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THE ECONOMIC SITUATION OF HOUSEHOLDS IN POLAND

Key words: economic welfare, income and asset situation, available income, household expenditure, socio-economic groups TOPSIS

ABSTRACT**.** The aim of this article was a one-dimensional and multidimensional assessment as well as a diagnosis of the economic situation of households according to socio-economic groups in Poland in the years 2009-2019. In the first stage of the research, the development of objective indicators reflecting the economic welfare of households was analyzed. The analysis of the economic situation of households included indicators of the income and expenditure situation in equivalent terms, the expenditure structure, measures of housing welfare including access to durable goods in households and average usable floor area of household per 1 person in m². In the second stage of the research, with the help of the classic TOPSIS (the Technique for Order of Preference by Similarity to the Ideal Solution) method, a synthetic measure of the economic situation of the studied aggregate units (socio-economic groups) was built. On the basis of the value of the synthetic measure, a linear arrangement of studied aggregate units was performed, considering variables related to the economic situation of households. The analysis was prepared on the basis of data derived from household budget surveys conducted by Statistics Poland (GUS). The research covered data from the 2009-2019 period. The performed analysis, both one-dimensional and multidimensional, proved that in considerably the best economic situation in the studied period were households of self-employed persons and households of white-collar workers. However, in the worst financial situation were households of pensioners, which occupied the lowest positions in the ranking created on the basis of the value of the synthetic measure.

INTRODUCTION

The welfare of individuals and the improvement of welfare distribution in society is the most important goal of the economic and social policy of the state, which should be implemented in the process of socio-economic development. Prosperity expresses the relationship between economics and society, and between the activity aimed at producing wealth and its use. Alternative methods have been sought for decades to enable and

be valuable in measuring economic development, including welfare. Attempts to define welfare show controversy, and the subject of discussion is what should be considered when measuring it. So far, in many studies, economic welfare has most often been measured by the GDP per capita indicator, but due to the shortcomings of this indicator, the inability to fully reflect welfare has been pointed out [Talberth et al. 2007, Stiglitz et al. 2013, Van den Bergh, Miklós 2014, Giannetti et al. 2015, Frajman Ivković 2016, Aitken 2019]. For this reason, research on the economic welfare of households seems to be important, as it can be the basis for showing differentiation in society.

In the study of household welfare, in addition to the level of income and expenditure, other measures determining the material dimension of the living standards of household members should be taken into account, as indicated by contemporary transformations in the socio-economic sphere of societies, the growing interest in the sustainable development of the country and the change of focus in statistics from measuring the overall volume of production (for which GDP is used) to measuring what shapes the welfare of people now and in the future [Kania 1995, Rusnak 2007, Cambir, Vasile 2015, Perry 2016]. In addition to linking it to real household income and consumption, analyses of household welfare also recognize measures related to access to public services, education, transport [Zacharias, Masterson 2009, Salnikova 2019], the completion of studies [Anderloni et al. 2012, Karimli et al. 2020], access and use of the Internet [Ma et al. 2020], access and ability to use credit [Baye 2013, Kumar et al. 2020], access to networks of power and authority, linking social capital [İzmen, Üçdoğruk Gürel 2020], access to health care and the opportunity to take advantage of it [Tambo et al. 2019] or even the number of insured people in households [Amaya-Lara 2016]. Research on economic welfare also recognizes the importance of subjective measures of economic welfare and their relationship between objective and subjective measures [Frey, Stutzer 2002, Di Tella, MacCulloch 2006, Clark et al. 2008, Xiao 2013]. The analysis of welfare in terms of subjective measures is mentioned by many authors in their works (Martin Ravallion and Michael Lokshin [1999], So-Hyun Joo and John E. Grable [2004], Laura Howe and team [2011], Siti Nurazira Mohd Daud and co-authors [2018], Nurul Shahnaz Mahdzan and team [2019]). Then financial literacy, financial behavior, a sense of control, risk tolerance, financial solvency, consumer inability to meet household needs, coping with unexpected expenditure, survival in the event of a crisis, financial stress, perceptions of food consumption and the issue of the social ladder are considered in welfare analysis [Amaya-Lara 2016][1].

The objective indicators showing economic welfare include: the indicator of the income situation (the indicator of real available income, the indicator of relative available income), the indicator of the expenditure situation (the indicator of real expenditure on consumer goods and services), access to selected goods in households (TV sets, personal computers, devices with access to the Internet, mobile phones, automatic washing

[1] The analysis in this article focuses solely on objective measures.

machines, dishwashers, passenger cars) or the indicator of the housing situation (the average usable floor area of the household per 1 person in m²) [Rusnak 2007]. However, current trends make some goods, such as a TV or washing machine, no longer fully synonymous with affluence, but quite contrarily, their absence being a result of a conscious decision [Borowska et al. 2020, p. 102].

The economic behavior of households is determined by many external (macrostructural functioning conditions) and external factors (socio-demographic characteristics of a household's members, aspirations, needs and psychological predispositions) [Grotowska-Leder 2011, p. 184]. The economic situation of households is a complex and multidimensional concept and, unlike the financial situation, is not the subject of many analyses. It should be emphasized that many of them examine the economic situation of households using the survey method or the interview questionnaire, also including the level of available income, consumption expenditure and their structure.

It is observed that in the literature as well as in common sources of knowledge, finding a definition of the economic situation of households is complicated due to the fact that these entities function slightly differently from enterprises. The analyses carried out so far indicate that there is no single universally accepted method of analyzing the economic situation of households, which is why it is often analyzed in different ways in the literature. A lack of consensus in this area means that studies conducted on the economic situation of households can lead to different results.

Barabar Podolec and Agnieszka Wałęga [2011] performed an analysis of the economic situation of households living on unearned sources. Research showed that the individual characteristics of households have an impact on the development of available income and expenditure, which varies considerably by the main source of livelihood. It was also found that households whose main source of income is unearned sources are not a homogeneous group in terms of income and also includes, apart from retirees and pensioners, households living on property ownership or rent or other social benefits. These households are characterized by the lowest average level of available income of all economic and social groups of households and a high level of dispersion, with consumption expenditure following a similar pattern as in other household groups. It should be emphasized that the concept of the economic situation is identified with the concept of the material situation (while omitting household assets, e.g., household equipment) [Podolec, Wałęga 2011]. Paweł Ulman [2016] conducted his analysis on the economic situation of households according to their biological type based on data from the „Social Diagnosis 2013" research and data from the household budget study. The study has shown that the economic situation of families and their households cannot be analyzed separately from other aspects of family life and functioning, and that shortfalls in the economic sphere are a significant threat to the efficient functioning of the family. A high share of poor large households was observed and the need to provide the necessary and

comprehensive family assistance, in particular for large families, in the form of family support programs, was highlighted. It was also concluded that the worst economic situation was characterized by households of married couples with many children and cohabiting households with dependent children, but the deficiencies in equipment mostly affected households of married couples without dependent children and one-person households, which was probably due to the presence of older people and less involvement in providing themselves with modern living conditions [Ulman 2016].

Therefore, to assess the economic situation of the household, as in a company, in addition to the analysis of the household budget, it is also necessary to refer to the balance sheet of the household. The balance sheet is understood as the resources of tangible and intangible (as well as financial) goods that constitute the common value of a household. In macromodels, on the other hand, the concept of household assets is considered the sum of housing and financial assets [Zachłod-Jelec 2008, p. 33]. It is worth noting that assets can be reported in two ways – in value (monetary) units and in natural units, i.e., as they actually exist, e.g., .

The aim of this article is to assess the economic situation of households in Poland according to socio-economic groups. In this publication, the economic situation of households is considered as one that applies to the analysis of the household budget and balance sheet, i.e., to a financial situation (analyzed in value terms) and asset situation (analyzed in natural units). Economic situation analysis has been associated with the study of economic welfare in objective terms.

The values determining the income situation of households (the level of available income and the share of income received from social assistance benefits and social security benefits) and the expenditure situation of households (the share of particular expenditure in total expenditure, e.g., on food, the use of housing and energy carriers and transport), as well as particular measures used to illustrate the economic welfare of household members (e.g., an average usable floor area of the household and a household equipped with durable goods).

The classical TOPSIS method was used to synthetically assess the economic situation of groups of households. In the first stage of the research, the indicators determining the level of economic welfare of households were compared with socio-economic groups in one-dimensional terms in the years 2009-2019. In the second stage of the research, a multidimensional assessment of the economic situation of households was carried out on the basis of the value of the synthetic index constructed by the TOPSIS (Technique for Order Preference by Similarity to an Ideal Solution) method.

RESEARCH MATERIAL AND METHODS

The research problem under consideration has been developed on the basis of published data derived from surveys of household budgets conducted by Statistics Poland (GUS), in Warsaw, in the years 2009-2019. In order to implement the research problem posed, a classification of groups of households due to their economic situation was conducted with the application of the classical TOPSIS method. A deflation procedure was performed, which made it possible to adjust current values of income and expenditure for inflation.

A multidimensional assessment of the economic situation of households was made on the basis of the value of the synthetic index constructed by the TOPSIS (Technique for Order Preference by Similarity to an Ideal Solution) method [Hwang, Yoon 1981, Wysocki 2010], in which the distances of each object (household) from the adopted pattern and anti-pattern of development are the basis for determining the value [cf. Głowicka-Wołoszyn et al. 2018, Wołoszyn et al. 2019]. On the basis of data from the „Household budget survey", aggregate units were established: households of white-collar workers (pnsnr), blue-collar workers (pnsr), farmers (rol), self-employed persons (pnwr), retirees (em) and pensioners (ren)[2].

The construction of the synthetic index was based on the values of the sub-indices (Table 1). The coefficient of variation was taken into account in the statistical evaluation. The variables: X_{13}, X_{17}, X_{20}, X_{21} were discarded due to a low degree of variation. In order to eliminate excessively correlated variables, the inverse matrix of correlation coefficients between the assumed variables was determined. On the basis of analysis of diagonal elements of this matrix, the following variables were removed from further research: X_1, X_2, X_4, X_6, X_8, X_{10}, X_{13}, X_{16}, X_{17}, X_{18}, X_{19}, X_{20}, X_{21}, X_{22} and X_{23}. As a result, 8 variables[3] were accepted for further research, two of which were considered to be destimulants (X_5, X_7), while the remaining were considered to be stimulants of the economic situation of households.

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[2] Thus, 66 groups of households (aggregate units) were created and subjected to analysis.

[3] The following variables were employed for further analyses:
X_3 (the savings rate in %),
X_5 (the level of income from social assistance benefits in PLN/person/month),
X_7 (the share of expenditure on alcoholic beverages, tobacco and drugs in total expenditure in %),
X_9 (the share of expenditure on recreation and culture in total expenditure in %),
X_{11} (the share of expenditure on restaurants and hotels in total expenditure in %),
X_{12} (the share of expenditure on transport in total expenditure in %),
X_{14} (the share of persons with a higher education in %),
X_{15} (the average usable floor area occupied by a household per person in m^2).
All variables forming the synthetic index had the same weights.

Table 1. Sub-indices of the economic situation of households

Sub-indices of the economic situation of households	
X_1	The level of disposable income in PLN per person per month in equivalent terms (income)
X_2	The level of total expenditure in PLN per person per month in equivalent terms (expenditure)
X_3	The saving rate in % (savings)
X_4	The share of revenue from social insurance benefits in disposable income in % (social insurance benefits)
X_5	The level of income from social assistance benefits in PLN per person per month (social assistance benefits)
X_6	The share of expenditure on food and non-alcoholic beverages in total expenditure in % (food)
X_7	The share of expenditure on alcoholic beverages, tobacco products and drugs in total expenditure in % (stimulants)
X_8	The share of expenditure on housing and energy in total expenditure in % (housing and energy)
X_9	The share of expenditure on recreation and culture in total expenditure in % (recreation and culture)
X_{10}	The share of expenditure on education in total expenditure in % (education)
X_{11}	The share of expenditure on restaurants and hotels in total expenditure in % (restaurants and hotels)
X_{12}	The share of expenditure on transport in total expenditure in % (transport)
X_{13}	The share of expenditure on communication in total expenditure in % (communication)
X_{14}	The share of people with a higher education in % (education)
X_{15}	The average usable floor area occupied by a household per 1 person in m^2 (area of the household)
X_{16}	The average number of household members per 1 room
X_{17}	The share of households equipped with a TV set in % (TV set)
X_{18}	The share of households equipped with a personal computer in % (computer)
X_{19}	The share of households equipped with a device with internet access in % (Internet)
X_{20}	The share of households equipped with a mobile phone in % (phone)
X_{21}	The share of households equipped with a washing machine in % (automatic washing machine)
X_{22}	The share of households equipped with a dishwasher in % (dishwasher)
X_{23}	The share of households equipped with a car in % (car)

Note: the color indicates the sub-indices of the economic situation of households, which were ultimately adopted to create a synthetic measure
Source: own study

In order to make the values of sub-indices comparable, they were normalized using the zero-based unitization procedure [Kukuła 2000] for:

stimulant: $z_{ik} = \dfrac{x_{ik} - \min\limits_{i}\{x_{ik}\}}{\max\limits_{i}\{x_{ik}\} - \min\limits_{i}\{x_{ik}\}}$

destimulant: $z_{ik} = \dfrac{\max\limits_{i}\{x_{ik}\} - x_{ik}}{\max\limits_{i}\{x_{ik}\} - \min\limits_{i}\{x_{ik}\}}$

where: $i = 1, 2, \ldots, k = 1,2,\ldots, m,$

$\min\limits_{i}\{x_{ik}\}$ – the minimum value of the *k*-th feature,

$\max\limits_{i}\{x_{ik}\}$ – the maximum value of the *k*-th feature.

Minimum and maximum values were determined on the basis of the values of all groups of features during all the analyzed years.

As model values (pattern and anti-pattern values), maximum and minimum values for each of the partial indicators were adopted:

$$A^{+} = \left(\max_{i}(x_{i1}), \max_{i}(x_{i2}), \ldots, \max_{i}(x_{ik})\right) = (z_1^{+}, z_2^{+} \ \ldots, z_k^{+})$$

$$A^{-} = \left(\min_{i}(x_{i1}), \min_{i}(x_{i2}), \ldots, \min_{i}(x_{ik})\right) = (z_1^{-}, z_2^{-} \ \ldots, z_k^{-})$$

The Euclidean distances of each object (household) from the assumed model values were then calculated for the individual financial situation sub-indices:

From a pattern: $d_i^{+} = \sqrt{\sum_{k=1}^{K}(z_{ik} - z_k^{+})^2}$

From the anti-pattern: $d_i^{-} = \sqrt{\sum_{k=1}^{K}(z_{ik} - z_k^{-})^2}$

where: $i = 1;\ldots; N$

In the next step, for each socio-economic group of households in 2009-2019, the values of the synthetic index of the economic situation were calculated according to the TOPSIS method:

$$q_i = \frac{d_i^{-}}{d_i^{+} - d_i^{-}}$$

where: $i = 1, \ldots, N$, a $0 \leq q \leq 1$.

On the basis of the obtained values of the synthetic index, a linear arrangement of groups of households was made in terms of the synthetic assessment of the economic situation. A statistical criterion was applied, employing the arithmetic mean and standard deviation s_q of the values of the synthetic index for all households in Poland [Wysocki 2010]. In this way, four classes of assessment of the economic situation of households were distinguished:

I (high assessment of the economic situation):	$q_i \geq \bar{q} + s_q$
II (medium-high assessment of the economic situation):	$\bar{q} \leq q_i < \bar{q} + s_q$
III (medium-lower assessment of the economic situation):	$\bar{q} - s_q \leq q_i < \bar{q}$
IV (low economic assessment):	$q_i < \bar{q} - s_q$

FINDINGS

Figure 1 presents the disposable income of households per equivalent unit[4], i.e., income in terms that enable a comparison between different households taking into account its demographic structure. The amount of income reflects the economic rank of the household, its wealth and the possibility of satisfying the needs of its members, and its higher values indicate a better economic situation of the household.

In the years 2009-2019, households by socio-economic group were characterized by a 26.7% variation in generated equivalent income, with the highest variation in these years recorded in the households of farmers (19%) and the lowest in the households of retirees (10%) and households of white-collar workers (8%) (Table 2, Table 4).

Households of self-employed persons and white-collar workers were in the best income situation, while the worst situation was observed in the households of pensioners. The best material situation in the above households is confirmed by the relative income indicator demonstrating that the income of these households in 2019 is higher than the income of households in general by about 26% and 20%, respectively. The main determinant of the best income situation can be seen in the level of education. The share of people with a higher education in these households amounted to about 22-44%, and this share increased over the years. In the group of farmers and blue-collar workers, the percentage of people

[4] Equivalent units are parameters that enable the material situation of households that differ in size and demographic composition to be compared with each other. They illustrate the impact of the demographic composition on a household's cost of living. The presented data consider the modified OECD equivalence scale, which was calculated as follows: 1 – to the first adult in the household, 0.5 – to the second and each subsequent household member aged 14 or over, 0.3 – to each child aged under 14 [GUS 2019, p. 272].

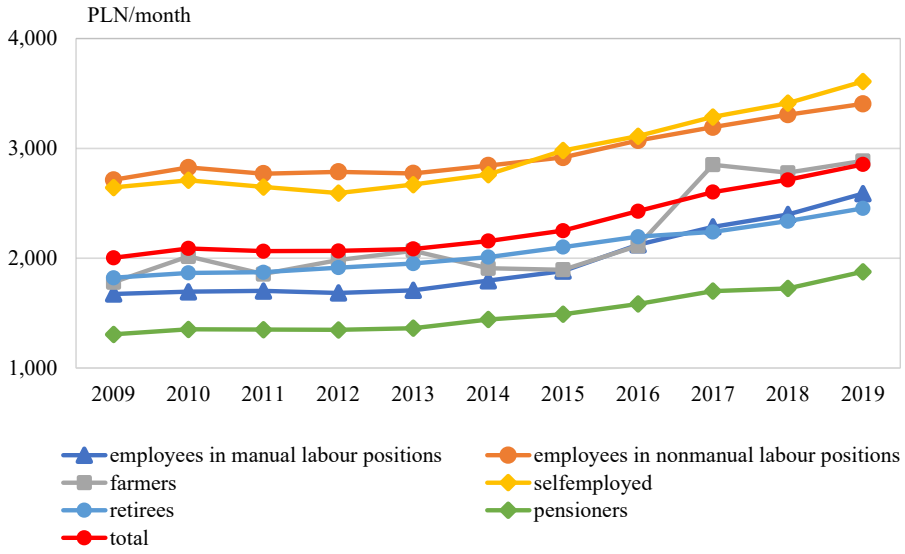

Figure 1. The level of average monthly disposable income per equivalent unit in socio-economic groups and in total in real terms

Source: own study based on [GUS 2009-2019]

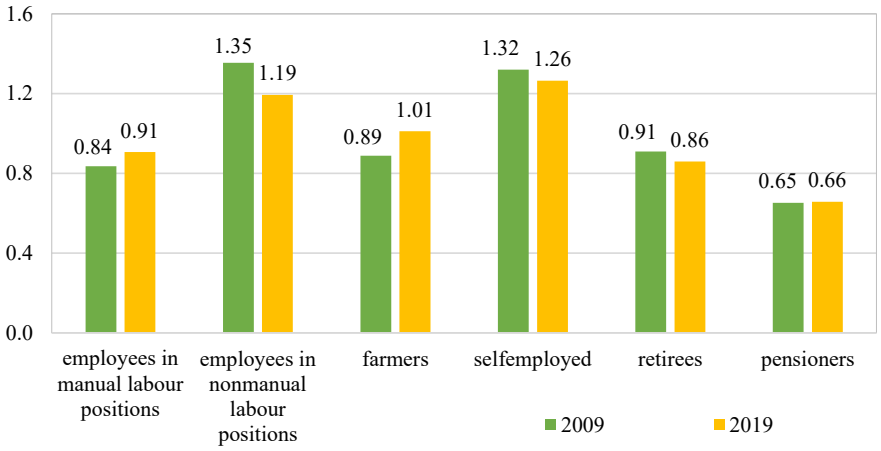

Figure 2. The index of relative disposable income* of households by socio-economic group (compared to the disposable income of all households in Poland) in 2009 and 2019

* The index of relative disposable income is the quotient of the equivalent disposable income per person for a given socio-economic group of households and the corresponding equivalent disposable income for all households [Rusnak 2007]

Source: own study based on [GUS 2009, 2019]

with a higher education reached 4-8%, while in the group of pensioners it amounted to 4-5% [GUS 2009-2019].

Part of the disposable income of households is income from social assistance benefits, e.g., unemployment benefits, housing allowances, child-support benefits or maintenance payments. Social assistance is an instrument of the social policy of the state, which is intended for individuals and families in need of support in difficult life situations and takes action in situations where basic life needs of households are threatened, thus contributing to the levelling of excessive social disparities.

The highest level of income from social assistance in 2009-2019 was recorded in households of blue-collar workers (PLN 81-288/month), while the lowest level was recorded in households of retirees (PLN 34-68/month). It should be emphasized that the level of income from this benefit has risen sharply in all households since 2016. The reason can be attributed to the introduction of the child-support benefit "Family 500+" since 1 April 2016, aiming at providing financial assistance to partially cover expenditure related to raising children and meeting their dietary needs [Journal of Laws 2017, item 1851].

The highest increase in income per equivalent unit in 2019 compared to 2009 was observed in the households of farmers (62%), white-collar workers (55%) and retirees (44%) (Table 2).

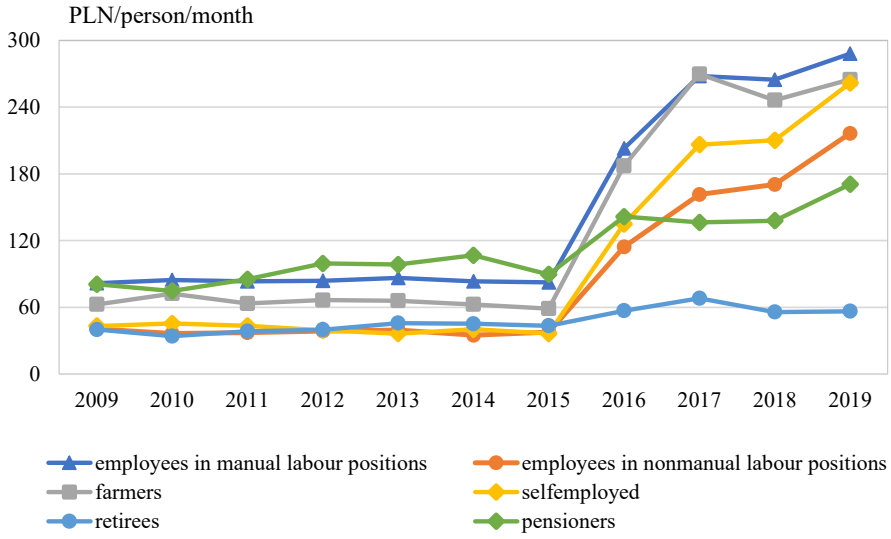

Figure 3. The level of generated income from social assistance benefits per equivalent unit in households in Poland in the years 2009-2019 according to socio-economic groups in real terms

Source: own study based on [GUS 2009-2019]

Table 2. The change dynamics of average monthly disposable income per equivalent unit in households by socio-economic groups in real terms in Poland in the years 2009-2019

Socio-economic group	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2019
	preceding year = 100										2009 = 100
Average monthly disposable income (per equivalent unit) [%]											
Blue-collar workers	101.2	100.4	99.0	101.4	105.1	104.9	112.7	107.7	105.0	107.9	154.6
White-collar workers	104.1	98.0	100.6	99.5	102.6	102.5	105.3	103.9	103.6	103.0	125.5
Farmers	113.2	92.0	106.9	104.2	92.3	99.3	111.5	135.0	97.4	103.9	162.0
Self-employed persons	102.5	97.7	97.9	103.0	103.5	107.9	104.4	105.6	103.9	105.7	136.5
Retirees	102.5	100.3	102.2	101.9	103.0	104.5	104.5	102.0	104.4	105.0	134.7
Pensioners	103.5	99.8	99.8	101.2	105.9	103.3	106.3	107.4	101.4	108.8	143.6
Level of income from social assistance benefits [PLN/person/month]											
Blue-collar workers	90.1	101.9	103.6	102.8	88.0	107.7	303.6	141.2	105.5	127.0	532.6
White-collar workers	103.5	98.7	100.6	103.1	96.4	98.9	246.2	132.0	98.7	108.9	352.6
Farmers	115.4	87.7	104.8	99.2	94.9	94.0	318.1	144.1	91.3	107.5	422.6
Self-employed persons	105.1	95.4	90.9	92.2	110.7	90.6	369.9	152.9	101.9	124.5	605.5
Retirees	85.2	112.8	103.9	114.6	98.9	96.0	131.2	119.5	81.8	101.3	141.0
Pensioners	92.5	114.1	116.6	99.1	108.4	83.9	157.9	96.4	101.1	123.7	211.1

Source: own study based on [GUS 2009-2019]

Household income is the main factor which, by virtue of its dimension, dynamics and distribution over time or destination constitutes the material premise of expenditure and consumption behavior. The disposition of income by household members depends on many of the characteristics of a particular household. Thus, a similar level of their expenditures may be allocated in different ways in terms of the directions of their allocation. Expenditures on food and non-alcoholic beverages, household equipment and energy carriers, transport and communication constitute between 62% and 66% in households, but their share decreases over the years.

Table 3. The structure of average monthly equivalent expenditure in households by socio-economic groups in Poland in 2009 and 2019

Socio-economic group	Year	The share of individual expenditure in total expenditure [%]									
		food and non-alcoholic beverages	alcoholic beverages, tobacco products and drugs	clothing and footwear	housing and energy carriers	household equipment and management	health	recreation and culture	restaurants and hotels	transport	communication
Blue-collar workers	2009	28.3	3.4	5.2	19.7	5.2	3.6	7.2	1.8	9.4	4.8
	2019	27.2	2.9	5.0	17.5	5.7	3.7	5.6	4.1	10.4	5.1
White-collar workers	2009	20.6	2.3	6.5	16.7	6.0	4.3	10.0	2.9	12.7	4.4
	2019	21.9	2.1	5.8	16.2	6.1	4.5	8.0	5.9	11.3	4.1
Farmers	2009	33.4	2.5	6.1	16.8	5.7	4.0	5.8	0.8	9.3	4.6
	2019	31.6	2.4	5.6	13.8	5.9	4.7	4.9	2.5	11.4	4.6
Self-employed persons	2009	21.1	2.4	6.3	17.9	5.7	4.0	10.1	2.8	11.9	4.9
	2019	21.4	2.2	6.0	15.6	5.7	4.0	9.2	6.7	11.1	4.1
Retirees	2009	28.1	2.6	3.3	22.8	5.0	7.9	6.2	1.1	6.1	4.3
	2019	28.3	2.6	3.1	20.8	5.2	8.0	5.4	3.3	7.0	4.1
Pensioners	2009	30.8	2.8	3.0	24.6	4.5	7.5	5.4	1.3	4.6	4.5
	2019	30.4	2.9	3.0	22.0	5.2	7.8	4.5	3.8	4.7	4.6

Source: own study based on [GUS 2009, 2019]

Expenditure on food and non-alcoholic beverages accounts for the largest share of household expenditure. The highest share of food expenditure in total expenditure in 2009-2019 was recorded in the households of farmers (31-33%) and pensioners (30-31%), while the lowest in the households of white-collar workers (20-22%) and self-employed persons (21-22%) (Table 3). The reason for such a high burden of farmer expenditure on food can be associated with their low disposable income. However, the significant role of the self-supply phenomenon in farmer households should also be underlined, as food produced on one' s own farm is usually unlimited, which translates into its higher consumption than the income situation suggests [Kozera 2014, after Gulbicka, Kwasek 2000] (Figure 4). It is reported that households of farmers present the highest consumption in three of the four basic groups, i.e., bread and cereal products (the main source of carbohydrates), meat and meat preparations (the main source of animal protein) and vegetables. It is also noted that the consumption of the above goods in 2019 per equivalent unit amounted to 10. 6 kg, 10 kg and 14.3 kg in the farmer group, respectively (Figure 4).

It has been observed that the share of expenditure on food in total expenditure has decreased over the years in groups where the greatest increase in income was observed, i.e., in households of blue-collar workers, farmers and pensioners, while in the most affluent households, i.e., in households of white-collar workers and self-employed persons, this

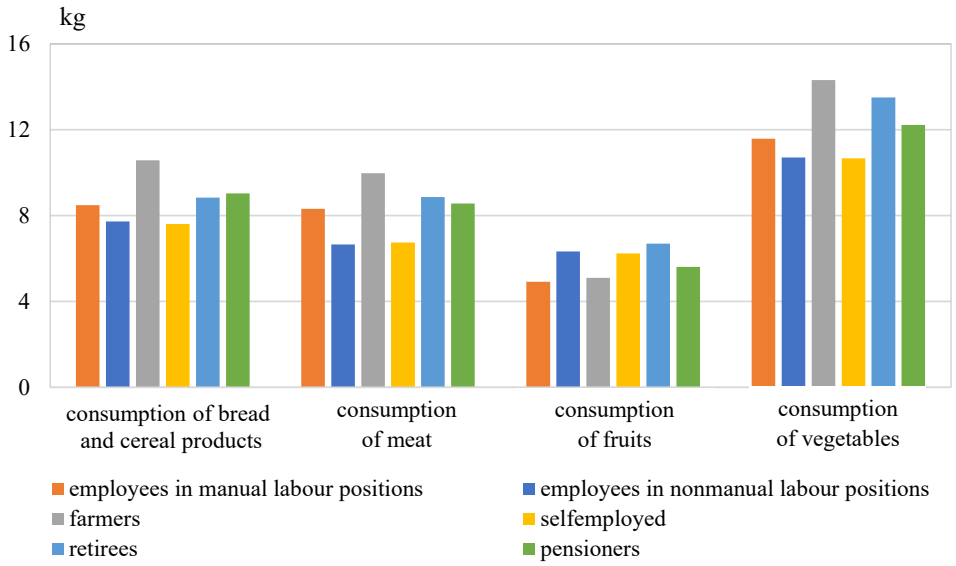

Figure 4. The average monthly equivalent consumption of some food items in households by socio-economic groups in 2019

Source: own study based on [GUS 2019]

share has increased. The reason for such a situation may be the shifting demand from cheaper to more expensive food, i.e., with an increase in wealth, the requirements of households increase and, thus, their inclination to buy more expensive items, e.g., the purchase of exotic products, increases. A significant increase in the popularity of organic food, which is more expensive than industrially produced food, may also constitute a stimulant for the situation discussed above.

Among the remaining most important expenditures in total expenditures are expenditures on housing, transport and communication. In all analyzed groups, the share of expenditure on housing and energy carriers decreased. However, the share of expenditures on transport and communication has increased, with the exception of households of white-collar workers and self-employed persons (Table 3). According to Zofia Rusnak [2007], the simultaneous increase in the share of expenditures on housing and energy carriers, transport and communication probably means that there has been no improvement in the level of consumption of higher-order goods, but only a shift of funds to expenditures related to the satisfaction of such needs [Rusnak 2007, p. 177]. Therefore, it can be concluded that there has been an improvement in the level of consumption of higher-order goods in households of white-collar workers and self-employed persons, which is reflected in the presented measure.

An increase in the share of expenditure on recreation and culture, as well as restaurants and hotels, which are considered needs of a higher order, also indicates the improving situation of households. The share of expenditure on education (about 70%) is also clearly differentiated among the analyzed households, reaching only 0.2% in households of retirees and pensioners, which constitutes an understandable situation. However, a similarly low share of expenditure for this purpose was recorded in the households of farmers (0.5-1%) and blue-collar workers (0.8-1.2%), while members of households occupied by self-employed persons allocated the highest amount for this purpose (2.3%).

An important issue in the analysis of the economic situation is also the surplus of income generated over expenditure incurred in a given period. It is observable that during the whole analyzed period, the largest share of savings in the structure of disposable income distribution occurred in farmer households (20-46%), which is a result of the specific nature of the interaction between a household and a farm. In this case, the household and the farm render non-market services to each other; moreover, in the case of a family farm, this entails common interests, ownership ties and the subordination of various spheres of life between the household and the farm [Leszczyńska 2007, p. 27]. Therefore, it is probable that the setting aside of cash resources by farmers is mainly caused by the uncertainty of future revenues from the farm, which are generated by sales and are subject to seasonal fluctuations depending on the conditions of farm management in a given year and, consequently, by the accumulation of capital to finance consumption and investment expenditure related to managing the household. However, the lowest savings rate was observed in the households of pensioners (4-19%).

Table 4. The coefficient of variation of simple characteristics describing the economic situation of households in Poland in 2009-2019

Specification	Socio-economic groups					
	blue-collar workers	white-collar workers	farmers	self-employed persons	retirees	pensioners
Disposable income	17.0	8.1	19.4	12.1	10.2	12.7
Expenditures	8.5	2.5	5.5	4.4	4.4	7.7
Savings	27.2	20.4	28.2	26.9	26.8	43.9
Social assistance	60.9	81.1	71.2	87.1	21.6	27.8
Food	2.8	2.1	2.9	1.0	2.3	2.9
Housing and energy	5.7	3.3	9.6	5.5	4.8	5.6
Recreation and culture	12.6	10.7	8.7	7.7	6.8	9.4
Education	16.8	8.9	17.8	10.1	37.8	45.9
Restaurants and hotels	33.7	27.5	46.8	31.2	42.5	43.4
Transport	5.3	6.4	9.4	12.0	6.9	4.7
Communication	9.7	9.7	6.8	10.5	6.7	6.9
Household floor area	5.6	3.0	5.8	4.5	5.0	7.8

Source: own study based on [GUS 2009-2019]

When analyzing the economic situation of households, apart from the analysis of their budget, it is also necessary to refer to their asset (housing) situation. In the analysis of the asset situation, such indicators as: the average usable floor area occupied by a household, the average number of persons per 1 room and providing them with durable goods (a TV set, a personal computer, devices with Internet access, a mobile phone, an automatic washing machine, a dishwasher and a car) will be considered.

Considering the indicator of the average usable floor area occupied by a household, it has been observed that their housing situation, analyzed by means of this indicator, is improving. The largest usable area is characteristic of households of farmers (about 113-135 m^2) and the self-employed (about 92-105 m^2), while the smallest are households of retirees (about 62-66 m^2) and pensioners (about 64-73 m^2) (Figure 5).

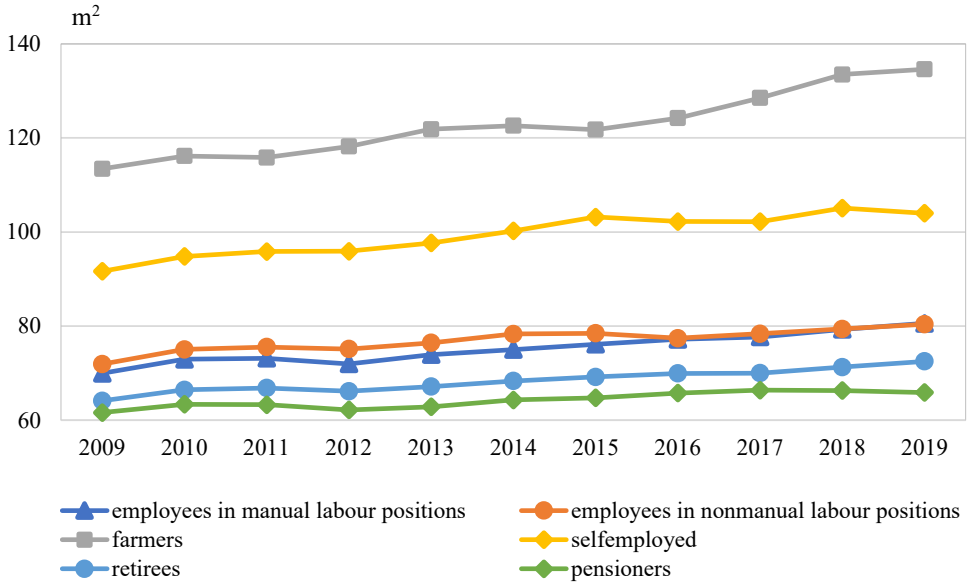

Figure 5. Average usable floor area occupied by a household
Source: own study based on [GUS 2009-2019]

However, when analyzing the usable floor area per person, it was determined that the largest area concerns households of pensioners (approximately 33-41 m²/person) and retirees (approximately 34-40 m²/person), which is probably due to the fact that these are households of elderly people (residing in the household for generations), which is confirmed by the fact that these are 2-3 room households, in which there are 0.6-0.8 persons per room (data from the "Household budget survey" [GUS 2009-2019]). However, the households of farmers and self-employed persons consist on average of 3-5 rooms, with almost 1 person per room, which means that they include mostly households with children (which is also indicated by a high level of income from social assistance benefits) (Figure 6).

To evaluate the economic situation of households, indicators indicating the percentage of households equipped with durable goods are also applied. When analyzing the equipment of households with durable goods, i.e., TV sets, personal computers, devices with Internet access, mobile phones, automatic washing machines, dishwashers and cars, it has been noticed that the households of white-collar workers and self-employed persons are best equipped, while the households of retirees and pensioners are definitely most poorly equipped, although the level of equipment is improving over the years.

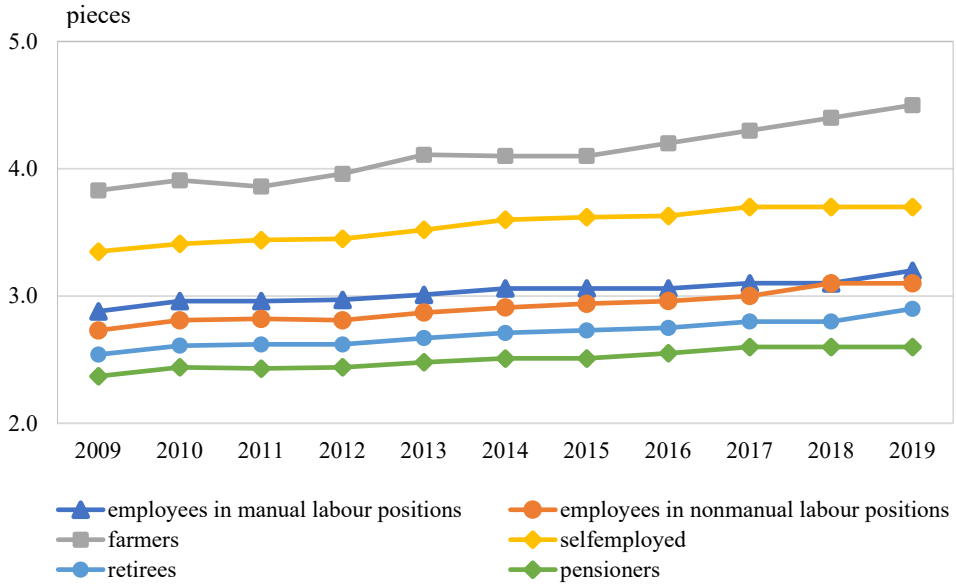

Figure 6. Average number of usable rooms in a household
Source: own study based on [GUS 2009-2019]

Among the aforementioned durable goods, a mobile phone is the most common in households, possessed by 66-99% of households in 2009, while in 2019 – by 90-100% of households. Households that are least equipped with a mobile phone are households of retirees (67-93%) and pensioners (66-90%), but it is observed that, over the years, the equipment of the households of these people with a mobile phone increases. The reason for this low level of equipment may be attributed to their financial situation, the fact that they have a landline or a lack of skills in using this type of equipment, which is becoming more technologically advanced over time.

The second most common durable good in households is the automatic washing machine, about 91-97% of households were equipped with this appliance in 2019, compared to 79-98% in 2009. It was noted that the percentage of equipped families of white-collar workers and of self-employed persons with this equipment decreased by about 1 p.p. and almost 4 p.p. respectively, which is probably due to their use of laundry services of outlets located in shopping centers, among other things.

Equipment with a TV set is at a high level in all families, but in the households of the most affluent, i.e., white-collar workers and self-employed persons, the provision of these goods is decreasing over the years (Table 3). This is probably due to the ability of

Table 5. Households equipped with selected durable goods by socio-economic groups

Socio-economic group	Year	Durable goods in a household [%]				
		TV set	personal computer	mobile phone	automatic washing machine	passenger car
Blue-collar workers	2009	99.5	73.1	97.9	91.8	65.9
	2019	98.0	84.2	99.6	96.0	79.3
White-collar workers	2009	97.6	90.4	99.3	96.9	76.1
	2019	91.9	93.4	99.7	95.8	82.1
Farmers	2009	99.4	68.6	94.1	85.7	90.1
	2019	99.7	83.9	99.6	96.7	94.4
Self-employed persons	2009	98.4	89.8	98.5	97.6	90.8
	2019	94.9	93.8	99.1	93.8	91.1
Retirees	2009	99.0	26.7	66.9	83.4	35.6
	2019	98.5	44.3	93.0	94.1	46.8
Pensioners	2009	98.8	26.8	65.9	78.7	23.2
	2019	97.4	34.0	89.5	90.7	24.6

Source: own study based on [GUS 2009, 2019]

these families to purchase more modern technological equipment and the accessibility of the Internet, and thus to benefit from, for example, the functions of a laptop or computer, which can be used to watch television, series and movies. This is confirmed by the fact that households are increasingly better equipped with personal computers and devices with Internet access and, thus, online access to films, television and series prompts household members to switch from more traditional equipment, such as a TV set (Figure 7).

Devices with access to the Internet are also a source of information for household members and a space where they create and interact in different communities. The internet also provides opportunities for household members to connect, discuss and share experiences, but it is also an essential tool for work. Equipping households with devices with Internet access in 2019 compared to 2009 has increased in the group of blue-collar workers by 32 p.p., in the group of white-collar workers by 13 p.p., in the group of farmers by 39 p.p., in the group of self-employed persons by 13 p.p., and in the group of retirees and pensioners by 31 and 21 p.p., correspondingly. It is observed that in all groups, households are increasingly equipped with personal computers, which is certainly related to the greater availability of these goods. Households of white-collar workers and self-employed persons are best equipped with personal computers, which is probably associated with the work that members of these households perform.

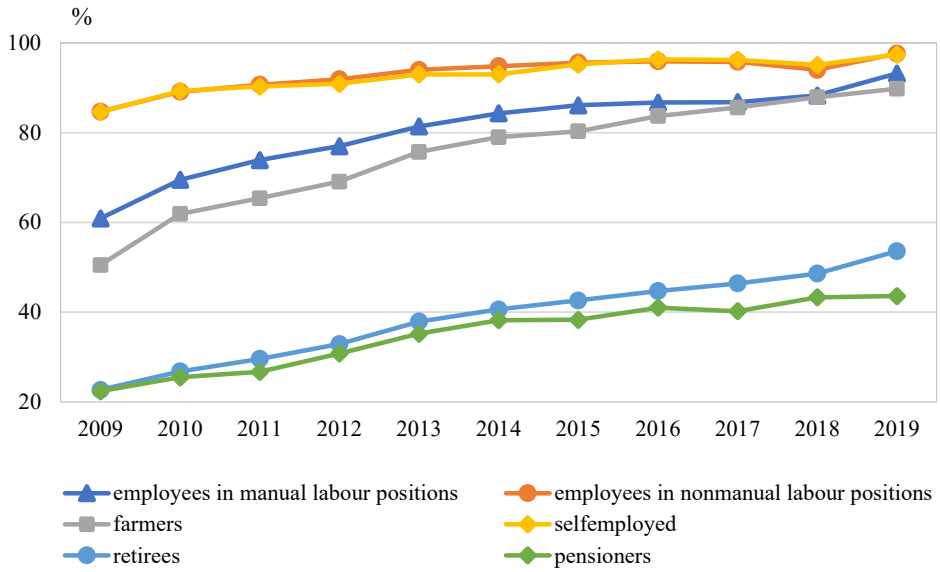

Figure 7. The percentage of households equipped with devices with Internet access
Source: own study based on [GUS 2009-2019]

It should be emphasized that while households are quite well equipped with a mobile phone, TV set or automatic washing machine, their equipment with durable goods of a higher order (luxury goods), such as a dishwasher, is not at a particularly high level. Comparing the equipment of households in 2009 and 2019, it is noticeable that the percentage of households equipped with a dishwasher increased in the group of blue-collar workers five-fold, in the group of white-collar workers three-fold, in the group of farmers four-fold, in the group of self-employed persons by two-fold, and in the group of retirees and pensioners four-fold and five-fold, respectively (Figure 8).

It is the equipment of households with a dishwasher (apart from the equipment with Internet access devices) that is characteristic of the greatest growth dynamics, i.e., in the households of white-collar workers by 32 p.p., blue-collar workers by 34 p.p., farmers by 38 p.p., blue-collar workers by 33 p.p., while in households of retirees by 16 p.p., and pensioners by 12 p.p. The reason for the increase in the number of households equipped with dishwashers, and consequently the increasing demand for dishwashers, is seen in the increase in remuneration. It should be noted that the percentage of households equipped with a dishwasher is still small in comparison with the percentage of households equipped with an automatic washing machine.

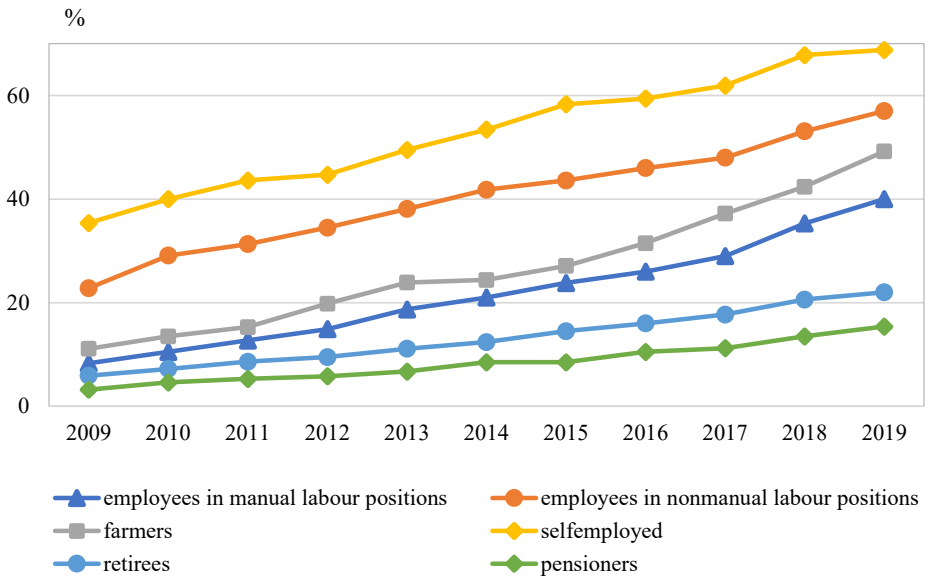

Figure 8. The percentage share of households equipped with a dishwasher
Source: own study based on [GUS 2009-2019]

The affluence of households is also indicated by their ownership of a passenger car. The best equipped households are those of farmers - 94% and of self-employed persons – 91%, while households of pensioners constitute the most poorly equipped group – 25%. The best equipment of farmer families is probably due to the fact that these are households mostly located in rural areas, and owning a personal car makes it possible to cover distances that are typical for this location, while the good equipment of households of self-employed persons can be explained by their business activities [Pizło, Mazurkiewicz 2010].

In 2019, compared to 2009, the greatest changes in terms of access to this good were observed in the group of households of employees in manual labor positions (an increase of more than 13 p.p.) and retirees (an increase of more than 11 p.p.).

In order to conduct the synthetic assessment of the economic situation of households in the years 2009-2019 in Poland, distinguished by their membership in socio-economic groups of the population, the classical TOPSIS method was applied. The values of synthetic variables determined by the TOPSIS method, which describe the economic situation of households, make it possible to arrange the examined aggregate units in terms of the characteristics analyzed.

Table 6. The linear arrangement of groups of households in terms of the synthetic measure of their economic situation

No.	Aggregate unit	Si	No.	Aggregate unit	Si	No.	Aggregate unit	Si
1	self-2015	0.696	23	ret-2019	0.524	45	pen-2017	0.402
2	self-2018	0.688	24	ret-2018	0.513	46	pen-2018	0.399
3	enlp-2015	0.686	25	far-2018	0.501	47	emlp-2015	0.398
4	enlp-2014	0.684	26	far-2015	0.497	48	emlp-2014	0.397
5	enlp-2018	0.679	27	ret-2017	0.489	49	emlp-2018	0.396
6	enlp-2016	0.676	28	ret-2016	0.487	50	pen-2015	0.394
7	self-2014	0.670	29	ret-2015	0.485	51	pen-2019	0.390
8	self-2016	0.670	30	far-2013	0.483	52	pen-2016	0.387
9	enlp-2017	0.665	31	far-2019	0.473	53	emlp-2019	0.385
10	enlp-2012	0.662	32	far-2014	0.471	54	emlp-2012	0.374
11	self-2017	0.660	33	far-2017	0.471	55	emlp-2017	0.369
12	enlp-2013	0.652	34	ret-2014	0.468	56	emlp-2011	0.369
13	self-2019	0.651	35	far-2012	0.468	57	emlp-2013	0.364
14	enlp-2011	0.649	36	far-2010	0.465	58	pen-2011	0.362
15	enlp-2019	0.648	37	far-2016	0.458	59	pen-2014	0.360
16	enlp-2010	0.645	38	ret-2012	0.458	60	emlp-2016	0.358
17	self-2013	0.638	39	ret-2013	0.453	61	pen-2013	0.357
18	enlp-2009	0.626	40	far-2011	0.452	62	pen-2010	0.355
19	self-2012	0.621	41	ret-2011	0.449	63	pen-2012	0.353
20	self-2011	0.610	42	ret-2010	0.448	64	emlp-2010	0.349
21	self-2010	0.605	43	ret-2009	0.429	65	emlp-2009	0.349
22	self-2009	0.591	44	far-2009	0.421	66	pen-2009	0.347

Note: Aggregate units from number 1 to 19 have a very good assessment of the economic situation, units from number 20 to 25 have a medium-high assessment of the economic situation, from number 26 to 53 a medium-low assessment of the economic situation and from number 54 to 66 a low assessment of the economic situation rating

Source: own study

According to Table 6, in a very good economic situation in the years 2009-2019 were households of self-employed persons and white-collar workers. In last years of analysis, it was observed, based on the synthetic measure, that the economic situation of households of retirees and farmers in 2018 was rated as medium-high. In the examined years, the average lower and low assessment of the situation were characterized by the households of blue-collar workers and the households of pensioners. However, it is observed that over the years households are holding higher positions in the ranking, which indicates that their economic situation is improving.

The performed retrospective analysis is confirmed by a number of studies in this area. Referring to the analyses carried out by Barbara Podolec and Agnieszka Wałęga [2011], it is confirmed that the individual characteristics of households affect the formation of income and expenditure, which are differentiated by the main source of income. Referring to the conclusions and observations made by Paweł Ulman [2016], based on the analysis conducted on the basis of the "Social Diagnosis 2013', who observed and signaled the necessary and comprehensive need for family assistance in the form of support programs and based on the conclusions of the analysis, it was observed that this assistance, introduced to families in 2016 in the form of the "Family 500+" benefit, had a positive impact on improving the material situation of households.

The analysis does not fully reflect the economic situation of households, as it is worth mentioning that in order to carefully analyze and evaluate the economic situation of households, it would be necessary to extend the budget analysis to the preparation of a household balance sheet in the form of financial (property) statements modelled on statements in enterprises [Lipiński 2009]. Such a financial statement would show what the household owns and what liabilities they have, e.g., referring to their equipment with reusable current assets (e.g., bedding, kitchen utensils, books and toys), supplies (e.g., food products, cosmetics and medicine) or other fixed assets (e.g., garages and own land). It should be noted, however, that such an in-depth analysis encounters certain difficulties, such as a lack of standardized methods for comparing the value of fixed assets or the imperfections of Polish financial accounting data, but also a lack of knowledge of what assets households actually have at their disposal and what they consist of [Zachłod-Jelec 2008, p. 35].

SUMMARY AND CONCLUSIONS

The aim of this article was to assess the economic situation of households in Poland according to socio-economic groups. In the publication, the economic situation of households is considered to be one that applies to the analysis of the household budget and balance sheet, i.e., the financial situation. Economic situation analysis has been associated with the study of economic welfare in objective terms. The values determining the income and expenditure situation of households have been used, as well as other measures reflecting the economic situation (welfare) of household members, e.g., the floor area of a household and a household equipped with durable goods. The classical TOPSIS method was used to synthetically assess the economic situation of groups of households.

On the basis of both one-dimensional and multidimensional analysis, it was found that the households of self-employed persons and white-collar workers are in the best economic situation (which is also evidenced by their high position in the ranking in relation to the synthetic measure). The worst economic situation was found in the households of pensioners. The households of farmers, which are characterized by their specific nature, have been assessed in recent years to be in a medium-high economic situation.

In conclusion, it can be stated that the income and asset situation of households in all socio-economic groups is improving. However, it is observed that the income or expenditure situation of households does not fully reflect the overall economic situation of households and the assessment should also consider the asset situation of households. It is noted that while households are rather well-equipped with a mobile phone, a television set or an automatic washing machine, their equipment with durable goods, such as a dishwasher or access to the Internet is not at a very high level.

In the context of the conducted research, the role of the state and its influence on the economic security of households through social policy instruments was also highlighted. The state, through its family policy and budget transfers, supports the income of households, e.g., through child-support benefits paid by municipalities to households under the 500+ program. At the same time, the results of the study point to the necessity of implementing aid programs for households occupied by elderly people and programs aimed at their activation.

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SYTUACJA EKONOMICZNA GOSPODARSTW DOMOWYCH W POLSCE

Słowa kluczowe: dobrobyt ekonomiczny, sytuacja dochodowa i majątkowa, dochód rozporządzalny, wydatki gospodarstw domowych, grupy społeczno-ekonomiczne TOPSIS

ABSTRAKT

Celem artykułu była jedno- jak i wielowymiarowa ocena i diagnoza sytuacji ekonomicznej gospodarstw domowych w układzie grup ekonomiczno-społecznych w Polsce, w latach 2009-2019. W pierwszym etapie badań analizie poddano kształtowanie się obiektywnych wskaźników obrazujących dobrobyt ekonomiczny gospodarstw domowych. W analizie sytuacji ekonomicznej gospodarstw domowych uwzględniono wskaźniki sytuacji dochodowej oraz wydatkowej gospodarstw domowych w ujęciu ekwiwalentnym, strukturę wydatków, mierniki dobrobytu mieszkaniowego z uwzględnieniem zaopatrzenia gospodarstw domowych w dobra trwałe oraz przeciętną powierzchnię użytkową zajmowaną przez gospodarstwo domowe na 1 osobę w m². W drugim etapie badania, przy użyciu klasycznej metody TOPSIS zbudowano miernik syntetyczny sytuacji ekonomicznej badanych jednostek agregatowych (grup ekonomiczno-społecznych). Na podstawie wartości miernika syntetycznego dokonano uporządkowania liniowego badanych jednostek agregatowych, uwzględniając zmienne dotyczące sytuacji ekonomicznej gospodarstw domowych. Analizę przygotowano na podstawie danych pochodzących z badań budżetów gospodarstw domowych przeprowadzonych przez Główny Urząd Statystyczny. Okresem badawczym objęto dane za lata 2009-2019. Przeprowadzona analiza, zarówno jedno-, jak i wielowymiarowa, dowiodła, że w stosunkowo najlepszej sytuacji ekonomicznej w badanym okresie znalazły się gospodarstwa domowe osób pracujących na własny rachunek oraz gospodarstw domowych pracowników na stanowiskach nierobotniczych. W najgorszej natomiast sytuacji finansowej były gospodarstwa domowe rencistów, które zajęły najniższe pozycje w rankingu utworzonym na podstawie wartości miernika syntetycznego.

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