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# Retirement decisions

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The objective of the paper is to analyse how various phenomena examined by behavioural economics can explain the labour supply of people at near-retirement age. The early retirement of some may be explained by the assumption of a hyperbolic discounting of current and future incomes, while social norms for labour force participation in old age diversify the effective age of labour market exit between countries. In terms of policies encouraging people to end their economic activity later, the framing effect on retirement decisions is important.

**Key words:** hyperbolic discounting, framing effect, retirement, old-age pension, social norms, retirement age

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## Introduction

The objective of the paper is to discuss, based on literature from the field of behavioural economics, the factors affecting the labour supply and labour force participation of people at near-retirement age, in particular the choice of a specific retirement age.

The first studies on the impact of social security systems on labour-market exit age appeared in the 1970s.<sup>1</sup> They were based on rational choice theory or life-cycle theory. Since the late 1980s, researchers have been using more advanced models to take into account uncertainty, and they have also analysed labour supply decisions made within households. Most of these approaches were still grounded on classical assumptions about people making rational decisions based on all the information available to them. One of the models of neoclassical economics, one which offers an explanation of the way people make decisions about labour supply and the level of current consumption, is the life-cycle model. In this paradigm, individuals maximise throughout their lives their own utility, with budget constraints resulting, *inter alia*, from income expected in subsequent periods. Consumption levels and spare time resources (which determine labour supply) in each year are the variables, while the optimal moment of retirement results directly from the framing of the model, as well as from the individual function of the utility and income earned throughout life.

The life cycle model does not explain well the observed retirement decisions, since people actually do not retire at the moment viewed as optimal by this model or nor by taking into account the maximisation of their expected pension income. Behavioural economics provides tools to partially explain the reasons for such a situation. This area of economics differs from the classical approach – *inter alia* due to the elimination or mitigation of assumptions about people's rationality and the invariability of their preferences over time, as well as thanks to the perfect information and the possibility of the unrestricted processing of the knowledge available.<sup>2</sup> It seems that the tools developed and applied in behavioural economics may help to better explain the observed types of labour market behaviour of people at near-retirement age. Researchers more and more often note that people's expectations in relation to the future financial situation of their household (after the retirement of its members) have no rational basis, and their decisions to save money or to retire at a given age are not based on exhaustive knowledge.<sup>3</sup>

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<sup>1</sup> M.J. Boskin, M.D. Hurd, *The Effect of Social Security on Early Retirement*, "Journal of Public Economics" 1978, Vol. 10; M. Feldstein, *Social Security, Induced Retirement and Aggregate Capital Accumulation*, "Journal of Political Economy" 1974, No. 5.

<sup>2</sup> See e.g. A. Solek, *Ekonomia behawioralna a ekonomia neoklasyczna*, "Zeszyty Naukowe" 2010, No. 8, pp. 21-34.

<sup>3</sup> L. Bissonnette, A. van Soest, *Retirement expectations, preferences, and decisions*, June 2010 or S. Buchholtz, J. Gąska, M. Góra, *Pension strategies of workers in a country getting old before getting rich*, 2018.

## Retirement age

The increase in average life expectancy, including healthy life expectancy, noted for several decades, should result in a postponement in the age of labour market exit and in higher labour force participation of older people, to maintain the stability of social security systems in a situation of observed low fertility rates. The literature examining factors important for older people's decisions on labour supply underlines the importance of old-age pension system regulation in many countries, including Poland.<sup>4</sup>

It appears that whenever the introduction of, or change in, the minimum eligibility age for old-age pension postpones exit from the labour force, people usually decide to stop working as early as possible. Research referred to by Melissa Knoll<sup>5</sup> for the United States shows that while before 1920 employees were retiring at different ages, since 1940, *i.e.*, a few years after the introduction of regulations governing the general pension system and the minimum eligibility age for benefits, men tended to leave the labour market more often at the statutory retirement age of 65.

Similar regularities are also visible in statistics regarding Poland. The graphs below show the chosen retirement age (in completed years), according to the respondent declarations from the Labour Force Survey (LFS) carried out by the Statistics Poland. A comparison was made between the responses of persons who retired in the period 2007-2008 and those who retired in the period 2016-2017. During these periods, there were different regulations governing the minimum eligibility age for the benefit in question. By the end of 2008, the standard retirement age within the general social security system was 60 years for women and 65 for men. In 2008,<sup>6</sup> it was also possible to retire early in the case of a long insurance period of at least 30 contributory and non-contributory years for women and 35 years for men respectively, or in connection with work in special conditions or of a specific nature. In this case, the right to the benefit could be already obtained by 55-year-old women and 60-year-old men.

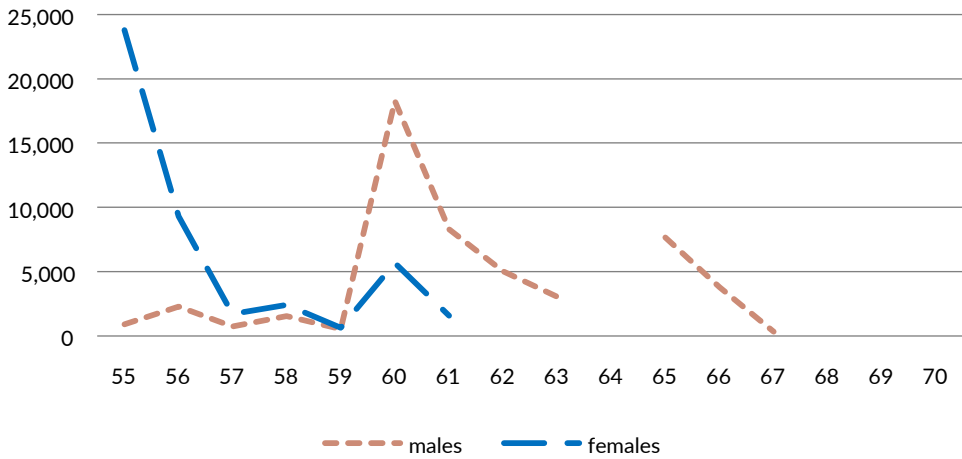
Graph 1 shows that most people have chosen the age of 55 and 60 as the moment for retirement, while the next culmination of decisions to leave the labour force was observed at the age of 60 and 65.

4 See *e.g.*, S. Blöndal, S. Scarpetta, *The Retirement Decisions in OECD Countries*, Paris 1999; *Social Security and Retirement Around the World*, ed. J. Gruber, D.A. Wise, Chicago 1999; *Social Security Programs and Retirement Around the World: Micro Estimation*, ed. J. Gruber, D.A. Wise, 2002; G. Kula, *Decyzja o przejściu na emeryturę – przegląd literatury*, "Ekonomista" 2007, No. 2, pp. 251-268; A. Ruzik-Sierdzińska, *An Attempt to Identify Factors Influencing Retirement Decisions in Poland*, "Acta Universitatis Lodzianensis. Folia Oeconomica" 2018, No. 4 (336), pp. 43-59.

5 M.A.Z. Knoll, *Behavioral and Psychological Aspects of the Retirement Decision*, "Social Security Bulletin" 2011, No. 71/4, pp. 15-32.

6 In 2008, the early retirement of men with 35 years of contributory and non-contributory periods who had reached 60 years of age was possible pursuant to legal changes following the judgement of the Constitutional Tribunal of 23 October 2007. The legislation had equalised the early retirement rights of men born before 1 January 1949 with similar women's rights.

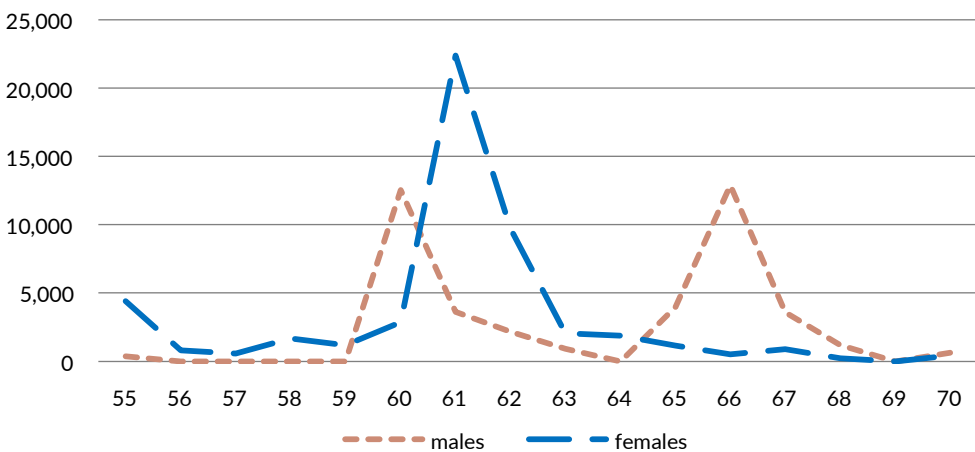
**Graph 1.** Number of persons who retired between Q3 2007 and Q3 2008 [by gender and age]



Source: author's calculations using individual LFS data

Early retirement was eliminated for a major part of the population in 2009 (except for miners and uniformed services personnel; temporary compensatory benefits and bridging pensions were also introduced), and, from the beginning of 2013, the retirement age has been gradually increased: in Q3 2017 it was 61 years and 2 months for women and 66 years and 2 months for men. Graph 2 shows that persons retiring in this period reacted to both changes, but they were delaying their labour market exit usually only until reaching the new minimum eligibility age for these benefits.

**Graph 2.** Number of persons who retired between Q3 2016 and Q3 2017 [by gender and age]



Source: author's calculations using individual LFS data

Among all LFS respondents in Q3 2017 (not only those who retired during the previous 12 months), 22% of women retired exactly at the age of 55 and 17.5% at the age of 60. In turn, 20% of men aged 60 and 13% of 65-olds were pensioners.

Frank van Erp, Niels Vermeer and Daniel van Vuuren<sup>7</sup> show a similar relationship between the standard retirement age laid down in the legislation and the chosen timing of retirement in the Netherlands. The high dependence of the actual and the earliest possible age when the pension becomes payable has not changed even after the introduction of an actuarially neutral pension scheme (*i.e.*, one where the retirement age does not affect the expected amount of future benefits). The authors of these analyses conclude that such behaviour cannot only be due to the financial factors which affect pension decisions, and explanations for the observed phenomenon should be sought in psychology and sociology.

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## Explanations of retirement decisions offered by behavioural economics

As regards old-age pensions, behavioural economics initially dealt with the reasons for the propensity to save voluntarily for old age,<sup>8</sup> but attempts at explaining the choice of a given retirement age can be also found in the recent subject literature. In this publication I will focus on three mechanisms described in the subject literature, mainly English-language sources. These are:

- hyperbolic discounting,
- social norms,
- framing effect.

### Hyperbolic discounting

Classic models usually assume exponential discounting over time, *i.e.*, people's time-consistent preferences for consumption in the short and long term. Behavioural economics research, however, shows that preferences change over time, and that discounting is steeper closer in time than at a more distant future, while in the longer term the discount rate is lower.<sup>9</sup> This type of discounting may result in time-inconsistent preferences (changes in decisions as a result of the passage of time). This effect, known

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<sup>7</sup> F. van Erp, N. Vermeer, D. van Vuuren, *Non-financial determinants of retirement*, The Hague 2013.

<sup>8</sup> For example R.H. Thaler, S. Benartzi, *Save More Tomorrow™: Using Behavioral Economics to Increase Employee Saving*, "Journal of Political Economy" 2004, No. 112 (S1), pp. S164-S187 and B.C. Madrian, D.F. Shea, *The Power Of Suggestion: Inertia In 401(k) Participation And Savings Behavior*, "Quarterly Journal of Economics" 2001, Vol. 116, pp. 1149-1187.

<sup>9</sup> S. Frederick, F. Loewenstein, T. O'Donoghue, *Time discounting and time preference: a critical review*, "Journal of Economic Literature" 2002, No. 40, pp. 351-401.

as hyperbolic discounting, allows one to explain the choice between a larger, but later reward (income, payout) and a smaller, but sooner reward. It also explains why people choose a smaller-sooner reward, or why it is difficult for them to take actions to achieve a delayed goal.

This type of discounting, as compared to the neoclassical approach, assumes a change in people's preferences for future consumption as the time to retire approaches. In the above-referred study, M. Knoll shows that hyperbolic discounting explains changes in retirement preferences, ones observed by researchers, as people grow older. When retirement is far in the future, *i.e.*, when we ask rather young people about their preferences, they usually declare an intention to retire later. However, as the time when people may retire approaches, the prospect of receiving a monthly benefit immediately overwhelms the benefits of a more distant, though higher, pension. This has been confirmed *inter alia* by the analyses of John Bidewell, Barbara Griffin and Beryl Hesketh,<sup>10</sup> who have explained that the closer individuals are to the minimum retirement age, the more future income they are willing to sacrifice – they want to start drawing benefits as early as possible.

Such a decision can be described as unreasonable in terms of income obtained later in life. Old-age pensions account for a significant part of people's income in old age, so their level affects the funding opportunities of pensioners each year after retirement. While a lower pension may be sufficient to cover the expenses of fairly young and able-bodied pensioners, it usually means the exclusion from certain activities or consumption opportunities of 80- or 90-year-olds, who usually spend more on care services and health care. It seems that in the notion of life after retirement, people ending their professional careers at a younger age do not take into account the distant consequences of early retirement.

## Social norms

Retirement decisions are also affected by another factor: social norms concerning work and the age of becoming economically inactive in a given country, region or specific social group.<sup>11</sup> They determine the decisions or specify the behaviour expected in a given community. Social norms may be also different for women and men, an example being the expected early labour market exit by economically active women and the expected long careers of men. Research shows that such norms have a strong impact on individual decisions, and data on transition into retirement in different countries show discrepancies that cannot be explained only by different average health condition, the wealth of the population or the generosity of pension systems.

<sup>10</sup> J. Bidewell, B. Griffin, B. Hesketh, *Timing of retirement: Including a delay discounting perspective in retirement models*, "Journal of Vocational Behavior" 2006, No. 68, pp. 368-387.

<sup>11</sup> B. Krauth, *Social interactions in small groups*, "Canadian Journal of Economics" 2006, No. 39 (2), pp. 414-433.

**Table 1.** Effective and statutory age of labour market exit in selected European countries in 2016

	Men		Women	
	average	statutory	average	statutory
Estonia	65.8	63.0	65.2	63.0
France	60.5	62.0	60.6	62.0
Spain	62.2	65.0	61.6	65.0
Ireland	66.0	66.0	64.2	66.0
Germany	63.6	65.0	63.4	65.0
Poland	62.7	66.3	60.0	61.3
Portugal	69.6	66.3	65.6	66.3
Slovakia	60.7	62.2	59.4	62.2
Sweden	66.0	65.0	65.1	65.0
Hungary	63.3	63.5	60.2	60.0
United Kingdom	65.0	65.0	63.9	64.0

Source: Organisation for Economic Co-operation and Development, *Effective age of labour market exit* [in:] *Pensions at a Glance 2017: OECD and G20 Indicators*, Paris 2017

A departure from a community standard reduces the utility of the person making a non-standard decision.<sup>12</sup> This means that the decision to end the economic activity at the age chosen by the majority of the population increases the utility of retirement *ceteris paribus*. The theory of striving to comply with social norms allows one to explain why individuals in a particular age group in a given period and a given community most often retire. At the same time, change in social norms is a challenge for policies which aim to encourage a later exit from the labour market. Changes in norms are usually slow, and when they occur people gradually adjust their behaviour to the new rules.

## Framing effect

In the 1970s, Daniel Kahneman and Amos Tversky<sup>13</sup> published the results of their research showing that decisions on choosing a particular option are affected by the manner of its presentation, the one that highlights the advantages or disadvantages of a particular decision. A different way of framing early or later retirement may influence people's decisions on the age of labour market exit. An individual choice made in conditions of uncertainty is determined, *inter alia*, by the adoption of an appropriate benchmark.

12 A. Lindbeck, S. Nyberg, J. Weibull, *Social norms and economic incentives in the welfare state*, "Quarterly Journal of Economics" 1999, No. 114 (1), pp. 1-35; F. van Erp, N. Vermeer, D. van Vuuren, *op. cit.*

13 D. Kahneman, A. Tversky, *Prospect theory: An analysis of decision under risk*, "Econometrica" 1979, No. 47, pp. 263-291.

The limited rationality of individuals making retirement decisions causes people to become sensitive to the way of presenting available options with the default retirement age.<sup>14</sup> For example, if an insurance institution sends a simulation of the expected monthly benefit of the insured person several years before retirement and shows the minimum retirement age as the first one and a pension increase dependent on each subsequent year of employment, the reader would rather opt for the lowest possible age as a reference point and treat the pension increase in subsequent years as a profit. However, if the simulations show a higher retirement age as the benchmark and a lower monthly pension when an earlier labour market exit is chosen, then the indicated age will rather serve as the reference age and an early exit can be seen as a loss, *i.e.*, a lower monthly benefit. Since people with a greater aversion to risk are more likely to avoid loss than to seek equivalent benefit, the second presentation of their expected future pension may induce them to postpone their retirement.<sup>15</sup>

Establishment of a default option, which indicates what will happen if the decision-maker does not take any action, also has an impact. Research by Daniel Kahneman, Jack Knetsch, Richard Thaler<sup>16</sup> or Richard H. Thaler and Cass Sunstein<sup>17</sup> shows that as a result of default options, more individuals will not to change their position, because this would require some effort and people prefer an option where they do not have to take additional action. The retirement decisions are associated with the problem of the competent comparison of different options which may differ in many ways. Individuals who lack financial knowledge or are less able to absorb and use complex information, are not able to assess whether it is better for them to retire later or earlier and therefore they choose the default solution.

The above-described phenomena of the default retirement age and the specific age as a reference point for an individual decision explain the high retirement rates showed by the data when people reach the indicated age.

At this point it is worth recalling that early retirement was once perceived as a positive phenomenon also for another reason. It was assessed not only in the context of individual experience – as more spare time available with guaranteed income, but also in a macroeconomic perspective, *i.e.*, as a way to reduce the unemployment of young people who would take the jobs vacated by pensioners. Only since the end of the 20th century have economists been showing that an early labour market exit by older people does not improve the situation of people just entering the labour market.<sup>18</sup> For this reason,

14 L. Behaghel, D. Blau, *Framing social security reform: Behavioral responses to changes in the full retirement age*, Michigan 2010.

15 This was confirmed by the experiment described by D. Fetherstonhaugh, L. Ross, *Framing Effects and Income Flow Preferences in Decisions about Social Security* [in:] *Behavioral Dimensions of Retirement Economics*, ed. H.J. Aaron, Washington 1999, pp. 187-209, referred to by M. Knoll, *op. cit.*

16 D. Kahneman, J. Knetsch, R. Thaler, *The endowment effect, loss aversion, and the status quo bias*, "Journal of Economic Perspectives" 1991, No. 5 (1), pp. 193-206.

17 R.H. Thaler, C. Sunstein, *Nudge: Improving decisions about health, wealth, and happiness*, New Haven 2008.

18 N. Barr, P. Diamond, *Reforming pensions: Principles, analytical errors and policy directions*, "International Social Security Review" 2009, No. 62 (2), pp. 5-29; J. Gruber, D.A. Wise, *Social Security Programs and Retirement around the World: The Relationship to Youth Employment*, Chicago 2010.



the old-age pension system reforms, introduced in recent decades in many countries, have resulted in an increase in the retirement age, weakened financial incentives for early retirement or even made it impossible.

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## Summary

The presented discussion of behavioural mechanisms for choosing the age to retire at shows what measures encourage a later exit from the labour market and can prove effective in the face of demographic change within population structures.

First of all, it is effective to raise the standard eligibility age for benefits,<sup>19</sup> as the statutory retirement age is often an important benchmark for decisions on labour supply in old age.

Secondly, it seems that social norms concerning the exit age are also important for a significant part of the population. Luc Behaghel and David Blau<sup>20</sup> underline the importance of norms, especially for individuals with less capacity to process complex information on the rules governing old-age pension schemes.

Both described phenomena explain why people in many countries tend to retire at a certain age, even though this is not the best decision in their individual circumstances, *e.g.*, when their health condition and labour market situation allow them to work longer and at the same time would ensure a higher pension in the future.

As a result of hyperbolic discounting, individuals prefer lower and immediate pensions to higher ones that they will receive only in the future. However, this mechanism does not explain the observed maximum exit rates exactly at the minimum retirement age itself. The effects of hyperbolic discounting are being widely studied by economists dealing with behavioural approaches to consumption and saving. However, when analysing the retirement age, this does not seem to be the main explanation for the relationships observed in the data.

The results of behavioural economics research also stress the framing effect, *i.e.*, the impact of the appropriate presentation of different retirement options. The term “early retirement” has positive connotations, which may encourage more people to choose such an option,<sup>21</sup> while terms describing different retirement options in another way may cause people to stop working several years later. Perhaps the term “early retirement” should be replaced by “lower pension,” while instead of using the terms: “delayed” or “postponed” retirement, it is better to speak of “higher pension.”

To sum up, behavioural economics is quite a new branch of economics, but it often offers more realistic assumptions for the reasons of human behaviour than those adopted

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<sup>19</sup> Apart from the unpopularity of such a reform among many voters.

<sup>20</sup> L. Behaghel, D. Blau, *Framing social security reform: Behavioral responses to changes in the full retirement age*, Michigan 2010.

<sup>21</sup> S. Vernon, *Beyond Defaults: Using Behavioral Economics to Improve Retirement Outcomes*, “Benefits Magazine” 2019, Vol. 56, No. 3.

in neoclassical models. In spite of the criticism of some the generalisations that have emerged in connection with the results of experiments carried out by behaviourists, it seems worth considering also the use of behavioural economics research methods to deepen analyses of retirement decisions.

Anna Ruzik-Sierdzińska, Ph.D.  
SGH Warsaw School of Economics  
ORCID: 0000-0003-3919-0289

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## Decyzje o przejściu na emeryturę

Celem artykułu jest przeanalizowanie, jak różne zjawiska badane przez ekonomię behawioralną mogą tłumaczyć podaż pracy osób w wieku okołomerytalnym. Założenie o hiperbolicznym dyskontowaniu obecnych i przyszłych dochodów może wyjaśniać dość szybkie przechodzenie niektórych osób na emeryturę, zaś normy społeczne dotyczące aktywności zawodowej w starszym wieku różnicują między krajami efektywny wiek odejścia z rynku pracy. Z punktu widzenia polityki zachęcającej ludzi do coraz późniejszego kończenia aktywności zawodowej istotny jest wpływ efektu sformułowania (ang. *framing effect*) na decyzje emerytalne.

**Słowa kluczowe:** dyskontowanie hiperboliczne, efekt sformułowania, emerytura, normy społeczne, wiek emerytalny