The behavioural determinants of the effective retirement age

Tomasz Jedynak, PhD
Cracow Unversity of Economics

Social Security Systems in the Light of Demographic, Economic and Technological Challenges
Poznań, September 19-20, 2019

Motivations and background

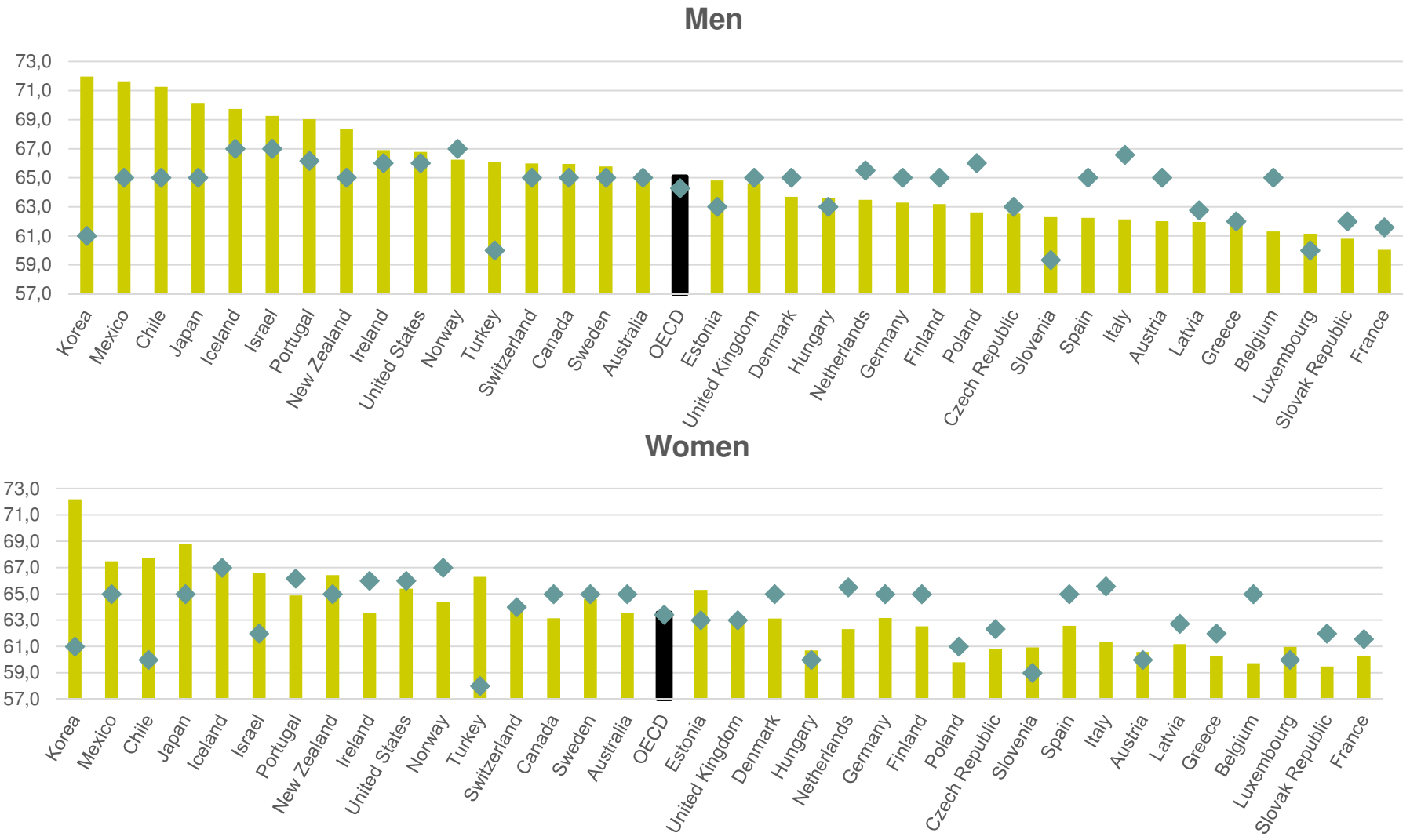
1. The ongoing socio-economic changes (4th industrial revolution, population ageing) trigger a heated debate on the functioning and reforming of pension systems. Main threads:
   - financial stability and sustainability of pension systems,
   - benefits adequacy.

2. To deal with these problems policymakers make attempts to reform pension systems:
   - systemic reforms (e.g., DB -> DC),
   - parametric reforms (e.g., level of contribution, **retirement age**).

3. Reports indicate that there is a significatnt diference between statutory (official) and actual (effective) retirement age.

4. Majority of research which are based on the neoclassical approach does not fully explain this difference. They also fail to entirely predict the retirement decisions.

Statutory and effective retirement age in OECD countries



Research problem

Research questions

Theoretical level: What are the (behavioural) determinants of the effective retirement age?

Application level: How to effectively encourage people to extend the period of their professional activity?

Retirement age in the neoclassical approach (1)

Age-of-retirement model (Fields & Mitchel 1982, 1984)

People search to maximise their general utility, which is a function of multi-period consumption and leisure. So:

$$\mathbf{U} = \mathbf{U}(\mathbf{C}, \mathbf{L}) = \mathbf{U}(\mathbf{PVI}, \boldsymbol{RET})$$

$$\boldsymbol{max}\ \mathbf{U} = \boldsymbol{max}\ \mathbf{U}(\mathbf{PVI}, \mathbf{RET})$$

RET – length of retirement period
PVI – PV of lifetime income
PVE – PV of earnings
PVP – PV of pension benefits
LE – expected lifetieme,
R – years of work

Constraints of the utility function:

$$\mathbf{PVI} = \mathbf{PVE} + \mathbf{PVP}$$

$$\mathbf{RET} = \boldsymbol{LE} - \boldsymbol{R}$$

Hence (first order condition of maximum):

$$\underbrace{\boldsymbol{U'(PVI)}}_{\textit{taste for income}} * \underbrace{\left(\boldsymbol{PVE_r} - \boldsymbol{PVP_r} + \Delta\boldsymbol{PVP_{R,T}}\right)}_{\textit{price of leisure}} - \underbrace{\boldsymbol{U'(RET)}}_{\textit{taste for leisure}} = \mathbf{0}$$

What factors determine the effective retirement age? – neoclassical approach (1)

1) Financial reasons (wealth aspects)	Pension benefits and financial incentives in the pension system (Boskin 1977), (Diamond and Hausman (1995)
	Level of income (Uccello 1998), (Diamond and Hausman 1995)
2) Institutional and regulatory area	Architecture of the pension system
	Entitlement for public services (health care)
	Situation on the labor market (unemployment rate) (Coile and Levine 2011)
	Minimum retirement age (Duval 2004), (Bernal and
3) Individual factors and preferences	Health status (Dwyer and Mitchell 1999), (McGarry 2004)
	The size and structure of the family (Burtless 2013)
	Attributes of work and job satisfaction (Burtless 2013)
	Life expectancy (Hurd, et al., 2002)
	Individual preferences (Mitchell & Fields, 1984)

Empirical analyses

Research methods	
1. Survey data analysis	(Montalto, et al., 2000), (Lamprianou, 2012) (Vermeer, 2016).
2. Statistical analysis of economic data sets (cross-section or time-series)	(Bloemen, 2011), (Bernal and Vermeulen 2014), (Chybalski 2018)
3. Economic modeling	(Fields and Mitchell 1984), (Gustman and Steinmeier 1985)
4. Meta-analysis of literature	(van Erp, et al., 2014), (Fisher, et al., 2016)

Scope of the study	
Single country	(Blanchett, 2018) for the US; (Banks, et al., 2007) for the UK; (Bernal & Vermeulen, 2014), (Vermeer, 2016) for the NL; (Euwals, et al., 2010) for DK
Cross-country	(Lamprianou, 2012), (Axelrad & Mahoney, 2017), (Chybalski 2018)

What factors determine the effective retirement age? – neoclassical approach (2)

(Lumsdaine & Mitchel 1999)	Financial incentives explain only half of the differences in effective retirement age in the US
(Banks et. al. 2007), (Euwals et. al. 2010)	The reducing pension wealth with the equivalent of annual remuneration affects the extension of proffesional activity by approx. 2 months.
(Borsch-Supan et. al. 2002), (Glans 2008)	The less-earning lengthen the professional activity, the wealthier people retire early.
(Fields & Mitchel 1984), (Gustman & Steinmeier 2006)	Raising the statutory retirement age by one year increases the effective age by one month.

Behavioural approach in economy (milestones)

People's decisions are affected by:

(Simon 1956)	Bounded rationality
(Kahneman and Tversky 1979)	Loss averrsion and prospect theory
(Benartzi and Thaler 1988)	Mental accounting, lack of self-control
(Samuelson i Zeckhauser 1988), (Kahneman 1991)	Status quo effect and procrastination
(Laibson 1997)	Inconsistency of preferences
(Madrian i Shea 2001), (Thaler and Bernatzi 2004)	Framing and architecture of choice
(Lusardi and Mitchel 2006, 2011)	Lack of knowledge and financial awareness

Key behavoural determinants of retiring (1)

In pension economy, behavioural approach is usually explored in context of additional retirement savings. This research, however, focuses **on behavioural aspects of retiring** (see also Knoll 2011).

1. Default options (anchoring effect)	Retirees appear to be tied on ages that have some retirement significance. They are influenced by particular numbers associated with pension system (eg. minimum, usual retirement age). Anchor age seems to be the reference point in Kehneman and Tversky (1979) prospect theory. Other options are percieved as „gains" or „losses". *Duval (2003): people tend to retire as soon as they reach the minimum retirement age* *Vermeer (2016) Individuals expect to retire later when they are confronted with a higher reference point (age anchor).*

Key behavoural determinants of retiring (2)

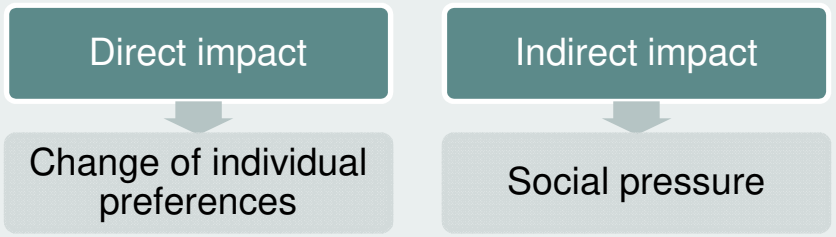
2. Planning fallacy	Misprediction of future events – people underestimate their financial needs when retire as they tend to adopt *best-case scenario*. *If future retiree do not consider costly events that can occur after retiring, he may be more likely to retire earlier with lower pension benefit* (Knoll 2011)
3. Affective forecasting	Prediction of future happiness (mental simulation) leads people to the conclusion that event in question would be significantly better (or worse) than it actually turns out to be. Future retirees tend to think they would be happier if the left the workforce earlier. *Gilbert and Wilson (2007): mental simulations are unrepresentative, essentialized, abbreviated and decontextualized.*

Key behavoural determinants of retiring (3)

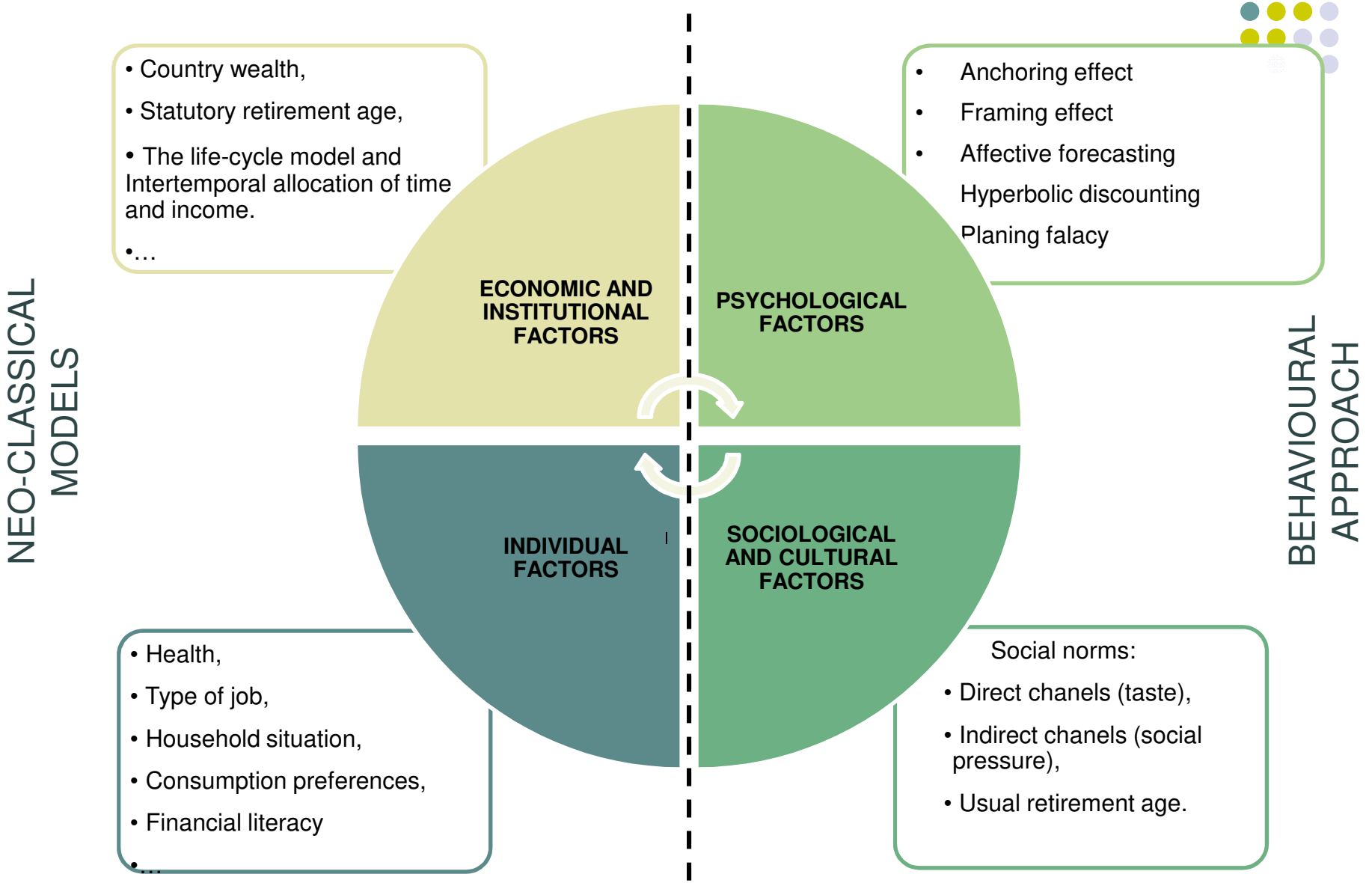
4. Hyperbolic disciounting	Tendency to increasingly choose a smaller-sooner reward over a larger-later reward as the delay occurs sooner rather than later in time (discounting factor is not constant). When retirement is far in the future, individuals may intend to work longer. When retirement is closer, the opportunity to stop working wins with the future financial well-being (Knoll 2011) *EBRI (2006) 38% respondents reported to retire earlier than planned, 5% - to retire later than planned*
5. Framing effect	Altering the frame in which pension scheme is presented may change retirement preferences. *Fetherstonhaugh and Ross (1999):* • *when retiring at 68 was presented as a monetary gain vs. 65 reference point - **38%** of respondents chose to retire at 68* • *when retireingt a 65 was presented as a monetary loss vs 68 reference point – **57%** of respondents chose to retire at 68.*

Key behavoural determinants of retiring (4)

6. Social norms	Reference point for the individual utility function. Deviation from social norms results in a decrease in individual utility. (Van Erp at al. 2014)



Determinants of effective retirement age – the complex approach



Source: own elaboration (on the basis of van Erp at al. 2014)

Conclusions and discussion

Findings

1. Traditional neoclassical approach is not able to fully explain individual's retirement decisions.

2. In addition to the classical aspects of retirement decisions, we should take into account also bahavioural determinants of retiring.

3. Knowledge about behavioural factors can help build strategies that encourage people to postpone their exit from the labour market.

Discussion

4. Which behavioural factors affect retirement decisions?

5. How can we measure and test the impact of particular behavioural determinants of retiring?

6. How to implement the findings that stem from behavioural approach in the real life?

Thank you for your attention

Tomasz Jedynak, PhD
Department of Risk Management and Insurance
Cracow University of Economics
e-mail: tomasz.jedynak@uek.krakow.pl