Argumenta Oeconomica
Year 2025, Vol. 54, No. 1
ISSN 2720-5088
journals.ue.wroc.pl/aoe

Economic and non-economic determinants of retirement intentions. Empirical evidence from Poland

Magdalena Swacha-Lech

Department of Finance, Wroclaw University of Economics and Business, Poland

e-mail: magdalena.swacha-lech@ue.wroc.pl

ORCID: 0000-0003-0129-2968

Patrycja Kowalczyk-Rólczyńska

Department of Insurance, Wroclaw University of Economics and Business, Poland

e-mail: patrycja.kowalczyk-rolczynska@ue.wroc.pl

ORCID: 0000-0002-7952-7678

Łukasz Jurek

Department of Sociology and Social Policy, Wroclaw University of Economics and Business, Poland

e-mail: lukasz.jurek@ue.wroc.pl

ORCID: 0000-0002-0078-471X

Quote as: Swacha-Lech, M., Kowalczyk-Rólczyńska, P., & Jurek, Ł. (2025). Economic and non-economic determinants of retirement intentions. Empirical evidence from Poland. *Argumenta Oeconomica*, *1*(54), 137-153.

DOI: 10.15611/aoe.2025.1.09

JEL: J21, J26, J28

Abstract

Aim: The aim of the study was to identify and evaluate the factors that have a significant impact on the intention to retire as soon as possible among workers in Poland.

Methodology: To achieve this goal the structural equation modelling (SEM) method was used. The data came from the authors' own study conducted in Poland at the end of 2021 using the computer assisted web interview (CAWI) method on a representative group of employees aged 50 and above. The authors selected a range of potential predictors, including demographic, economic, workplace-related, and psychological.

Results: The results showed that personal factors and anticipated level of income in retirement positively influence the intention to retire as soon as possible, whilst education, monthly income, income voluntarily saved for retirement, good working conditions and positive attitudes towards retirement have a negative impact.

Implications and recommendations: The results of the study, conducted among the Polish population aged 50+ living in one of the fastest developing countries of Central and Eastern Europe, may contribute to research conducted in other European countries. The implementation of a similar study by other researchers will allow for comparison and may form the basis for recommendations relevant to an ageing Europe and a lower burden on public finances in each country.

Originality/value: To the best of the authors' knowledge, this is the first such analysis for Poland. The extensive catalogue of variables adopted for the study facilitated an in-depth analysis of the factors influencing the intention to retire as soon as possible.

Keywords: retirement decisions, retirement intentions, personal characteristics, work environment, pension system

1. Introduction

Pension systems vary widely from country to country, reflecting different traditions and social, economic and cultural conditions (Kłos, 2011; Żukowski, & Szumlicz, 2004). In the literature on pension economics and social policy, there are now many classifications of pension systems based on different criteria (Chybalski, 2016; Jedynak, 2019). The Polish system was radically reformed in 1999 in line with World Bank recommendations, introducing a multi-pillar structure. Since then, however, it has been reformed several times, making it one of the most changeable pension systems in Europe (Jurek, 2021).

One of the most significant changes in 1999 was the replacement of the defined benefit (DB) scheme with the defined contribution (DC) scheme. Under this new solution, each participant builds up a pension capital during his or her working life, which is consumed (decumulated) after retirement. The amount of the benefit received depends on two variables: the size of the account value and the expected length of life in retirement. This new system is actuarially fair, maintaining the equivalence between the individual's input (contribution to the system), and output (the total amount of benefits paid out). Compared to the previous solution, the current pension system is much less redistributive and solidarity-based. In this respect, the Polish system is similar to the Swedish one, however, a special mechanism for adjusting assets to liabilities was introduced there in 2010 (Szczur, 2014). As a result, the stability of the system (at least in the pay-as-you-go part) is constantly – annually – monitored. There is no such solution in the Polish system, which makes it, as noted by Ł. Szwedo (2016, p. 63), "financially unstable and not resistant to the negative effects of population ageing".

The transition from DB to DC scheme empowers individuals in the pension system by increasing the role of their retirement decisions, namely about when to retire (Chybalski, 2013). It creates strong financial incentives that delay the transition to retirement. In Poland, it is estimated that extending working life (the contribution period) by one year is associated with a subsequent increase in benefits of around 8% (Buchholtz, & Rutecka-Góra, 2021).

As Laitner and Sonnega (2012) pointed out, referring to the rational-economic approach, the retirement decision is an economic choice where time is exchanged for money. People are rational, so they make optimal decisions, including the decision at the moment of transition to retirement. If this is the case, they should work as long as their subjective value of money obtained from work is balanced by the subjective feeling of loss resulting from the lack of free time. Moreover, according to Ando and Modigliani (1963), rational individuals do not take into account only the current situation, but create long-term plans, covering the entire life period. As a result, they retire at the optimal moment for themselves, taking into account financial needs, health status, professional potential, and individual preferences.

Retirement is one of the key moments in a person's life. The decision of when to do so is not a one-time choice, but a process that is shaped over a long period of time (Beehr, 1986; Beehr, & Bowling, 2013). It is influenced by a large number of different factors (Fisher et al., 2016; Scharn et al., 2018). Currently in the literature it is assumed that the decision to retire is the result of the influence of two

types of forces (Tavernier et al., 2021). The first is the force pushing out of the labour market – all the negative factors that discourage work activity (e.g. poor health, discrimination, stress), and the second is the force that pulls into joblessness. This group includes all the positive factors that encourage retirement (e.g. high pension benefits, attractive leisure time opportunities). In addition, as indicated by Szinovacz (2013), it is assumed that these forces act at three different levels: micro, meso and macro. The micro level is the individual's personal situation – health status, personality type, material and family situation. The meso level is the work environment conditions – organizational culture, workstation ergonomics, management style, whereas the macro level is the overall socio-economic context – culture, labour market, and the structure of the social security system.

The rationality of human action, including retirement decisions, is a basic assumption of classical economics. Rational individuals should retire at an age that is optimal for them. The decision-making process attempts to maximise expected utility, taking into account, among other things, one's work potential, financial needs and health. and therefore people should retire at different ages. However, the results of numerous empirical studies conducted in recent years do not confirm this assumption (Blanchet, & Debrand, 2008; OECD, 2017), as it seems that people are most likely to retire as early as possible. Assuming the actual actuarial fairness of the pension system, this should be treated as a manifestation of limited rationality, which may be due to various reasons, including: the complicated functioning of the pension system, low pension awareness, uncertainty about the costs of living in old age, and cognitive errors (Aaron, 1999; Caplin, 2000; Jedynak, 2022; Schnellenbach, & Schubert, 2015). The conditions for early retirement are currently the subject of many studies, and also the focus of interest in this article. The research aim was to identify and evaluate economic and non-economic factors that influence the intention to retire as soon as possible. To the best of the authors' knowledge, this is the first such analysis for Poland, and the extensive catalogue of variables adopted for the study allowed for an in-depth analysis of the factors influencing the intention to retire as soon as possible.

With ageing populations in European countries and declining replacement rates, the issue of retirement intentions is increasingly important. Policy makers aim to encourage employees aged 50+ to stay in the labour market as long as possible and thus accumulate higher pension capital. This study is one of the few taking into account the wide range of determinants that influence the retirement intentions of people of pre-retirement age. Thus, it not only makes an important contribution to the existing literature, but also serves as an inspiration for both researchers who focus on the multifaceted nature of retirement decisions, and those only interested in selected factors of retirement intentions.

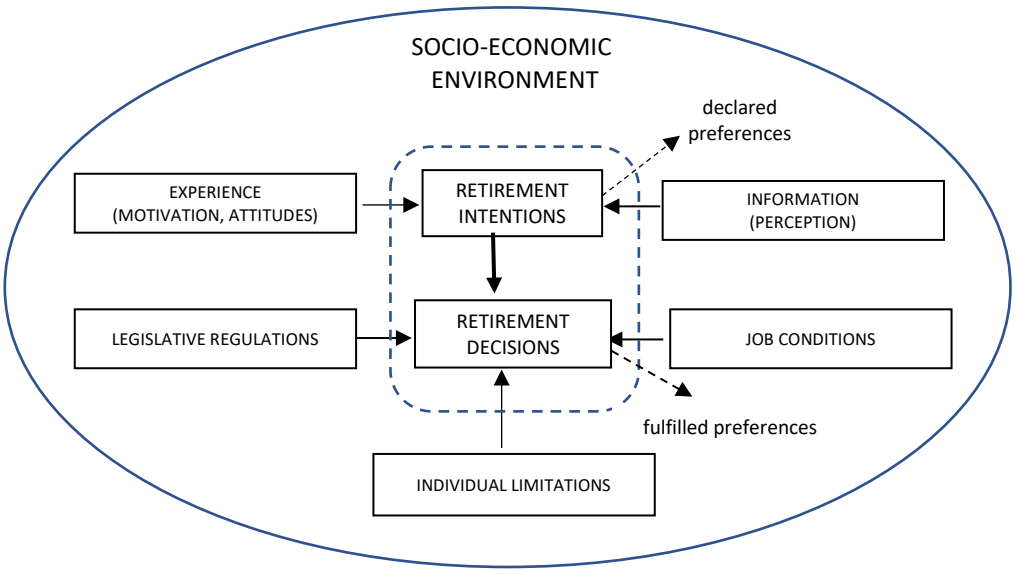

Fig. 1. Retirement intentions and retirement decisions: a model approach

Source: Kowalczyk-Rólczyńska et al. (2022).

The data used in the study came from a CAWI survey conducted in Poland at the end of 2021 among a representative group of employees aged 50 and over. The statistical analysis was based on the answers in which the respondents indicated their willingness to retire as early as possible, therefore the subject of the study was not the actual behaviour, but merely retirement intentions. There are certain kinds of intentions, expectations and preferences that, of course, may or may not come to fruition. In practice, actual retirement decisions are often the result of various critical events, such as the sudden loss of health and an unexpected deterioration of the labour market situation, which disrupt life plans and force people to adapt to the current circumstances. Nevertheless, according to Nivalainen (2022) and Sousa-Ribeiro et al. (2021), it is customary to treat retirement intentions as a reliable determinant of later retirement behaviour, as shown in Figure 1.

2. Determinants of retirement intentions: a conceptual approach

In this model, the independent variable (Y) is the intention to retire as soon as possible. A set of variables of various types was created to explain its variability: latent and observable. The general research model is presented in Figure 2.

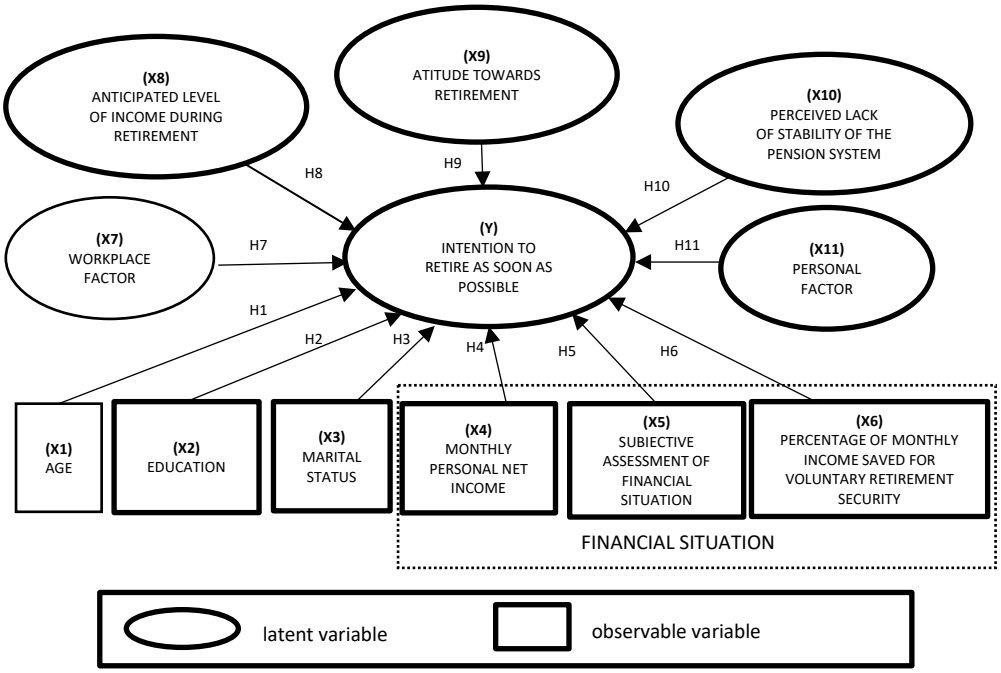

Fig. 2. Research model

Source: own study.

2.1. Observable variables

Age (X1) Chronological age is the basic predictor of retirement decisions: the older a person, the greater the inclination to retire. As noted by Fisher et al. (2016), this is mainly associated with deteriorating health, and thus with declining working capacity with age (Fisher et al., 2016). It is also related to the professional aspects rooted in the inadequacy of employment conditions and the working environment to the specific needs and capabilities of the elderly (Kowalczyk-Rólczyńska et al., 2022). Psychological issues, more specifically hyperbolic discounting, also appear to be important in this case, which means a specific way of mentally calculating benefits in the long and short term. If the waiting time is long, then people are willing to wait patiently to achieve higher benefits, whereas if the waiting time is short, they are impatient and usually prefer the less advantageous option – as long as it is immediate. Translating

this into retirement decisions, this means that among young people who are separated from retirement by a long period of life, the inclination to work beyond the statutory retirement age is relatively high. Over time, however, as the time of retirement becomes closer, preferences change and the option of early "professional deactivation" becomes more attractive (Bidewell et al., 2006).

In connection with the above, the following hypotheses were formulated:

H1: Age has a significant positive effect on the intention to retire as soon as possible.

Education (X2) Previous studies clearly indicate that education is positively related to retirement age: the higher the education, the higher the retirement age (Fisher et al., 2016). It is assumed that the propensity to retire early is higher among the less educated, therefore:

H2: Education has a significant negative effect on the intention to retire as soon as possible.

Marital status (X3) The decision to retire is made on an individual basis only for people living alone (singles). As noted by Lundberg (1999), for those living in a relationship, this decision is the result of a collective understanding known as family bargaining. Previous studies (Fisher et al., 2016) suggested that people (especially women) living in relationships are usually more prone to early retirement than singles, therefore:

H3: Being in a relationship has a significant positive effect on the intention to retire as soon as possible.

Financial situation (X4, X5, X6) Previous studies on the influence of the income earned and accumulated wealth on retirement intentions indicate that wealthy people are usually more willing to become economically inactive than poor people, and this applies to both wealth (Bloemen, 2011), and income (Mermin et al., 2007). As Beehr (1986) argued, this confirms the economic perspective that workers choose to retire when they can afford to do so. Although this is a general rule, empirical findings are sometimes at odds with it, as evidenced by Fisher et al. (2016). In this study, the authors assumed that achieving a higher monthly income translates into an increase in the declared willingness to retire early, therefore:

- individuals who are significantly positive about their financial situation have a higher propensity to retire as early as possible than those who are negative about their financial situation,
- a higher proportion of income voluntarily saved for retirement is associated with a higher propensity to retire early.

The authors also put forward the following hypotheses:

H4: Monthly income has a significant positive effect on the intention to retire as soon as possible.

H5: Positive assessment of one's own financial situation has a significant positive effect on the intention to retire as soon as possible.

H6: Income voluntarily saved for retirement has a significant positive effect on the intention to retire as soon as possible.

2.2. Latent variables

Workplace factor (X7) As evidenced by Kowalczyk-Rólczyńska, et al. (2022), work conditions are an important factor shaping retirement intentions. As a rule, the better the financial and non-financial elements of employment, the higher the desire to stay on the job market and postpone the moment of retirement. Attention is paid to such factors as: job satisfaction and commitment (Kalokerinos et al., 2015; Topa et al., 2009), physical strain, stress level, sense of control (Blekesaune, & Solem, 2005; Henkens, & Tazelaar, 1994; Robroek et al., 2013), adaptation of work conditions to the needs and preferences of older people (Beehr et al., 2000; Grosch, & Pransky, 2009; Sousa-Ribeiro et al., 2021), interpersonal relations, organizational culture, and work atmosphere (Feldman, 2013; Van Solinge, & Henkens, 2014). This study assumed that the better the overall working conditions, the lower the tendency to retire as early as possible, hence:

H7: Good working conditions have a negative effect on the intention to retire as soon as possible.

Anticipated level of income during retirement (X8) As pointed out by Beehr et al. (2000) and Seongsu and Feldman (1998), expectations about the quality of life (potential income) in retirement are of fundamental importance for retirement intentions. This is consistent with the life cycle theory formulated by Ando and Modigliani (1963), where individuals try to smooth consumption over the course of their whole life, and thus they leave the labour market only when the expected total (mandatory government provided, additional government provided, voluntary savings) pension income is at an appropriately high level. However, in order to secure this appropriately high income, it is necessary to extend the period of professional activity and thus accumulate the necessary pension capital. This study assumed that the higher the anticipated level of income in retirement, the greater the propensity of the respondents to retire as early as possible, hence:

H8: Anticipated level of income during retirement has a positive effect on the intention to retire as soon as possible.

Attitudes toward retirement (X9) As Wilson and Gilbert (2003) demonstrated, retirement intentions are shaped by the emotions and associations that retirement evokes. According to Weiss and Kornadt (2018), people have a natural tendency to mentally distance themselves from things that have negative connotations. The issue is, therefore, whether retirement is perceived as a time of passivity and boredom or as a period of fulfilling interests and life passions. As Barrett and Von Rohr (2008) pointed out, the potential linking of retirement with old age, which in our culture has unambiguously negative connotetions, may also be a significant issue. This study assumed that the more positive the attitude towards retirement, the higher the tendency to retire as early as possible, hence:

H9: A positive attitude towards retirement has a positive effect on the intention to retire as soon as possible.

Perceived lack of stability of the pension system (X10) People generally show a natural aversion to risk. Kahneman and Tversky (1979) suggested that in situations of uncertainty, they prefer solutions that are considered less risky, even if they provide lower outcomes. As Mather et al. (2012) demonstrated, this is especially true for older people, therefore the stability of the pension system is seen as a potentially important factor influencing retirement intentions. High variability in the rules of operation of this system undermines trust and increases uncertainty about future institutional and legal solutions. In this situation, employees should reduce risk and choose a certain solution, such as early retirement, even if financially it is relatively less favourable, hence:

H10: The perceived instability of the pension system has a positive effect on the intention to retire as soon as possible.

Personal factor (X11) Personal situation usually has a key importance for retirement intentions. Ending professional activity does not have to be the result of a conscious decision, but rather a necessity resulting from a difficult personal situation – one's poor health (McGarry, 2004; Robroek et al., 2013), or of the closest persons (Matthews, & Fisher, 2013). In addition, much depends on the family situation – decisions made by spouses are usually mutually related in such a way as to jointly share work concerns and then enjoy free time on retirement together. This study assumed that the higher the priority given to general personal matters, the greater the propensity to retire as early as possible, hence:

H11: Difficult personal situation has a positive effect on the intention to retire as soon as possible.

3. Research method and description of variables

The necessary empirical data was collected through an online survey (CAWI method), conducted by the research agency SW Research from 26 November 2021 to 13 December 2021, on a representative sample of working people aged 50 and above. The survey targeted users of the online SW PANEL belonging to the agency. A stratified sample was used, taking into account assumptions regarding the

overall representativeness of gender and age category and marginalised by size class of residence. The percentage of people who completed the survey after starting it was 42%. Despite the fairly low response rate, the sample remained representative in terms of key demographic characteristics. The main features of the non-respondents are known, but due to the nature of the survey, the reasons for non-response remain unrecognised.

In total, 1704 correctly completed questionnaires, whilst the respondents who indicated the "I refuse to answer" option in the question about the total monthly net income from all sources were excluded from the analysis, therefore 1579 questionnaires were accepted for further research.

In order to achieve the research goal, the structural equation modelling (SEM) method was used. As stated by Magidson (1979), SEM is a method that allows for the testing of complex theoretical models, taking into account various forms of causal relationships between variables (previously referred to as causal models). The advantages of SEM include the testing of both direct and indirect effects and the possibility of introducing latent (unobservable directly) variables into the model. In this way, it was determined whether and how a wide range of economic and non-economic factors affect the intention to retire as soon as possible. Program R (using the lavaan package) was used for structural equation modelling. The unweighted least squares mean and variance adjusted test statistics (ULSMV) algorithm was used for calculations. This method allows for the calculation of robust estimates and the correction of standard errors due to the nominal/ordinal nature of the observable variables.

Table 1 presents the characteristics of the research sample.

Table 1. Characteristics of the research sample (N=1579)

Criterion	%
1) Gender	
• Women	54.97
• Men	45.03
2) Age	
• 50-55	36.54
• 56-60	25.84
• 61-65	21.09
• 60 and more	16.53
3) Education	
• higher bachelor's degree, engineering degree	8.36
• higher master's degree or equivalent, doctoral degree	31.54
• secondary	47.691
• incomplete primary, primary, basic vocational	12.41
4) Marital status	
• Married	62.95
• Partnership	8.80
• Single	8.36
• divorced/separated	10.58
• widower/widowed	9.31
5) Place of residence	
• Village	29.07
• city with up to 100,000 inhabitants	33.82
• cities with 100,000 to 500,000 inhabitants	22.04
• cities over 500,000 inhabitants	15.07

Source: own study.

The research aim was to identify and evaluate the factors that have a significant impact on the intention to retire as soon as possible. The explanatory variable – intention to retire as soon as possible (ITR) - was created based on two questions from the questionnaire (Table 2).

Table 2. Questions used to construct the explanatory variable (ITR)

Question	Response options	n	%
Employees can retire at different ages. Think about your own retirement. When would you like to retire and apply for retirement benefits?	• decidedly as soon as possible	498	31.54
	• probably as soon as possible	566	35.85
	• rather not as soon as possible	355	22.48
	• decidedly not as soon as possible	160	10.13
What moment do you personally consider to be the best for retirement and claiming retirement benefits?	• if possible, before the statutory age, using the available bridge solutions	335	21.22
	• at the statutory pension age	715	45.28
	• after the statutory pension age, but not long (a dozen months or so)	308	19.51
	• as late as possible	221	13.99

Source: own study.

The reliability of the ITR variable was confirmed using Cronbach's alpha coefficient, average variance extracted (AVE) and composite reliability (CR). The obtained results were 0.70, 0.83 and 0.76 respectively, which proves the reliability of the measurement tool used.

As shown in Figure 2, the proposed model included both observable and latent variables. The observable variables were demographic variables: age (AGE), education (ED), marital status (MS) presented in Table 1, and variables related to the respondents' financial situation (Table 3).

Table 3. Observable variables related to the respondents' financial situation

Observable variables related to the respondents' financial situation	%
1) Monthly personal net income (MPNI)	
• over PLN 9.000	3.42
• 7001 to 9000 PLN	4.69
• 6001 to 7000 PLN	5.07
• 5001 to 6000 PLN	6.52
• 4001 to 5000 PLN	13.11
• 3001 to 4000 PLN	25.21
• 2001 to 3000 PLN	27.49
• 1501 to 2000 PLN	10.96
• up to PLN 1500	3.55
2) Subjective assessment of financial situation (SAOFS)	
• definitely good	4.37
• rather good	23.43
• average	56.24
• rather bad	12.54
• definitely bad	3.42
3) Percentage of monthly income saved for voluntary retirement security (MISFVR)	
• above 25	0.76
• 21 to 25	1.52
• 16 to 20	4.62
• 11 to 15	6.90
• 5 to 10	14.76
• under 5	14.44
• I don't save	57.00

Source: own study.

Measurement tools for the latent variables are provided in Table 4, which shows the R^2 values for the variables, but the assessment of the measurement tool is presented in the description of the results.

Table 4. Latent variables

Variables	Label	R^2
Workplace factors (WF)	WF1 Job satisfaction	0.46
	WF2 Encouragement from superiors to continue working despite reaching retirement age	0.42
	WF3 Good atmosphere at work	0.69
	WF4 High wages	0.53
	WF5 Commitment to work	0.62
Personal factors (PF)	PF1 Life partner is already retired	0.32
	PF2 Life partner also retires at this time	0.44
	PF3 Willingness to help relatives	0.34
	PF4 Illness of a relative	0.55
	PF5 My health condition	0.38
Anticipated level of income during retirement (AIDR)	AIDR1 The pension benefit from the mandatory part of the pension system	0.60
	AIDR2 The pension benefit from the additional part of the pension system	0.80
	AIDR3 Voluntary savings	0.43
Attitudes toward retirement (ATR)	ATR1 I am concerned about how I will manage my free time after retirement	0.28
	ATR2 Work provides me with presence among people which is very important to me. I am afraid that I will lose social contacts in retirement	0.68
	ATR3 Retirement means the end of working life and the beginning of old age	0.26
	ATR4 Retirement is inextricably linked to the loss of professional role which results in loss of social prestige	0.44
Perceived lack of stability of the pension system (PLSPS)	PLSPS1 Concern about the unfavourable direction of pension law changes	0.56
	PLSPS2 A sense of confusion as a result of constant changes from pension legislation	0.55

Source: own study.

The authors did not use methods for replacing data gaps because only those questionnaire surveys that contained a full set of answers were taken into analysis.

4. Results

4.1. Correlation coefficients and confirmatory factor analysis

The first step in the process of structural equation modelling was to check if the adopted variables have low collinearity, are reliable, and if they are characterised by factor and differential validity. Table 5 shows the coefficients of correlation between the variables. The results presented confirm the presence of a weak correlation between the variables adopted to the model.

Table 5. Correlation coefficients (upper triangle of the table), HTMT coefficient estimates (lower triangle of the table) and reliability analysis

	WF	PF	AIDR	ATR	PLSPS	ITR	α	AVE	CR
WF	1	0.51	0.04	0.32	0.36	-0.31	0.85	0.55	0.86
PF	0.51	1	0.08	0.1	0.33	0.05	0.77	0.41	0.77
AIDR	0.06	0.17	1	0.16	-0.31	-0.01	0.82	0.61	0.82
ATR	0.22	0.08	0.16	1	0.17	-0.32	0.73	0.42	0.72
PLSPS	0.35	0.28	0.3	0.17	1	-0.07	0.71	0.56	0.71
ITR	0.3	0.04	0.04	0.27	0.07	1	0.79	0.65	0.79

Source: own work.

To test reliability and construct validity, a confirmatory factor analysis (CFA) model was estimated (Ho, 2006) and the model fit was found to have adequate data. Table 5 contains the main results of this analysis.

In order to evaluate the measurement tool, Cronbach's alpha (α) coefficient and the CR were used. In each case, values higher than 0.7 were obtained, which confirms the reliability of the measurement tool. As Konarski (2009) pointed out, one of the important ways to assess the theoretical validity of the measurement tool is also the convergent validity and discriminant validity of the evaluated measurement tool. A high correlation between the results of the two methods measuring the same characteristic indicates convergent validity, while a low correlation between the two characteristics measured by the two different methods indicates discriminant validity. In order to test the assumption of convergent validity, the average variance extracted) (AVE) coefficients were estimated, whilst to test the assumption of discriminant validity, the heterotrait-monotrait ratio (HTMT) coefficients were also calculated. The analysis of the HTMT coefficients showed that all variables were discriminant valid (Table 5). The presented values show that both the reliability and the validity of the constructs were at a satisfactory level.

4.2. Estimation results of the model

The results of the model estimation (Table 6) show that the statistically insignificant variables were PLSPS, MS, SAOFS, and AGE. The remaining variables have a significant impact on the intention to retire as soon as possible.

Table 6. The results of the model estimation

Explained variable	←	Explanatory variables	SFL[a]	SE[b]	Z[c]
ITR	←	WF	-0.38	0.05	-8.29***
ITR	←	PF	0.24	0.05	5.39***
ITR	←	AIDR	0.13	0.06	2.46*

Explained variable	←	Explanatory variables	SFL[a]	SE[b]	Z[c]
ITR	←	ATR	-0.26	0.05	-6.26***
ITR	←	PLSPS	0.07	0.06	1.40
ITR	←	AGE	-0.01	0.03	-0.22
ITR	←	ED	-0.12	0.03	-4.01***
ITR	←	MPNI	-0.11	0.04	-3.13**
ITR	←	SAOFS	0.01	0.04	0.37
ITR	←	MISFVR	-0.14	0.04	-3.56***
ITR	←	MS divorced separated	-0.01	0.04	-0.20
ITR	←	MS married	0.06	0.05	1.36
ITR	←	MS partnership	-0.04	0.05	-0.91
ITR	←	MS single	-0.02	0.04	-0.63

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, a – Standardized Factor Loading, b – Standard Error, c – Z-value.

Source: own study.

Analysis of the coefficients of the explained variance showed that the explanatory variable was explained by the model at 25.00% ($R^2 = 0.25$).

4.3. Goodness-of-fit

According to MacCallum (2003) and Tomarken and Waller (2003), an important and the most complex element of structural equation modelling (SEM) is the assessment of model fit and quality. Currently, a number of measures are used to assess the degree to which the proposed theoretical model is consistent with the data. In this article, eight measures were used to assess the goodness-of-fit of the model:

- goodness-of-fit index (GFI),
- adjusted goodness-of-fit index (AGFI),
- standardized root mean square residual (SRMR),
- Bentler-Bonett normed fit index (NFI),
- non-normed fit index (NNFI), also referred to as Tucker Lewis index (TLI),
- Bollen's incremental fit index (IFI),
- comparative fit index (CFI),
- root mean square error of approximation (RMSEA).

Table 7. Measures of the model's goodness-of-fit

Measures of absolute adjustment			Measures of relative adjustment				Measures of the error of approximation
			Type-1	Type-2		Type-3	
GFI	AGFI	SRMR	NFI	NNFI	IFI	CFI	RMSEA
0.97	0.96	0.05	0.90	0.90	0.91	0.91	0.05

Source: own study.

As shown in Table 7, the measures used represent both absolute goodness-of-fit indices and relative goodness-of-fit. The absolute goodness-of-fit indices include those measures that do not depend on comparisons with other alternative models, and their main task is to eliminate or reduce the dependence of the chi-square test statistic on sample size N.

Values of GFI and AGFI close to zero indicate a complete lack of fit, while values close to 1 indicate very good fit. For well-fitted models, GFI and AGFI values should be greater than 0.90. In practice, it is accepted that the lower acceptance limit for the model is 0.95 (McDonald, 2013; Schreiber et al., 2006). The SRMR index is also defined as an index of model badness-of-fit, hence as was indicated by Hu and Bentler (1998) and Schreiber et al.(2006), a value of 0 indicates an ideal fit. The acceptance value of the model is usually set at 0.08.

Relative fit indices, also known as comparative fit indices, indicate the adequacy of the tested model compared to the maximally restricted embedded zero model (Hu, & Bentler, 1998). NFI measures the increase in fit of the tested model compared to the baseline zero model. According to Marsh et al. (1988), a value of 0 indicates poor fit, while a value of 1 indicates very good fit. In contrast to normed fit Index, non-normed fit index, and incremental fit index (which limit NFI dependence on N and take into account degrees of freedom of the tested model), are relatively independent of sample size. Their values range from 0 to 1. As indicated by Bollen (1990) and Hu and Bentler (1998), the higher the value of the index, the better the fit. Another of the used indices is CFI, which is a fully normalised fit measure, taking values from 0 to 1. A CFI value of 1 indicates the ideal fit, so the desired values of this index, according to Hoyle and Panter (1995), oscillate around 1.

The RMSEA measure of approximation error was used, which is recommended and widely applied (MacCallum, 2003; McDonald, & Ho, 2002). The adopted level of acceptance of the hypotheses of close model fit was 0.05 at the p>0.5 level.

According to the results of the analysis of the fit of the test model, this model should be considered well fitted to the data.

4.4. Hypotheses testing

The final step in reporting the results is testing the hypothesis. Table 8 presents the final results regarding the testing which support four of the eleven hypotheses formulated.

Table 8. Testing of hypotheses

Hypothesis	Result	Justification
H1: Age has a significant positive effect on the intention to retire as soon as possible	Supported	The AGE variable is not statistically significant
H2: Education has a significant negative effect on the intention to retire as soon as possible	Supported	The ED variable has a negative impact on ITR
H3: Being in relationships has a significant positive effect on the intention to retire as soon as possible	Not supported	The MS variable is not statistically significant
H4: Monthly income has a significant positive effect on the intention to retire as soon as possible	Not supported	The MPNI variable has a negative impact on ITR
H5: Positive assessment of one's own financial situation has a significant positive effect on the intention to retire as soon as possible	Not supported	The SAOFS variable is not statistically significant
H6: Income voluntarily saved for retirement has a significant positive effect on the intention to retire as soon as possible	Not supported	The MISFVR variable has a negative impact on ITR
H7. Good working conditions have a negative effect on the intention to retire as soon as possible	Supported	The WF variable has a negative impact on ITR

H8. Anticipated level of income during retirement has a positive effect on the intention to retire as soon as possible	Supported	The AIDR variable has a positive effect on ITR
H9: A positive attitude towards retirement has a positive effect on the intention to retire as soon as possible	Not supported	The variable ATR has a negative impact on ITR
H10: The perceived instability of the pension system has a positive effect on the intention to retire as soon as possible	Not supported	The PLSPS variable is not statistically significant
H11: Personal factors have a positive effect on the intention to retire as soon as possible	Supported	The PF variable has a positive effect on ITR

Source: own study.

5. Discussion and conclusions

Poland is one of the fastest developing countries in Europe, and its rapid economic growth and social enrichment have gone hand in hand with the emergence of many other processes that pose challenges to society and the economy, one of which is the population ageing. The increase in the proportion of older people is widely seen as a destabilising issue for the welfare state and public finances, with the pension system being under particular pressure. As a result, there is a growing need for applying adjustment measures to mitigate the impact of demographic change and ensure the sustainability of the system – in particular the working life must be extended and the effective retirement age raised. However, the effectiveness of measures in this area requires a proper diagnosis of the problem, i.e. the correct identification of the causes of early withdrawal from work. It is necessary to find an answer to the question of why some people have the intention to retire as soon as possible.

This study provides a response to these vital needs. Its aim was to identify and assess the economic and non-economic factors that influence the intention to retire as soon as possible. The authors selected a range of potential predictors, including demographic, economic, workplace-related, and psychological.

The results of the statistical analysis indicated that some demographic factors do not affect retirement intentions. Age and marital status were found to be insignificant. It is somewhat surprising that, from the perspective of retirement intentions, the stability of the retirement system also turned out to be insignificant, which seemed to be key, especially in the context of fears of possible legal changes that may affect the amount of benefits received. The subjective assessment of the financial situation was also insignificant, which means that the financial situation of a person acquiring retirement entitlements was not crucial from the point of view of their intention to retire as soon as possible.

Among the demographic factors that, according to the literature, should determine retirement intentions, education level was found to be significant. Its negative effect on the explained variable means that the better educated the person, the less willing they are to retire early. This supports hypothesis H2. Thus this study is in line with the results shown by Fisher et al. (2016), that the higher the level of education, the higher the age at which the respondents choose to retire. Given the increasing percentage of people with higher education, the modelling result allows for an optimistic outlook on future retirement decisions.

Two out of the three financial situation factors were also significant. The results indicated the negative impact of these factors on retirement intentions; it appears that achieving a higher monthly income causes the reluctance to retire as soon as possible. Furthermore, the higher the percentage of income voluntarily saved for retirement, the greater the reluctance to retire early, which means that the results do not support hypotheses H4 and H6. Therefore this study is not consistent with the view represented by Beehr (1986), Bloemen (2011) and Mermin et al. (2007) that workers choose to retire when they can afford to do so, whereas it supports the results obtained by Fisher et al. (2016). Hence

it can be assumed that people whose remuneration is relatively high do not intend to leave the labour market but rather want to take advantage of the opportunity to earn a high income and improve their financial situation. The ability to accumulate capital for retirement security discourages early retirement. With retirement and receiving retirement benefits, which – considering the replacement rate – will be lower than their income during their working life, further possibilities of saving money will either be significantly reduced or simply impossible.

Other factors that significantly influenced retirement intentions were those related to the workplace. The conducted modelling indicated that the better the overall working conditions, the lesser willingness to retire as early as possible, which supports hypothesis H7. This conclusion is important for those employers who would like to keep their employees on the labour market, despite their acquiring pension rights. The development of good working conditions should discourage the 'professional deactivation' of experienced employees who may be very difficult to replace in many positions.

Personal factors usually significantly influence all decisions, and the same is true for the desire to retire as soon as possible. The results of this study indicated that the higher the priority given to these factors, the greater the willingness to retire early, thus supporting hypothesis H11. Deteriorating health and/or the need to care for a close relative will discourage actively employed workers from staying in the labour market. A sense of obligation to help loved ones may be particularly important in the group of women, who usually willingly take care of their grandchildren.

The modelling clearly indicates that the anticipated level of income in retirement significantly influences retirement intentions. The results showed that the higher the expected level of retirement income, the greater the propensity to retire as soon as possible, supporting hypothesis H8, and therefore are in line with the assumptions of life-cycle theory (Ando, & Modigliani, 1963).

When making retirement decisions, the attitudes of people making these decisions are important. This is particularly evident if work is associated with social prestige and/or if a person does not have any other activities outside of work (no hobbies). The problem is even greater if the potential retiree does not have anyone to spend their free time with after their working activities end. Previous studies showed that attitudes towards retirement significantly positively influence the willingness to retire early. The results of this study do not support hypothesis H9, that the more positive the attitude towards retirement, the greater the propensity to retire as early as possible. Therefore, this may imply that economic factors are more important for the decision to retire than factors of a psychological nature.

To sum up, the results suggest that personal factors and anticipated level of income during retirement have a positive impact on the intention to retire as soon as possible, while education, monthly income, income voluntarily saved for retirement, good working conditions and a positive attitude towards retirement have a negative impact. It would be valuable to see to what extent the respondents' declared answers regarding the impact of the surveyed factors on their intention to retire as soon as possible coincide with their actual decisions to do so in the future.

The results of the survey conducted among the respondents aged 50+ living in Poland, one of the fastest developing countries of Central and Eastern Europe, can contribute to research conducted in other European countries. The implementation of a similar study by other researchers will allow comparisons to be made and may form the basis for recommendations that will be relevant to an ageing Europe, and reduce the burden on public finances.

As for the limitations of this study, it should be noted once again that the decision to retire is very complex and is determined by many factors. The research examined the impact of many economic and non-economic variables on the willingness to retire as early as possible. Clearly, due to the nature of the study, it was impossible to examine all the interesting and important issues. The omitted factors include: trust in institutions, respondents' understanding of the system, behavioural inertia, and risk aversion – each of these requires additional in-depth analysis.

References

Aaron, H. J. (1999). Retirement, retirement research, and retirement policy. In H. Aaron (Ed.), *Behavioral Dimensions of Retirement Economics* (pp. 43-80). Brookings Institution Press and Russell Sage Foundation.

Ando, A., & Modigliani, F. (1963). The "life cycle" hypothesis of saving: Aggregate implications and tests. *The American Economic Review*, *53*(1), 55-84.

Barrett, A. E., & Von Rohr, C. (2008). Gendered perceptions of aging: An examination of college students. *International Journal of Aging and Human Development*, *67*(4), 359-386. https://doi.org/10.2190/AG.67.4.d

Beehr, T. A. (1986). The process of retirement: a review and recommendations for future investigation. *Personnel Psychology*, *39*(1), 31-55. https://doi.org/10.1111/j.1744-6570.1986.tb00573.x

Beehr, T. A., & Bowling, N. A. (2013). Variations on a retirement theme: conceptual and operational definitions of retirement. In M. Wang (Ed.), *The Oxford handbook of retirement* (pp. 42-55). Oxford University Press.

Beehr, T. A., Glazer, S., Nielson, N. L., & Farmer, S. J. (2000). Work and nonwork predictors of employees' retirement ages. *Journal of Vocational Behavior*, *57*(2), 206-225. https://doi.org/10.1006/jvbe.1999.1736

Bidewell, J., Griffin, B., & Hesketh, B. (2006). Timing of retirement: Including a delay discounting perspective in retirement models. *Journal of Vocational Behavior*, *68*(2), 368-387. https://doi.org/10.1016/j.jvb.2005.06.002

Blanchet, D., & Debrand, T. (2008). *The sooner, the better? Analysing preferences for early retirement in European countries* (No. DT13; IRDES Working Papers).

Blekesaune, M., & Solem, P. E. (2005). Working conditions and early retirement: A prospective study of retirement behavior. *Research on Aging*, *27*(1), 3-30. https://doi.org/10.1177/0164027504271438

Bloemen, H. G. (2011). The effect of private wealth on the retirement rate: an empirical analysis. *Economica*, *78*(312), 637-655. https://doi.org/10.1111/j.1468-0335.2010.00845.x

Bollen, K. A. (1990). Overall fit in covariance structure models: Two types of sample size effects. *Psychological Bulletin*, *107*(2), 256-259. https://doi.org/10.1037/0033-2909.107.2.256

Buchholtz, S., & Rutecka-Góra, J. (2021). The impact of framing and anchoring on postponing labour market exit – evidence from Polish NDC+FDC pension scheme. *European Research Studies Journal*, *XXIV*(2), 122-138. https://doi.org/10.35808/ersj/2116

Caplin, A. (2000). Behavioral dimensions of retirement economics. *Journal of Policy Analysis and Management*, *19*(4), 647-649. https://doi.org/10.1002/1520-6688(200023)19:4<647::aid-pam8>3.3.co;2-6

Chybalski, F. (2013). Decyzje emerytalne w ekonomii: Implikacje dla polskiego systemu emerytalnego. *Ekonomista*, *6*, 755-770.

Chybalski, F. (2016). System emerytalny: definicje, cele, klasyfikacje. In F. Chybalski (Ed.), *Adekwatność dochodowa, efektywność i redystrybucja w systemach emerytalnych. Ujęcie teoretyczne, metodyczne i empiryczne* (pp. 13-21). C.H. Beck.

Feldman, D. C. (2013). Feeling like it's time to retire: A fit perspective on early retirement decisions. In M. Wang (Ed.), *The Oxford handbook of retirement* (pp. 280–292). Oxford University Press.

Fisher, G. G., Chaffee, D. S., & Sonnega, A. (2016). Retirement timing: A review and recommendations for future research. *Work, Aging and Retirement*, *2*(2), 230-261. https://doi.org/10.1093/workar/waw001

Grosch, J. W., & Pransky, G. S. (2009). Safety and health issues for an aging workforce. In S. J. Czaja & J. Sharit (Eds.), *Aging and work: Issues and implications in a changing landscape* (pp. 334-358). John Hopkins University Press.

Henkens, K., & Tazelaar, F. (1994). Early retirement of civil servants in the Netherlands. *Journal of Applied Social Psychology*, *24*(21), 1927-1943. https://doi.org/10.1111/j.1559-1816.1994.tb00568.x

Ho, R. (2006). Handbook of univariate and multivariate data analysis and interpretation with SPSS. In *Handbook of univariate and multivariate data analysis and interpretation with SPSS*. https://doi.org/10.1198/000313008x332287

Hoyle, R. H., & Panter, A. T. (1995). Writing about structural equation models. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications.* (pp. 158-176). SAGE Publications Ltd. https://psycnet.apa.org/record/1995-97753-009

Hu, L. T., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, *3*(4), 424-453. https://doi.org/10.1037/1082-989X.3.4.424

Jedynak, T. (2019). Kształt powszechnego systemu emerytalnego w Polsce w świetle klasycznych typologii wielofilarowych. *Problemy Polityki Społecznej*, *44*, 47-65. https://doi.org/10.31971/16401808.44.1.2019.4765

Jedynak, T. (2022). *Behawioralne uwarunkowania decyzji o przejściu na emeryturę*. C. H. Beck.

Jurek, Ł. (2021). Zmienność systemów zabezpieczenia emerytalnego: porównanie międzynarodowe. *Ubezpieczenia Społeczne. Teoria i Praktyka*, *1*(148), 3-16.

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, *47*(2), 363-391.

Kalokerinos, E. K., von Hippel, C., & Henry, J. D. (2015). Job attitudes are differentially associated with bridge employment and phased retirement among older Australian Employees. *Work, Aging and Retirement*, *1*(2), 190-201. https://doi.org/10.1093/workar/wau014

Kłos, B. (2011). Europejskie systemy emerytalne – stan i perspektywy. *Analizy BAS*, *5*, 1-12.

Konarski, R. (2009). *Modele równań strukturalnych: teoria i praktyka*. Wydawnictwo Naukowe PWN.

Kowalczyk-Rólczyńska, P., Swacha-Lech, M., & Jurek, Ł. (2022). Intencje emerytalne w kontekście finansowych i pozafinansowych warunków pracy. *Bank i Kredyt*, *53*(4), 421-442.

Laitner, J., & Sonnega, A. (2012). Economic theories of retirement. In M. Wang (Ed.), *The Oxford Handbook of Retirement* (pp. 135-151). Oxford University Press.

Lundberg, S. (1999). Family Bargaining and Retirement Behavior. In H. J. Aaron (Ed.) *Behavioral dimensions of retirement economics* (pp. 253–272). Brookings Institution Press and Russell Sage Foundation.

MacCallum, R. C. (2003). Working with imperfect models. *Multivariate Behavioral Research*, *38*(1), 113-139. https://doi.org/10.1207/s15327906mbr3801_5

Magidson, J. (1979). Preface. In J. Magidson (Ed.), *Advances in factor analysis and structural equation models* (pp. vi-xii). Abt Books.

Marsh, H. W., Balla, J. R., & McDonald, R. P. (1988). Goodness-of-fit indexes in confirmatory factor analysis: The effect of sample size. *Psychological Bulletin*, *103*(3), 391-410. https://doi.org/10.1037/0033-2909.103.3.391

Mather, M., Mazar, N., Gorlick, M. A., Lighthall, N. R., Burgeno, J., Schoeke, A., & Ariely, D. (2012). Risk preferences and aging: The "certainty effect" in older adults' decision making. *Psychology and Aging*, *27*(4), 801-816. https://doi.org/10.1037/a0030174

Matthews, R. A., & Fisher, G. G. (2013). Family, work, and the retirement process: A review and new directions. In M. Wang (Ed.), *The Oxford handbook of retirement* (pp. 354-370). Oxford University Press.

McDonald, R. P. (2013). Test theory: A unified treatment. In *Test Theory: A Unified Treatment*. Psychology Press. https://doi.org/10.4324/9781410601087

McDonald, R. P., & Ho, M. H. R. (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods*, *7*(1), 64-82. https://doi.org/10.1037/1082-989X.7.1.64

McGarry, K. (2004). Health and retirement: Do changes in health affect retirement expectations? *Journal of Human Resources*, *39*(3), 624-648. https://doi.org/10.2307/3558990

Mermin, G. B. T., Johnson, R. W., & Murphy, D. P. (2007). Why do boomers plan to work longer? *Journals of Gerontology – Series B Psychological Sciences and Social Sciences*, *62*(5), S286-S294. https://doi.org/10.1093/geronb/62.5.S286

Nivalainen, S. (2022). From plans to action? Retirement thoughts, intentions and actual retirement: An eight-year follow-up in Finland. *Ageing and Society*, *42*(1), 112-142. https://doi.org/10.1017/S0144686X20000756

OECD. (2017). *Pensions at a Glance 2017: OECD and G20 Indicators*. OECD Publishing. http://dx.doi.org/10.1787/pension_glance-2017-en

Robroek, S. J. W., Schuring, M., Croezen, S., Stattin, M., & Burdorf, A. (2013). Poor health, unhealthy behaviors, and unfavorable work characteristics influence pathways of exit from paid employment among older workers in Europe: a four year follow-up study. *Scandinavian Journal of Work, Environment and Health*, *39*(2), 125-133. https://doi.org/10.5271/sjweh.3319

Scharn, M., Sewdas, R., Boot, C. R. L., Huisman, M., Lindeboom, M., & Van Der Beek, A. J. (2018). Domains and determinants of retirement timing: A systematic review of longitudinal studies. *BMC Public Health* (Vol. 18, Issue 1, pp. 1-14). BioMed Central Ltd. https://doi.org/10.1186/s12889-018-5983-7

Schnellenbach, J., & Schubert, C. (2015). Behavioral political economy: A survey. *European Journal of Political Economy*, *40*, 395-417. https://doi.org/10.1016/j.ejpoleco.2015.05.002

Schreiber, J. B., Stage, F. K., King, J., Nora, A., & Barlow, E. A. (2006). Reporting structural equation modeling and confirmatory factor analysis results: A review. *Journal of Educational Research 99*(6), 323-338. https://doi.org/10.3200/JOER.99.6.323-338

Seongsu, K., & Feldman, D. C. (1998). Healthy, wealthy, or wise: Predicting actual acceptances of early retirement incentives at three points in time. *Personnel Psychology*, *51*(3), 623-642. https://doi.org/10.1111/j.1744-6570.1998.tb00254.x

Sousa-Ribeiro, M., Bernhard-Oettel, C., Sverke, M., & Westerlund, H. (2021). Health- and age-related workplace factors as predictors of preferred, expected, and actual retirement timing: Findings from a Swedish cohort study. *International Journal of Environmental Research and Public Health*, *18*(5), 2746. https://doi.org/10.3390/ijerph18052746

Szczur, M. (2014). System emerytalny w Szwecji – przykład innowacyjnego i stabilnego finansowo rozwiązania problemu zabezpieczenia dochodów na starość. *Ubezpieczenia Społeczne. Teoria i Praktyka*, *6*(123), 34-45.

Szinovacz, M. E. (2013). A multilevel perspective for retirement research. In M. Wang (Ed.), *The Oxford handbook of retirement* (pp. 152–173). Oxford University Press. http://oxfordhandbooks.com/view/10.1093/oxfordhb/9780199746521.001.0001/oxfordhb-9780199746521-e-11

Szwedo, Ł. (2016). Ewolucja i struktura systemu emerytalnego w Szwecji a konstrukcja zabezpieczenia emerytalnego w Polsce. *Rozprawy Ubezpieczeniowe. Konsument Na Rynku Usług Finansowych*, *21*(2), 63-80.

Tavernier, W. De, Naegele, L., Holman, D., & Hess, M. (2021). Delaying retirement. In D. Gu & M. E. Dupre (Eds.), *Encyclopaedia of gerontology and population aging* (pp. 1343-1351). Springer. https://doi.org/10.1007/978-3-030-22009-9_167

Tomarken, A. J., & Waller, N. G. (2003). Potential problems with "well fitting" models. *Journal of Abnormal Psychology*, *112*(4), 578-598. https://doi.org/10.1037/0021-843X.112.4.578

Topa, G., Moriano, J. A., Depolo, M., Alcover, C. M., & Morales, J. F. (2009). Antecedents and consequences of retirement planning and decision-making: A meta-analysis and model. *Journal of Vocational Behavior*, *75*(1), 38-55. https://doi.org/10.1016/j.jvb.2009.03.002

Van Solinge, H., & Henkens, K. (2014). Work-related factors as predictors in the retirement decision-making process of older workers in the Netherlands. *Ageing and Society*, *34*(9), 1551-1574. https://doi.org/10.1017/S0144686X13000330

Weiss, D., & Kornadt, A. E. (2018). Age-stereotype internalization and dissociation: contradictory processes or two sides of the same coin? *Current Directions in Psychological Science*, *27*(6), 477-483. https://doi.org/10.1177/0963721418777743

Wilson, T. D., & Gilbert, D. T. (2003). Affective forecasting. *Advances in Experimental Social Psychology*, *35*, 345-411. https://doi.org/10.1016/S0065-2601(03)01006-2

Żukowski, M., & Szumlicz, T. (Eds.). (2004). *Systemy emerytalne w krajach Unii Europejskiej*. Twigger.

Received: July 2023, revised: June 2024