

INCOME INEQUALITY AND LABOUR INCOME SHARE IN VISEGRAD GROUP COUNTRIES

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Abstract

The observed trend for the last thirty years shows that the labour income share has typically fallen alongside an increase in income inequality, especially when, as in most advanced economies, the decline in labour shares was concentrated at the lower end of the labour income distribution. In theory, the relationship between the labour income share and income inequality is not clear-cut, depending largely on how labour and capital incomes are distributed as well as the magnitude of other sources of household incomes and the impact of taxes and social transfers. The contribution analyses the relationship between the two in the case of four Visegrad member states (the Czech Republic, Hungary, Poland, and the Slovak Republic) for the period of 10 years (2010 – 2019). The contribution confirms that also for these Central European countries this negative relationship between the labour income share and income inequality is valid as in the other advanced economies.

Keywords: income inequality, labour income share, aggregate production function, Visegrad group, V4

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Introduction

Robert Solow's famous article “A Contribution to the Theory of Economic Growth” is one of the most cited articles in economic theory. Robert Solow (1956) there presented his model of economic growth based on the macroeconomic (aggregate) production function. Output (Y) is here produced with the help of two factors of production, capital (K) and labour (L). Regarding production, Robert Solow predicts, that it shows constant returns to scale.

In example 3, R. Solow writes: “A whole family of constant-returns-to-scale production functions is given by $Y = (aK^p + L^p)^{1/p}$ I will restrict myself to the case of $0 < p < 1$ which gives the usual diminishing marginal returns. Otherwise, it is hardly sensible to insist on full employment of both factors.” (Solow, 196, p. 77). On the same page, Robert Solow then continues: “In particular consider $p = 1/2$ so that the production function becomes

$$Y = (a\sqrt{K} + \sqrt{L})^2 = a^2K + L + 2a\sqrt{KL}”$$

The coefficient “a” measures the labour share of income, the share of national income paid in wages, including benefits, to workers.

In many countries, the labour share of income began declining in the 1980s or since the early 1990s, reaching its lowest level of the past half century just before the global financial crisis of 2008–09, see analysis by Karabarbouris and Neiman (2013) or Mai Chi Dao, Mitali Das, Zsoka Koczan, Weicheng Lian (2017), Stone (2020), or Flaherty, E., Riain, S. O. (2019).

It is not clear whether the decline in the labour share of income is a positive or negative aspect of economic growth. Firstly, we can regard it as a positive consequence of economic growth based on technological advancements. Technological progress is measured in economics by total factor productivity. The long-term economic growth comes, inter alia, from increases in labour productivity. If labour productivity increases at a rapid pace due to technological progress and wages grow more slowly than average labour productivity then the labour share of income declines. The decrease in the labour share of income can be accompanied by steadily labour income growth.

On the other hand, we can regard another situation. In a certain country, we can presume slow economic growth. Employees (and trade unions) are not able to maintain the wage growth adequate for low productivity growth. The result is the unfavourable decrease in the labour share of income.

The changes in the labour share of income can influence income inequality. Households from the top decile of the income distribution are dominant capital owners and so capital income recipients (Soukup, Soukupová 2010). Mainly wages and salaries and also social benefits are crucial income for nine remaining deciles of households. The decrease of the labour share of income so means higher capital income share and so higher income inequality.

Also, Flanagan, Frances; Stilwell, Frank (2018) for Australia, Ibarra, C. A., Ros, J. (2019) for Mexiko, and ILO, IMF, and OECD (2015) confirm the decrease in the labour share of income can influence income inequality.

Productivity growth is also associated with increasing requirements for workforce qualifications. Thus, income disparities widen, with the incomes of low-skilled workers growing more slowly (if at all) compared to the incomes of more-skilled employees (Goos, Manning, and Salomons 2014). The result is higher income inequality again but it is not this difference will not be reflected in the labour share of income.

However, there is also feedback between income inequality and economic growth. Inequality can increase social tension, and it can harm economic growth (Berg and Ostry 2017). From the supply side of the money market, the rich usually save a smaller part of their marginal income

in the country where they are residents. They spend income on imported luxury goods and, mainly, transfer their income to “tax havens” (capital flight). The result is, that the middle classes have the highest rate of savings. And growing income inequality decreases savings available in the country.

From the demand side of the money market, the higher the inequality means the smaller fraction of the population qualifies for a loan or other credit. So, the consumption and investment opportunities are declining.

Methodology

We will verify the hypothesis mentioned in the first part of my contribution. We will confirm whether it is true that the decline in the labour share of income is associated with increasing income inequality.

The analysis we based on statistical data for Visegrad group countries. The group includes four Central European countries: the Czech Republic (or Czechia), Hungary, Poland, and the Slovak Republic.

The examination covers the period 2010 – 2019. It so covers the period between two recessions, the 2009 “financial and debt” and 2020 “Covid” recessions. However, it should be noted that the 2009 recession did not affect Poland.

The labour share of income is taken from ILO model calculations (ILO 2021). By ILO, the labour income share in GDP is the ratio, in percentage, between total labour income and gross domestic product, both provided in nominal terms. The series is part of the ILO modelled estimates and is harmonized to account for differences in national data and scope of coverage, collection and tabulation methodologies as well as for other country-specific factors. For more information, refer to the ILOSTAT pages on concepts and definitions and ILO modelled estimates and projections. Table 1 provides labour share data.

Tab. 1: Labour income share

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Czechia	54,2	53,4	54,9	53,9	53,4	51,7	52,6	54,8	56,3	56,4
Hungary	51,2	50,7	51,9	50,6	49,6	48,4	49,5	49,4	49,6	48,9
Poland	48,0	46,5	47,1	46,8	47,3	46,6	48,9	47,6	49,1	49,3
Slovakia	46,1	46,7	45,1	48,1	48,4	48,5	50,0	51,1	51,9	53,4

Source: ILO (2021)

The income inequality is measured here by the Gini index. The Gini coefficient is applied in a standard way, thus a Gini index of 0 represents perfect equality, while an index of 100 implies

perfect inequality. Of course, the Gini index is derived from a Lorenz curve. A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. The Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Table 2 provides statistical data from the World Bank (World Development Indicators, 2022).

Tab. 2: Gini index

Country	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Czechia	26,6	26,4	26,1	26,5	25,9	25,9	25,4	24,9	25	25,3
Hungary	29,4	29,2	30,8	31,5	30,9	30,4	30,3	30,6	29,6	30
Poland	33,2	33,2	33	33,1	32,8	31,8	31,2	29,7	30,2	NA
Slovakia	27,3	26,5	26,1	28,1	26,1	26,5	25,2	23,2	25	23,2

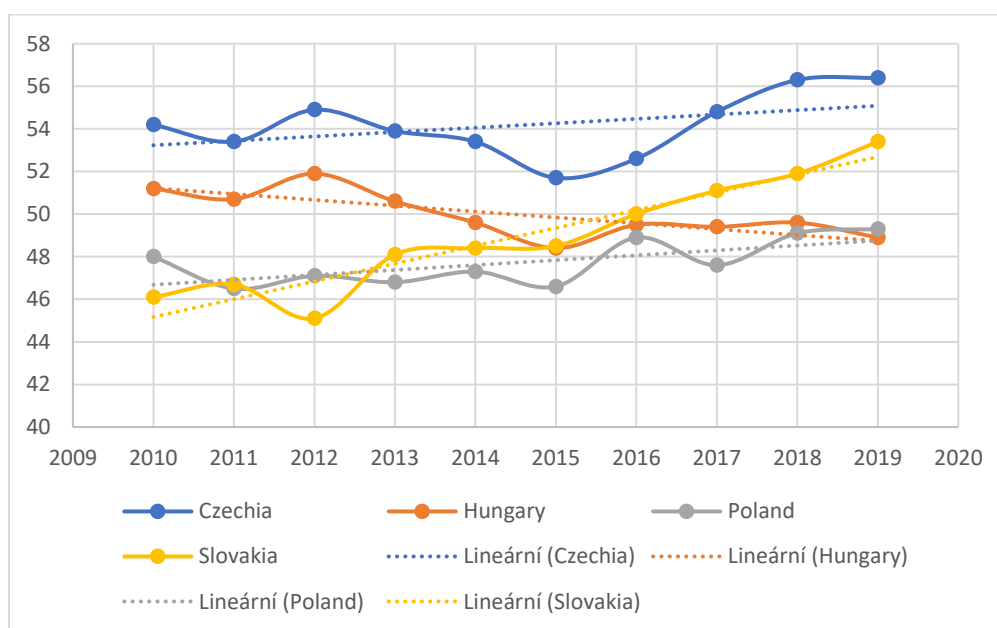
Source: World Development Indicators (2022)

The contribution provides results of analysis based partly on regression and partly on graphical analysis.

Labour Income Share and Income Inequality

In the first step of an analysis, we will concentrate on the labour income share. Figure 1 provides information about the trend in this indicator for the Visegrad group countries in the period 2010 – 2019. We computed a linear trend for changes in labour income share in all four countries.

Fig. 1: The labour income share of the Visegrad group countries

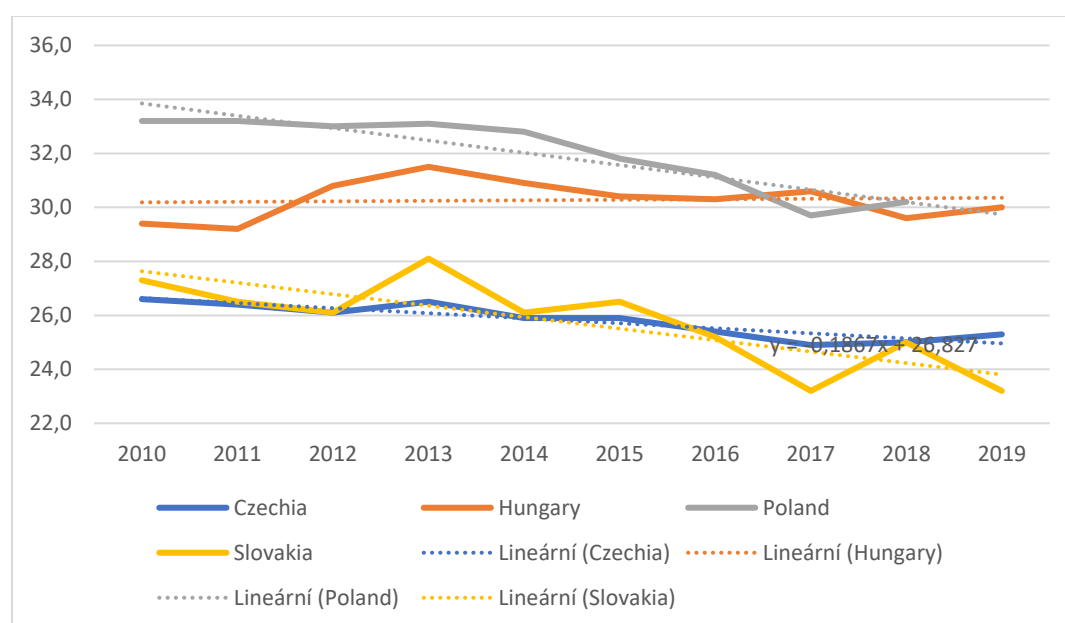


Source: own computation

We can see the trend is decreasing only for Hungary. Trendily, the labour income share is increasing in three countries, the Czech Republic, Poland, and Slovakia. The fastest growth of the labour income share is observable in the Slovak Republic.

The second step of the analysis will be oriented toward income inequality. Again, we can observe the declining trend for the Gini coefficient in three Visegrad countries, i.e. the Czech Republic, Poland, and Slovakia. Once more, Hungary shows an opposite trend, the trend value of the Gini coefficient is increasing. It means the income inequality was growing only in Hungary during the examined period.

Fig. 2: Gini index of the Visegrad group countries



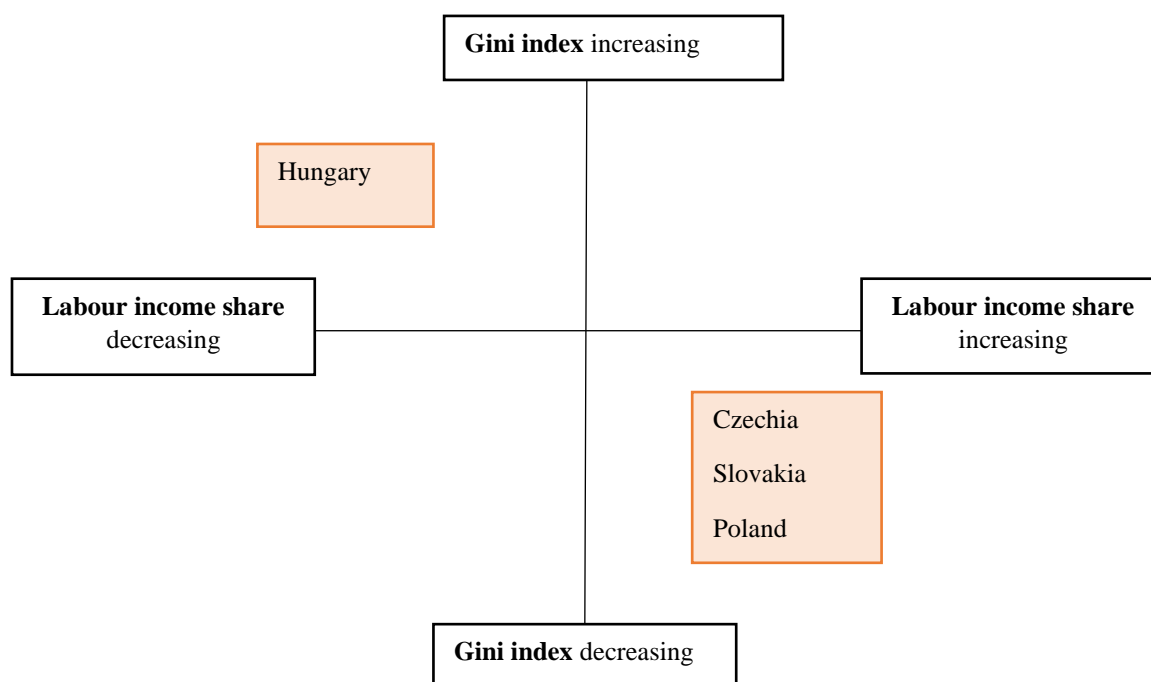
Source: own computation

Now we can confirm or refuse the hypothesis that was formulated in the methodology part of the contribution. In Figure 3, on the horizontal axis, the labour income share is depicted. On the vertical axis, the value of the Gini coefficient is displayed. If the hypothesis is confirmed the points for all four countries must be found in the upper left sub-quadrant or the lower right sub-quadrant.

And we see exactly that in Figure 1. Hungary is located in the upper left sub quadrant, i. e., the decreasing labour share of income is connected with the increasing income inequality. The other three countries are located in the lower right sub-quadrants, i. e., increasing labour shares of income are connected with decreasing income inequality.

The third and last step of our analysis so confirms that the changes in the labour share of income have an impact on income inequality.

Fig 3: Labour income share and Gini index



Source: own computation

Conclusion

The contribution confirms that the negative relationship between the labour income share and income inequality is valid for Visegrad group countries (i.e., the Czech Republic, Hungary, Poland, and the Slovak Republic). The economies of these four countries show the same behaviour as most of the other advanced economies.

The main reason is the growth of productivity of labour and the total factor productivity. is faster than wage growth. It leads to a decrease in the labour income share.

The decline in the labour share of income can influence income inequality. Households from the top decile of the income distribution are dominant capital owners and so key capital income recipients (Soukup, Soukupová 2010). Wages, salaries, and also social benefits are crucial incomes for the nine remaining deciles of households. The decrease of the labour share of income so means automatically higher capital income share and so higher income inequality.

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References

- Berg, A. G., & Ostry, J. D. (2017). Inequality and unsustainable growth: Two sides of the same coin? *IMF Economic Review*, 65(4), 792–815. <https://doi.org/10.1057/s41308-017-0030-8>
- Dao, M. C., Das, M., Koczan, Z., & Lian, W. (2017). Why is Labor receiving a smaller share of global income? theory and empirical evidence. *IMF Working Papers*, 17(169). <https://doi.org/10.5089/9781484311042.001>
- Flaherty, E., & Riain, S. O. (2019). Labour's declining share of national income in Ireland and Denmark: The National Specificities of Structural Change. *Socio-Economic Review*, 18(4), 1039–1064. <https://doi.org/10.1093/ser/mwy047>
- Flanagan, F. & Stilwell, F. (2018). Causes and Consequences of Labour's Falling Income Share and Growing Inequality. *Journal of Australian Political Economy*, 81, 5-10.
- Goos, M., Manning, A., & Salomons, A. (2014). Explaining job polarization: Routine-biased technological change and offshoring. *American Economic Review*, 104(8), 2509–2526. <https://doi.org/10.1257/aer.104.8.2509>
- Ibarra, C. A., & Ros, J. (2019). The decline of the labor income share in Mexico, 1990–2015. *World Development*, 122, 570–584. <https://doi.org/10.1016/j.worlddev.2019.06.014>
- ILO, IMF, OECD (2015). Income inequality and labour income share in G20 countries: Trends, impacts and causes. (n.d.). Working paper prepared for the G20 Labour and Employment Ministers Meeting and Joint Meeting with the G20 Finance Ministers. *Human Rights Documents Online*. https://doi.org/10.1163/2210-7975_hrd-4022-2015046
- Karabarbounis, L., & Neiman, B. (2013). The global decline of the Labor share. *The Quarterly Journal of Economics*, 129(1), 61–103. <https://doi.org/10.1093/qje/qjt032>
- Solow, R. M. (1956). A contribution to the theory of economic growth. *The Quarterly Journal of Economics*, 70(1), 65. <https://doi.org/10.2307/1884513>
- Soukup, J., & Soukupová, J. (2020). *Differences in income inequality under recession and growth: The case of the Czech Republic*. Retrieved July 26, 2022, from https://msed.vse.cz/msed_2020/article/238-Soukup-Jindrich-paper.pdf
- Stone, Ch., Trisi, D., Sherman, A., & Beltran, J. (2020). A guide to statistics on historical trends in income inequality. *Center on Budget and Policy Priorities*. Retrieved July 26, 2022, from <https://www.cbpp.org/research/poverty-and-inequality/a-guide-to-statistics-on-historical-trends-in-income-inequality>

Statistics

ILO (2021). Labour income share as a per cent of GDP - ILO modelled estimates, Nov. 2021 (%). Retrieved June 19, 2022 from ILOSTAT.

World Development Indicators (2022). World Bank. Retrieved May 25, 2022 from <https://databank.worldbank.org>.

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