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HOUSING CONDITIONS OF HOUSEHOLDS OF FARMERS IN 2005-2020

Key words: farmers' households, housing conditions, housing equipment, objective assessment, TOPSIS

ABSTRACT. The aim of the study was to evaluate the housing conditions of farmers' households against the background of all households in Poland and their changes after Poland's accession to the European Union. The assessment was based on one-dimensional objective indicators of the standard of housing use, equipment with technical and sanitary facilities and basic consumer goods, as well as a multidimensional synthetic assessment using the TOPSIS method. Individual unidentifiable data from the Household Budget Survey of the Central Statistical Office from 2005, 2010, 2015 and 2020 served as a data source. It turned out that, at the beginning of the study period, the housing situation of farmer households was favourable only in terms of such indicators of the standard of housing used as housing area per person and burden on household budgets from the cost of housing maintenance and energy sources. On the other hand, the saturation with selected durable goods and the equipment of dwellings with technical and sanitary facilities was relatively low. This contributed to the low synthetic rating of housing conditions in 2005. However, during 2005-2020, a rapid improvement in the scores of these indicators was observed the fastest among all socioeconomic groups. These dynamic changes resulted in a high score for the housing conditions of agricultural households in 2020.

INTRODUCTION

Housing, along with access to food and clothing, is the most important requirement for human existence and functioning. It plays an extremely important role in the life of a household, helping to satisfy various needs, including the most basic: shelter, protection, rest, and regeneration of health. However, a dwelling is also a means of satisfying higher-level needs: social belonging, recognition and self-realisation [Kalinowski 2015, Kubów 2016, Oleńczuk-Paszel, Sompolska-Rzechuła 2017, Głowicka-Wołoszyn et al. 2021].

The home plays an important role in strengthening social ties. It represents a physical space that provides a safe framework for the educational process of young household members. It can also be a place of relaxation, entertainment and social meetings, but also a place of study and work, especially in recent pandemic years.

Research conducted by the IBRiS Research Institute in 2015 and 2018 shows that housing problems related to housing conditions and availability are among the top three difficulties faced by Polish families [HfH 2018]. The inability to meet housing needs at an adequate level is referred to as housing poverty [Stephens van Steen 2011, Ulman, Ćwiek 2020]. This phenomenon should not be equated with homelessness and «housing shortage», but as a lack (scarcity) of housing conditions in terms of technical condition and housing equipment [Kozera et al. 2017]. The importance of the housing shortage issue is shown by the fact that it is perceived by Poles as the third most important social problem, right after unemployment and addiction problems [Olech 2009].

As the research of Romana Głowicka-Wołoszyn and other authors [2021] shows, one of the most important factors of housing differentiation is the class of residence. Despite the convergence of housing conditions observed in the period 2005-2017 and their dynamic improvement in rural households, in 2017 the rating of the standard of housing use and equipment was still lower in rural areas than in cities. On the other hand, research by Agnieszka Kozera and Joanna Stanisławska [2021] shows that housing conditions in rural areas located within the sphere of influence of large urban metropolises are more favourable than in peripheral areas, which is due to the phenomenon of suburbanization. The spread of cities to adjacent rural areas is the result of migration of the richer part of city dwellers and the transfer of patterns of urban life and standard of housing equipment to these areas.

However, is the improvement of housing conditions in rural areas only due to migration processes and demographic and social changes, or can it also be observed in the households of farmers living in typically agricultural rural areas? Research conducted by Agnieszka Kozera and team [2014] on the shortage of consumer durables in housing indicates an improvement of the situation in farmer households after Poland›s accession to the European Union (EU), but also a persistently high level of shortage compared to other socioeconomic groups.

The main objective of the study was a multidimensional assessment of the housing conditions of farmer households against the background of all households in Poland and their changes after Poland›s accession to the EU. In addition, one-dimensional assessments were made on the basis of measurable, objective indicators of the standard of housing use (the area of the dwelling, the number of inhabitants, and the burden on the household budget from expenditures on dwelling maintenance and energy sources), equipment with technical and sanitary facilities (equipment with a bathroom, hot running water, and a flush toilet), and with basic consumer goods (a computer or other equipment with Internet access, a washing machine, and a dishwasher).

RESEARCH MATERIAL AND METHODOLOGY

Housing conditions of farm households were assessed against the background of other socioeconomic groups using unidentifiable individual data from the Household Budget Survey[1] (BBGD), conducted by the Central Bureau of Statistics in 2005, 2010, 2015, and 2020. Over 30 thousand households participated in these surveys each year. The survey subjects were different socio-economic groups of households, i.e., workers, employees, farmers, the self-employed, pensioners and disability pensioners in four years (2005, 2010, 2015 and 2020). Thus, a total of 24 household years were analysed.

According to the definition of housing conditions proposed by Romana Głowicka-Wołoszyn and her team [2020], their assessment should include indicators related to the use of the dwelling, its provision with network and sanitary facilities, the provision of consumer durables, as well as indicators characterizing the location and surroundings of the dwelling. Moreover, in addition to objective (measurable) indicators, the evaluation of housing conditions should also take into account subjective assessments of satisfaction with the used dwelling, its equipment and location. Due to the data situation in the BBGD, which did not include subjective indicators in 2005, 2010 and 2015, the assessment of housing conditions was limited to the assessment of housing use and equipment. For the study, first of all, a set of one-dimensional sub-indicators of an objective nature was formed, which allowed to assess the standard of housing use, its equipment with technical and sanitary facilities, as well as the supply of durable goods. The set of partial indicators with the scheme of investigation is presented in Figure 1. The study was conducted in two stages. In the first stage of the study, housing conditions in socioeconomic household groups and their changes were assessed using the values of selected unidimensional indicators. Due to the multidimensional nature of the phenomenon, the values of the synthetic index were determined in the second stage of the study. On this basis, a synthetic assessment of the level and changes in housing conditions in 2005, 2010, 2015 and 2020 was made. In addition, in each year studied, the socioeconomic groups of households were ranked with respect to the synthetic score of housing conditions. The synthetic index was created using the TOPSIS method [Hwang, Yoon 1981, Głowicka-Wołoszyn et al. 2021]. The research was conducted on the basis of a predefined set of indicators, which were considered in the univariate analysis. Only two variables, i.e., the indicator of the number of persons per room and the indicator of the share of expenditure on the use of housing and energy sources in consumption expenditure, were considered to destimulate housing conditions, while the rest were considered to stimulate them. From the original set of one-dimensional indicators, three indicators were removed due to their overcorrelation with others. They did

[1] The studies are conducted according to the representative method, which enables generalising the results for households in Poland overall [GUS 2018].

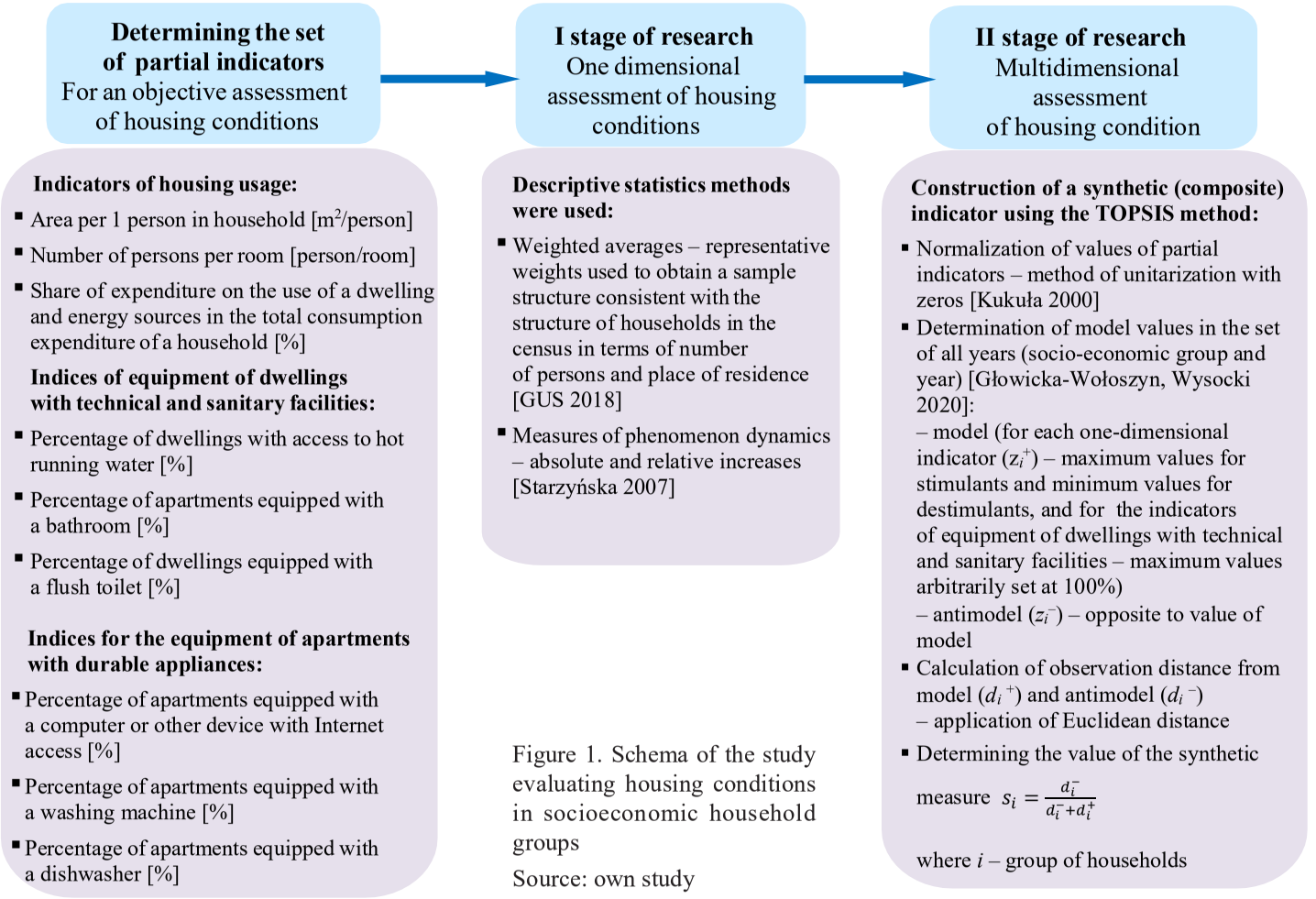


Figure 1. Schema of the study evaluating housing conditions in socioeconomic household groups

Source: own study

not participate in the construction of the synthetic index. They were the indicators of the apartments' equipment with an automatic washing machine, a bathroom and hot running water. Based on mean $(\bar{q})$ and standard deviation (s_q), the empirical values of the synthetic measure were used to distinguish the following classes of housing condition rating:

– class I (high assessment of housing conditions): $q_i \geq \bar{q} + s_q$,
– class II (average – higher): $\bar{q} + s_q > q_i \geq \bar{q}$,
– class III (average – lower): $\bar{q} > q_i \geq \bar{q} - s_q$,
– class IV (low assessment of housing conditions): $q_i < \bar{q} - s_q$.

THE RESULTS OF EMPIRICAL RESEARCH

A ONE-DIMENSIONAL ASSESSMENT OF HOUSING CONDITIONS OF FARMERS' HOUSEHOLDS

The values of the three considered indicators of the standard of housing use in 2005-2020 testify to the favourable housing situation of farmers' households (Table 1). The dwellings of this socio-economic group are characterised by an average residential floor area per person, which is very similar to the national value. Slightly higher values of this indicator (by about 5-10%) were recorded in 2005-2015 in households of self-employed persons, and much higher – by about 30% in the whole studied period – in households of pensioners and disability pensioners.

The relatively large area of housing occupied by farmers is mainly due to economic factors related to the low cost of acquiring land in rural areas compared to urban areas and the low maintenance costs of housing due to the lack of rent. This is evident from the values of the third of the indicators analysed in this group, i.e., the share of housing and energy costs in expenditure consumption. In the households of farmers, this type of expenditure represented 17.4% of all consumption expenditure in 2005, and in 2020 – 16.5%, which was the lowest value among all groups of households analysed. In 2005-2010, a slight increase in the burden of housing and energy costs on the budgets of all households was observed, which was a consequence of the global economic crisis of 2008. In the households of farmers, this increase amounted to 2 percentage points (p.p.).

The larger living space per person in the group of pensioner and disability pensioner households (compared to farmer households) is not clearly positive, because, at the same time, in these two groups, household budgets were most burdened by housing and energy costs, which accounted for about 25% of consumption expenditure (Table 1). High values of the area share in the households of pensioners and disability pensioners are, on the one hand, a consequence of natural demographic and social processes (the age of people, children becoming independent and moving out, the death of a spouse). On the other hand,

they are economically induced. One can observe the so-called "consumption rush" and the will to maintain the current level of living conditions, even at a price of greater deprivation.

The resident population was higher in farm households than in the total population, quantified by the value of the indicator for the number of persons per room, which was 1.23 in 2005 and 1.0 in 2020. Higher values of the index were only recorded in the households of workers. The relatively high values of the residential population index in the households of farmers are not due to small dwellings, since in this socioeconomic group the values of usable space per person are higher than the national average. The reasons for this can be found in the demographic and socio-cultural conditions that influence the development of the residential area. Farm households are more numerous, and they are more often multigenerational families living in one house, which can lead to the need for large spaces such as a kitchen, a living room and a dining room, which, in turn, requires the creation of separate spaces for household members.

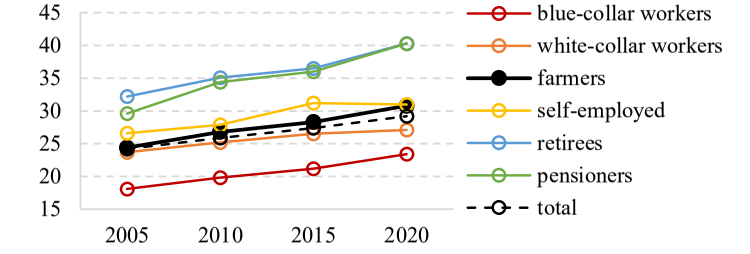
The indicators of the second group concerned the furnishing of the dwellings with durable goods that would facilitate cleaning, food preparation and storage, and entertainment and communication with the outside world. Due to the very high level of equipment of households with appliances such as a TV, a refrigerator, a vacuum cleaner, where the saturation level was already above 98%, 97% and 93%, respectively in 2005 [Głowicka-Wołoszyn et al. 2020], the equipment with these basic goods was not considered. Dynamically changing living conditions, which not only include rapid technological development but also phenomena such as the Covid 19 pandemic, contribute to changes in the functioning of households and blur the distinctions between standard and non-standard goods, such as a computer or other device with internet access.

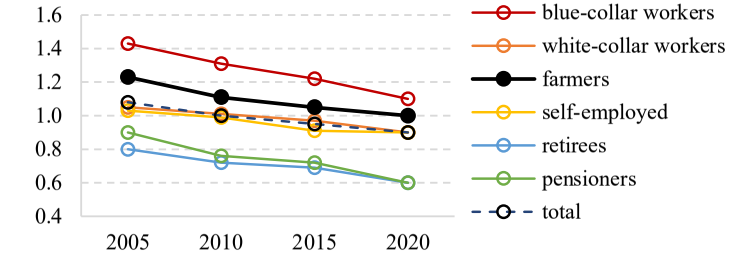
The development of information and communication technology (ICT) has helped to create new ways of obtaining information and spending leisure time, but the emergence of the pandemic made it necessary to use this tool more and more often for study, work and other functions, such as shopping. The value of the index of households equipped with a computer or other device with internet access increased the most among farmworker households between 2005 and 2020. In 2005, these households had one of the lowest levels of saturation with this good (about 11%), just behind the disability pensioner and retiree households (about 7% and 9%, respectively). In 2020, over 92% of farmers' households had a computer with internet access (an increase of over 80 percentage points – the highest among all socioeconomic groups) (Table 2).

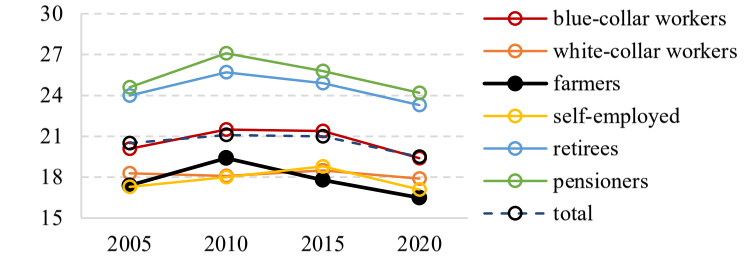
In addition, the indices of housing durable goods equipment included an automatic washing machine and dishwasher equipment (Table 2). In 2005, farmers' households were the least saturated with an automatic washing machine – 67.8% – and only 3.8% with a dishwasher (only pensioners' and retirees' households had lower saturation levels). In 2020, over 98% of farmers' households were equipped with an automatic washing machine

Table 1. The value of selected indicators of the standard of housing use in the period 2005-2020 and their changes

Households	2005	2010	2015	2020	2020/2005	The value of housing use indices in the period 2005-2020
Usable space per person in the household [m²/person], changes between 2005 and 2020 [%]						
Blue collar workers	18.1	19.8	21.2	23.4	29.3	
Non-blue collar workers	23.7	25.2	26.5	27.1	14.3	
Farmers	24.4	26.8	28.3	30.8	26.2	
Self-employed	26.6	27.9	31.2	31.0	16.5	
Retirees	32.2	35.1	36.5	40.3	25.2	
(Disability) pensioners	29.6	34.4	36.0	40.3	36.1	
Total	24.2	25.9	27.4	29.2	20.7	
Number of people per room [people/room], changes between 2005 a 2020 [%]						
Blue collar workers	1.43	1.31	1.22	1.10	-23.1	
Non-blue collar workers	1.05	1.01	0.97	0.90	-14.3	
Farmers	1.23	1.11	1.05	1.00	-18.7	
Self-employed	1.03	0.99	0.91	0.90	-12.6	
Retirees	0.80	0.72	0.69	0.60	-25.0	
(Disability) pensioners	0.90	0.76	0.72	0.60	-33.3	
Total	1.08	1.00	0.95	0.90	-16.7	
Share of spending on housing maintenance and energy sources in consumer spending [%], changes between 2005 and 2020 [p.p.]						
Blue collar workers	20.1	21.5	21.4	19.4	-0.7	
Non-blue collar workers	18.3	18.1	18.5	17.9	-0.4	
Farmers	17.4	19.4	17.8	16.5	-0.9	
Self-employed	17.3	18.0	18.8	17.1	-0.2	
Retirees	24.0	25.7	24.9	23.3	-0.7	
(Disability) pensioners	24.6	27.1	25.8	24.2	-0.4	
Total	20.5	21.1	21.0	19.5	-1.0	



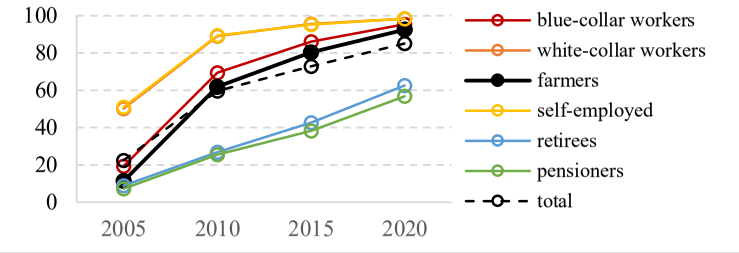


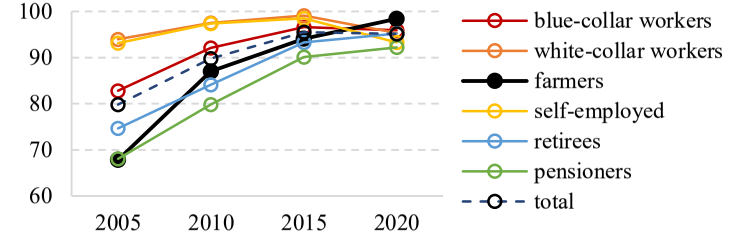


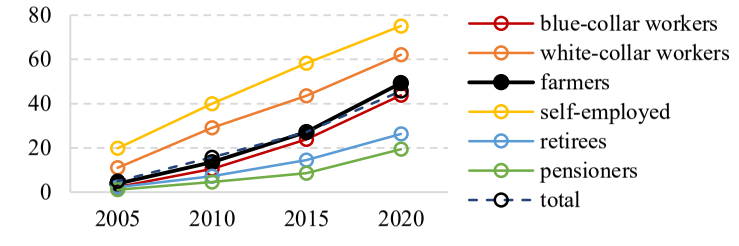
Source: own study based on unidentifiable individual data from BBGD [GUS 2005, 2010, 2015, 2020]

Table 2. The value of selected indexes of equipping dwellings with durable goods in the years 2005-2020 and their changes

Household	2005	2010	2015	2020	2020/2005	The value of housing use indices in the years 2005-2020
Equipped with computers and other devices with Internet access [%], changes between 2005 and 2020 [p.p.]						
Blue collar workers	19.3	69.5	86.1	95.4	76.1	
Non-blue collar workers	50.2	89.1	95.6	98.4	48.2	
Farmers	11.4	61.9	80.3	92.5	81.1	
Self-employed	51.0	89.3	95.2	98.4	47.4	
Retirees	8.9	26.8	42.6	62.6	53.7	
Disability pensioners	7.3	25.5	38.3	56.8	49.6	
Total	22.5	59.6	72.8	85.1	62.6	
Equipped with a washing machine [%], changes between 2005 and 2020 [p.p.]						
Blue collar workers	82.8	92.1	96.6	95.9	13.1	
Non-blue collar workers	94.0	97.5	99.1	95.3	1.3	
Farmers	67.8	87.0	94.1	98.4	30.6	
Self-employed	93.1	97.4	98.5	93.3	0.2	
Retirees	74.6	84.1	93.3	95.2	20.6	
Pensioners	68.0	79.8	90.1	92.2	24.2	
Total	79.8	89.8	95.5	95.1	15.3	
Equipped with a dishwasher [%], changes between 2005 and 2020 [p.p.]						
Blue collar workers	2.3	10.5	23.8	43.8	41.5	
Non blue collar workers	11.0	29.1	43.6	62.1	51.1	
Farmers	3.8	13.5	27.1	49.3	45.5	
Self-employed	19.8	40.0	58.3	75.1	55.3	
Retirees	2.2	7.2	14.5	26.3	24.1	
Pensioners	1.1	4.6	8.5	19.4	18.3	
Total	4.9	15.7	27.2	45.7	40.8	



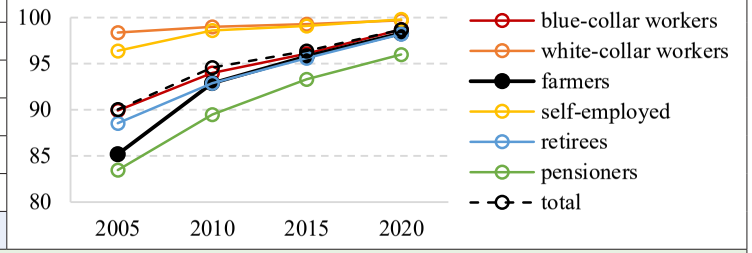


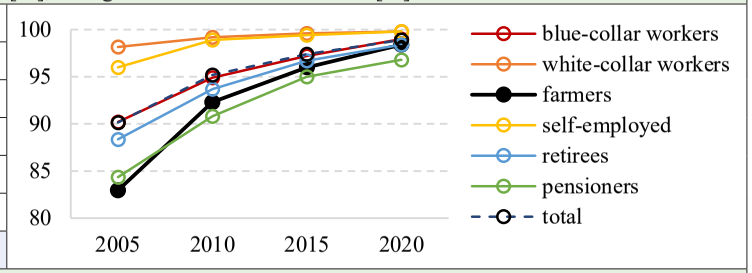


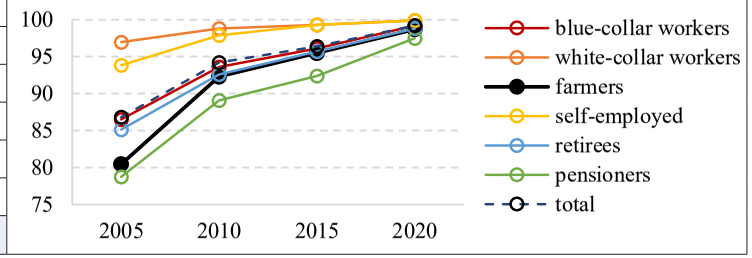
Source: own study based on individual, unidentifiable data from BBGD [GUS 2005, 2010, 2015, 2020]

Table 3. Value of selected indicators for the equipment of apartments with technical and sanitary facilities in the period 2005-2020 and their changes

Household	2005	2010	2015	2020	2020/2005	Value of indicators of household usage 2005-2020
Equipped with a bathroom [%], changes between 2005 and 2020 [%]						
Blue collar workers	89.9	94.0	96.1	98.7	8.8	
Non-blue collar workers	98.4	99.0	99.3	99.7	1.3	
Farmers	85.2	92.9	95.8	98.3	13.1	
Self-employed	96.4	98.6	99.1	99.8	3.4	
Retirees	88.6	92.9	95.6	98.2	9.7	
Disability pensioners	83.5	89.5	93.3	96.0	12.5	
Total	90.0	94.6	96.4	98.7	8.7	
Household equipped with a flush toilet [%], changes between 2005 and 2020 [%]						
Blue collar workers	90.2	94.9	97.2	99.0	8.8	
Non blue collar workers	98.2	99.2	99.6	99.8	1.6	
Farmers	83.0	92.3	96.0	98.4	15.5	
Self-employed	96.0	98.9	99.4	99.8	3.8	
Retirees	88.4	93.7	96.7	98.4	10.0	
Disability pensioners	84.4	90.8	95.0	96.8	12.5	
Total	90.2	95.2	97.4	98.9	8.8	
Household equipped with hot running water [%], changes between 2005 and 2020 [%]						
Blue collar workers	86.5	93.6	96.1	99.2	12.7	
Non-blue collar workers	97.0	98.8	99.3	99.9	2.9	
Farmers	80.5	92.3	95.5	98.7	18.2	
Self-employed	93.8	97.9	99.3	99.9	6.1	
Retirees	85.1	92.6	95.7	98.8	13.7	
Pensioners	78.8	89.1	92.4	97.5	18.8	
Total	86.8	94.2	96.4	99.2	12.4	







Source: own study based on individual, unidentifiable data from BBGD [GUS 2005, 2010, 2015, 2020]

(the highest saturation among all socioeconomic groups) and almost every second household had a dishwasher.

In 2005, technical and sanitary facilities in farmers' households were exceptionally unfavourable compared to other socioeconomic groups. Only 85% of farmer households had a bathroom, 83% had a flush toilet (which was the lowest saturation level), and 80% had hot running water. Over the period studied, this group of households experienced the greatest changes in the provision of these facilities. In 2020, over 98% of farm households had a bathroom with access to hot running water and a flush toilet (Table 3).

However, it should be emphasised that the highest growth dynamics occurred in the first 5 years after Poland's accession to the EU. As the research of Andrzej Wołoszyn [2013, 2020] shows, the real increase in disposable income in this period was higher in the group of farmer households than for all households in Poland, which meant a narrowing of the gap with other socioeconomic groups. It can be assumed that these changes were the result of an increase in the volume of production, an increase in agricultural prices and an increase in subsidies during this period [Poczta 2010].

A relative improvement in the income situation of peasant households could be reflected in an improvement in their housing conditions in terms of technical and sanitary equipment. An important social phenomenon in 2005-2015 was also mass economic migration, which mainly affected rural areas and not only had an impact on the income situation of households [Wołoszyn 2020], but also on transferring behavioural patterns from Western countries and shaping the needs of Polish households in terms of housing conditions.

A MULTI-DIMENSIONAL ASSESSMENT OF HOUSING CONDITIONS OF FARMERS' HOUSEHOLD

Due to the multidimensional nature of housing conditions described by a set of selected 9 sub-indices, a synthetic index was constructed using the TOPSIS method and its values were determined. The obtained index values below 0.40 denote the lowest class of housing conditions (class IV). In 2005, this class included the households of farmers, workers, pensioners and retirees. The values of the synthetic measure in these socioeconomic groups were, respectively: 0.33, 0.28, 0.38, and 0.31. Every five years, the synthetic rating of housing conditions in the households of farmers was increased by one class and, in 2020, housing conditions in this household group were rated as high (the value of the measure was 0.72) – including the households of employees (0.73) and self-employed (0.79). Class I with a high rating of housing conditions was characterised by indicator values above 0.69 (Figure 2).

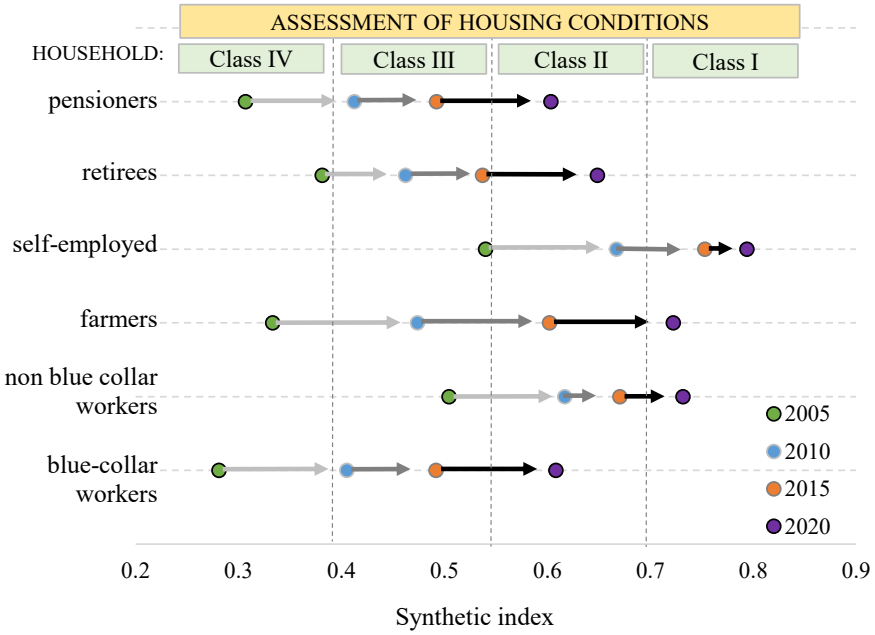


Figure 2. A synthetic assessment of housing conditions of peasant households against the background of other household groups in the period 2005-2020

Source: own study based on unidentifiable individual data from BBGD [GUS 2005, 2010, 2015, 2020]

Table 4. ranking of socioeconomic groups of households according to the synthetic assessment of housing conditions

Household	Ranking				Changes in ranking position
	2005	2010	2015	2020	2020/2005
Blue collar workers	6	6	6	5	1
Non blue collar workers	2	2	2	2	0
Farmers	4	3	3	3	1
Self-employed	1	1	1	1	0
Retirees	3	4	4	4	-1
Disability pensioners	5	5	5	6	-1

Source: own study based on unidentifiable individual data from BBGD [GUS 2005, 2010, 2015, 2020]

In 2005, farmers' households ranked fourth among the six socioeconomic groups studied in terms of the synthetic housing score (Table 4). The dynamic improvement in 2005-2010 in equipping the dwellings of this household group with technical and sanitary equipment and durable goods, such as a computer with internet access and a dishwasher, contributed to an improvement in the ranking of this socioeconomic group. As of 2010, farmworker households ranked third in terms of housing conditions.

SUMMARY AND CONCLUSIONS

Based on the conducted research, it was found that the housing situation of farmers' households in 2005-2020 was favourable only in terms of such indicators of the standard of inhabited dwellings as dwelling area per person and the burden of household budgets with the costs of dwelling maintenance and energy sources. The values of the last indicator in this group, i.e., the number of persons per room, were at a relatively high level, which proves that the housing population was larger than that of the general population. Therefore, it can be assumed that higher values of living area per person are overestimated due to larger areas of shared rooms, such as kitchens, pantries, dining rooms, which, in turn, is due to the needs of large farms, often occupied by several generations. Consideration of these two indicators, i.e., area per person and housing stock, no longer yields such a clearly favourable assessment of the standard of occupied housing as does an analysis of only the first of these indicators, which seems to be an important methodological clue.

In 2005, the saturation of selected durable goods and the equipment of dwellings with technical and sanitary facilities in farmers' households were relatively low. This contributed to the low synthetic rating of housing conditions in 2005. However, in 2005-2020, a rapid improvement in the scores of these indicators was observed – the fastest among all socioeconomic groups. These dynamic changes resulted in a high score for housing conditions of agricultural households in 2020.

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WARUNKI MIESZKANIOWE W GOSPODARSTWACH DOMOWYCH ROLNIKÓW W LATACH 2005-2020

Słowa kluczowe: gospodarstwa domowe rolników, warunki mieszkaniowe, wyposażenie mieszkań, ocena obiektywna, TOPSIS

ABSTRAKT

Celem badań była ocena warunków mieszkaniowych gospodarstw domowych rolników na tle wszystkich gospodarstw domowych w Polsce i ich zmiany po wejściu Polski do Unii Europejskiej. Oceny dokonano na podstawie jednowymiarowych, obiektywnych wskaźników standardu użytkowania mieszkań, wyposażenia w instalacje techniczno-sanitarne oraz podstawowe dobra trwałego użytku, a także wielowymiarowej syntetycznej oceny, z zastosowaniem metody TOPSIS. Źródłem danych były jednostkowe nieidentyfikowalne dane pochodzące z Badania Budżetów Gospodarstw Domowych przeprowadzonych przez GUS w latach 2005, 2010, 2015 i 2020. Stwierdzono, że na początku okresu badawczego sytuacja mieszkaniowa gospodarstw domowych rolników kształtowała się korzystnie jedynie w zakresie takich wskaźników standardu użytkowanych mieszkań, jak powierzchnia mieszkania na osobę oraz obciążenie budżetów domowych kosztami utrzymania mieszkania i nośników energii. Natomiast nasycenie wybranymi dobrami trwałego użytku i wyposażenie mieszkań w instalacje techniczno-sanitarne było relatywnie niskie. Przyczyniło się to, do niskiej syntetycznej oceny warunków mieszkaniowych w 2005 roku. Jednak w latach 2005-2020 obserwowano szybką poprawę wartości tych wskaźników – najszybszą spośród wszystkich grup społeczno-ekonomicznych. Efektem tak dynamicznych zmian była wysoka ocena warunków mieszkaniowych gospodarstw domowych rolników w 2020 roku.

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