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THE EFFECTS OF APPLYING BEHAVIORAL IMPULSES ("NUDGES") TO STIMULATE THE DEVELOPMENT OF OCCUPATIONAL PENSION SCHEMES – COMPARATIVE ANALYSIS

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1. Introduction

Due to demographic aging of the population – a process that has been progressing in nearly all economically developed countries (for example the EU or OECD Member States) – public pension systems are not able to maintain the standard of living after retirement, to provide adequate old-age income. Additional pension systems – individual or occupational pension schemes – should fill this financial gap. There are, however, serious concerns about individuals under saving for retirement, in spite of economic incentives offered by state institutions and regulations (most popular – tax incentives). Policymakers in many countries take actions to stimulate the development of additional voluntary forms of retirement savings (Rutecka 2014; Jedynak 2016; Marcinkiewicz 2018). Traditional incentives – such as tax incentives, matching contributions or institutional regulations supporting retirement savings are not always efficient. For example, tax benefits for participants of supplementary pension systems are most often used by wealthy people. They have some positive impact on retirement savings but generally it is limited in generating new savings[1].

The achievements of behavioral economics are used to stimulate additional retirement savings generally and in the following three ways, impact the decision-making process: 1) changing the choice architecture, 2) changing the reference system (framing) and 3) offering appropriate behavioral incentives (nudges).

Nudges can be defined as "any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives" (Thaler and Sunstein 2008, p. 6). Nudges have been implemented in a variety of contexts (pension systems, health systems, other areas of public policy) to alter people's behavior.

[1] This assessment of the limited effectiveness of traditional incentives to participate in additional pension schemes applied to pension schemes of voluntary nature. Mandatory or quasi-mandatory additional or supplementary pension schemes (in such countries as the Netherlands, Sweden or Switzerland) usually play an effective role in stimulating additional pension savings.

Relatively new instrument to increase savings for retirement – using choice architecture and nudges in a form of a default option – is "automatic enrollment", where employers enroll employees automatically into an occupational pension scheme. Nudges are specifically designed to preserve agency and control the subject making pension decisions. There is always an "opt-out" option (possibility to not make use of the nudges). This solution is based on findings of behavioral economics (Thaler and Benartzi 2004; Benartzi and Thaler 2013; Madrian 2014; Thaler 2016).

Automatic enrollment as a default option reduces complexity of the decision to save in an occupational pension scheme and which financial instruments to choose. Default contribution rates paid by employers and employees and default allocation make decisions regarding pensions much easier. It also helps to avoid another serious problem of retirement savings and financial planning for retirement – the lack of self-control and procrastination (understood as "voluntary delay of an intended course of action despite expecting potential negative consequences for the delay" (Steel 2007).

Automatic enrollment (or auto-enrollment) has been implemented in various countries (USA, New Zealand, UK, Italy, Turkey and since 2019 also in Poland). It is gaining popularity as a means to increase the rate of participation in additional pension schemes and retirement savings. It is a kind of compromise between obligatory and voluntary participation in additional pension schemes.

This paper studies the effect of introducing automatic enrollment into workplace pensions in the following chosen countries: New Zealand, Great Britain, Turkey). The main aim of the research, preliminary results of which have been presented in this paper, was to seek an answer to a fundamental question: whether behavioral stimuli (nudges) proved to be effective in different countries and in different pension schemes, or whether there were significant differences in the strength of their impact. And if such differences were identified – what factors would influence the effectiveness of nudges in pension systems of different countries.

2. Behavioral economics literature on retirement savings and investment choice

Behavioral economics – a relatively new branch of social sciences, developed over last 30 years – has considerable real-world applications (Corr and Plagnol 2019). It has appeared in response to unrealistic assumptions and a specific anti-psychology of the so-called mainstream economics. Behavioral economics criticizes the assumption about the rationality of decision-makers (based on the homo economicus model) and takes a more realistic view of human behavior based on evidence that human beings are fallible, easily confused in complex scenarios, unable to calculate risk accurately and more irrational than the neoclassical theory would suggest. Behavioral economics literature shows that there are many deviations from the neoclassical decision-making model, for example: intuitive thinking, motivated reasoning and prospect theory (OECD

2016, p. 2). The testing of people's decisions has led to formulation of concepts of bounded rationality and bounded self-interest.

Behavioral economics has been used to explain the phenomena occurring on the financial market, and especially regarding the behavior of investors. From the point of view of pension economics, it is important that the retirement savings behavioral theory has also been established along the retirement behavioral theory. Traditional neoclassical economic theory (especially the theory of utility maximization) assumes that people in their retirement decisions act in a rational and consistent manner. In standard economic models (for example in the Life Cycle Hypothesis, Ando and Modigliani 1963) individuals rationally plan their-long term consumption and savings needs: a part of their earnings in working years is saved for the post-working period. Empirical research and comparative studies show that most of people do not achieve their long term saving goals, especially such as appropriate retirement savings (Lusardi 1999, quoted after: Peksevim and Akgiray 2019).

This article will not present an overview of possible applications of behavioral economics in pension economy and public policy as this topic has been comprehensively discussed and presented in both foreign and domestic literature (Camerer et al. 2004; Cartwright 2018; Corr and Plangnol 2019; Pieńkowska-Kamieniecka 2017; Szczepański 2017; Jedynak 2019). However, it seems necessary to indicate selected results of research on behavioral economics, in particular regarding decision-making processes that have been used both in pension economics and in the construction of additional pension systems.

In funded pension systems with individual accounts their participants bear investment risk during the accumulation phase. This risk applies to both public pension systems with a capital pillar, as well as to additional pension systems (individual and company pension systems). The basic policy question in these systems is "how much choice workers should have over key decisions, such as the choice of provider, the choice of investment portfolio, and the choice of income stream at retirement" (Tapia and Yermo 2007, p. 4). There is a number of behavioral biases – referring to systemic patterns of deviation for rational human behavior – identified in behavioral economics (see Table 1):

Table 1. Chosen behavioral biases which have impact on retirement savings

Biases	Description
Choice and information overload	The impact of the number of investment choices upon investor behavior. More choice is not always better. Information overload and too many choices. Too many options and information overload can lead decision-makers to refrain from acting or make wrong decisions.
Unstable and undefined preferences	The problem of incoherent preferences for making investment decisions complicates optimal retirement plan design.
Heuristic decision-making	Heuristics are mental shortcuts, based on intuitive thinking, so called "rules of thumb", which reduce the complexity of assessing probabilities. Many heuristics, which are useful in everyday situations, lead to false decisions when problems are more complicated and require analytical thinking
Inertia/procrastination:	Inertia and procrastination have significant impact on decisions about starting retirement savings, amount of savings, investment strategy etc. Many decision makers (investors) postpone their decisions. This problem is connected with "bounded self control" – the problem identified by Mullainathan and Thaler (2000) in retirement saving decisions.
Passive decision making	Individuals take pass or option of least resistance in retirement savings decisions and plans.
Loss aversion	People dislike potential losses more than potential gains
Framing effect	Individuals make or accept certain savings decisions because of how the selection or choice is framed
Present bias	Individuals struggle to save more or spend time considering savings decisions because they manifest limited self-control and willpower and prefer immediate gratification over future gains
Status quo bias and anchoring/pure endowment effect	Individuals become anchored to default funds and contribution rates as the status quo and treat them as a superlative endowment

Source: own elaboration based on Tapia and Yermo 2007, pp. 6-9 and Townsend 2018, p. 86.

Key conclusions from the study (Tapia and Yermo 2007) are that a wider array of choices, too many investment options can cause information overload and confusion. This conclusion was formulated on the basis of comparative analysis of 10 countries where participants of pension systems (public pension systems with a funded pillar) had to make investment choices. Tapia and Yermo recommend introduction of default options and reduction of investment choices in public pension schemes with individual accounts and the funded pillar. Similar recommendations – also with regard to additional pension schemes – were made by many other authors (Thaler 2004; Rutecka 2016).

However, it turns out that the use of nudges does not always carry the expected results. A comprehensive literature review on the strength of impacts and restrictions on the effectiveness of nudges, prepared by Hummel and Maedche (2019, p. 1), indicates that "the effect of its influences vary considerably across studies (…)".

3. The effects of using nudges in the chosen countries – comparative study

3.1. Automatic enrolment in the U.K.

An example of the use of defaults to restrict procrastination, delaying decisions to start saving was an automatic enrolment of workers to the UK's occupational pension schemes with an option to opt out. Between October 2012 and February 2018, the government rolled out automatic enrolment into workplace pension schemes. All employers now have a legal duty to enrol all qualifying workers aged between 22 and State Pension age who were earning over GBP 10 000 in 2018/19 into a qualifying workplace scheme. To support automatic enrolment, the government established the National Employment Savings Trust (NEST), a trust-based occupational defined contribution scheme, to ensure that all employers are able to access a good quality, low cost pension scheme. NEST carries a public service obligation to accept all employers that wish to set up a pension scheme with them regardless of their income (OECD 2019).

This solution was being successively implemented since 2012 (until 2018) in order to increase the level of participation in occupational pension schemes, increase the rate of replacement of retirement income relative to the period of professional activity and ultimately reduce dependence on the public pension scheme, which provides only basic financial security for old age (basic security against poverty – see Table 2).

Table 2. Main features of the pension system in the UK

Three pillars	
Pillar I	The public pension scheme, comprising of the following two components: the basic pension and the additional pension.
Pillar 2	Gathering the occupational pension plans, sub-divided into the following two categories: the defined-benefit plans (salary-related) and the defined-contribution plans (money purchase arrangements);
Pillar 3	Individual (voluntary and supplementary) pension savings products

Source: Pension Savings: The Real Return 2019, p. 501.

The public pension system in the U.K. provides only a modest part of retirement savings. Privately managed, funded pension products play a very important role in a pension system (see Table 3).

Table 3. UK Pension system overview

Pillar 1	Pillar 2	Pillar 3
Public pension scheme	Occupational pension schemes	Personal pensions: Group Personal Pension or Individual contracts (Stakeholder and Self Invested Personal Pensions)
For men born before 1951 and women born before 1953: Basic, Additional State pensions Since April 2016, for men born after 1951 and women born after 1953: new State pension	Defined Benefits and Defined Contributions pension schemes	Defined Contributions pension schemes
Mandatory	Since 2012, auto-enrolment or explicit opt-out. Since 2019, compulsory contribution equal to 8% of earnings	Voluntary
Quick facts		

Source: own elaboration based on Pension Savings: The Real Return 2019, p. 502.

Automatic-enrolment obliges employers to include in the qualifying occupational pension scheme all employees who meet certain criteria of age (at least 22 years old), income (at least £10,000 per year), and who work exclusively or primarily in the UK and pay at least the minimum contribution (Department for Work 2016, p. 1). Employees with lower incomes are also entitled to join occupational pension schemes but on a voluntary basis. Enrolled employees hold the right of opting out. After three years, employers are obliged to enroll them once again unless they resign voluntarily. Initially, auto-enrollment covered only large employers, then medium ones, and by 2018 all employers (large, medium and small enterprises and other workplaces) are required to include their employees in an occupational pension scheme and pay the required contribution themselves and for their employees.

Data on automatically enrolled employees who opted out of the program during the first month and withdrew their contributions comes from a quantitative survey conducted in 2013 on a representative sample of 3000 employers, and a qualitative survey involving enterprises included in the quasi-compulsory occupational pension scheme in 2014 (Automatic Enrollment 2014). Both of these studies show that the percentage of workers who opted out of the occupational pension scheme in which they had been enrolled automatically was relatively small – between 9% and 10% in 2012-2014. This is much less than originally accepted during the program's start-up phase in 2012 when it was assumed that up to 30% of employees had opted out. People with the lowest income predominated in the first month after enrollment among those who opted out.

There is no doubt that the introduction of automatic enrollment has substantially increased participation in the occupational pension scheme (about 60% in 2018) and led to an increase in savings regarding a workplace pension (Cribb and Emmerson 2016, Pensions Regulator 2018).

3.2. Automatic enrollment in New Zealand – the KiwiSaver system

The case of New Zealand can be also regarded as a success story of automatic enrollment. New Zealand's pension system is based on a tax and transfer 'pay-as-you-go' (PAYG) system, including a unique near-universal flat rate one-pillar pension. Since 2007, NZS has been complemented by KiwiSaver—a hybrid, Pillar 2/3 scheme (a combination of an occupational and an individual pension scheme). "KiwiSaver is funded by a mix of individual and employer contributions plus a government subsidy known as member tax credit" (MacDonald, Gues 2019).

KiwiSaver's statutory purpose under the KiwiSaver Act 2006 was to encourage long-term savings and asset accumulation by those who would be unable to maintain their pre-retirement standard of living with solely New Zealand public pension scheme and voluntary individual pension scheme, so called private superaanuation (the first pillar of the New Zealand's pension system – see Table 4).

Table 4. Main design features of the New Zealand pension system

Three pillars	
Pillar 1	NZS, a universal pension, funded from PAYG. The New Zealand Superannuation Fund was established in 2001 to commence partial funding of NZS from 2020.
Pillar 2	KiwiSaver is a hybrid of 2nd Pillar and 3rd Pillar schemes. Minimum employer contributions is a 2nd Pillar feature, and the employee opt-out, along with optional higher contribution rates, is a 3rd Pillar feature.
Pillar 3	Voluntary private superannuation separate from KiwiSaver. Taxation is the same as for KiwiSaver. No private saving tax incentives.
Public pension	
Eligibility	Age 65, subject to residence test*
Amount**	Singles 42% of 2016 median weekly wage/salary. Approximately 40% of average national income (male and female) per beneficiary. Couples 32% each of 2016 median weekly wage/salary
Means testing	None
Taxation	Taxable at marginal rate
Private pension (superannuation)	
Minimum contribution rates	Employer contribution Minimum 3% of gross earnings. Employee contribution Minimum and a default rate of 3% (optional rates 4% or 8%) of gross earnings. Applies to employees aged 18-65 but employers may choose to continue to contribute for employees aged 65+. A contribution holiday cannot be taken in the first year of membership without evidence of financial hardship. Beyond the first year, it can apply for between three months and five years without providing a reason, renewing the holiday at any time or taking an unlimited number of future contribution holidays. Employer contributions also cease during this period***

*For New Zealand residence requirements, see Ministry of Social Development (n.d.). **These figures are calculated from the 2016 median New Zealand weekly earnings of NZ$924 (A$883) and maximum after-tax weekly 2016 pension payments of NZ$384.76 (A$367.66) (Statistics NZ 2018).

***As of June 2017, approximately 5 per cent of the membership base is on contribution holidays, the majority of which are over 60 months in length (IRD 2017).

Source: Adapted from Guest (2013).

Individuals are auto-enrolled when starting work for the first time or when changing jobs. The auto-enrolled individuals can only opt-out within 8 weeks of being automatically enrolled. After this period, they can apply for an unlimited number of contribution holidays of up to five years. In NZ, members have a unique KiwiSaver account throughout their working life. After 13 years, KiwiSaver has over 2.8 million members and has become a permanent feature of New Zealand's pension system and savings sector. "The individual is being automatically enrolled (as there is only one default fund type) and only requires a contribution rate selection. This means that even those automatically enrolled members who wish to select their preferred fund are unable to do so. Default members are automatically and randomly allocated into one of the nine government appointed default provider funds, with a default contribution rate of 3% unless a different rate is consciously selected" (Townstead 2018).

The number of KiwiSaver members is systematically increasing (see Figure 1). Participation rate in KiwiSaver 2018 amounted to about 75%.

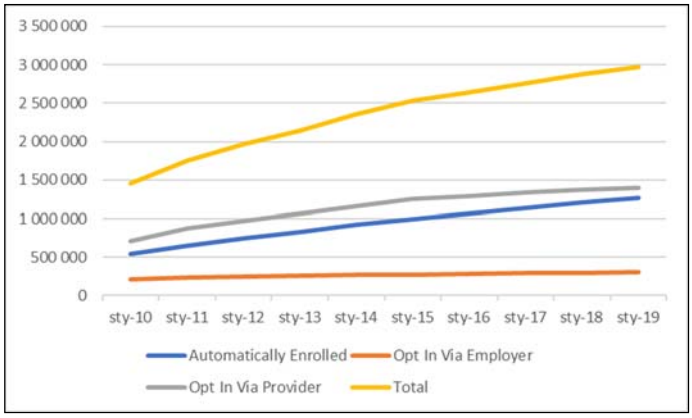

Fig. 1. Number of active KiwiSaver members by enrollment method
Source: https://www.kiwisaver.govt.nz/statistics/annual/joining (access: 10.02.2020).

It is worth mentioning that both in New Zealand as well as in the U.K. auto-enrollment into pension scheme (nudge, behavioral incentive) is combined with traditional financial incentives (see Table 5).

Table 5. Behavioral and traditional financial incentives in pension systems of New Zealand and the U.K.

Country	Minimum contribution rate	Financial incentives
United Kingdom	Employee: 3% but will increase to 5% in 2019 Employer: 2% but will increase to 3% in 2019	Tax Incentives
New Zealand	Employee: 3% Employer: 3%	Government match up to NZD 10/week

Source: own elaboration based on OECD (2019) Pensions at a Glance and G20 Indicators.

However, there are significant differences between these two countries as far as default fund structure (investment strategy of default funds) is concerned (see Table 6).

Table 6. Behavioral and traditional financial incentives in pension systems of New Zealand and the U.K.

Country	% Members in the Default Fund	Type of Default Fund	Other Fund Choices
United Kingdom	60-100%	Life-cycle Funds	NEST Funds- Pre-retirement Fund, Higher Risk Fund, Lower Growth Fund, Ethical Fund, Sharia Fund, and Climate Fund
New Zealand	93% (members in employers- chosen pension schemes)	Conservative Fund	KiwiSaver Funds- Low risk (100% bonds), Defensive (< 20% invested in growth assets), Conservative (30% shares and property), Balanced (50-50% high risk and low risk investments), Growth (70-85% shares and property), and Aggressive (90% or more shares)

Source: own elaboration based on Poksevim and Akagiray 2019, p. 19.

Automatic allocation system in New Zealand into default fund and contribution rate is based on an assumption that most pension scheme participants have not got enough financial literacy and limited knowledge about financial markets and investment strategy. This assumptions seem to be quite realistic. But there are also negative consequences of using nudges (or "soft compulsion"), such as auto-enrollment into default low risk fund. Most of automatically enrolled workers stay in conservative KiwiSaver default fund. Some authors (Townstead 2018) propose to change default option from conservative fund to a target date fund (life cycle fund)[2].

KiwiSaver has been evaluated as a success of public policy to increase participation in additional pension schemes with the use of behavioral incentives (nudges), "rational behavior for the government, but not necessarily the best interests of KiwiSaver members" (limited effect on the accumulation of net wealth, potentially negative impact due to, already mentioned, conservative nature of default schemes – see IRD 2015).

3.3. Automatic enrolment in Turkey – still an initial stage

Quite a different situation has been observed in Turkey so far, where auto-enrollment legislation was introduced in 2017. It is important to indicate that – in spite of the U.K.'s pension system, with very long tradition of private pension

[2] Such a solution has been introduced in Employee Capital Plans (PPKs) in Poland – new occupational pension schemes which will gradually be implemented from 2019 till 2021.

funds and huge capital market – the Turkish private pension system is relatively new, with short history of 15 years (see Table 7).

Table 7. Main features of the Turkish pension system

Pillar 1	**State (public) pension scheme** The PAYG social security programme, which covers employees' old-age pension benefits and other social protection needs such as health care, survivorship, disability, work-related accident and occupational diseases, unemployment, and life insurance.	PAYG public pension scheme: • Earnings related pension benefits, • Income-tested safety net and flat rate supplementary pension.
Pillar 2	**Occupational pensions** The second pillar of the Turkish pension system mainly consists of two mandatory occupational pension schemes: OYAK and TTK plans. OYAK has been established to provide pension and other social benefits for military personnel, and TTK pension plan covers employees of the state-owned coal mining companies.	Two mandatory occupational pension funds: • OYAK: Armed forces pension plan. • TKK: Employees of the enterprise fund • 250 small occupational pension plans
Pillar 3	**Private Pensions** A voluntary private pension system (BES) was first introduced in Turkey in 2003. The main purposes of introducing the third pillar pension were to increase domestic savings rates and develop domestic capital market.	Voluntary fully-funded DC pension systems • 18 licensed pension companies and 408 mutual investment funds • Introduction of auto-enrolment in 2017

Source: own elaboration based on Poksevim and Akagiray 2019, p. 19.

Automatic enrollment has been put into effect by Turkish government together with a traditional incentive (government contributes up to 25% of the amount paid by the employee). First results (data from 2017-2019) show that auto-enrollment is expected to boost participation among first-time savers in Turkey (like in New Zealand and in the U.K.), but the opt-out rate from the system is relatively high: 54% in 2018 (Peksevim and Akgiray 2019).

5. Conclusions and recommendations

A full assessment of the effects of the introduction of a pension scheme with auto-enrollment in Turkey will be possible over a longer time horizon. However, there are significant differences in the first period of implementation of this program compared to United Kingdom and New Zealand where a much higher opting-out rate has been observed in Turkey. This may be due to the long tradition of additional private savings and the maturity of financial market in the UK and short tradition and smaller development of the financial market in Turkey. In New Zealand the time to opt out

is relatively short and limited after automatic enrollment. It has impact on the smaller number of withdrawals in the first years of the system's operation.

Also cultural factors should not be underestimated – a different institutional tradition and diversity of pension awareness (however, this is a subject to be investigated further).

Undoubtedly the level of generosity of the public pension system affects the willingness to participate in additional pension systems. Public pension systems in the UK and in New Zealand offer only basic security against poverty and flat rate pension benefits. Turkey's public pension system belongs to the most generous in the world, with replacement rate at 102.1% (OECD 2017, p. 107), the highest in OECD countries (!). Turkish society is still relatively young but the process of demographic aging has already begun there as well. Public PAYG pension system will not be able to maintain such high replacement rate in the future and additional retirement savings are needed to fill in this gap.

The general conclusion that can be formulated on the basis of the comparison of pension programs with automatic enrollment in these three countries can be formulated as follows: Nudges are not a universal panacea for the problem of insufficient retirement savings. But they can provide a valuable addition to traditional (economic and institutional) incentives.

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