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'Automatic Dis-Enrolment'. The Impact of the Choice Architecture on Retirement Savings Decisions: Some Evidence from Poland

A privately managed, mandatorily funded defined contribution (FDC) part of the pension system has been introduced, or its implementation has been considered, in around 30 countries worldwide (Tapia and Yermo 2007). Poland introduced this system in 1999. Its coverage rose to 54.8 per cent of the working age population in 2011 (Antolin, Payet and Yermo 2012) but decreased to 9.49 per cent in 2014.¹ At the same time, the contribution rates were decreased from the original 7.3 per cent applicable from January 1999 up to May 2011 to 2.92 per cent effective February 2014. Therefore, it seems safe to conclude that fifteen years after its introduction and following a series of minor reforms, it was virtually disassembled.

Most interestingly, people were given a choice, during the most recent pension reform of 2014, to retain part of their pension contributions diverted into the now formerly mandatory second pillar of the pension system. However, the default option was set to divert the contributions in full to the first pillar, the mandatory notional (or non-financial) defined contribution (NDC) scheme (Hinz and Palmer 2008), unless an individual confirmed their will to maintain contributions to both pillars. The question is whether setting the default option to be transferred to the first pillar impacted the outcome. If it did, then this justifies the question as to whether this outcome is truly a reflection of rational, conscious decisions or whether it is an example of how defaults can affect and determine retirement savings decisions.

This paper does not analyse the macroeconomic reasons driving this change. It centres on the micro scale, particularly focusing on the choice architecture which was set up for people and which resulted in such a significant change. The paper proceeds as follows: in order to provide objective background to the 2014 reform, the second section presents a brief history of the evolution of the pension system in Poland since 1999. This is followed by review of the literature on the subject of the choice architecture, as well as inertia and procrastination, presenting prior evidence of their impact and leading

1. According to ZUS, 2 564 072 chose an OFE out of the working-age population (those aged 15–64) = 27,015,538, http://www.indexmundi.com/poland/demographics_profile.html [accessed 30 December 2014].

to the formulation of the research question in section 3. Section 4 comprises a presentation of the set of data and methodology used to verify the hypothesis. Findings are presented in Section 5, along with an exploration of possible explanations and a proposal of potential applications of the findings. Section 6 offers a conclusion.

Key words: pension reforms, behavioural economics and finance, default options, inertia and status quo bias, choice architecture.

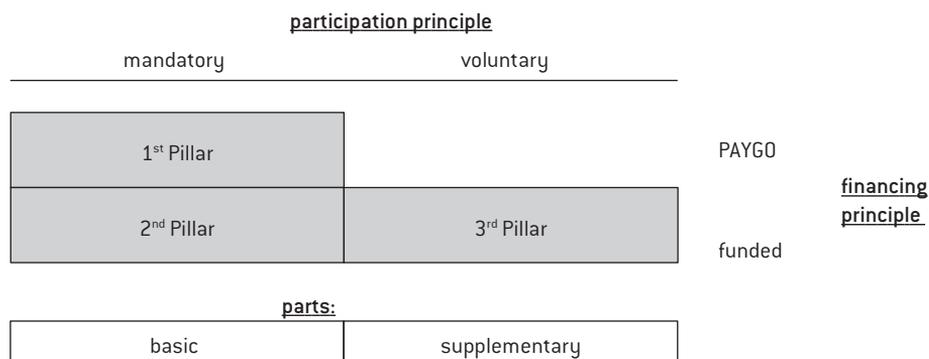
The Polish pension system and its reforms

The multi-pillar approach

The Polish retirement system underwent a major overhaul in 1999 (Chłoń-Domińczak 2002). The reform introduced two systemic changes. First of all, it changed the formula from one of defined benefit (DB) to one of defined contribution (DC). This was to improve the actuarial fairness of the system and to establish a stronger link between contributions and benefits. The benefits payable under the old DB system depended on the remuneration level from chosen years of one's career and social insurance coverage. The benefit was not related to the sum of contributions paid (Jabłonowski 2013). In the reformed system, the contributions of every person covered are registered on their individual accounts (either on an NDC or FDC basis). Retirement benefit is equal to the value of their fund divided by life expectancy. Secondly, it introduced partial funding. Given the unfavourable demographics, growth has been expected to slow, putting downward pressure on the rate of return under mature pay-as-you-go (PAYG) systems (Orszag and Stiglitz 1999). The key was to introduce risk diversification, under the motto "Security through Diversity".

The 1999 reform introduced three pillars. Although inspired by the World Bank (1994) multi-pillar model, the Polish pillars are somewhat different to the classic model. The second, mandatorily funded pillar was carved out of the mandatory PAYG NDC scheme, as opposed to being an addition to a defined benefit social security cushion. Both individual and occupational voluntary plans were included in the so-called third pillar (Jarrett 2011; Egert 2012). The old age social security contribution rate is set at 19.52 per cent. It is payable in equal proportions of 9.76 per cent by employers and employees. The first mandatory pillar Social Insurance Fund (FUS) is funded on a PAYG NDC basis and administered by the Social Insurance Institution (ZUS). The second mandatory pillar, consisting of Open Pension Funds (OFEs), is privately managed by Pension Fund Societies (PTEs) and funded on an FDC basis. The contributions were originally split in the following proportions: 12.22 per cent or $5/8^{\text{th}}$ of contributions was diverted to FUS (ZUS) and 7.3 per cent or $3/8^{\text{th}}$ was diverted to OFEs (PTEs).

Figure 1. Three pillar presentation of the retirement system in Poland (misleading division of the basic part of the system in two pillars)



Source: author's adaptation of Szumlicz 2010: Figure 4, page 160.

Participation and coverage

In theory, there are only two systems (Egert 2013). There is one system for farmers, who have their own social insurance institution, called the Agricultural Social Insurance Fund (KRUS). Everyone else should be covered under the universal old age social security system. However, certain professions are excluded from this system (Jarrett 2011). Former uniformed service people (police, soldiers, fire fighters, prison guards, staff of the Ministry of Defence and Ministry of Internal Affairs) were excluded in 2003, as were former judges and prosecutors. Miners were exempted from the universal pension system in 2005 as a result of coup de grâce (Egert 2012). These exclusions may have sent signals suggesting that the proposed universal system is not as beneficial as presented by the government, since these groups so strongly opposed to being included therein.²

For everybody covered under the universal system, there are effectively two schemes. People born before 1 January 1949 stayed in the old DB scheme. People born after 31 December 1948 but before 1 January 1969, were given a choice between diverting their contributions to FUS (ZUS) in full or diverting part of them to OFEs (PTEs). People born after 1 January 1969 were not given any choice, and thus joined the new system (MPIPS 2014). The uptake exceeded expectations (Chłoń-Domińczak 2002; Whitehouse 2011) and nearly 55 per cent of the working age population was covered as at 2011 (OECD Pension Outlook 2011).

Financial performance, results and fees

Net assets under management reached almost 300 billion PLN, as at 31 December 2013 (KNF 2014a). The charges in OFEs were relatively high, when compared with other countries which introduced FDC as part of their mandatory pillars (Tapia and Yermo 2008). Initially set without any cap, effective charges on contribution of 9.1 per cent applied, decreasing to ca. 6 per cent after a cap of 7 per cent was introduced in 2004. In 2010, the maximum premium was further reduced to 3.5 per cent (Bielecki 2011). Management fee ...

2. B. Egert (2013) estimates the overall budgetary revenue loss deriving from these exclusions at 30 per cent, which, although calculated using arguable methodology, illustrates the extent and scale of this phenomenon.

In the first 10 years of their operation, OFEs generated an average return of 7.02 per cent net of fees per annum, and therefore performed slightly below the valorisation equal to 7.26 per cent per annum of NDC schemes (Bielecki 2011). The valorisation is the multiplication of the contributions evidenced on individual retirement accounts by the indexation rate. The principles of indexation are set out in article 25 of the Act of 17 December 1998 (Journal of Laws, 1998). In the 120 months to the end of 2013, the compound valorisation was 96.86 per cent (ZUS 2014). Across similar periods, the average weighted returns generated by OFEs from 31 March 2004 to 31 March 2014 were 104.08 per cent (KNF 2014b) and from 30 September 2004 to 30 September 2014 were 102.35 per cent (KNF 2014c).

To conclude, there was a rather low risk premium for participation in OFEs. From an individuals' perspective, returns have been very similar in both pillars. The difference is obviously that OFE returns are actual financial results, whereas FUS valorisation is simply an accounting entry – an implicit increase in public debt deferred over time. Moreover, the indexation rate is susceptible to political influences, whereas the rate of returns generated by PTEs derive from their performance on financial markets and are relatively independent of political factors.

The voluntary third pillar

The voluntary third pillar is also constructed on an FDC basis, however pay out phase hardly exists. Initially it was only made up of occupational pension plans (PPEs). Employer contributions to PPEs are capped at 7 per cent of gross pay, social security deductible, although employer contributions constitute a taxable benefit in kind for employees. Individual Retirement Accounts (IKEs) were introduced in September 2004 (Szczepański 2012). IKEs are constructed on a TEE basis, the only incentive being no capital tax of 19 per cent on accrued gains. A very low number of people decided to use any of them. The trend of low participation rates well below OECD levels remains present to this day. On 1 January 2012 Individual Retirement Security Accounts (IKZE) were introduced. Initially 4 per cent of an individual's previous year's income could be invested tax free on an EET basis.³ Despite these incentives, both participation and, more importantly, the adequacy of savings is still significantly below expectations.

Table 1. Polish voluntary (3rd) pillar

III pillar as at 31.12.13	Number of programs	Accounts	Active accounts	Assets ('000 PLN)
PPE ^a	1116	374 988	314 041	9 407 335
IKE ^b		817 651	259 923	813 069
IKZE ^c		496 426	54 431	61 558
Totals		1 689 065	628 395	10 281 962

a. KNF 2014d

b. KNF 2014 e

c. KNF 2014 f

Source: author's summary based on the data from KNF.

3. Eventually tax on benefits was reduced to 10 per cent in 2014, hence became EeT (reduced taxation) basis. The 2014 brought also a significant improvement to IKZE. Contributions' tax allowable threshold will no longer be set at 4 per cent of previous year's earnings, but as 1.2 times average salary or 4495 PLN.

Second pillar retrenchment

May 2011 marks the beginning of OFE retrenchment (Jarrett 2011; Egert 2013). Poland followed the trend in the CEE region of the disassembly of mandatory FDC schemes (Fultz 2012; Egert 2012; Whitehouse 2011; OECD 2012). The retrenchment of mandatory FDC schemes is a trend present not only in the region: similar changes are also present in South America (Kay and Sinha 2008). Given the topic of this article, in depth analysis of this issue will not be presented. It is sufficient to highlight that Poland was not unique and that almost every country which introduced similar reforms had trouble with their capital pillars. The main reason was the high budget deficit caused by the financial crisis, which pushed governments to weaken or scrap FDC pillars. Poland struggled with its second pillar, mainly because of the high transition cost which proved to be substantial and exceeded affordability, combined with the high level of explicit public debt. Fultz (2012) points out omissions in terms of financing, fees and benefits during the planning and implementation phase.

The 12.22 per cent allocated to the Polish first pillar did not change.⁴ Initially the retrenchment meant introduction of subaccounts, reducing the OFE contribution from 7.3 per cent to 2.3 per cent with 5 per cent allocated to an individual NDC subaccount. The subaccount earned returns based on GDP growth, as opposed to wage bill, as was the case for the main account of the first pillar (Jarrett 2011). This reduction could have undermined the trust to the private pillar.

Description of the 2014 reform

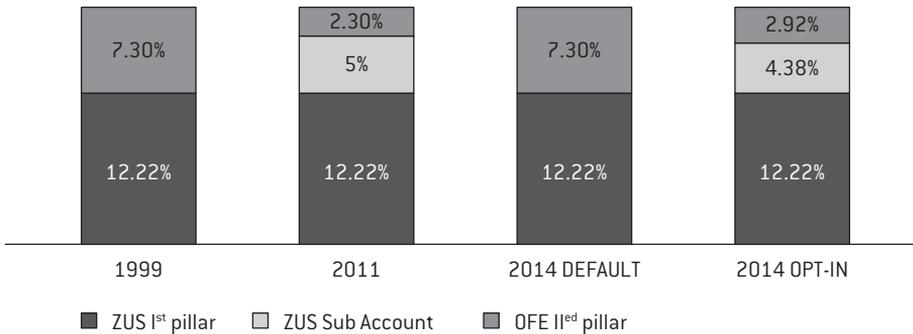
The reform is regulated by the Pension Act of 6 December 2013 (Journal of Laws 2013). As of 1st of February, participation in OFEs is no longer mandatory. It is not accurate, however, to state that it became voluntary, as an individual cannot change their mind and opt out outside of the choice windows. Active choice is required to participate. New entrants to the workforce will have four months to file their declaration; otherwise their contributions will be diverted to FUS (ZUS) in full. Those who chose FUS (ZUS) in 1999 were ineligible to join as only members of OFEs were given a choice. Everyone who wanted to stay needed to ‘opt-in’, that is confirm their choice to contribute to an OFE between 01 April 2014 and 31 July 2014. No action was required to be moved to FUS (ZUS). The choice will not be irrevocable: in two years there will be another four-month window, and then there will be one such window every four years. The choice is therefore binding initially for two years.

Filing of the declaration to choose an OFE (PTE) could be done by visiting one of the ZUS branches, by sending a declaration by regular post or else by setting up an electronic public services profile (e-PUAP / PUE) and filing the declaration electronically (this required a one-off registration for e-services). Nevertheless, it is safe to conclude that the objective hardship required to file the opt-in declaration cannot be considered to have been significant.

The maximum contribution to an OFE will be reduced to 2.92 per cent. 12.22 per cent will be accrued on the individual NDC account in ZUS. The remainder, 4.28 is accrued in a FUS (ZUS) individual subaccount. The choice only concerns that 2.92 per cent, therefore people choosing FUS (ZUS), or not taking any action, will also see their 2.92 per cent passed onto the aforementioned subaccount administered by ZUS.

4. See: Figure 2 for illustration.

Figure 2. Contribution allocation in % to pension pillars



Source: author's illustration of introduced reforms.

Some of the economic characteristics of OFEs have been changed. All of the OFEs were heavily invested in State Bonds. Pursuant to art. 23 of the Act of 6 December 2013 (Journal of Laws 2013) 51.5 per cent of all OFE units, worth 155 billion, were cancelled and recorded on an individual NDC account in FUS (ZUS) on 3 February 2014. This caused public unrest as early as in December 2013, as people strongly opposed the nationalisation of what was perceived as individual savings. Although the President signed the bill on 27 December 2013, he also passed it to the Constitutional Tribunal for assessment of whether such a change was constitutional (Trawińska 2014). The reform could potentially need to be reversed, if it is ruled to be unconstitutional.

Unlike Hungary, who nationalised 92 per cent of the accumulated assets, Poland adopted a solution that only future premiums will be diverted to FUS (ZUS), if one does not confirm their choice to remain in an OFE (PTE). This does not affect the already existing funds, except for the annulled state bonds. According to art. 12 of the Pension Act of 6 December 2013 (Journal of Laws 2013), the assets of people with less than 10 years until retirement will be gradually transferred to ZUS,⁵ from 31 October 2014 onwards. Although not explicitly forbidden, these people effectively cannot participate in an OFE. The FUS (ZUS) subaccount has similar features to OFEs (PTEs) in relation to bequeathing of the account.

OFEs (PTEs) will not be able to invest in State Treasury bonds any longer. Until the end of 2014, 75 per cent of total assets managed by a given OFE must be invested in 2017. The fact that OFEs (PTEs) can no longer invest in state bonds increases the volatility of their financial results. This could be considered as demotivating an individual from remaining in OFE (PTE), given that FDC growth depends on returns on investment, whereas NDC valorisation is given by the State. The marginal distribution, effective 3 February 2014, decreased further to 1.75 per cent. It had been previously argued that, such a reduction in fees might demotivate the performance of OFEs (PTEs) (Stańko 2010). The management fees' structure has not been modified during this reform.

The purpose of this section was to present objectively the main features and key characteristics of the choice given to individuals. This paragraph described 'what' was to be chosen. In the next part of the article, we will take a closer look and analyse 'how' the choice was presented and whether the design of the choice could have impacted citizens' decisions.

5. The solution dubbed the 'Rostowski zipper' after the former finance minister who proposed it.

Literature review and research hypothesis

There is a growing body of research confirming the impact default options have on decision-making outcomes (Johnson et al. 2012). These findings contradict the standard economic theory prediction, which states that agents with defined preferences will opt out of any default which does not maximise their utility if transaction costs are small (Beshears et al 2008). Savings outcomes are influenced by defaults at all of the pension adequacy checkpoints: savings plan participation, contributions level, asset allocation, pre-retirement transfers, and decumulation. In the case of the choice between an OFE (PTE) and FUS (ZUS), an individual does not have the choice to select contribution rates⁶, nor can they select assets⁷. Equally, the choice does not affect the decumulation phase. The choice is limited to whether to participate in an OFE (PTE) or not. It is precisely for this reason that this section will focus solely on participation.

Why defaults affect the outcomes

First of all, empirical evidence suggests that choices made by people vary from the full rationality assumed by neoclassical economic theory. At least some people do not save at the appropriate level. Behavioural explanations for this issue stress foremost a bounded rationality, which is to say that people may find it difficult to work out their optimal savings rate. It is safe to assume that at least some people make mistakes when making financial plans (Benartzi and Thaler 2004).

Secondly, people are not exponential discounters, contrary to standard economic assumptions. According to available research (O’Donoghue and Rabin 1999; Frederick, O’Donoghue and Rabin 2002 for critical review), the discount curve resembles a hyperbola, or is best described as quasi hyperbolic (Diamond and Koszegi 2003). Non-exponential discounting combined with loss aversion (Kahneman Knetsch and Thaler 1991) leads to procrastination, as people tend to defer unwanted actions over time. This in turn leads to inertia, as perpetual deferral results in lack of any action. That phenomenon is called status quo bias and was first described by Samuelson and Zeckhauser (1998).

On top of the aforementioned, some evidence exists that people have limited self-control and do not fully act upon their desired plan of action (Shefrin and Thaler 1981). Preferences can be unstable or even undefined. For example Choi et al. (2002) document a disparity between desire and action. The authors presented poll results in which 67.7 per cent of participants think that they save too little. 24 per cent of them declared plans to increase their contribution levels, but only 3 per cent of them actually did so.

Finally, in addition to the above, Madrian and Shea (2001) propose that the concordance with default results from the perception of the default as advice. The outcomes are influenced by defaults, if individuals perceive them as endorsements of a particular course of action (an endorsement

6. Albeit one might argue that the voluntary 3rd pillar could be used as a tool to adjust the contribution rate to the desired level, that is that it is possible to select the level of contributions in the Polish retirement system.

7. Given that FUS (ZUS) subaccounts are valorised by the State and are guaranteed to never fall below zero, this could be perceived as *de facto* selection of very prudent and conservative investment strategy and may be considered as factor against staying in an OFE (PTE), which became more risky after this reform.

effect). This paired with a low level of financial sophistication, may lead individuals to adhere to defaults (Beshears et al 2008).

Automatic enrolment and inertia of participants

The aforementioned problems are addressed by a solution called automatic enrolment (AE) or negative faculty. Most research on this solution was conducted in the United States, particularly on 401 (k) plans participants (Madrian and Shea 2001; Choi et al. 2002; Benartzi and Thaler 2004, 2007 and 2013).⁸ The majority of 401 (k) plans operate under standard enrolment. Under the opt-in principle, active election is required for participation. AE on the other hand, requires opting out of participation, meaning that action is required to leave the plan. This simple change in the default entry status is basically the essence of this arrangement (Beshears et al. 2008).

In one of the most quoted articles concerning automatic enrolment, Madrian and Shea (2001) document the impact of default options on participation in 401 (k) plans. The results show an increase in participation from 37 per cent to 86 per cent within 18 months of enrolment. One step further in documenting the impact of inertia is made by a programme called Save More Tomorrow. This solution addresses participation, as well as contribution adequacy, by pre-committing to increases aligned with annual pay reviews. The authors document the effectiveness of contribution escalation at increasing employee savings rates. At one of the firms they study, employees who opted into an automatic annual 3 per cent increase in their contribution rate saw their average contribution rate increase almost four-fold, from 3.5 per cent of their pay to 13.6 per cent of their pay, over the course of four years (Benartzi and Thaler 2004, 2007).

These techniques have been used not just to enhance participation in 401(k), private occupational plans but have also been applied in some state pension schemes around the world. The problem of inertia and procrastination have been explicitly addressed in the UK through the application of automatic enrolment (DWP 2012). Based on the preliminary results of the introduction of AE in the UK pension reform, it is estimated that overall participation in a workplace pension increased from 61 per cent to 83 per cent in 2013 (DWP 2013). Automatic enrolment has been implemented in a number of other countries (Iwry 2006). AE paired with financial subsidies was introduced to Kiwi Saver scheme in New Zealand. This has resulted in increased participation – from 10 per cent to 55 per cent of the population – from the inception of the programme in July 2007 to the end of 2010 (Antolin et al. 2012). The Italian TFR is the only example of a rather low effectiveness of AE (Antolin et al. 2012). The increase in participation was only 3.4 per cent (from 8.5 per cent to 11.9 per cent) within the first year of implementation. The authors note that despite their significance, these outcomes are nevertheless below expectations and more research is required to find the reasons why they occurred.⁹

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8. It is important to keep this in mind, since the socio-economic environment factors such as the liberal economy, historically low social security rates and savings rates, high utilisation of capital markets in general and also the popularity of employer sponsored programmes etc. might have some impact on the outcomes. In general, effects in one nation are not necessarily reflective of those in another country (e.g. Stiglitz and Orszag 1999).
 9. It is interesting to note that the Italian social security system differs significantly from other countries listed, and perhaps there are some systemic socio-economic features specific to Italy that determine these outcomes.

Previous evidence from Poland of bounded rationality

The first dent in the assumption of full rationality comes from the ‘switching behaviour’ of the Poles. OFE members can switch their PTE, on certain conditions. The reformers in 1999 assumed that PTE would compete by improving results and lowering fees. This did not happen. Chybalski (2009 and 2011) found that the choice of OFE was driven by the acquisition and advertisement activities of PTEs, instead of investment performance and fees levels. Similarly, Stańko (2010) reports a statistically significant correlation of R-Pearson = 0.41 with marketing and advertisement expenditure and found no correlation with results.

There has also been prior evidence of inertia in Poland. When people did not make an active choice to participate in an OFE (PTE), they were drawn randomly in lotteries. Lotteries used to be conducted twice a year; once at the end of January and again at the end of July (Stańko 2010). New entrants had to fill out a special form. In the case of no choice being made before the deadline, ZUS informed them of the necessity to select one. People who did not make any choice despite these reminders were randomly allocated to funds whose returns were higher than the weighted average in last two accounting periods and whose assets did not exceed 10 per cent of active OFE assets. The draws were organised between March 2000 and January 2014. There have been 27 draws in total, involving 2.7 million people. The smallest number drawn was immediately after the reform, in June 2000, and involved only 4.3 thousand people. The highest number drawn was in the last draw, in January 2014 (KNF 2014g), and involved 289,971 people who had not made a choice.

These two examples cast doubt on the assumption of the complete rationality of choice in Poland. According to this prior evidence, it is safe to conclude that what drove outcomes in the past did not necessarily have to be an objective factor.

Hypothesis

The aforementioned features may affect outcomes only when there is freedom of choice. If the policies are mandating participation and/or level of contributions or financial vehicles in which assets are invested, there is obviously no room for ‘nudges’, nor does it matter what choice architecture there is. In the case of the 2014 reform, this criterion is met, as people did have a choice. The key question, though, is whether they decided to leave an OFE or whether they failed to decide not to leave an OFE? This justifies question regarding whether or not, notwithstanding the objective reasons to choose FUS (ZUS), people’s choices could have been affected by decision-making features, such as complexity, setting of default options etc. Did setting the default to FUS (ZUS) impact outcomes? Choi et al. (2002) concluded that: ‘[...] thoughtful regulations can influence passive decision-makers without encroaching on the freedom of active decision-makers to opt out of the defaults and choose in their own (perceived) best interest. However, regulating defaults is a two-edged sword [...]’.

This paper seeks to validate the conclusion of Choi et al., as well as to provide some evidence that government power can be used to decrease participation. This analysis will seek to demonstrate that defaults matter. It seems that in Poland behavioural economics have been used (consciously or not) to disassemble the funded second pillar. The thesis of this paper is therefore that people have been effectively ‘automatically disenrolled’; a process exactly opposite to automatic enrolment took place and peoples’ actions varied from their declared preferences. Decisions regarding individual

saving behaviour depended on the setting of the default to FUS (ZUS). A statistically significant difference is expected between a declared preference to participate in an OFE (PTE) and actual participation, as derived from completed procedures.

Data description and methodology

In this type of research, control over many details is limited; nevertheless it would not be possible to set a lab experiment of this magnitude (Benartzi and Thaler 2004). This reform was a magnificent stage for a natural experiment. This study is based on three opinion polls conducted throughout the transfer window and compared with the actual choices made, derived from ZUS BIP (2014) data on the number of completed declarations. The data is included in the annex in Tables 3, 4 and 5.

Public opinion polls

Deutsche Bank opinion polls

The Deutsche Bank (2014) opinion polls were conducted by Homo Homini on 17 March 2014 and then repeated after three weeks on 4–5 April 2014, on a representative sample of 905 and 780 people, respectively. There were 3 questions asked:

- 1) 'Do you belong to an OFE?'
- 2) 'Do you plan to stay in an OFE?'
- 3) 'Do you save voluntarily for retirement, on top of your mandatory contributions?'

Since only people who belonged to an OFE had this choice, the first question determined whether the second one was valid. The third question is not related to the core question asked in this paper, but the questionnaire is presented in full for the sake of completeness. In addition to this, demographics such as gender, education, age, place of residence and net monthly income were collated.

Of the 905 participants in the March poll, 64.97 per cent were OFE (PTE) participants. The same proportion was down to 55.77 per cent out of the 780 participants in April. Only current OFE (PTE) participants were eligible to make the choice in 2014 and 34.18 per cent and 32.18 per cent respectively declared their will to stay in an OFE (PTE). It is important to note that the number of the undecided increased from 17.86 per cent to 36.55 per cent, affecting only the group declaring preference of FUS (ZUS), which decreased from 47.96 to 31.26 per cent within three weeks. The preference of OFEs (PTEs) remained unchanged. The summary is presented in the annex in Table 3.

CBOS opinion poll

The CBOS research was conducted using computer aided personal interview (CAPI) methodology between 5 and 11 June 2014, on a representative sample of 1044 adult Poles. The research involved a number of research questions. The question of particular interest from the perspective of this paper was:

- 1) *'From 1st of April to the end of July, people insured in an OFE may decide whether to continue contributing part of their old age social security to an OFE or not to, which would mean remaining in ZUS. Have you decided what will you do yet?'* (CBOS 2014:2)

There were N=379 respondents who answered this question. 58 per cent had not decided at that stage, 9 per cent each had ‘definitely’ and ‘rather’ decided not to contribute to an OFE and 15 per cent had decided to contribute to an OFE, but had not completed the required paperwork at that stage. Finally, 9 per cent had decided and had completed the necessary actions involved in confirming their choice. Before this reform, roughly half of the members of pension funds were willing to continue to transfer part of their contributions to an OFE. This was their stable preference in July 2013 (CBOS 2013a) and November 2013 (CBOS 2013b). Members of OFEs responding to this survey were less convinced of this decision (CBOS 2014). In total, less than every fourth person who, because of their age, had the opportunity to choose (24.01 per cent), declared that they had decided to transfer part of their contributions to an OFE. More than one in six (18.21 per cent) chose not to make further contributions to an OFE. Most of the persons insured in an OFE who also had the opportunity to choose (57.78 per cent) had not yet decided on the matter at that stage. A summary of responses is appended in the annex in Table 4.

ZUS BIP

In order to compare the opinion polls with the outcomes of this reform, a query has been submitted to ZUS’s Public Information Bulletin (BIP) to obtain the number of completed declarations (per week) during the whole of the transition window. This data documents actual choices made and the distribution of membership in ZUS and OFEs after the close of the transfer window on 31 July 2014.¹⁰

The results are available under freedom of access to public information and are presented in Table 5 in the annex.

Table 2. Summary of descriptive statistics and proportions

Sample size	905	780	1044	pop.	pop.
<i>index</i>	k=1	k=2	k=3	f=1	f=2
Description	Deutsche Bank Public Opinion Survey 17 March 2014	Deutsche Bank Public Opinion Survey 4–5 April 14	CBOS Public Opinion Survey 5–11 June 2014	Actual allocation to OFEs	Number of OFEs adjusted for people with less than 10 years before retirement
Members of OFEs (eligible respondents)	588	435	379	16 678 034	14 678 034
Number of people declaring preference for an OFE and eventually allocated to OFEs	201	140	91	2 564 072	2 564 072
	34.18%	32.18%	24.01%	15.37%	17.47%
Number of people declaring preference for FUS (ZUS) and eventually allocated to FUS (ZUS)	282	136	69	14 113 962	12 113 962
	47.96%	31.26%	18.21%	85.00%	83.00%
Number of people with undefined preference eventually allocated to FUS (ZUS)	105	159	219	–	–
	17.86%	36.55%	57.78%	0.00%	0.00%

Source: ZUS BIP (2014), CBOS (2014) Deutsche Bank (2014).

10. The final number was presented on the 18 August 2014.

To test the impact of the choice of default, the difference between the proportion of declared preferences to remain in an OFE, ZUS and those 'undecided' is compared against the proportion of actual participation after the decision window was closed. The statistical significance of the differences in response proportions is tested using z-statistic. The calculations were completed in an Excel spreadsheet and are presented in the appendix in Tables A1–A5.

Stability of declared preferences.

Let k and i be indexes of the 3 opinion polls where $k, i = \{1, 2, 3\}$. For clarity, index k is always used for an earlier poll compared to i . To test stability, an intra-poll comparison is conducted, for $x = \{\text{OFE, ZUS, 'Undecided'}\}$

To test whether the difference between two proportions is statistically significant, the zero hypotheses is that they are the same, that is preferences were stable throughout the period.

$$H_0: p_{xk} = p_{xi}$$

With the exception of the number of 'undecided', the alternative hypotheses for $x = \{\text{OFE and ZUS}\}$ are that the preferences decreased period on period.

$$H_1: p_{xk} > p_{xi}$$

Therefore the alternative H for 'undecided' is:

$$H_1: p_{Undk} < p_{Undi}$$

Comparison of declared preferences against actual participation in OFEs.

To test whether the difference between two proportions is statistically significant, zero hypotheses are that they are the same, that is people declared and completed the necessary steps to remain in an OFE. Only $x = \text{OFE}$ will be tested, hence the index is abbreviated to:

$$H_0: p_k = p_f$$

The alternative hypothesis is that there is a statistically significant difference in the outcome – fewer people completed the forms than declared they would do so.

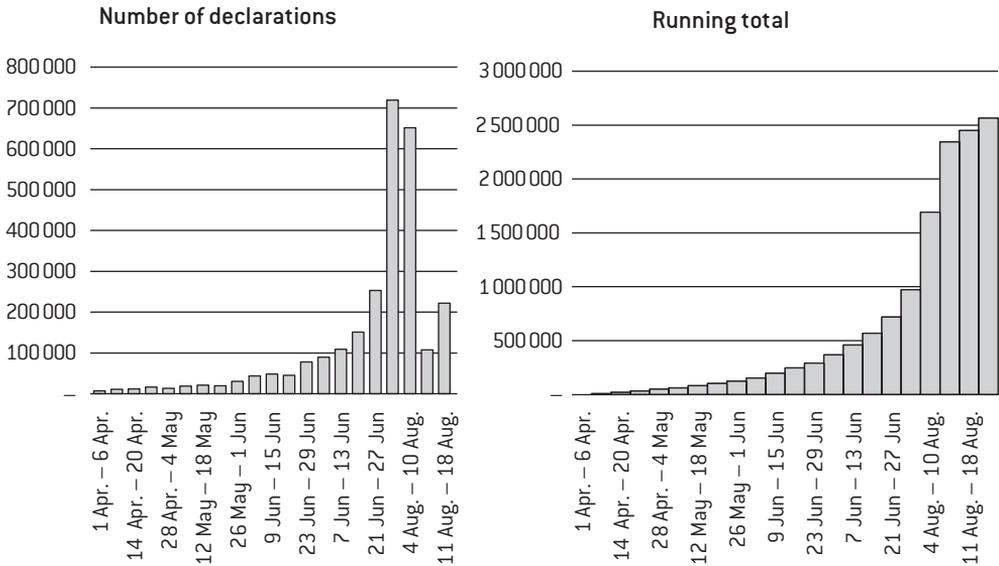
$$H_0: p_k > p_f$$

The proportion of people remaining in OFEs as per ZUS BIP will be compared in pairs against each of the opinion polls $k, i = \{1, 2, 3\}$ proportion. Index f has two values; $f=1$ for all eligible members of OFEs and $f=2$ for those excluded under the 'Rostowski zipper'. Their number is estimated at 2 million.

Empirical results and discussion

Presentation of results

Chart 1. Number of OFE declarations filed weekly and running total

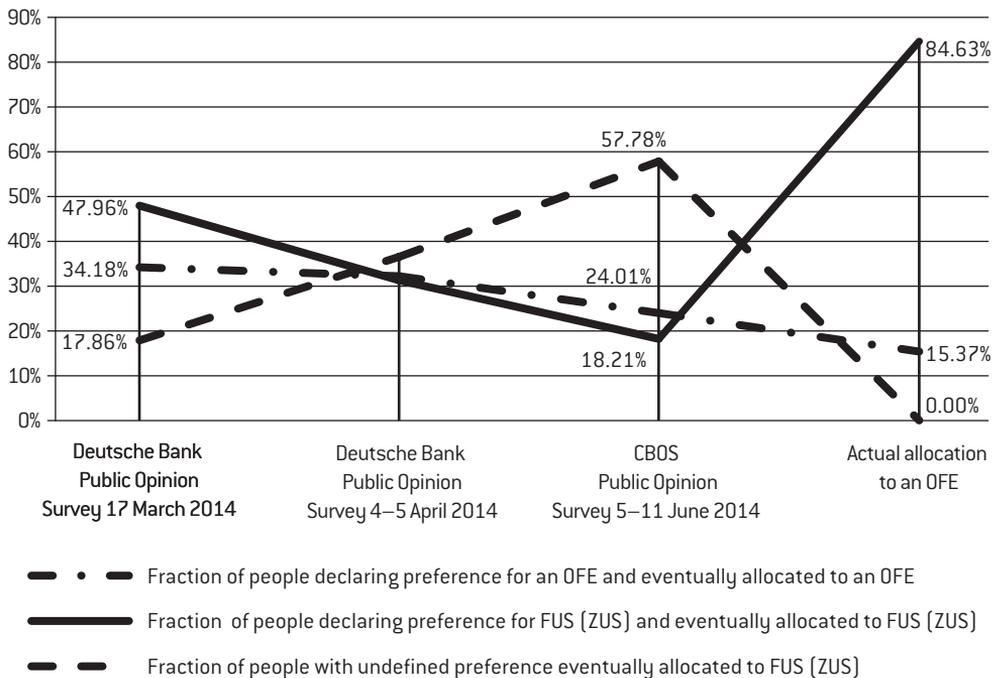


Source: ZUS BIP [2014].

Undoubtedly, people delayed completion of the necessary procedures required to confirm their decision to continue participation in an OFE (PTE). The number of filed declarations was significantly higher as the deadline came closer. In the week beginning on 21st of July, there were only 567 603 filed declarations. This number increased almost fivefold in the following two weeks. The final number was not known until 18th of August and was 2 564 072. This means, that almost two million people completed procedures in the last two weeks of the transfer window, which is particularly telling. Without any doubt, people left completion of the task until the very last moment.

The proportion of people eventually allocated to FUS (ZUS) was 84.63 per cent. The proportion of people eventually allocated to an OFE was only 15.37 per cent. With the exception of the stable preference for an OFE (PTE) between the two Deutsche Bank (2014) surveys, the proportion declaring preference both for OFE and ZUS declined over the entire period and proportion of 'undecided' grew. All the differences were statistically significant.

Chart 2. Unstable preferences and actual choice



Source: own calculations based on the data from Deutsche Bank (2014), CBOS (2014) and ZUS BIP (2014).

Discussion

Assuming full rationality, one may conclude that Poles are not interested or not comfortable with FDC and do not trust capital markets in general (Madrian 2012); they therefore chose to divert their contributions in full to FUS (ZUS). However, the huge uptake 15 years ago, as well as unrest caused by the Pension Act of 6 December 2013 seem to prove otherwise. Undoubtedly trust in the system has been systematically undermined – this began with the exclusion of certain professional groups from the universal system, and was also influenced by the retrenchment in 2011 and the requirement to opt in to the system in 2014. Nevertheless, a significantly higher proportion of people declared their preference for an OFE than eventually chose one.

People's choices might have been impacted by information. People were 'activated' in the last weeks preceding the deadline. An advertisement in Sweden (Engstrom and Westerburg 2003) initially caused people to actively choose the funds in the Swedish equivalents of OFEs. However, they ceased to do so and complied with defaults after the initial information campaign stopped (Thaler and Conqvist 2004). It could be that the Poles, similarly to the Swedes, made choices as a result of heated debate and continuous alerts in the weeks leading up to the deadline. The problem with this explanation is that preference for FUS (ZUS) decreased even more steeply than for OFEs. The proportion of the 'undecided' was the only one to grow throughout the period, but since they were effectively converted to the default choice of ZUS, the number of 'non-OFE' was grew constantly. Had they been allocated by a draw to either ZUS or an OFE, then, according to the law of large numbers,

one can safely assume that half of non-OFEs (which would be in the region of 40 per cent) could have been randomly added on top of the actual 15 per cent of those eligible who actually chose an OFE (PTE), and this would have resulted in sustained coverage.

An information overload may have caused more confusion and distorted already unstable, or at times undefined, preferences. This is precisely why the setting of the default choice matters. It utilised the fact that the ‘undecided’ were moved to FUS (ZUS). Had the default option been to maintain the *status quo*, a lot of people are also likely to have taken insufficient action. Therefore the most plausible explanation seems to be that setting the default to switch to ZUS (FUS) affected the outcome, which is in line with the previous evidence presented earlier in this paper.

The application of findings and further research

PAYG systems suffer from unfavourable demographics. Low fertility rates and longer life expectancy render them unsustainable. This trend is likely to deteriorate further, as longer life expectancy, combined with lower fertility rates, result in the ageing of the population. In order to ensure sustainability, people would need to work longer to an increased retirement age, benefits would need to decrease, or people would need to save more. Therefore there is a need for reforms which would result in an increase in savings and/or an increase in the rate of returns on investments. For this reason, the role of privately managed, financially defined contribution pension schemes is increasingly significant across various jurisdictions (Antolin et al. 2012).¹¹ Assuming that the changes introduced by the 2014 reform will not be reversed, does this mean that this is the end of the FDC schemes in Poland? New entrants to the labour market will most likely not choose OFEs, just as an increasing number were drawn to participate in OFEs in the past. As we know, these people would be automatically enrolled to NDC accounts in FUS (ZUS). In light of virtual non-existence of a funded private DC, it is even more important than ever to enhance the voluntary third pillar, especially as the sustainability of the first pillar will inevitably lead to a reduction in the replacement rate. Let us look at the application of this research to the revival of the voluntary third pillar:

The third pillar struggled from the beginning. Perhaps the reason for this was that the second pillar resembles additional savings, whereas in reality it constitutes part of the basic part of the system (Szumlicz 2010). Disney (2007) observes that use of NDC reduces aggregate savings, because of its resemblance to private additional voluntary schemes. Orszag and Stiglitz (1999) in their commentary on the World Bank approach predicted that mandatory second pillars may crowd out voluntary savings, and this seems to be the case.

For the purposes of the clarity of this paper, the third question, that of the Deutsche Bank (2014) opinion poll, was not analysed. We will now look at it. It asked whether people save voluntarily. The number of people declaring voluntary savings stood at 27.13 per cent in the first poll and varied only slightly to 26.45 per cent in the latter poll. These people obviously do not save

11. Nevertheless, it is important to note that FDCs do not guarantee adequate pensions, as the assets need to be sold to the younger generation (Barr 2002). Under certain circumstances, this may lead to the devaluation of accumulated assets, as the younger generation must purchase them.

in vehicles designed for the purpose, given the infinitesimal coverage of the voluntary pillar.¹² There are previous studies available concerning saving behaviour in the Polish voluntary third pillar. In one of the PwC studies, people demonstrated a dissonance between plans and actions (PwC 2013). Similarly to results obtained by Choi et al. (2002), 74 per cent of respondents believed it necessary to save voluntarily, 33 per cent declared plans to save for their retirement, yet only 13 per cent wanted to use the third pillar for this purpose, and an even smaller number actually did so. The authors concluded that it was illogical that people said one thing but did another, nevertheless they did not pursue in their research the answer to why that was the case (at least not in that particular paper). This behaviour is in line with the evidence presented in this paper and is relatively easily explainable through the quasi-rationality of human behaviour, in accordance with behavioural economics (Thaler 2000). People have good intentions, want to save, but due to their cognitive and volitional deficiencies and limitations, fail to do so (Thaler and Sherfin 1981; and section three of this paper).

Relaxing assumption of full rationality allows for the assumption that reasons for low participation are perhaps behavioural. The fact that behavioural economics was effective in the deconstruction of the second pillar seems to justify the conclusion that it might also be effective in the revival of the third pillar. The growing body of evidence, including from Poland, if not already mandating for them to be taken into consideration, certainly does not allow for the continued ignoring of behavioural factors. The savings inadequacy could be overcome (or at least this process could be supported by) a redesign of the choice architecture. It is high time to take advantage of experience and use evidence to set up choice architectures that enhance plan participation and investment adequacy.

This could be done for example by allowing the election of between 1 and 4 per cent gross contributions, payable to IKZE providers, with the convenience of payroll deductions. The effect of tax incentives in IKZE would be greater because of its immediate effect, and the hardship to set up payments avoided by a simplified set up. Equally, simplified PPE, which already allows the diversion of AVC to a pension provider – provided some changes in the taxation rules of the employer contributions as well as soft compulsion are introduced – could help enable access to voluntary savings vehicles¹³. The introduction of multi-funds and menu options, according to certain risk profiles, would allow risk aversion and inertia caused by uncertainty to be overcome (Choi et al. 2002). If the third pillar contributions could be deductible through payroll, it would enable the adjustment of the contribution rates with convenience of payroll deductions – this way, one could decide to increase 2.92 per cent to their desired level. The introduction of lifecycle fund strategies would help to keep the complexity of choice to a minimum (Benarzi and Thaler 2007, 2013). The changes proposed certainly require further research and careful calibration, nevertheless the key is to allow for the possibility that people's behaviour varies from full rationality and that the choice architecture matters.

12. One must ask if these are indeed irrational choices, as the fee structure may render decisions for non-participation fully rational. The question of how to design these products is a topic for separate research.

13. This is somewhat more courageous and complex, so probably best to test whether enhanced accessibility of IKZE would bring the expected results.

Conclusions

Reforms of the Polish pension system were presented, followed by a review of literature concerning inertia, procrastination and the impact defaults have on decision-making regarding retirement savings. The statistically significant difference between declared preferences and actual participation was found in the empirical part. Alternative solutions were mentioned. However, the author leans towards a behavioural explanation, namely that the setting of the default choice to FUS (ZUS) impacted the outcome of the reform. This research provides some evidence that not only strictly economic but also behavioural factors must be taken into account when reforming social security in Poland. This paper was concluded with further research concerning applications of a behavioural approach in revitalising the Polish voluntary third pillar.

Annex

Table A1.: Were the OFE preferences stable?

k	i	pk-pi	$P = \frac{mk+mi}{nk+ni}$	pk*qk	$\frac{1}{nk+1/ni}$	RESULT (z)	CONCLUSION	Probability	Confidentiality level	Critical value	Comment
1	2	2.00%	0.333333	0.222222	0.0040	0.67	Ho: pk = pi	90.0000%	10.0000%	1.282	Yes, both DB polls returned statistically insignificantly different declared preference for an OFE
2	3	8.17%	0.283784	0.203251	0.0049	2.58	H1: pk < pi	99.5000%	0.5%	2.576	No, CBOS preference for an OFE is significantly lower
1	3	10.17%	0.301965	0.210782	0.0043	3.36	H1: pk > pi	99.500%	0.5%	2.576	No, CBOS preference for an OFE is significantly lower

Table A2.: Were the ZUS preferences stable?

k	i	zus k- zus i	$P = \frac{mk+mi}{nk+ni}$	pk*qk	$\frac{1}{nk+1/ni}$	RESULT (z)	CONCLUSION	Probability	Confidentiality level	Critical value	Comment
1	2	16.69%	0.408602	0.241646	0.0040	5.37	H1: pk > pi	99.9950%	0.0050%	3.891	No, preferences of ZUS were statistically significantly lower in each period
2	3	13.06%	0.251843	0.188418	0.0049	4.28	H1: pk > pi	99.9950%	0.0050%	3.891	
1	3	29.75%	0.362978	0.231225	0.0043	9.39	H1: pk > pi	99.9950%	0.00%	3.891	

Table A3.: Were the undecided stable?

k	i	Undecid- edk-Ui	$P = \frac{mk+mi}{nk+ni}$	pk*qk	$\frac{1}{nk+1/ni}$	RESULT (z)	CONCLUSION	Probability	Confidentiality level	Critical value	Comment
1	2	-18.69%	0.258065	0.191467	0.0040	[6.76]	H1: pk < pi	99.9995%	0.0005%	-4.417	No, the number of undecided grew significantly in each of the periods
2	3	-21.23%	0.464373	0.248731	0.0049	[6.06]	H1: pk < pi	99.9995%	0.0005%	-4.417	
1	3	-39.93%	0.335057	0.222794	0.0043	[12.84]	H1: pk < pi	99.9995%	0.0005%	-4.417	

Table A4: EVERYONE, Nf = 16678034

k	i	pk-pf	$P = \frac{mk+mi}{nk+ni}$	pk*qq	$\frac{1}{nk+1/ni}$	RESULT (z)	CONCLUSION	Probability	Confidentiality level	Critical value	Comment
1	1	18.81%	0.153746	0.130108	0.0017	12.64	REJECT Ho	99.9995%	0.0005%	4.417	Declared preferences significantly higher than actual participation
2	1	16.81%	0.153744	0.130107	0.0023	9.72	REJECT Ho	99.9995%	0.0005%	4.417	
3	1	8.64%	0.153741	0.130105	0.0026	4.66	REJECT Ho	99.9995%	0.00%	4.417	

Table A5: Only those eligible for an OFE, i.e. exclusive of people with less than 10 years to retirement

k	i	pk-pf	$P = \frac{mk+mi}{nk+ni}$	pk*qq	$\frac{1}{nk+1/ni}$	RESULT (z)	CONCLUSION	Probability	Confidentiality level	Critical value	Comment
1	2	16.71%	0.174694	0.144176	0.0017	10.67	REJECT Ho	99.9995%	0.0005%	4.417	Declared preferences significantly higher than actual participation
2	2	14.72%	0.174692	0.144175	0.0023	8.08	REJECT Ho	99.9995%	0.0005%	4.417	
3	2	6.54%	0.174689	0.144173	0.0026	3.35	REJECT Ho	99.9500%	0.05%	3.291	

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„Automatyczne wystąpienie”. Wpływ architektury wyboru na decyzje dotyczące oszczędności emerytalnych: wybrane przykłady z Polski

Prywatnie zarządzane obowiązkowe programy kapitałowe o zdefiniowanej składce zostały wprowadzone do systemów emerytalnych lub ich wdrożenie było rozważane w ponad 30 krajach na całym świecie (Tapia i Yermo 2007). Polska wprowadziła takie rozwiązanie w 1999 r. W 2011 r. programy kapitałowe objęły aż 54,8 proc. osób w wieku produkcyjnym (Antolin, Payet i Yermo 2012), podczas gdy w 2014 r. odsetek ten wynosił już tylko 9,49 proc.¹⁴ Jednocześnie począwszy od lutego 2014 r. stopy procentowe składki uległy obniżeniu z początkowego poziomu 7,3 proc. obowiązującego od stycznia 1999 r. do maja 2011 r. do poziomu 2,92 proc. W związku z powyższym można pokusić się o stwierdzenie,

14. Jak wynika z danych ZUS, 2 564 072 osób w wieku produkcyjnym (tzn. w przedziale wiekowym 15–64 lata) wybrało OFE http://www.indexmundi.com/poland/demographics_profile.html (data dostępu: 30 grudnia 2014 r.).

że system ten został zasadniczo rozmontowany w następstwie szeregu drobnych reform piętnaście lat po jego wprowadzeniu.

Co ciekawe, podczas ostatniej przeprowadzonej w 2014 r. reformy uczestnicy systemu mogli zdecydować o tym, czy chcą zatrzymać część składek emerytalnych przerzuconych do poprzednio obowiązkowego drugiego filaru systemu emerytalnego. Domyślnie ustalono jednak, że składki będą w całości przesyłane do I filaru w ramach obowiązkowego systemu o niefinansowej zdefiniowanej składce (NDC) (Hinz i Palmer 2008), chyba że dana osoba zadeklarowała wolę zatrzymania składek w obu filarach.

Powstaje pytanie, czy wybranie opcji przeniesienia składek do I filaru jako opcji domyślnej miało wpływ na ten wynik. Jeżeli odpowiedź jest twierdząca, uzasadnione wydaje się postawienie kolejnego pytania, a mianowicie, czy taki wynik jest odzwierciedleniem racjonalnych, świadomych decyzji obywateli, czy też przykładem sposobu, w jaki ustawienia wyjściowe mogą wpływać na jednostkowe decyzje dotyczące oszczędności emerytalnych i je determinować.

Autor niniejszego artykułu nie analizuje makroekonomicznych przyczyn wprowadzonej zmiany. Koncentruje się natomiast na skali mikro, a w szczególności poddaje analizie zaprezentowaną społeczeństwu architekturę wyboru, która doprowadziła do tak istotnej zmiany. Struktura niniejszego artykułu jest następująca: aby przybliżyć czytelnikom obiektywne okoliczności, w których przeprowadzono reformę z 2014 r., w jego drugiej części przedstawiono krótką historię ewolucji systemu emerytalnego w Polsce od 1999 r. Następnie przeanalizowana została literatura przedmiotu dotycząca architektury wyboru, jak również problematyki inercji i prokrastynacji, a także zaprezentowane zostały dowody wpływu tych zjawisk, co doprowadziło do sformułowania pytania badawczego umieszczonego w części 3. W części 4. przedstawiono zestaw danych i metodologię wykorzystaną w celu zweryfikowania postawionej hipotezy. Wyniki dociekań opisano w części 5., poświęconej ponadto rozważaniom na temat możliwych wyjaśnień i prezentacji postulatów dotyczących potencjalnych zastosowań wyników przeprowadzonej analizy. Część 6. zawiera podsumowanie wyciągniętych wniosków.

Słowa kluczowe: reforma emerytalna, ekonomia behawioralna i finanse behawioralne, opcje domyślne, inercja i tendencja do zachowywania status quo, architektura wyboru.

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