retirement in (main) job" answered the question "Early retirement" "Yes" more often than expected and less often said "No". The opposite situation

was when the respondents answered "No" to the question "Afraid health limits ability to work before regular retirement in (main) job".

The strongest intensity of dependence is in the case of "Satisfied with (main) job" and "Early retirement" from the analyzes above. Satisfaction with job therefore appears to be an important factor that influences respondents' desire to retire early. In the other two cases, the intensity of dependence is weak.

The relationship assumed was based on the statement: dissatisfaction with job leads to earlier retirement by Jackson et al. (2018). The results of research confirm the statement. However, the opposite statement that job satisfaction does not lead to early retirement was not confirmed. The degree of satisfaction (consent) is important for respondents who are satisfied with their work. Only respondents who are "Strongly agree" with their job tend to retire early less often than expected or more often not retire early than expected. In the case of "Agree" answers, the tendencies are similar to those in which the respondents are not satisfied with their job. Thus, respondents are influenced by other factors when deciding to retire early in this case. The disadvantage for employers is that if employees are not satisfied with the job, then in both response intensities they want to retire more than expected, but if they are satisfied with the job, then only in the case of "Strongly agree" they have the desire less often retire early than expected. What leads employees to say that their job satisfaction claim is "Strongly agree" will be the subject of the further research.

The article is focused on early retirement. It is affected by several factors. One of them is the minimum retirement age and the minimum number of years of service, which vary from one EU country to another. It is assumed that the higher the retirement age, the more employees will want to retire early. However, specifics of individual countries are not taken into account. As part of the analyzes, respondents who did not answer the question or answered I do not know or did not want to answer are excluded. Such exclusion may cause distortion.

#### **4. Conclusions**

The research is focused on the factors that influence employees in their decision to retire early. Early retirement can affect both the employer and the labor market. Suddenly, when an employee retires early, the employer may lack his knowledge, skills and competences. The retirement of a large proportion of employees can significantly reduce the size of the workforce and thus have a negative impact on the labor market.

SHARE - Survey of Health, Aging and Retirement in Europe questionnaires were used to research the influence of factors on the decision to retire early and the results of respondents from EU countries were evaluated by quantitative analysis. The aim of our paper was to specify the influence of selected factors on the desire of workers to retire early. The selected factors were: "satisfied with (main) job", " job physically demanding ", "job afraid health limits ability to work before regular retirement in (main) job". The research used the Chi-squared ( $\chi^2$ ) test of independence and Cramér's V is used to express the intensity of the dependence. Standardized (adjusted) Pearson residuals were used to find out how the relationships indicate.

Based on the quantitative analysis, it can be summarized that the strongest intensity of dependence is in the case of "Satisfied with (main) job" and "Early retirement". Job satisfaction is a significant factor that influences respondents in their decision to retire early. The analyzes confirm the statement that dissatisfaction with job leads to early retirement. The argument that job satisfaction does not lead to early retirement was not confirmed. The degree of satisfaction is important for respondents who are satisfied with their work. Respondents who are "Strongly agree" with their jobs thus tend to retire early less often than expected or more often not retire early than expected. However, in the case of "Agree" answers, the tendencies are similar to those in which the respondents are not satisfied with their work. The analysis shows that it is very important that employers try to make their employees very satisfied with their job. Ultimately, such an effort for job satisfaction will be return to

employers back. The phenomenon of early retirement is to be researched in a more detailed way from the perspective of human resources management, because at the time of digital economy change (Szeles, Simionescu 2020; Herman 2022), employers cannot afford to let productive employees leave and labor markets to lose skilled workforce as one of the pillars of competitiveness of economies (Navarro et al. 2017).

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