THE PROBLEM OF SAVINGS EXCLUSION AND GROSS SAVINGS IN THE NEW EUROPEAN UNION MEMBER STATES[*]

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Abstract. The problem of the exclusion of some households, in particular those less affluent, from the use of financial services available on the market, including savings, is an important issue in the literature due to the objectively identified negative social and economic consequences of such exclusion. The research objective of the article is to attempt to identify factors related to savings exclusion which determine the share of gross savings in GDP in the new European Union member states. To achieve the goal, a panel data model was estimated. The set of statistically significant factors that adversely affect the creation of gross savings in the economy, and thus the higher level of savings exclusion, include the unemployment rate, social contributions, household debt, the Gini coefficient, and the share of people aged 25-49 in the total population. All these variables are negatively correlated with the explained variable, which means that an increase in their value causes a fall in gross savings. The results of the research have shown that such a highly aggregated measure as gross savings in the economy can be useful for analysing selected aspects of savings exclusion occurring in the examined new member states of the EU.

Keywords: savings exclusion; gross savings; national accounts

1. Introduction

Creating broadly understood savings by households is an important element in maintaining their ability to function properly in difficult situations (Coffinet & Jadeau, 2017, p. 2; Trębska, 2018) and can be crucial for maintaining acceptable living standards for retirement period (Nguyen et al., 2019). From the macroeconomic perspective, the supply of savings is important for developing national financial systems that support long-term growth of economies (Skare, & Porada-Rochoń, 2019; Vukovic & Prosin, 2018).

The situation in which people earning income do not accumulate savings at all, or their savings are very small, is referred to in the literature as savings exclusion, while actions eliminating barriers to savings are called savings inclusion (Blake, de Jong, 2008, p. 11). Research on the causes of exclusion and the possibility of including savings in a given community is usually focused on the analysis of the characteristics of people, or groups of people, who do not save at all or save very little. These characteristics generally include age, sex, education, occupation, ethnicity, place of residence, or housing conditions (Kempson & Whyley, 1999, p. 7). At the same time, when considering the issue of savings from the macroeconomic point of view, it is worth noting that in the context of the so-called national accounts, gross savings are an important item. They are defined as the difference between disposable income and consumption (adjusted for funds changes in pension funds) on the scale of the total economy (SNA 2008, p. 182).

The research objective of this article is to attempt to identify factors related to savings exclusion, which determine the share of gross savings in GDP. The work focuses on the analysis of the issue in relation to the new European Union member states, admitted to the Community in 2004 and afterwards. Data for the time period 2007-2017 are derived from the Eurostat database.

2. Literature review

2.1. Savings in the economy as a macroeconomic category

Among the macroeconomic data relating to savings, an important category is the balance of savings accounts in banks. However, this is a category covering only one form of saving (IFC, 2016, p. 8). In contrast, the household savings rate is estimated by dividing the difference between disposable income and consumption by disposable income (adjusted for changes in pension funds), but only for this sector (Jalava & Kavonius 2007, p. 10). What disposable income includes is only income obtained from the provision of capital in various forms (interest and rent). Households' payments for the purchase of financial and non-financial assets, which become their property reserves and broadly understood savings, are included as consumption (for instance, of financial services), and in special cases can be treated as gross fixed capital formation (SNA 2008, p. 182). This consumption is partly included in the income of other groups of economic entities, especially financial ones. It should be noted, however, that gross savings data is flow statistics in a given period and not accumulation from previous periods (stocks), which is particularly visible when gross savings are recognized as a percentage of GDP from a given year.

In the context of collecting savings, one should also take into account various forms of direct and indirect investment by households in securities, which give them the right to take over part of the income of financial and non-financial enterprises after the settlement period. Moreover, there is a subgroup of business entities (quasi-corporations), which, however, are a specific form of activity performed by individuals, and the savings they collect are not included in household savings (SNA 2008, p. 61). The wider category of gross savings, which comprises all groups of institutional units in the total economy, enables us to avoid narrowing of the concept of savings typical of household savings. The savings rate defined in this way has the advantage that it also takes into account financial resources of households in various forms, even those that remain outside the formalized system of financial institutions. Importantly, the construction of the disposable income category means that institutional units other than households have a much smaller share in it (SNA 2008, p. 183).

2.2. Savings exclusion and its causes

Savings exclusion is one of the types of financial exclusion. The literature on the subject lacks one commonly accepted definition of savings exclusion. Most often it is defined by its symptoms and types (EC 2008, p. 30). In this paper, savings exclusion is considered to be the lack of exclusion from the consumption of part of the income or its exclusion but at a very low level.

The research on savings exclusion conducted worldwide indicates its various causes. The impact of low incomes is widely emphasized as a key barrier to creating savings (EC 2008, p. 12; Verba & Kudinova, 2019). Blake and de Jong (2008) indicate financial habits that are acquired and practiced in higher-income social groups, which are lacking in the poorer part of society (Łukasiewicz et al., 2018). That is why Bernheim, Garrett and Maki (1997, p. 24) indicate the special effectiveness of financial education among young people who did not learn practical saving patterns from their parents. Dixon (2006, p. 44) indicates as another reason the fact of abandoning the previous generations' 'thrift ethics' by the current generations and adapting 'consumption ethics' instead which is related to the growing scope of financing the needs by means of loans, not savings. Financial Services Authority (2006, p. 5) in its research refers to the motivation gap associated with inertia (people tend not to make decisions if they are not forced to), and especially with the so-called hyperbolic discounting (people prefer instant, though small benefits, rather than deferred rewards). Other reasons for savings exclusion include many personal characteristics - in particular, age, gender, ethnicity, family situation, housing conditions (Kempson & Whyley 1999, p. 4; Coffinet & Jadeau, 2017, p. 3).

The above mentioned reasons for the savings exclusion can be called primary causes, which also affect other types of financial exclusion. However, it should be noted that savings exclusion may also result from the lack of a bank account, which is necessary to take advantage of any form of formal savings (Kempson, Finney 2009, p. 4). Therefore, financial inclusion at the basic level, i.e. having a bank account (Huterska, Huterski & Polasik 2018), constitutes a prerequisite for savings inclusion. The lack of it, in turn, may be caused not only by the previously indicted individual features of the excluded (Polasik, Huterska & Meler 2018), but also by external barriers. These include factors on the supply side, such as, for instance, high costs of financial services (Agarwal, 2016), the lack of availability of infrastructure in the form of bank outlets, ATMs and EFT-POS terminals (Reddy, 2017; Agarwal, 2016), as well as the non-adaptation of products to the users' needs (IFC, 2016, p. 8).

3. Methodology and data

The research objective of the article is to attempt to identify factors related to savings exclusion which determine the share of gross savings in GDP in the new EU member states. The following research questions were formulated in the work, referring to the potential factors presented in the subject literature:

Q1: Does the increase in household income burden related to their indebtedness and social security contributions significantly reduce the share of gross savings in GDP?

Q2: Does the higher income stratification of the society significantly reduce the share of gross savings in GDP?

Q3: Does the high proportion of young people (aged 25-49) in the total population contribute to a significant reduction in the share of gross savings in GDP?

To answer these questions, data from the Eurostat database for the 2007-2017 time period were used, both for the dependent variable and the explanatory variables.

Based on the literature review and the research questions posed, the following theoretical model (formulas 1 and 2) was proposed that points out factors affecting the degree of savings exclusion in the new European Union member states.

The model specification for panel data:

$$GrossSaving_{jt} = \alpha_0 + \alpha_1 GDPgrRate_{jt} + \alpha_2 GDPpc_{jt} + \alpha_3 UnempRate_{jt} + \alpha_4 SocBenef_{jt} + \alpha_5 HhSocContr_{jt} + \alpha_6 IncomQuint_{jt} + \alpha_7 HousDebt_{jt} + \alpha_8 GiniCoef_{jt} + \alpha_9 InternBank_{jt} + \alpha_{10} Aged25\_49_{jt} + \alpha_{11} Aged50\_65_{jt} + v_{jt}$$

(1)

$$v_{jt} = e_t + u_j + \varepsilon_{jt},$$

(2)

The description of individual variables and the sources of data used are presented in Table 1.

Table 1. The variables used in empirical investigation

Variables	Description of variables
$GrossSaving_{jt}$	Gross savings – represent the difference between disposable income and consumption plus net current transfers.
$GDPgrRate_{jt}$	GDP growth rate –- gross domestic product (GDP) at market prices - annual data, chain linked volumes, percentage change on previous period
$GDPpc_{jt}$	GDP per capita in PPS - Index (EU28 = 100). The volume index of GDP per capita in Purchasing Power Standards (PPS) is expressed in relation to the European Union (EU28) average set to equal 100.
$UnempRate_{jt}$	Unemployment rate, total, %.
$SocBenef_{jt}$	Social benefits other than social transfers in kind, payable, percentage of gross domestic product (GDP), general government.
$HhSocContr_{jt}$	Households' actual social contributions, receivable, made by households to social insurance schemes to make provision for social benefits to be paid. percentage of gross domestic product (GDP), general government.
$IncomQuint_{jt}$	Income quintile share ratio (S80/S20) The ratio of total equivalised disposable income received by the 20 % of the population with the highest income (top quintile) to that received by the 20 % of the population with the lowest income (lowest quintile).
$HousDebt_{jt}$	Household debt - consolidated including non-profit institutions serving households - % of GDP.
$GiniCoef_{jt}$	Gini coefficient of equivalised disposable income defined as the relationship of cumulative shares of the population arranged according to the level of equivalised disposable income, to the cumulative share of the equivalised total disposable income received by them.
$InternBank_{jt}$	Individuals using the internet for internet banking - % of individuals aged 16 to 74.
$Aged25\_49_{jt}$	Aged 25-49 - Population by age group - % of total population.
$Aged50\_65_{jt}$	Aged 50-65 - Population by age group - % of total population.
v_{jt}	Random error in the object j, in the time period t, which consists of the following components: e_t – impulses affecting all observations in the period t, u_j – impulses affecting all observations in the object j, ε_{jt} – impulses affecting only observations in the object j, in the period t.

Source: own compilation based on: Eurostat (2019) http://ec.europa.eu/eurostat/sectoraccounts

4. Results

Estimation of the panel data model, defined by the formula (3), was made using the Gretl programme (version 9.1.14.). Both the occurrence and significance of individual effects, as well as the nature of individual effects themselves (fixed or random) were not assumed a priori.

The choice of the estimation method (pooled OLS, fixed effects, random effects) was made using the decision procedure proposed in the econometrics literature (see, among others: Baltagi 2001). Models with fixed and random effects were assessed and diagnostic tests were carried out. The results of the diagnostic tests are presented in Table 2.

Table 2. The results of the estimation of the model describing determinants of gross savings related to financial exclusion

Diagnostic test	Test statistic	p-*value*
Wald test	F=5.92426	<0.00001
Breusch-Pagan test	LM=14.1182	0.000172
Hausman test	H=17.758	0.003265

Source: the author's own calculations.

Based on the diagnostic tests conducted, it was found, with the risk of error at the level of 0.05 ($\alpha = 0.05$), that a suitable model to analyze the impact of the determinants of the saving exclusion is the fixed effects model (FE). Therefore, the parameters of the fixed effects model were estimated.

However, the phenomenon of heteroscedasticity occurred. Heteroscedasticity affects inappropriate estimations of standard errors for individual parameters and the revaluation of the determination coefficient, which may distort the conclusions regarding the significance of variables.

Therefore, to estimate the parameters ultimately, the weighted least-squares method was applied (WLS).

Values of statistically significant parameters of the model described by the formula (3) are presented in Table 3.

Table 3. The results of the estimation of the model describing determinants of gross savings related to financial exclusion

Independent variables	Dependent variable $GrossSaving_{jt}$									
	The model before *a posteriori* elimination					The model after *a posteriori* elimination				
	Coefficient	Standard error	*t*-ratio	*p-value*	Significance[a]	Coefficient	Standard error	*t*-ratio	*p-value*	Significance[a]
const	62.4292	17.0789	3.655	0.0004	***	81.8230	8.45486	9.678	<0.00001	***
$GDPgrRate_{jt}$	0.048695	0.104852	0.4644	0.6435		–	–	–	–	–
$GDPpc_{jt}$	–0.019857	0.0463896	–0.4280	0.6696		–	–	–	–	–
$UnempRate_{jt}$	–0.220248	0.0818750	–2.690	0.0085	***	–0.273513	0.062594	–4.374	<0.00001	***
$SocBenef_{jt}$	–0.264728	0.322196	–0.8216	0.4134		–	–	–	–	–
$HhSocContr_{jt}$	–0.690437	0.264033	–2.615	0.0104	**	–0.887331	0.132667	–6.688	<0.00001	***
$IncomQuint_{jt}$	0.113715	0.535069	0.2125	0.8322		–	–	–	–	–
$HousDebt_{jt}$	–0.081552	0.020967	–3.890	0.0002	***	–0.107790	0.0091650	–11.760	<0.00001	***
$GiniCoef_{jt}$	–0.588484	0.166813	–3.528	0.0007	***	–0.567855	0.0752666	–7.545	<0.00001	***
$InternBank_{jt}$	0.0389070	0.0222692	1.747	0.0840	*	–	–	–	–	–
$Aged25\_49_{jt}$	–0.619371	0.243111	–2.548	0.0125	**	–0.898029	0.193994	–4.629	<0.00001	***
$Aged50\_65_{jt}$	0.511262	0.440333	1.161	0.2486		–	–	–	–	–
Observations	104					Observations	104			
Standard error of residuals	1.001949					Standard error of residuals	1.000356			
R^2	0.772951					R^2	0.758544			
Adjusted R^2	0.745803					Adjusted R^2	0.746225			
$F_{(11, 92)} = 28.47258$	*p-value* for test $F < 0.00001$					$F_{(5, 98)} = 61.57425$	*p-value* for test $F < 0.00001$			

* Statistically significant variable at the level of 10%,
** Statistically significant variable at the level of 5%,
*** Statistically significant variable at the level of 1%.

Source: the author's own calculations

The above model is correct in statistical terms. Five of the eleven potential explanatory variables turned out to be significant. The general performance of the model is satisfactory ($R^2 = 0.758544$).

As follows from the research carried out, the set of statistically significant factors that adversely affect the creation of gross savings in the economy, and thus the higher level of savings exclusion, include the unemployment rate ($UnempRate_{jt}$), social contributions ($HhSocContr_{jt}$), household debt ($HousDebt_{jt}$), the Gini coefficient ($GiniCoef_{jt}$), and the share of people aged 25-49 in the total population ($Aged25\_49_{jt}$). All these variables are negatively correlated with the explained variable ($GrossSaving_{jt}$), which means that an increase in their value causes a fall in gross savings.

5. Discussion

The problem discussed in the article combines the issue of savings as a position in national accounts with the financial and non-financial variables that are related to the problem of savings exclusion. While the literature on savings from the point of view of national accounts is extensive, the issues of savings exclusion have not yet been presented in such an extensive and multi-faceted research description. Even more so, at the time when this article is being finalized, publications describing similar studies on the link between the phenomena affecting savings exclusion and the issues of measuring savings in macroeconomic terms have not come out yet. A proposal for

interpretation of mechanisms combining the results of the above calculations with the specificity of the phenomena associated with savings exclusion (already presented in the subject literature), which in this model play the role of explanatory variables, will be outlined as part of the discussion.

A higher unemployment rate in the economy ($UnempRate_{jt}$) means that more people obtain lower income, and therefore have less opportunities to save. At the same time, the unemployed and their families receive various social benefits, which are becoming more expensive to finance ($HhSocContr_{jt}$). This, in turn, reduces the disposable income of people financing increased payments to cover increased social benefits and simultaneously diminishes the ability to save also of the part of society that is not directly affected by unemployment. At the same time, the redistribution of income to social benefits may reduce the need to save of a certain group of people, inducing them to expect that in a difficult situation the state will support them by supplementing their income.

Growing household debt ($HousDebt_{jt}$) means increased financing of expenditure by loans rather than savings, which confirms the abovementioned abandoning of 'thrift ethics' that was followed by the previous generations and adapting 'consumption ethics' by the current generations. Loans accelerate access to goods and services, however, their repayment with interest ties funds that could be saved.

The higher Gini index ($GiniCoef_{jt}$), which is also referred to as the indicator of social inequality, shows greater income stratification of the society. Importantly, in the group of the thirteen new EU member states covered by the research, all achieve per capita income according to the purchasing power parity (PPS) below the EU-wide average (28 countries). Among the remaining fifteen EU countries (not included in the research) as many as eleven reached income above the average. According to the Gini index and with low per capita income in the country, the greater income stratification, the greater part of society is excluded from the possibility of saving due to the fact that their income hardly covers basic needs.

In turn, the higher the share of young people (i.e., aged 25-49) in the population ($Aged25\_49_{jt}$), the lower the gross savings - this seems to be a somewhat surprising result. However, it should be remembered that the research concerns a less affluent group of EU countries with high consumption needs in society, which was reflected in the household debt variable ($HousDebt_{jt}$). In the 25-49 age group, a significant part of it is made up of people with a short-term employment period, who do not yet have sufficiently large incomes to save larger amounts. The other part is people who are professionally stable, but who set up families and have higher expenses for children, repayment of a mortgage, etc.. Thus their higher incomes do not allow saving a lot, either.

Some explanatory variables included in the model were statistically insignificant. This can be explained by referring to the features of specific countries within the studied group. Only Malta and Cyprus had been market economies for many decades before they joined the EU. The remaining eleven countries had been functioning under the centrally planned economy system for several dozen years, which limited their wealth, while reducing the consumer's consumption possibilities. After switching to a market economy, the extreme propensity to consume grew faster than income. Therefore, the GDP growth rate variable ($GDPgrRate_{jt}$), GDP per capita ($GDPpc_{jt}$) and social benefits ($SocBenef_{jt}$) could turn out to be statistically insignificant in relation to gross savings. On the other hand, the income quintile coefficient ($IncomQuint_{jt}$) indicates only a multiple of income of 20% of the richest part of society in relation to 20% of the poorest, ignoring the situation of the remaining 60% of the society.

The use of the Internet for banking transactions (*the InternBank$_{jt}$* variable) by persons aged 16-74 is primarily a measure of the popularity of one of the distribution channels of banking services, which does not have to be directly related to the propensity to save. The share in the population aged 50-64 ($Aged50\_64_{jt}$) also turned out to be a statistically insignificant variable. This may be due to the interaction of mutually cancelling factors. This is the age at which high income from work is achieved, but this group also includes people of retirement age,

especially women and people who are unable to work and receive bridging pension or sickness allowance. Moreover, it should be noted that this group is also less numerous when compared with the 25-49 age category ($Aged25\_49_{jt}$), which turned out to be statistically significant in the model.

These comments were based on the above-cited literature as well as on other publications regarding various factors of financial exclusion and savings, especially in the macroeconomic context. A group of inspirational materials included works by Gloukoviezoff (2011), Dabla-Norris et al. (2019), Martinez Turegano & Herrero (2018), Gustman & Steinmeier (2015) and Brecher, Chen & Choudhri (2010). Also useful were some publications related to the specifics of financial exclusion in the USA (Karp & Nash-Stacey, 2015), Australia (Wilson, 2012), and East Asian countries (Han et al. 2019; Park & Mercado, 2015; Horioka, 2010). Regardless of the local specificity, these sources also present convergent mechanisms for developed economies and societies representing different continents.
A literature review carried out on this occasion revealed that there are very few publications on savings exclusion in the European Union countries shown in a broader economic context.

Conclusions

The problem of the exclusion of some households, in particular those less affluent, from the use of financial services available on the market, including savings, is an important issue in the literature due to the objectively identified negative social and economic consequences of such exclusion (EC 2008, p. 12). Households lacking adequate savings, even those collected outside financial institutions, are at the same time deprived of the possibility of protection against the negative effects of events such as loss of work, sickness, unexpected expenses (even a failure of household appliances), thefts, fires, or any other events resulting in a negative outcome. This is important because savings exclusion often goes hand in hand with insurance exclusion (Blake & de Jong, 2008, p. 98).

The research objective of this work was to identify factors related to savings exclusion, which determine the share of gross savings in GDP in the new EU member states. The research shows that the burden imposed on households' incomes related to their indebtedness as well as social contributions, reduces the share of gross savings in GDP (which provides a positive answer to the research question Q1). It was also shown that the greater income stratification of the society, the smaller the share of gross savings in GDP (positive answer to the research question Q2). The analyses made also show that the high share of people aged 25-49 in the total population decreases the share of gross savings in GDP (positive answer to the research question Q3). At the same time, the results of the research have shown that such a highly aggregated measure as gross savings in the economy can be useful for analysing selected aspects of savings exclusion occurring in the examined new member states of the European Union.

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