Determinants of labour's income share in the era of financialisation

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Numerous studies have analysed the decline in the labour share of income, but only few have linked it to the increase in financialisation. The process of financialisation can roughly be described as an increasing importance of the financial sector that had an impact on the distribution between wages and profits, on the one hand, and retained earnings and financial income in the form of dividends and interests, on the other hand. This article seeks to explore the relationship between financialisation and labour's share of income using a time-series cross-sectional dataset of 13 countries over the time period from 1986 until 2007. The results suggest that there is indeed a relationship between increasing dividend and interest payments of non-financial corporations and the decline of the share of wages in national income. Other factors that can account for the decline relate to globalisation and a decrease in the bargaining power of labour.

Key words: Financialisation, Functional income distribution, Labour's share
JEL classifications: E25, E44, F4

1. Introduction

To determine the laws which regulate this distribution [between rent, profit and wages], is the principal problem in Political Economy. (Ricardo, 1821, p. 5)

Although this quote from Ricardo dates back to 1821, the topic of income distribution has not lost any of its relevance and significance. These days, the distributional conflict does not take place like in the era of Ricardo, i.e. between the owners of land, capital and labour. Today, the distributional conflict of the past has been replaced by a distributional conflict of firms and shareholders against wage and salary earners, which in the context of this article also means retained profits, interests and dividends against wages. The share accruing to labour was shrinking in most OECD countries from the mid-1980s until the Great Recession, as can be seen from Figure 1, while the share of profits was increasing.[1] Dünhaupt (2012) could show that, at least for the

[1] Labour's share in national income behaves countercyclically, i.e. labour's share tends to rise during a recession and decline during recovery. Since profits are in a recession presumably responsible for a decline in income, labour's share rises automatically. Therefore, this study focuses on the pre-crisis era.
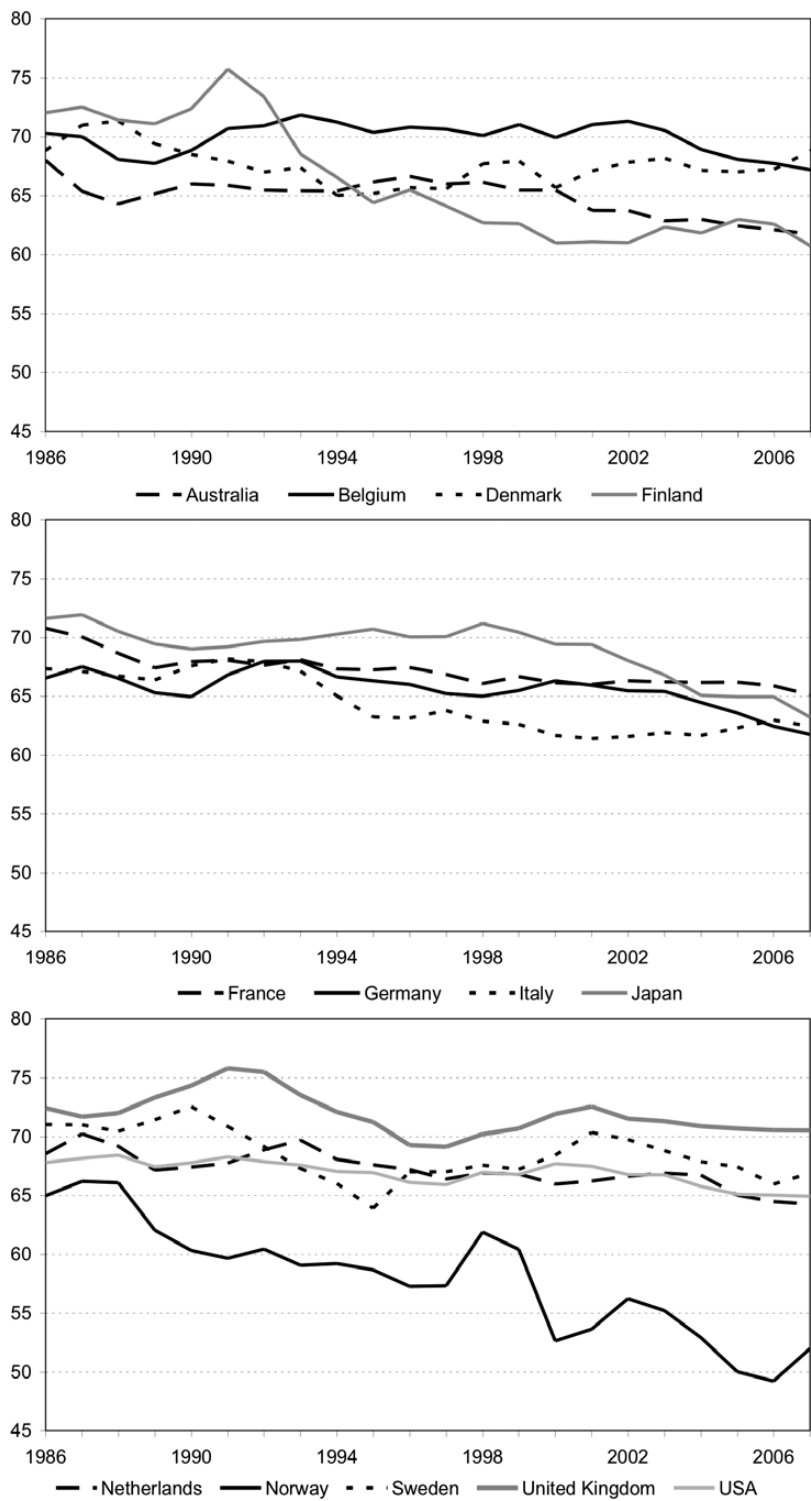
Fig. 1. *Adjusted wage share for 13 OECD countries, 1986–2007.*
Source: AMECO (2011) and author's representation.

USA and Germany, much of this increase in the profit share was determined by rising dividend and interest payments, while the share of retained profits was also declining. As Stephen Roach of Morgan Stanley said in 1996:

The share of national income going to the owners of capital through corporate profits is surging. The share going to compensation is falling. This is not the way a democracy is supposed to work. (Quoted in Harrison, 2002, p. 2)

Not only is an unequal distribution bad for society, but also it has severe consequences for macroeconomic developments. In Post-Keynesian models of distribution and growth, the redistribution of wages and profits feeds back on consumption demand, given different propensities to save from rentiers', managers' and workers' income, thereby affecting overall aggregate demand and hence growth (Hein and van Treeck, 2010A, 2010B; Hein, 2010A; Onaran *et al.*, 2011). However, redistribution impacts also on firms' investment through different channels, either directly or indirectly via profits or capacity utilisation, respectively. Based on these contradictory effects of redistribution between capital and labour, Bhaduri and Marglin (1990) suggest that aggregate demand and long-run growth may either be 'wage led' or 'profit led'. In recent years, multiple studies based on this framework were conducted (see, e.g., Hein and Vogel, 2008; Naastepad and Storm, 2007; Onaran and Galanis, 2014; Onaran and Obst, 2016), which show that in the medium to long run, demand in most OECD countries seems to be wage led. Therefore, the decline in labour's income share partially caused a reduction in aggregate demand and also in GDP growth.

What lies behind the decline in the labour share of income? In the last couple of years, numerous studies have analysed the role of technological change, globalisation and bargaining power in relation to the declining labour share of income.[2] The prevalent opinion states that the rise in Continental European labour's share of income in the 1970s was largely caused by institutional reforms and external shocks. At the same time, a rise in real wages outpaced labour productivity (Bertoli and Farina, 2007). According to Blanchard (1997), firms' reaction was to restore profit shares by substituting labour demand with an increase in capital-intensive production. The IMF (2007) argues in the same direction: computers and other information communication technologies were a replacement for unskilled labour and at the same time supplemented skilled labour. Arguing that globalisation can be held accountable for the decline in labour's share of income often complements this line of reasoning. The globalisation thesis is based on the Heckscher–Ohlin model and states that countries concentrate on areas of comparative advantage. Hence, capital-rich countries in the North concentrate on capital-intensive production and labour-rich countries in the South concentrate on labour-intensive production, with the result that labour in the South wins relative to capital owners, while capital in the North benefits more than labour in the North and, therefore, the wage share of countries in the North decreases.[3] Extended versions of the original model discriminate the differences in the effect of openness on skilled and unskilled labour rather than on capital and labour. According to these models, in countries where highly skilled labour is the abundant factor, in the long run, wages of unskilled workers will fall, whereas wages of skilled workers will

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[2] For a detailed and critical discussion of the literature on the determinants of functional income distribution, compare Stockhammer (2009, 2015).

[3] See, e.g., Onaran (2007A), who provides a well-ordered overview of studies that are based on the globalisation thesis.

rise (Wood, 1994). A further argument with regard to the decline in the labour share of income stresses the deregulation of labour markets and the associated weakening of labour's bargaining position (Blanchard and Giavazzi, 2003).

It is true that all three phenomena have occurred. However, skilled-biased technological change as well as globalisation might explain the increase in wage dispersion, but can only account for the decline in the overall labour share if skilled workers do not manage to increase their wages. Moreover, regarding the argument of skilled-biased technological change, Kristal (2010) highlights the fact that even countries that are on a similar level of technology show different magnitudes in the decline of labour's shares. From her point of view, it is even more surprising that the decline of labour's shares was less severe in Anglo-Saxon countries than in Continental European countries, although these countries should at least be on the same technological level. With respect to the globalisation thesis, Stockhammer (2009) points out that traditional trade theory fails to explain the actual pattern, owing to the fact that countries in the North mostly trade among themselves. Moreover, as a recent study by the ILO (2011) shows, the decline in the labour share of income since the 1990s is even more pronounced in developing and emerging countries than in advanced ones. Hence, the squeeze on wages takes place in all countries and can be seen as a counterargument against the Heckscher–Ohlin model.

As already mentioned at the beginning of this article and in addition to the above-mentioned three common explanations for the decline in the labour share of income, this article focuses on financialisation and its effect on the labour share, which also raises the question of distributional conflict.

Since the 2000s, financialisation and its consequences have been on the research agenda of scholars from various disciplines (van Treeck, 2009). Although there is no common definition of financialisation, they share the common perception that:

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)

However, it is surprising that the connection to distributional questions and factor shares was empirically rather neglected although it is an integral part of the underlying theoretical models. As an exception, the work of ILO (2011) and Stockhammer (2009, 2015) can be mentioned, although their definition of financialisation is rather limited in the form of all foreign assets and liabilities relative to GDP. Thus, the impact of 'domestic' financialisation remains unstudied.[4]

In view of this shortcoming of the existing literature, this article fills the void by analysing the role of financialisation in explaining the decline in the labour share based on the Kaleckian approach to the determination of income shares, using a panel of 13 OECD countries over the period 1986–2007. This article is divided into six parts. The second part establishes the theoretical connection between financialisation and the labour share of income, which is derived from the Kaleckian model of distribution, building on the work of Hein (2012, 2015), and elaborates on the potential channels

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[4] Meanwhile, for the case of the USA, Lin and Tomaskovic-Devey (2013) could show that financialisation, measured as financial receipts as a share of business receipts, can be held responsible for the decline in labour's share of income. A recent study by Köhler et al. (2015) for a panel of 14 OECD countries covering the years 1989–2011 finds a negative effect of household debt and financial deregulation on labour's share of income.

of influence in order to specify the variables that are used in the empirical part. The third part of this article introduces the dataset. Part four elaborates on the empirical specifications of the econometric model that is used and part five presents the empirical results. The last part concludes.

2. Theoretical specification

In Kaleckian models of distribution and growth, functional income distribution in the industrial sector of the economy is subject to the active price-setting of firms. In goods markets with imperfect competition, firms mark-up on unit variable costs (which are assumed to remain constant until full capacity), depending on their degree of monopoly. Unit variable costs consist of unit direct labour costs and unit material costs. Further, to include international trade, it is assumed that raw materials and semi-finished goods are at least partly imported (Hein, 2012). 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 unit material costs to unit labour costs.

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

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

where the output price (p) in sector j equals 1 plus a mark-up and 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 the exchange rate and μ the imported materials or semi-finished inputs per unit of output.

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

$$z_j = \left(\frac{p_f e\mu}{\frac{w}{y}} \right)_j \tag{2}$$

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

$$h_j = \frac{\Pi_j}{(\Pi + W)_j} = \frac{1}{\frac{1}{(1+z)_j m_j} + 1} \tag{3}$$

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:

$$\omega = \frac{W}{(\Pi + W)} = \frac{1}{(1+z)m + 1} \tag{4}$$

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

Kalecki (1954) distinguishes between three or four determinants of the degree of monopoly, i.e. the mark-up.

Above all, the degree of monopoly is determined by the degree of economic concentration. If a certain firm dominates a market and has the ability to set prices above the average price, price competition is low and hence the degree of monopoly is high. It is possible for tacit agreements and even (in)formal cartels to emerge. Therefore, the degree of economic concentration is positively related to the mark-up.

Moreover, the degree of monopoly depends on the relative importance of non-price competition in relation to price competition. If non-price competition, i.e. sales promotion in the form of advertising or selling agents, gains in importance, there is also an increase in the degree of monopoly.

According to Kalecki, a further determinant is the development of overheads in relation to prime costs. To circumvent a reduction in gross profits caused by rising overheads, tacit agreements become likely. As a consequence, prices in relation to unit prime costs might rise.[5] Since interest and dividend payments can be considered as overhead costs, an interest and dividend elastic mark-up was incorporated into recent Kaleckian models of distribution and growth (for models that incorporate interest payments, see e.g. Lavoie, 1993; Hein, 2006; for models that incorporate interest and dividend payments, see Hein, 2010A, 2010B; Hein and van Treeck, 2010A, 2010B). Consequently, a permanent rise in interest payments and/or dividend payments might be passed on by an increase in the mark-up.

Finally, strong trade unions might lower the degree of monopoly. 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. Hence, the mark-up is negatively affected by the bargaining power of labour.

Drawing on the enormous literature on the characteristics of financialisation, Hein (2012, 2015) detected seven stylised facts of financialisation in its broadest sense that might impact the labour share of income: the degree of monopoly through the four channels mentioned above as well as the relationship between imported material costs and domestic wage costs and the sectoral composition of the economy.

The stylised facts mentioned by Hein are increasing shareholder value orientation and increasing short-termism of the management, rising dividend payments, increasing interest rates and interest payments in particular in the 1980s, increasing top management salaries, increasing relevance of financial investment compared with real investment and hence of the financial sector relative to the non-financial sector, hostile takeovers, mergers and acquisitions, as well as liberalisation and globalisation of international finance and trade. In addition and as characteristics of neoliberalism, Hein stresses the deregulation of labour markets and the downsizing of the government sector as additional determinants of functional income distribution.

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[5] 'Although the above considerations show a channel through which overheads may affect price formation, it is clear that their influence upon prices in our theory is much less clear-cut than that of prime costs. The degree of monopoly *may*, but need not necessarily, increase as a result of a rise in overheads in relation to prime costs' (Kalecki, 1954, p. 18).

Figure 2 shows the potential determinants of the labour share of income derived from Kalecki, which are placed on the right- or left-hand side depending on their potential influence on the labour share, and connects them with the stylised facts of financialisation mentioned above, which are summarised under the labels globalisation, shareholder value and government activity. A positive influence on labour's share is labelled with a plus symbol and can be found on the right-hand side; a negative influence is labelled with a minus and can be found on the left-hand side.

2.1 Globalisation and labour's share of income

Since the 1980s, the lifting of capital controls and the abolishment of trade barriers increasingly paved the way for economic globalisation, i.e. the integration of advanced economies' markets for trade, capital and labour.

A key dimension of globalisation is the growth in international trade. Global competition translates into increased price competition, which can have a negative impact on the mark-up and hence a positive influence on labour's share. International trade can further affect labour's income share via prices of raw materials and semi-finished goods (relative to wage costs). If imports of semi-finished products become cheaper due to the relocation of production plants to emerging or developing countries, labour's share increases. However, the increase in world demand can also result in rising prices of raw materials. Several studies have analysed the effect of globalisation on the labour share of income and found mixed results. Guscina (2006) detected that openness to trade has a negative effect on the labour share of income in developed countries. A study by the European Commission (2007) confirms this result. However, they suggest that the impact was especially negative for medium-skilled workers,[6] using a sample of 13
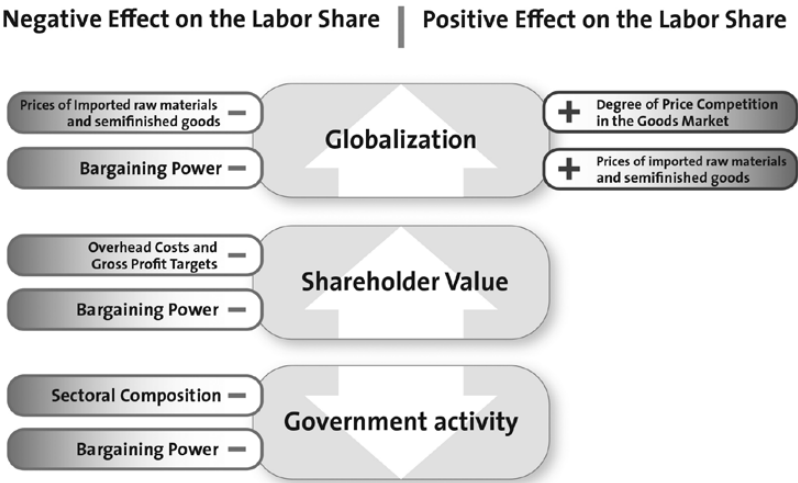
Fig. 2. *Channels of influence of financialisation on labor's share based on Kalecki.*
Source: Author's representation.

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[6] The research is based on the EU Klems dataset, which classifies different skill types according to their educational attainment. For a detailed description on skill types for specific countries, compare http://www.euklems.net/data/EUKLEMS_Growth_and_Productivity_Accounts_Part_I_Methodology.pdf (downloaded: November 2012).

OECD countries over the time period 1983–2002. In an extensive study covering over 100 countries and a time frame of over 40 years, Harrison (2002) finds a negative correlation between trade openness and the labour share in developed and developing countries.

Another defining feature of globalisation is the rise in financial capital flows in the form of foreign direct investment (FDI). Alderson and Nielsen (2002) define different ways of FDI affecting inequality. First, outward FDI gives rise to deindustrialisation in advanced countries if manufacturing firms move their production plants to low-cost regions with the effect that jobs in the manufacturing sector, which are generally better paid and more unionised, are replaced by jobs in the service sector which, on average, are lower paid (and less unionised).

Second, FDI can have an impact on the bargaining power of workers due to the rise of multinational firms, given that labour's position in multinational firms is weaker than in national firms. Therefore 'by undermining workers' organisational capacity, their willingness to voice labour dissent, and their economic standing, inward FDI becomes part of a broader employer strategy of curbing resistance of workers' (Brady and Wallace, 2000, p. 92). Both Kristal (2010) and Harrison (2002) find a statistically significant negative effect of FDI inflows on labour's share of income.

Globalisation can also impact the bargaining power of workers even further. Given that through globalisation the low-paid workers in developing and emerging countries enlarge the 'reserve army of unemployed', the bargaining power of unskilled workers is curbed additionally. Therefore, employers can suppress workers' wage claims by threatening to move to low-wage countries (Pollin, 2000). As such, the impact of FDI on wages or unionisation rates might not be truly captured by its actual stocks and flows, given that the mere threat of moving production plans can already have a severe impact, changing the bargaining power between capital and labour (Crotty *et al.*, 1998; Burke and Epstein, 2003). The potentially underestimated impact of openness is what Epstein (2000) calls the 'magnification effect'. As pointed out by Onaran (2007B, p. 4), 'labor has to compete harder to attract capital, the increased international competitive pressures are making capital less willing to accommodate wage demands, both leading to a race to the bottom'.

The rise of globalisation has also contributed to a weakening of unions (Brady and Wallace, 2000). Going back in history, there is certainly a strong correlation between powerful unions and the labour share of income. However, the increase in globalisation and financialisation certainly has challenged or at least limited their leverage.

Fichtenbaum (2009) analysed 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% of the 25 percentage point decline could be explained by the decline in unionisation. In a comprehensive study covering 15 OECD countries for the years 1982–2003, Stockhammer (2009) found as well a significant positive effect of union density on the labour share of income.

2.2 Shareholder value orientation and labour's share of income

In recent years, increasing numbers of scholars have noted the topic of shareholder value orientation as a principle of corporate governance (Lazonick and O'Sullivan, 2000). Creating shareholder value became the mantra of modern corporations and shifted the management focus from 'empire' building and job creation to short-term

economic indicators. The rise of the institutional investor and the alignment of management compensation with the interests of shareholders through variable remuneration schemes that are coupled to stock price movements resulted in a short-term focus of the management. Financial markets press for dividend payments or stock purchases and the associated increasing debt burden of non-financial corporations results in an increase in interest and dividend payments of the non-financial sector.

In general, this means that interest payments as well as shareholders' growing demand for dividend payments and an increase in share prices have to be covered by an increase in the mark-up, as interest and dividend payments can be considered as overhead obligations. The same applies to an increase in top management salaries.

Empirical studies that measure financialisation, especially those analysing interest and dividend payments' influence on the wage share, are rare. In fact, most studies on this issue rather analyse the effect of interest rates or interest payments on functional income distribution. Hein and Schoder (2011) found in an empirical study for both the USA and Germany that interest payments have a positive impact on the profit share. A study by Argitis and Pitelis (2001) for the USA states that the increase in interest rates during the 1970s and 1980s favoured financial capital, while the share of industrial capital in total profits declined. However, according to their results, industrial capital has increased its share in income at the expense of labour in the non-financial corporate sector since 1992. Applying time-series econometrics, Argitis and Pitelis find that the share of industrial profits is negatively affected by the nominal interest rate. According to their results, further determinants of the share of industrial profits in income are nominal wages and the bargaining power of labour unions, measured by unemployment and strike intensity. Both Stockhammer (2009) and ILO (2011) measure financialisation rather broadly in the form of all foreign assets and liabilities relative to GDP and find a negative correlation between financial globalisation and the wage share.

Financialisation might also exert its impact on labour's share of income through the bargaining power of labour. Throughout the 1980s and 1990s, a wave of mergers and acquisitions took place that led to downsizing and restructuring of corporations in order to improve their global competitiveness, resulting in companies that were 'lean and mean' (Harrison, 1997). The old trajectory of 'retain and invest' was substituted by 'downsize and distribute' (Lazonick and O'Sullivan, 2000), which weakened the bargaining position of workers. That the bargaining power has a severe impact on the labour share of income was already demonstrated in the previous section.

In summary, an increase in shareholder value orientation might influence labour's share of income via two channels: (i) rising overhead costs in the form of interest and/or dividend payments of the corporate sector; and (ii) the weakening of (trade union) bargaining power caused by an increase in shareholder value orientation.

2.3 Government activity and labour's share of income

A related but conceptually different topic is the rise of neoliberalism, which certainly had an effect on functional income distribution. Some authors (e.g. Dumenil and Levy, 2004) argue that financialisation, which the authors refer to as the rising power of finance, pushed for neoliberal restructuring in order to satisfy their own needs. Other authors argue that neoliberal restructuring can rather be seen as the starting point for the process of financialisation (see, e.g., Kotz, 2010). Apparently, there is no

agreement in recent debates. Without elaborating on the question any further, it can be inferred that both subjects, financialisation and neoliberalism, are closely related.

One major aspect in this respect is the downsizing of government activity. Although the degree to which this has taken place differs substantially among countries, there certainly was a common trend after the 1980s, which reversed due to the financial crisis and the associated government responses in the form of economic stimulus measures.

In the national accounts, state-owned enterprises are classified as part of the corporate sector. Since there is no capital income in the government sector, labour's share of income is upwardly biased (Gomme and Rupert, 2004). Hence, by shifting the sectoral composition of the economy, a decline in government activity automatically leads to a decline in the overall income share of labour. That this might have a severe impact can be seen by observing the US example of a structural shift from the non-financial to the financial sector. For non-financial corporations' labour share in value added, there has not been a clear downward trend. The same holds true for the financial sector, albeit labour's income share was lower throughout than in the non-financial sector. Hence, in the USA, financialisation has manifested itself only in a rising weight of finance and the sectoral shift has contributed to the mild downward trend of the wage share for the economy as a whole (Dünhaupt, 2012). Furthermore, the downsizing of the government sector might also affect the bargaining power of labour, because trade unions are relatively strong in the public sector.

3. Data

Generally, the labour share is defined as the compensation of employees over GDP or value added, while the capital share is taken as the residual. Many authors (e.g. Krueger, 1999; Gollin, 2002) stress the fact that earnings of self-employed are regarded as capital income, although some of it can be rather regarded as labour income. To account for this bias, the dependent variable used in this study is the *adjusted labour share* of income taken from AMECO,[7] which is defined as 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.

The above discussion identified three indicators for globalisation. As a measure of globalisation in international trade, *trade openness* in terms of exports plus imports as a share of GDP is used from the AMECO database, which is widely applied as a proxy for globalisation (compare, e.g., Stockhammer, 2009; Guscina, 2006).

As a second variable for globalisation, *FDI inflows and outflows as a share of GDP* are applied, which are obtained from UNCTAD. Further, the link between globalisation and labour's share of income was influenced by *imported raw materials and semi-finished goods*. These will be proxied as the logarithm of import unit value, which is obtained from IMF Financial Statistics. Nevertheless, this variable has some drawbacks. One major disadvantage is the fact that the value is affected by changes in the composition; hence, fluctuations do not necessarily reflect price changes.

For workers' bargaining power, three different variables are applied. The first is the *unemployment rate*, which is taken from the OECD Economic Outlook. As a second variable, I use *union density*, which is defined as active wage and salary earners

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[7] Compare Table A1 in the Appendix for a detailed overview of the variables, definitions and sources.

who are a member of a union (i.e. no retired or independent workers, students or unemployed) as a percentage of wage and salary earners in employment. The series is obtained from Visser (2009). As a third variable, I follow Kristal (2010) and apply the *strike intensity*. As recommended by Chernyshev (2003), the numbers of days not worked due to strikes and lockouts (per 1,000 employees) is set in relation to total employment. The data are obtained from the ILO and the OECD Annual Labour Force Statistics, respectively.

With regard to financialisation, *shareholder value orientation* is proxied as net interest and net dividend payments of non-financial corporations as a share of the capital stock of the business sector. These variables are consistent with those used in studies related to financialisation. Stockhammer (2004) proxied shareholder value orientation as interest and dividend income received by businesses as a share of value added. In the same direction, van Treeck (2008) calculates net dividend payments and net interest payments as a share of private corporations' non-residential capital stock. Hein and Schoder (2011) also use net interest payments in relation to the capital stock of the business sector, though not as a proxy for financialisation. For theoretical and pragmatic reasons, I follow these studies. Net dividend and net interest payments are obtained from the OECD National Accounts Main Aggregates and Detailed Tables. The capital stock of the business sector is taken from OECD Economic Outlook. Further, I test the joint significance of both variables, i.e. net interest payments plus net dividend payments as a share of the net capital stock, which I call shareholder value.

Figures 3 and 4 display the averages of both shareholder value indicators for 13 OECD countries from 1986 to 2007. Figure 3 shows that, on average, net dividend payments as a share of capital stock increased from 1% in 1986 to almost 4% in 2007. In contrast, the average of net interest payments as a share of capital stock tended to follow a downward
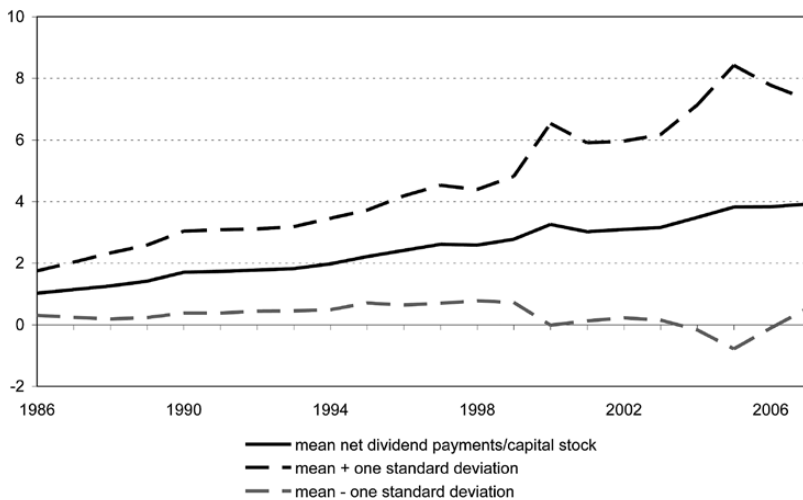

Fig. 3. *Net dividend payments as a share of capital stock, non-financial corporations, 13 OECD countries, 1986–2007.*
Source: OECD Main Aggregates and Detailed Tables, OECD Economic Outlook and author's representation.

Fig. 4. *Net interest payments as a share of capital stock, non-financial corporations, 13 OECD countries, 1986–2007.*
Source: OECD Main Aggregates and Detailed Tables, OECD Economic Outlook and author's representation.
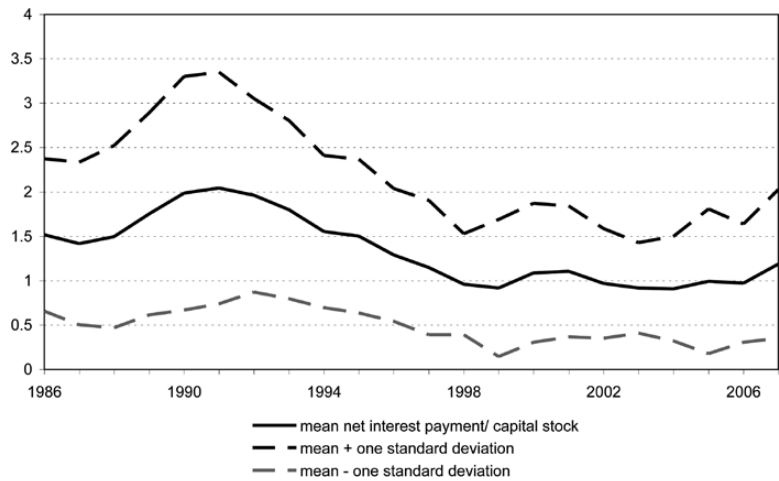
trend starting in the 1990s after high real interest rates that prevailed during the 1980s. In the early 1990s, the average share amounted to 2%, declined until the late 1990s and fluctuated around 1% since then. However, in 2000, there was a slight increase again, reflecting high debt levels related to the 'new economy boom' (ECB, 2012).

The applicable definition for *government activity* used in this article is gross value added of the government sector in relation to GDP taken from the UN National Accounts Main Aggregates Database.

Table 1 summarises the variables and the hypothesised relationship on the labour share of income.

4. Estimation issues

The sample consists of 13 OECD countries (Australia, Belgium, Denmark, France, Finland, Germany, Italy, Japan, the Netherlands, Norway, Sweden, the UK and the USA) and covers the years 1986–2007.[8] Though limited by data availability, the period still captures the initial period of financialisation (see, e.g., Krippner, 2005). Since I use yearly observations, the country–year combinations make up 286 observations in total. Table A2 in the Appendix provides an overview of the variables, averages and coverage. As shown in the table, the coverage varies, making up an unbalanced panel.

When dealing with time-series cross-sectional data, one has to consider fixed effects. Here, fixed effects are dummy variables for each country. The advantage is that they reduce omitted variable bias, because they capture unobserved effects. However, fixed effects can only explain variation within a country and hence information from cross-country variation is lost.

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[8] The selection of countries and time periods is based on the availability of comparable data for non-financial corporations.

Table 1. *Hypothesised relationship on income distribution*

Variable	Hypothesised relationship
Trade openness	+/−
FDI inflows	−
FDI outflows	−
Import prices	+/−
Unemployment rate	−
Union density	+
Strike intensity	+
Net dividend payments	−
Net interest payments	−
Net dividend + net interest payments	−
Government activity	+

In order to test the hypotheses laid out before, the adjusted labour share is estimated in levels in the following form:

$$AWS_{it} = \beta_0 + \beta_1\ OPEN_{it} + \beta_2\ INW\_FDI_{it} + \beta_3\ OUT\_FDI_{it}$$
$$+ \beta_4\ \log IMPORT + \beta_5\ UR_{it} + \beta_6 UNION_{it} + \beta_7$$
$$STRIKE + \beta_8\ DIV_{it} + \beta_9\ INT_{it} + \beta_{10}\ GOV_{it} + u_t\ + \alpha_i + \varepsilon_{it}$$

where i and t designate the country and year, respectively. In this model, AWS is the adjusted labour share. Globalisation is captured by trade openness ($OPEN$), inward FDI (INW_FDI), outward FDI (OUT_FDI) and the logarithm of import prices (log $IMPORT$). The unemployment rate (UR), union density ($UNION$) and strike activity ($STRIKE$) are adopted as proxies for labour's bargaining power. Shareholder value orientation is captured by dividend payments (DIV) and interest payments (INT). Value added of the public sector as a share of GDP (GOV) is used as a proxy for government activity. β_0 denotes the constant, u_t time fixed effects, α_i country fixed effects and ε_{it} the error term.

To test for the significance of the year and country effects, an F-test for joint significance as a group is conducted. It turns out that the country as well as the year dummies are significant.

When dealing with time-series cross-sectional data, it is very likely that the standard regression assumption of independent, identically distributed errors is violated. In fact, there are three problems that the errors are likely to encounter (Beck and Katz, 1995). The first is panel heteroscedasticity, which means that the error variances differ among countries. Second, there may be contemporaneous correlation of the errors, owing to close linkages between the economies in this sample. Hence, it is possible that a shock that hits one economy is likely to have an impact on its trading partners as well, either directly or indirectly. Third, there is the possibility of serially correlated errors.

In a first step, I ran ordinary least squares (OLS) regression in levels with fixed time and country effects and tested for heteroscedasticity using the modified Wald test for groupwise heteroscedasticity, which indicated that the null hypothesis of constant variance was rejected. Next, the Breusch–Pagan test and the Pesaran CD test were applied to detect cross-sectional dependence. The test statistics confirm the suspicion

that residuals across entities are correlated and hence there is cross-sectional dependence. Finally, I tested for serial correlation using the Wooldridge test for autocorrelation. This test suggests the presence of autocorrelation. Since these findings make OLS invalid, both panel-corrected standard errors (PCSE) and feasible generalised least squares (FGLS) are applied. Both methods are alternatives, since they correct standard errors for contemporaneous correlated and heteroscedastic errors. To correct for autocorrelation, I apply a Prais–Winsten transformation when using PCSE, while FGLS automatically corrects for it. Though FGLS is superior in asymptotic samples, Beck and Katz (1995) showed that it has poor statistical properties unless the number of time periods exceeds the number of countries many times over. Nevertheless, I present both FGLS and PCSE estimates. The choice of the estimation method does not affect the key findings, as will be shown below.

A further issue when dealing with time-series cross-sectional data is that of unit roots. Since time-series data are often non-stationary (Smith, 2001), panel data unit root tests are applied. A panel data unit root test of the first generation (Maddala and Wu, 1999) is used. Since cross-sectional dependence cannot be ruled out, I also apply Pesaran's (2007) cross-sectionally augmented Im–Pesaran–Shin test.[9] Both panel unit root tests suggest that the majority of the variables are integrated of order one. To account for this, I re-estimate the model in first differences (see Table 3). Here, the fixed effects are dropped, since taking first differences of the observations would control for any country-specific effects. As in the previous estimations, I find strong evidence of serial and cross-sectional correlation and of heteroscedasticity in the panel. Hence, both FGLS and PCSE are applied.

5. Econometric results

Tables 2 and 3 present the main results on the determinants of the adjusted labour share. Table 2 summarises the results in levels and Table 3 displays the results in first differences. The estimates in columns (1) and (2) use PCSE; columns (3) and (4) use FGLS. Columns (2) and (4) include the variable shareholder value instead of dividend payments and interest payments of non-financial corporations related to the capital stock of the business sector. The specifications are thus substantially similar; the only difference is in the way standard errors were calculated. Note that only Table 2 includes the country dummies, since fixed effects are removed when taking first differences. Since the majority of the variables seem to be non-stationary, the preferred specifications are those in Table 3.

Turning first to the globalisation variables, we see several significant effects on the adjusted labour share. As hypothesised, openness measured as exports and imports as a share of GDP has a negative effect on the income share of labour. This result is consistent with other studies (see, e.g., Stockhammer, 2009; Guscina, 2006).

The second variable of globalisation—FDI inflows as a share of GDP—has the expected negative effect on labour's share of income. In line with the hypothesis laid out before, the rise in multinational firms seems to exert a downward pressure on workers' wages.

This result is consistent with Wallace et al.'s (2011) finding that FDI inflows have a positive effect on earnings inequality and support the thesis by Kristal (2010) that

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[9] The detailed results are available upon request.

Table 2. *Estimation in levels (dependent variable: adjusted labour share)*

	(1)	(2)	(3)	(4)
	Panel-corrected standard errors	Panel-corrected standard errors with shareholder value variable	Feasible generalised least squares	Feasible generalised least squares with shareholder value variable
Openness	−0.056***	−0.064***	−0.060***	−0.068***
	(0.018)	(0.020)	(0.016)	(0.017)
Inward FDI	−0.042**	−0.039**	−0.028	−0.023
	(0.019)	(0.018)	(0.018)	(0.018)
Outward FDI	0.0113	0.009	0.010	0.006
	(0.018)	(0.016)	(0.017)	(0.016)
Log import prices	1.974	2.25	1.078	1.377
	(1.500)	(1.471)	(1.159)	(1.123)
Unemployment rate	−0.221***	−0.200***	−0.219***	−0.201***
	(0.069)	(0.072)	(0.063)	(0.066)
Union density	−0.240***	−0.227***	−0.211***	−0.196***
	(0.049)	(0.051)	(0.045)	(0.046)
Strike rate	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Dividend payments	−0.559***		−0.486***	
	(0.082)		(0.077)	
Interest payments	0.148		0.231	
	(0.241)		(0.213)	
Shareholder value		−0.484***		−0.417***
		(0.070)		(0.069)
Government activity	1.021***	1.036***	1.055***	1.137***
	(0.150)	(0.148)	(0.140)	(0.141)
Cons			65.323	62.646***
			(6.250)	(6.442)
Country	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Obs	247	247	247	247
R-squared	0.99	0.99		

Note: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

multinational firms lower the wage share by decreasing employment rates and compensation. However, the variable shows only the expected significant effect when applying PCSE and hence is not robust over all specifications.

Turning to the next globalisation variable, I find that, contrary to expectations, FDI outflows as a share of GDP have no effects on the adjusted labour share. This is surprising since it was assumed that well-paid manufacturing jobs are outsourced to low-cost countries as well as the threat effect outsourcing has on driving down workers' wages. However, the insignificant effect does not necessarily mean that FDI outflows have no impact at all. First, probably well-paid manufacturing jobs are indeed outsourced, but more supervisory jobs are created, which, in aggregate, compensate for the loss of blue-collar jobs. Second, as mentioned before, the actual effect of FDI might be underestimated, given that the threat effect might not be visible in the data.

Table 3. *Estimation in first differences (dependent variable: first difference of the adjusted labour share)*

	(1)	(2)	(3)	(4)
	Panel-corrected standard errors	Panel-corrected standard errors with shareholder value variable	Feasible generalised least squares	Feasible generalised least squares with shareholder value variable
ΔOpenness	−0.085***	−0.087***	−0.084***	−0.085***
	(0.023)	(0.023)	(0.021)	(0.021)
ΔInward FDI	−0.044**	−0.045***	−0.015	−0.014
	(0.017)	(0.017)	(0.016)	(0.015)
ΔOutward FDI	0.014	0.014	0.004	0.003
	(0.016)	(0.016)	(0.014)	(0.014)
Δlog Import Prices	1.08	1.03	0.013	0.006
	(1.60)	(1.61)	(1.38)	(1.39)
ΔUnemployment Rate	−0.300***	−0.302***	−0.323***	−0.324***
	(0.085)	(0.086)	(0.072)	(0.072)
ΔUnion Density	−0.083	−0.079	−0.057	−0.056
	(0.060)	(0.060)	(0.052)	(0.052)
ΔStrike Rate	0.000	0.000	0.000	0.000
	(0.001)	(0.000)	(0.000)	(0.000)
ΔDividend Payments	−0.425***		−0.278***	
	(0.095)		(0.084)	
ΔInterest Payments	−0.229		−0.107	
	(0.232)		(0.207)	
ΔShareholder Value		−0.393***		−0.248***
		(0.082)		(0.074)
ΔGovernment Activity	1.42***	1.42***	1.611***	1.616***
	(0.169)	(0.170)	(0.147)	(0.147)
Year	Yes	Yes	Yes	Yes
Obs	235	235	235	235
R-squared	0.64	0.59		

Note: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

The log of import prices is insignificant in all specifications. Recalling that this variable proxies the development of imported raw materials and semi-finished products, it seems as neither the increase in world demand and the associated increase in prices for raw materials nor the effect of relocations of production plants to low-wage regions, which presumably result in lower import prices, affect labour's share of income, at least not immediately.

The distributional consequences of the variables that relate to the bargaining power are mixed. As expected, unemployment is strongly and negatively related to the adjusted labour share in all specifications. This result suggests that unemployment indeed leads to wage restraint and indicates that it has a persistent influence on the bargaining power of workers.

The coefficient of union density is surprisingly not significant. 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 with collective bargaining coverage. Unfortunately, the variable wage-bargaining coverage is neither readily available for all countries nor for the entire time period.

Finally, the variable strike activity shows no effect on the labour share of income. However, that is not necessarily surprising given the fact that new wage agreements need some time to be settled. Hence, strike activity rather affects labour's share in the long term. This hypothesis is supported by empirical research. Kristal (2010) could show that strike volume positively relates to labour's share of income in the long run through an increase in workers' compensation.

The results regarding the shareholder value variables—net interest and net dividend payments of non-financial corporations in relation to the capital stock of the business sector—are only partly consistent with the theoretical model. The variable net dividend payments shows the expected negative effect in all specifications. In contrast, the variable net interest payments is not significant. However, if the variable dividend payments is removed from the estimation, net interest payments turn out to have the expected significant negative effect. In columns (2) and (4), the variable shareholder value, i.e. the combination of both variables, shows a significant negative effect on the adjusted labour share. Hence, as expected, the increase in overhead obligations in the form of interest and dividend payments comes at the expense of the share of wages in national income.

The distributional consequences of government activity are, as hypothesised, in favour of labour. A larger share of government value added in GDP is associated with a higher labour share in national income. Therefore, the downsizing of the government sector in some of the countries under investigation contributed to the decline in the labour share of income.

Table 4 considers further specifications of the previous model. Especially, data on capital stock are sometimes considered unreliable. As a test of robustness, columns (1)–(6) check the previous results, but here net dividend and net interest payments are related to the value added of non-financial corporations instead of the capital stock. Columns (1) and (2) repeat the previous estimation, while columns (3) and (4) apply lagged values of the explanatory variables to control for potential endogeneity.[10] To assess whether or not the effects are long-lasting or can be considered rather temporary shocks, columns (5) and (6) repeat the exercise using five-year averages. PCSE are applied in all specifications controlling for heteroscedasticity, contemporaneous correlation and autocorrelation. Columns (1) and (2) confirm the previous findings, though import prices turn out to be positively significant, indicating some robustness issues with this variable. The estimation results with lagged exogenous variables conducted in columns (3) and (4) find only unemployment and import prices to affect the labour share. Regarding the five-year averaged data in columns (5) and (6), most of the previous results are not constant and hence seem not to last over the medium term. While most of the variables that showed a significant impact turn insignificant in

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[10] It is possible that there is reverse causality from the adjusted wage share to the explanatory variables, e.g. the unemployment rate or union density. To account for this, the most obvious and desirable extension would be the application of a dynamic panel model using the generalised method of moments proposed by Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1998). However, as is well known, these techniques were developed for panel data characterised by small time dimensions and a large number of units and are thus not applicable to the model at hand (Roodman, 2009).

Table 4. *Extension to previous estimations (dependent variable: adjusted labour share)*

	(1) Panel-corrected standard errors; estimation in first differences	(2) Panel-corrected standard errors with shareholder value variable; estimation in first differences	(3) Panel-corrected standard errors; estimation in first differences; lagged explanatory variables	(4) Panel-corrected standard errors with shareholder value; estimation in first differences; lagged explanatory variables	(5) 5-year averages; panel-corrected standard errors	(6) 5-year averages; panel-corrected standard errors with shareholder value
Openness	−0.056**	−0.061**	−0.011	−0.004	0.025	0.037
	(0.025)	(0.025)	(0.035)	(0.036)	(0.035)	(0.039)
Inward FDI	−0.046***	−0.045***	−0.011	−0.008	−0.084	−0.012
	(0.018)	(0.017)	(0.025)	(0.025)	(0.126)	(0.143)
Outward FDI	0.018	0.017	0.015	0.016	0.082	0.011
	(0.018)	(0.016)	(0.024)	(0.024)	(0.117)	(0.136)
Log import prices	4.37**	4.38**	5.52**	5.71**	−0.383	−0.845
	(1.78)	(1.79)	(2.70)	(2.65)	(2.03)	(1.98)
Unemployment rate	−0.306***	−0.305***	−0.452***	−0.446***	0.111	−0.019
	(0.093)	(0.094)	(0.129)	(0.133)	(0.140)	(0.135)
Union density	−0.046	−0.039	−0.060	−0.060	−0.182**	−0.255***
	(0.064)	(0.064)	(0.084)	(0.086)	(0.088)	(0.092)
Strike rate	0.000	0.000	0.000	0.000	0.010***	0.011**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)	(0.004)
Dividend payments	−0.156***		0.069		−0.144**	
	(0.048)		(0.089)		(0.064)	
Interest payments	−0.067		−0.100		0.347***	
	(0.074)		(0.105)		(0.124)	
Shareholder value		−0.136***		−0.025		−0.004
		(0.040)		(0.073)		(0.049)
Government activity	1.770***	1.811***	−0.260	−0.318	−0.286	0.075
	(0.195)	(0.191)	(0.286)	(0.285)	(0.214)	(0.191)
Country	No	No	No	No	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Obs	206	206	195	195	54	54
R-squared	0.65	0.65	0.32	0.31	0.99	0.99

Note: *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

the medium term, other variables that were previously not significant turn out to be significant, such as union density and strike activity. Union density shows a significant negative effect on labour's share of income, which is in contrast to the expectations laid out before. However, as argued by Wright (2000), a high level of unionisation can also result in wage restraint. Labour unions might accept wage restraint in return for government policies that promote full employment and the development of the institutional welfare state (Huber and Stephens, 1998; Anderson, 2001). Moreover, strong trade unions might also accept wage restraint in exchange for (net) export hikes stabilising employment in the export sector (Scharpf, 2000).

Concerning strike activity, the variable shows the expected positive effect on labour's share. As expected, dividend payments demonstrate the expected significant negative impact on the labour share, while interest payments have a positive and statistically significant effect. This result is puzzling from the theoretical point of view outlined before, though is in line with results from similar studies and reasoning from other theories. For a panel of over 100 countries for the period 1972–95, Jayadev (2007) finds a small but positive effect of the real interest rate on labour's share of income. Stockhammer (2009) also finds a positive and statistically significant effect of the real interest rate on labour's share using five-year averaged data for a panel of 15 OECD countries covering the years 1982–2003. Moreover, this finding corresponds to the Kaldor–Robinson model of distribution and growth. In the monetary extension of this model, a rise in interest rates negatively impacts on firms' investment. This, however, leads to a decline in effective demand. Goods prices relative to nominal wages, in turn, start to fall and real wages increase. In this model, a rise in interest rates leads to a fall in the profit share via its effect on capital accumulation (Hein, 2008).

6. Conclusion

During the past decades, there was an increase in financialisation in industrialised countries on the one hand and an ever-increasing convergence in factor shares on the other hand. This study linked both phenomena and analysed the role of financialisation in explaining the decline in the labour share of income in 13 OECD countries based on Kalecki's theory of distribution. In a first step, various phenomena of financialisation were conceptualised under the three labels globalisation, shareholder value orientation and government activity. Using a time-series cross-sectional dataset for 22 years, the results suggest that financialisation impacts labour's share in national income via the following channels. Above all, workers' bargaining power is curbed by an increase in shareholder value orientation and a short-term horizon of the management, combined with the globalisation and liberalisation in international trade and finance. Moreover, an increase in overhead obligations in the form of rising interest and dividend payments was passed on to wages, resulting in a rising mark-up and causing labour's income share to decline. Further, the decline in government activity shifted the sectoral composition of the economy, as did the shift towards the financial sector, both contributing to the decline in the overall labour share of income.

Though the analysis shed some light on the effect of factors related to financialisation on labour's share of income, the testing suffered from some limitations. One obvious drawback from this analysis is the short-term horizon. The scarcity of data—especially the time series on dividend and interest payments of the non-financial corporate sector were short—did not allow for a more sophisticated econometric approach. In this respect, the long-term estimation was also prevented by the presence of unit roots.

Moreover, while the analysis provided a general overview of the 13 countries concerned, it was not possible to disentangle the specific factors that contributed to the decline in every single country. In this respect, more detailed analysis in required.

The results presented in this study suggest the need for further research on the determinants of labour's share in the era of financialisation. Certainly, there are several mechanisms that can affect functional income distribution. Such questions are the focus of recent work by Heintz (2013), who argues that there are several additional factors behind the aggregate indicator (e.g. price movements and structural change), which should be taken into account.

Moreover, financialisation and neoliberalism have many facets and it would be valuable to empirically disentangle and analyse their effects on functional income distribution on a broader basis.

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Appendix

Table A1. *Variables, definitions and sources*

Variable	Definition	Source
Adjusted wage share	Compensation of employees/employees, persons	AMECO
Trade openness	GDP at factor costs/employment, persons Exports + imports/GDP	AMECO
Foreign direct investment (FDI)	FDI inflows and outflows/GDP	UNCTAD
Prices of raw materials and semi-finished products	Import unit value	IMF Financial Statistics
Unemployment rate	Unemployed persons/labour force	OECD EO no. 90
Union density	Union membership/wage and salary earners	Visser (2009)
Strike intensity	Days not worked due to strikes and lockouts (per 1,000 workers)/total employment	ILO
		OECD Annual Labour Force Statistics
Shareholder value orientation	Net dividend payments/value added or net capital stock (non-financial corporations)	OECD Main Aggregates and Detailed Tables OECD EO no. 78
Shareholder value orientation	Net interest payments/value added or net capital stock (non-financial corporations)	OECD Main Aggregates and Detailed Tables OECD EO no. 78
Shareholder value orientation	Net dividend payments + net interest payments/value added or net capital stock (non-financial corporations)	OECD Main Aggregates and Detailed Tables OECD EO no. 78
Government activity	Value added of the public sector/GDP	UN DATA National Accounts

Notes: AMECO, Annual Macro-Economic Database of the European Commission's Directorate General for Economic and Financial Affairs (http://ec.europa.eu/economy_finance/db_indicators/ameco/zipped_en.htm; downloaded: December 2011); UNCTAD, United Nations Conference on Trade and Development (http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx; downloaded: December 2011); IMF Financial Statistics, International Monetary Fund Financial Statistics (http://elibrary-data.imf.org/; downloaded: August 2012); OECD EO, Organisation for Economic Co-operation and Development Economic Outlook (all OECD data were obtained from http://stats.oecd.org; downloaded: December 2011); ILO, International Labour Organization (http://laborsta.ilo.org; downloaded: August 2012); UN, United Nations Data National Accounts (http://data.un.org/Explorer.aspx?d=SNA; downloaded: August 2012).

Table A2. *Summary statistics*

Variable	Mean	Std Dev.	Min.	Max.	Observations
Levels					
Adjusted wage share	66.70	4.045	49.23	75.8	286
Trade openness	63.91	33.63	16.01	162.93	286
Inward FDI	2.98	5.22	−4.27	47.09	286
Outward FDI	3.67	5.50	−4.23	48.12	286
Log import prices	4.47	0.15	4.05	4.82	275
Unemployment rate	6.89	2.76	1.95	17.87	286
Strike intensity	57.17	116.36	0.07	1,178.24	284
Union density	41.34	23.40	7.62	83.86	286
Dividend payments	2.48	2.50	0.03	18.02|	280
Interest payments	1.34	0.93	−0.17	5.28	280
Shareholder value	3.82	2.76	0.47	21.33	280
Government value added	14.10	3.37	7.74	21.31	264
Differences					
ΔAdjusted wage share	−0.26	1.20	7.79	4.57	273
ΔTrade openness	1.07	3.33	−7.05	17.63	273
ΔInward FDI	0.23	4.17	−31.56	38.20	273
ΔOutward FDI	0.22	4.53	−38.49	36.82	273
ΔLog import prices	0.02	0.07	−0.17	0.18	262
ΔUnemployment rate	−0.06	0.92	−3.10	4.99	273
ΔStrike intensity	−8.49	140.77	−1144.33	1140.31	271
ΔUnion density	−0.41	1.04	−4.66	4.77	273
ΔDividend payments	0.13	0.69	−2.71	6.91	267
ΔInterest payments	−0.01	0.29	−0.97	1.11	267
ΔShareholder value	0.11	0.81	−3.36	7.43	267
ΔGovernment value added	−0.06	0.47	−1.84	2.56	252