IMPACT OF RECESSION 2009 – 2013 ON INCOME INEQUALITY IN THE CZECH REPUBLIC

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Abstract

The Czech Republic passed through a long recession during period 2009 – 2013. The decline of the real gross domestic product (GDP) started in 2009 and the level of the real GDP from 2008 was reached or slightly overcome in the year 2014. The first part of the paper deals with the impact of the recession on net national income. The second part of the contribution deals with the changes of income inequality during recession period 2009 – 2013.

The third part of the paper deals with the impact of the recession on three income groups of the Czech society. The contribution applies the approach of the French economist Piketty and analyses the impact of recession on the "lower class" as the bottom 50% households, the "middle class" as the middle 40 percent (i.e. sixth, seventh, eighth and ninth 10%), and the "upper class" (top 10 percent). The distribution of households to ten deciles is given by their net money income and relevant data are taken from the website of the Czech Statistical Office.

In this part of the paper, there are analyzed the changes in total gross money income of each three classes and also fluctuations in four forms of gross money income (i.e. income from employment, income from self-employment, social income, and capital earnings) of these three income groups. Different share in the total income and different developments of four types of gross money income allow explaining the changes of income inequality during recession period 2009 – 2013.

Keywords: income distribution, Czech Republic, recession

JEL Code: D310, J31

Introduction

During period 2009 – 2013, the Czech Republic passed through a long recession. Each recession has impacts on national income and income distribution. By the French economist Thomas Piketty, "In economic booms, the share of profits in national income tends to increase, and pay at the top end of the scale (including incentives and bonuses) often increases more than wages toward the bottom and middle. The opposite trend occurs during economic slowdowns or recessions (of which war can be seen as an extreme form). Various noneconomic factors, especially political ones, ensure that these movements do not depend solely on the economic cycle." (Piketty, 2015, p. 324).

The aim of analysis which results are presented in the contribution is to verify the Piketty´s statement. The question was whether the recession had the same effect on income distribution in the Czech Republic as is described in the Piketty´s opinion. The recession which lasted in the Czech Republic more than five years was a very good chance for this verification. The question is whether the recession had really higher and negative impact on the share of profits in national income, more than on wages. It would be resulted in lower income inequality during the recession.

1. Economic fluctuations in the Czech Republic 2008 – 2016

The first step of the analysis is to describe basic aspect macroeconomics development of the Czech economy in the period from 2008 to 2016. As the Table 1 illustrates, the global recession first appeared in the Czech economy in 2009 when the real GDP decreased by 4.8%. The same process can be observed in other Visegrad group countries (with the exception of Poland) and also in Austria (country of similar size neighbouring to the Czech Republic).

Tab. 1: Gross domestic product at market prices (2010 prices, million euro)

	2008	2009	2010	2011	2012	2013	2014	2015	2016
CR	160 965	153 235	156 718	159 504	158 229	157 463	161 739	170 326	174 743
Hungary	105 092	98 156	98 826	100 469	98 817	100 888	105 154	108 694	111 100
Austria	301 925	290 559	295 897	304 545	306 617	306 696	309 237	312 614	317 149
Poland	339 630	349 208	361 804	379 957	386 066	391 440	404 291	419 835	431 860
Slovakia	68 022	64 334	67 577	69 482	70 634	71 687	73 658	76 494	79 037

Source**:** Eurostat (2018)

But the further development in the Czech Republic – in comparison with Slovakia, Poland, and Austria - was different. In Slovakia and Austria, the process of recovering was started in 2010 and the real HDP in these three countries was in 2011 higher than in 2009 and during following years (2012 – 2016) the growth process continued there.

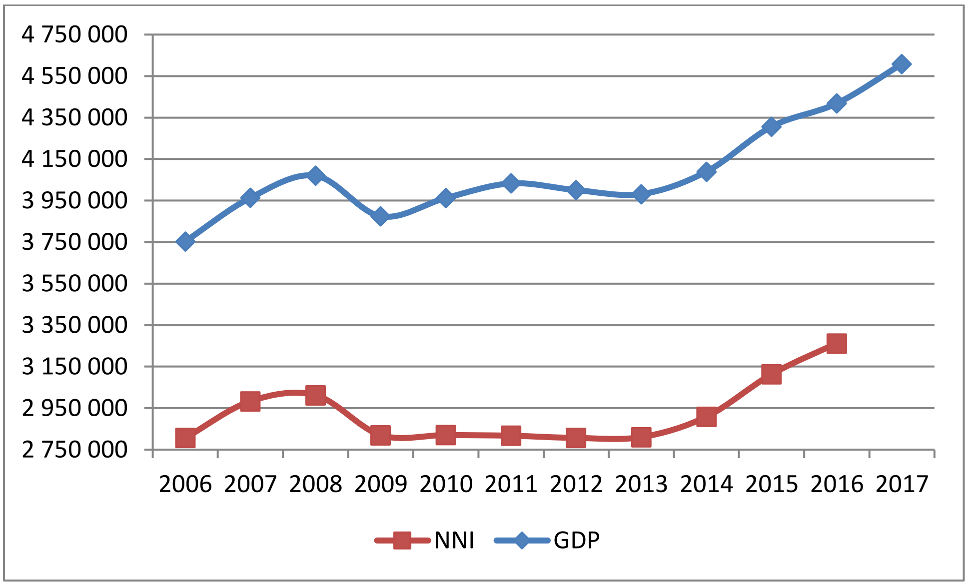
In the Czech Republic, the recovery process started in 2010 and 2011, too. But the Czech cabinet feared the problem of growing public debt. Cabinet not regarded as a problem the percentage of public debt in the GDP but the growth rate of public debt. For this reason, the cabinet suggested and the Parliament approved so-called "stabilizing" measures for period 2012 – 2014 (e.g. the real final consumption expenditure of general government in prices 2010 reached 95% in 2012 and 97% of the 2011 year level or the reduced VAT rate increased from 10% to 14% in 2012 and to 15% in 2013 or the basic VAT rate increased from 20% to 21% in 2013) – details in (Mesec, 2010). These restrictive fiscal measures oriented toward the stabilizing of public debt resulted in the second decline of the real GDP in years 2012 and 2013. The recovering process was restored in 2014 and in 2015 the real GDP reached finally its level from the year 2008.

So, we can observe the recession with two bottoms (or “W type” recession) in the Czech Republic. From five countries analyzed in Table 1, only the Czech Republic and Hungary had the “W type” recession. But the second decline of GDP lasted two years in the Czech Republic and it last only one year in Hungary.

Of course, GDP measures the performance of the economy. For the description of the impact of the recession on income, the net national income (NNI) is more suitable as NNI does not regard the depreciation of fixed capital assets and takes into account net receipts of wages, salaries and property income from abroad. As a result, NNI measures the amount of income available to residents of the country.

If we regard NNI, the impact of the recession on Czech residents is stronger. Figure 1 illustrates the statement: In 2009 the real NNI declined and it remained at this lower level throughout the whole recession period 2009 – 2013. The real NNI (in prices 2010) started to grow in 2014 and it exceeded the level of 2009 until the year 2015. From this reason, we will regard only one recession in the years 2009 – 2013.

Fig. 1: Real GDP and net national income of the Czech Republic 2006 – 2016 (CZK, 2010 prices)



Source: own calculation, based on Public Database of the CZSO (2018).

2. Income inequality in the Czech Republic: overall view

The aim of contribution is to analyze the influence of the recession 2009 – 2013 on income inequality in the Czech Republic. As the first and more-less general view, we will apply the Gini index. Let's recall that the Gini index measures the extent to which the distribution of income among individuals (households) within an economy deviates from a perfectly equal distribution. If x_i is the wealth or income of person i, and there are n persons, the Gini coefficient G is possible to express by the formula:

$$x = \frac{\sum_{i=1}^{n} \sum_{j=1}^{n} |xi - xj|}{2 \sum_{i=1}^{n} \sum_{j=1}^{n} xj} = \frac{\sum_{i=1}^{n} \sum_{j=1}^{n} |xi - xj|}{2n \sum_{i=1}^{n} xi}$$

The Gini coefficient can theoretically range from 0 (complete equality) to 1 (complete inequality); in a percentage, it is ranging between 0 and 100. Theory suggests that the analyzed number of households or individuals groups is very large. If it is not true the Gini index for complete inequality is not equal to 1. For example, if we divide households into 5 groups and the richest group owns all wealth or income the Gini index is only 0.8 or 80% in a percentage. But if we divide households into 10 groups and the richest group owns all wealth or income again the Gini index is 0.9 or 90%.

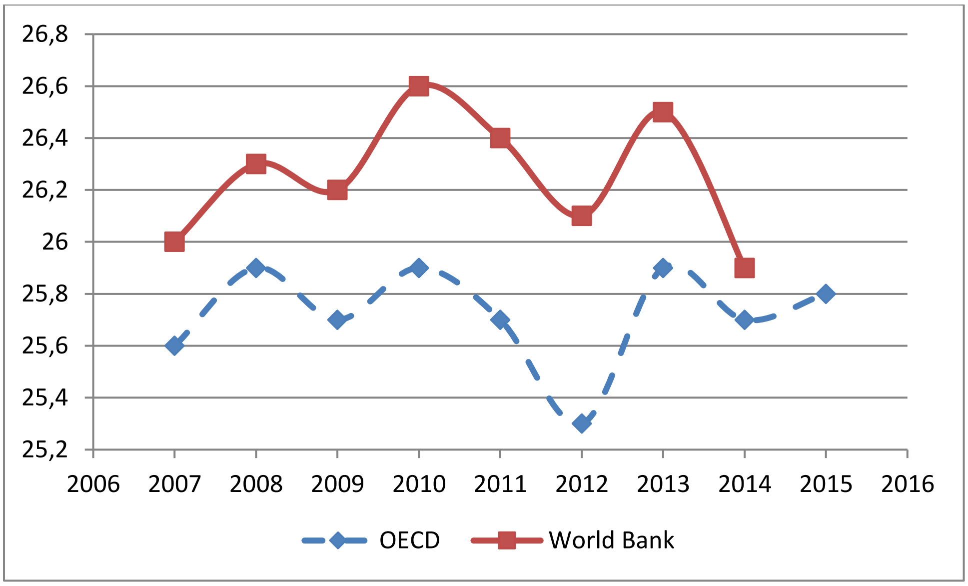
Figure 2 displaces the Gini coefficients for the Czech Republic which were published by two international institutions: the OECD and the World Bank. The Gini coefficient calculated by OECD is based on the comparison of cumulative proportions of the population against cumulative proportions of income they receive. Income is defined as household disposable income in a particular year. It consists of earnings, self-employment and capital income and public cash transfers; income taxes and social security contributions paid by households are deducted.

The World Bank's Gini coefficient is based on the comparison of cumulative proportions of the income against a cumulative number of recipients. Where the original data are available, they have been used to calculate the income shares by quintile. It means that the Gini for complete inequality is only 0.8 or 80%.

The values of Gini coefficients calculated by both institutions are different; the Gini coefficients calculated by the OECD have lower values than the same indices calculated by the World Bank. It means the income inequality is lower by the OECD than by the World Bank. Nevertheless, both analyzes indicate very similar tendency.

We can see the value of Gini indices declined in the first year of the recession, i.e. in the year 2009. The first year of the economic recovery, in 2010, the Gini index indicates the growth of income inequality. But the second part of the recession, period 2011 and 2012, is connected with the decrease of income inequality again. But the overcoming of recession and the transitioning of the Czech economy to growth phase leads to the return of income inequality to the pre-recession level.

Fig. 2: Gini indices for the Czech Republic, 2007 - 2015



Source: OECD (2018), World Bank (2018).

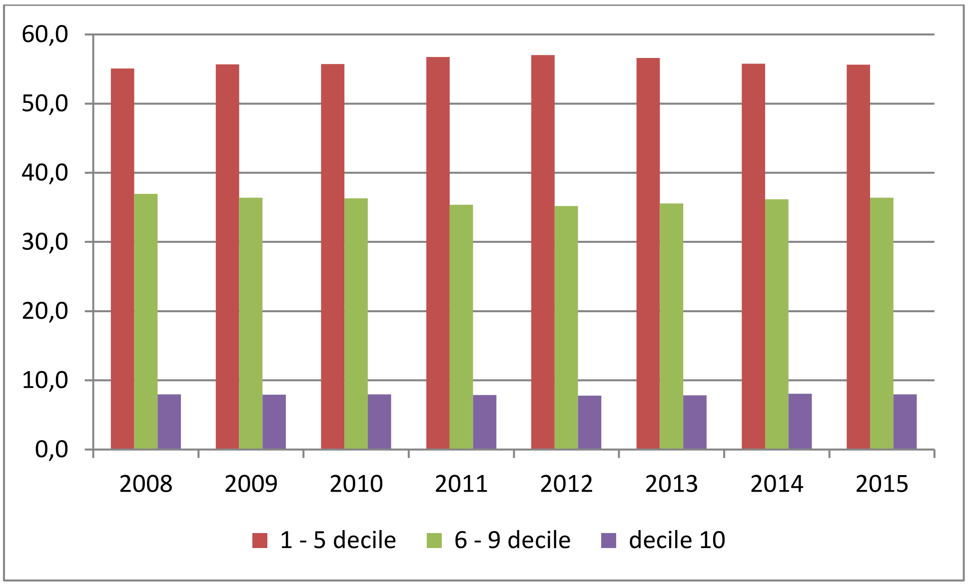
This short analysis confirms the income inequality during recession 2009 – 2013 decreased in the Czech Republic. But still there is a question, what is a reason for the decrease in the income inequality. Is it really the decrease in the share of profits (or capital earnings) which is higher than the decline in wages?

3. Income inequality: wages, capital earnings, and social income

To solve the question formulated in the preceding paragraph, we use data concerning gross money income of households published by the Czech Statistical Office (CZSO). Households are divided into deciles by their (net) money income. According to Piketty´s approach, we divide households into three groups (or classes). Piketty defines the "lower class" as the bottom 50 percent (individuals or households), the "middle class" as the middle 40 percent (i.e. sixth, seventh, eighth and ninth 10%), and the "upper class" (top 10 percent). Thomas Piketty stresses the designations are quite obviously arbitrary and open to challenge.

It is important to emphasize the fact the distribution into deciles by the CZSO concerns households. From this fact follows the number of households is identical in each decile but the number of individuals in deciles and also in classes is not identical. This fact illustrates Figure 3.

Fig. 3: Number of persons with deciles



Source: own calculation, based on Public Database of the CZSO (2018).

The CZSO measures the per capita annual gross money income for each decile of households separately. The CZSO also provides information about the structure of their incomes. The Office distinguishes between four types of income: income from employment, income from self-employment, social income and other income. Social income consists of pensions, health insurance benefits, children allowances, scholarships and other social benefits.

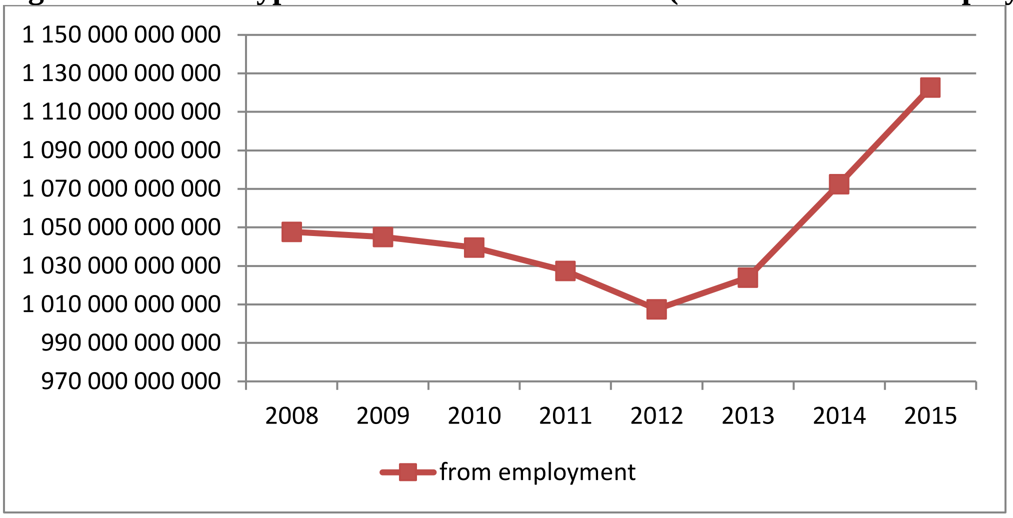
For our analysis, the "other income" is important. This income includes mainly income from capital assets, i.e. interests on deposits, bond yields, dividends from shares, profits from companies, income from capital abroad, rental income, life insurance income and supplementary pension insurance income.

The Figures 4 and 5 illustrate the movement of different income types during period 2008 – 2015. [1] The Figure 4 describes the decrease in real income from employment in prices 2010 which starts in 2009 and the decline lasted until 2012. The level of 2008 was exceeded in 2014. Real income from employment follows the movement of net national income. It is not a surprise as this form of income represents the biggest share in NNI. Income from self-employment exhibits the similar trend as it is illustrated in Figure 5.

[1] Contributions of (Bílková, 2012)., (Marek, 2010), (Večerník, 2009) are devoted to the distribution of incomes in the Czech Republic before recession 2009 – 2013.

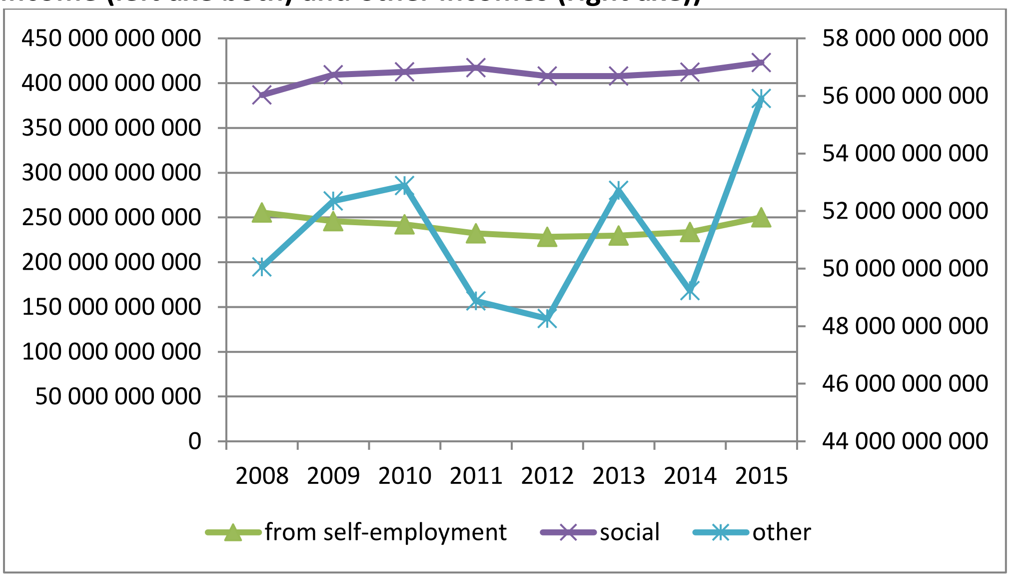
Capital earnings (or "other incomes" by official statistics) have slightly a different pattern. They were growing in 2009 and 2010 and they declined only in 2011, 2012 and 2014. Social income, on the other hand, was stable for the whole period 2008 – 2015 (see Figure 5 again). The year 2012 represents an exception: the decrease of social income is connected with Cabinet´s "stabilizing" measures for period 2012 – 2014 (see the part "Economic fluctuations" of the contribution for more detailed description).[2]

Fig. 4: Individual types of income in 2008 – 2015 (real income from employment)



Source: own calculation, based on Public Database of the CZSO (2018).

Fig. 5: Individual types of real income in 2008 – 2015 (income from self-employment, social income (left axe both) and other incomes (right axe))



Source**:** own calculation, based on Public Database of the CZSO (2018).

[2] The articles of Czech statisticians (Brázdilová, 2016), (Dubská, 2013), (Dubská, Zeman, 2015) or (Kermet, 2016) also deal with selected aspects in development of Czech households incomes.

It is evident the different income groups have no the same structure of their incomes. From the different structure of incomes and different patterns of different types of incomes follows that the recession 2009 – 2013 had a different impact on each income group.

The income of "lower class" as the bottom 50 percent of households consists mainly of income from employment and social income. During period 2008 – 2015, income from employment represents 52 – 54% of total income and social income was in the range 33 – 36%. The capital earnings are not important for this group. The above-described stability of social income led to the relative stability of total real money income of "lower class". The minimum wage also influences the stability of income from employment of the "lower class" (the effects of the minimum wage – see Pavelka, Skála, Čadil, 2014). During recession years 2009 – 2013, the total income of the "lower class" never declined below its level from the year 2008.

We receive a different result if we study the structure of the "middle class" income. Income from employment is crucial for households from the middle 40 percent (i.e. sixth, seventh, eighth and ninth 10%). During period 2008 – 2015, income from employment represents 62 – 67% of their total income. The role of social income is lower for this class. It represents 20 – 24% of total income. Again, the capital earnings are not important for this group.

The income from employment of the "middle class" declined immediately in 2009 and this income returned to its level before the recession (i.e. in 2018) until 2015. The income from employment of the class follows the development of the real NNI. It is not a surprise with respect to the share of wages of the "middle class" in the NNI.

The decline of income from employment (and a weaker role of social income) has an impact on the development of total money income of the "middle class". Social income increase supported the growth of total money income in 2009 and 2010. But then the effect of wage decline prevailed and the total income started to decline, too. The decline of total income falls into the period 2011 – 2013. In 2014 the total income overcame the level of the year 2008 and in 2015 the highest level from 2010.

Finally, we have a look at the structure of total money income of the "upper class" (top 10%). The structure is unlike again. The share of income from employment represents 57 – 66% of their total income, i.e. slightly lower than the share of "middle class" is but it is significantly higher than in the case of the "lower class". The share of income from self-employment represents 24 – 33%; it is twice more than in the case of other income groups.

The share of capital earnings represents 4 – 6% and the significance of this form of income is considerably higher for “upper class” than for other income groups.

During period 2008 – 2015, the income from employment of the “upper class” continued to grow, regardless of the recession (the exception represents the year 2012 where is observable small and short-run decline).

The income from self-employment and capital earnings exhibit different development. The income from self-employment declined permanently during period 2009 – 2012. From the year 2013, there is observable the restoring its growth but the amount of this income in 2015 has not reached the 2008 level yet. The similar development is visible in the case capital earnings. The highest level of this income was achieved in 2009. In period 2010 – 2012 capital earnings declined permanently and the minimum of capital earning was reached in 2014.

The decrease of income from self-employment and capital earnings was not compensated fully by the movement of income from employment. The result is the total income of the “upper class” declined in period 2009 – 2012 and its level before recession attained until the year 2015. More detailed analysis of “upper class” which is divided into “well-to-do class” (90 – 99%) and “dominant class” (the highest 1%) can be found in (Novokmet, Piketty, 2017a) or in (Novokmet, 2017a).

The analysis of the structure of total income of the “upper class” confirms the second part of the Piketty´s statement: the decrease of the share of capital earnings and income from self-employment are beyond the decline of income inequality in the Czech economy during recession 2009 – 2013.

Conclusion

The analysis presented in the contribution examined the reasons for the decline in income inequality in the Czech Republic in the recession 2009 – 2013. The decline of income inequality is indicated by values of Gini coefficients which were published by the World Bank and OECD. For the analysis, Piketty´s approach (see Piketty, 2015) was applied.

During recession years 2009 – 2013, the total income of the “lower class” never declined below its level from the year 2008.

The income from employment is crucial for “middle class”. The income from employment of the “middle class” started to decline immediately in 2009 and this income returned to its level before the recession (i.e. in 2018) until 2015. The social income was not able to compensate the decrease of income from employment in the second phase of recession

and so it is observable the decrease of the total income of the "middle class" in the whole period 2011 – 2013. In 2014 the total income overcame the level of the year 2008.
In period 2010 – 2012, capital earnings of the "upper class" declined permanently and the minimum of capital earning was reached in 2014. The income from self-employment declined permanently during period 2009 – 2012. But during period 2008 – 2015, the income from employment of the "upper class" grew, regardless of the recession. Nevertheless, the decrease of income from self-employment and capital earnings was not able to compensate fully the growth of income from employment and total income of the "upper class" declined in period 2009 – 2012.

The decrease of income inequality in the Czech Republic in the recession 2009 – 2013 is a result. The decrease of capital earnings and income from self-employment (which are more significant for the "upper class" than for other income groups) are beyond this process.

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