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Wage share as a factor of income inequality in the context of the structure of national economy

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Abstract

This paper focuses on the quantitative examination of the wage share in the countries of the EU from 2008 to 2012, applying a division of national economy by three main sectors. The aim of the paper is to investigate the effect of employment structure and its changes, and the changes of the wage share inside the sectors on the aggregate wage share and its alterations during a short-term period. The conducted research showed that the levels of the weighted wage share, corresponding to the employment structure, were: the lowest – in agriculture, the highest – in the service sector. Furthermore, the shift of the aggregate wage share was mostly affected by the decline in the primary and secondary sectors, which was generally based on the decrease of employed people. The results also displayed that in several countries the wage shares declined because of the reduction of the wages and salaries rather than value-added.

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Keywords: labour, income, wage share, employment, structure, national economy, sectors

1. Introduction

The world is slowly recovering from the recent crisis and prolonged recession, though economy and labour market are still far from sustainable positions. Nevertheless nowadays the world is also dealing with another major economic and social problem – inequality. There are three similar rates of economic imbalances: inequality of wealth, income and consumption. Income inequality is the most commonly used metric. The analysis of income inequality comprises studying disparities of income distribution among nations, as well as among social groups.

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Nowadays economists are more concerned about inequality within nations. A high response got Piketty's recent publication, where he argues that in every society three parts can be marked out in the income inequality: inequality in labour income; inequality in the ownership of capital and the income to which it gives rise; and the interaction between these two terms (Piketty, 2014). In economics there is such a factor as labour share, which is considered to be a highly informative macroeconomic factor to explore, when analysing income inequalities within and across countries.

In macroeconomics it is generally assumed that total value added is produced with two major input factors – capital and labour. Therefore, one part of value added is attributed to capital – capital share (it should be noted that in this case capital income includes corporate profit, net interest, rental income, and proprietor income), and another part is ascribed to labour input factor – labour share. The labour income share is considered to be a good indicator of the extent to which national income (or GDP, or gross value added) is distributed among capital owners and workers. Thus, the labour income share is defined as the share of GDP or value added, which is paid to workers.

The labour share is also frequently called the wage share; however, there is a difference. While labour share includes all compensation to employees, the wage share takes into account only wages and salaries paid to the employed people. To our concern, as wages and salaries represent a considerable part of labour income and, consequently, disposable income, it is particularly necessary to make assessment of wage share and its changes.

The invariability of the labour share has been named as a *stylized fact of growth* by David Ricardo (Kruger, 1999). However, nowadays, almost over the last three decades economists increasingly emphasize their attention to the widespread opinion of the decreasing labour as well as wage income share in the total value added (Gollin, 2002; Serres et al, 2002; Arpaia et al., 2009; Guerriero, 2012) in favour of capital share during a long- and mid-term period.

Moreover, nowadays economists are also concerned about the structure of national economy. In recent decades the structure of global and national economies has changed significantly. On the one hand, the dominant share of the tertiary sector becomes increasingly high, while share of the industrial sector continues to decrease. On the other hand, a necessity of more detailed structure of national economy appears in order to analyse the processes inside the sectors. The changes of national structure are reflected not only in the structure of GDP (or gross value-added), but in the structure of employment, too. As Stiglitz noted, structural transformation of national economy has a big effect on developing sustainable economic strategy (Stiglitz, 2011). Furthermore some researches argued that labour income share is highly correlated with the structure of value added of the national economy (Serres et al., 2002; Young, 2006).

Accordingly, this empirical paper focuses on the statistical examination of the wage share, as the factor of income distribution, across countries of the European Union (further, EU) from 2008 to 2012, applying a division of national economy by three main sectors. Consequently, the aim of the paper is to investigate the effect of employment structure and its changes, and the changes of the wage share inside the sectors on the aggregate wage share and its alterations during a short-term period. Methods applied – structure and dynamics analysis, cross-country statistical analysis, decomposition and variable-weights apportionment method.

2. Measurement of the wage share and its changes. Methodology

The labour income share can be calculated using the data from the national accounts. A widely used approach is to compute the labour income share as the share of employee compensation in GDP, while employee compensation incorporates the wages and salaries (in cash and in kind), all other bonuses and allowances, plus social contributions of the employer. Broadly speaking, the labour share measures the ratio of a total labour compensation to the gross domestic product. In this paper the authors used the wage share (WS) – the ratio of the wages and salaries (W) paid to employees to GDP or value added (VA). Accordingly, for the calculations of the wage share the following basic formula was used:

$$WS = \frac{W}{VA} \tag{1}$$

For almost two decades the debates about the labour share measurements and its improvements have been

appearing continuously (consequently, about the wage share as well). As Krueger (1999) and Gollin (2002) noted, the main drawback of this basic computation method is that the compensation of employees does not include the labour income of the self-employed, while a part of income earned by the self-employed obviously represents the labour income. While such adjustment is not made, the values of the wage share are considered to be underestimated. Regarding the labour share adjustment, Guerriro (2012) provided different six methods of adjustment, using a number of self-employed people and amount of operating surplus of private unincorporated enterprises. Unfortunately, this issue still is under consideration and the exact measurement of the share is not developed, as well, economists also admit the existence of obstacles in getting the necessary statistical data from the national accounts. As various complications in obtaining the validated and continuous statistical data for the development of the adjusted wage share in three sectors of national economy of the EU countries occurred, and the authors did not use the adjustment of labour income neither to the number of self-employed, nor to the mixed income from the self-employed.

Nevertheless, the weights were used in order to understand how the structure of national economy affected the income and its distribution among the employed people during the years 2008 – 2012. To the author's concern, it is important how many people of the total number of employees receive the particular share of labour compensation of the manufactured value added. Furthermore, this paper did not analyse the wage share in terms of the wage received and value added produced by individual, but analysed the wage share changes concerning the sectors of national economy and alterations inside the sectors. Changing the structure of national economy also suggests the changes in the employment structure, which affect the amount of the wage share received and its alterations. As well, considering all three concepts of inequality proposed by Milanovic (2013), the authors took over the second concept, which implies that the difference of income inequality lies in the fact that the size of the population of the countries are taken into account. Thus, in contrast to the number of the existing research papers, where the analysed labour share was weighted by the share of value added, based on the research of Serres et al. (2002), Lawless and Whelan (2007), Giovannoni (2014), the authors examined the wage share in three sectors of national economy weighted by the share of employees in the corresponding subdivision of economy. Furthermore, the shift-share decomposition was also made in order to have a better look at the composition of the changes of the wage share, by partially adopted methodology of Arpaia et al. (2009), Serres et al. (2002) and Giovannoni (2014):

$$\Delta WS_{i,t} = \underbrace{\sum \Delta ws_{i,t} \cdot \overline{a_{i,t}}}_{\text{The effect of changes in the wage share within sector}} + \underbrace{\sum \overline{ws}_{i,t} \cdot \Delta \alpha_{i,t}}_{\text{The effect of changes in weights within economy}} \quad \text{where} \quad \alpha_{i,t} = \frac{E_{i,t}}{TE_t} \tag{2}$$

In accordance with (2), the shift of the wage share ($\Delta WS_{i,t}$) of a specific subdivision *i* (which stands for a particular sector) of national economy, in time period *t*, results from the changes of the sectoral labour share ($\Delta ws_{i,t}$) , when the weights of the sector ($\overline{a_{i,t}}$ – an average change of the weights, employment share, where *E* - a number of employees in the corresponding subdivision, *TE* – a total number of employees in economy) remain constant. On the other hand, the shift of the wage shares ($\Delta WS_{i,t}$) can occur from the changes in sector weights ($\Delta \alpha_{i,t}$), while the wage share remains constant ($\overline{ws}_{i,t}$- an average wage share). In other words, the first summand represents the changes of the wage share in the sector, while the second summand – the effect of the change of the employment structure in economy. This method of decomposition could be applied to the whole economy as well as to the division of national economy by sectors or industries.

In order to conduct the research of the wage share and its changes in the national economies of the EU countries, the data were obtained for the years of 2008 – 2012. The following countries were analysed: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, The Netherlands, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden and the United Kingdom. Croatia was excluded from the sample countries due to the lack of statistical data. In order to conduct a validated research, the statistical data of value added, wages and salaries, and employment decomposed by the sectors were mainly received from Eurostat.

Furthermore, the structure of national economy, according to C. Clark's three-sector division (agriculture, industry and services or the primary, secondary and tertiary sectors), was used in this paper as being the most

applicable and traditional in economics. The division was based on NACE Rev.2 classification of industries of national economy.

3. Results

3.1. Wage share in the main sectors of national economy of the EU countries

The EU countries differ not only by the income level, but also by the structure of national economy and the wage share received by employees as well. According to the section 2 of this paper, the authors calculated the wage share in the EU countries for the whole national economy and its sectors, correspondingly, using value added and the amount of the wages and salaries paid to employees.

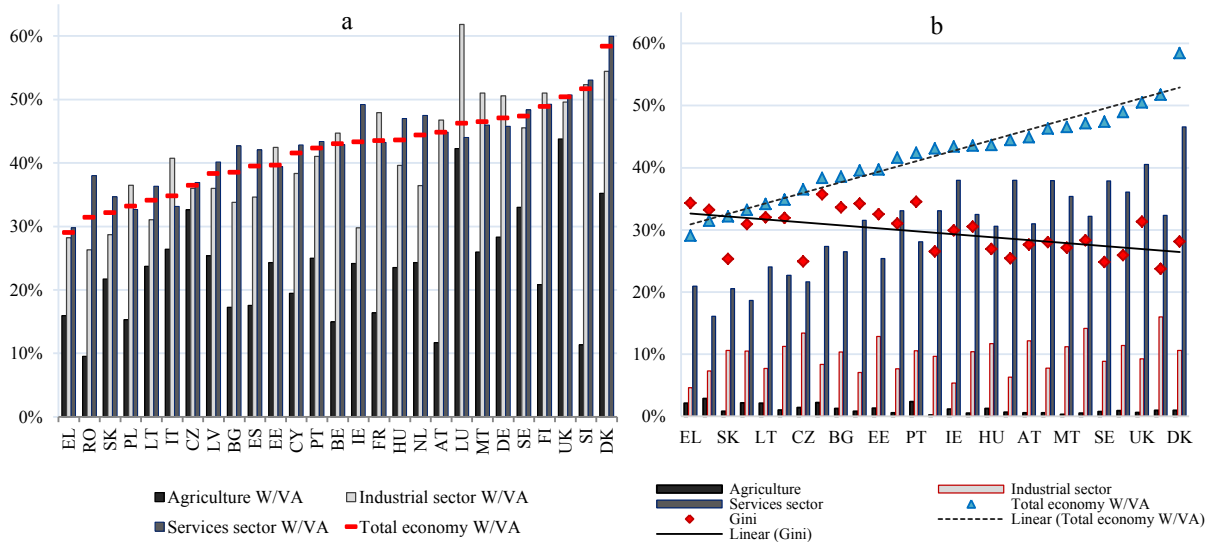

Fig. 1.: a) The unadjusted wage share in the sectors of national economy (in % of value added), in 2012; b) The aggregate wage share weighted by the number of employees and decomposed by the three sectors (in % of value added) and Gini (%), in 2012
Source of data for calculations: Eurostat, 2014, 2015a, 2015b

Referring to the number of employees, its quantity differs in the sectors of national economy; therefore, there is an apparent distinction of the wage share in Fig. 1. a) and Fig. 1. b), where the ranking was applied by the total wage share of the whole economy.

Regarding Fig. 1. a), the total wage share of the economy was calculated as the total amount of the wages and salaries to the gross value added of the whole economy. Among all the EU sample countries the average total wage share of the whole economy accounted for 42,4%, in the agriculture – 23,6%, in the industry – 41,8%, in the services – 43,6%. The highest total wage share in 2012, as well as the wage share of the service sector, corresponded to Denmark (58%), while the lowest – to Greece (29%).

Almost in all the EU sample countries the wage shares in the secondary and tertiary sectors were coincident; though, the tertiary sector was mostly prevalent in terms of a higher wage share. However, there were countries with a prevalent wage share in the secondary sector: Poland, Italy, Estonia, Belgium, France, Austria, Luxembourg (with the highest rate of the wage share in the secondary sector accounted for 62%), Germany, Malta and Finland. The wage share in the primary sector was generally noticeably lower than in other two sectors; that could be explained by the underestimation of the wage share, because of not considered self-employed that accounts for a large number, especially in agriculture. Although, there were also countries, where the wage share of the primary sector almost corresponded to the wage shares of other two sectors and was remarkably higher among the other EU countries: the United Kingdom (43,8%), Luxembourg (42,2%), Denmark (35,2%), Sweden (33,0%), Czech Republic (32,6%).

While examining the wage share of the whole national economy and understanding which sector contributes more, an average wage share was calculated, weighted by the part of total employment in the corresponding sector (further, the aggregate wage share). Therefore, after applying the weights to the wage share, the results changed visibly (Fig. 1. b). As the majority of people are engaged in the tertiary sector, the services also contributed to the aggregate wage share the most. While the wage share of the primary sector appeared to account for a very minor part of the aggregate wage share of the whole economy, as nowadays this sector engages the smallest number of employees among all the EU countries. Accordingly, alterations of the sector wage share inside primary sector has the least effect on the aggregate wage share, while tertiary sector – the highest influence.

A high response between economists and researchers focused on the income distribution and labour income shares, according to the examined paper of Daudey and Garcia-Penalosa (2007). They argue that the labour share and income inequality are interrelated, that is, if the income distribution favours labour, the share of labour income raises, while the income inequality diminishes. Nevertheless, in terms of this research, the authors did not find a statistically significant relation between Gini coefficient and the aggregate wage share for the EU sample countries, which can be explained by the deficiency of other important variables. However, Fig.1.b) displays a general trend between the mentioned variables – a lower income inequality was observed in the countries with a higher aggregate wage share, measured by Gini coefficient.

3.2. Decomposition of the aggregate wage share change from 2008 to 2012 in the EU countries

In order to evaluate the effect of the wage share and employment structure changes in the sectors of national economy on the alteration of the aggregate wage share of the whole national economy in the EU countries, first of all, a decomposition of aggregate wage share changes was made, applying a division by three main sectors of national economy – the primary, secondary and tertiary (see Fig. 2).

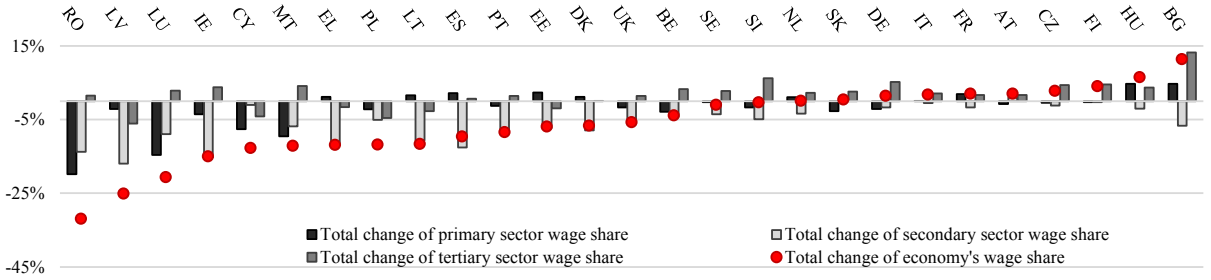

Fig. 2. Decomposition of the aggregate wage share change from 2008 to 2012 by three sectors of national economy, %
Source of data for calculations: Eurostat, 2014, 2015b

During the period under consideration, the aggregate wage share adjusted to the number of employees in the corresponding sectors of national economy decreased in 17 out of 27 countries of the sample (see Fig. 2). The highest rates of the aggregate wage share drop were observed in Romania (-32,0%), Latvia (-25,2%), Luxembourg (-20,7%) and Ireland (-15,1%). While in Romania, Luxembourg, Cyprus and Malta the negative change of the aggregate wage share was mostly affected by the decrease in the wage share of the primary sector; in other countries the decline of the aggregate wage share was associated with the decline in the secondary sector. Even in the countries with the increase of the aggregate wage share (Slovakia, Germany, Italy, France, Austria, Czech Republic, Finland, Hungary and Bulgaria), the wage share of the secondary sector displayed the decline. Regarding the tertiary sector, almost in all the countries of the sample the wage share of this sector showed the raise, except Latvia, Cyprus, Greece, Poland, Lithuania and Estonia – in these countries the wage share of the tertiary sector also declined. The highest rate of the total wage share growth was disclosed in Bulgaria (11,3%), mostly due to the wage share increase in the tertiary sector (13,3%). It should be noted that the research period dropped into the crisis years, therefore there also is the impact of the crisis on the wage share (wages and salaries, as well as value added) and on the structure of national economy in terms of employment, too.

A separated decomposition of the wage share for each sector of the national economy was made further in order to examine, which factor affected more the wage share change inside the sectors – either varying shares of the particular subdivision or the changes in the employment structure considered as weights. The data of calculations are presented in Table1.

Table1. Decomposition of the aggregate wage share change from 2008 to 2012 in three sectors of national economy, in %

	Primary sector			Secondary sector			Tertiary sector			Total economy		
	WS	W	T	WS	W	T	WS	W	T	WS	W	T
Romania	-19,78	0,00	-19,79	-10,96	-2,81	-13,77	-1,13	2,66	1,54	-31,87	-0,15	-32,02
Latvia	-3,90	1,79	-2,11	-8,37	-8,61	-16,98	-9,76	3,68	-6,08	-22,03	-3,14	-25,17
Luxembourg	0,17	-14,78	-14,61	1,91	-10,86	-8,96	1,02	1,80	2,82	3,10	-23,85	-20,75
Ireland	0,24	-3,82	-3,59	-5,92	-9,38	-15,30	-1,54	5,35	3,80	-7,23	-7,85	-15,08
Cyprus	-0,64	-6,97	-7,61	3,95	-4,99	-1,04	-6,97	2,82	-4,16	-3,66	-9,15	-12,81
Malta	0,17	-9,71	-9,54	0,12	-6,96	-6,84	1,37	2,79	4,16	1,67	-13,88	-12,22
Greece	-1,18	2,34	1,16	-2,96	-8,49	-11,46	-3,50	1,85	-1,64	-7,64	-4,31	-11,94
Poland	-1,00	-1,23	-2,22	-3,06	-2,00	-5,06	-6,47	1,88	-4,59	-10,53	-1,34	-11,87
Lithuania	-0,68	2,31	1,62	-4,50	-6,12	-10,62	-5,60	2,90	-2,71	-10,79	-0,91	-11,70
Spain	0,51	1,69	2,21	-3,01	-9,52	-12,54	-3,55	4,24	0,69	-6,05	-3,59	-9,64
Portugal	0,35	-1,66	-1,31	-2,95	-5,60	-8,55	-1,86	3,28	1,41	-4,46	-3,98	-8,44
Estonia	-1,65	4,01	2,36	-2,11	-5,25	-7,36	-4,32	2,39	-1,93	-8,08	1,14	-6,94
Denmark	-0,91	2,03	1,13	0,36	-8,29	-7,93	-2,64	2,75	0,11	-3,19	-3,51	-6,70
United Kingdom	0,29	-2,00	-1,71	1,37	-6,83	-5,46	-0,72	2,12	1,40	0,93	-6,71	-5,78
Belgium	0,15	-3,01	-2,86	0,88	-5,22	-4,34	1,42	1,88	3,30	2,44	-6,35	-3,90
Sweden	0,41	-0,68	-0,27	0,07	-3,62	-3,55	1,64	1,10	2,74	2,11	-3,20	-1,09
Slovenia	-1,73	0,01	-1,72	1,54	-6,47	-4,93	2,24	3,98	6,22	2,05	-2,48	-0,43
Netherlands	0,01	1,09	1,10	0,18	-3,53	-3,34	1,24	1,03	2,26	1,43	-1,41	0,02
Slovakia	0,80	-3,50	-2,70	2,37	-1,85	0,52	0,49	2,09	2,58	3,66	-3,26	0,40
Germany	0,39	-2,51	-2,12	-0,14	-1,60	-1,73	4,50	0,69	5,19	4,76	-3,41	1,35
Italy	0,15	-0,05	0,11	2,24	-2,74	-0,50	1,06	1,03	2,09	3,45	-1,75	1,70
France	-0,36	2,27	1,90	0,91	-2,59	-1,68	1,18	0,53	1,71	1,73	0,20	1,93
Austria	0,47	-1,22	-0,76	1,05	-0,01	1,04	1,32	0,38	1,70	2,83	-0,85	1,98
Czech Republic	-0,36	-0,04	-0,40	0,78	-2,01	-1,23	2,88	1,46	4,34	3,31	-0,59	2,71
Finland	0,75	-1,01	-0,26	4,52	-4,80	-0,28	2,67	1,89	4,57	7,95	-3,92	4,03
Hungary	0,10	4,58	4,68	1,03	-3,05	-2,02	2,54	1,20	3,74	3,67	2,73	6,40
Bulgaria	6,87	-2,14	4,73	-1,99	-4,66	-6,66	9,08	4,18	13,26	13,96	-2,62	11,34

Note: WS - Effect of varying wage share within sector, W - Effect of changing sector weights, T - Total change of sector aggregate wage share;

data for Total economy calculated as the sum of the corresponding variables of the sectors

Source of data for calculations: Eurostat, 2014, 2015b

During the research period, the aggregate wage share of the primary sector declined in 17 countries of the sample. In accordance with the data of Table 1, the change (decrease as well as increase) of the wage share in the primary sector was essentially connected with the effect of changing sector weights – that is the percentage variations of employees in the sector rather than the change of the wage share inside the sector. While the highest negative effect of varying wage share was observed in Romania (-19,8%), the positive effect was observed in Bulgaria (6,87%).

In the secondary sector the aggregate wage share decreased over the research period in 25 countries of the sample, while a slight increase of the aggregate index was marked only in Slovakia and Austria. The decline of the aggregate wage share in this sector was associated with both effects – variations of the wage share inside the sector, mostly decline or minor increase, and considerable decrease of the sector weights. Furthermore, the changes of the aggregate wage share in the secondary sector were evidently higher in comparison with the alterations of the aggregate wage share in the primary sector. The highest drop rate of the aggregate wage share was marked in Latvia (-16,98%), where both effects were accounted for the approximately equal impact. The highest drop of the wage share in the sector was in Romania (-10,96%), but the highest drop of the employment share in the secondary sector among the EU countries was observed in Luxembourg (-10,86%).

In contrast to the primary and secondary sectors, the aggregate wage share decreased only in 6 EU sample countries in the tertiary sector, while other 21 countries performed the raise of the aggregate index. Furthermore, all the EU countries displayed a positive change of the employment percentage (sector weights); therefore, the decline of the aggregate wage share in this sector was in consequence of the decreased wage share over the research period. These results for the EU countries in the 2008-2012 are similar to Young (2006), where he disclosed that in US both manufacturing and agriculture labour shares have fallen from 1958 to 1996, but services labour share – has risen.

Consequently, the decline of the aggregate wage share of the total economy mostly affected both factors – the change of the wage share inside the sectors and the change of the weights, but the raise of the aggregate wage share resulted mostly from the positive change of the wage shares in the sectors.

3.3. Analysis of the changes of the unweighted wage share from the viewpoint of the alterations of its component parts in the national economies of the EU countries

The further analysis was conducted in order to investigate, which alterations caused the decrease of the wage share in the EU countries during the period under consideration – the change of the wages and salaries or value added in the corresponding sectors of the national economies from 2008 to 2012.

Table 2. Change of the unweighted wage share, wages & salaries, and value added from 2008 to 2012 in the sectors of national economy

	Primary sector				Secondary sector				Tertiary sector			
	W/VA 2012, %	ΔIndex, %points	ΔW, %	ΔVA, %	W/VA 2012, %	ΔIndex, %points	ΔW, %	ΔVA, %	W/VA 2012, %	ΔIndex, %points	ΔW, %	ΔVA, %
Belgium	15,0	1,4	31,9	19,8	44,7	1,6	3,5	-0,2	42,9	0,8	12,9	10,9
Bulgaria	17,2	8,1	66,2	-11,7	33,8	-2,2	9,0	16,0	42,7	5,7	37,7	19,5
Czech Republic	32,6	-3,1	-8,0	0,6	36,0	0,7	-1,4	-3,4	36,9	1,7	4,4	-0,6
Denmark	35,2	-18,2	5,1	59,4	54,5	0,9	-8,6	-10,1	60,0	-2,1	5,9	9,7
Germany	28,3	5,0	14,3	-5,7	50,6	-0,2	8,5	9,0	45,8	2,8	14,2	7,3
Estonia	24,3	-11,4	5,7	55,0	42,5	-3,1	-4,7	2,2	39,4	-2,9	-2,5	4,6
Ireland	24,1	1,1	8,7	3,8	29,8	-12,3	-36,4	-10,1	49,2	-1,0	-9,7	-7,8
Greece	15,9	-1,7	-18,4	-9,9	28,2	-5,1	-40,2	-29,3	29,8	-1,6	-18,5	-14,1
Spain	17,5	1,9	3,8	-7,2	34,6	-5,1	-30,0	-19,6	42,1	-2,2	-3,7	1,3
France	16,4	-2,3	2,1	16,2	47,9	1,9	1,8	-2,2	43,2	0,7	8,2	6,5
Italy	26,4	1,0	2,5	-1,4	40,7	2,9	-3,1	-10,1	33,1	0,5	3,9	2,3
Cyprus	19,5	-4,1	-4,8	15,1	38,3	6,0	-16,5	-29,7	42,8	-4,4	6,0	16,9
Latvia	25,4	-20,0	-9,4	62,1	36,0	-18,9	-35,3	-1,2	40,2	-6,9	-20,1	-6,5
Lithuania	23,7	-2,0	2,5	11,1	31,0	-6,5	-19,4	-2,6	36,3	-3,4	-4,6	4,4
Luxembourg	42,2	4,6	20,4	7,3	61,9	7,6	7,3	-6,0	44,0	0,5	19,7	18,3
Hungary	23,5	0,5	8,4	6,2	39,6	1,3	-6,2	-9,3	47,0	1,8	-7,5	-11,0
Malta	26,0	2,5	39,4	25,8	51,0	0,3	-8,0	-8,4	46,0	0,8	24,5	22,2
Netherlands	24,3	0,1	3,2	2,7	36,4	0,4	-1,4	-2,4	47,5	0,7	4,9	3,3
Austria	11,7	0,9	19,0	9,4	46,8	1,9	7,9	3,6	44,9	0,8	12,5	10,4
Poland	15,3	-1,1	3,6	11,2	36,5	-4,2	-3,4	7,8	32,7	-4,3	-6,9	5,3
Portugal	25,0	0,9	-1,5	-5,0	41,0	-4,9	-16,6	-6,7	43,4	-1,3	-4,9	-2,0
Romania	9,5	-18,3	-76,2	-30,7	26,3	-16,4	-37,0	2,3	38,0	-1,1	-14,1	-11,7
Slovenia	11,3	-2,8	-13,2	8,4	52,4	2,4	-9,3	-13,4	53,1	1,9	1,0	-2,7
Slovakia	21,7	3,6	1,6	-15,5	28,7	1,7	7,3	1,0	34,7	0,3	21,2	20,2
Finland	20,8	2,9	16,9	0,6	51,0	8,3	-1,1	-17,1	49,3	1,8	15,2	11,0
Sweden	33,0	5,0	30,4	10,6	45,5	0,2	15,9	15,5	48,4	1,0	28,0	25,4
United Kingdom	43,8	6,9	16,3	-2,2	49,6	3,2	0,9	-5,7	50,7	-0,5	4,9	5,9

Note: W/VA – wage share; W – wages & salaries; VA – value added
ΔIndex – change of the wage share from 2008 to 2012 in % points; Δ – change of the corresponding variable from 2008 to 2012 in %

Source of data for calculations: Eurostat, 2015b

According to the results presented in Table 2, the unweighted wage share in the primary sector declined in 11 sample countries. This decline resulted from the changes in the amount of the wages and salaries paid to employees

(decreased or increased at the slower pace than the value added), rather than from the changes of the value added. In 7 countries of the sample the growth of the wage share emerged from the decrease of the value added, while raising the amount of the wages and salaries. In other countries of the sample the wages and salaries increased at the higher pace than the value added.

The changes in the secondary sector were similar to the primary sector – the decrease of the wage share (in 11 countries) in this sector was mostly associated with the drop of the wages and salaries (in 9 countries). However, there was also an evident decline of the value added in 19 countries, but in these countries the amount of wages and salaries also mostly declined, which resulted in a positive change of the wage share.

Furthermore, in the tertiary sector a drop of the wage share in 12 countries of the sample was also observed, while only in 8 countries it was a result of the diminished wages and salaries, otherwise the wages and salaries raised more slowly than the value added.

4. Conclusions

Conducted research showed that the wage share differs across countries, as well as the sectors of national economy. Comparing the wage share in the sectors of national economy, the lowest share appeared in agriculture, while in the secondary and tertiary sectors the wage shares were coincident. However, applying the weights to the aggregate wage share of the whole economy, the data changed visibly: the lowest impact on the aggregate wage share of the total economy had the primary sector, but the highest – the tertiary sector.

The analysis of the aggregate wage share changes displayed the decline in the most sample countries of the EU during the short-term period, which corresponds to the widespread opinion about declining labour income share in the long-term period, nowadays. According to the conducted decomposition of the aggregate wage share changes at the national level, its decline was mostly affected by the changes in the secondary sector, where alterations were the highest in terms of the wage share and the employment, while increase of the aggregate wage share of the whole national economy was connected with the changes in the tertiary sector. Furthermore, the changes of the wage share in the primary sector were basically related to the effect of the changing sector weights – that is employment share, rather than the change of the wage share inside the sector. In the secondary sector the aggregate wage share decreased over the research period in the most countries; this drop was caused by both effects – variations of the wage share inside the sector, mostly decline, and considerable decrease of the sector weights. The aggregate wage share of the tertiary sector declined the least, which was caused by the diminished wage share inside this sector, rather than the changes of the employment structure. Furthermore, the analysis of the unweighted wage share disclosed that changes of the wage share from 2008 to 2012 appeared due to higher decrease or minor increase of the wages and salaries, rather than value added of the corresponding sector.

References

Arpaia, A., Perez, E., Pichelmann, K. (2009). *Understanding labor income share dynamics in Europe.* (Economic paper No. 379) Brussels, B: European Commission, Directorate-General for Economic and Financial Affairs. doi: 10.2765/37596

Daudey, E., Garcia-Penalosa, C. (2007). The personal and the factor distributions of income in a cross-section of countries. *Journal of Development Studies*, 43(5), pp. 812-829

Eurostat. (2014). Employment in technology and knowledge-intensive sectors at the national level, by sex [htec_emp_nat2]. [Data file] – Retrieved from – http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=htec_emp_nat2&lang=en

Eurostat. (2015a). Gini coefficient of equivalised disposable income [ilc_di12]. [Data file] – Retrieved from – http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_di12

Eurostat. (2015b). Gross value added (at basic prices) & Gross wages and salaries [nama_nace10_c]. [Data file] – Retrieved from - http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama_nace10_c&lang=en

Giovannoni, O. (2014). *What do we know about the labor share and the profit share? Part III: Measures and structural factors*. (Working paper No. 805) New York, NY: The Levy Economics Institute of Bard College. Retrived from http://www.levyinstitute.org/pubs/wp_805.pdf

Gollin, D. (2002). Getting income shares right. *Journal of Political Economy*, 110(2), pp. 458–74

Guerriero, M. (2012). *The labour share of income around the world. Evidence from a panel dataset*. (Working paper No. 32). Manchester, NH: University of Manchester, Institute for Development Policy and Management. Retrieved from http://www.seed.manchester.ac.uk/medialibrary/IDPM/working_papers/depp/depp_wp32.pdf

Krueger, A. B. (1999). Measuring labor share. *The American Economic Review*, 89(2), pp. 45-51

Lawless, M., Whelan, K. (2007). *Understanding the dynamics of labor shares and inflation.* (Working paper No. 784). Frankfurt am Main, HE: European Central Bank. Retrived from https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp784.pdf

Milanovic, B. (2013). Global income inequality in numbers: in history and now. *Global Policy*, 4(2). pp. 198-208. doi: 10.1111/1758-5899.12032

Piketty, T. (2014). *Capital in the twenty-first century*. Cambridge, MA: The Belknap Press of Harvard University Press

Serres, A. de, Scarpetta, S., Maisonneuve, C. de la. (2002). *Sectoral shifts in Europe and the United States: how they affect aggregate labour shares and the properties of wage equations*. (Working Paper No. 326), Paris: OECD Economics Department. doi: 10.1787/763626062738

Stiglitz, J. E. (2011). Rethinking macroeconomics: what failed, and how to repair it. *Journal of the European Economic Association*, 9(4), pp. 591-645

Young, A. T. (2006). *One of the things we know that aren't so: why US labour's share is not relatively stable.* Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=650783