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Household income inequality in Poland between 2005 and 2019: A decomposition of the Gini coefficient by income sources

Introduction

The decomposition of income inequality by income sources is an important part of the analysis of income disparities, since it helps to assess the contribution of individual factor components to total income inequality. The decomposition of income disparities may also be used as a preliminary analysis of income inequality determinants.

Several years before Poland's entry into the EU, the issues surrounding the economic and social consequences of this decision were a subject of considerable debate. Some people argued that one of the effects of Poland's accession to the EU would be a considerable increase in income inequality. More than a decade after entry into the EU, this unfounded fear is not supported by official data, regardless of their source. Another interesting issue is the structure of income inequality and the question whether and to what extent it has changed after 2004.

This paper empirically analyses the decomposition of the Gini coefficient by factor components in Poland from 2005 to 2019 based on non-identifiable, individual data from household budget surveys (Poland's Central Statistical Office). The decomposition was used to assess the contribution of individual income components to overall income inequality in Poland. The method of decomposition by income components applied in this study was the approach of Lerman and Yitzhaki (1985). The following structure of the study was applied to the aim of this study. The first part presents the decomposition method used in the empirical

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analysis. The second part contains a description of the data used in this study. The results of the Gini decomposition by income sources in Poland from 2005 to 2019 are presented in part three. The analysis is preceded by an overview of the trends in income inequality in Poland during the analysed period. The fourth part concludes the report.

ANALYTICAL FRAMEWORK

The method of Gini decomposition by income sources applied in this empirical analysis was taken from the study of Lerman and Yitzhaki (1985). This approach has been widely used in the literature on income inequality decomposition and may be presented as follows (Lerman, Yitzhaki, 1985; Stark, Taylor, Yitzhaki, 1986). The point of departure is one of the Gini coefficient formulas:

$$(1) \quad G_0 = \frac{2cov[y_0,F(y_0)]}{\mu_0} \ ,$$

where G_0 represents the Gini coefficient of overall income, and y_0, μ_0, and $F(y_0)$ denote income, mean income, and the cumulative distribution of total income, respectively. It is assumed that household income can be divided into K income components: $y_0 = \sum_{k=1}^{K} y_k$, where y_1, …, y_k are income sources. Thus, we can write and transform equation (1) as follows:

$$(2) \quad G_0 = \frac{2\sum_{k=1}^{K} cov[y_k,F(y_0)]}{\mu_0} =$$

$$(3) \quad = \sum_{k=1}^{K} \left(\frac{cov[y_k,F(y_0)]}{cov[y_k,F(y_k)]}\right) \times \left(\frac{2cov[y_k,F(y_k)]}{\mu_k}\right) \times \left(\frac{\mu_k}{\mu_0}\right) =$$

$$(4) \quad = \sum_{k=1}^{K} R_k G_k S_k \ .$$

where S_k is the share of source k of household incomes in the total income, G_k is the Gini coefficient corresponding to income component k, and R_k is the Gini correlation of component k with the total income:

$$(5) \quad R_k = \frac{cov[y_k,F(y_0)]}{cov[y_k,F(y_k)]} \ .$$

The Gini correlation takes on values between -1 and 1, i.e. 1) if R_k is equal to -1, then y_k is a decreasing function of total income, 2) if R_k is equal to *0*, then y_k and y_0 are independent, and 3) if R_k is equal to 1, then y_k is an increasing function of overall income.

Stark, Taylor and Yitzhaki (1986) show that the effect of a marginal change in individual income sources on overall income inequality may be calculated as follows[2]. If we consider an exogenous change in the income of each household of component k equal to $e_k y_k$, where e_k is close to 1, then:

$$(6) \quad \frac{\partial G_0}{\partial e_k} = S_k(R_k G_k - G_0)\,,$$

$$(7) \quad \frac{\partial G_0 / \partial e_k}{G_0} = \frac{S_k\, R_k G_k}{G_0} - S_k$$

The decomposition approach of Lerman and Yitzhaki (1985) is similar to the method of Fei *et al*. (1978), but both methods differ in their derivation and somewhat in their interpretation (Lerman, 1999). However, adding a part of the decomposition of Fei *et al*. (1978) may facilitate and be helpful in the interpretation of the contribution of individual income sources to overall income. The components of their Gini decomposition are the following (cf. Fei *et al*., 1978), pp. 47–48):

$$(8) \quad G_0 = \sum_{k=1}^{K} S_k \overline{G_k},$$

where $\overline{G_k}$ is the so-called pseudo-Gini, which is simply the product of the Gini correlation of income source k and the Gini coefficient corresponding to income component k. The term *pseudo-Gini* is sometimes substituted by *puppet Gini coefficient*, "centralising rate of the income source k" or "concentration ratio of income source k" in the literature on income inequality (Giorgi, 2011; Chen, Zhou, 2005). The difference between the pseudo-Gini of the income source k and the Gini coefficient corresponding to the income component k consists of the ordering of the income source k. G_k is calculated by the order of source k itself, whereas $\overline{G_k}$ is calculated for source k, when the ranking is based on total income. Thus, both inequality measures are identical only if the ranking of the income component k corresponds to the ranking of overall income.

Comparing the values of the pseudo-Gini for each income source k and the Gini coefficient for overall income allows us to easily and directly assess the impact of each income component on overall income inequality:

(1) if $\overline{G_k} < 0$, then income source k necessarily reduces overall income inequality,

(2) if $\overline{G_k} > G_0$, then income source k enhances total income inequality,

[2] A detailed derivation can be found in Stark, Taylor and Yitzhaki (1986).

(3) if $0 < \overline{G_k} < G_0$, then the contribution of income source k to overall income inequality is positive, although the source reduces income inequality to some extent[3].

The economic literature yields numerous empirical studies on the decomposition by income components. Part of this research is dedicated to the decomposition of inequality measured by the Gini coefficient and some of it to the method of Lerman and Yitzhaki (1985). Among the empirical studies that used their approach for decomposing income inequality in individual countries or in groups of countries, we can mention Stark, Taylor, Yitzhaki (1986), Karoly, Burtless (1995), Achdut (1996), Garner, Terrell (1998), Brandolini, Smeeding (2009), Azam, Shariff (2011), Jędrzejczak (2008) and (2010), García-Peñalosa, Orgiazzi (2013), Amarante (2016), Rani, Furrer (2016), González Pandiella, Gabriel (2017), Černiauskas, Čiginas (2020), and Wołoszyn (2020). All of these studies use different databases and data adjustments, so their results are not directly comparable (or a general comparison has to be made with great caution), however this research allows for a better understanding of the determinants of income inequality in the analysed countries.

DATA

The decomposition of the Gini coefficient by income sources in Poland from 2005 to 2019 was based on non-identifiable, individual data from household budget surveys (HBS) collected by Poland's Central Statistical Office (GUS)[4]. GUS conducts the HBS every year and the data are one of the main sources of information on Poles' expenditures, living conditions and incomes. The surveys are based on the monthly rotation method and on the representative method. From 2005 to 2019, the HBS covered approximately 37,500 households, which is equivalent to slightly fewer than 110,000 persons (with the exception of 2005, when almost 35,000 households were surveyed).

Since 2005, only one significant change has been made in the methodological system of the HBS: different weightings of household data were used in 2005–2012 and 2013–2019. A part of the households selected by GUS refuse to participate in the survey; thus, the structure of the surveyed sample and the

[3] Stark, Taylor and Yitzhaki (1986, p. 731) use a very enlightening illustration of the positive impact of the pseudo-Gini on income inequality in point (3). They use the example of a chemical experiment where a highly concentrated solution (overall income inequality minus source *k*) is being diluted by a less concentrated solution (income source *k* with the property of $0 < \overline{G_k} < G_0$), but one that is still concentrated (!). The effect is a mixture of both solutions where the less concentrated one contributes (positively) to the overall concentration of the mixture.

[4] The results of the empirical analysis presented in this study are the author's own calculations based on data made available by GUS. GUS is not responsible for the conclusions contained in this paper.

selected one differ in regard of socioeconomic traits. Therefore, the survey results must be weighted with the national census data broken down by the number of people living in urban and rural areas (GUS, 2014, p. 31) to allow for the generalisation of the results to the whole population of Polish households. For the years 2005–2012, the 2002 National Census was applied and for 2013–2019, the 2011 National Census. However, apart from this exception, minor methodological changes that occurred during the analysed period did not have any noticeable impact on the results of this empirical study (e.g. other income). Thus, the results HBS data and the obtained for individual years from 2005 to 2012 and, separately, from 2013 to 2019 are directly comparable.

For the purpose of this study, income was defined as follows. Overall income is the sum of the income components that constitute available income according to the definition of GUS. The following income sources were taken into account:

1. income from employment,
2. income from a private farm,
3. income from self-employment,
4. income from ownership,
5. income from property rental,
6. social security benefits,
7. other social benefits,
8. other income (including gifts and alimony payments).

In this study, the household was chosen as the unit of analysis. Household income was adjusted using the modified equivalence scale, which assigns a weight of 1 to the head of the household, 0.5 to each person aged 14 and over, and 0.3 to each child.

Income from a private farm in agriculture requires a comment. Throughout the period analysed, about 20–25% of households that recorded income from this source reported negative income in this category. Since the calculation of the Gini coefficient requires income to be non-negative, negative incomes from a private farm in agriculture were substituted by 0. Therefore, this adjustment could have had some impact on the real contribution of income from this category to overall income.

The calculations were performed using Excel and DAD 4.6. – software for distributive analysis (Jean-Yves Duclos, Abdelkrim Araar and Carl Fortin, "DAD: A Software for Distributive Analysis/Analyse Distributive", MIMAP programme, International Development Research Centre, Government of Canada, and CIRPÉE, Université Laval).

Empirical results

Before we analyse the components of the Gini coefficient decomposition, it is important to take a look at overall income inequality in Poland between 2005 and

2019. Figure 1 presents four time series of income disparities measured by the Gini coefficient. The differences between the data are clearly visible, especially if we compare, for example, the trends in inequality based on Eurostat (EU-SILC) and GUS (HBS) data[5]. We must bear in mind that the differences in income inequality shown by individual data result from different income distributions being taken into account. In particular, the differences result from the choice of the unit of analysis (EU-SILC – a person, HBS – a household), the definition of income (EU-SILC – disposable income, HBS – available income) and the applied equivalence scale (EU-SILC – modified OECD equivalence scale, HBS – per capita income). In addition, methodological issues related to collection of the data (EU-SILC and HBS are two different databases) is a very important problem; e.g. the EU-SILC are annual data and the HBS are collected on a monthly basis.

Figure 1 shows changes in income inequality that occurred in Poland over the analysed period. Eurostat data show the most significant decrease in income disparities, while the authors' calculations based on HBS data (PGG) indicate that this decrease was rather moderate. Apart from the interpretation of this change in income inequality, which is the result of the adoption of different assumptions underlying the calculations (see: the paragraph above), an interesting research problem is the structure of income disparities and the drivers of their decline. The Gini coefficient decomposition carried out below is intended to answer this question.

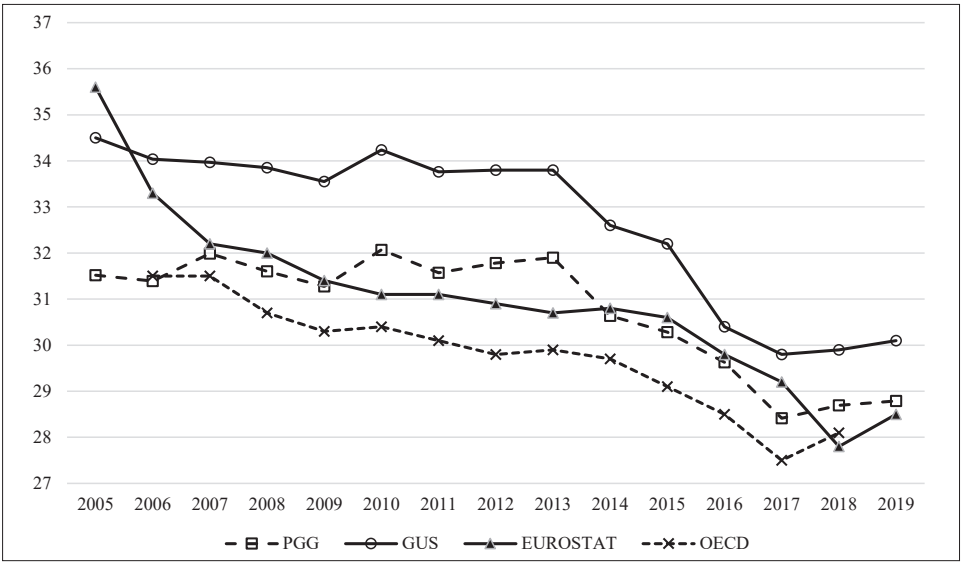

Figure 1. Income inequality (Gini, in %) in Poland from 2005 to 2019

Source: Eurostat; OECD; GUS; own calculation based on HBS (PGG) data.

[5] To be precise, both EU-SILC as well as HBS data are collected by GUS.

Figure 2 shows the relative contribution to the overall income inequality in Poland of the eight income sources analysed. It is clearly seen that income from employment played the most significant role in explaining income disparities from 2005 to 2019. This impact was continuously growing from 2005 to 2011 and then became variable, reaching a 12 percentage point higher value in 2019 compared to 2005. Such a considerable contribution to total income inequality (more than 50% at the beginning and about 64% at the end of the analysed period) resulted mainly from the increasing share of income from employment in overall income and – to a lesser extent – from the growing correlation of this income source with total income. The distribution of income from employment became more equal during the analysed period.

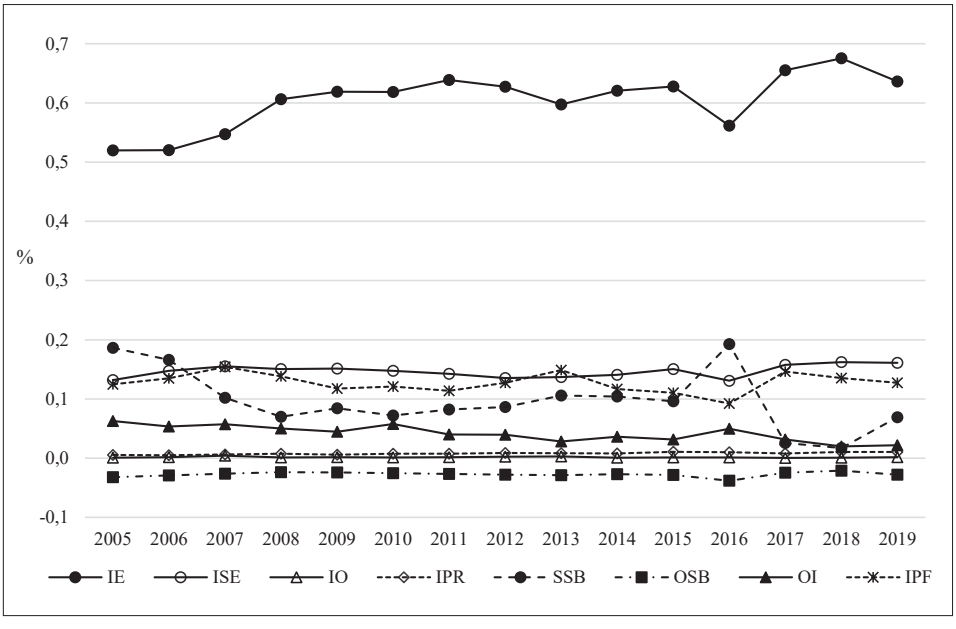

Figure 2. Relative contribution to the overall income inequality of individual income components in Poland – 2005–2019

Note: IE – income from employment; ISE – income from self-employment; IO – income from ownership; IPR – income from property rental; SSB – social security benefits; OSB – other social benefits; OI – other income (including gifts and alimony payments); IPF – income from a private farm.

Source: Own calculation based on HBS data.

Three other sources of income – from self-employment, from private farms, and from social security benefits – contributed to overall income inequality to a much lesser extent, however, still having a noticeable impact. The significance

of social security benefits in explaining income inequality changed in an almost contrary direction to the contribution of income from employment (Figure 2). The relative contribution of this source of income to the income disparities was the most variable during the analysed period. The role of social security benefits in explaining income inequality decreased visibly between 2005 and 2008 (from about 18.5% to about 7%), remained stable over the next seven years, then increased to over 19% in 2016, and then its significance declined (to about 7% in 2019). Changes in the contribution of this income source were consistent with the variability (direction) of all three Gini decomposition components. Comparing 2019 with 2005, we can observe a slight decrease in the share of social security benefits in overall income, a small increase in the Gini coefficient of this income source, and a significant drop in the Gini correlation, which, however, remained positive. This means that social security benefits were a positive function of total income, but this relationship weakened considerably over time.

The contribution of income from self-employment to income inequality in Poland was relatively stable over the analysed period, at about 14–16%; however, it increased slightly between 2005 and 2019. The distribution of this income source was very unequal and highly correlated with overall income, and its increasing role in explaining income disparities resulted mainly from its increasing share in overall income, which was still small (about 8% in 2019) compared to income from employment or social insurance benefits (about 47% and 30%, respectively).

The share of income from private farms in total income was somewhat smaller than that from self-employment income and decreased from 7% (2005) to 5% (2019). On the other hand, farm income became more unequal during this period. The role of income from agriculture in explaining income inequality in Poland varied between 2005 and 2019 and was about the same at the beginning and at the end of the analysed period. The variability in the contribution of this source of income was mainly due to changes in the Gini correlation term.

As has already been mentioned, income from a private farm in agriculture gives rise to some problems in interpreting its contribution to overall income inequality because this source of income was subject to the adjustment of negative incomes. The issue of negative incomes in this category of income source probably results from the fact that the HBS data are collected on a monthly basis. Since income from a private farm in agriculture "is measured as a difference between the farm output (including natural consumption), the supplement related to the use of a private farm in agriculture and the current investment in the farming production and farm-related taxes" (GUS, 2014, p. 33), income in this category may be negative in some months. However, the calculation of income inequality and the contribution of farm income to income inequality would probably be more precise if income from this source was calculated on an annual basis to avoid the bias related to negative income.

Income from ownership and income from property rental had a negligible impact on explaining income disparities in Poland between 2005 and 2019. Both income sources were the most unequally distributed and highly positively correlated with overall income. Their share was increasing slightly over the analysed period.

Other social benefits were the only income source that was negatively correlated with overall income, thus it was the only income source that necessarily contributed to reducing overall income inequality ($\overline{G_k} < 0$). This means that not only was the share of other social benefits declining with overall income, but the absolute value of those benefits was decreasing with total income.

The contribution of other income (including gifts and alimonies) to income inequality decreased from year to year during the analysed period. This income source was unequally distributed, however, its correlation with overall income was low, which explains why this income component was reducing income inequality between 2005 and 2019. Nevertheless the share of other income in overall income was decreasing, which resulted in a diminishing contribution of this income source to total income inequality.

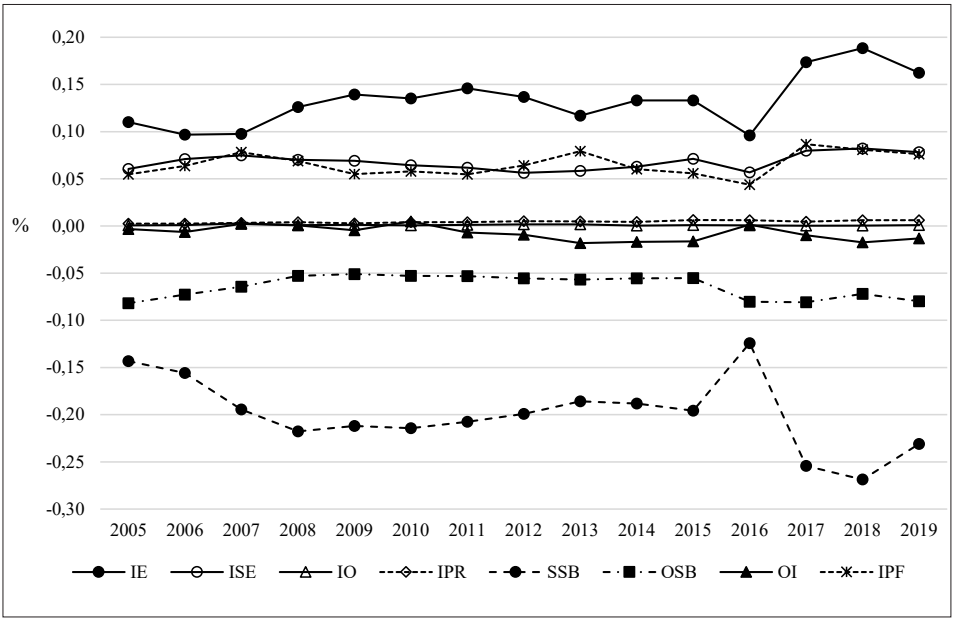

Figure 3. Effect of a marginal percentage change in income sources on overall income inequality in Poland – 2005–2019

Note: Abbreviations as in Figure 2.

Source: Own calculation based on HBS data.

Three income sources were characterised by a concentration coefficient with a value lower than the Gini coefficient for overall income. This means that these income sources had an equalising effect on overall income inequality in Poland. Among these three sources, only other social benefits had an absolute reducing effect on income inequality. As mentioned above, other social benefits were the only source with a negative Gini correlation and a negative concentration coefficient. Figure 3 presents the effect of a small percentage change in individual income sources on overall income inequality. As can be seen, a marginal change in three categories of income – social insurance benefits, other social benefits, and other income – had the effect of reducing total income inequality over the analysed period. The largest response to a marginal percentage change in income source k on the overall income inequality was recorded in the case of income from employment (a positive impact between approximately 0.10% and 0.19%) and social security benefits (a negative impact between approximately 0.13% and 0.27%). The effect of a marginal percentage change of property income and income from rental of a property or land on total income inequality was very small, although it was increasing for property rental. A relatively small marginal effect on overall income inequality was observed in the case of income from agriculture, however, as has already been pointed out, this income component has to be treated with caution.

CONCLUSIONS

The Gini coefficient decomposition by income components carried out in this study revealed that income from employment explained the overall income inequality in Poland to the greatest extent among all income sources throughout the period 2005–2019. The contribution of income from employment to total income inequality increased by 12 percentage points between 2005 and 2019, reaching almost 68% at its peak in 2018. On the other hand, the input of social security benefits to overall income inequality was the most variable throughout the analysis period, eventually decreasing its role in explaining inequality. The rest of the income sources did not show such great variability in their contribution to total income inequality. Income components that were distributed most unequally and were highly correlated with total income, income from property, and income from property rental, had a marginal contribution to overall income inequality because of their very small share in total income. Other social benefits revealed an absolute reduction impact on total income inequality. The importance of other income decreased significantly between 2005 and 2019.

The greatest impact of a marginal change in income components on overall income inequality was observed in the case of income from employment (positive

effect) and social security benefits (negative effect). Among all of the analysed income sources, social security benefits, other social benefits, and other income revealed a negative effect of a marginal change upon total income disparities throughout the analysed period.

Overall, the results of the Gini decomposition obtained in this empirical study are consistent with the inequality structure in other developed countries. For example, in developed countries, income from hired work usually explains the bulk of overall income disparities, while social benefits such as unemployment benefits and housing subsidies typically contribute to a reduction in income inequality.

Some research has been published to date on inequality decomposition in Poland based on the method of Lerman and Yitzhaki (1985), among them Brandolini, Smeeding (2009), Jędrzejczak (2008) and (2010) and Wołoszyn (2020). The mentioned studies analyse the income inequality decomposition over different time spans or single years, whereas this study takes into account 15 consecutive years, making a more detailed analysis possible. The research listed above also differs in the data adjustment or database applied (Brandolini, Smeeding, 2009). However, in general, the conclusions on the structure of income inequality drawn from these studies are in line with our research.

As Lea Achdut emphasises in the comment in the chapter of Robert I. Lerman (1999), the decomposition of income inequality by income sources is only one way to explain trends in income inequality. A useful extension of this analysis would be the decomposition of income inequality by subgroups or a time series model explaining the relationship between income inequality (components) and its potential determinants. Such a comprehensive analysis would make it possible to identify the main factors influencing inequality and their change over time. Furthermore, this empirical study could be extended by several years. However, a problem of data comparability would arise, as significant methodological changes occurred in HBS in the years prior to 2005.

It should be emphasised that the assumptions adopted in this empirical study determine the results obtained and their interpretation. These assumptions concern mainly the unit of analysis, the definition of income, and the equivalence scale. Thus, a very important remark is that the results obtained have to be interpreted carefully, especially because any modification of the assumptions may change the results.

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Summary

The aim of this paper is the empirical analysis of the Gini coefficient decomposition by income sources in Poland between 2005 and 2013. The decomposition was used to assess the contribution of income components to the overall income inequality in Poland.

The empirical analysis was based on non-identifiable, individual household budget survey data collected by the Central Statistical Office of Poland. The method of decomposition by income components applied in this study was the approach of Lerman and Yitzhaki (1985).

The study revealed that employment income contributed to the greatest extent to overall income inequality in Poland during the analysis period. At the same time, this income source showed a significant increase in explaining inequality, reaching almost 64% in 2019. Apart from employment, among all of the income sources analysed, only the contribution of social security benefits to income disparities changed significantly, dropping from almost 19% in 2005 to 7% in 2019. Income from self-employment explained about 15% of inequality in Poland throughout the analysed period. The contribution of the rest of income sources to income inequality was also relatively stable, though less significant. The only income category that contributed negatively to inequality was the other social benefits component.

The largest impact of a marginal change in income components on overall inequality was due to income from employment (positive effect) and social security benefits (negative effect). A negative impact of a marginal change in specific income sources on inequality was observed in the case of social security benefits, other social benefits, and other income.

Keywords: income distribution, income inequality, decomposition.

Nierówności dochodów gospodarstw domowych w Polsce w latach 2005–2019 – dekompozycja współczynnika Giniego ze względu na źródła dochodów

Streszczenie

Celem niniejszego artykułu jest przeprowadzenie dekompozycji współczynnika Giniego ze względu na źródła dochodów w Polsce w latach 2005–2019. Dekompozycja pozwoliła na ocenę tego, w jaki stopniu poszczególne źródła dochodów wyjaśniają kształtowanie się nierówności dochodów ogółem w Polsce w badanym okresie.

Analiza empiryczna została wykonana na nieidentyfikowalnych, jednostkowych danych z Badań Budżetów Gospodarstw Domowych przeprowadzonych przez Główny Urząd Statystyczny. Posłużono się metodą dekompozycji zaproponowaną przez Lermana i Yitzhakiego (1985).

Badanie ujawniło, że dochody z pracy najemnej w największym stopniu wyjaśniały zróżnicowanie dochodów w Polsce między 2005 a 2019 rokiem. W badanym okresie wkład tego źródła dochodów w nierównościach dochodów wyraźnie wzrastał, osiągając niemalże 64% w 2019 roku. Poza dochodami z pracy najemnej, jedynym źródłem, które wykazywało znaczącą zmienność w wyjaśnianiu zróżnicowania dochodów były świadczenia z ubezpieczeń społecznych, których wkład

zmalał z niemal 19% w 2005 r. do 7% w 2019 r. Dochód z pracy na własny rachunek wyjaśniał około 15% nierówności dochodów ogółem w ciągu całego badanego okresu. Wkład reszty źródeł dochodów był także względnie stabilny, mimo iż mniej znaczący. Jedynym źródłem dochodów, które w ujęciu absolutnym, jednoznacznie przyczyniało się do zmniejszenia nierówności dochodów była kategoria „pozostałe świadczenia społeczne".

Największy wpływ krańcowej zmiany źródła dochodów na nierówności dochodów ogółem w badanym okresie obserwowano w przypadku dochodów z pracy najemnej (dodatni wpływ) oraz świadczeń z ubezpieczeń społecznych (ujemny wpływ). Ujemne oddziaływanie niewielkiej względnej zmiany źródła dochodów na zróżnicowanie dochodów występowało w przypadku świadczeń z ubezpieczeń społecznych, pozostałych świadczeń społecznych i pozostałego dochodu.

Słowa kluczowe: rozkład dochodów, nierówności dochodów, dekompozycja.

JEL: D30, D33.

Appendix

Table 1A. Composition of income inequality in Poland – 2005–2019

Income source	Year	S_k – share of component k in total income	G_k – Gini coefficient corresponding to income component k	R_k – Gini correlation of component k with total income	G_kR_k – concentration coefficient
1	*2*	*3*	*4*	*5*	*6*
Income from employment	2005	0.4096	0.6780	0.5899	0.4000
	2006	0.4233	0.6599	0.5845	0.3857
	2007	0.4499	0.6386	0.6095	0.3892
	2008	0.4804	0.6233	0.6399	0.3988
	2009	0.4794	0.6284	0.6424	0.4037
	2010	0.4836	0.6270	0.6543	0.4103
	2011	0.4926	0.6251	0.6548	0.4093
	2012	0.4907	0.6263	0.6490	0.4065
	2013	0.4804	0.6274	0.6321	0.3966
	2014	0.4877	0.6199	0.6310	0.3912
	2015	0.4950	0.6095	0.6311	0.3846
	2016	0.4655	0.6272	0.5673	0.3558
	2017	0.4815	0.6037	0.6489	0.3917
	2018	0.4868	0.6065	0.6648	0.4032
	2019	0.4738	0.6086	0.6436	0.3917
Income from self-employment	2005	0.0717	0.9519	0.6098	0.5805
	2006	0.0767	0.9526	0.6344	0.6043
	2007	0.0803	0.9494	0.6511	0.6182
	2008	0.0801	0.9465	0.6266	0.5931
	2009	0.0821	0.9434	0.6102	0.5757
	2010	0.0829	0.9407	0.6060	0.5701
	2011	0.0807	0.9415	0.5926	0.5579
	2012	0.0791	0.9426	0.5775	0.5443
	2013	0.0785	0.9427	0.5893	0.5555
	2014	0.0779	0.9442	0.5876	0.5548
	2015	0.0795	0.9443	0.6080	0.5741
	2016	0.0741	0.9446	0.5515	0.5209
	2017	0.0778	0.9410	0.6197	0.5831
	2018	0.0800	0.9406	0.6263	0.5891
	2019	0.0827	0.9378	0.6054	0.5677

1	*2*	*3*	*4*	*5*	*6*
Income from ownership	2005	0.0004	0.9995	0.8117	0.8113
	2006	0.0006	0.9995	0.8023	0.8020
	2007	0.0015	0.9995	0.9318	0.9314
	2008	0.0005	0.9996	0.8183	0.8180
	2009	0.0006	0.9994	0.8657	0.8652
	2010	0.0004	0.9997	0.8708	0.8705
	2011	0.0007	0.9996	0.8378	0.8375
	2012	0.0009	0.9998	0.8968	0.8967
	2013	0.0010	0.9996	0.8502	0.8499
	2014	0.0003	0.9996	0.6611	0.6609
	2015	0.0005	0.9997	0.8581	0.8578
	2016	0.0004	0.9996	0.7065	0.7062
	2017	0.0002	0.9997	0.7178	0.7176
	2018	0.0003	0.9996	0.7056	0.7053
	2019	0.0006	0.9996	0.7916	0.7914
Income from property rental	2005	0.0030	0.9956	0.5758	0.5733
	2006	0.0025	0.9965	0.6293	0.6271
	2007	0.0029	0.9962	0.6666	0.6641
	2008	0.0032	0.9965	0.7214	0.7189
	2009	0.0028	0.9956	0.6280	0.6253
	2010	0.0035	0.9955	0.6844	0.6813
	2011	0.0037	0.9950	0.6584	0.6551
	2012	0.0039	0.9955	0.7327	0.7294
	2013	0.0039	0.9947	0.7146	0.7109
	2014	0.0035	0.9948	0.6970	0.6934
	2015	0.0044	0.9950	0.7428	0.7391
	2016	0.0040	0.9952	0.7469	0.7433
	2017	0.0033	0.9945	0.6851	0.6813
	2018	0.0043	0.9942	0.7028	0.6988
	2019	0.0044	0.9939	0.7075	0.7032

1	*2*	*3*	*4*	*5*	*6*
Social security benefits	2005	0.3295	0.6456	0.2758	0.1781
	2006	0.3219	0.6468	0.2504	0.1620
	2007	0.2963	0.6502	0.1692	0.1100
	2008	0.2877	0.6507	0.1184	0.0770
	2009	0.2962	0.6520	0.1366	0.0891
	2010	0.2863	0.6582	0.1226	0.0807
	2011	0.2896	0.6611	0.1354	0.0895
	2012	0.2858	0.6685	0.1440	0.0963
	2013	0.2917	0.6712	0.1726	0.1158
	2014	0.2925	0.6709	0.1633	0.1096
	2015	0.2915	0.6687	0.1491	0.0997
	2016	0.3167	0.6758	0.2654	0.1794
	2017	0.2799	0.6626	0.0399	0.0265
	2018	0.2858	0.6539	0.0266	0.0174
	2019	0.3000	0.6575	0.1021	0.0671
Other social benefits	2005	0.0500	0.8217	-0.2450	-0.2013
	2006	0.0437	0.8289	-0.2513	-0.2083
	2007	0.0381	0.8373	-0.2628	-0.2201
	2008	0.0291	0.8555	-0.3022	-0.2585
	2009	0.0270	0.8598	-0.3221	-0.2769
	2010	0.0275	0.8639	-0.3421	-0.2955
	2011	0.0266	0.8683	-0.3637	-0.3158
	2012	0.0275	0.8671	-0.3718	-0.3224
	2013	0.0281	0.8742	-0.3729	-0.3260
	2014	0.0283	0.8859	-0.3339	-0.2958
	2015	0.0268	0.8913	-0.3606	-0.3214
	2016	0.0422	0.8467	-0.3149	-0.2666
	2017	0.0564	0.8028	-0.1546	-0.1241
	2018	0.0508	0.8146	-0.1479	-0.1205
	2019	0.0518	0.7725	-0.2035	-0.1572

1	*2*	*3*	*4*	*5*	*6*
Other income (including gifts and alimony payments)	2005	0.0659	0.8590	0.3493	0.3001
	2006	0.0600	0.8668	0.3235	0.2804
	2007	0.0551	0.8857	0.3753	0.3324
	2008	0.0495	0.8920	0.3582	0.3196
	2009	0.0490	0.8906	0.3192	0.2843
	2010	0.0529	0.9038	0.3876	0.3503
	2011	0.0471	0.8928	0.3013	0.2690
	2012	0.0489	0.8856	0.2906	0.2574
	2013	0.0465	0.8888	0.2189	0.1945
	2014	0.0530	0.8550	0.2447	0.2092
	2015	0.0478	0.8604	0.2327	0.2003
	2016	0.0484	0.8692	0.3493	0.3036
	2017	0.0412	0.8721	0.2512	0.2191
	2018	0.0374	0.8619	0.1794	0.1546
	2019	0.0353	0.8781	0.2074	0.1821
Income from a private farm	2005	0.0699	0.9517	0.5903	0.5618
	2006	0.0713	0.9549	0.6220	0.5939
	2007	0.0759	0.9606	0.6765	0.6499
	2008	0.0695	0.9624	0.6532	0.6286
	2009	0.0628	0.9613	0.6095	0.5860
	2010	0.0628	0.9658	0.6386	0.6167
	2011	0.0590	0.9672	0.6297	0.6091
	2012	0.0632	0.9679	0.6614	0.6401
	2013	0.0697	0.9714	0.7012	0.6812
	2014	0.0567	0.9699	0.6526	0.6330
	2015	0.0545	0.9711	0.6322	0.6139
	2016	0.0486	0.9698	0.5780	0.5605
	2017	0.0597	0.9747	0.7244	0.7060
	2018	0.0545	0.9798	0.7371	0.7222
	2019	0.0514	0.9821	0.7360	0.7228

Note: The G_k values are much higher than compared with the Gini coefficient (G_0) for overall income presented in Figure 1 since they show how particular income sources are distributed among the population (obviously, not every household receives income from every income source, however, those households not receiving income from a particular income source are counted in the calculations and are assigned a value of *0* from this income source).

Source: own calculation based on HBS data.