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## **FARMERS' HOUSEHOLD SAVINGS COMPARED TO SELECTED HOUSEHOLDS GROUPS<sup>2</sup>**

Key words: farmer's household, savings, income, Common Agricultural Policy, Poland

**ABSTRACT.** The aim of the article is to diagnose the dynamics of household savings among farmers in Poland in comparison to other social groups of households. The study attempts to relate empirical findings to selected income theories. Data from the household budgets of the Central Statistical Office (GUS) were used in this analysis. It was found that the existing theories do not correspond to the savings behaviors of farming households. It can be stated that only the integration of the permanent income theory, Modigliani and Brumberg's life-cycle hypothesis, and the relative income theory would provide an interesting alternative. Savings in farming households increased and were generally higher in the analysed years compared to households overall and wage-earning households, despite lower income levels. However, the income levels were generally lower, which means that the propensity to save is relatively high among farming households. Farming households differ from households overall and wage-earning households in that part of the accumulated savings is allocated to financing investments or current expenses in the farm. As a result, this motivates the heads of these households to save, given the widespread aversion to increasing risk associated with using external sources of financing (credits).

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## WSTEP

Savings are one of the most important categories in economics. They are most commonly defined as the part of income that is not spent on consumption [Harasim 2007]. A necessary condition for household savings to occur is that expenditures must be lower than income.

Farming households operate in a unique way. This is due to their dual role in fulfilling both consumption functions (as individuals residing in the household) and production functions (as individuals engaged in agricultural work). As a result, assessing them in comparison to other types of household is more complex. Guided by a multi-criteria utility function, members of farming households aim to maximise both satisfaction from consumption and agricultural income. This is achieved through various income sources. Recognition of the changes in savings is important for better understanding the developmental mechanisms of farming households and the factors influencing the economic performance of farms. This also relates to the fact that agricultural savings, through income and investments, are affected by the EU's Common Agricultural Policy (CAP). Farming households' savings influence the extent of accumulation processes in agriculture and are crucial for the sustainable development of farms and their competitiveness, especially for smaller units that face greater difficulties in accessing external capital sources [Soumaya 2012].

In the literature, this topic has been addressed many times, mainly from the perspective of assessing the dynamics of these processes and comparing them to other household types [Kozera and Wysocki 2014], generally without reference to related theories. An attempt to pursue this goal has the potential to fill the existing research gap in this area. A contemporary trend shows the decreasing significance of agricultural income for rural households in Poland, as well as a decline in the number of households where agricultural income is predominant.

The aim of the article is to diagnose the dynamics of household savings among farmers in Poland in comparison to other social groups of households. This includes employee households and households overall, representing the average of the total surveyed population. The study attempts to relate empirical results to selected income theories. Data from the household budgets of the Central Statistical Office (CSO) were used for this purpose, covering the period from 2013 to 2022. This timeframe was chosen due to the availability of the latest data and the fact that in 2013 CSO changed the methodology for calculating household income in its budget surveys. A new classification of expenditures based on individual consumption by purpose was introduced. Hence, the data used in the presented studies are comparable from 2013.

## THEORY AND RESEARCH REVIEW

In economic theory, in the context of savings, the Keynesian approach is most often used from an absolute income perspective [Keynes 1956]. Savings are the non-consumable part of income, hence they are distributed between consumption and savings. Thus (1):

$$Y_d = K + O \quad (1)$$

where:  $Y_d$  – household disposable income,  $K$  – consumption,  $O$  – savings.

From this, having a consumption function of the form (2):

$$K = K_o + c \times Y_d \quad (2)$$

where:  $K_o$  – autonomous consumption,  $c$  – marginal propensity to consume ( $d_k/dY_d$ ), assuming that (3):

$$c = 1 - s \quad (3)$$

where:  $s$  – the marginal propensity to save ( $dO/dY_d$ ), we can arrive at a savings function of the form (4):

$$O = -K_o + s \times Y_d \quad (4)$$

This would suggest (4) that saving is determined by the level of disposable income, the marginal propensity to save, and autonomous consumption. The first of these factors is particularly significant. It is widely recognised as incomes rise, household's savings increase, as well as propensity to save. Consumers only have surplus funds, which contribute to savings, after meeting their consumption and living needs. In other words, saving is also a form of delaying current consumption or sacrificing present consumption for future benefits [Mill 1957]. Assuming the autonomous nature of investments, John Keynes demonstrated how savings would be generated through the multiplier mechanism [Blaug 1994]. According to John Keynes, the main motives for saving include caution, prudence, calculation, improving well-being, independence, entrepreneurship (including speculation), pride (leaving an inheritance), or even frugality [Keynes 1956]. In the classical approach, savings are a function of the interest rate and price levels [Mill 1957]. This highlights the importance of the capital market in shaping savings.

An interesting approach to savings was presented by James Duesenberry [1949] in the relative income hypothesis. He emphasised the subjective perception of income size due to interactions between households and comparisons of one's own consumption level with neighbors and friends. Thus, the level of consumption, and therefore savings, is determined by subjective comparisons with other households. The pressure to consume

decreases when income grows faster than in the comparative environment, which in turn leads to an increase in savings [Fatuła 2002]. Meanwhile, Milton Friedman [1957], in his permanent income hypothesis, argues that consumers do not base their consumption decisions on current income but the perspective of lifetime of incomes. This means that in shaping consumption and income, wealth, human capital, and demographic and social characteristics are also considered. Savings in this case represent the difference between current income and permanent income, which is established as the average value of income earned over a longer period.

Theoretical inspiration for evaluating saving behavior can also be found in the life-cycle hypothesis by Franco Modigliani and Richard Brumberg [1954]. According to this theory, consumers' incomes are dependent on the life cycle, i.e., relatively low at the beginning and end of their lives. Savings fluctuate in this approach, influenced by changes in the consumer's life cycle, and thus are age-dependent, with consumers considering both current and expected income. Savings reach their highest levels in the middle age [Liberda 2016]. There are also behavioral theories concerning household consumption and savings. Hersh Shefrin and Richard Thaler [1978], in their economic concept of self-control, employed a model of conflict that arises when choosing between long-term and short-term preferences. They highlighted discrepancies in how savings are perceived based on time horizons, considering the associated behavioral factors.

According to research by Paulina Anioła and Zbigniew Gołaś [2013], households in Poland accumulate savings primarily out of precaution (as a reserve for unexpected situations) and prudence. In addition to income, as emphasized by the aforementioned authors, gender, age, and the education level of the household head are crucial factors shaping the propensity to save. On the other hand, Beata Świecka and Marta Musiał [2016] found that households with higher incomes do not necessarily save more, which could be due to a high sense of financial security, especially in households in large cities.

Research related to the savings of farming households focuses primarily on the level of disposable income [Kozera et al. 2016]. It is a fundamental determinant of meeting the needs of household members [Dąbrowska 2013, p. 47]. After Poland's integration into the EU, the economic situation and the level of savings in farming households improved significantly [Kozera et al. 2016]. In 2012, farming households allocated an average of 22 percentage points more (the share of savings in income increased from 6.2% to 28.1%) to savings growth compared to 2004. This indicates an improvement in the operating conditions of farming households, driven by increased real agricultural incomes, including the introduction of support mechanisms under the EU's Common Agricultural Policy (particularly direct payments). Additionally, the structure of income sources shifted, with a decline in income from social security and welfare benefits and an increase in income from paid employment [Chmielewska 2013]. The share of savings in the income

of farming households is higher, as some studies suggest [Strzelecka 2014], than in households overall, despite relatively low income levels. As Barbara Chmielewska [2000, pp. 20-27] points out, this is a consequence of the connection between the household and the farm, where consumption and production activities are intertwined. This is also associated with higher risks related to income from agriculture or even uncertainty in this area. Furthermore, Alessandra Guariglia [2001] demonstrated in her research that entities expecting a decline in future income tend to save more.

An interesting conclusion regarding the savings behavior of farming households was presented by Dariusz Fatuła [2013]. He noted that farming households often struggle to distinguish between gross operating surplus and income, treating the cash remaining after deducting business costs as household savings rather than funds allocated for further agricultural activity. This suggests a weak motivation for investment in the farm. In contrast, households that rely primarily on self-employment tend to better differentiate these categories because they are required to maintain at least simplified accounting records (e.g., income and expenditure books). Additionally, Barbara Wieliczko et al. [2020], in their research on small farms in Poland, observed that savings in these households are primarily accumulated for transactional motives, i.e., to meet the consumption needs of the household members or for precautionary reasons. Savings are rarely used for financing investments or increasing the value of farm assets. This is partly due to the fact that only when production scales up can higher savings be achieved, which, in turn, enables investments [Kolondavela and Nigatu 2017].

## MATERIAL AND RESEARCH METHODOLOGY

The data from the household's budget survey conducted by the Polish Central Statistical Office (CSO) were conducted. This survey covers households, considering various types of households. For example, in 2021, 30,867 households were surveyed, representing approximately 0.2% of the total number of households in Poland. The procedures used ensure the representativeness of the economic situation of households and their comparability over time. The household budget survey is conducted using a monthly rotation method in a quarterly cycle, meaning that different households participate in the survey each month, and after each quarter, households that participated in the monthly survey undergo an interview regarding specific expenditures.

The types of households representing the primary socio-economic groups of the population are determined based on the primary (dominant) source of income: income from paid employment (employee households), income from individual farms in agriculture (farmer households), as well as households of the self-employed, retirees, and pensioners, and those living on non-labor sources of income [GUS 2022].

Changes (increases) in household savings were estimated as the difference between disposable household income and expenditures on goods and services for consumption. These savings are considered in a broad sense, unlike approaches where savings are defined as funds in the form of deposits or other financial or non-financial assets (such as real estate purchases). Real savings were calculated using the inflation rate expressed by the index of the Consumer Price Index (CPI).

## RESULTS AND DISCUSSION

Disposable income of households increased (also in real terms) during the studied period of 2013-2022 across all the analysed groups of households (Table 1). This was due to the high economic growth during this period<sup>3</sup>, as well as the increase in social transfers (e.g., the 500+ program). The growth dynamics of per capita income in farming households were higher than in total households and in employee households. This was related to the improvement in the economic situation of farms as a result of production concentration processes, as well as relatively favorable farming conditions, reflected in the price scissors index and in increase agricultural production volume<sup>4</sup>. It was also significant that households more strongly linked to the market remained in this group. As a result of these processes, income disparity decreased, which should be assessed positively.

Although the disposable income of farming households was generally lower than total households and employee households (except for the year 2022, which was exceptionally favorable for agriculture), all savings remained at a higher level starting from 2017 (and also in 2013). This was due to the improvement in the economic situation, as well as favorable conditions in agriculture, which were partly a result of previous investments and support for the agricultural sector under the Common Agricultural Policy (CAP). The impact of macroeconomic factors on savings is also confirmed by the findings of other studies [Utzig 2014]. These studies show that between 2004 and 2013, there was a significant positive correlation in Poland between the growth rate of individual farmers' term deposits in banks (which are a part of their savings) and the real GDP growth rate.

Thus, considering that despite generally lower incomes, the level of savings in farming households was generally higher than in the other analysed groups, Keynes' absolute income theory does not hold true. This demonstrates the unique nature of farming households, as the members combine both consumption and production functions. At the household level, saved funds are not only used to meet consumption needs but also to finance farm investment activities. The permanent income theory also has limited applicability in explaining savings trends because farmers have limited ability to assess steady income, given the dynamic changes in the economic environment and related risks.

<sup>3</sup> The total growth of the real GDP in Poland over the period 2013-2022 was 43%.

<sup>4</sup> The price scissors index in 2022 was 123 (2013 = 100).

Table 1. Household's income and savings in Poland (for the years 2013-2022)

Specification	Types of households	Income and savings [PLN/person/month]										
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2022/2013
Disposable income	a	1,131	1,021	1,017	1,123	1,544	1,548	1,633	1,836	1,989	2,296	2.03
	b	1,266	1,308	1,346	1,452	1,564	1,659	1,789	1,896	2,005	2,200	1.73
	c	1,255	1,293	1,338	1,426	1,549	1,643	1,769	1,874	2,015	2,195	1.75
Savings	a	372	252	267	337	707	707	753	1,014	1,066	1,145	3.08
	b	255	287	312	372	439	533	597	749	758	757	2.97
	c	237	261	295	343	422	506	568	709	746	720	3.04
Real savings*	a	372	253	272	347	713	701	732	954	949	868	2.33
	b	255	287	315	378	438	523	573	696	670	586	2.30
	c	237	261	298	349	421	497	545	659	659	557	2.35
Rate of savings**	a	0.33	0.25	0.26	0.30	0.46	0.46	0.46	0.55	0.54	0.50	1.51
	b	0.20	0.22	0.23	0.26	0.28	0.32	0.33	0.40	0.38	0.34	1.70
	c	0.19	0.20	0.22	0.24	0.27	0.31	0.32	0.38	0.37	0.33	1.74

a – households of farmers, b – households of employees, c – total households,

\* fixed prices from 2013, \*\* ratio of savings to household disposable income

Source: own elaboration based on the CSO data [GUS 2014-2023]



On the other hand, the theory's consideration of wealth in shaping income and savings is intriguing. Doubts also arise concerning the relative income hypothesis. The subjective perception of income, influenced by interactions between households and comparisons of their consumption levels with neighbors or friend, better explains savings behavior at the microeconomic level. Meanwhile, the life cycle theory, previously mentioned, may be partially useful in examining the impact of demographic factors on farming household incomes and savings. Farms led by middle-aged individuals are more forward-looking than those where the head is older and has no successor. However, this theory does not take into account growing risks in agricultural production or the increasing importance of external factors.

It is worth noting that the propensity to save is high among farming households and was consistently higher in the analysed period compared to total households and employee households. This is also due to farmers' cautious approach to financial management because of income instability and the numerous risks associated with farming activities. Here, the precautionary and foresight motives play a more significant role. In fact, the observed trend of increasing household savings rates may be related, as Barbara Liberda [2013] notes, to the precautionary motive. This also follows from uncertainty about the continued transformation of the global economy, as well as the improvement in material conditions and the saturation of households with durable goods. Savings, as a source of financial security, make households less vulnerable to financial problems. Furthermore, it is important to note that the rate of return on savings is relatively lower compared to the return on investments [Musiał 2014]. This encourages a tendency to maximise savings in farming households so that a portion of these savings can be allocated to farm investments. This applies particularly to farms that are more market-oriented. Similar trends in the relatively high savings rates among farming households have been identified in other studies [Kozera and Wysocki 2014]. Specifically, the savings rate among households in Poland increased after 2000, and the highest savings rates (and their growth dynamics), compared to other socio-economic household types, were recorded among farming households.

These earlier findings help better understand the strategic actions of farming households. A high propensity to save serves as a form of protection against fears arising from agricultural production risks. Relatively high savings per capita are assessed differently when the production dimension of farming households is taken into account. It turns out that after covering part of the investments, relatively less is left for consumption expenses. Small farms behave somewhat differently regarding savings, as they allocate little to investments, so savings primarily serve to meet the household's consumption needs [Ryś-Jurek 2019]. In contrast, larger farms often face overinvestment, driven by the rent seeking (such as purchasing more machinery under the CAP programs) or the need to deduct of the tax (VAT).

It is important to note that the level of savings influences many decisions related to the farming business and the household. According to Jagadeesh Gokhale [2000], savings fulfill two primary functions: first, they provide economic security, and second, they lead to wealth accumulation. From this perspective, some of the savings in farming households are transferred through investments to wealth accumulation. However, this does not automatically mean reproduction of assets at least at a basic level, as assets generate depreciation costs. This depends on the farm's life cycle, the potential for succession, production scale, and the education level of the farm manager. Ngozi Odoh et al. [2020] demonstrated that the variability in farmers' saving patterns is related to their education level and agricultural experience. As farmers gain higher education, they tend to adopt higher savings patterns, which, in turn, increase the scope of accumulation within the farm.

## CONCLUSIONS

The presented research leads to the following conclusions:

1. The existing theories do not adequately explain the saving behaviors of farming households. This stems from the macroeconomic peculiarities of the land factor, particularly the combination of the productive and consumptive functions of the agricultural producer. It can be stated that only an integration of the permanent income theory, Modigliani and Brumberg's life cycle hypothesis, and the relative income hypothesis (at the microeconomic level) would present an interesting alternative. This would involve considering demographic, wealth, and psychological contexts.
2. The savings accumulated by farming households increased and were generally higher in the analysed years compared to total households and employee households, despite their typically lower income levels. This may preliminarily indicate an improvement in the economic situation of these units. However, the lower income levels suggest that the propensity to save is relatively high among farming households. This means that farmers manifest their precautionary motive through saving as part of their financial strategies. This serves as a form of protection against the risks associated with agricultural activities.
3. Farming households differ from total households and employee households in that a portion of the accumulated savings is used to finance farm investments or current expenses. As a result, this motivates farm managers to save, especially given the widespread aversion to increasing risks associated with external financing (credits). Savings in these households are transformed through investments into wealth accumulation. Consequently, the actual savings available for non-agricultural purposes are lower than those of total households or employee households. This

applies to farming households whose income primarily comes from agriculture. It is important to note that this group is highly diverse, with some achieving income overparity and significant savings.

4. Future trends in household savings will increasingly depend on demographic factors (such as household size and the presence of a successor) and global factors. The latter, in the context of increasing variability in farming conditions, including agricultural prices, should encourage a greater propensity to save, though this will not always translate into a real increase in total savings. A key question remains: how will the predicted evolution of the Common Agricultural Policy (CAP) instruments affect future savings levels in farming households? Farmers' concerns about the direction of changes in the EU's CAP, particularly related to the European Green Deal, have been reflected in numerous protests across EU member states. It may turn out that the costs of implementing the proposed solutions will not be adequately compensated by financial support, which could negatively impact the economic situation of farming households and lead to a significant decline in savings.

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## OSZCZĘDNOŚCI GOSPODARSTW DOMOWYCH ROLNIKÓW NA TLE WYBRANYCH GRUP GOSPODARSTW DOMOWYCH

Słowa kluczowe: gospodarstwo domowe rolnika, oszczędności, dochody, wspólna polityka rolna, Polska

ABSTRAKT. Celem artykułu jest zdiagnozowanie dynamiki oszczędności gospodarstw domowych rolników w Polsce na tle innych typów (grup) społecznych gospodarstw. Podjęto próbę odniesienia wyników empirycznych do wybranych teorii dochodowych. Wykorzystano w tym przypadku dane „Budżetów gospodarstw domowych” GUS. Stwierdzono, że istniejące teorie nie odpowiadają zachowaniom rolników gospodarstw domowych w zakresie oszczędności. Można stwierdzić, że interesującą alternatywę stanowiłaby integracja teorii dochodu permanentnego, hipotezy cyklu życia Modiglianiego i Brumberga oraz dochodu względnego. Wypracowane oszczędności w gospodarstwach domowych rolników, pomimo niższego poziomu dochodów, zwiększały się i były w analizowanych latach na ogół wyższe w porównaniu do gospodarstw ogółem oraz pracowniczych. Natomiast poziom dochodów był na ogół niższy, co sprawia, że w grupie gospodarstw domowych rolników skłonność do oszczędności była relatywnie wysoka. Gospodarstwa domowe rolników na tle gospodarstw domowych ogółem oraz pracowniczych różnią się tym, że część wypracowanych oszczędności przeznaczana jest na finansowanie inwestycji i bieżących wydatków w gospodarstwie rolnym. W konsekwencji motywuje to kierowników tych gospodarstw do oszczędzania, w sytuacji powszechnej awersji do zwiększania ryzyka związanego z korzystaniem z zewnętrznych źródeł finansowania (kredyty).

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