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The effect of financialization on labor's share of income

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ABSTRACT

Numerous studies have analyzed the decline in labor's share of income, but only few have linked it to the increase in financialization. The process of financialization can roughly be described as an increasing importance of the financial sector which 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 paper seeks to explore the relationship between financialization and labor's share of income using a time-series cross-section data set 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 be accounted for the decline relate to globalization and a decrease in the bargaining power of labor.

JEL code: E25, E44, F4

Keywords: Financialization, functional income distribution, labor's share

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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)

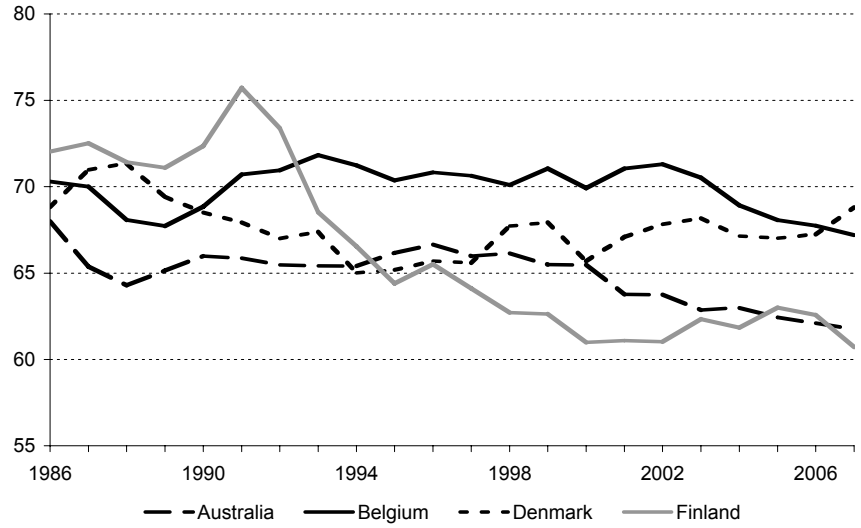
Although this quote from Ricardo dates back to 1821, the topic of income distribution has not lost any of its relevance and significance. These days, the distributional conflict does not take place like in the era of Ricardo, that is to say, between the owners of land, capital and labor. Today, the distributional conflict of the past has been replaced by a distributional conflict of firms and shareholders against wage and salary earners; which in the context of this paper also means retained profits, interests and dividends against wages. The share accruing to labor 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] In Dünhaupt (2012) I could show that, at least for the 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 (1996) said:

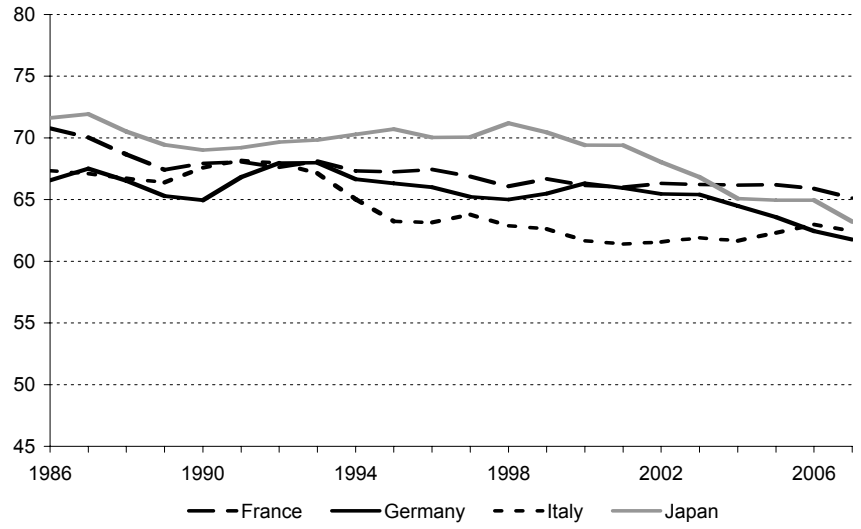
> "The share of national income going to the owners of capital through corporate profits is surging. The share going to compensation is falling. This is not the way a democracy is supposed to work...." (quoted in Harrison, 2002, p. 2)

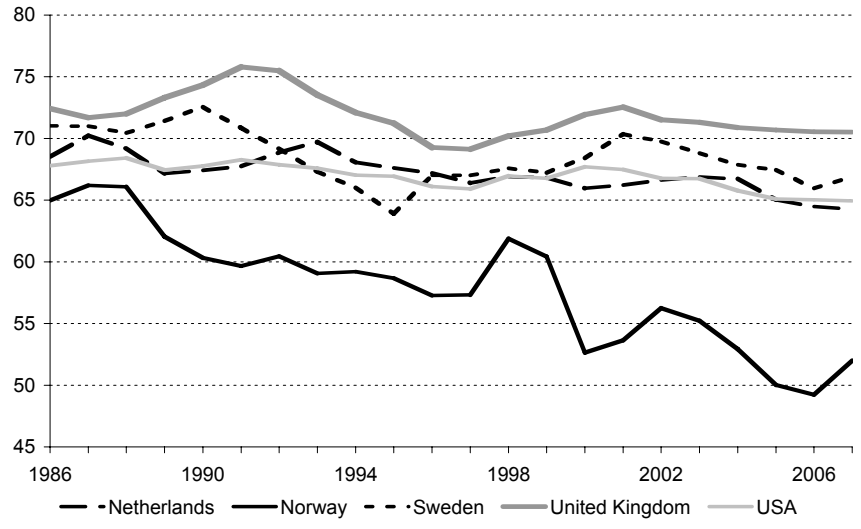
Not only is an unequal distribution bad for society, it has also severe consequences for macroeconomic developments. In Post-Keynesian models of distribution and growth, the redistribution of wages and profits feeds back on consumption demand, given different propensities to save from rentiers', managers' and workers' income, thereby affecting overall aggregate demand and hence growth (Hein and van Treeck, 2010a; Hein, 2010a and Hein and van Treeck, 2010b). However, redistribution impacts also on firms' investment through different channels, either directly or indirectly via unit profits or capacity utilization, respectively. Based on these contradictory effects of redistribution between capital and labor, 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 (for instance Hein and Vogel, 2008; Naastepaad and Storm, 2007) which show that in the medium to long run, demand in most OECD countries seems to be wage-led. Therefore, the decline in labor's income share partially caused a reduction in aggregate demand, and also in GDP growth.

[1] Labor's share in national income behaves countercyclical; i.e. labor's share tends to rise during a recession and declines during the recovery. Since profits are in a recession presumably responsible for a decline in income, labor's share rises automatically. Therefore, this study focuses on the pre-crisis era.

Figure 1: Adjusted Wage Share for 13 OECD Countries - 1986-2007







Source: AMECO (2011)

What lies behind the decline in labor's share of income? In the last couple of years, numerous studies have analyzed the role of technological change, globalization and bargaining power in relation to the declining share of labor income. The prevalent opinion states that the rise in Continental European labor's shares of income in the 1970s was largely caused by institutional reforms and external shocks. At the same time a rise in real wages outpaced labor productivity (Bertoli and Farina, 2007). According to Blanchard (1997), firms' reaction was to restore profit shares by substituting labor demand by 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 labor, and at the same time supplemented skilled labor. Arguing that globalization can be held accountable for the decline in labor's share of income often complements this line of reasoning. The globalization 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 labor rich countries in the south concentrate on labor intensive production with the result that labor in the south wins relative to capital owners, while capital in the north benefits more than labor in the north, and therefore, the wage share of countries in the north decreases[2]. Extended versions of the original model discriminate the differences in the effect of openness on skilled and unskilled labor rather than on capital and labor. According to these models, in countries where high skilled labor is the abundant factor, in the long run wages of unskilled workers will fall, whereas wages of skilled workers will rise (Wood, 1994). A further argument with regard to the decline in labor's share of income stresses the deregulation of labor markets and the associated weakening of labor's bargaining position (Blanchard and Giavazzi, 2003).

It is true that all three phenomena have occurred. However, skilled-biased technological change as well as globalization might explain the increase in wage dispersion, but can only be accounted for the decline in the overall labor's share if skilled workers don't manage to increase their wages. Moreover, in regard to 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 labor's shares. From her point of view it is even more surprising that the decline of labor'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 globalization thesis, Stockhammer (2009)

[2] See for example Onaran (2007) who provides a neat overview of studies that are based on the globalization thesis.

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 labor's 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 places in all countries and can be seen as a counter argument against the Heckscher-Ohlin model.

As already mentioned in the beginning of this paper and in addition to the above mentioned three common explanations for the decline in labor's share of income, this paper focuses on financialization and its effect on labor's share which also raises the question of distributional conflict.

Since the 2000s, financialization and its consequences have been on the research agenda of scholars from various disciplines (van Treeck, 2009). Although there is no common definition of financialization, 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 exemption, the work of ILO (2011) and Stockhammer (2009) can be mentioned, although their definition of financialization is rather broad in the form of all foreign assets and liabilities relative to GDP.

In view of this shortcoming of the existing literature, this paper fills the void by analyzing the role of financialization in explaining the decline in labor's share - using a panel of 13 OECD countries over the period 1986-2007. This paper is divided into 7 parts. The second part establishes the theoretical connection between financialization and labor's share of income which is derived from the Kaleckian model of distribution, building on the work of Hein (2012). The third part elaborates on the potential channels of influence in order to specify the variables that are used in the empirical part. The fourth part of this paper introduces the data set. Part five elaborates on the empirical specifications of the econometric model that is used and part 6 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 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 labor 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). 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[3]. 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 for example 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 labor.

In his recent work, Hein (2012) detected 7 stylized facts of financialization in its broadest sense that might impact the labor income share by the degree of monopoly through the four

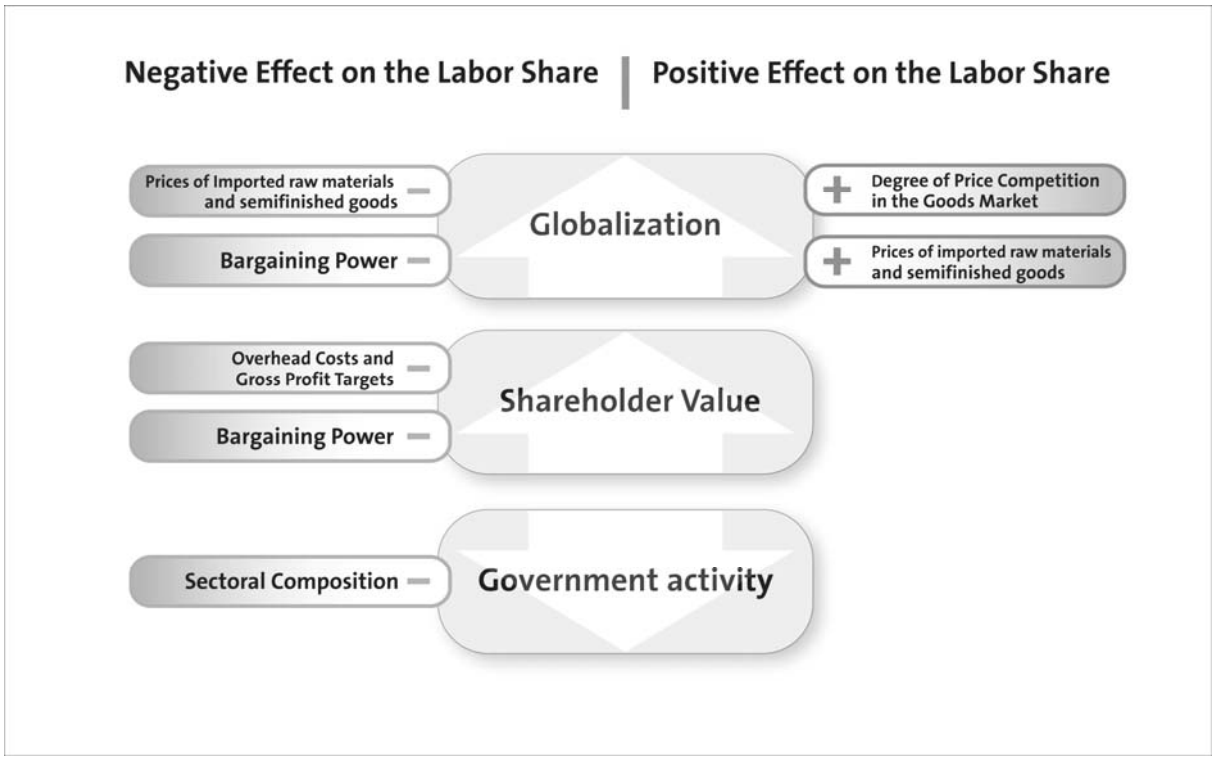
[3] "Although the above considerations show a channel through which overheads may affect price formation, it is clear that their influence upon prices in our theory is much less clear-cut than that of prime costs. The degree of monopoly *may*, but need not necessarily, increase as a result of a rise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

channels mentioned above, as well as by the relationship between imported material costs and domestic wage costs and the sectoral composition of the economy.

The stylized facts mentioned by Hein are: increasing shareholder value orientation and increasing short-terminism 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 to real investment and hence of the financial sector relative to the non-financial sector; hostile takeovers, mergers and acquisitions, as well as liberalization and globalization of international finance and trade. In addition, Hein stresses the deregulation of labor markets and the downsizing of the government sector as additional determinants of functional income distribution.

Figure 2 connects the potential determinants of the labor income share with the stylized facts mentioned above and summarizes them under the labels globalization, shareholder value and government activity. A positive influence is labeled with a plus symbol and can be found on the right side; a negative influence is labeled with a minus and can be found on the left side.

Figure 2: Channels of Influence of Financialization on Labor's Share based on Kalecki



Source: Authors' representation.

3 CHANNELS OF INFLUENCE

The following section elaborates on the channels of influence depicted in Figure 2 and relates them to labor's share of income.

3.1 GLOBALIZATION AND LABOR'S SHARE OF INCOME

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

A key dimension of globalization 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 labor's share. International trade can further affect labor'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, labor's share increases. However, the increase in world demand can also result in rising prices of raw materials. Several studies have analyzed the effect of globalization on labor's share of income and found mixed results. Guscina (2006) detected that openness to trade has a negative effect on labor's share of income in developed countries. A study by the European Commission (2007) confirms this result. However, the EC (2007) suggests that the impact was especially negative for medium skilled workers[4], using a sample of 13 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 labor's shares in developed and developing countries.

Another defining feature of globalization 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 deindustrialization 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 unionized, are replaced by jobs in the service sector which, on average, are lower paid (and less unionized).

Second, FDI can have an impact on the bargaining power of workers due to the rise of multinational firms, given that labor's position in multinational firms is weaker than in national firms. Therefore "by undermining workers' organizational capacity, their willingness to voice labor 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 negative effect of FDI inflows on

[4] 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; download 11/2012.

labor's share of income.

Globalization can also impact the bargaining power of workers even further. Given that through globalization 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).

The rise of globalization 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 labor's share of income. However, the increase in globalization and financialization certainly has challenged or at least limited their leverage.

Fichtenbaum (2009) analyzed the impact of unionization on labor'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 unionization. In a comprehensive study covering 15 OECD countries for the years 1982 until 2003, Stockhammer (2009) found as well a significant positive effect of union density on labor's share of income.

3.2 SHAREHOLDER VALUE ORIENTATION AND LABOR'S SHARE OF INCOME

In recent years, more and more scholars noticed 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 financialization, especially in the form of interest and dividend

payments' influence on the wage share are rare. In fact, most studies on this issue rather analyze the effect of interest rates or interest payments on functional income distribution. Hein and Schoder (2011) found in an empirical study for both the US and Germany that interest payments have a positive impact on the profit share. A study by Argitis and Pitelis (2001) for the US states that the increase in interest rates during the 1970s and 1980s favored 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 labor 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 labor unions, measured by unemployment and strike intensity. Both Stockhammer (2009) and ILO (2011) measure financialization rather broadly in the form of all foreign assets and liabilities relative to GDP and find a negative correlation between financial globalization and the wage share.

Financialization might also exert its impact on labor's share of income through the bargaining power of labor. 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 labor's share of income was already demonstrated in the previous section.

To sum up, an increase in shareholder value orientation might influence labor's share of income via two channels. The first one is rising overhead costs in the form of interest and/or dividend payments of the corporate sector. The second channel is the weakening of (trade union) bargaining power caused by an increase in shareholder value orientation.

3.3 GOVERNMENT ACTIVITY AND LABOR'S SHARE OF INCOME

A related, but conceptually different topic is the rise of neo-liberalism which certainly had an effect on functional income distribution. Some authors, as for instance Dumenil and Levy (2004) argue that financialization, 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 financialization (see, for instance, Kotz, 2010). Apparently, there is no agreement in recent debates. Without elaborating on the question any further, it can be inferred that both subjects,

financialization and neo-liberalism, 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 since 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, labor's share of income is upward 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 share of labor income. That this might have a severe impact can be seen looking at the US example of a structural shift from the non-financial to the financial sector. For non-financial corporations' labor' share in value added, there has not been a clear downward trend. The same holds true for the financial sector, albeit the labor income share was lower throughout than in the non-financial sector. Hence, in the US, financialization 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).

4 DATA

Generally, labor's share is defined as compensation of employees over GDP or value added, while the capital share is taken as the residual. Many authors (for instance Krueger, 1999 and Gollin, 2002) stress the fact that earnings of self-employed are regarded as capital income, although some of it can be rather regarded as labor income. To account for this bias, the dependent variable used in this study is the *adjusted labor' share* of income taken from AMECO,[5] which is defined as: Compensation per employees as a share of GDP at factor costs per person employed. Here, labor's share includes both dependent and self-employed and GDP excludes taxes and subsidies.

The above discussion identified three indicators for globalization. As a measure of globalization 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 globalization (compare, for example, Stockhammer, 2009; Guscina, 2006).

The definition for financial globalization used in this paper is *foreign direct investment inflows and outflows as a share of GDP* and is obtained from UNCTAD. Further, the link

[5] Compare table A1 in the appendix for a detailed overview of the variables, definitions and its sources.

between globalization and labor'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 does not come without 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 one is the *unemployment rate* from the OECD Economic Outlook. As a second variable, I use *union density* which is defined as active wage and salary earners 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 is obtained from the ILO and the OECD Annual Labor Force Statistics, respectively.

With regard to financialization, *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 financialization. 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 capital stock of the business sector, though not as a proxy for financialization. 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.

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

Table 1 summarizes the variables and the hypothesized relationship on labor's share of income.

Table 1: Hypothesized Relationship on Income Distribution

Variable	Hypothesized 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	+

5 ESTIMATION ISSUES

The sample consists of 13 OECD countries (Australia, Belgium, Denmark, France, Finland, Germany, Italy, Japan, The Netherlands, Norway, Sweden, the UK, the USA) and covers the years 1986 until 2007. Though limited by data availability, the period still captures the initial period of financialization (see, for instance, 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, its averages and coverage. As shown in the table, the coverage varies, making up an unbalanced panel.

When dealing with time-series cross section 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.

In order to test the hypotheses laid out before, the adjusted labor's 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 country and year, respectively. In this model, AWS is the adjusted labor's share. Globalization 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 labor'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, the 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-section data, it is very likely that the standard regression assumption of independent, identically distributed (iid) errors is violated. In fact, there are three problems that the errors are likely to encounter (Beck and Katz, 1995): The first one 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 OLS regression in levels with fixed time and country effects and tested it for heteroscedasticity using the Modified Wald test for groupwise heteroscedasticity, which indicated that the null hypothesis of constant variance was rejected. Then, 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 ordinary least squares (OLS) invalid, both panel-corrected standard errors (PCSE) and feasible generalized least squares (FGLS) are applied. Both methods are alternatives, since they correct standard errors for contemporaneous correlated and heteroscedastic errors. 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-section data is that of unit roots. Since time-series data is 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 Pesarans' (2007) cross-sectionally augmented Im Pesaran Shin (CIPS) test. The detailed results can be found in the appendix (compare table A3). 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 4). Here, the fixed effects are dropped, since taking first differences of the observations

would control for any country-specific effects. Like 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.

6 ECONOMETRIC RESULTS

Table 3 and 4 present the main results on the determinants of the adjusted labor's share. Table 3 summarizes the results in levels, and table 4 displays the results in first differences. The estimates in columns 1, 2 and 3 use panel corrected standard errors; column 4, 5 and 6 use feasible generalized least squares. Columns 2 and 5 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. Columns 3 and 6 include only variables that were significant in previous estimations. The specifications are thus substantially similar; the only difference is in the way standard errors were calculated. Note that only table 3 includes the country and year 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 4.

Turning first to the globalization variables, we see several significant effects on the adjusted labor's share. As hypothesized, openness measured as exports and imports as a share of GDP has a negative effect on the share of labor income. This result is consistent with other studies (see, for example, Stockhammer, 2009; Guscina, 2006).

The second variable of globalization – FDI inflows as a share of GDP – has the expected negative effect on labor'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 multinational firms lower the wage share by decreasing employment rates and compensation. However, the variable shows only the expected significant effect when applying Panel Corrected Standard Errors, and hence is not robust over all specifications.

Turning to the next globalization variable, I find that, contrary to expectations, FDI outflows as a share of GDP have no effects on the adjusted labor's 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 of outsourcing has on driving down workers' wages.

Table 3: Estimation in Levels

DEPENDENT VARIABLE: ADJUSTED LABOR SHARE

	[1] Panel Corrected Standard Errors	[2] Panel Corrected Standard Errors with Shareholder Value Variable	[3] Panel Corrected Standard Errors only significant	[4] Feasible Generalized Least Squares	[5] Feasible Generalized Least Squares with Shareholder Value Variable	[6] Feasible Generalized Least Squares only significant
Openness	-.056 *** [.018]	-.064 *** [.020]	-.071 *** [.021]	-.060 *** [.016]	-.068 *** [.017]	-.074 *** [.018]
Inward FDI	-.042 ** [.019]	-.039 ** [.018]	-.027 * [.013]	-.028 [.018]	-.023 [.018]	
Outward FDI	.0113 [.018]	.009 [.016]		.010 [.017]	.006 [.016]	
log Import Prices	1.974 [1.500]	2.25 [1.471]		1.078 [1.159]	1.377 [1.123]	
Unemployment Rate	-.221 *** [.069]	-.200 *** [.072]	-.256 *** [.072]	-.219 *** [.063]	-.201 *** [.066]	-.270 *** [.064]
Union Density	-.240 *** [.049]	-.227 *** [.051]	-.176 *** [.054]	-.211 *** [.045]	-.196 *** [.046]	-.112 ** [.047]
Strike Rate	.000 [.000]	.000 [.000]		.000 [.000]	.000 [.000]	
Dividend Payments	-.559 *** [.082]			-.486 *** [.077]		
Interest Payments	.148 [.241]			.231 [.213]		
Shareholder Value		-.484 *** [.070]	-.512 *** [.073]		-.417 *** [.069]	-.409 *** [.072]
Government Activity	1.021 *** [.150]	1.036 *** [.148]	.986 *** [.162]	1.055 *** [.140]	1.137 *** [.141]	1.109 *** [.144]
cons				65.323 [6.250]	62.646 *** [6.442]	64.968 *** [4.791]
country	yes	yes	yes	yes	yes	yes
year	yes	yes	yes	yes	yes	yes
Obs	247	247	258	247	247	258
R squared	0.99	0.99	0.99			

legend: * p<.1; ** p<.05; *** p<.01

Table 4: Estimation in First Differences

DEPENDENT VARIABLE: FIRST DIFFERENCE OF THE ADJUSTED LABOR SHARE

	[1] Panel Corrected Standard Errors	[2] Panel Corrected Standard Errors with Shareholder Value Variable	[3] Panel Corrected Standard Errors only significant	[4] Feasible Generalized Least Squares	[5] Feasible Generalized Least Squares with Shareholder Value Variable	[6] Feasible Generalized Least Squares only significant
Δ Openness	-.083 *** [.016]	-.084 *** [.016]	-.083 *** [.017]	-.065*** [.013]	-.065 *** [.013]	-.067*** [.012]
Δ Inward FDI	-.035 * [.018]	-.035 ** [.017]	-.0142 [.011]	-.018 [.015]	-.018 [.015]	
Δ Outward FDI	.022 [.016]	.021 [.016]		.015 [.013]	.015 [.014]	
Δ log Import Prices	-1.32 ** [.647]	-1.27 * [.656]	-1.115 [.683]	-1.189 ** [.578]	-1.167 ** [.553]	-1.030 * [.548]
Δ Unemployment Rate	-.392*** [.076]	-.398 *** [.075]	-.424 *** [.071]	-.408 *** [.061]	-.413*** [.061]	-.423 *** [.054]
Δ Union Density	-.076 [.061]	-.068 [.061]		-.053 [.053]	-.047 [.052]	
Δ Strike Rate	.001 [.001]	.001 [.001]		.000 [.000]	.000 [.001]	
Δ Dividend Payments	-.431 *** [.094]			-.312 *** [.084]		
Δ Interest Payments	-.253 [.213]			-.162 [.181]		
Δ Shareholder Value		-.397 *** [.079]	-.377 *** [.078]		-.280 *** [.072]	-.261*** [.071]
Δ Government Activity	1.39 *** [.169]	1.40 *** [.170]	1.427 *** [.170]	1.673 *** [.136]	1.693 *** [.137]	1.725 *** [.133]
Obs	235	235	235	235	235	235
R squared	0.59	0.59	0.59			

legend: * p<.1; ** p<.05; *** p<.01

The log of import prices has a negative effect on the adjusted labor share in almost all specifications. Recalling that this variable proxies the development of imported raw materials and semi-finished products, one possible interpretation can be that an increase in world demand and the associated increase in prices for raw materials compensate the effect of relocations of production plants to low wage regions. Therefore, the increase in import prices caused by an increase in globalization negatively affects the labor income share.

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 labor's 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 to collective bargaining agreements. 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 labor's 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 labor's share in the long-term. This hypothesis is supported by empirical research. Kristal (2010) could show that strike volume positively relates to labor's share of income in the long-run through an increase in workers' compensation.

The results in regard to 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 5 and 8 the variable shareholder value, i.e. the combination of both variables, shows a significant negative effect on the adjusted labor's share. Hence, as expected, the increase in overhead obligations in the form of interests and dividends come at the expense of the share of wages in national income.

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

7 CONCLUSION

During the past decades there was an increase in financialization in industrialized countries on

the one hand, and an ever-increasing convergence in factor shares on the other hand. This study linked both phenomena and analyzed the role of financialization in explaining the decline in labor's share of income in 13 OECD countries based on Kalecki's theory of distribution. In a first step, various phenomena of financialization were conceptualized under the three labels globalization, shareholder value orientation and government activity. Using a time-series cross-sectional data set for 22 years, the results suggest that financialization impacts labor'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 globalization and liberalization in international trade and finance. Additionally, rising import prices had a negative impact on labor's share. 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 the share of labor's income 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 share of labor income.

While the analysis shed some light on the immediate effect of factors related to financialization on labor'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. Hence, variables that are very likely to have an impact on labor's share in the long-run, as for instance trade union density or strike activity, were not significant in this study. Moreover, while the analysis provided us with a general picture 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.

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APPENDIX

Table A1: Variables, Definitions and Sources

Variable	Definition	Source
Adjusted Wage Share	Compensation of Employees/ Employees, Persons GDP at Factor Costs/Employment, Persons	AMECO
Trade Openness	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 Labor Force Statistics
Shareholder Value Orientation	Net Dividend Payments/Net Capital Stock (Non-Financial Corporations)	OECD Main Aggregates and Detailed Tables OECD EO No. 78
Shareholder Value Orientation	Net Interest Payments/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/ 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 stands for 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/index_en.htm,** download 12/2011); UNCTAD for United Nations Conference on Trade and Development, (**http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx**, download 12/2011); IMF Financial Statistics for International Monetary Fund Financial Statistics, (**http://elibrary-data.imf.org/**, download 08/2012); OECD for Organisation for Economic Co-operation and Development, EO for Economic Outlook. All OECD data was obtained from (**http://stats.oecd.org/Index.aspx**, download 12/2011). ILO stands for International Labour Organization (**http://laborsta.ilo.org/**, download 08/2012); UN for United Nations Data National Accounts (**http://data.un.org/Explorer.aspx?d=SNA**, download 08/2012).

Table A2: Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.	Observations
LEVELS					
Adjusted Wage Share	66.70021	4.04642	49.23	75.8	286
Trade Openness	63.90991	33.62886	16.01212	162.9343	286
Inward FDI	2.979778	5.217708	- 4.266595	47.09205	286
Outward FDI	3.670437	5.504038	- 4.234607	48.11943	286
log Import Prices	4.470351	.1541625	4.053863	4.821265	275
Unemployment Rate	6.887653	2.7565	1.951961	17.87423	286
Strike Intensity	57.1659	116.3613	.0654003	1178.24	284
Union Density	41.34219	23.40293	7.617148	83.86254	286
Dividend Payments	2.483092	2.501142	.0289171	18.01609|	280
Interest Payments	1.336186	.9252125	-.172117	5.27639	280
Shareholder Value	3.819277	2.756898	.4678459	21.33031	280
Government Value Added	14.0964	3.37388	7.742333	21.30824	264
DIFFERENCES					
Δ Adjusted Wage Share	-.2584982	1.204711	7.790001	4.57	273
Δ Trade Openness	1.074453	3.333791	-7.047207	17.62584	273
Δ Inward FDI	.2306807	4.16791	-31.55686	38.20295	273
Δ Outward FDI	.2171607	4.533623	-38.49049	36.81916	273
Δ log Import Prices	.02347	.0740125	-.1652613	.1805444	262
Δ Unemployment Rate	-.0605377	.9197703	-3.100404	4.988404	273
Δ Strike Intensity	-8.490936	140.7701	-1144.328	1140.306	271
Δ Union Density	-.4101497	1.041543	-4.662941	4.767784	273
Δ Dividend Payments	.1254963	.6916233	-2.710985	6.90918	267
Δ Interest Payments	-.0105791	.293888	-.9741476	1.107153	267
Δ Shareholder Value	.1149172	.8092183	-3.359135	7.427102	267
Δ Government Value Added	-.0609349	.4650026	-1.836903	2.561865	252

Table A3: Time-Series Properties

Panel A: Variables in Levels

Maddala and WU (1999) Fisher Test

constant

lags	aws	open	inw_fdi	outw_fdi	l_import	ur	strike	union	div	int	sv	gov va
0	13.34	6.66	87.84	62.65	8.72	13.44	257.60	44.55	67.77	20.57	38.87	24.85
	0.98	1.00	0.00	0.00	0.99	0.98	o.oo	0.01	0.00	0.76	0.05	0.41
1	23.26	20.25	47.20	45.64	9.41	62.45	77.17	30.97	29.77	41.08	30.36	38.69
	0.61	0.77	0.01	0.01	0.99	0.00	0.00	0.23	0.28	0.03	0.25	0.03
2	16.23	6.36	32.82	30.37	7.51	23.02	56.82	20.73	16.79	44.86	22.53	23.99
	0.93	1.00	0.16	0.25	0.99	0.63	0.00	0.75	0.91	0.01	0.66	0.46

Maddala and WU (1999) Fisher Test

constant & trend

lags	aws	open	inw_fdi	outw_fdi	l_import	ur	strike	union	div	int	sv	gov va
0	20.82	16.43	82.67	66.52	3.15	5.43	237.52	14.84	91.02	11.04	46.99	22.45
	0.75	0.93	0.00	0.00	1.00	1.00	0.00	0.96	0.000	0.99	0.01	0.55
1	60.88	42.04	38.28	50.18	4.71	81.34	72.78	28.01	49.34	35.47	48.45	42.85
	0.00	0.02	0.06	0.00	1.00	0.00	0.00	0.36	0.00	0.10	0.00	0.01
2	28.40	19.19	37.44	26.74	1.81	24.31	49.39	18.73	19.91	36.46	26.30	19.02
	0.34	0.83	0.07	0.42	1.00	0.56	0.00	0.85	0.80	0.08	0.45	0.75

Pesaran (2007) CIPS Test

constant

lags	aws	open	inw_fdi	outw_fdi	l_import	ur	strike	union	div	int	sv	gov va
0	0.76	1.37	-10.06	-6.31	1.769	0.62	-7.59	0.35	-4.30	-0.78	-1.61	0.03
	0.78	0.91	0.00	0.00	0.96	0.73	0.00	0.64	0.00	0.22	0.05	0.51
1	-0.76	-0.13	-6.02	-1.17	2.645	-0.16	-4.14	0.38	-1.24	-0.62	-1.16	-0.89
	0.22	0.44	0.00	0.12	0.99	0.44	0.00	0.65	0.11	0.27	0.12	0.19
2	-0.54	1.34	-0.46	1.13	3.241	0.35	-2.81	2.16	0.68	-0.10	0.70	0.89
	0.29	0.91	0.32	0.87	0.99	0.64	0.00	0.99	0.75	0.46	0.77	0.81

Pesaran (2007) CIPS Test

constant & trend

lags	aws	open	inw_fdi	outw_fdi	l_import	ur	strike	union	div	int	sv	gov va
0	3.26	2.69	-10.38	-6.69	-1.01	1.67	-6.51	-1.24	-2.13	-0.13	-2.50	2.32
	0.99	0.99	0.00	0.00	0.16	0.95	0.00	0.11	0.02	0.45	0.01	0.99
1	1.99	1.04	-5.27	-1.23	-2.01	-0.75	-2.12	-1.00	1.06	0.02	-2.40	1.27
	0.98	0.85	0.00	0.11	0.02	0.23	0.02	0.16	0.85	0.51	0.01	0.89
2	3.24	2.14	1.35	2.29	0.70	-0.58	-1.02	-0.01	2.84	1.24	-0.72	3.24
	0.99	0.98	0.91	0.99	0.76	0.28	0.16	0.45	0.99	0.89	0.24	0.99

Panel B: Variables in first differences

Madalla and Wu (1999) Fisher Test

lags	aws	open	inw_fdi	outw_fdi	l_import	ur	strike	union	div	int	sv	gov va
0	188.79	181.54	287.86	261.28	144.16	99.37	374.61	182.09	299.10	157.72	245.68	153.15
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	176.45	164.67	179.74	183.28	124.74	144.69	236.41	134.33	195.15	117.82	170.31	155.58
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	129.33	116.22	139.61	123.76	74.34	111.00	187.01	101.12	136.14	111.26	127.23	111.23
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Pesaran (2007) CIPS Test

lags	aws	open	inw_fdi	outw_fdi	l_import	ur	strike	union	div	int	sv	gov va
0	-5.95	-5.51	-15.29	-12.75	-8.47	-3.05	-15.07	-7.91	-11.32	-7.54	-9.913	-5.35
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00
1	-3.94	-3.00	-12.04	-8.81	-6.81	-2.99	-8.94	-5.58	-5.81	-3.69	-6.001	-4.33
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00
2	-0.40	-0.08	-4.80	-3.81	-1.05	-0.96	-7.05	-2.72	-2.01	-1.63	-3.43	-0.44
	0.34	0.47	0.00	0.00	0.15	0.17	0.00	0.00	0.02	0.05	0.00	0.33

Notes: The Maddala and Wu (1999) test report the Fisher statistic and associated p-value, the Pesaran (2007) test the standardised Z-tbar statistic and its p-value. The null hypothesis for both tests is that all series are nonstationary. Lags indicate the lag augmentation in the Dickey Fuller regression employed. In Panel A I augment the Dickey Fuller regression for variables in levels with a constant or a constant and trend; in Panel B for the variables in first differences I only employ a drift (constant). The Stata routines xtfisher and pescadf written by Scott Merryman and Piotr Lewandowski were used, respectively.

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