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THE SOCIOECONOMIC CONDITIONS OF SAVING BEHAVIOURS IN POLISH HOUSEHOLDS[1]

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Abstract. The study attempts to identify the socioeconomic determinants of propensity to save and saving rate in Polish households. The research was done on the individual data of the Social Diagnosis by means of the method of logistic regression The results of logistic regression analysis confirmed the fact that above all, the significant factors affecting the propensity to save in households are as follows: the householder's sex, place of residence, level of education, socio-occupational status and marital status, health aspects (disability and health problems), the biological type of the family, the number of people in the household and the income level in its absolute and relative aspect. On the other hand, the saving rate is chiefly determined by: the householder's sex, age, level of education, disability as well as the socio-occupational status and income level.

Key words: households, savings, logistic regression

INTRODUCTION

The starting point for analyses of households' saving behaviour are Keynes' [1936] and Friedman's [1957] income theories and the life cycle theory [Modigliani 1954]. These hypotheses, chiefly based on the income structure and demographic structure, continue to be widely used in the analysis of saving behaviour. However, as Japelli [2005] thinks, none of these theories on their own provides a sufficient explanation to saving behaviours in households. Too narrow approach to these hypotheses may result in omission of many other important aspects and factors affecting the financial behaviour of households. These hypotheses became the starting point of further research, which enriched and modified those theories with the elements omitted in starting theories and revoked hardly realistic assumptions, trying to bring the theories closer to reality [Rha et al. 2006, Wójcik 2007].

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The main goal of the study was an analysis of the socioeconomic conditions of households in Poland, such as the propensity to save and saving rate. The propensity to save in this study is understood as the percentage of households with savings. On the other hand, the saving rate was designated on the basis of the relation between the savings value and income gained by the household.

THE SOCIOECONOMIC CONDITIONS OF SAVING BEHAVIOURS

The factor which unquestionably significantly determines the saving behaviours of households is their income. The income level determines the very fact of having savings, thus affecting the propensity to save. An increase in income causes a decreased consumption tendency in favour of increased propensity to save [Schmidt-Hebbel 1992, Wójcik 2007]. The positive influence of increased income on saving behaviours, measured with different methods, was proved by a wide range of other studies [Beer et al. 2006, Rószkiewicz 2008, Liberda, 1999, 2000, Fatuła 2010].

Another factor affecting saving behaviours, which was already exposed in the life cycle hypothesis, is age. The life cycle hypothesis assumes a negative saving rate in youth, followed by an increase in savings with age and its positive level during the working age. The peak of savings gathered to satisfy one's needs in old age can be seen between the age of 60 and 65 years. In old age the gathered savings enable the owner to retain the quality of life despite lower income. This hypothesis has frequently been verified by numerous researchers. Avery and Kennickell [1991] found evidence to question the life cycle hypothesis. In the USA elderly people's households do not use the savings gathered during the working age to the extent assumed by the life cycle hypothesis. Demery and Duck [2006] did not positively verify the life cycle hypothesis, either. When they analysed the financial behaviours of British households, they also observed that the saving rate was positive and it grew in old age.

On the other hand, when Rószkiewicz [2006] analysed the financial behaviours of Polish households, she also found regularities related with the life cycle hypothesis. She proved the low saving rate at early stages of the family life cycle was caused by the negative attitude to saving. When Beer et al. [2006] analysed the financial behaviours of Austrian households, they observed the dependence between the age of the head of the household and the level of financial assets gathered in the household, which followed the life cycle hypothesis. Young people's households (aged 19–29 years) had net financial assets of the lowest value. The value of richness increased with age to reach its peak in the households where the household head was aged 60–69 years.

Differences between the sexes in their saving behaviours were widely researched by Fisher [2010], who observed that it is important to understand differences between men's and women's saving behaviours. Women's lower earnings, lower wealth level, higher aversion to risk, longer life and lower saving rate than men's is a significant challenge both to financial specialists and educators. Also, in Poland researchers noticed that the saving rate was one third lower in the households headed by a woman [Liberda 2000]. Besides, studies show that differences between men's and women's saving behaviours result from the differences in the level of their financial awareness [Lusardi and Mitchell 2007].

The level of education, which strongly determines one's future earnings, is another factor which has a significant positive influence on financial behaviours, including saving behaviours in households [Liberda 1999, Beer et al. 2006, Wójcik 2007, Fatuła 2010]. As results from Liberda's [1999] research, people with higher education tend to save the most (% of income). On the other hand, Fatuła [2010] in his research points to the positive correlation between the increase in the mean saving rate and the education level. The highest saving rates were characteristic [Fatuła 2010] of the households where the household head had higher education, whereas the lowest and simultaneously negative saving rates were characteristic of the households managed by people with primary school education. Rha et al. [2006] also indicate the ambiguity of the influence of the level of education on savings. They stress the fact that people with higher education may save less (have a lower saving rate) due to their expectations of higher earnings in the future. On the other hand, Wójcik [2007] notices that society's insufficient financial education may also have negative influence on saving behaviours in Polish households

Saving behaviours in households are also perceived in the aspect of the place of residence [Wójcik 2007], socio-occupational status [Avery and Kennickell 1991, Liberda 1999, Guariglia 2001, Fatuła 2010], the biological type of the family and size of the household [Liberda 1999, Guariglia 2001], and even cultural and racial diversification [Gutter et al. 1999, Rytelewska and Kłopocka 2009]. Households in big cities are characterised by stronger propensity to save, which is determined by their better access to the banking infrastructure [Wójcik 2007]. Numerous empirical studies also prove the fact that the households of married couples save more than the other types of households [Avery and Kennickell 1991, Guariglia 2001, Rha et al. 2006, Rytelewska and Kłopocka 2009]. On the other hand, Douthitt and Fedyk [1989] empirically proved that households with children save less because they need to struggle with the expenses to support the children.

SOURCE MATERIAL AND RESEARCH METHODS

The study used the individual data of the households under the survey of the Social Diagnosis in 2011. The Social Diagnosis is a complex survey of the Poles' living standard and quality of life in their own assessment. It contains information about more than 12 thousand households [Czapiński and Panek 2011].

In order to identify the factors of propensity to save and the saving rate the logistic regression method was used. In order to estimate the parameters of logistic regression models the same set of independent variables was assumed, which characterises different socioeconomic aspects of households. Then the variables were presented in Table 1.

In order to avoid collinearity in the estimation of logit model parameters selected categories of each qualitative variable were omitted, which in consequence led to the generation of a reference group in comparison with which the results were analysed. The reference group in logit models consists of the households where the heads of households are: men, people aged 25–34 years, people with higher education, people working in the private or public sector, inhabitants of cities with the population over 100,000 people, married people, childless people, non-disabled people, people without health problems, in their households no family member has been hospitalised recently for other reasons than pregnancy.

Table 1. Independent variables assumed in logistic regression models

Trait (Independent variable)	Response categories
1	2
Age	up to 24 years
	25–34 years
	35–44 years
	45–59 years
	60–64 years
	65+ years
Sex	**man**
	woman
Type of place	village
	town with population up to 100 thousand inhabitants
	city with population over 100 thousand inhabitants
Education	primary school and lower
	vocational/middle school
	secondary school
	post-secondary school and higher
Socio-occupational status	**staff of private or public sector**
	private entrepreneurs
	farmers
	old age pensioners and disability pensioners
	schoolchildren and students
	other occupationally passive people
	unemployed people
Marital status	**married**
	single
	divorced
	widowed
Biological type of family	**childless married couples**
	married couples with 1 child
	married couples with 2 children
	married couples with 3 or more children
	single-parent families
	multifamily
	single non-familial
	shared non-familial
Household member in hospital for other reasons than pregnancy	yes
	no
Disability	disabled person
	non-disabled person

Table 1 cont.

1	2
Householder's health problems caused difficulties in everyday routines or participation in other activities	**never** often seldom
Number of people in household	number of people
Number of people aged over 15 years in household	number of people
Average net monthly income in household	thousand PLN
Average net monthly income in household per head	thousand PLN per head

Reference categories marked in bold type.

Source: The authors' own compilation based on Social Diagnosis: integrated database. www.diagnoza.com [downloaded on 2 January 2012].

RESULTS AND DISCUSSION

Table 2 presents the results of a logit model estimation, where the propensity to save in households was assumed as a dependent variable. The variable assumes the value of 1 for the households that declare savings and the value of 0 for the households that declare no savings.

Table 2. The results of estimation of the logit model for propensity to save

Variable	B	Significance	Significance level	Exp(B)
1	2	3	4	5
Sex (man) woman	–0.208	***	0.002	0.812
Type of place (**city with population over 100 thousand inhabitants**)		*	0.048	
town with population up to 100 thousand inhabitants	–0.131	*	0.048	0.877
village	–0.142	*	0.020	0.868
Education (**post-secondary school and higher**)		***	0.000	
primary school and lower	–1.314	***	0.000	0.269
vocational/middle school	–0.951	***	0.000	0.386
secondary school	–0.587	***	0.000	0.556
Socio-occupational status (**staff of private and public sector**)		***	0.000	
private entrepreneurs	0.173		0.104	1.189
farmers	0.307	***	0.005	1.360
old age pensioners and disability pensioners	0.217	***	0.001	1.243
schoolchildren and students	–0.062		0.785	0.940
other occupationally passive people	–0.463	*	0.012	0.629
unemployed people	–0.839	***	0.000	0.432

Table 2 cont.

1	2	3	4	5
Marital status (**married**)		***	0.000	
single	–0.334	***	0.004	0.716
divorced	-0.303	*	0.013	0.739
widowed	-0.590	***	0.000	0.554
Biological type of family (**childless married couples**)		***	0.003	
married couples with 1 child	–0.023		0.787	0.977
married couples with 2 children	–0.132		0.213	0.877
married couples with 3 or more children	–0.503	***	0.001	0.605
single-parent families	–0.133		0.321	0.875
Multifamily	–0.005		0.972	0.995
single non-familial	–0.164		0.202	0.849
shared non-familial	–0.123		0.656	0.884
Total number of people in household	–0.75	*	0.49	0.927
Disability (**non-disabled person**) disabled person	–0.205	*	0.04	0.815
Householder's health problems (**never**)		***	0.000	
seldom	–0.137	**	0.010	0.872
often	–0.365	***	0.000	0.694
Average net monthly income in household (thousand PLN)	0.135	***	0.000	1.144
Household income per head (thousand PLN)	0.311	***	0.000	1.365
Constant	0.024		0.876	1.025
N			11533	
N included in analysis			9413	
Cox and Snell's pseudo R2			0.150	
Nagelkerke's pseudo R2			0.206	

The bracketed and bold typed traits are reference categories.
* – significant variables for $p < 0.05$; ** – significant variables for $p < 0.01$; *** – significant variables for $p < 0.005$.
Source: The authors' own compilation based on Social Diagnosis: integrated database. www.diagnoza.com [downloaded on 2 January 2012].

Of the assumed set of potential statistically independent variables the following factors proved to be significant: the householder's sex, level of education, socio-occupational status and marital status, the biological type of the family, the average net monthly income in the household and the income per head in the household, the number of all members in the household and such health aspects as: disability and the householder's health problems.

As a result of statistical insignificance the following variables were eliminated from the model: the householder's age, the type of place, the number of people aged over 15 years in the household and hospitalisation of a household member.

In logit models one of the basic analytical parameters is the odds ratio Exp(B), which provides information about the ratio between the probability of occurrence of an event and the probability that the event will not take place. In Table 2 the bold type and bracketed traits refer to interpretation reference categories. The odds ratio value for individual variables is given in the last column and marked as Exp(B). If Exp(B) > 1, there is a higher chance that the household has savings. In a reverse situation the chance decreases.

As results from the presented results of the estimation of the logit model parameters (Table 2), if the household is run by a woman, its chance to have savings is reduced by 19%, as compared with the households where the head is a man.

Households in big cities, i.e. those with a population of more than 100 thousand inhabitants, have relatively higher chances for savings. In the other types of places the probability of savings drops by 15%.

One of the more important aspects of developing saving behaviours in households is education, which is measured with the education level. A higher level of education has significantly positive influence on the propensity to save. The households run by people with post-secondary school or higher education have definitely the highest chances for savings. For the households run by people with primary school or lower level of education the odds ratio is 0.269. This means that the chance of those households to have savings is more than 70% smaller than in the households of people with post-secondary school or higher education. In the families where the head of the household has vocational or middle school education the chance for savings is more than 60% smaller and in the households of people with secondary school education it is two times smaller than in the reference group, i.e. the group with higher education.

Another significant factor diversifying saving behaviours is the householder's socio-occupational status. In comparison with the reference group (the staff of the private and public sector) the households of farmers and those belonging to old age pensioners and disability pensioners have the highest chance for savings. The odds ratio for those groups is 1.360 and 1.243, respectively. On the other hand, the chances for savings dramatically decrease with occupationally passive and unemployed people. The chances for savings in these socio-occupational categories are nearly one third (occupationally passive people) and more than a half (unemployed people) smaller than in the group of people working in the private or public sector.

The results of the study also point to the fact that the householder's marital status significantly determines saving behaviours. The probability of savings is the highest in the households of married people. In comparison with them the propensity to save in the other marital status categories included in the analysis is considerably lower. As results from the data in Table 2, being single or divorced reduces the chance for savings by about 30% and for widowers – by nearly 50%.

The biological type of the family does not exert big influence on the savings in the household. Statistically significant differences can be observed only in the households of married couples with three or more children, where the chance for savings is 40% smaller than in the households of childless married couples. Similar conclusions can mostly be derived from the analysis of the number of people in a household. As the number increases by one, the chance for savings decreases by 7.3%.

The research also enhanced the significance of health aspects in saving behaviours. Confirmed disability, especially an increasing frequency of health problems, has negative influence on the propensity to save.

Another variable which significantly determines the propensity to save in households is their average net monthly income, both in the absolute and relative aspect (per head). The odds ratio for the variable of average net monthly income in a household, measured in thousand PLN, is 1.144, whereas the ratio per head is 1.365. This means that as the average net monthly income increases by one thousand PLN, the chance for savings in a household increases by nearly 15%. On the other hand, when the income per head increases by one thousand PLN, the chance for savings increases by more than one third (36.5%).

Table 3 presents the results of estimation of the logit model, where the saving rate in households was assumed as a dependent variable. The variable assumes the value of 1 for households with a higher saving rate, i.e. those which declare savings exceeding the value of income for three months, and it assumes the value of 0 for households with a lower saving rate, i.e. those which declare savings not exceeding the value of income for three months.

Of the assumed set of potential independent variables the following factors proved to be statistically significant: the householder's sex, age, level of education, socio-occupational status and disability as well as the average net monthly income per head in the household. As a result of statistical insignificance the following variables were eliminated from the model: the type of place, marital status, the biological type of the household, the total number of people in the household and the number of people aged over 15 years, the state of health and the average net monthly income in the household.

As results from the research, the householder's sex is a trait that strongly diversifies saving behaviours. The households run by women save less than those run by men. If the household is run by a woman, the chance for higher saving rate is reduced nearly by one third.

On the other hand, in general the householder's age does not have much influence on the saving rate. Statistically significant differences can only be seen in the households run by people aged 45–59 years and those aged 60–64 years. As far as these age groups are concerned, the chances to collect savings exceeding the value of income for three months are 50% higher in the group aged 45–59 years and 60% higher in the group aged 60–64 years in comparison with the reference group aged 25–34 years.

The householder's level of education determines the saving rate relatively strongly and positively. As the level of education increases, so do the chances for a higher savings level. The chances for savings exceeding the value of income for three months are as much as two thirds lower in the households run by people with primary school or lower education than in the households belonging to people with higher education. In the households run by people with vocational education the chances are lower by more than a half, whereas in those run by people with secondary school education they are more than 40% lower than in the reference group.

On the basis of the research results it is possible to notice the fact that the householder's socio-occupational status is also a factor that significantly diversifies the saving rate in households. The households of the staff of the private and public sector, which are the

Table 3. The results of estimation of the logit model for propensity to save in households

Variable	B	Significance	Significance level	Exp(B)
Sex (**man**)				
woman	–0.326	***	0.000	0.722
Age (**25–34 years**)		***	0.004	
up to 24 years	–0.936		0.076	0.392
35–44 years	0.206		0.191	1.228
45–59 years	0.409	*	0.005	1.505
60–64 years	0.476	*	0.014	1.609
65+ years	0.245		0.208	1.277
Education (**post-secondary school and higher**)		***	0.000	
primary school and lower	–1.064	***	0.000	0.345
vocational/middle school	–0.832	***	0.000	0.435
secondary school	–0.600	***	0.000	0.549
Socio-occupational status (**staff of private and public sector**)		***	0.000	
private entrepreneurs	0.543	***	0.001	1.721
farmers	0.391	*	0.026	1.478
old age pensioners and disability pensioners	0.416	*	0.004	1.515
schoolchildren and students	0.795	*	0.043	2.215
other occupationally passive	1.266	***	0.000	3.545
Unemployed	0.232		0.546	1.261
Disability (**non-disabled person**)				
disabled person	–0.263	*	0.028	0.769
Household income per head (thousand PLN)	0.332	***	0.000	1.394
Constant	–0.791	***	0.000	0.453
N		3208		
Cox and Snell's pseudo R2		0.084		
Nagelkerke's pseudo R2		0.113		

The bracketed and bold typed traits are reference categories.
* – significant variables for $p < 0.05$; ** – significant variables for $p < 0.01$; *** – significant variables for $p < 0.005$.
Source: The authors' own compilation based on Social Diagnosis: integrated database. www.diagnoza.com [downloaded on 2 January 2012].

reference category, are the least likely to collect savings exceeding the value of income for three months. The households of occupationally passive people have definitely the highest chances (OR = 3.54), which are more than 3.5 times greater than those of the working staff. In comparison with the reference group, the households belonging to private entrepreneurs (OR = 1.72), farmers (OR = 1.48) as well as old age pensioners and disability pensioners (OR = 1.52) have about 1.5 times greater chances for a higher saving rate. The households of disabled people have relatively smaller chances (by about 25%) for a higher saving rate.

Another factor affecting the saving rate in households is their average net monthly income per head. As the income increased by PLN 1 thousand, the chances for a higher saving rate increased by more than one third.

CONCLUSIONS

In view of the aforementioned analyses it is possible to state that above all the factors diversifying saving behaviours in households are income in the household and the householder's level of education. These traits are the best predictors of both the propensity to and saving rate in households. The households with higher income, run by better educated people, exhibit distinctly higher propensity to save and are characterised by a relatively high saving rate. Moreover the saving behaviours were determined by such factors like: the householder's sex, age, place of residence, socio-occupational status and marital status, health aspects (disability and health problems), the biological type of the family, the number of people in the household.

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SOCIO-EKONOMICZNE UWARUNKOWANIA ZACHOWAŃ OSZCZĘDNOŚCIOWYCH GOSPODARSTW DOMOWYCH

Streszczenie. Przeprowadzone badania miały na celu identyfikację czynników wpływających na zachowania finansowe gospodarstw domowych w aspekcie oszczędzania, tj. skłonności do oszczędzania (wyrażonej faktem posiadania oszczędności) oraz stopy oszczędzania (mierzonej relacją oszczędności do uzyskiwanych dochodów). W pracy wykorzystano dane jednostkowe Diagnozy Społecznej, na podstawie których zbudowano modele logitowe. Ich wyniki wskazują, że zachowania oszczędnościowe polskich gospodarstw domowych są najbardziej determinowane przez poziom uzyskiwanych dochodów oraz wykształcenie głowy gospodarstwa domowego.

Słowa kluczowe: gospodarstwa domowe, oszczędności, regresja logistyczna

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