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THE IMPACT OF AGE ON POLISH HOUSEHOLDS FINANCIAL BEHAVIOR – INDEBTEDNESS AND OVER-INDEBTEDNESS[1]

Summary

The aim of this paper is to examine how age of the head of household affects the financial behavior of households in terms of indebtedness and over-indebtedness. The over-indebtedness was analyzed from two aspects – margin and debt service ratio indicators. The data from Household Budget Survey in 2011 conducted by Central Statistical Office of Poland was used in the analyses. To achieve the main objective, selected measures of descriptive statistics and contingency tables were used. The research results confirm that in Poland credits were taken mainly by households of young people, which is consistent with assumptions of the life cycle hypothesis. Although these assumptions were not confirmed in the case of a problem with over-indebtedness.

Key words: household indebtedness, household over-indebtedness, age, life-cycle hypothesis

JEL: D10, D14

1. Introduction

According to the life-cycle hypothesis, one of the main determinants of households financial behavior in terms of debt is the age of the head of household. This factor affects not only the level of debt, but also a type of debt [Yilmazer, DeVaney, 2005; Wałęga, 2010]. With age change also the needs of household [Yilmazer, DeVaney, 2005; Świecka, 2009]. Income increases with the number of worked years, then it decreases in the retirement age, which is why households use credits at the early stages of life, at the middle stages they gather savings and at the retirement age they use accumulated savings [Yilmazer, DeVaney, 2005].

Moreover, creation of a new household, often associated with the appearance of children, which is characteristic for the early phase of the life cycle of the household, makes that the demand for credit during this period is greater. In addition, younger people often have more liberal approach to use credits [Russell et al., 2011].

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To sum up, according to the life cycle theory, the demand for credit in the household decreases with age. Debt in the households of young people is relatively high in relation to their income and their assets. Households of young people often purchase houses, apartments, cars or other assets. These purchases are related with the early stage of the life cycle of household. Moreover, as noticed Houle [2014] who examined how young adult indebtedness has changed across three cohorts of young adults in the 1970s, 1980s and 2000s; debt burden have increased a lot across the these cohorts. The similar conclusion were reached by Lindquist et al. [2015].

As noted by Pearce [1985], due to the relatively low income of young people, as well as expectations of growth of income in next stages of life and lack of previously accumulated assets – these purchases are usually financed by credits. Generally, the rate of household debt is largely determined by the age structure of the population [Pearce 1985, Świecka, 2008]. Societies where a large part constitute young people are characterized by a generally high level of debt to assets and debt to income. This relationship was confirmed by Pearce [1985].

Assumptions life cycle hypothesis in the context of debt have been repeatedly positively verified [Pearce, 1985; Livingstone, Lunt, 1992; Cox, Jappelli, 1993; Kempson, 2002; Barnes, Young, 2003; Mitrakos et al., 2005; Yilmazer, DeVaney, 2005; Faruqui, 2006; Beeri, Shürz, 2007; Betti et al., 2007; Zajączkowski, Żochowski, 2007; Carpentier, Van den Bosch, 2008; Wałęga, 2010; Keese, 2010; Lindquist et al., 2015].

Young age is not only a factor of indebtedness, but also one of the most frequently mentioned in the literature factors contributing to over-indebtedness [Livingstone, Lunt, 1992; Lea et al., 1993; Tufte, 1999; Drentea, Lavrakos, 2000; Webley, Nyhus, 2001; Vogelgesang, 2003; Bridges, Disney, 2004; Gumy, 2007; Carpentier, Van den Bosch, 2008; ECRI, PFRC, 2008; Disney et al., 2008; Davydoff et al., 2008; Disney et al., 2008; BERR, 2008; Schicks, 2010; Bryan et al., 2010; Russell et al., 2011].

So far, many different indicators of over-indebtedness were created. Household can be regarded as being at risk of over-indebtedness if a significant part of their income is spent on debt service. Therefore, one of the most often measures of over-indebtedness is debt service ratio. For gaining information on whether the debt servicing costs are not excessive it is necessary to determine the threshold of this indicator. In the literature it is taken at the level 20-50% [DeVaney, 1994; DeVaney, Lytton, 1995; Kempson, 2002; MORI, 2003; OXERA, 2004; Faruqui, 2006; Rebiere, 2007; Beer, Schürz, 2007; Carpentier, Van den Bosch, 2008; D'Alessio, Iezzi, 2012].

Another indicator used in the researches of over-indebtedness is margin[2] [Johansson, Persson, 2006; Zajączkowski, Żochowski, 2007]. Margin is the amount that stays in a household after deducting current income by the amount allocated for debt repayment and other fixed expenditures. The negative margin may indicate financial problems of household. It means an inability of household to repay debt and basic expenses from a current income.

[2] Margin was determined by basic types of expenditure method – household income is reduced by the amount of real incurred fixed expenditures such as rent, energy and by expenditures on basic goods and services such as food, transport, housing, water.

Other indicators measuring over-indebtedness are based on arrears [Carpentier, van den Bosch, 2008; Disney et al., 2008; Bryan et al., 2010; D'Alessio, Iezzi, 2012] the number of credit commitments [Disney et al., 2008; Bryan et al., 2010; D'Alessio, Iezzi, 2012] or a subjective assessment of the financial situation of household [Disney et al., 2008; Carpentier, van den Bosch, 2008; Bryan et al., 2010; D'Alessio, Iezzi, 2012].

Taking into account observed demographical changes in Poland, population aging, low birth rate and fertility rate it seems to be crucial to research how age of the household head affects the financial behavior of household, especially in terms of indebtedness and over-indebtedness.

2. Aim, data and methods

The aim of this paper is to examine how age of the head of household affects the financial behavior of households in terms of indebtedness and over-indebtedness. The study was based on data from Household Budget Survey in 2011 which was conducted by Central Statistical Office of Poland. The study involved 37375 households, of which 30% were indebted. In a group of indebted households 13.5% spend more than 30% of income for debt repayment, which classified these households as over-indebted in terms of debt to income indicator. In turn, in almost every tents household income was too low to cover current expenses of household and debt repayment. These households were classified as over-indebted in terms of negative margin. In the paper selected measures of descriptive statistics as well as contingency tables, which show the simultaneous distribution of several features, were used.

3. Results

Age and indebtedness

According to the life-cycle hypothesis, in the early stages of the life cycle of a household, when the level of income and accumulated savings is low, and the demand for money is significant, household use credit as an instrument stabilizing consumption over time, which allows to finance the current needs.

At the next stages of life-cycle, followed by an increase in income, household begin to accumulate savings that will be used in the final stage of the life cycle, when again a decrease of income occurs. At these stages of life cycle of household credit plays a smaller role.

This relationship is confirmed by the data in Table 1, which shows that the average age in the households with debt (47 years) is more than five years lower than in households without debt (52.5 years). Moreover, every fourth credit (Q1) refers to households where the age of the head less than 35 years.

In the group of households repaying mortgages average age of the head of the household was 39.5 and it was almost 8 years lower than the average age of all the households with debt (47 years). Moreover it is worth to emphasize that as many as half of the mortgage (Q2) is repaid by the households un by people below 37.

TABLE 1.

Age of the household head and debt – basic statistics

Age of the head of household	households total	without debt	Households with debt					
			with debt (total)	mortgage	credit cards	in banks	in other institutions	from private persons
average	50.9	52.5	47.3	39.5	46.3	48.8	48.6	47.8
Q1	38.0	39.0	35.0	32.0	35.0	37.0	40.0	34.0
Q2	51.0	53.0	46.0	37.0	45.0	49.0	49.0	46.0
Q3	62.0	64.0	58.0	45.0	57.0	60.0	56.0	60.0

Source: The authors' own compilation based on Household Budget Survey in 2011.

Based on the data contained in Table 2, the relationship consistent with the assumptions of the life cycle hypothesis can be observed. Households take credits in the early stages of the life cycle, but in the youngest households – ie. run by people under the age of 24 – the percentage of households using credits is still quite low and amounts 22%.

In the next age group a significant increase of this percentage can be observed. Almost 40% of households led by people aged 25-34 and 45-54 use credits. Then, with increasing age, the proportion of households using credits in the relevant age groups decreases and amounts 28% for households led by people aged 55-64. On the other hand, only 18% of households conducted by the elderly (over 65 years old) use credits. Credits taken out by people in this age group accounted for only 13% of the total number of taken credits (Table 2).

The relationship consistent with the assumptions of the life cycle hypothesis indicates also the values of taken credits in different age groups, shown in Table 3. At the early stages of the life cycle of household, the value of monthly credit commitments increased, and at the next stages – decreased. The households run by the youngest below 24 years old, spent monthly for debt repayment an average of 578 PLN. The households run by people aged 25-34 spent for this purpose about 50% more, i.e. 862 PLN. Then in the next age group, the average value of debt service decreased from 825 PLN for the age group 35-44 to 394 PLN for the households run by the oldest people – over 65 years old.

TABLE 2.

The structure of debt (I) and percentage of households (II) repaying credits according to the age of the head of household (%)*

Age of the head of household		Categories of credits: with debt (total)	mortgage	credit cards	in banks	in other institutions	from private persons	Households total (%)
<24	I	2.4	1.1	1.4	2.8	0.8	4.0	3.2
	II	22.1	2.2	1.3	18.0	0.9	1.2	
25-34	I	20.3	35.4	20.7	17.8	12.6	21.9	15.6
	II	38.7	15.1	3.9	24.1	3.1	1.4	
35-44	I	23.9	37.7	27.5	21.4	23.4	21.3	18.5
	II	38.3	13.6	4.4	24.4	4.9	1.2	
45-54	I	20.7	15.9	19.5	20.4	32.5	16.5	20.5
	II	29.9	5.2	2.8	20.9	6.1	0.8	
55-64	I	20.0	7.9	21.2	22.2	22.1	19.2	21.4
	II	27.8	2.5	2.9	21.9	4.0	0.9	
65+	I	12.8	2.0	9.6	15.5	8.7	17.1	20.7
	II	18.3	0.7	1.4	15.8	1.6	0.8	
Households total (%)		29.7	6.7	3.0	21.1	3.9	1.0	100.0

* I – % from column, II – % from row

Source: The authors' own compilation based on Household Budget Survey in 2011.

TABLE 3.

The value of monthly credit repayments according to age of the head of household (PLN)

Categories of credits	Statistics	Below 24	25-34	35-44	45-54	55-64	65+	Total
with debt (total)	average	578.1	862.2	825.5	662.9	553.6	393.7	683.8
	Q1	186.4	280.0	246.7	200.0	180.0	140.0	200.0
	Q2	347.9	567.5	500.0	412.4	327.6	250.0	404.6
	Q3	656.0	1072.5	1016.0	785.5	655.0	472.4	820.0
mortgage	average	1027.1	1024.1	1018.4	929.9	871.1	632.6	986.8
	Q1	600.0	550.0	477.2	389.0	360.0	206.0	480.0
	Q2	980.0	880.0	800.0	700.0	617.3	443.3	800.0
	Q3	1300.0	1300.0	1300.0	1200.0	1000.0	963.0	1264.7
credit card	average	385.9	624.2	767.4	617.6	613.7	620.1	656.3
	Q1	150.0	150.0	150.0	167.3	155.0	154.0	150.0
	Q2	294.0	300.0	332.2	320.0	350.0	300.0	318.5
	Q3	532.7	738.9	942.9	728.7	792.7	700.0	764.5
in banks	average	414.5	546.4	493.8	490.3	433.0	335.0	462.1
	Q1	170.0	180.0	165.9	167.0	150.0	129.0	156.1
	Q2	317.0	325.3	300.0	308.2	280.4	223.0	295.5
	Q3	500.0	600.0	577.5	578.0	530.0	400.0	540.6
in other institutions	average	253.1	526.1	401.1	442.8	412.1	277.0	420.8
	Q1	160.0	175.0	200.0	200.0	186.0	127.6	181.0
	Q2	225.0	280.0	300.0	300.0	300.0	220.0	300.0
	Q3	250.0	500.0	500.0	590.0	525.0	390.0	500.0
from private persons	average	1808.8	450.5	367.1	419.3	339.9	246.5	425.8
	Q1	150.0	100.0	100.0	100.0	100.0	100.0	100.0
	Q2	200.0	200.0	200.0	200.0	200.0	200.0	200.0
	Q3	1000.0	450.0	500.0	500.0	325.0	300.0	400.0

Source: The authors' own compilation based on Household Budget Survey in 2011.

Households of young people use primarily mortgages (Table 2). As many as 15% of households with a head of household aged 25-34 and 13.5% of households run by people aged 35-44 were repaying mortgage. Approximately 3/4 of mortgages were concentrated in households run by people below 44 years old, where the proportion of the youngest age group (under 24) was marginal.

As shown in Table 2, the most preferred credit type, by households run by the oldest age group, is a credit in bank. As many as 15% of households led by people over 65 repaid some debt in bank. Other types of debt were used by this age group occasionally.

Age and over-indebtedness

The relationships of age with the phenomenon of household over-indebtedness were the subject of numerous studies [Schicks, 2010; Bridges, Disney, 2004; Drentea, Lavrakos, 2000; Lea et al., 1993; Livingstone, Lunt, 1992; Vogelgesang, 2003; Carpentierandi, Van den Bosch, 2008; ECRI, PFRC, 2008; Russell et al., 2011; Gumy, 2007; Bryan et al., 2010; Disney et al., 2008; BERR, 2008; Disney et al., 2008; Davydoff et al., 2008; Webley, Nyhus, 2001; Tufte, 1999]. In general, these studies indicate that the most threatened by over-indebtedness are households led by young people. According to the life cycle hypothesis, the phenomenon of over-indebtedness of households does not have a linear character. Over-indebtedness increases to a certain age and then begins to decline in the households of the elderly.

As stated before, the assumptions of life cycle hypothesis has been confirmed in the case of the age structure of indebted households (Tables 1-3). These assumptions, however, were not confirmed in the case of the problem of over-indebtedness measured by two indicators: margin and debt service ratio. Analyzing the data contained in table 4 it can be noted that with increasing age of the head of household decreases the value of margin, ie. part of the income that remains in a households after covering basic fixed expenditures and debt repayment.

The best financial situation in terms of margin characterized households run by young people aged 25-34 and 35-44 (Table 4). In these households all levels of margin statistics were comparable and the highest of all analyzed age groups. In turn, the lowest margin characterized the households of the oldest, ie. above 65. In this age group, after covering fixed expenditures and debt repayment, an average of 745 PLN stay for their disposition. However, at every fourth household of this age group (Q1), after covering basic expenses and repayment of debt, it remain no more than 192 PLN.

In turn, no relationship is observer between age of the head of household and debt service ratio. Data in Table 5 shows that in the least income was burden by debt repayment in the households led by people aged 35-44 (12.1%). In the other age groups differences in the level of the analyzed indicator were small and ranged 15.4-19.6%.

TABLE 4.

The value of margin (PLN) and age of the head of household – basic statistics*

Age	average	Q1	Q2	Q3
<24	1304.1	555.7	1118.6	2065.2
25-34	2184.4	861.5	1612.0	2799.1
35-44	2052.8	788.0	1539.6	2727.8
45-54	1706.2	589.9	1319.4	2432.1
55-64	1248.7	294.8	888.0	1791.5
65+	745.6	191.7	516.5	1076.2
total	1662.0	498.7	1210.1	2257.3

* data concerns households with debt

Source: The authors' own compilation based on Household Budget Survey in 2011

Not very strong relationships are also visible when comparing the age of the head of household according to the adopted criteria for evaluation the over-indebtedness (Table 6). The study indicates that the highest age of the head of household characterized the households with negative margin. The average age of head of household was in them 51.5, and half of them (Q2) was conducted by people over 53, and every fourth household (Q3) – was run by a person over 62 years old.

In households without a problem with over-indebtedness, the average age of head of household was relatively low (47 years old), and in every second household (Q2) does not exceed 46 years old. On the other hand, in households with over-indebtedness in the light of debt to income indicator, average age of the head of household was similar, and even slightly lower than in households without problem of over-indebtedness (46 years old).

TABLE 5.

Debt service ratio (%) and age of the head of household – basic statistics*

Age	average	Q1	Q2	Q3
<24	19.1	5.6	11.8	21.9
25-34	19.6	7.6	14.4	24.6
35-44	12.1	6.7	13.2	22.5
45-54	18.1	5.8	11.4	20.3
55-64	15.4	6.5	12.5	22.2
65+	16.1	6.5	12.2	20.8
total	16.2	6.5	12.7	22.2

* data concerns households with debt

Source: The authors' own compilation based on Household Budget Survey in 2011.

TABLE 6.

The age of the head of household in the over-indebted households and in households without problem with over-indebtedness – basic statistics*

Age	Average	Q1	Q2	Q3
debt to income >30%	46.3	34.0	45.0	58.0
negative margin	51.5	40.0	53.0	62.0
debt to income >30% and/or negative margin	48.3	36.0	48.0	60.0
Households without problem of over-indebtedness	47.0	35.0	46.0	57.0

* data concerns households with debt

Source: The authors' own compilation based on Household Budget Survey in 2011.

As indicated before, the most vulnerable for being over-indebted in the light of negative margin are households run by the oldest. The data from table 7 shows that almost half (47%) of households with a negative margin were households run by people over 55. On the other hand, only every third over-indebted household was run by young people below 44 years old.

In addition, more than 1/5 of households (21-22%) in the age group 55-64 and over 65 are at risk of over-indebtedness according to at least one indicator (margin and / or debt service ratio). About 13% of households with both age groups was characterized by a negative margin.

TABLE 7.

Percentage of over-indebted households and households without problem with over-indebtedness according to the age of the head of the household*

Age of the head of the household		Negative margin	Debt to income >30%	Debt to income >30% and/or negative margin	Households without problem with over-indebtedness	Households total
< 24	I	2.6	2.3	2.4	2.4	2.4
	II	10.2	12.8	18.8	81.2	
25-34	I	12.2	23.8	19.3	20.5	20.3
	II	5.5	15.9	18.0	82.0	
35-44	I	18.5	23.9	22.2	24.3	23.9
	II	7.1	13.6	17.5	82.5	
45-54	I	19.6	17.4	18.4	21.2	20.7
	II	8.7	11.4	16.8	83.2	
55-64	I	28.2	21.3	23.4	19.2	20.0
	II	13.0	14.4	22.1	77.9	
65+	I	18.9	11.3	14.3	12.4	12.8
	II	13.6	12.0	21.1	78.9	
Households total		9.2	13.5	18.8	81.2	100.0

* data concerns households with debt; I – % from column, II – % from row

Source: The authors' own compilation based on Household Budget Survey in 2011.

However, it should be noted that in the group of households at risk of over-indebtedness (measured by negative margin), there are also households run by the youngest (under 24 years old). Every tenth such household had a problem with regulation of current obligations and was characterized by a negative margin. In households with a head aged between 25-34 the percentage amounts only 5.5%, and then increases with the age of household head. In the case of households of the oldest (over 65), the problem with regulation of commitments concerned the largest group. As much as 13.5% of households from this age group had negative margin.

4. Summary and conclusions

Based on the conducted research following conclusions can be drawn:

1. In Poland credits were taken mainly by households of young people, which is consistent with assumptions of the life cycle hypothesis. Exceptions were households of the youngest, under 24 years old, which were characterized by relatively low propensity to borrow. These households very often had not entered a phase of increased demand for cash yet. The relationship consistent with the assumptions of the life cycle hypothesis also indicates the values of credits in different age groups. In the early stages of the life cycle the value of monthly repaid credit commitments increased, then decreases in subsequent stages.
2. The assumptions of life cycle hypothesis are not confirmed in the case of a problem with over-indebtedness measured by negative margin as well as high debt service ratio. Along with the increase of age, the level of margin decreased. It means that it was relatively more probable that the problem with over-indebtedness could occur in the households run by older people. On the other hand, there is no relationship between age of the head of the household and debt service ratio.

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