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Does the retirement saving motive foster higher savings? The evidence from the Polish household survey

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Abstract: This study focuses on the role of the retirement motive for saving behaviour. It examines empirically the research hypothesis that controlling for a set of economic and sociodemographic individual characteristics, households reporting the retirement motive are more likely to have higher savings compared to households driven exclusively by other motives of saving. Micro data from the three waves (2011, 2013 and 2015) of the Polish household survey Social Diagnosis is used for the study. In an ordered logistic regression framework it proves that the old age saving motive is a significant predictor of the size of savings relative to household income.

JEL Classifications: D12, D14, J32

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1. Introduction

Many countries, especially in Europe, face the problem of ageing societies. It affects pension systems and is a driving force of pension reforms. The changes comprise *inter alia* reduced replacement rates from the public pension systems and shifting a greater part of the responsibility for pension provision from the state to individuals. Some questions can be posed with regard to these changes. For example, are people aware of the shift that increases the role of individual prudence and requires them taking responsibility for adequate income in the old age? Do they have sufficient financial literacy? And what is more important - does the awareness of the need to save for retirement really shape saving behaviour? The recognition of the factors that enhance household savings is especially important for policymakers. It is a challenge to design effective means promoting savings as a response to the changing situation of the working population in terms of their future pension benefits from the mandatory pension systems.

As distinguished by Katona (1951; 1975), there are two main drivers of saving behaviour: the *ability to save* and the *willingness to save*. While the first notion refers to the more objective factors such as income, the latter is related to psychological aspects such as the level of motivation. The role of psychological variables is especially emphasised in the psychological theories of savings such as the behavioural life-cycle hypothesis (Shefrin & Thaler, 1988). However, these issues attract considerably less attention in the current literature on the determinants of household savings than the more objective factors.

Although the linkage between savings and saving motives has already been discussed in some previous empirical studies, it has not been explored sufficiently for Polish households. As stated by Mastrogiacomo & Alessie (2014) in their work dealing with the

problem of saving determinants, country-specific factors can influence the results, thus studies for different countries are somewhat incomparable. Yao, Wang, Weagley, & Liao (2011) present the view that culture plays an important role in saving motives which explains different valuation of various saving motives by households. This study sheds some light on the role of the retirement motive in the saving behaviour of Polish households.

This paper verifies the following research hypothesis: *Controlling for demographic factors and income differences, households with an explicit retirement motive are more likely to have higher savings*. It is examined using data from three most recent waves of the *Social Diagnosis*, which is a household panel survey of nationwide range conducted every two years in Poland. The study employs ordinal logit regression models. The majority of previous studies on the linkage between saving outcomes and saving motives employs a binary logit regression framework to analyse the probability of having savings under particular saving motive together with a set of economic and sociodemographic control variables (see e.g. Rha, Montalto, & Hanna, 2006; Lee & Hanna, 2015; Fisher & Montalto, 2010). However, in the light of previous empirical works and theory, it seems to be quite indisputable that having any saving motive increases the probability of having savings versus the lack of savings. That is why in this study the problem is analysed only with reference to the sample reduced to those households that are actual savers. It allows one to distinguish the impact of the retirement motive compared to other saving motives.

The paper is structured as follows. First, the related literature is discussed. The subsequent section describes the data used for the empirical study as well as the method employed. Next, the empirical results of bivariate and multivariate analysis are presented. The paper ends with synthetic conclusions.

2. Related literature review

The role of motive or intention as a predictor of human behaviour, including economic behaviour, is stressed in psychology, for example in the theory of reasoned action (Madden, Ellen, & Ajzen, 1992). In the body of economic literature, the definition of saving motive is not precise. As stated by Wärneryd (1999) the borderline between saving motive and saving goal is quite fuzzy. Saving motive is closely related to the notion of saving goal, however the latter is more concrete and has an external reference reflected in the outcome. On the psychological basis, Nuttin (1984) in his relational theory of motivation and human cognition defined a motive as a kind of linkage between the internal need and the external goal that satisfies the need (see Nurmi & Salmela-Aro, 2006).

Despite the lack of a precise definition from the economic point of view, the role of saving motives as drivers for saving behaviour has been noted in the previous economic literature. One of the earliest works that refer to this issue is the study by Keynes (1936). He distinguishes between eight saving motives: the precautionary motive, the life-cycle motive, intertemporal substitution, improvement, independence, bequest, and avarice. In this categorization, the life cycle motive ("To provide for an anticipated future relationship between the income and the needs of the individual") includes savings for old age i.e. the retirement motive. Browning & Lusardi (1996) add to this list the down-payment motive. A widely known distinction of savings motives is proposed also by Katona (1975), who outlines four main reasons for saving: emergencies, retirement, children's needs, and other. A somewhat different classification of saving motives is presented by Sturm (1983).

He distinguishes saving for old age as the most important motive, before precautionary saving, bequest, and targeted saving.

As stated by Dynan, Skinner, & Zeldes (2002), savings motives tend to overlap rather than to be mutually exclusive. Lindqvist (1981) argues that there is a hierarchy among the motives, i.e. they can be ordered from the one corresponding with the most basic need to the one corresponding with higher-level needs. In this hierarchy, savings for ensuring financial liquidity and for emergencies have priority over savings for old age. However, according to numerous empirical studies that analyse the frequency of declared saving motives, the retirement motive is usually the most common, or the second most common, next to the precautionary motive (see Lee & Hanna, 2015; Katona, 1975; Xiao & Fan, 2002; Horioka & Watanabe, 1997). The joint occurrence of several saving motives is also implicitly suggested by mental accounting theory, which is one of the pillars of the behavioural life-cycle hypothesis developed by Shefrin & Thaler (1988). It states that individuals assign income to the three basic mental accounts intended for different purposes. The first account includes current consumption, the second covers savings for goals other than retirement, and the third is set for savings for the old age. With reference to the funds accumulated on the accounts an individual exhibits different marginal propensity to consume, and consequently, to save.

In the microeconomic body of literature on household savings the issue of the impact of the saving motives on saving behaviour has not been widely discussed. The number of related previous empirical studies is limited. Fisher & Anong (2012) in a logit regression framework, examine the influence of saving motive on saving habits. Their results imply that households with a retirement motive tend to save on a regular basis as opposed to those households with a precautionary motive. As suggested by Yao et al. (2011) the Chinese household orientation towards saving for old age explains higher saving rates compared to the households from the United States, who save less in spite of their higher income. According to the results obtained by Fisher & Montalto (2010) using the *Survey of Consumer Finances* (SCF), for the United States retirement motive does not increase the likelihood of having savings; however it has a positive influence on the (self-reported) regularity of savings. SCF data is used also in two other studies. Rha et al. (2006) demonstrate that factors specified in the behavioural life-cycle model, such as different saving motives (including saving for the old age) or saving rules, increase the probability of having savings. Similarly, the results obtained by Lee & Hanna (2015) suggest that the likelihood of saving increases most notably when a household reports self-actualization and retirement saving goals.

There are also some studies that analyse the problem from a somewhat different perspective i.e. they treat the motive as an outcome variable. For example, Le Blanc, Porpiglia, Teppa, Zhu, & Ziegelmeyer (2016), using the data from the first wave of the *Household Finance and Consumption Survey* for the Euro-area countries independently estimate the probability of saving for the old age, for home purchase, and for unexpected events. Yao et al. (2011) analyse the probability of reporting retirement, precautionary and education motives among Chinese and American urban households. In a similar manner, Kowalczyk-Rólczyńska (2017) using the *Social Diagnosis* survey conducted a study of the socio-economic personal characteristics determining saving for retirement among Polish households.

3. Data and methods

This study is conducted using the micro data obtained from the *Social Diagnosis* survey (Council for Social Monitoring, 2015). This is a Polish household survey that has been carried out every second year since 2000. It is focused mainly on the subjective and objective quality of life in Poland, however, it also covers issues related to economic conditions such as income, wealth and savings. This particular study covers three most recent waves of *Social Diagnosis*, i.e. 2011, 2013 and 2015. The total number of surveyed households in the subsequent waves amounted to 12,359 in 2011, 12,343 in 2013 and 11,738 in 2015, respectively. In regard to these samples, only some of the households (6,812) participated in all of the three waves.

The presented study addresses the question whether households with a retirement saving motive save more than those who exhibit other motives. To answer this question logistic regression is used. Previous studies on the various determinants of savings conducted using the data from *Social Diagnosis* apply the simplest form of binominal logit model (see e.g. Czapiński & Panek, 2015; Kowalczyk-Rólczyńska, 2017; Dębska & Krasuski, 2014; Aniola & Gołaś, 2013). The outcome variable in such a case is a binary variable that denotes whether a household saves or not, or whether it saves for a particular purpose (or in a specific form) or not. This study employs an ordered logistic regression that enables modelling categorical ordinal variables. It estimates the probability that unit *i* corresponds with the alternative *j* of the dependent variable *y*:

$$P(y_i = j) = P(\alpha_{j-1} < y^*_i \leq \alpha_j) = F(\alpha_j - \mathbf{x}'_i \beta) - F(\alpha_{j-1} - \mathbf{x}'_i \beta) \qquad (1)$$

where $\mathbf{x}$ denotes a vector of regressors, y^* stands for the latent variable, and F is the logistic cumulative distribution function.

The dependent variable is savings accumulated by a household in the form of financial assets with reference to monthly income, which can be considered as a proxy of the financial wealth. It includes savings in forms such as cash, deposits on bank accounts, investment funds, insurance, stocks, bonds, long-term saving plans, retirement plans, etc. Savings are measured on a scale from 1 to 5 corresponding to the amount of accumulated funds relative to the size of income. It is an ordinal categorical variable obtained from the following question in the survey questionnaire:

"What is the approximate total value of the savings accumulated by the household?:

1. up to the monthly income of the household
2. above the monthly income - up to 3-months income
3. above 3-months income - up to 6-months income
4. above 6-months income - up to 1-year income
5. above 1-year income - up to 3-years income
6. above 3-years income
7. hard to say"

For the purpose of this study, categories 5 and 6 for the waves 2013 and 2015 have been merged, due to a very small number of the answers pointing to the 6th category. The questionnaire for 2011 already includes the variant "above 1-year income" as the last category describing the amount of savings. All the households that chose the last answer ("*hard to say*") have been removed from the sample for the purpose of regression modelling.

To control for the sample heterogeneity, a set of economic and sociodemographic variables is included in the model. It comprises the regressors referring to the entire household as well to the household head identified with a person that provides for the family exclusively or in the prevailing part:

- *Income* - it is given as an equivalized average monthly income expressed in thousand PLN. The importance of various kinds of income as the main factor that shapes the ability to save is suggested by theories referring to the household savings at both, macro and micro level, such as the absolute income hypothesis (Keynes, 1936), the relative income hypothesis (Duesenberry, 1949), the life-cycle hypothesis (Ando & Modigliani, 1963; Modigliani & Brumberg, 1954; Modigliani & Ando, 1957), or the permanent income hypothesis (Friedman, 1957). Also many empirical studies conducted using household survey data prove that income is a significant source of household heterogeneity with reference to savings and that the relationship between these two variables is positive (see e.g. Belke, Dreger, & Ochmann, 2015; Dynan, Skinner, & Zeldes, 2004; Guariglia, 2001; Lersch, 2014).

- *Gender* - this denotes a dummy variable (0 - female, 1 - male) corresponding with the gender of a household head. As shown in previous studies, women are more likely to have lower personal savings (Fisher, 2010; Fisher, Hayhoe, & Lown, 2015; Paxton, 2009). This may arise from several reasons, such as lower labour force participation, breaks in career development due to child care, the gap in earnings compared to men, different attitudes towards financial strategies, etc.

- *Age* - this stands for a set of dummy variables denoting household head age classes broken into the following categories: ≤30, 31-40, 41-50, 51-60, 61-70, ≥71. According to the life-cycle hypothesis, age is one of the key variables determining saving behaviour. This relationship is expected to be nonlinear, i.e. middle-aged individuals tend to have the highest saving rates, whereas the retired ones rather consume than accumulate savings. Empirical studies prove that age differentiates significantly households in terms of saving, however this impact is complicated and not always consistent with the theory (see Alessie, Lusardi, & Kapteyn, 1999; Feng, He, & Sato, 2011; Jappelli & Modigliani, 2003; Rószkiewicz, 2015). For the purpose of this study it is crucial to control for the head of household head age, as the dependent variable is not the actual saving rate that refers to a specific period of time but savings (expressed as multiple of income) accumulated for an undefined time horizon.

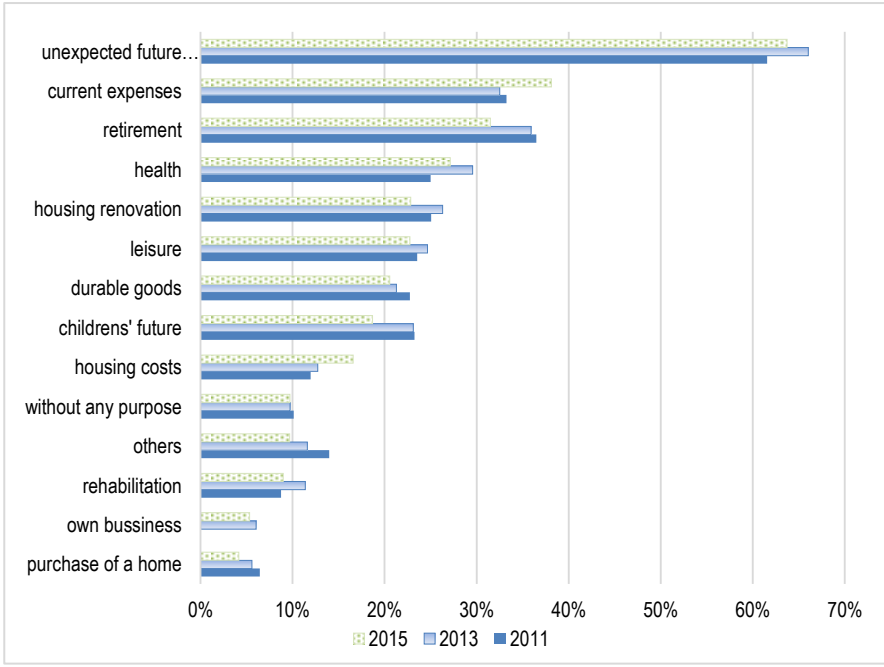
- *Education* - a set of dummy variables denoting educational attainment of a household head. Primary education corresponds to ISCED* level 1, lower secondary - ISCED level 2, upper secondary - ISCED level 3, and post-secondary or higher - ISCED level 4 to level 8, respectively. Better educated individuals are generally expected to save more than those with lower education (Lersch, 2014; Solmon, 1975; Yuh & Hanna,

* International Standard Classification of Education (version 2011) developed by The UNESCO Institute for Statistics.

2010). As suggested by empirical findings presented by Hastings, Madrian, & Skimmyhorn (2013) and Boisclair, Lusardi, & Michaud (2017), there is a strong relationship between educational attainment level and financial literacy.

The key regressor in the ordered logistic equation used in this study is the *Retirement motive* expressed as a dummy variable representing declared saving for old age. The estimate of its parameter allows one to verify the research hypothesis i.e. *Controlling for demographic factors and income differences households with an explicit retirement motive are more likely to have higher savings*. The variable takes the value 1 when the respondents claim to have savings for the purpose of retirement (possibly together with other motives) and 0 when they do not report the old-age motive, but some other.

FIGURE 1. SELF-REPORTED MOTIVES OF SAVING (savers only)



Source: Own elaboration based on Social Diagnosis survey data (Council for Social Monitoring, 2015).

The sample used in this study is reduced to the households that declared they have savings. The number of such respondents was 7,351 in the 2015 wave, 4,661 in the 2013 wave, and 4,326 in the 2011 wave. The disproportion between 2015 and both previous years arises from the differences in the questionnaires in the subsequent waves. In 2011 and 2013, households first were given a question whether they have *any savings at all*. If the answer was negative, then the respondents skipped further questions about saving. In 2015, the survey questionnaire was changed. There was no general question about savings. Households first were asked about different forms or vehicles of savings (such as cash, bank accounts, bonds, stocks, retirement plans etc.), and if at least one option was chosen then they were asked about the amount of savings. It is very likely that more households selected such forms as *cash* or *bank account* even though the funds in such forms were not

actual savings but just current income intended for current consumption. The over-representation of the first category (savings up to monthly income of the household) in 2015 compared to 2013 and 2011 supports this view. It is also reflected in Figure 1. It presents the proportion of answers pointing to the particular motives of savings relative to the number of the households, who reported savings. The list of motives in the survey questionnaires was fixed. In 2015, wave relatively more households indicated motives such as current expenses and housing costs (electricity costs, housing rent, etc.) compared to the two previous waves. However, these motives (or saving goals) reflect rather current consumption expenditures than the actual savings for future consumption.

Data presented in Figure 1 allow ranking the saving motives of Polish households according their frequency. The retirement motive is the third most often reported in 2015, and the second in 2013 and 2011, respectively. In all three waves, more than 30% of all the savers indicated that they save money for old age. The most common motive (indicated by over 60% of households) is unexpected future expenses which can be identified with the precautionary motive.

4. Empirical results

The preliminary stage of the empirical study was to analyse the distribution of savings with reference to households declaring retirement motive (among others), and those who reported some other motives, but not saving for the old age. Table 1 presents the results. For all of the three examined waves the same pattern is observed.

TABLE 1. DISTRIBUTION OF SAVINGS UNDER DIFFERENT SAVING MOTIVES

	FOR RETIREMENT	OTHER MOTIVE	χ^2
	2015		
up to 1 monthly income	10%	38%	χ^2 = 911.95
1-3 monthly incomes	25%	28%	p-value = 0.000
3-6 monthly incomes	23%	14%	
6-12 monthly incomes	18%	7%	
above annual income	10%	2%	
hard to say	14%	10%	
	2013		
up to 1 monthly income	12%	32%	χ^2 = 352.87
1-3 monthly income	26%	31%	p-value = 0.000
3-6 monthly incomes	24%	18%	
6-12 monthly incomes	17%	9%	
above annual income	11%	4%	
hard to say	9%	7%	
	2011		
up to 1 monthly income	12%	29%	χ^2 = 298.27
1-3 monthly incomes	28%	35%	p-value = 0.000
3-6 monthly incomes	25%	19%	
6-12 monthly incomes	17%	8%	
above annual income	11%	4%	
hard to say	6%	5%	

Households reporting other motives than for the old age more often have small savings i.e. the majority of them falls into first two categories (*up to monthly income* and *1-3 monthly income*). Their share exceeds 60% of the subsample size in each wave. In contrast, with reference to the group that declares saving for retirement the aggregated frequencies in the first two lowest categories are: 35% in 2015, 38% in 2013, and 40% in 2011. Their savings also more often exceed yearly income compared to the households with other motives. Additionally, the table presents test statistics for the Pearson's chi-square test of independence. Bivariate analysis reveals that without controlling for other factors there is a statistically significant relationship between the amount of savings and the saving motive.

The multivariate analysis within the ordered logit regression framework required further reduction of sample sizes in each wave due to the removal of the last category in the question about the amount of savings (*hard to say*) and due to data gaps regarding the explanatory variables. As a result, the sample in 2015 covers 6,079 households, in 2013 - 3,969, and in 2011 - 3,761, respectively. Table 2 presents the descriptive characteristics of the samples. Among surveyed Polish households, the group with the smallest savings, i.e. up to one monthly income, prevails. The pattern of saving distribution is similar in all three waves studied; however, in 2015, due to the previously mentioned change in the questionnaire, more household reported to fall into this category compared to previous waves. Most frequently, household heads are men (around 70%). Approximately, 40% of the sample are households whose head is aged 61+. With regard to educational attainment, the households are more less equally distributed between lower secondary, upper secondary and post-secondary levels. The least frequently occurring category is primary education level. Among the savers, 31% in 2015, 36% in 2013 and 37% in 2011 reported the retirement motive.

TABLE 2. DESCRIPTIVE SAMPLE STATISTICS

		2015		2013		2011	
		N	Freq.	N	Freq.	N	Freq.
SAVINGS	up to 1 monthly income	2002	33%	1062	27%	894	24%
	1-3 monthly incomes	1882	31%	1264	32%	1293	34%
	3-6 monthly incomes	1145	19%	867	22%	836	22%
	6-12 monthly incomes	706	12%	507	13%	458	12%
	above annual income	344	6%	269	7%	280	7%
GENDER	Male	4105	68%	2750	69%	2655	71%
	Female	1974	32%	1219	31%	1106	29%
AGE	<=30	217	4%	194	5%	212	6%
	31-40	809	13%	550	14%	569	15%
	41-50	1079	18%	681	17%	669	18%
	51-60	1388	23%	910	23%	921	24%
	61-70	1425	23%	826	21%	740	20%
	>=71	1161	19%	808	20%	650	17%
EDUCATION	primary	831	14%	471	12%	449	12%
	lower secondary	1863	31%	1047	26%	989	26%
	upper secondary	1779	29%	1191	30%	1154	31%
	post-secondary and higher	1606	26%	1260	32%	1169	31%
SAVING MOTIVE	retirement	1867	31%	1432	36%	1394	37%
	other	4212	69%	2537	64%	2367	63%
TOTAL		6079	100.0%	3969	100.0%	3761	100.0%

The outcomes of logit regression modelling are presented in Table 3. In models for the three subsequent *Social Diagnosis* waves, the estimate of the parameter next to the retirement motive variable is positive and statistically significant. This result proves the research hypothesis that households reporting saving for retirement are more likely to have higher savings than households driven by other motives than provision for the old age, controlling for other economic and sociodemographic factors.

Additionally, as expected, households with higher income tend to accumulate more savings than less affluent households. The same applies to the households with a male head. Compared to the reference age category (71+), generally younger respondents are willing to have lower savings. It supports the view presented in some previous empirical studies that older individuals rather tend to continue savings instead of consuming them, contrary to the theoretical premises (Alessie et al., 1999; Belke et al., 2015; van Ooijen, Alessie, & Kalwij, 2015). However, these results are ambiguous, as they are mixed across all three models. For the 2015 wave, only the estimate for the variable denoting age class 41-50 is statistically insignificant at the 5% level, whereas for 2013 the parameters for all the age variables are insignificant, except for the ≤30 category. A similar situation is observed for the 2011 wave. The results also prove that comparing to households with post-secondary and higher education (reference category) respondents with lower levels of educational attainment tend to save less.

TABLE 3. ORDERED LOGISTIC REGRESSION FOR SAVINGS

	2015			2013			2011		
	B	exp B	p-value	B	exp B	p-value	B	exp B	p-value
Income	0.411	1.508	0.000	0.305	1.357	0.000	0.263	1.301	0.000
Gender (male)	0.317	1.374	0.000	0.224	1.251	0.001	0.159	1.173	0.018
Age ≤30	-0.571	0.565	0.000	-0.420	0.657	0.006	-0.236	0.790	0.113
Age 31-40	-0.312	0.732	0.001	-0.085	0.919	0.429	-0.260	0.771	0.019
Age 41-50	-0.074	0.928	0.365	-0.071	0.931	0.475	-0.204	0.815	0.053
Age 51-60	-0.199	0.819	0.010	-0.043	0.958	0.642	0.006	1.006	0.952
Age 61-70	-0.191	0.826	0.010	0.048	1.049	0.602	-0.062	0.940	0.527
Age ≥71 - ref.									
Education: primary	-0.807	0.446	0.000	-0.763	0.466	0.000	-0.842	0.431	0.000
Education: lower secondary	-0.678	0.508	0.000	-0.680	0.507	0.000	-0.612	0.542	0.000
Education: upper secondary	-0.267	0.766	0.000	-0.304	0.738	0.000	-0.333	0.717	0.000
Education: post-secondary and higher - ref.									
Retirement motive (yes)	1.381	3.979	0.000	0.973	2.647	0.000	0.904	2.469	0.000
R^2 Cox & Snell		0.227			0.151			0.134	
R^2 Nagelkerke		0.240			0.158			0.141	
R^2 McFadden		0.088			0.055			0.048	

5. Conclusions

This study focuses on the role of the retirement motive for saving behaviour. It examines empirically the research hypothesis that controlling for a set of economic and sociodemographic individual characteristics, households reporting the retirement motive are more likely to have higher savings compared to households

driven exclusively by other motives of saving. Micro data from the three waves (2011, 2013 and 2015) of the Polish household survey *Social Diagnosis* is used for the study. In an ordered logistic regression framework it proves that the old age saving motive is a significant predictor of the size of savings relative to household income. Limiting the studied sample only to those households that reported to have any savings allows assessment of the importance of the retirement motive compared to other saving motives. As shown in this study, in regard to Polish households, the motivation to save for old age, as opposed to saving for other purposes, is reflected in higher savings.

The empirical findings support the view presented by Schunk (2009) that perception of the saving motive influences saving outcomes. This implies that the policy means taken to change the significance of certain savings motives in the eyes of households may foster greater savings for that purpose. Consequently, the actions taken to increase financial awareness in terms of the need to save additionally for retirement, i.e. apart from the compulsory pension provision, should have positive effects in terms of greater savings. Thus, as a policy implication it seems to be strongly justified to enhance public awareness of the necessity to save for the old age. This refers especially to Polish households taking into consideration the ongoing public debate in Poland concerning the need for further changes in the mandatory pension system that will reduce its generosity towards the current working population.

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