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Determinants of functional income distribution - Theory and empirical evidence

Petra Dünhaupt

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DETERMINANTS OF FUNCTIONAL INCOME DISTRIBUTION – THEORY AND EMPIRICAL EVIDENCE

Petra Dünhaupt

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ABSTRACT

Since the 1980s, the share of wages in national income declined almost all over the world. This paper provides an overview of the evolution of labour's share in selected OECD countries. Several theoretical approaches explaining functional income distribution are summarised. In light of the different theoretical stances, this paper reviews the empirical literature on potential explanations for the prolonged fall. While heterodox economists regard neo-liberalism, financialisation and the shift in workers' bargaining power as the main determinants for the decline in labour's share, neoclassical economists relate the fall to skilled-biased technological change and globalisation. The paper also offers recommendation on how to stabilise labour's share.

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1. INTRODUCTION

Since the 1980s, labour's share[1] in national income has fallen around the world (Rodriguez and Jayadev 2010). This development contradicts the long-standing fact of Bowley's law, which states that labour's share is remarkably constant in the long run[2]. However, the fact of falling labour's shares led to a renewed interest in functional income distribution.

While most studies focus on the increase in personal income inequality, the present study is devoted to functional income distribution which shows how the returns from output are shared among capital and labour. Since the majority of the population receives its largest share of income from work rather than capital (OECD 2011), functional income distribution provides a comprehensive picture of how the returns from growth and the losses from stagnation are shared among the economy (Rodriguez and Jayadev 2010).

How can the decline in labour's share be explained? From a theoretical point of view, different paradigms provide different answers.

For classical economists like Smith and Ricardo as well as for Marx, wages correspond to a subsistence level. Marx further assumes that distribution is determined by the relative bargaining power. For neoclassical economists, the distribution of national income is determined by factor prices, and factor prices are determined by supply and demand. Each factor of production is paid its marginal product. For (monetary) Keynesians, the profit rate is provided by the interest rate. According to Kalecki, distribution depends on the pricing behaviour of firms in monopolistic markets.

Following these different paradigms, it becomes obvious that every theory favours a different explanation in regard to functional income distribution. It comes as no surprise that the differences do not only relate to the theoretical level but also to the interpretation of recent developments. Neoclassical economists relate the declining share of labour in national income to technological change that increased the productivity of capital and high-skilled labour as well as to globalisation. Whereas heterodox economists stress the role of neo-liberalism, financialisation and the decline in workers' bargaining power.

The present study consists of five parts. First, it presents an empirical description of the development of labour's share in Continental European and Anglo-Saxon countries. Next, it follows an extensive discussion of the theoretical strands on functional income distribution. Based on the different paradigms, the present arguments in recent debates will be presented and backed up by empirical evidence. The interpretation of the empirical development based on the different

[1] The words labour's share and wage share are used here interchangeably. In general, the *wage share* refers to compensation of employees as a share of GDP or value added, whereas *labour's share* refers to the fraction of national income that goes to labour; i.e. the wage share corrected for the earnings of self-employed, which is sometimes also called *adjusted wage share*.

[2] For a discussion of Bowley's Law, compare (Krämer, 1996 and 2010).

paradigms is essential for the last part of the study, which deals with the implications for economic policy. While mainstream economists stress the importance of further deregulation and liberalisation of international trade and labour markets, heterodox economists emphasise the regulation of finance and the strengthening of labour's bargaining position.

2. THE DECLINING SHARE OF LABOUR'S INCOME

Functional income distribution shows how output is divided between the factors of production, i.e. capital and labour. The wage share can be defined as compensation of employees as a share of value added or GDP. The profit or capital share is then the residual. This basic approach might render an inaccurate picture of how output is divided among the factors of production, when taking into account that the labour income of the self-employed is included in the profit share. Hence, changes in the sectoral composition of an economy, as for instance the shift from an agricultural to an industrial economy, i.e. a shift from self-employment into dependent employment, can bias the development (Kravis 1959). Gollin (2002) finds large differences between wage shares of poor and rich countries almost vanish when corrected for the earnings of self-employed. Since Johnson (1954) it became common practice to assign 2/3 of proprietor's income[3] (i.e. revenue to owners of unincorporated businesses) to the wage share, and 1/3 to the profit share (Krueger 1999). Another issue relates to the treatment of the government sector. Since the profit share of the government sector is zero by definition, a decline in government activity automatically results in changes in labour's share of income (Gomme and Rupert 2004).

Figures 1 and 2 show the evolution of the adjusted wage share (compensation per employees as a share of GDP at factor costs per person employed. Here, labour's share includes both dependent and self-employed workers and GDP excludes taxes but includes subsidies) for Continental European and Anglo-Saxon countries between 1960 and 2012, respectively. Two broad trends become apparent: Firstly, the labour share fluctuates with the business cycle. It tends to increase during a recession and to decline during the recovery. Willis and Wroblewski (2007) offer three potential explanations for this. First, wages need some time to adjust. Second, adjustments in employment can be costly, therefore firms prefer to delay the adjustment until they can be certain the change in demand is permanent. And the third explanation refers to risk sharing between employers and employees, in which workers refrain from wage demands during economic upswings in return for wage insurance during recessions. The IMF (2012) argued in a recession profits are presumably responsible for a decline in income, and hence labour's share rises automatically. This was the case in four of the countries, surprisingly, the adjusted wage shares of the USA and Spain were

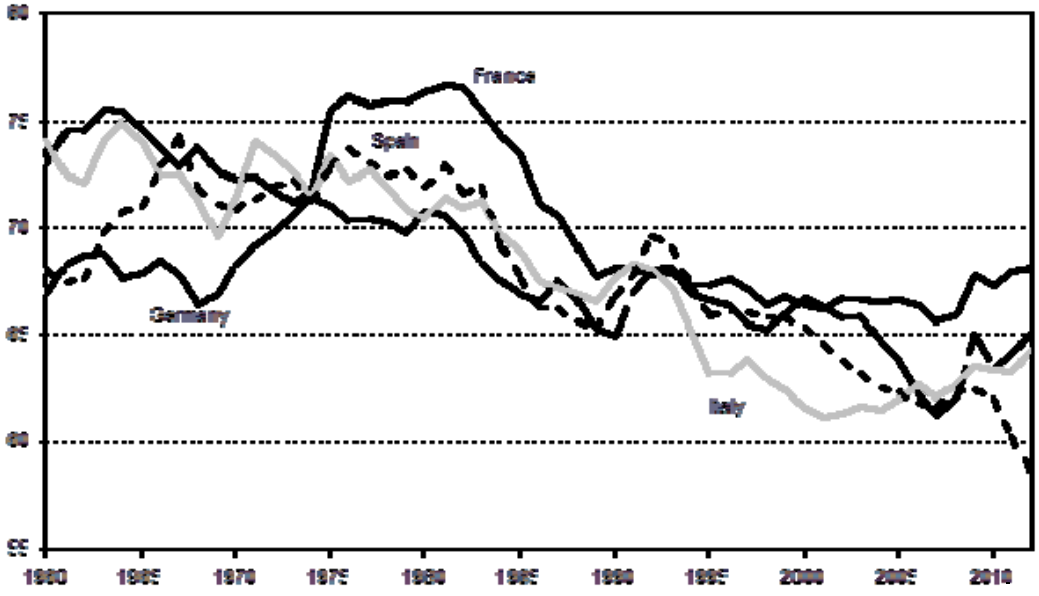
[3] This is based on Johnson (1954) who assumed that 65 percent of proprietors' income denotes labour income.

even lower in 2012 than in the year 2007 when the financial crisis started. In the case of the USA, the short-term focus of corporations induced managers to offset workers in order to increase productivity (Stiglitz 2012).

Secondly, apart from these short-run fluctuations, there is a long-run downward trend in labour's share. After the peak years in the late 1970s and early 1980s, Continental European countries exhibited a clear downward trend, whereas the decline in Anglo-Saxon countries was very moderate. In Germany and France, the share declined by 9 percentage points in the years between 1980 and 2007. In the same period, the decline amounted to 10 percentage points in Spain and to 8 percentage points in Italy. Although a tremendous decline has been observed between 1980 and 2007, it has to be acknowledged that the decline in the adjusted wage share in France levelled out in the late 1980s and in Italy in the mid-1990s.

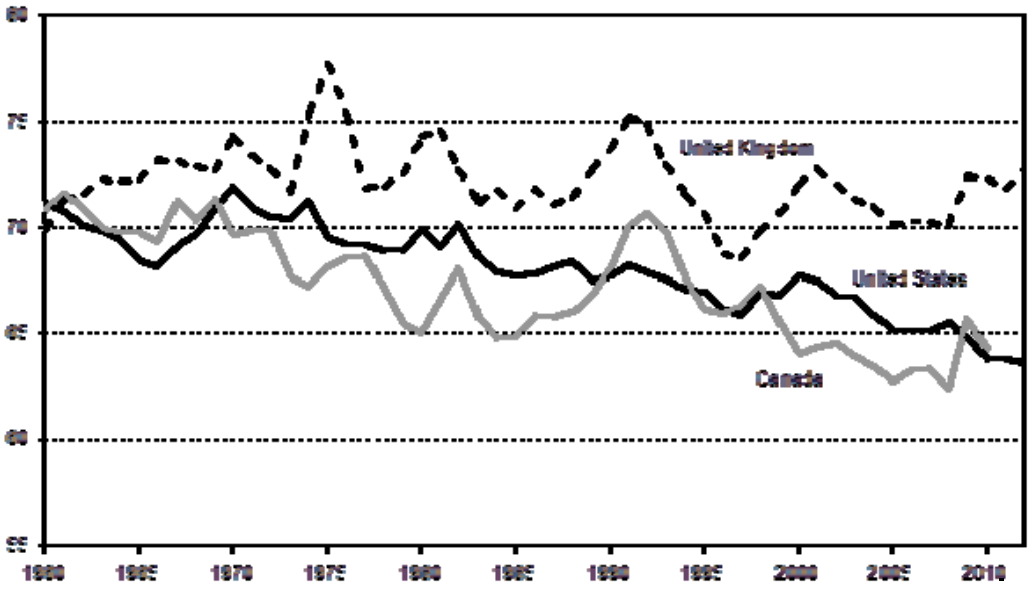
In the period between 1980 and 2007, the US labour's share dropped by 5 percentage points whereby the Canadian share decreased by 2 percentage points. In the UK, the adjusted wage share was relatively stable, only fluctuating alongside the business cycle.

Figure 1: Adjusted wage share Continental European Countries, 1960-2012



Source: European Commission AMECO database (2013)

Figure 2: Adjusted wage share Anglo-Saxon countries, 1960-2012



Source: European Commission AMECO database (2013)

Note: The adjusted wage share provided by AMECO is defined as: Compensation per employees as a share of GDP at factor costs per person employed.

How can the difference in the evolution of the adjusted wage shares between Continental European and Anglo-Saxon countries be explained? One factor missing from the aggregate wage share is the development of wage dispersion. Several recent studies pointed out that wage dispersion increased especially in Anglo-Saxon countries (compare, for instance, OECD 2011). The work of Piketty and Saez (2003, 2006) based on income tax data showed that in the US and UK, top income shares have increased tremendously since the 1980s. Looking at the composition of these income shares reveals that, at least for the US, the increase in income shares was mainly driven by an increase in top salaries. Once wage shares are corrected for these high salaries, the development of Anglo-Saxon wage shares shows also a distinct decline.[4]

However, the decline in labour's share of income seems not only to be a phenomenon of developed countries. In an extensive study covering 129 countries, Rodriguez and Jayadev (2010) found labour shares decreased in almost all regions of the world since the 1980s.

[4] For the case of the US, compare Buchele and Christiansen (2007) and Glyn (2009), for the UK Atkinson (2009) and for Germany and the USA Dünhaupt (2011).

3. THEORETICAL BACKGROUND

In order to explain the different theoretical strands on the determinants of labour's share, it is useful to have a closer look at its composition. Labour's share is defined as the compensation of employees (W) measured as a share of total income (Y), which is equal to 1 minus profits (Q) measured as a share of total income (Y).

$$\frac{W}{Y} = 1 - \frac{Q}{Y} \tag{1}$$

This ratio can be further broken down on a per worker basis: with L workers, it is the share of wages per capita as a share of value added per capita.

$$\frac{\frac{W}{L}}{\frac{Y}{L}} \tag{2}$$

Further, dividing the numerator and denominator by the price index for value added, labour's share is defined as real wages (w) as a share of real labour productivity (p).

$$\frac{W}{Y} = \frac{w}{p} \tag{3}$$

Hence, labour's share responds to changes in the growth rate of real wages and productivity. If real wages grow faster than productivity, labour's share increases. In contrast to this, if the growth in real wages lag behind the increase in productivity, labour's share declines.

Regarding economic theories on income distribution, it is possible to distinguish between micro-and macroeconomic theories, between the short and the long-run theories or between (neo)-classical and heterodox schools of thought. In the following, however, theories are presented more or less in chronological order.

3.1 CLASSICAL ECONOMICS

> "… in different stages of society, the proportions of the whole produce of the earth which will be allotted to each of these classes, under the names of rent, profit and wages, will be essentially different; depending mainly on the actual fertility of the soil, on the accumulation of capital and population, and on the skill, ingenuity, and instruments employed in agriculture." (Ricardo 1817, p. 5)

As the quote by Ricardo shows, functional income distribution was variable for Classical economists. In fact, both Ricardo and Marx believed in the falling rate of profit, which was a major concern, since it determines the rate of accumulation and growth.

Ricardo distinguishes between three social classes upon which the national product is divided: landlords receive rent, capitalists receive profit and workers receive wages. Kaldor (1955) split Ricardo's theory into two broad principles. The first one, which Kaldor referred to as the "marginal principle" relates to the share of rent, while the second one, the "surplus principle", explains the division of the residual between wages and profits. According to Ricardo, rents as a share of national income have a tendency to increase in the long run, due to the "law of diminishing returns" to land cultivation. Profits are not determined independently; they are defined as a residual. The rate of wages is determined by the supply price of labour measured in corn. The "natural rate of wages" is a subsistence wage. Ricardo relied on Malthus theory of population, which states that a wage rate above the "natural rate of wages", i.e. above the subsistence wage, will raise the birth rate and the supply of labour increases. In the long-run, the wage fund and population grow simultaneously, which leads to rising prices of corn and rents. Because profits are only the residual, the increase in rent comes at the expense of profits (Siebke 1999).

For both Ricardo and Marx, sources of income flows relate exactly to their social classes; i.e. landlords receive rent, capitalists receive profits and workers receive wages. For Marx, the distribution between capital and labour and thereby between capitalists and workers played a decisive role: it is the basis of the capitalist system of production.

3.2 MARX

According to Marx (1887), the value of each commodity is determined by the labour contained in it, measured in time. Since labour power is also regarded as a commodity, its value is determined by the time necessary for its reproduction and therefore rests on a subsistence level that enables the worker to maintain his work. Workers only possess their labour power and the capitalists own the means of production.

In the beginning of a production process, the capitalist invests a certain amount of capital consisting of constant capital, i.e. the means of production, and variable capital, i.e. labour. During the production process surplus value will be created, i.e. the value of the created commodity exceeds the original value by a surplus. The degree of exploitation of the worker by the capitalist is then given by the rate of surplus value, where the surplus created is set in relation to variable capital:

$$\frac{S}{V} \text{ or } \frac{surplus}{necessary}\frac{labour}{labour} \text{ (ibid. p. 149).}$$

How is distribution then determined? Though wages relate to a subsistence level, which is necessary for the reproduction of the worker, the subsistence level is, however, variable. In contrast to other commodities, the "value of labour-power [has] a historical and moral element" (Marx 1887, p. 119). Since it depends on historical developments and the given living conditions in a country the

subsistence level is also determined by the relative bargaining power of the capitalists and the working class. The part of the working day necessary for the reproduction of labour power is predetermined, however, the actual length of the working day is negotiable, depending on the amount of surplus labour which is demanded by the capitalists.

Since the composition of capital is fixed, the accumulation of capital, i.e. the reinvestment of surplus value into capital, increases the demand for labour. If the demand for labour exceeds the supply, wages might rise. However, as Marx (1887, p. 429) argued, "accumulation of capital is [...] increase of the proletariat", not only because larger parts of the population are drawn into wage labour, but also because the workers become more productive. The "surplus labouring population", which is also called the "industrial reserve army", holds wages down (Marx 1887, p. 442).

3.3 NEOCLASSICAL ECONOMICS

In contrast to Marx, where the exploitation of workers played a decisive role for Capitalism to survive, neoclassical theory rules out any form of exploitation: each agent receives the amount of income corresponding to his contribution to total output. This inherent fairness is provided by the marginal productivity theory. The profit-maximising firm hires more workers only if the marginal product of labour exceeds the real wage, and only employs more capital if the marginal product of capital exceeds the rate of interest. Hence, in equilibrium, the marginal product of labour is equal to the real wage rate and the marginal product of capital is equal to the rate of interest.

The neoclassical theory of distribution rests on the microeconomic foundations that can be traced back to Leon Walras, which stated that there is an equilibrium price on all goods and factor markets. Based on given initial endowments, given preferences of households and given conditions of production by firms, firms maximise their profits and households maximise their utilities. Under perfect competition, there is a symmetric treatment of equilibrium prices and quantities on all goods and factor markets. Hence, the supply and demand process ensures that prices adjust to demand and that all factors are employed. Therefore, the payment depends on the relative scarcity of factors and its productivity.

In summary, neoclassical theory of distribution rests on three main pillars: preferences, production functions and factor endowments. The concept can be explained with a simple production function; the microeconomic concept of a firm is aggregated to fit the whole economy. Output, represented by Y, is a function of both capital (K) and labour (L):

$$Y = F(K, L) \tag{4}$$

Given the two factors of production labour and capital, which are assumed to be perfect substitutes, the economy is described by an aggregated production function that exhibits constant returns to scale. If the elasticity of factor substitution is equal to one, factor shares are independent of price changes in

inputs and outputs. For example, an increase in the ratio of real wages to the real interest rate leads to a substitution of labour for capital and therefore to a reduction in employment. A production function with constant returns to scale and factor substitution of one implies that factor shares are constant (Cobb-Douglas).

However, if the elasticity of substitution is different from one, a change in factor prices is not compensated by corresponding changes in factor substitution. If the elasticity of substitution is smaller than one, a decline (increase) in the capital/labour ratio leads to an increase (decrease) in labour's share. If the elasticity of substitution is greater than one, a decline (increase) in the capital/labour ratio leads to a decline (increase) in labour's share.

The use of an aggregate production function at the macro level is difficult for several reasons. Joan Robinson (1953) raised the question of what is capital. While labour can be measured in physical terms, the measurement of capital is more complicated. In fact, in order to aggregate capital goods, it is necessary to assign a specific value to each physical item. The interest rate has to be known to measure capital goods, whereas the capital stock is needed to calculate the marginal productivity of capital. The logic becomes circular and hence, the neoclassical production function is only applicable to a one-good model. This notion was the base for ongoing discussions.[5]

In neoclassical economics, capital-intensive production techniques become more favourable when the rate of interest declines. However, in a model with more than one capital good, capital reversing is possible; i.e. different capital intensities can be in equilibrium with the same rate of interest. Hence, the relationship between an increase in capital intensity and a decline in the rate of interest is no longer valid (Pasinetti 2000).

Sraffa (1960) emphasised the possibility of multiple production techniques, which cannot be ranked by interest rates. Given a set of production techniques, firms can choose the most profitable one. It is possible that the same technique is used with very high and very low interest rates. This is known as re-switching of techniques.

Based on this critique, functional income distribution cannot be determined by marginal productivities. The Cambridge Capital debates let to the development of a further theory of income distribution.

[5] For a detailed discussion of the Cambridge-Cambridge capital controversy, compare for example Harcourt (1969 and 1972).

3.4 KEYNES

Although Keynes himself never dealt explicitly with the topic of income distribution, there are still some theories that can be classified as “Keynesian”, since they are based on “Keynesian” postulates.

For Kaldor (1955), the ratio of investment to output determines the share of profits in income, given the wage earners' and capitalists' propensities to save. He assumed there is a positive propensity to save out of profit income and minor savings out of wage income. Given the Keynesian axiom that investment determines savings, the relative size of profits in income depends on the investment decision of the capitalists. This logic is reminiscent of Keynes "widow's cruse":

> “However much of profits entrepreneurs spend on consumption, the increment of wealth belonging to the entrepreneurs remains the same as before. Thus, profits, as a source of capital increment for entrepreneurs, are a widow's cruse which remains undepleted, however much be devoted to riotous living.” (Keynes, 1930, p. 139)

and Kaldor’s summary of Kalecki’s notion "capitalists earn what they spend and workers spend what they earn". In the special case when the saving rate of workers is exactly zero, the model can be considered as the exact opposite to classical economists:

> “… here wages (not profits) are a residue, profits being governed by the propensity to invest and capitalists’ propensity to consume ....”(Kaldor, 1955, p. 96)

Pasinetti (1962) improved on Kaldor’s theorem showing that even when workers savings are positive, i.e. they also receive profits, total profits are still determined by the spending of the capitalist class.

Apart from Kaldor’s theory of income distribution, which he himself called ‘Keynesian’, it is possible to extract further implications from Keynes regarding his position on distribution.

National income (Y) consists of wages (W) and profits (Q).

$$Y = W + Q \tag{5}$$

The wage share is defined as wages (W) measured as a share of national income (Y)

$$\frac{W}{Y} = 1 - \frac{Q}{Y} \tag{6}$$

Profits, in turn, can be decomposed into the profit rate (q) times the price level (P) multiplied by the real stock of capital (K)

$$Q = q * P * K \tag{7}$$

Divided by output and solved for wages, it follows that the share of wages equals one minus the profit rate multiplied by the capital coefficient (k), which is defined as the nominal capital stock divided by national income.

$$\frac{W}{Y} = 1 - q * k \tag{8}$$

Hence, the wage share is determined by the rate of profit, which itself is subject to the asset market, and the capital coefficient, which is determined by technology. Keynes (1936) argued that the interest rate (which determines the profit rate) results from a liquidity premium. Looking at this in a modern context the central bank sets the short-term interest rate whereby the liquidity premium (or risk premium) plus the short-term interest rate determine the long-term interest rate. Since profit rates are presumably higher than interest rates, it can be inferred that financial markets press for higher rates (for an extensive discussion, compare Herr and Kazandziska 2011 and Heine and Herr 2013).

3.5 KALECKI

Kalecki's theory of income distribution relates distribution to the pricing behaviour of firms in the industrial sector. The underlying assumptions put the economy in a state of underemployment and imperfect competition. In contrast to the primary sector of an economy, where price changes are determined by demand, prices in the industrial sector are determined by costs. Kalecki (1965) assumed that firms operate below full capacity, and unit variable costs (i.e. the costs of material and wages used per unit of output) are constant over the relevant range of output.[6] Firms then impose a mark-up on unit variable costs, depending on their degree of monopoly. By aggregating the formula for the industrial sector as a whole, functional income distribution is determined by the average mark-up (i.e. the degree of monopoly) and the ratio of raw material prices to unit labour costs. However, the resulting profit share still has to cover overhead costs for example, salaries and cost of depreciation.

A formal representation of this relationship can be found in Hein (2012):

$$p_j = (1+m)_j \left(\frac{w}{y} + p_f e \mu \right)_j, \; m > 0 \tag{9}$$

Where the output price (p) in sector $_j$ equals 1 plus a mark-up, w is the nominal wage rate, y the labour productivity, p_f the unit price of imported material or semi-finished products in foreign currency, e denotes the exchange rate and μ imported materials or semi-finished inputs per unit of output.

[6] Note that salaries are not part of wages but overhead costs, since they do not dependent on the output.

Replacing the relationship between unit material costs and unit labour costs by z_j

$$z_j = \left(\frac{p_f e \mu}{\frac{w}{y}} \right)_j \tag{10}$$

the gross profit share in value added in sector j is given by

$$h_j = \frac{\Pi_j}{(\Pi + W)_j} = \frac{1}{\frac{1}{(1+z)_j m_j} + 1} \tag{11}$$

with Π denoting gross profits (including overhead costs) and W wages for direct labour.

Taking the weighted average of sectoral profit shares, the wage share of direct labour ($\omega = 1 - h$) for the economy is demonstrated by

$$\omega = \frac{W}{(\Pi + W)} = \frac{1}{(1+z)m + 1} \tag{12}$$

Hence, the wage share is determined by the mark-up imposed by firms price settings, by the ratio of unit material costs to unit labour costs, and by the sectoral composition of the economy.

What determines the degree of monopoly? Kalecki (1965) mentions four potential mechanisms:

First, the mark-up is positively determined by the degree of economic concentration and hence price competition. Second, the degree of monopoly is positively related to non-price competition in the form of sales promotion and advertising. Mechanisms three and four are overheads related to prime costs and the power of trade unions. If overhead costs rise, and gross profits decline, tacit agreements become likely. As a result, prices in relation to unit prime costs might rise. Since interest and dividend payments can be considered as overhead costs, a permanent rise in interest payments and/ or dividend payments might be passed on by an increase in the mark-up (Hein 2013). Trade union power can have a negative impact on the mark-up. If strong trade unions push for higher wages and firms want to maintain their profit margin, they can only do this by increasing their prices, thereby sacrificing their competitiveness.

Both Keynes and Kalecki shared the perception that in the simplest model (a one sector model without foreign competition), an increase in (nominal) wages will be passed on to prices and therefore does not change functional income distribution. Kalecki (1971) presented a more complex view, showing that under certain circumstances wage increases will not be passed on to prices, but rather

reduce profits. In an open economy, this is reasonable because, due to international competition, firms' ability to pass on higher costs is curtailed by the fear of losing competitiveness through an increase in prices.

4. RECENT ARGUMENTS AND EMPIRICAL EVIDENCE

The above discussion on theoretical determinants of functional income distribution has shown there is no common ground. Hence, it comes as no surprise that competing explanations are provided to describe recent developments. The following section provides an overview of the main arguments found in empirical analyses of labour's share of income.

- *Neo-liberalism and Financialisation:* The deregulation and liberalisation of labour- and financial markets, the downsizing of the public sector, the privatisation of formerly state owned enterprises, the dismantling of labour rights - often referred to as the neo-liberal policy regime, coupled with the rising power of finance, contributed to a decline in labour's share of income.[7]
- *(Skilled-biased) Technological change:* This strand of literature relates the decline in labour's share of income to technological change that became capital augmenting. This favours high-skilled workers and replaces low-skilled workers.
- *Globalisation:* Here it is argued that international trade benefits capital and high-skilled labour more than relatively low-skilled labour.
- *Labour market and product market policies:* Due to imperfect competition, extra rents can be created upon which the relative bargaining strength determines its distribution.
- *Sectoral composition and privatisation*: If sectors with a lower labour's share in value added gain importance, it is possible that the overall share declines. Moreover, since the profit share of the government sector is zero by definition, privatisation of state owned enterprises leads to a reduction in labour's share.

4.1 NEO-LIBERALISM AND FINANCIALISATION

The years after World War II (1950-1960) are often referred to as the "Golden Age of Capitalism" (Marglin and Schor 1992). Industrialised countries experienced high growth rates, low inflation and almost full employment. Workers' bargaining position was strong, unions were powerful and wages increased (Glyn 2006a).

[7] For an extensive discussion regarding the impact of neo-liberalism and financialization on functional income distribution based on a Kaleckian framework, compare Hein (2013).

By the 1970s, there was a "crisis of Capitalism" (Glyn 2006a, p.2) whereby the previously successful growth regime had some negative repercussions. Accelerating inflation rates triggered by a sharp rise in nominal wages on the one hand, and rising oil and commodity prices on the other hand, contributed to restrained profits. A rise in unemployment and an increase in the degree of internationalisation coincided with the breakdown of the Bretton Woods system of fixed exchange rates and significant changes in the financial sector emerged (Orhangazi 2008). Capital markets were liberalised through which securities became tradable. New financial products were created and traded on new markets to transfer risks (Aglietta and Reberioux 2005). Monetary policy devoted itself to combating inflation and price stability became top priority. A rise in unemployment weakened labour's bargaining position by undermining the collective bargaining power and by the fear of redundancies (Glyn 2006a). The situation was further reinforced by the shift of government policies towards liberalisation and deregulation that led to a revision of the laws protecting employment, greater wage flexibility and slimming down of welfare (Boyer 2005).

Since the 1980s, a phenomenon many authors refer to as *financialisation* took over:

> "Financialization means the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies." (Epstein 2005, p. 3)

On a global scale, financial globalisation refers to the rise in global capital flows resulting from the easing of capital controls. In regard to non-financial corporations, *financialisation* is often coined for the process of an increase in shareholder value orientation. Long-term growth strategies were replaced by short-term planning horizons. Management salaries were tied to stock price movements, thereby aligning the interests of managers to those of shareholders. Lazonick and O' Sullivan (2000) summarised this development as a strategic shift from "retain and invest" to "downsize and distribute". In fact, the increasing pressure of financial actors led to an increase in dividend payments and stock purchases (Lazonick 2011). On the one hand, this trend was fostered by rising claims from financial wealth owners for increasing returns on financial assets. On the other hand, firms want to maintain high stock prices as a protection from hostile takeovers and acquisitions. Indeed, mergers and acquisitions have increased multiple times since the 1980s. This trend, however, resulted in more power for a few, because company ownership became more concentrated and thus allowed companies to impose higher profit mark-ups.

In regards to functional income distribution, many authors claim the process of financialisation has contributed to the decline in labour's share of income (see for example, ILO 2011, Stockhammer 2009 & 2012 and Dünhaupt 2013).

Following Keynes, it can be argued that the difference between the interest rate and the profit rate stems from the pressure of financial actors on companies to realise a profit rate above the interest rate (Herr 2013).

In order to get a comprehensive picture of the distributional consequences of financialisation, Dünhaupt (2012) calculated rentier income shares for the economy as a whole. In this study, the profit share was split up into the retained earnings of corporations and the rentier income share, which is equal to the net property income of private households. In the case of the US, the rentier share increased in the early 1980s and remained roughly constant afterwards. This increase was mainly caused by a rise in net interest income, whereas net dividend income picked up in the early 1990s. Moreover, the increase in the rentier income share came about at the expense of labour's share of income, whereas the rate of retained earnings showed no trend. In the case of Germany, the rentier income share started to increase in the 1990s. This trend was almost exclusively driven by dividend incomes. This increase in the rentier income share also came about at the expense of labour's share whereby retained earnings of corporations did not exhibit a clear trend. The development of both rentier income shares in both countries was largely driven by dividend incomes, which lends support to the hypothesis that an increase in shareholder value orientation has a negative impact on labour's share of income. These findings correspond to the rentier income shares calculated by Epstein and Jayadev (2005) for 15 OECD countries for the years 1960 until 2000 where rentier shares increased significantly since the early 1980s. However, the definition of rentier income in this study focused on financial corporations where dividend payments of non-financial corporations were missing.

A shift in the sectoral composition of the economy can be a further candidate for the decline in labour's share of income. The increasing importance of the financial sector compared to the non-financial sector in an economy can lead to overall lower labour's shares if the shares in both sectors differ. Dünhaupt (2012) showed that part of the downward trend of the US wage share can be explained by an increase in financial corporations share in value added, since labour's share in the financial corporate sector was lower than for the non-financial sector. However, the case of Germany is different. Since the 2000s there was only a slight trend towards an increasing share of financial corporations in value added. Hence, the observed decline in the wage share of the corporate sector is almost entirely caused by the falling wage share in the non-financial corporate sector.

Hein and Schoder (2011) found a positive impact of interest payments related to the capital stock of non-financial corporations on the profit share for the US and Germany. Dünhaupt (2013) enhanced these findings by also testing the impact of dividend payments related to the net capital stock of non-financial corporations. In a panel study covering 13 OECD countries over the years between 1986 and 2007, she found an increase in overhead obligations in the form of rising interest and dividend payments were passed on to wages, resulting in a rising mark-up and causing the share of labour's income to decline. The empirical evidence presented so far suggests that increasing overhead obligations in the form of dividend and interest payments of non-financial corporations have a negative impact on labour's income share.

Both Stockhammer (2009 and 2012) and ILO (2011) proxied financial globalisation as external assets plus external liabilities as a share of GDP and found a significant negative impact on the wage share.

4.2 SKILLED-BIASED TECHNOLOGICAL CHANGE

In section 3 this paper showed that, according to neoclassical economics, the distribution of factor shares is determined by factor endowments and the underlying technology of the production function. If the elasticity of substitution is not equal to one, technological progress might be either capital or labour augmenting.

It is often stated that in the 1960s and 1970s, labour's share increased because technological progress was labour augmenting, whereas, technological progress became capital augmenting since the 1980s (see, for example, European Commission 2007). That is to say, the productivity of capital increased relative to labour with the result that capital's share in national income increased.

Recent research not only distinguished between the substitution of labour and capital, but also between skilled and unskilled labour within. The increasing use of computers and other information and communication technologies (ICT-capital) favours skilled labour, while it is a substitute for low skilled labour. Consequently, the labour income share of high-skilled labour increases, while the labour share of low-skilled workers decline.[8]

In section 3.3 this paper already discussed the difficulties of applying a neoclassical production function to the determination of income shares. Besides those difficulties already stemming from the theoretical model, the empirical analysis suffers from several limitations as well.

Mishel and Gee (2012, p. 42) point out for the case of the USA:

> "It is hard, however, to find the winners from technical change in the last ten years, as the wages of the bottom 70 per cent of college graduates have been flat or in decline. That would leave just 30 per cent of college graduates (6.6 per cent of the workforce) and the 11 per cent of workers with advanced degrees as the winners of technical change. It also seems unlikely that technical change has generated the upward trajectory of the top 1 per cent of wage earners".

Also the empirical analyses remain questionable. In most studies, skilled-biased technological change is proxied either by a time trend, the capital-labour ratio or ICT-capital. As Stockhammer (2009 and 2012) rightly observed, the first two proxies do not necessarily reflect skilled-biased technological change, since both are not necessarily determined by technology.

[8] See IMF (2007), European Commission (2007) for empirical studies that estimate the determinants of the labour income share for different skill groups. Compare Guscina (2006) and Bentolila and Saint Paul (2003) for empirical research on capital- and labour augmenting technological progress.

4.3 GLOBALISATION

Globalisation is a further development that is often mentioned as a potential determinant of functional income distribution.

Traditional trade theory predicts losers and winners from globalisation. According to the Heckscher-Ohlin model, which is built upon the assumption of different factor endowments among trading nations and differences that arise in regards to which extent factors are employed in production, countries specialise in production sectors reflecting their comparative advantage. Hence, countries that are relatively capital abundant will tend to export capital intensive goods in return for goods that are labour intensive from countries that are labour abundant. The Stopler-Samuelson theorem postulates winners and losers and states that trade raises the return on the factor that is relatively abundant, and lowers the return on the other factor. While the original model focused on labour and capital as factors of production, modern versions distinguish between high-skilled and low-skilled labour. In that sense, capital and high-skilled labour are complements (Wood 1994).

Following traditional trade theory, labour's share of income in capital abundant countries should decline while it should rise in labour abundant countries. Moreover, according to the Stolper-Samuelson theorem, factor prices equalise through the openness to trade in each country.

Contrary to theoretical reasoning, the decline in labour's share is neither limited to developed countries nor to certain industries. A recent study by the International Labour Organization (ILO) (2011) showed that labour's share declined also in emerging and developing countries. Moreover, most studies found a negative correlation between trade openness and labour's share of income, irrespective of country groups (compare, for example, Harrsion 2002). Besides, developed countries trade mostly among themselves, and it is not known how this affects distribution (Stockhammer 2009 and 2012).

The entrance of China and India into the world market and the opening up of the former Soviet Union have led to heated debates starting in the 1990s due to the tremendous increase in the supply of the global labour force. Empirical research, however, offered inconclusive results.

Guscina (2006) found in her empirical study covering 18 OECD countries over the period between 1960 and 2000 a negative effect of trade openness (measured as imports plus exports as a share of GDP) on labour's share and concluded that Heckscher-Ohlin holds. Both the IMF (2007) and the European Commission (2007) came to similar conclusions. According to the IMF (2007)[9], changes in trade prices had only a small effect on labour's share, because the negative effect of declining import prices on labour's share was compensated by a decline in export prices. Moreover, further variables of labour globalisation, i.e. offshoring and

[9] The study covers 18 OECD countries for the period 1982 – 2002.

immigration, both contributed to the decline in labour's share of income. Another finding implied that labour's share in skilled sectors was even more affected than in unskilled sectors. The empirical findings of the European Commission (2007) suggested the effect of openness had a negative impact on labour's share of medium skilled workers, whereas it had no significant impact for low and high-skilled workers' share.

Milberg and Winkler (2010) analysed the impact of offshoring on the profit share for the US manufacturing and service sector covering the period between 1998 and 2006. They found cost reductions through offshoring led indeed to an increase in the share of profits in value added. Since the gains from offshoring were invested to increase shareholder value by purchasing financial assets, they link this to the increase in financialisation.

Globalisation can further affect functional income distribution through capital mobility. In an imperfect competitive framework, Harrison (2002) modelled a bargaining process of workers and firms over excess profits. Since the cost of relocating capital is much more favourable compared to labour, and capital can seek higher returns abroad, labour's share should decline. In an extensive cross-country study covering more than 100 developed and developing countries over the period between 1960 and 1997, Harrison found a negative impact of measures of globalisation on labour's share of income. State intervention such as government spending and capital controls have a positive effect on labour's share, while rising trade shares, foreign direct investment inflows and exchange rate crisis have a negative effect.

Jayadev (2007) also modelled the aspect of financial openness as a determinant of labour's share of income. In his bargaining framework, increasing capital mobility leads to a decline in labour's share, since firms have the option to reallocate production to other countries. This threat results in lower wages compared to countries where this is not an option. Jayadevs' (2007) empirical results supported his hypothesis. According to his estimates, the impact of financial openness on the bargaining power of labour, i.e. labour's share, was especially severe in developed countries. Middle-income countries also exhibited a negative correlation between labour's share and capital account openness, whereas there was no proof that the same holds true for the poorest countries.

4.4 LABOUR MARKET AND PRODUCT MARKET POLICIES

Apart from technological change and globalisation, it is often stated that changes in labour and product markets have a severe impact on labour's share. The general neoclassical model assumes perfect competition in the goods and labour markets. If, however, there are some extra rents in the goods market for example, as a result of monopolistic competition, the relative bargaining strength of firms and workers determine how these rents are distributed among the participating agents (Blanchard and Giavazzi 2003).

Blanchard and Giavazzi (2003) modeled a case where product market regulation and entry costs for firms determined the degree of competition among firms. These could be, for example, tariff barriers, standardisation measures and state monopolies. The degree of bargaining power of workers is set by labour market regulation.

The literature discriminates between two different models, the "right to manage" model and the "efficient bargaining model". In the "right to manage" model, workers were represented by their trade unions, and firms bargain over wages. Then, given the wage rate, firms decided on the level of employment which was set to maximise profits (Blanchard and Giavazzi 2003). The bargaining power of labour influences the labour share. The direction of change is determined by the elasticity of substitution between labour and capital (Bentolila and Saint Paul 2003). In the "efficient bargaining" model, firms and workers bargained over both wages and employment (Bentolila and Saint Paul 2003). In this framework, workers could, in the short-run extract part of the extra rent in form of higher wages without suffering unemployment (Blanchard and Giavazzi 2003).

The bargaining power of labour is often proxied by the density of trade unions[10]. The result in empirical studies is, however, mixed. While Guscina (2006) and the IMF (2007) found no significant effect, studies by Stockhammer (2009), Finnoff and Jayadev (2006) and Kristal (2010) showed a significant positive influence of trade union density on labour's share of income. The European Commission (2007) found a positive effect on medium skilled workers (and partly on high-skilled workers) and a negative effect on low-skilled workers. The effect on the overall labour share was positive, though not very significant. Further variables which are related to the bargaining power of labour are the unemployment benefit replacement ratio and employment protection legislation.

There are, however, also studies that explicitly investigated the impact of trade unions' density on labour's share of income. For example, Fichtenbaum (2009) analyzed the impact of unionisation on labour's share of income for the US manufacturing sector for the years 1949–2006 and found a positive impact. In fact, according to his study, 28 percent of the 25 percentage point decline could be explained by the decline in unionisation.

In a comprehensive study covering 16 OECD countries between 1960 and 2005, Kristal (2010) investigated the impact of a decline in workers bargaining power in the economic, political and global spheres on labour's share of income, which she proxied as unionisation and strike activity, government civilian spending, and southern imports and foreign direct investment, respectively. According to her results, all these factors contributed to the decline in labour's share since the 1980s.

[10] However, as Bassanini and Duval (2006) and the OECD (2006) point out, union density underestimates the de facto bargaining power of workers and the result is therefore not necessarily contradictory to theoretical reasoning. It is highlighted by these studies that the number of trade union members is often much lower compared to collective bargaining agreements.

4.5 STRUCTURAL CHANGE AND PRIVATISATION

It is possible that the declining trend observed in most countries is the result of structural changes in the composition of the economy as well as privatisation of state owned enterprises and the downsizing of the government sector.

Changes in the sectoral composition of the economy can result in changes in labour's share if, for example, sectors exhibit a lower share of labour in value added than on average gain in importance. Moreover, given the fact that the profit share of the public sector is zero by definition, increased privatisation of public enterprises result automatically in a decline in the overall share of labour income.

De Serres et al. (2002) calculated labours' shares for 16 sectors in five Euro-Area countries and the United States and computed sectoral weights representing the period average (1971-1998). From this correction, the authors wanted to stress the effect of changes in the composition of output. The authors concluded that sectoral shifts towards the service sector in which the share of wages in value added is relatively low are responsible for the decline in the aggregated labour's share. In fact, de Serres et al. (2002) concluded that the downward trends observed in the United States, France and Italy can be reduced while for the Netherlands and Belgium, the adjustment shows no significant impact. For Germany, the authors found even an upward trend. In a similar vein, Lawless and Whelan (2011) calculated sectoral wage shares for 15 European countries and the US over the period between 1979 and 2001. The authors applied fixed sector weights, which were established in 1979, to keep sectoral contributions to the aggregate fixed. Surprisingly, they found almost no effects of sectoral shifts on the overall decline of the aggregated wage share because wage shares declined also in specific sectors. However, Germany is the exception whereby they stated that without sectoral shifts, the wage share had not declined at all.

Azmat et al. (2011) studied the effect of privatisation in OECD countries on the example of network industries. Based on the hypothesis that managers in state owned enterprises give priority to employment over profits, privatisation should result in a decline in labour's share, because the new objective is maximising shareholder value. Their empirical results supported the hypothesis: privatisation accounted for 20 percent of the decline in labour's share in network industries, whereas falling entry barriers had a positive impact on labour's share. In regard to the bargaining power of labour, which is proxied by union density, they found no significant effect.

5. RECOMMENDATION: HOW TO STABILISE THE WAGE SHARE

The following section provides recommendations how to stabilise the wage share. The first part presents suggestions based on (Post)-Keynesian postulates; the second part presents the main arguments put forward by "mainstream" economists, mostly represented by the IMF and the European Commission in this context.

5.1 (POST)-KEYNESIAN SUGGESTIONS

In the preceding sections, this paper showed that labour's declining share in national income is not exclusive to developed countries. Moreover, it became visible that this trend was fostered by deregulation and liberalisation of financial sectors and labour markets. Hence, this trend does not need to be accepted and can be stopped or even reversed in the future.[11]

Above all, wage increases should follow a productivity oriented wage policy. That is to say, real wages should increase in line with overall productivity so that output is shared fairly among labour and capital without causing inflationary tendencies. Above all, given the recent crisis, it is obvious countries can no longer replace domestic demand by either debt-led or export-led growth strategies, because both concepts are not sustainable. A productivity oriented wage policy stabilises domestic demand and hence increases economic growth. Additionally, a productivity oriented wage policy would certainly help to reduce imbalances in the Euro-area. Hoffer and Spieker (2011, p. 2) rightly observe:

> "The case for a coordinated wage policy to avoid imbalances, beggar thy neighbour policies and a waste of potential growth is overwhelming; it is alarming that it has been ignored for so long. Those who let unit labour costs rise too fast are equally responsible for the explosion of imbalances after the abolition of the exchange rate mechanism as those who gained market shares through wage restraint."

Policy measures designed to increase labour's share in national income have to address the main causes for the prolonged fall discovered in section 4.

First of all, it is indispensable to regulate the financial system and thereby to curtail the power of financial actors. On the firm level, the short-term focus imposed on companies by shareholder value orientation has to be substituted by a system of corporate governance that involves all stakeholders. In this regard, rising overhead costs in the form of interest and dividend payments and accelerating management salaries have to be held in check. Tax policies, for example, are viable instruments. Moreover, it is necessary to prevent rent seeking by imposing competition laws whereby monopoly profits can be reduced.

[11] For a similar assessment, compare Hein (2011) and ILO (2011).

Secondly, it is necessary to impose laws regulating globalisation. The bargaining position of workers has to be strengthened in order to prevent companies from using the threat of moving production plants overseas to their benefit by depressing wages. Though many advocates of globalisation argue that international trade increases overall output and hence benefits all, reality has proved this wrong (Stiglitz 2012).

Thirdly, it is necessary to strengthen trade unions in order to influence the management. Empirical evidence has shown that countries with higher collective bargaining power dealt far better with the challenges associated with globalisation and financialisation. An organised voice is necessary, because wage increases should be in line with increases in productivity, through which more bargaining power of trade unions becomes essential. Minimum wages are a viable instrument to stabilise the income share of low-skilled workers.

Fourthly, an increase in public sector activity can increase labour's share in national income. In this regard, it has to be ensured that public utilities remain under public control. Moreover, it would be helpful to strengthen the non-financial sector compared to the financial sector, since labour's share of value added in the financial sector is comparatively low.

5.2 MAINSTREAM SUGGESTIONS

The IMF (2007) and the European Commission (2007) both investigated the impact of technological change and globalisation on labour's share of income. While the IMF distinguished between skilled and unskilled sectors, the European Commission investigated the impact on skilled, medium-skilled and unskilled workers. Both institutions recommended measures to support low-skilled workers.

In order to deal with globalisation and technological change and its impact on labour's share, the IMF suggested a three strand policy. Firstly, they advised to "improve the flexibility of the labour market" by reducing the tax wage and making sure that unemployment benefits "do not deter workers from seeking employment". Moreover, economies should strive for policies that increase the flexibility of the economy. Secondly, advanced countries are advised to "improve access to education and training". In this regard, the IMF pointed out that in those countries that are more advanced in using ICT for example, the decline in labour's share was less severe. In fact, the USA can even be used as an example where ICT contributed to an increase in labour's share. Thirdly, countries should "ensure adequate social protection for workers during the adjustment period". However, they should also make sure that "if trade-displaced workers are treated more generously, including, for instance, by being provided supplementary wage subsidies, such compensation should be structured to avoid dulling incentives to search actively for new jobs" (IMF 2007, p. 181).

The conclusion and the policy advice given by the European Commission (2007) looked quite similar. Above all, they recommended implementing policies ensuring *flexicurity*. Training of unskilled workers should be enhanced to mitigate their substitutability with capital, while simultaneously supporting them during the adjustment period. In this regard, they referred to the European Globalization Adjustment Fund.

Andrew Glyn (2006b, p. 2) commented on these recommendations as follows:

> "The IMF, along with the OECD, has been in the forefront of arguing that reducing benefits and taxation is the route to reducing unemployment. Now, they are arguing that cutting the welfare state will also prevent falls in the labor's share – it sounds like a classic case of 'having your cake and eating it.'"

6. CONCLUSION

The present paper examined determinants of functional income distribution from a theoretical and empirical perspective. While the (Post)-Keynesian tradition focuses on neo-liberal policies and financialisation as being responsible for the fall in labour's share, neoclassical thinking explains functional income distribution as the outcome of factor endowments, preferences and the underlying production function driven by skilled-biased technical change and globalisation. Though they acknowledge the fact that the bargaining power of labour prevented an even steeper decline in labour's share, they stipulate further flexibility regarding employment protection.

Also the policy debate regarding labour's share in national income can be divided into two opposing stances; the (Post)-Keynesian and the mainstream economists position. The first postulates re-regulations of financial markets, rules for globalisation and a strengthening of the bargaining power of labour and trade unions. Whereas the latter stipulate the exact opposite emphasizing further deregulation of markets and better education of low-skilled workers. Though there is nothing to say against better education of low-skilled workers, it has to be kept in mind that improving the education of low-skilled workers does not automatically lead to better jobs. That is to say, better and more jobs have to be created to make sure that the improvements of the educational level do not only increase qualification requirements for already existing jobs but also create new ones. In either case, a further deregulation and liberalisation of labour markets has to be prevented. Empirical research shows that countries with stronger trade unions, more collective bargaining power and more employment protection legislation have a more stable share of labour's income and hence are better equipped to deal with the challenges of globalisation and financialisation.

To back up their argument, the IMF (2007) suggested that labour's shares have fallen less in Anglo-Saxon countries than in Continental European Countries, because the transition towards skilled-biased technological change has occurred earlier and they already managed to deal with it. This statement is, however,

wrong. It seems more that labour's shares in Anglo-Saxon countries appear more stable due to higher wage dispersion. Once corrected for those very high salaries, labour's shares declined also significantly in the Anglo-Saxon countries.

Therefore, the recommendation is the following: Increase the bargaining power of labour by increasing the power of trade unions; regulate the financial system; change the current system of corporate governance from shareholder value orientation back to a stakeholder system; strengthen the public sector; raise the share of the non-financial sector compared to the financial sector; and prevent excess rent-seeking.

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