

## LEVEL OF INCOME DIFFERENTIATION BY GROUPS OF PEOPLE ACCORDING TO THEIR SOCIAL STATUS IN SOCIETY

**MICHAELA BRAZDILOVA**

University of Economics Prague, Faculty of Informatics and Statistics, Department of Economic  
Statistics, W. Churchill Sq. 4, 130 67 Prague 3, Czech Republic  
email: michaela.brazdilova@vse.cz

**PETR MAZOUCH**

University of Economics Prague, Faculty of Informatics and Statistics, Department of Economic  
Statistics, W. Churchill Sq. 4, 130 67 Prague 3, Czech Republic  
email: petr.mazouch@vse.cz

### **Abstract**

*Aim of this contribution is to identify and describe socio-economical factors which influence income inequality in society. Because the income level and also its inequality are the important indicators measuring the living standards of people, it is necessary to find out factors, which most affect their values. Main goal is to quantify impact of specific groups of people to total income inequality by decomposition of indicators of inequality in society. Groups of persons are defined by their education or social status. This makes connection between those indicators as social status and income level are. Income distribution has also influence to risk of poverty and this is reason why relationship between income inequality and poverty in specific groups is also discussed. Trends of time series of those indicators are also analyzed.*

**Key words:** *income distribution, decomposition of income inequality, risk of poverty, social status.*

### **1. Introduction**

Income inequality and poverty are important indicators of living standards, but there exist many ways how can be measured. Poverty is usually understood as a level of living and can be perceived absolutely or relatively. In this case poor people are those, their consumption is below a given level of need. Besides the ratio of people bellow (absolutely or relatively determined) minimum level of living, we can measure “How much more is held by rich people than poor people” (Ravallion, 2003) which shows disparities in level of living in society, which is called inequality. Further we also distinguish between absolute and relative poverty. According to (Ravallion, 2003) absolute poverty means a certain level of purchasing power. Because in each country purchasing power varies, there is also different absolute poverty line. In this case we are talking about relative poverty, which depends on each area. (Ravallion, 2003).

Poverty line is typically determined relatively to mean income, so then this measure has similar behavior as inequality. Poverty and inequality are usually calculated from household consumption expenditure or more often from normalized income. To find the poverty rate it is necessary to conduct a survey about incomes. Followed by determining the poverty line,

which is usually per cent of median of income distribution. Then it is possible to count how many people live below this poverty line and this gives poverty rate (Ravallion, 2003).

The other article (Sirovátka and Mareš, 2006) focuses directly on poverty in the Czech Republic. The poverty rate indicates how many percent of people live below 60 per cent of the national income median. The data on the web-side from Eurostat (Eurostat, 2014) indicate that the Czech Republic still achieves the lowest rate in Europe. According to (Sirovátka and Mareš, 2006) it could be because of relatively low national income median, which means lower purchasing power, and narrow income distribution. They declare that in the Czech Republic a lot of people are located between the 60 per cent and 70 per cent threshold. To this fact also contributes former egalitarian character of the Czech social structure, where redistribution of incomes is applied. The level of income distribution is presented by Eurostat (Eurostat, 2014) and income inequality is on average in Europe higher than in Czech Republic, what also proves income equality in here.

Whole this paper is based on the previously mentioned assumption that a directly proportional relationship between the level of poverty rate and income inequality exists. The main objective of this research is to find the differences of level of income inequality among groups of people because population is not homogenous and we can see that some groups are more under risk of poverty than other. The criterion for classification of people will be level of education, precisely variable "highest attained education" and then "social status" of people in the society. These can influence the income of people the most. It is necessary to find out the values of poverty rate and income inequality within each group according to both classifications.

## 2. Data and Methodology

In order to examine the standard of living of the population, we need to know the income that is actually available to the population. It is also appropriate to consider the average households income per consumption unit, which reflects the diversity of the economic structure the household. According to (Moravová et al., 1997): "The scale of consumption units for individuals is defined as the number of relative indicators of consumption (income) of various types of people, when the basis of consumption (income) of the selected type of person." The design of these consumables (equivalent) units reflects savings from the cost of items of mass consumption that realize multi-households.

For comparison of household incomes in the EU-SILC survey the average income per modified consumption unit is used, because this takes the most into account the size and demographic composition of the household (Moravová et al., 1997). For the first member whole one unit is considered, but other adults in households are weighted only by half a unit and for child under 13 years weight of 0.3 is used. This equalized disposable income in society is analyzed in EU-SILC survey (European Statistics of Income and Living Conditions), the most famous survey, which collects data about households and each persons living inside the household. In this paper all computations are made on the data from research EU-SILC 2013 (ČSÚ-sk, 2014). These facts reflect income distribution for reference year 2012, for which these data were collected and official presented on web-side of Czech Statistical Office (ČSÚ-ep, 2014).

The tendency of income equalization can be monitored by changes in the characteristics of variability and many income inequality indicators. Most famous measure of the concentration is the Gini coefficient with its graphical representation called Lorenz

curve (Moravová et al., 2000). The more this curve deviates from the axis of the quadrant downwards the higher degree inequality in society is. Gini coefficient is the numerical representation and takes values from 0 to 1 and the higher values indicate larger income inequality. Extremes would be an absolute inequality ( $G = 1$  – all incomes are held by one person) at the rate of 100% concentration (Moravová et al., 2000).

The rate of income inequality can also be described using the coefficient of income inequality (Jílek and Moravová, 2007). It measures proportion of income volume that receive people in the top quintile and volume of income per person in the bottom quintile. The top (the fifth) quintile includes 20 % of those with the highest income of ordered set of people by the size of income per modified consumption unit. The ratio of these values notes as  $S80 / S20$  (Income quintile share ratio). The greater the value of this coefficient, the larger income inequality exists. It indicates how many times larger income receives on average one-fifth of households with the highest incomes compared to a fifth of households with the lowest incomes (ČSÚ-mv, 2014).

The methods for measuring of income inequality and its decomposition are mentioned by Hesmati (2004). The advantages and disadvantages of using of indicators are described in the paper of European Commission (2010).

### 3. Results

#### 3.1. Income inequality by level of education

For detection of income inequality according to economic conditions of people in society the classification by education were used, which represents the level of highest attained education. For our purposes respondents were grouped into larger units according to the classification of ISCED, and subsequently formed the groups:

- Primary = People with attained education of first or second grade of elementary school,
- Lower secondary = People with lower secondary education without leaving exam,
- Higher Secondary = People with secondary education with leaving exam, or post-secondary courses,
- Tertiary = People with tertiary education (bachelor's, master's and doctoral graduates), including higher vocational schools.

Completely omitted is a group of children under 18 years and active studying people under 26 years. They have not yet any own income, so their level of income is completely derived from the earnings of their parents. Their inclusion in the analysis of incomes by groups of education would therefore not be relevant.

Figure 1 shows the distribution of income of population in total and subsequently also distribution in different groups by highest attained education. The black line indicates the distribution of income among the total population, where the average income for the reference year 2012 is indicated as 218 661 CZK per year and median with obviously lower value of 193 488 CZK per year. Other curves describe the situation in groups, for which in the second graph only their median income for transparency is used.

There is cross-hatched area which represents group of people at risk of poverty, defined as those whose income is below the poverty line, which is defined as 60 % of the median of equalized disposable income. In this case it means value of 116 093 CZK per year. The poverty rate for all persons is at level of 8.6 %.

The color areas are plotted for the groups, where the lowest level of poverty can be found (116 093 CZK) and we can see that there are big differences among education groups. The best situation is among people with tertiary education with a value of just 1.9 % (compare with general level of 8.6 % in total population), which is due to their high income. More than the half of these people take more than the average income of all persons in society (median of this group is 260 623 CZK). Other extreme is group with primary education, which is threatened with 18.2 % of income poverty. This indicates their already low median income (157 967 CZK), which is also even less than the total median. Average income of lower secondary educated people is very close to the overall median and their poverty risk is about 9.8 %.

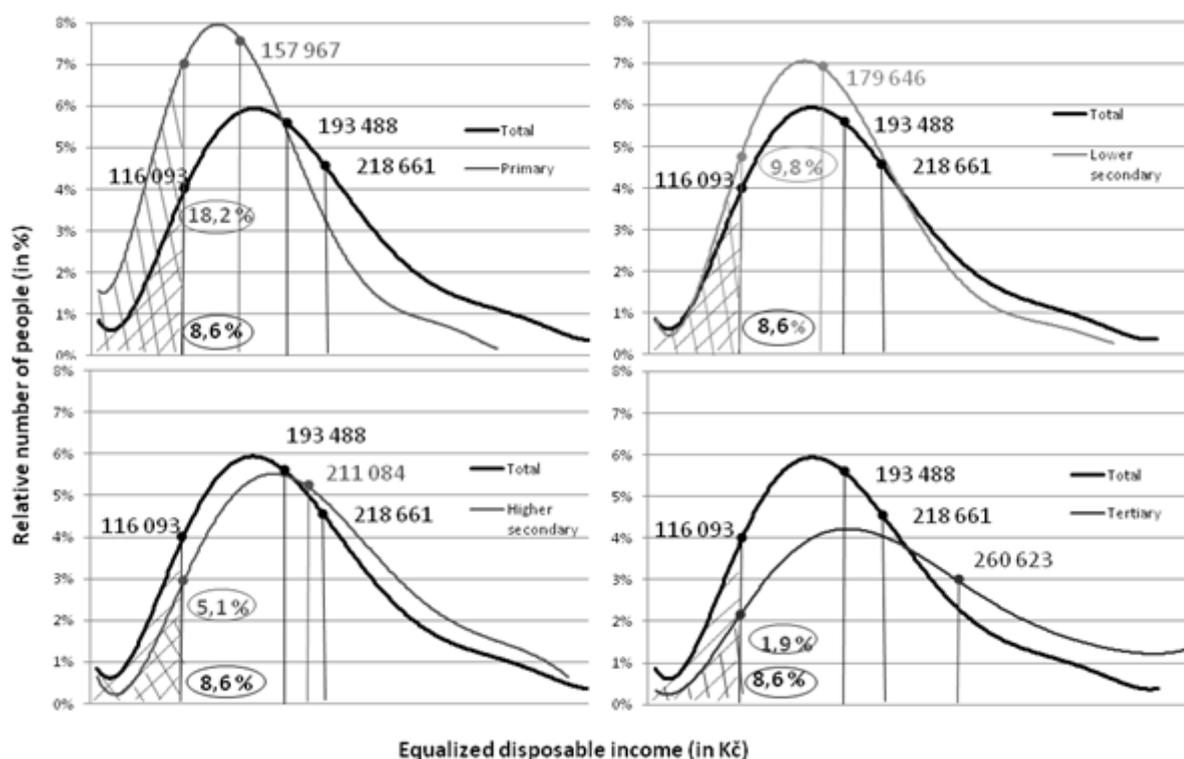


Figure 1. Distribution of people according to equal. dispos. income (CZK/year) by education groups

Source: Own calculations and creation in MS Excel using data from EU-SILC 2013

The Figure 2 created by using the box-plots shows the inequality in income distribution among each of groups by highest attained education. Yellow squares indicate the level of average month income in the group, which is of course always higher than the median.

Then there is a color area of middle six deciles, because by using the ratio of the top quintile the bottom quintile we get coefficient of income inequality. It is in examined year 2012 at overall size of 3.4, which indicates that persons in the upper two deciles take 3.4 times more than those in the two lowest deciles. This indicator corresponds to a further indicator of income inequality, which is the Gini coefficient, here at the level of 0,246. It expresses how much the current state is deviated from the absolute equality of incomes. The higher the greater the inequality is. Graphical representation using the Lorenz curve is shown in the next chart (Figure 3).

From the graph Figure 2 is obvious, that the higher level of education means the higher level of income and especially the higher level of inequality. Tertiary educated people have a great income range and Gini coefficient in their group is at the level of 0,261. The richest fifth of them takes 3.6 times more incomes than the poorest fifth.

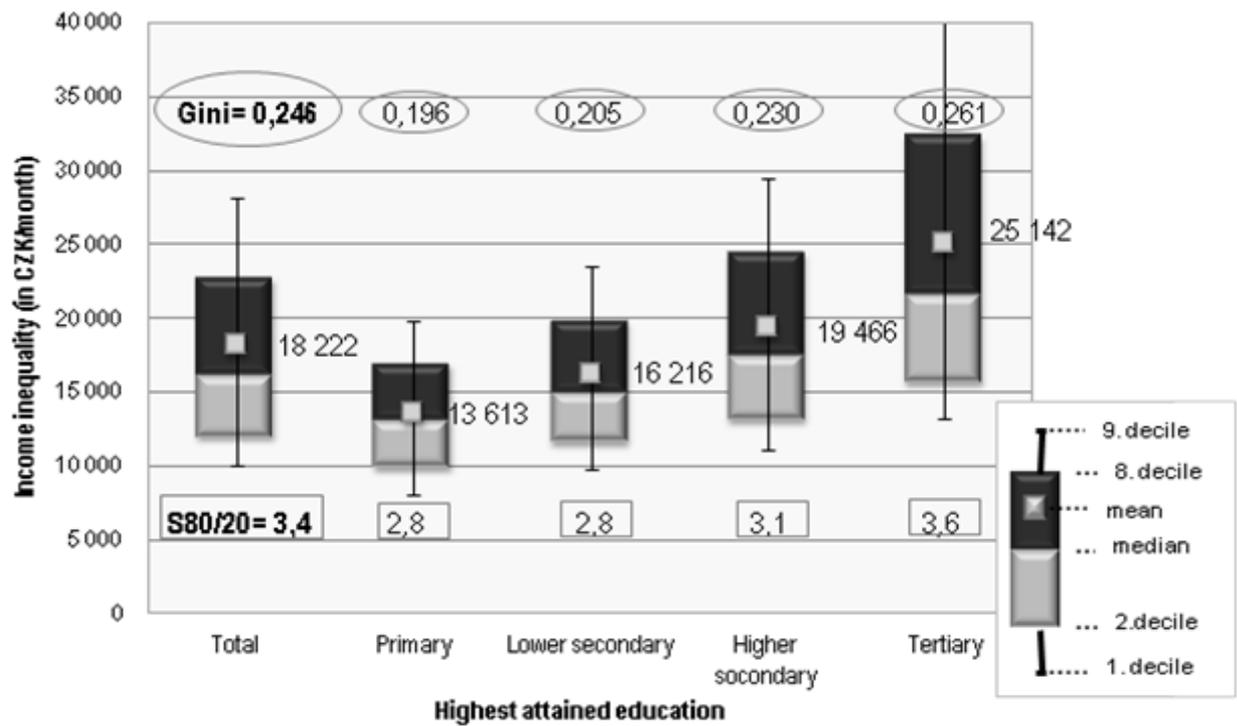


Figure 2. Differentiation of equal. disposable income per month by group of education in 2012

Source: Own calculations and creation in MS Excel using data from EU-SILC 2013

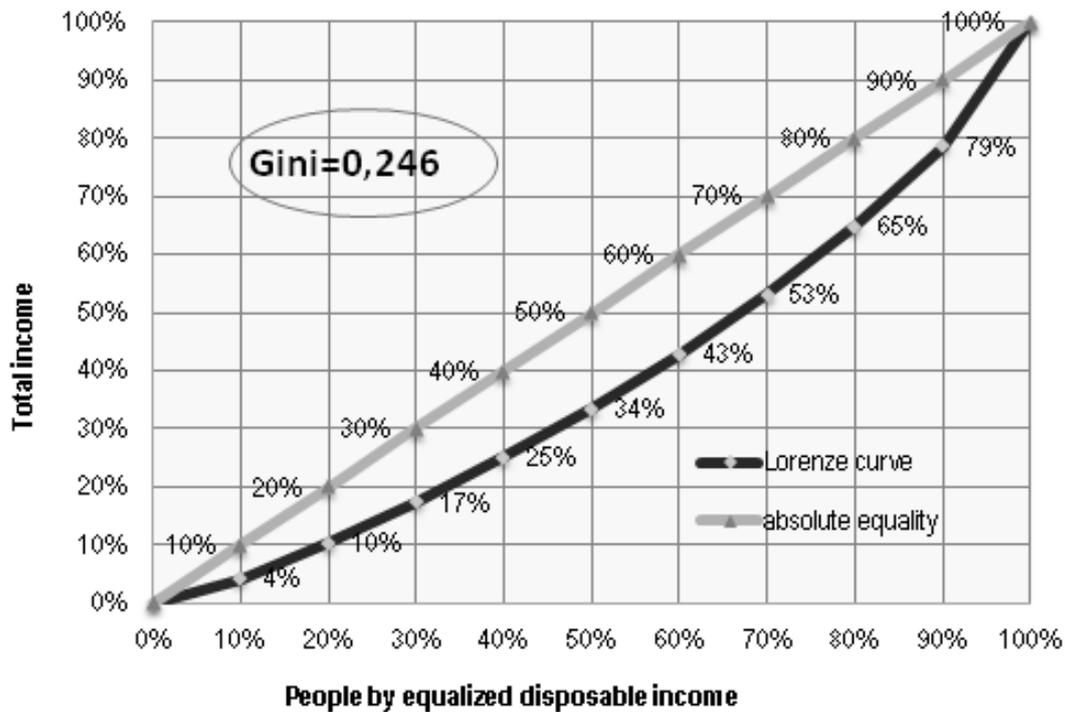


Figure3. Lorenz curve of inequality of equalized disposable income in 2012  
 Source: Own calculations and creation in MS Excel using data from EU-SILC 2013

### 3.2. Income inequality by social status

Level of income inequality can be measured also within groups of people by their social status in society. In this analysis the classification into following five groups was used:

- Lower employees = People with lower degree of education
- Self-employed = People with self-employment
- Higher employees = People with higher degree of education
- Pensioners = People in retirement
- Unemployed = People involuntarily unemployed

Completely omitted are children and other economic inactive people, which are for example students, parents on parental leave or disabled persons. Otherwise unspecified people were also excluded, because they mostly cannot be clearly assigned in any of selected groups. These are special kinds of groups, which could leads to biased results of income inequality according to social-economic conditions of people in society.

Income distribution in each of social groups and for total population can be observed on the following graph (Figure 4). The black line as in Figure 1 indicates the distribution of income among the total for reference year 2012 and shows the same value of income mean and median. The other curves describe the situation within each of social groups, for which also only their median income is showed.

The lowest level of poverty can be found among higher employees due to their higher level of income with median (251 944 CZK per year) higher than total income mean. Self-employed people indicates 8.7% of people below poverty line despite their high income level, it is because of their very unequal income distribution. Otherwise the distribution

by pensioners is very equal, but due to lower income level (median is 172 632 CZK per year) 7.1% of them are at risk of poverty. Graph for unemployed people is not showed in here, but here 41.6% of those people fall below poverty line due to very low income level with income median of (128 730 CZK per year).

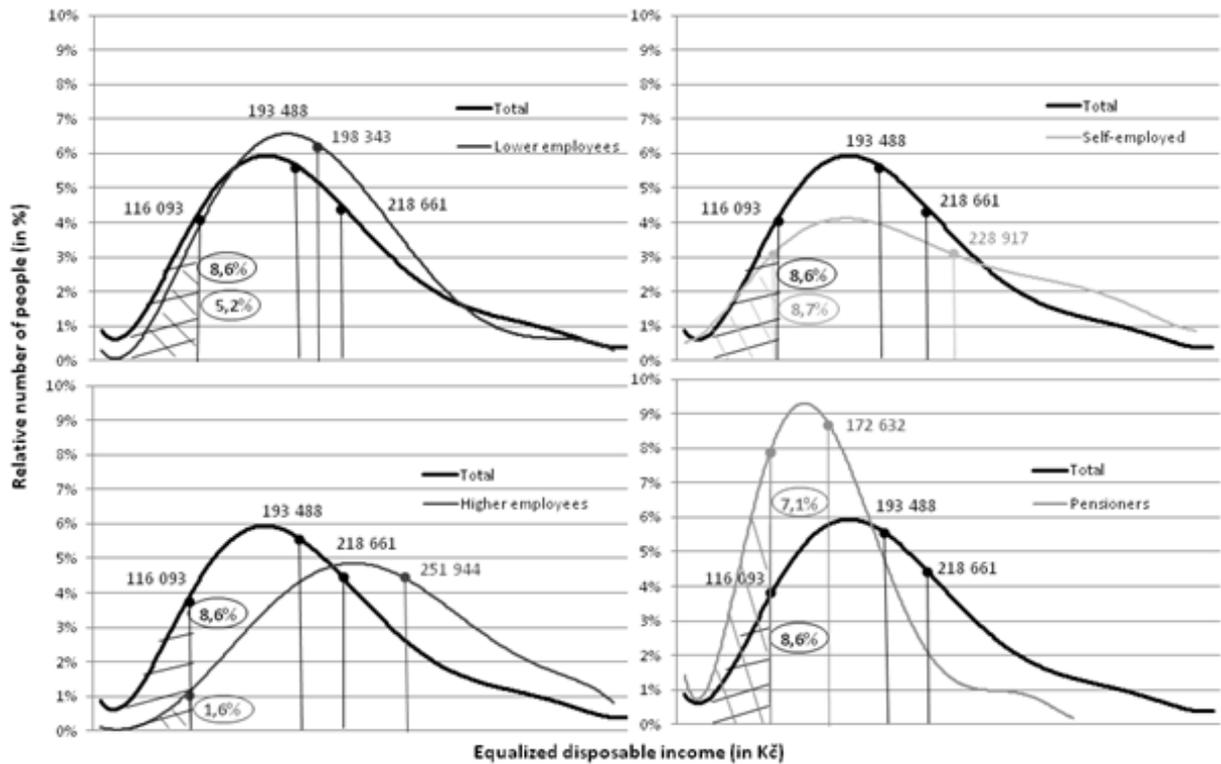


Figure 4. Distribution of people according to equal. disposable income (CZK/year) by social groups

Source: Own calculations and creation in MS Excel using data from EU-SILC 2013

Level of income inequality in each of social group can be observed in Figure 5. Here is observable the large differences between groups, where higher level of income does not indicate also higher level of inequality. A wide range of incomes represent self-employed people with Gini coefficient at level of 0,295. The richest fifth of them takes 4.4 times more than the poorest fifth. By unemployed people it is 4.2 more, so they have also very unequal distributed incomes. On the other hand the people in retirement show very narrow range incomes with Gini of 0,173 and the most of them are located about their low mean income 15 363 CZK per month.

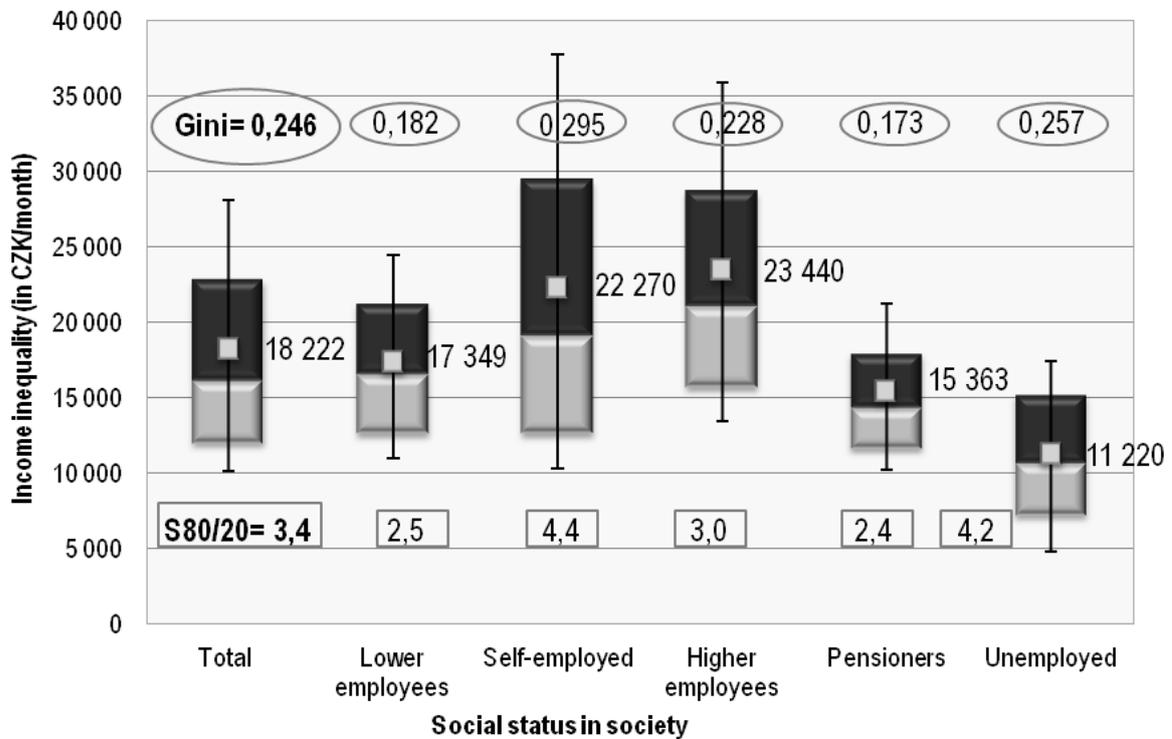


Figure 5. Differentiation of equal. disposable income per month by group of social status in 2012

Source: Own calculations and creation in MS Excel using data from EU-SILC 2013

#### 4. Conclusion

In this paper was assumed, that income inequality in specific groups of people has impact on poverty rate, while low level of total inequality of income distribution in the Czech Republic causes low level of overall poverty. For this reason a detailed examination of income inequality in the Czech Republic was conducted with special focus to specific population groups. It was find out, which social-economic factors affect distribution of incomes the most and which groups according their classification have highest level of inequality.

Large differences of level of income inequality between groups of people categorized by their highest attained education and also by social status of people were detected. It is obvious, that level of education as well as social status significant influence income inequality. The higher level of education means the higher value of income inequality indicators. The highest values of Gini coefficient and Income quintile share ratio occur by tertiary educated people and according to the social classification by self-employed and unemployed people. Conversely primary educated people and the pensioners have very equal income distribution.

Poverty rates in these groups by both classifications (education and social) show also different values. Higher level of education indicates lower percentage of people below poverty rate. According to social status the most at risk of poverty are unemployed people and after that self-employed people due to their high inequality of income distribution. On the other hand people in retirement show low level of poverty rate because of very equal distributed income.

In general the income inequality affects poverty rate because the poverty line is conducted from total income distribution. But the dependence between poverty rate and income inequality in each of groups cannot be identified. These analyses show level of income inequality and poverty rates in each of selected groups independently to each other. Groups with very unequally distributed incomes probably contribute to total inequality the most.

It would be appropriate produce also an analysis of contributions of each group to overall income inequality and identify the between-group inequality. This decomposition of income inequality is described by Ferreira (2000).

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