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SYLWIA WAJNBRENER

sylwia.wajnbrener@edu.uekat.pl
University of Economics in Katowice. Faculty of Economics
1 Maja 50 St., 40-287 Katowice, Poland
ORCID ID: https://orcid.org/0000-0002-3466-4054

DOMINIKA WERCZYŃSKA

dominika.werczynska@uekat.pl
University of Economics in Katowice. Faculty of Economics
1 Maja 50 St., 40-287 Katowice, Poland
ORCID ID: https://orcid.org/0000-0003-1056-737X

JULIA WŁODARCZYK

julia.wlodarczyk@ue.katowice.pl
University of Economics in Katowice. Faculty of Economics
1 Maja 50 St., 40-287 Katowice, Poland
ORCID ID: https://orcid.org/0000-0001-5689-454X

Determinants of Preferred Retirement Age in an Aging Society

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Abstract

Theoretical background: The process of aging has profound economic consequences for many countries, as it increases the number of beneficiaries of the pension system and extends the period of receiving pension benefits. We claim that understanding individual preferences concerning the retirement age is one of the key factors of successful reforms of pension systems and a prerequisite to convince a greater number of individuals to retire later.

Purpose of the article: The aim of the article is to determine factors influencing the decision on the moment of retirement. The analysis takes into account socio-economic characteristics of individuals (including gender, age, education, health and income), as well as individual expectations and relative deprivation. The second goal is to compare preferences of men and women concerning the retirement age.

Research methods: The empirical part of the article exploits a dataset based on primary research conducted in Poland which is one of the fastest aging countries in Europe (data for $N = 448$ respondents were collected with the help of an online questionnaire from April to May 2021). Both purposes are achieved with the help of econometric methods (OLS, quantile, and logit regressions).

Main findings: We show that individuals have heterogeneous preferences concerning the retirement age, but on average they are willing to retire later than others (and often later than the official retirement age). We argue that one of the driving forces behind this phenomenon is associated with aversion towards relative deprivation. We demonstrate that individual preferences concerning the retirement age are not directly dependent on the current situation of respondents (depicted, e.g. by their education, health, place of living or income), but are determined by their expectations concerning their material situation when retired and by preferences regarding others. We also discuss some differences between men and women with regard to the preferred retirement age (e.g. women are more frequently ready to retire later than the official retirement age compared to men, but in general propose lower retirement age than men for both genders).

Introduction

The process of aging is one of the most pronounced demographic processes with profound economic consequences for many countries, especially advanced ones (Bednarczyk, 2015). In particular, aging of the society increases the number of beneficiaries of the pension system and extends the period of receiving pension benefits. These factors significantly affect the solvency of the pension system (Maier, 2016). In order to counteract this negative phenomenon, many countries increase the statutory retirement age and create incentives motivating individuals to remain professionally active longer (OECD, 2021). These incentives can be presented in various ways. Recent literature on nudging (e.g. Thaler & Sunstein, 2008) emphasizes the role of choice architecture (covering the number of options available, their attributes, the way they are presented, the character of the default option, etc.) in shaping behavior of individuals in many areas, including retirement.[1]

The starting point of the article is that understanding individual preferences concerning the retirement age is one of the key factors of successful reforms of pension

[1] In general, the literature on nudging (including Thaler & Sunstein, 2008) focuses more on decisions concerning retirement saving rather than the moment of retirement. To a large extent, this is associated with greater constraints imposed on the retirement age by the government and greater sovereignty of individuals with regard to their saving strategies.

systems and a way to design a choice architecture inducing a greater number of individuals to retire later. In other words, better knowledge of behavioral aspects of retirement is a prerequisite for achieving higher level of individual and social well-being.

Therefore, the aim of the article is to determine factors influencing the decision on the moment of retirement. The analysis takes into account socio-economic characteristics of individuals (including gender, age, education, health and income), as well as less frequently discussed behavioral aspects, associated with individual expectations and relative deprivation.

The empirical part of the article is based on primary research conducted in Poland (data for $N = 448$ respondents were collected with the help of an online questionnaire). The choice of Poland is motivated by three facts. First, Poland is one of the fastest aging countries in Europe (cf. UN, 2019; PARP, 2020).[2] Second, for women its official retirement age is the lowest in the European Union (cf. Figure 1). Finally, Poland is expected to experience the largest decrease in replacement levels in the European Union.[3]

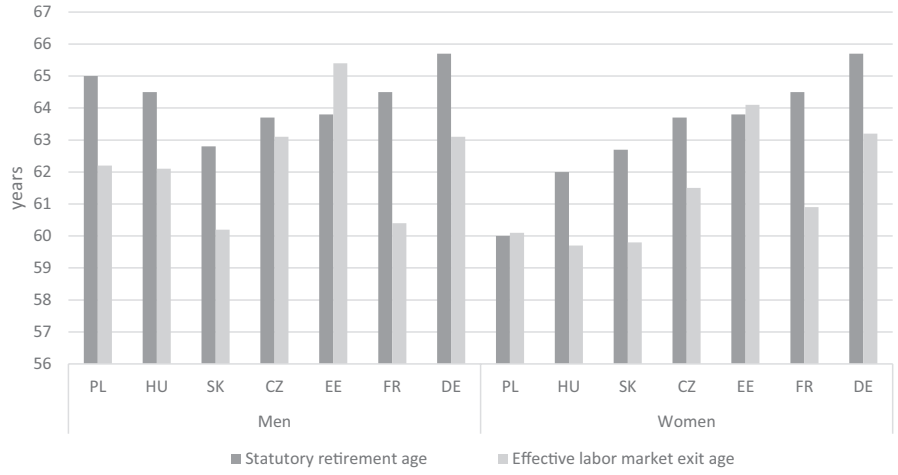

Figure 1. Statutory retirement age and effective labor market exit age in selected European countries

PL – Poland, HU – Hungary, SK – Slovakia, CZ – Czech Republic, EE – Estonia, FR – France, DE – Germany

Source: Authors' own study based on (OECD, 2021).

[2] Acedański and Włodarczyk (2018) show that due to aging, Poland is likely to enjoy lower interest rates and a faster growth in investment and GDP per capita than other advanced economies, however, results of their simulations show strong dependence on the retirement age.

[3] Assuming no changes in the statutory retirement age there will be a decrease in retirement income from 61% of an employment income before retirement in 2016 to 24% in 2060 (European Commission, 2018).

As exhibited in Figure 1, the statutory retirement age in Poland amounts to 65 years for men and 60 years for women. This retirement age was stipulated by the reforms conducted in Poland as early as in 1954 (Zieleniecki, 2012). Interestingly, in 2013, the retirement regulations were changed and the statutory retirement age was supposed to increase gradually to 67 years for men and women (ZUS, 2013). As this intervention met with a negative public reaction, the pension system reform was reversed and the retirement age was lowered again in 2017 (ZUS, 2017). This reform reversal is yet another argument in favor of investigating retirement age preferences in Poland.

The statutory retirement age in Poland is different for men and women (which is no longer the case of the majority of European countries) (Kietlińska, 2018). As a consequence, a shorter average period of employment among women and their longer period of life after labor market exit compared to men increase the risk of old-age income poverty among women (cf. Tomar et al., 2021). Therefore, the second goal of the article is to compare preferences of men and women concerning the retirement age. Both purposes are achieved with the help of econometric methods (OLS, quantile and logit regressions).

An original contribution of this article to the literature is to show that the retirement age preferred by individuals for themselves is different and on average higher than the retirement age individuals would choose for other representants of the same gender (or, to put it in a normative way, the retirement age at which others *should* retire). We claim that individuals have heterogeneous preferences concerning the retirement age, but on average they are willing to retire later than others. We argue that one of the driving forces behind this phenomenon is associated with aversion towards relative deprivation.

The remainder of the article is organized as follows. The next section provides the overview of the literature on factors influencing the retirement decisions. The subsequent section presents the methods used in research, while the next one discusses obtained results. The final section concludes.

Factors influencing the decision to retire – literature review

Freedom of choice with regard to the retirement age in many countries is significantly constrained by the legal environment defining the statutory retirement age. Nevertheless, the discrepancies between the statutory retirement age and the average effective age of labor market exit (as presented in Figure 1) clearly demonstrate that individual decisions play a non-negligible role in this area.

The literature has offered many explanations of retirement decisions, including characteristics of individuals, their financial situation, attitude toward work, as well as cultural and systemic factors (see Table 1).

Table 1. Determinants of the preferred retirement age

Sphere	Factors encouraging earlier retirement	Factors encouraging prolonged professional activity
Individual characteristics	– poor health, disabilities – risk of not reaching the retirement age (and not benefitting from the period of retirement in terms of income and leisure) – lower educational attainment – gender (being a woman)	– good health – increasing individual life expectancy – higher educational attainment – gender (being a man)
Current and future financial situation of an individual	– high individual wealth – medium or high level of remuneration[a] – present bias, myopia, hyperbolic discounting, planning fallacy, affective forecasting	– perspective of increased savings – very low or very high level of remuneration[a] – farsightedness, exponential discounting, long-run planning, financial literacy
Family considerations and caring responsibilities	– high demand for caring from family members	– low or no care demand from family members
Character of work performed	– physical work – work based on age-depreciating skills – lower-level position – employment uncertainty (e.g. experienced or expected periods of unemployment)	– cognitive work – work based on age-appreciating skills – higher-level position – self-employment
Attitude toward the job performed	– job dissatisfaction	– job satisfaction
Culture and social-dependent perception of work	– work as a source of dissatisfaction (e.g. in Eastern Europe) – low preferred retirement age by surroundings	– work as a source of satisfaction (e.g. in Western Europe) – high preferred retirement age by surroundings
Characteristics of the pension system in a given country	– high generosity of the fiscal system – general trust in public institutions – political stability – low statutory retirement age	– low generosity, fiscal constraints – general distrust in public institutions – political instability – high statutory retirement age

[a] The relationship between remuneration and the preferred retirement age is potentially nonlinear due to substitution and income effects. With replacement rate below 100% individuals with very low remuneration may not be in position to satisfy their basic needs with pension income, so they are forced to work longer. With higher levels of remuneration this pressure decreases, however, at a certain level individuals may again become motivated to work longer, both due to their current satisfaction with their income and the perspective of increased retirement benefits in the future.

Source: Authors' own study based on (Phillipson & Smith, 2005; Chybalski, 2018; Vermeer et al., 2016; Knoll, 2011; de Tavernier & Roots, 2015; McGarry, 2002; Jedynak, 2022a; Pilipiec et al., 2020; Iwański et al., 2021; Riedel et al., 2015).

As presented in Table 1, the literature on preferences pertaining to the retirement age has discussed objective factors associated with the situation of the individual (such as health or the character of work) and macroeconomic environment, as well as some subjective factors (e.g. the subjective feeling of job satisfaction or dissatisfaction).

On average, many objective processes observed over recent years could encourage later retirement. Increasing life expectancy, greater problems with fiscal discipline coupled with structural changes in the labor market are a common experience of many countries. For instance, individuals working in the service sector usually are able to work longer than those performing physical work (Lopez Garcia

et al., 2021).[4] Besides, there is an increasing demand on the labor market for highly qualified workers who want to retire later (Hess et al., 2021).

The statutory retirement age acts as a universal anchor, a reference point upon which individuals determine the gains and losses resulting from ceasing their professional activity earlier or later (Jedynak, 2022b; Knoll, 2011). An important issue is associated with the differences in weight people attach to these gains and losses (Sieczkowski, 2017). With replacement rates below 100%, delaying retirement implies both a higher monthly income due to postponing retirement and an increase in the future retirement benefit. However, at some point the desire to rest, enjoy free time, and realize life goals becomes more important than additional earnings (Krzyżowski et al., 2014).

In this article, we argue that the decision to retire is not only framed in the statutory retirement age, but also driven by interdependence of preferences and retirement decisions of others. For instance, leisure is more appreciated when shared with a life partner or a spouse. Individuals reaching the retirement age often decide to extend their professional activity when their life partner continues to be professionally active (Vermeer et al., 2019). Other studies, however, proved that women living in relationships retire earlier than single women (Nicolaisen et al., 2012). This shows that there are no universal behavioral patterns within households (possibly due to interference of income and substitution effects for particular household members).

In general, the opinion of children and spouses has the greatest impact on retirement decisions (Vermeer et al., 2019), but these decisions are influenced also by behavior of other individuals and information communicated via mass media and social media. Erp et al. (2014) show the importance of social norms, default options, as well as reference-dependent utility as likely explanations for the observed heterogeneity of individual propensities to retire. In fact, individuals treat the statutory retirement age as a benchmark and then define their own point of reference that directly influences their retirement decision (Behaghel & Blau, 2012). Thus, there are two reference points – an objective and a subjective one.

As already mentioned in the introduction, this article pays special attention to relative deprivation which is a concept less frequently discussed in the literature on retirement. In short, relative deprivation refers to a situation when an individual: a) does not possess X, b) sees others possessing X (importantly, this perception does not have to depict reality), c) wants to possess X, and d) thinks that possessing X is attainable (Runciman, 1966). The concept of relative deprivation allows to capture both material and immaterial objects, including income or pension benefits.

Relative deprivation can have an ambiguous impact on retirement decisions. On the one hand, relative deprivation felt by older individuals at the workplace, stemming from comparisons with younger workers, can be a factor encouraging

[4] In Poland the employment in the service sector increased from 53% in 2005 (GUS, 2010) to 60% in 2021 (GUS, 2022).

earlier retirement (cf. Tougas et al., 2004; Topa & Alcover, 2015). On the other hand, one can expect that potential retirees will compare their financial status during the retirement period with other retired individuals as well. On average, it is likely that the comparison group of future retirees will be larger than the group of former comparators from the workplace. Therefore, among farsighted individuals the aversion toward relative deprivation can induce prolonged economic activity.

Besides, even though inequalities among the retirees are not as pronounced as among the working population, they are much more persistent and unlikely to be changed. Włodarczyk (2018) shows that elder cohorts suffer more from relative deprivation than younger cohorts: the former focus on the present (their current status is their source of life satisfaction), while the latter do not feel dissatisfaction when their incomes are low, because they can expect higher incomes in the future.

Importantly, relative deprivation does not only directly (affectively) influence retirement decisions, but also indirectly as it is linked to other factors, such as health. Within a given reference group relative deprivation has a negative effect on individual health (cf. Deaton, 2001; Eibner et al., 2004; Eibner & Evans, 2005; Kondo et al., 2015; Mishra & Carleton, 2015) and is significantly associated with premature mortality (Åberg Yngwe et al., 2012) and elevated individual suicide risk (Daly et al., 2013).

To recapitulate, there are many objective and subjective factors influencing the decision when to retire, referring to the situation of the individual as well as the whole economy. In particular, the decision to retire later can be driven by the aversion toward relative deprivation, while currently experienced relative deprivation (along with its health consequences) can lead to earlier retirement.

Description of data and research methods

Our empirical analysis of retirement age preferences exploits a dataset obtained from an online survey conducted in April and May 2021 in Poland. The link to the questionnaire was posted on social media like Facebook and LinkedIn and on Internet fora.[5] The sample consists of 448 respondents. The characteristics of the research sample is presented in Table 2.

[5] Social media groups and Internet fora referred to a wide range of topics: from politics, investment and entrepreneurship to parenting, volunteering and charity. This allowed to reach a more diversified group of respondents.

Table 2. Characteristics of the research sample ($N = 448$)

Specification		Frequency	Percent	Average preferred retirement age by group (in years)		
				Whole sample	Women	Men
Gender	Women	316	70.5	67.1	67.1	–
	Men	132	29.5	67.9	–	67.9
Age	17–25 years	165	36.8	68.8	67.9	70.9
	26–35 years	102	22.8	68.9	68.8	69.2
	36–50 years	99	22.1	67.6	67.9	67.0
	More than 50 years	82	18.3	62.1	61.4	63.2
Place of living	Village	73	18.3	67.2	67.8	65.7
	City with up to 50,000 inhabitants	137	15.6	69.6	69.7	69.5
	City with up to 100,000 inhabitants	82	16.3	66.0	65.5	67.7
	City with up to 250,000 inhabitants	86	19.2	65.3	64.7	66.9
	City with more than 250,000 inhabitants	70	30.6	67.0	66.4	68.2
Education level	Primary	7	1.6	66.4	63.8	70.0
	Vocational	20	4.4	61.5	59.9	63.0
	Secondary	116	25.9	64.9	64.2	66.2
	Incomplete higher	99	22.1	70.0	69.4	71.5
	Higher	206	46	68.0	67.9	68.1
Average monthly income per person	Up to PLN 1,000	31	7.0	66.9	65.6	72.5
	From PLN 1,001 to PLN 2,000	83	18.5	66.2	66.1	66.7
	From PLN 2,001 to PLN 3,000	129	28.8	66.7	66.4	67.7
	From PLN 3,001 to PLN 4,500	120	26.8	68.2	68.9	66.9
	From PLN 4,501 to PLN 6,000	40	8.9	66.2	66.0	66.7
	More than PLN 6,000	45	10.0	69.9	69.8	70.0
Type of work	Physical work	60	13.4	63.6	62.2	65.6
	Physical and cognitive work	108	24.1	66.4	65.7	67.9
	Cognitive work	280	62.5	68.4	68.4	68.7
Health status	Very good	111	24.8	69.6	69.6	69.5
	Good	223	49.8	67.3	66.9	68.3
	Neither good nor bad	69	15.3	66.0	65.1	68.2
	Bad	42	9.4	64.0	64.1	63.8
	Very bad	3	0.7	60.7	60.7	–
Saving for the future	No	148	33.0	66.2	66.1	66.5
	Yes	300	67.0	67.9	67.6	68.5
Expected change in the standard of living after retirement	Significant decrease	195	43.5	68.8	68.8	68.9
	Decrease	178	39.7	67.8	67.2	69.2
	No change	22	4.9	61.9	59.7	66.6
	Increase	51	11.4	62.5	61.6	63.6
	Significant increase	2	0.5	58.5	57.0	60.0
Plans concerning professional activity after retirement	Will work for sure	90	20.09	70.3	70.3	70.4
	Likely to work	131	29.24	68.5	67.4	70.9
	Not sure	42	9.38	63.8	65.8	62.0
	Likely not to work	160	35.71	66.4	65.9	68.5
	Will not work for sure	25	5.58	61.8	59.2	63.5

Note: In estimations presented in the next section, the following categories were merged: primary and vocational education, bad and very bad health as well as increase and significant decrease in case of expected change in the standard of living after retirement.

Source: Authors' own study.

The average preferred retirement presented in Table 2 is calculated upon individual preferences within a given group. Importantly, the question concerning the preferred retirement age was accompanied by a figure illustrating hypothetical replacement rates (Figure 2).[6]

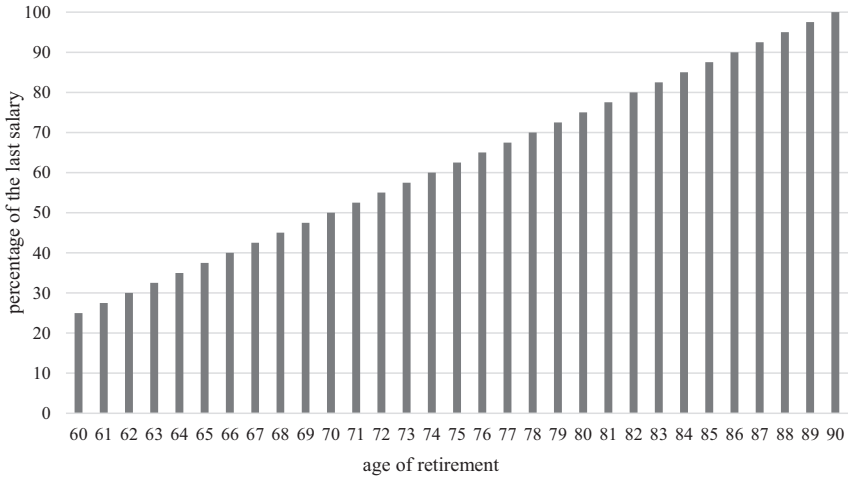

Figure 2. Stylized pension projections for Poland included in the questionnaire

Source: Authors' own study.

Even though Figure 2 presents a simplified picture of potential development of replacement rates in Poland (as discussed in footnote 6), it helps to provide a common reference point to all respondents and, thus, reduces bias associated with individual perceptions in this area.

The respondents were also asked about the retirement age preferred for other individuals representing both genders (this question appeared in the questionnaire before the question concerning individual preferences). Individual preferences are markedly different than those regarding others (Table 3).

[6] This stylized pension projection is based on already mentioned estimates of the European Commission (2018) predicting replacement rates in Poland around 24% of an employment income before retirement in 2060, as well as official estimates (cf. Gov, 2018; ZUS, 2021) showing that each additional year of professional activity can potentially increase pensions by about 8%. For the sake of simplicity, we decided to present a linear relationship between the retirement age and the replacement rate. Thus, presented projections are overvalued for low retirement age in forthcoming decades (European Commission estimates refer to an average replacement rate) and undervalued for high retirement age. In order to offer a common reference point to all respondents, we decided to present the same projection both to men and women despite differences in life expectancy.

Table 3. Preferred retirement age for others and oneself across genders

Preferences regarding others	Total	Men	Women
Average retirement age for men	62.8	63.9	62.3
Average retirement age for women	60.3	62.6	59.4
Median retirement age for men	65.0	65.0	62.5
Median retirement age for women	60.0	65.0	60.0
Preferences regarding oneself	Total	Men	Women
Average preferred retirement age	67.3	67.9	67.1
Median preferred retirement age	65.0	65.0	65.0

Source: Authors' own study.

Table 3 clearly exhibits differences in preferences between men and women with regard to other men and women. However, the *t*-test shows that in case of individual preferences difference between men and women is statistically insignificant, while median preferred retirement age is the same for men and women. The relationship between individually preferred retirement age, preferences concerning others and the official retirement age is presented from another angle in Table 4.

Table 4. Preferred retirement age vs. official retirement age and preferences concerning others by gender (%)

Fraction of respondents willing to work	…official retirement age		…age preferred for respondent's gender	
	Men	Women	Men	Women
Shorter than…	36.4	14.2	10.6	4.7
Exactly as long as…	15.2	28.8	43.9	32.9
Longer than…	48.5	57.0	45.5	62.3

Source: Authors' own study.

As exhibited in Table 4, some individuals are willing to work shorter than the official retirement age, however, the fraction of those that would like to work shorter than others is much smaller – the vast majority of respondents is willing to work at least as long as others.

In line with the literature discussed in the previous section and relationships exhibited by the data, it is hypothesized that preferences pertaining to the retirement age depend on many factors. In particular, higher retirement age (both for individuals and with regard to others) is preferred by men and individuals that are younger, better educated, live in larger cities, enjoy better health, perform cognitive work and receive higher levels of income. Besides, individual preferences regarding retirement age depend on preferences regarding others and individual expectations concerning the future.

These hypotheses are verified statistically. Separate OLS and quantile (median) regressions are run for the retirement age preferred for others and for individuals themselves, both for the sample as a whole and for subsamples including men and women.[7]

[7] As a robustness check, we also run logit regressions for two dependent variables: willingness to work longer than the official retirement age and willingness to work longer than the retirement age

Results

First results concerning the determinants of preferred retirement age for men, women and individual respondents are presented in the appendix (Table A.1 for OLS regressions and Table A.2 for quantile regressions). Accordingly, preferred retirement age for others depends on education (but only in case of women possessing primary, vocational or secondary education who want others to retire earlier), gender (women propose lower retirement age), age (retirement age preferences follow an inverted-U relationship), type of work (in some estimations physical and cognitive or cognitive work was associated with proposals of higher retirement age for others), high incomes (in some specifications earning more than PLN 6,000 relative to the lowest category was correlated with proposals of higher retirement age). In case of quantile regressions also health appeared to be important in some specifications: better health is associated with higher retirement age preferred for others. Suggestions regarding others were also related to individual plans concerning professional activity after retirement. Individuals that planned not to work (likely or for sure) suggested lower retirement age for others. Saving for the future and place of living were statistically insignificant. In turn, individual preferences in the majority of specifications did not depend on age and health, education, type of work, but mostly on individual plans and expectations concerning the period of retirement. Therefore, one can conclude that conducted research does not confirm significance of all relationships stipulated by the hypotheses formulated in the previous section.

Main results are displayed in Table 5, which contains (apart from variables included in models presented in Tables A.1 and A.2) preferred retirement age for the same gender as an independent variable explaining individual preferences concerning the retirement age.

Table 5. Determinants of the preferred retirement age

Model	(1)	(2)	(3)	(4)	(5)	(6)
Regression	OLS regression			Quantile (median) regression		
Subsample	Total	Men	Women	Total	Men	Women
Expected change in the standard of living after retirement (reference category: significant decrease)						
– decrease	-0.330	1.226	-1.366	-0.115	1.314	-1.561
	(1.002)	(1.974)	(1.246)	(1.103)	(1.519)	(1.555)
– no change	-5.012**	-0.691	-7.993***	-2.824	-1.835	-5.993*
	(2.198)	(4.195)	(2.777)	(2.421)	(3.228)	(3.468)
– increase or	-4.620***	-3.741	-5.687***	-2.769	-1.751	-4.096
significant decrease	(1.551)	(2.598)	(2.103)	(1.708)	(1.999)	(2.627)

proposed by the respondents for their gender. These estimations are supplemented by OLS and quantile (median) regressions for the following dependent variables: difference between individually preferred retirement age and official retirement age and the difference between individually preferred retirement age and the retirement age proposed by the respondents for their gender (see Table A.3 in the appendix).

Model	(1)	(2)	(3)	(4)	(5)	(6)
Plans concerning professional activity after retirement (reference category: will work for sure)						
– likely to work	-1.461	3.013	-3.208**	-0.334	3.188	-1.483
	(1.310)	(2.610)	(1.586)	(1.443)	(2.009)	(1.981)
– not sure	-3.568*	-3.297	-1.175	-3.283	-1.612	-1.540
	(1.861)	(3.090)	(2.609)	(2.049)	(2.377)	(3.258)
– likely not to work	-3.069**	-0.694	-4.273***	-1.373	-0.0219	-2.448
	(1.266)	(2.796)	(1.498)	(1.394)	(2.151)	(1.871)
– will not work for	-3.250	0.390	-7.780**	-1.729	0.334	-1.598
sure	(2.314)	(3.563)	(3.457)	(2.548)	(2.742)	(4.317)
Age	0.410	0.157	0.664*	0.0313	0.0459	-0.0184
	(0.285)	(0.498)	(0.369)	(0.313)	(0.383)	(0.461)
Age^2	-0.00624*	-0.00366	-0.00976**	-0.000723	-0.00130	-0.000560
	(0.00361)	(0.00626)	(0.00472)	(0.00397)	(0.00482)	(0.00589)
Preferred retirement	0.683***	0.717***	0.621***	0.893***	1.108***	0.677***
age for the same gender	(0.111)	(0.183)	(0.148)	(0.123)	(0.141)	(0.184)
Observations	448	132	316	448	132	316
R-squared	0.245	0.357	0.257			
Pseudo R2				0.2035	0.3279	0.1957

Note: Variables: gender, saving for the future, education levels, place of living, levels of average monthly income per person, type of work, health status (see Table 2) as well as constant are included, but not reported. Standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: Authors' own study.

Introduction of a variable depicting preferences concerning others significantly increases the measures of fit, but makes many other variables portraying the situation of an individual insignificant.

The central conclusion drawn from conducted calculations is that individual preferences concerning the retirement age are not directly dependent on the current situation of respondents (depicted, e.g. by their education, health, place of living or income), but are determined by their expectations concerning their material situation when retired and by preferences regarding others. Estimations run as a robustness check (cf. Table A.3) confirm obtained results.

As far as retirement age preferences are concerned, differences between men and women refer mostly to:

– more heterogenous preferences of women compared to men,

– greater probability of earlier retirement of women than men when no change or an increase in the standard of living after retirement is expected (relative to those individuals that expect significant decrease in their standard of living),

– women are more frequently ready to retire later than the official retirement age compared to men, but in general propose lower retirement age than men for both genders,

– more women would like to retire later than other women compared to male respondents and other men (in absolute numbers), however, the effect that people want to retire later than the preferred retirement age for representants of the same gender is stronger for men than women.

Concluding remarks

Conducted research shows that the official retirement age is often different than the retirement age preferred by individuals for themselves and for others.

On average, the respondents are willing to work longer than the official retirement age and to work longer than the representants of the same gender as the respondent. This outcome can be explained by rational economic calculation (as in absolute terms prolonged professional activity translates into higher lifetime income), but also by interdependence of preferences and aversion toward relative deprivation channeled into the desire to work longer than others (to receive income higher in relative terms). Both phenomena influence the retirement preferences in the same direction. However, the second explanation seems to be more plausible, because individuals declare willingness to work longer, but not *much* longer than others.

Naturally, one can expect heterogeneity – peer effects may be important only for a fraction of a society, while some individuals will be interested in their own income and utility from leisure. However, in general, making information about social retirement preferences public may be an incentive to prolong professional activities for many persons. If they learn that others would like to work longer than the official retirement age, they may change their individual preferences. Such a situation resembles a sequential game allowing to achieve social equilibrium gradually (in case of heterogeneous preferences one solution, i.e. one official retirement age, may not be optimal from the point of view of individual and social welfare).

Therefore, our findings have important practical implications. Greater transparency with regard to the effective retirement age and social retirement preferences due to aversion toward relative deprivation may invite prolonged professional activity and potentially increase the acceptance of gradual increases in the statutory retirement age. The government plays an important role in this process not only as a decision maker, but also as a provider of public goods such as: public information about preferences concerning the retirement age, public information about the risks associated with early retirement, public health care (especially preventive health care services) and public education, including financial education. For instance, in financial literacy rankings (cf. OECD, 2020), countries characterized by a higher official retirement age score higher than countries with a lower retirement age (such as Poland).

Conducted research allowed to draw many interesting conclusions concerning interdependence of preferences regarding the retirement age or differences between men and women, however, it is subject to some limitations and can be treated as

a pilot study. Therefore, future research in the analyzed area could involve a larger sample, include different projections in the questionnaire (e.g. portraying exponential growth in replacement rates) and apply other methods (e.g. structural equation modelling). An interesting path of research is associated with monitoring retirement age preferences and their heterogeneity in time. From the practical point of view, future research could also address the issue of premises and consequences of equalizing statutory retirement age for men and women or even resigning from official regulations pertaining to the retirement age. The government can monitor and communicate citizens' retirement age preferences to induce prolonged activity due to interdependence of preferences and engage in retirement-age targeting, including nudging and leaving some freedom of choice about the retirement age to future retirees.

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Appendix

Table A.1. Preferred retirement age for men, women and individual respondents (OLS)

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variables	Preferred retirement age for men			Preferred retirement age for women			Preferred retirement age for oneself		
Subsample	Total	Men	Women	Total	Men	Women	Total	Men	Women
Expected change in the standard of living after retirement (reference category: significant decrease)									
– decrease	0.104	-0.282	0.402	-0.287	-0.996	0.116	-0.298	1.023	-1.294
	(0.417)	(1.060)	(0.462)	(0.451)	(1.125)	(0.497)	(1.045)	(2.106)	(1.281)
– no change	-0.718	1.655	-1.570	-1.289	0.283	-1.614	-5.448**	0.497	-8.995***
	(0.914)	(2.247)	(1.026)	(0.990)	(2.384)	(1.104)	(2.291)	(4.465)	(2.846)
– increase	0.00922	-1.147	0.442	-1.076	-2.078	-0.382	-5.123***	-4.564	-5.925***
	(0.644)	(1.390)	(0.780)	(0.698)	(1.476)	(0.839)	(1.615)	(2.763)	(2.163)
Plans concerning professional activity after retirement (reference category: will work for sure)									
– likely to work	-0.696	-1.140	-0.617	-0.398	-1.018	-0.283	-1.711	2.195	-3.383**
	(0.545)	(1.397)	(0.588)	(0.590)	(1.483)	(0.633)	(1.365)	(2.777)	(1.631)
– not sure	-2.307***	-2.748*	-1.770*	-1.391*	-2.409	-0.396	-4.600**	-5.269	-1.422
	(0.771)	(1.637)	(0.967)	(0.835)	(1.737)	(1.041)	(1.932)	(3.253)	(2.683)
– likely not to work	-1.150**	0.147	-1.513***	-0.925	-0.0616	-1.245**	-3.671***	-0.589	-5.046***
	(0.525)	(1.501)	(0.551)	(0.569)	(1.593)	(0.593)	(1.316)	(2.983)	(1.529)
– will not work for	-2.931***	-3.480*	-2.250*	-1.571	-2.050	-1.078	-4.707*	-2.107	-8.449**
sure	(0.957)	(1.883)	(1.280)	(1.037)	(1.998)	(1.378)	(2.400)	(3.741)	(3.552)
Gender: woman	-1.817***			-3.232***			-1.977*		
	(0.440)			(0.477)			(1.104)		
Age	-0.363***	-0.638**	-0.277**	-0.725***	-0.952***	-0.621***	-0.0423	-0.300	0.278
	(0.114)	(0.260)	(0.133)	(0.124)	(0.276)	(0.143)	(0.287)	(0.517)	(0.368)
Age^2	0.00455***	0.00771**	0.00364**	0.00820***	0.0104***	0.00713***	-0.000888	0.00187	-0.00534
	(0.00145)	(0.00328)	(0.00171)	(0.00158)	(0.00348)	(0.00184)	(0.00365)	(0.00651)	(0.00473)

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Education (reference category: higher)									
– incomplete	0.167	-0.655	0.309	-0.0544	-1.864	0.385	1.333	0.947	2.057
higher	(0.513)	(1.302)	(0.560)	(0.556)	(1.381)	(0.602)	(1.287)	(2.587)	(1.553)
– secondary	-1.113**	-0.630	-1.290**	-1.842***	-1.307	-1.978***	-2.124	-1.667	-1.679
	(0.516)	(1.195)	(0.586)	(0.559)	(1.269)	(0.630)	(1.293)	(2.376)	(1.625)
– primary or	-2.246**	-0.764	-2.792**	-3.143***	-1.798	-3.065**	-2.252	0.975	-4.394
vocational	(0.990)	(2.029)	(1.208)	(1.073)	(2.154)	(1.300)	(2.483)	(4.033)	(3.351)
Type of work (reference category: physical work)									
– physical and	0.625	0.841	0.627	1.817**	0.627	2.528***	1.373	-1.018	2.377
cognitive work	(0.653)	(1.487)	(0.759)	(0.707)	(1.578)	(0.817)	(1.636)	(2.954)	(2.105)
– cognitive work	-0.291	0.121	-0.250	0.420	-0.461	1.233	0.824	-0.443	0.928
	(0.664)	(1.453)	(0.790)	(0.719)	(1.542)	(0.850)	(1.665)	(2.887)	(2.191)
Income higher than	2.014**	1.854	1.169	3.071***	2.359	2.886**	0.799	-1.612	2.099
PLN 6,000	(1.013)	(2.558)	(1.164)	(1.098)	(2.714)	(1.252)	(2.540)	(5.083)	(3.228)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	69.76***	73.20***	66.96***	76.28***	80.55***	70.73***	73.07***	75.61***	66.81***
	(2.429)	(5.381)	(2.812)	(2.632)	(5.711)	(3.026)	(6.089)	(10.69)	(7.800)
Observations	448	132	316	448	132	316	448	132	316
R-squared	0.180	0.254	0.155	0.360	0.373	0.339	0.177	0.260	0.212

Note: Control variables include binary variables for: saving for the future, place of living, levels of average monthly income per person (except of the highest category), health status (see Table 2). Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: Authors' own study.

Table A.2. Preferred retirement age for men, women and individual respondents (quantile regression at median)

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variables	Preferred retirement age for men			Preferred retirement age for women			Preferred retirement age for oneself		
Subsample	Total	Men	Women	Total	Men	Women	Total	Men	Women
Expected change in the standard of living after retirement (reference category: significant decrease)									
– decrease	-0.287	-0.593	-0.293	-0.359	-0.107	-0.0673	-1.245	-0.161	-1.695
	(0.502)	(1.020)	(0.648)	(0.533)	(1.313)	(0.636)	(1.025)	(2.022)	(1.440)
– no change	-1.094	2.251	-2.285	-1.665	3.807	-1.757	-5.269**	0.866	-7.038**
	(1.102)	(2.162)	(1.439)	(1.168)	(2.783)	(1.412)	(2.248)	(4.287)	(3.198)
– increase	-0.730	-0.0252	-0.122	-1.407*	-1.310	-0.0507	-5.020***	-3.134	-4.923**
	(0.777)	(1.338)	(1.094)	(0.823)	(1.722)	(1.073)	(1.584)	(2.653)	(2.430)
Plans concerning professional activity after retirement (reference category: will work for sure)									
– likely to work	-0.532	0.796	-0.0953	0.126	0.625	0.157	-1.640	2.546	-2.502
	(0.657)	(1.345)	(0.825)	(0.696)	(1.731)	(0.809)	(1.340)	(2.666)	(1.833)
– not sure	-2.160**	-1.255	-2.050	-0.601	1.960	0.117	-4.988***	-3.560	-3.012
	(0.929)	(1.576)	(1.357)	(0.985)	(2.028)	(1.331)	(1.896)	(3.123)	(3.015)
– likely not to work	-1.235*	0.954	-1.869**	-0.578	2.172	-0.998	-3.337**	-1.899	-3.657**
	(0.633)	(1.445)	(0.773)	(0.671)	(1.860)	(0.759)	(1.291)	(2.864)	(1.718)
– will not work for	-3.204***	-1.305	-3.590**	-0.805	1.260	-1.383	-5.366**	-2.133	-4.967
sure	(1.154)	(1.812)	(1.796)	(1.224)	(2.332)	(1.762)	(2.355)	(3.592)	(3.992)
Gender: woman	-2.002***			-3.696***			-2.761**		
	(0.531)			(0.563)			(1.084)		
Age	-0.436***	-0.562**	-0.443**	-0.788***	-1.018***	-0.672***	-0.780***	-0.446	-0.654
	(0.138)	(0.250)	(0.186)	(0.146)	(0.322)	(0.182)	(0.281)	(0.496)	(0.413)
Age^2	0.00541***	0.00714**	0.00591**	0.00923***	0.0119***	0.00812***	0.00835**	0.00429	0.00669
	(0.00175)	(0.00315)	(0.00239)	(0.00186)	(0.00406)	(0.00235)	(0.00358)	(0.00625)	(0.00532)
Education (reference category: higher)									
– incomplete	-0.351	-1.490	0.136	-0.0447	-1.522	0.204	2.060	0.821	2.597

higher	(0.619)	(1.253)	(0.785)	(0.656)	(1.613)	(0.771)	(1.263)	(2.484)	(1.745)
– secondary	-1.191*	-0.476	-1.642**	-2.215***	-0.744	-2.207***	-2.291*	-0.290	-3.035*
	(0.622)	(1.151)	(0.822)	(0.659)	(1.481)	(0.806)	(1.268)	(2.281)	(1.827)
– primary or	-3.239***	-1.653	-3.768**	-3.091**	-1.325	-3.158*	-1.926	-0.506	-4.835
vocational	(1.194)	(1.953)	(1.694)	(1.266)	(2.514)	(1.662)	(2.437)	(3.872)	(3.765)
Type of work (reference category: physical work)									
– physical and	0.385	0.289	-0.528	0.402	2.338	1.280	0.863	-1.256	2.199
cognitive work	(0.801)	(1.398)	(1.108)	(0.849)	(1.800)	(1.087)	(1.633)	(2.772)	(2.463)
– cognitive work	0.669	2.046	-0.0743	1.640**	3.179*	2.634**	1.298	-0.830	1.639
	(0.787)	(1.431)	(1.065)	(0.834)	(1.842)	(1.045)	(1.605)	(2.836)	(2.366)
Income higher than	1.376	0.239	2.534	3.343**	0.852	3.778**	4.845*	-1.488	4.855
PLN 6,000	(1.221)	(2.462)	(1.633)	(1.295)	(3.168)	(1.602)	(2.492)	(4.880)	(3.628)
Health status (reference category: very bad and bad)									
– neither good nor	1.199	3.028*	1.472	0.660	4.784**	-0.520	1.910	5.112	-0.157
bad	(0.963)	(1.752)	(1.286)	(1.021)	(2.255)	(1.262)	(1.965)	(3.474)	(2.858)
– good	2.072**	3.935**	1.122	1.391	4.403**	0.981	1.458	2.363	0.339
	(0.867)	(1.566)	(1.173)	(0.920)	(2.016)	(1.151)	(1.770)	(3.105)	(2.607)
– very good	1.564	3.110*	0.930	0.832	3.147	0.905	2.063	2.869	0.573
	(0.952)	(1.711)	(1.273)	(1.009)	(2.202)	(1.249)	(1.942)	(3.392)	(2.828)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	71.87***	72.42***	70.12***	77.30***	75.18***	71.01***	82.95***	78.01***	80.53***
	(2.928)	(5.179)	(3.945)	(3.105)	(6.666)	(3.870)	(5.975)	(10.27)	(8.766)
Observations	448	132	316	448	132	316	448	132	316

Note: Control variables include binary variables for: saving for the future, place of living, levels of average monthly income per person (except of the highest category) (see Table 2). Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: Authors' own study.

Table A.3. Willingness to retire later than the official retirement age

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Regression	Logit regression			OLS regression			Quantile (median) regression		
Dependent variable	Binary variable equal to 1, if individual preferred retirement age is higher than official retirement age			Difference between individual preferred retirement age and official retirement age			Difference between individual preferred retirement age and official retirement age		
Subsample	Total	Men	Women	Total	Men	Women	Total	Men	Women
Expected change in the standard of living after retirement (reference category: significant decrease)									
– decrease	-0.294	-0.184	-0.260	-0.330	1.226	-1.366	-0.115	1.314	-1.561
	(0.268)	(0.639)	(0.330)	(1.002)	(1.974)	(1.246)	(1.103)	(1.519)	(1.555)
– no change	-1.481**	0.200	-2.352***	-5.012**	-0.691	-7.993***	-2.824	-1.835	-5.993*
	(0.617)	(1.331)	(0.801)	(2.198)	(4.195)	(2.777)	(2.421)	(3.228)	(3.468)
– increase or	-1.420***	-2.000**	-1.414**	-4.620***	-3.741	-5.687***	-2.769	-1.751	-4.096
significant increase	(0.428)	(0.895)	(0.555)	(1.551)	(2.598)	(2.103)	(1.708)	(1.999)	(2.627)
Plans concerning professional activity after retirement (reference category: will work for sure)									
– likely to work	-0.0713	1.439*	-0.662	-1.461	3.013	-3.208**	-0.334	3.188	-1.483
	(0.359)	(0.818)	(0.443)	(1.310)	(2.610)	(1.586)	(1.443)	(2.009)	(1.981)
– not sure	-0.845*	-1.247	-0.411	-3.568*	-3.297	-1.175	-3.283	-1.612	-1.540
	(0.512)	(1.082)	(0.678)	(1.861)	(3.090)	(2.609)	(2.049)	(2.377)	(3.258)
– likely not to work	-0.590*	0.216	-1.002**	-3.069**	-0.694	-4.273***	-1.373	-0.0219	-2.448
	(0.340)	(0.864)	(0.414)	(1.266)	(2.796)	(1.498)	(1.394)	(2.151)	(1.871)
– will not work for	-1.644**	-0.301	-3.223**	-3.250	0.390	-7.780**	-1.729	0.334	-1.598
sure	(0.799)	(1.283)	(1.349)	(2.314)	(3.563)	(3.457)	(2.548)	(2.742)	(4.317)
Gender: woman	1.441***			6.097***			6.002***		
	(0.336)			(1.172)			(1.290)		
Age	0.0199	0.0103	0.0670	0.410	0.157	0.664*	0.0313	0.0459	-0.0184
	(0.0779)	(0.175)	(0.0977)	(0.285)	(0.498)	(0.369)	(0.313)	(0.383)	(0.461)

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Age^2	-0.000540	-0.000875	-0.00112	-0.00624*	-0.00366	-0.00976**	-0.000723	-0.00130	-0.000560
	(0.001000)	(0.00225)	(0.00127)	(0.00361)	(0.00626)	(0.00472)	(0.00397)	(0.00482)	(0.00589)
Preferred retirement	0.275***	0.298***	0.286***	0.683***	0.717***	0.621***	0.893***	1.108***	0.677***
age for the same gender	(0.0359)	(0.0788)	(0.0447)	(0.111)	(0.183)	(0.148)	(0.123)	(0.141)	(0.184)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	448	132	316	448	132	316	448	132	316
R-squared				0.269	0.357	0.257			
Pseudo R^2	0.2899	0.4140	0.2900				0.2191	0.3279	0.1957

Note: Control variables include binary variables for: saving for the future, education levels, place of living, levels of average monthly income per person, type of work, health status (see Table 2).Constant not reported. Standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: Authors' own study.