



## ASSESSMENT OF INCOME DIFFERENTIATION OF DIFFERENT-SIZED HOUSEHOLDS IN POLAND

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### Abstract

The household is the basic economic unit that participates in both economic and social life. It must generate income, the level of which may change over time and vary depending on the size of the household. The aim of the research was to assess the scale of differentiation of household income in Poland in the years 2014-2021 due to their size. The study used the comparative analysis method. Secondary data on disposable income per person in the household was compared. The variation in income in particular years was examined using the classic coefficient of variation. In the years under study, in each type of household (taking into account its size), disposable income increased, with a higher growth rate recorded by larger households. In all years, the size of the farm significantly differentiated the level of disposable income of households, and this differentiation showed a decreasing trend.

### OCENA ZRÓŻNICOWANIA DOCHODÓW GOSPODARSTW DOMOWYCH RÓŻNEJ WIELKOŚCI W POLSCE

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## Abstrakt

Gospodarstwo domowe jest podstawową jednostką ekonomiczną, która bierze udział zarówno w życiu gospodarczym, jak i społecznym. Musi ono pozyskiwać dochody, których poziom może się jednak zmieniać w czasie i być zróżnicowany w zależności od wielkości gospodarstwa domowego. Celem badań stała się więc ocena skali zróżnicowania dochodów gospodarstw domowych w Polsce w latach 2014-2021 z uwzględnieniem wielkości gospodarstwa domowego. W badaniu wykorzystano metodę analizy porównawczej. Porównano dane wtórne dotyczące dochodów rozporządzalnych na jedną osobę w gospodarstwie domowym. Zróżnicowanie dochodów w poszczególnych latach zbadano z wykorzystaniem klasycznego współczynnika zmienności. W badanych latach w każdym typie gospodarstwa domowego (biorąc pod uwagę jego wielkość) dochody rozporządzalne rosły, przy czym wyższe tempo wzrostu odnotowały gospodarstwa większe. We wszystkich latach wielkość gospodarstwa istotnie różnicowała poziom dochodów rozporządzalnych gospodarstw domowych, przy czym zróżnicowanie to wykazywało tendencję malejącą.

## Introduction

A household is an economic unit that participates in social and economic life. It is most often a family that collects and spends income together. In order to meet their needs, households demand various types of goods and services. In order to meet their expenses, households must therefore obtain income.

Household income is income, usually cash, earned over a given period of time. It can come from various sources, depending on who receives it and for what reason. Most often, it comes from an employment relationship, but it can also be income from capital and from social benefits, e.g. benefits, pensions, retirement pensions or benefits from the “Family 800+” program. The level of income earned may change over time and may also vary regionally or depending on the type of household, including its size measured by the number of its members.

In light of the above, the aim of the research was to assess the scale of differentiation of household income in Poland in the years 2014-2021 due to their size. The basis for this assessment was the analysis of changes that occurred in the level of income of households of different sizes in the years 2014-2021. The following research question was asked in the work: *Has the differentiation of household incomes, taking into account the criterion of their size, increased or decreased in the years 2014-2021?*

The following research methods were used in the study: literature analysis and comparative analysis of secondary data on disposable income per person in a household. This data was obtained from the Knowledge Databases of the Central Statistical Office. They were compared vertically – by year and horizontally – by household size. An indicator analysis was also conducted, using a constant-based dynamics indicator, assuming 2014 as the base year. This indicator was calculated according to the following formula (Wysocka-Fijorek & Lachowicz, 2018, p. 14):

$$I_{t0, t} = \frac{x_t}{x_{t0}} \quad (1)$$

where:

$x_t$  – value in the period under review,

$x_{t0}$  – value in the period used as the basis for the research.

The variation of disposable income in individual years was examined using the coefficient of variation. It allows for the comparison of the variation of the same feature in different groups, or several features expressed in appropriate terms. The coefficient of variation is the quotient of the absolute measure of variation and the average level of the feature value and is expressed by the formula (Central Statistical Office, 2023):

$$V_s = \frac{S}{\bar{x}} \cdot 100 \quad (2)$$

where:

$S$  – standard deviation,

$\bar{x}$  – arithmetic mean.

High numerical values of the coefficient of variation indicate the heterogeneity of the statistical population being studied. It is conventionally assumed that if the coefficient of variation does not exceed 10%, the features show little differentiation (compare: Wierzbicka, 2021, p. 213; Wierzbicka *et al.*, 2021, p. 89).

## Literature Review

Earning income by households is a necessary condition for them to function properly, achieve their goals and fulfil specific functions. Earning income is the basis for ensuring financial security for household members. “The level of income earned indicates the level of wealth of a given society, but above all it affects the size and structure of consumption and the interest of entities in using financial services” (Mazurek-Krasodomska, 2017, p. 189). “Income has a fundamental impact on the financial situation of a household, it enables meeting the needs of its members and determines the limit of expenditure” (Rudnicki, 2018, p. 89). In economic terms, income is a means to achieve the goals of the household, affects its development possibilities and is one of the basic factors determining cultural and social changes. The income of individuals is therefore not only an economic category, but also a social one, as it is a determinant of the household status (Kata, 2020, p. 27). Therefore, proper planning and management of the household budget becomes extremely important (Samsel, 2019, p. 66).

Income is a basic factor determining the level of satisfaction of needs, and also affects the sense of stability of household members and broadly understood

security. Households obtain income from various sources. Economic theory lists the following basic sources of household income: remuneration (income from work), land rent and lease payments (income from land), dividends and interest (income from capital) (Wałęga, 2012, p. 219, 220). In more detail, the following sources of household income can be indicated (Jabkowski & Piekut, 2022, p. 182):

- salary,
- income from self-employment,
- income from agricultural work,
- annuities,
- retirement pensions,
- unemployment benefits and other social benefits and allowances,
- income from investments, savings, insurance, property,
- other.

Household income can also include various types of financial benefits of a social, family-friendly or educational nature. An example is the “Family 800+” program, the aim of which is to help raise children and reverse the negative demographic trend in Poland. Financial resources from this program increase household budgets and change the structure of their expenditures (Wiśniewska, 2017, p. 116, 117). “Social assistance benefits are a supplementary benefit granted on the basis of household income taking into account all other taxed and untaxed income of the person and family. Their purpose is to supplement household income in a situation where other incomes in total, including income from other social benefits, are lower than the income criterion for social assistance” (Starega-Piasek & Wóycicka, 2009, p. 2). Studies show that on average, families need an income of about twice the poverty line to meet their most basic needs (Jiang *et al.*, 2017, p. 2). Importantly, in order to properly manage their finances, households should focus both on current income generation and on the possibilities of increasing, allocating and diversifying it (Rudnicki, 2018, p. 89, 90).

Household income, regardless of its source, is determined by many factors. The most frequently mentioned are socio-demographic factors, such as: occupation, education and age of household members (Grzywińska-Rapca & Kobylińska, 2019, p. 47). The differentiation of the material wealth of households also depends on the type and size of the household, geographical location and class of place of residence (Dziechciarz-Duda, 2018, p. 38; Jędrzejczak & Pakasiewicz, 2018, p. 150). The following factors determining the level and structure of household income and inequalities within their area are most often mentioned in the literature (Mazurek-Krasodomska, 2017, p. 190):

- level and field of education of household members,
- economic activity of household members,
- main source of income for family members,
- size of household,
- place of residence,
- tax burden and other income of household.

One of the important factors determining the differences in household income is its size, i.e. the number of people in it. The average income per person usually decreases with the increase in the number of people in the family (Wałęga, 2012, p. 224-229). In large households, it can be seen that the increase in the number of its members is accompanied by a deterioration in the financial situation. In the case of the smallest households, this issue is not so clear-cut. The level of income of small households depends to a large extent on the source of the income. A two-person household of retirees or pensioners will have a decidedly different level of income than a two-person household of self-employed people (Podolec, 2014, p. 12-19).

The diversity of household incomes affects the level and structure of their consumption, the socio-economic situation of households, the living conditions of society and the rate of growth and development of the economy. It is therefore important in both microeconomic and macroeconomic terms (Łacka, 2017, p. 29, 30). Disparities in the distribution of income, and consequently the living conditions and standard of living of the population, are therefore the subject of numerous studies. Many of them confirm that the scale of disparities in the level of income is decreasing as a result of a faster pace of growth of their average level in poorer countries than in richer countries. On the other hand, it is indicated that due to many cultural, technological and institutional conditions and the implemented socio-economic policy, differences in the level of income on the scale of all humanity are increasing (Kołodko, 2014, p. 26). The literature emphasizes that “some differentiation of population income is inevitable and, to some extent, necessary, as it is an element of motivational mechanisms in consumer behaviour” (Grzywińska-Rapca & Kobylińska, 2019, p. 56).

By analysing household income and its diversity, we can assess different categories of income, including the so-called disposable income. This is income from hired work reduced by social and health insurance contributions, income tax and increased by benefits received from the state budget in the form of cash transfers (Wojciuk, 2018, p. 414). It can be used for expenses and savings (Laskowska, 2020, p. 85). Disposable income reduced by some expenses constitutes the household's own income, which is the main source of meeting its needs (Banaszczak-Soroka, 2019, p. 79, 80). Disposable income can be considered as the average income achieved by the household or the average income per member of this household (Muszyńska, 2006, p. 194). Income can be measured at the level of individual people or at the level of the entire household (Brzeziński, 2017, p. 1).

In summary, each household is different and obtains income from different sources, therefore the amount and structure of their income is different. Households of different sizes differ both in terms of the amount of income they earn and the pattern of consumer spending, which is conditioned by different needs and possibilities of fulfilling them.

## Research Results

The level of average monthly disposable income per person in a household in 2014-2021, taking into account different household sizes, is presented in Table 1.

Table 1

Disposable income per person in households of different sizes

Household size	Average monthly disposable income per person in a household (in PLN)							
	2014	2015	2016	2017	2018	2019	2020	2021
1-person	1,974.7	2,049.3	2,078.1	2,135.6	2,260.7	2,397.2	2,533.7	2,738.0
2-person	1,789.3	1,831.6	1,898.1	1,984.9	2,099.4	2,282.0	2,386.9	2,512.2
3-person	1,460.9	1,522.1	1,576.6	1,687.6	1,821.2	1,964.8	2,066.6	2,201.9
4-person	1,210.4	1,245.2	1,342.3	1,498.8	1,572.9	1,675.9	1,799.6	1,939.4
5-person	946.4	999.3	1,116.2	1,257.6	1,338.2	1,450.4	1,514.0	1,623.8
6-person and more	814.0	829.8	985.6	1,142.1	1,187.8	1,259.1	1,327.4	1,496.9

Source: own study based on the Działdzinowe Bazy Wiedzy (2023).

In the years studied, in each type of household, disposable income per person was higher and higher from year to year. In both the first and the last year covered by the analysis, there were significant disproportions in the level of disposable income between the smallest and largest households. Taking into account 2014, the lowest disposable income was achieved by households of 6 or more people (PLN 814), and the highest by 1-person households (PLN 1,974.7). A similar situation occurred in 2021 (the income of households of 6 or more people was PLN 1,496.9 and of 1-person households PLN 2,738). Thus, 1-person households achieved approximately twice as much disposable income per person in all the years studied than households of 6 or more people. In all the years studied, there was also a noticeable pattern that the larger the household, the lower the disposable income per person.

In order to more precisely analyse the level of disposable income in households of different sizes, Table 2 presents the value of the income dynamics indicator in the years 2014-2021.

In all the years studied, the indicator of the dynamics of disposable income per person in a household, in all household sizes, assumed values above 100 and increased year by year. At the turn of 2014-2021, the highest increase in the indicator was recorded in the case of households of 6 and more persons (an increase of 83.9% compared to the base year), and the lowest in single-person households (an increase of 38.7% compared to the base year). The financial situation of all households in the years studied improved significantly, with

Table 2

Dynamics of changes in disposable income by household size

Household size	Dynamics of changes in disposable income per person in households (2014=100)							
	2014	2015	2016	2017	2018	2019	2020	2021
1-person	100.0	103.8	105.2	108.2	114.5	121.4	128.3	138.7
2-person	100.0	102.4	106.1	110.9	117.3	127.5	133.4	140.4
3-person	100.0	104.2	107.9	115.5	124.7	134.5	141.5	150.7
4-person	100.0	102.9	110.9	123.8	129.9	138.5	148.7	160.2
5-person	100.0	105.6	117.9	132.9	141.4	153.3	160.0	171.6
6-person and more	100.0	101.9	121.1	140.3	145.9	154.7	163.1	183.9

Source: own studies based on Table 1.

a higher rate of income growth recorded in the group of households characterized by a lower level. It was therefore possible to notice a regularity that the larger the household, the more its disposable income per person increased, which may be related to, for example, 800+ benefits transferred to children.

As shown, the level of disposable income per person in a household varies depending on the size of the household. To assess the scale of this differentiation, Figure 1 presents the values of the coefficient of variation for individual years.

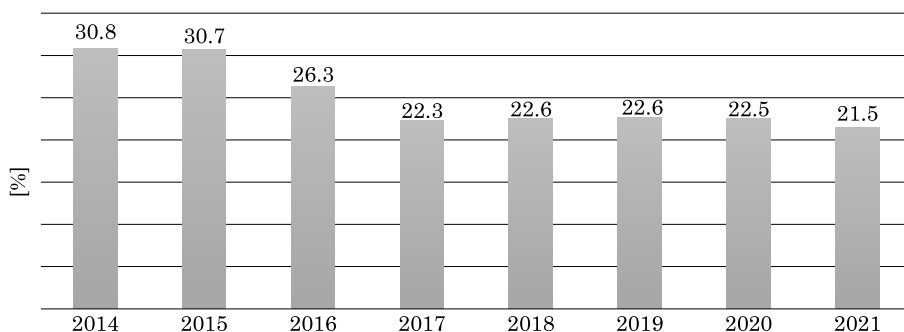


Fig. 1. Coefficient of variation of disposable income of households by their size

Source: own studies based on Table 1.

In the years 2014-2021, the coefficient of variation assumed values from 21.5% (the lowest value in 2021) to 30.8% (the highest value in 2014). In all years, the size of the household significantly differentiated the level of disposable income achieved. Importantly, the values of the coefficient of variation of household income decreased in almost all years. It can therefore be concluded that the differences in the level of disposable income of different sizes of households decreased. A decrease in this differentiation was also noted during the pandemic.

It is also worth noting that the values of the coefficient of variation analysed by household size were significantly higher than in the case of analyses conducted by voivodeship or class of place of residence (Laska, 2023, p. 43-55).

## Summary

Households derive income from various sources, such as employment or social benefits. However, the level of income achieved may be different in different types of households, and may also change over time, due to the changing economic situation in the country, changing inflation or wage levels. In light of the above, the aim of the research was to assess the scale of differentiation of household income in Poland in the years 2014-2021 due to their size. The basis for this assessment was the analysis of changes that occurred in the level of income of different sizes of households in 2014-2021.

The results of the conducted research can be summarized as follows. In the years studied, in each type of household (taking into account its size), disposable income increased. Both in the first and in the last year covered by the analysis, the lowest disposable income was achieved by households of 6 or more people, and the highest income by households of 1 person. The level of income in these households was almost twice as high as in the largest households. It was also noted that larger households recorded a higher rate of growth in the aforementioned income. As a result of the changes taking place, the coefficient of variation assumed values from 21.5% to 30.8% in the years 2014-2021. In all years, the size of the household significantly differentiated the level of disposable income of households, with this differentiation showing a decreasing trend. Interestingly, during the COVID-19 pandemic, the downward trend in this respect was even stronger than in several previous years. It was also noted that the values of the coefficient of variation analysed by household size were significantly higher than in the case of analyses conducted by voivodeship or place of residence class.

Based on the results of the conducted research, it is possible to answer the research question posed, which was: *Has the differentiation of household incomes, taking into account the criterion of their size, increased or decreased in the years 2014-2021?* In answer to this question, it should be stated that in the period under review, the differentiation of incomes by household size decreased, which can be considered a positive trend.

The increase in income of various sizes of households in Poland, with a simultaneous reduction in the scale of differentiation in this area, was reflected in the increase in consumer spending, the change in the structure of consumption, the increase in the level of savings and the improvement in the quality of life of household members. The improvement in the financial situation of the poorest, large families has contributed to the reduction of the scale of poverty in the Polish economy, which is conducive to sustainable economic development.



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