

# The labour share of income: Determinants and potential contribution to exiting the financial crisis<sup>1</sup>



## Main findings

- For several decades now, labour's share of income has lost ground to capital. The wage share – the share of domestic income that goes to labour – has declined in almost three quarters of the 69 countries for which data exist. The drop in the wage share is more pronounced in emerging and developing economies than in advanced ones. And the decline in the wage share has been much more significant for unskilled workers than for their skilled counterparts. Contrary to predictions that “wage moderation” would help create jobs, there are indications that the decline in the wage share has not been associated with lower unemployment.
- The decline in the wage share reflects global forces as well as institutional changes and labour market reforms. Increased economic integration, notably financial globalization, has been a major driver of falling wage shares in advanced economies. The decline in trade union density and in the coverage of collective bargaining, combined with growing competitive pressures on small firms, have tended to weaken the bargaining power of workers over income distribution. There is evidence that improved collective bargaining rights and

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1. Excellent research assistance was provided by Paola Ballon, Federico Curci and Giorgio Presidente.

efforts to address informal employment have been effective in sustaining wage shares in some instances in Latin America.

- The chapter argues that arresting the decline in the wage share can help put the recovery from the global economic crisis on a more sustainable path. A comprehensive income-generating strategy would have expansionary effects on aggregate demand and employment, without aggravating fiscal deficits. Such a policy approach would need to take into account country circumstances. Yet, there is likely greater flexibility in applying it more forcefully in surplus countries, such as China, Germany, Japan and the Russian Federation, than in deficit countries. But beyond the crisis, more effective wage determination mechanisms are needed to promote more balanced and equitable growth.

## Introduction

The wage share has been falling across most countries and regions for more than three decades – and the pace of this decline has accelerated in recent years. Indeed, as demonstrated in Chapter 2, a greater share of income has been allocated to capital in the most recent period of expansion. With that in mind, the purpose of this chapter is to shed light on the longer term trends of labour income developments.

In particular, section A examines the trends in wage shares across nearly 70 countries from the early 1970s to the late 2000s. It also discusses the impact of falling wage shares on the economy and on job creation. Section B identifies the main factors explaining changing wage shares, paying particular attention to the role of global factors, such as financial globalization, as well as changes in labour market institutions. The final section presents some policy conclusions.

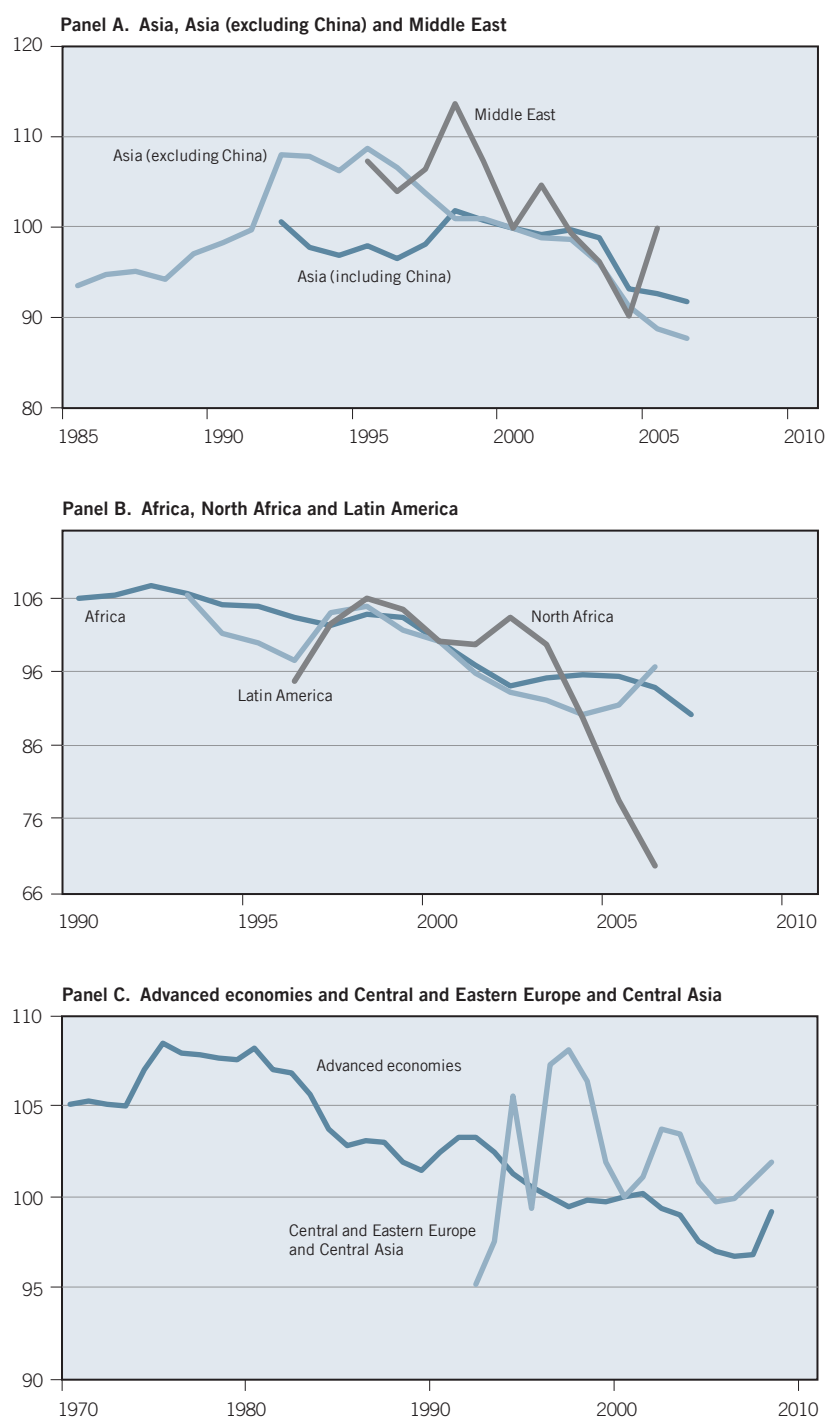
### A. Wage shares: Trends and implications

#### **The wage share has declined in the vast majority of countries...**

Since the early 1990s, the wage share (see appendix A for definition) declined in nearly three-quarters of the 69 countries with available information. The decline is generally more pronounced in emerging and developing countries than in advanced ones (see figure 3.1):

- Since 1994 the wage share in Asia has declined by roughly 20 percentage points (figure 3.1, panel A). The pace of the decline accelerated in the past decade recent years, with the wage share falling more than 11 percentage points between 2002 and 2006. In China, the wage share declined by close to 10 percentage points since 2000.
- In African countries, the wage share has declined by 15 percentage points since 1990, with most of this decline – 10 percentage points – taking place since 2000 (figure 3.1, panel B). The decline is even more spectacular in North Africa, where the wage share fell by more than 30 percentage points since 2000.

**Figure 3.1 Trends in wage shares (index=100 in 2000)**



Note: The wage share is adjusted for changes in the incidence of self-employment when the information is available (see Appendices A and B for details). The regional averages shown in the figure are GDP-weighted averages, transformed into an index to facilitate the comparison of trends.

Source: ILS estimates (see appendices B and C).

- The decline in the wage share in Latin America is among the lowest for all the regions (figure 3.1, panel B). Since 1993, the wage share has only fallen 10 percentage points and, unlike other regions, where recent years have been characterized by an acceleration of the decline, the fall since 2000 has been limited to less than 4 percentage points. There has even been a modest upturn in the past few years.

- The wage share among advanced economies has been trending downward since 1975 (figure 3.1, panel C). The fall, however, has occurred at a much more moderate pace than among emerging and developing economies – falling roughly 9 percentage points since 1980.<sup>2</sup>
- The wage share in Central and Eastern European countries followed significant fluctuations in recent years (figure 3.1, panel C).

The empirical evidence presented is consistent with the findings of World of Work Report 2008 and the Global Wage Report 2010/11.<sup>3</sup> Moreover, looking at France and the United States – two countries for which longer time series are available – confirms this downward adjustment of the wage share. In the United States, the wage share is now 4 percentage points below the level prevailing before the 1970s. The wage share in France has followed a similar pattern. The average wage share was 69 per cent over the 1950s and 1960s. Following a steep increase to 75 per cent in 1982, the decline that follows led to an over-adjustment of income distribution, with the average wage share dropping to 67 per cent over the 1990s and 2000s.<sup>4</sup>

### **... with the fall being particularly acute among low-skilled workers in advanced economies ...**

The decline in the wage share is especially strong for low-skilled workers. In advanced economies for which data are available, the wage share among low-skilled workers fell by 12 percentage points between the early 1980s and 2005, while it increased by 7 percentage points for their high-skilled counterparts (figure 3.2).<sup>5</sup>

The reduction in the wage share for low-skilled workers is the result of both a volume effect and a price effect. With respect to the latter, the size of the unskilled population in advanced economies has declined. Indeed, figure 3.2 illustrates that the share of total hours worked by unskilled workers declined by 22 percentage points between 1981 and 2005. In 2005 unskilled work accounted for less than 20 per cent of total hours worked compared to 40 per cent in 1981. In contrast, the number of hours worked by high-skilled workers increased by 11 percentage points over the same period. It follows that the contribution of the declining wage share of unskilled workers to the overall decline in the wage share has – at least to some extent – been smoothed out by the relative decline in the incidence of unskilled labour.<sup>6</sup>

2. The trend in wage shares among advanced economies is impacted significantly by the correction for changes in the incidence of self-employment (see appendices A and B).

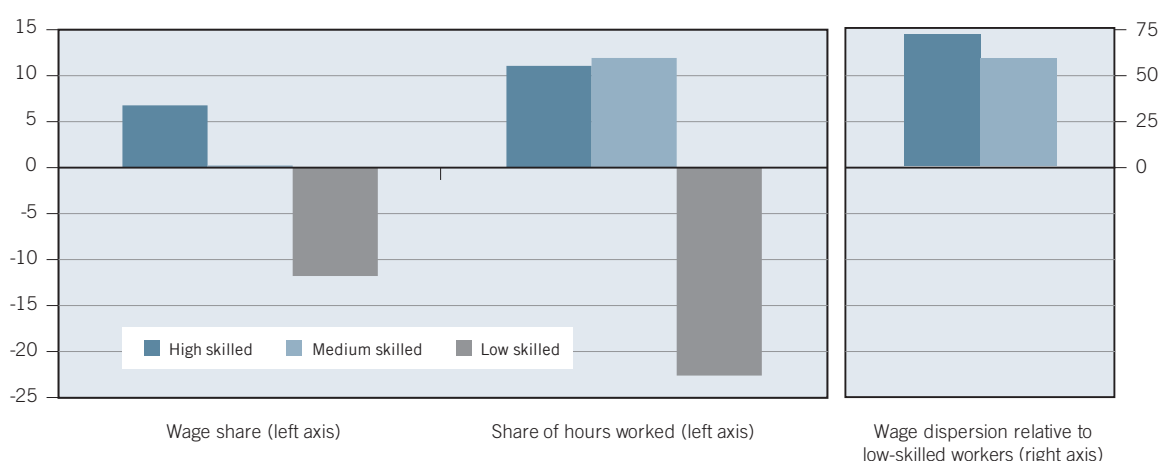
3. In some countries, the wage share recovered moderately in the immediate aftermath of the global crisis. This is not surprising given that the wage share is usually countercyclical, i.e. increasing in recessions and decreasing in recoveries. This reflects the relative speeds of adjustment of nominal wages and prices, the latter being more flexible than the former. The observed upward trend can also be explained by labour hoarding as certain firms – aided by government support – preferred to maintain employment levels in anticipation of a rebound (see ILO, 2010).

4. See Bureau of Economic Analysis (2011) for the United States and Picketty (2001) for France.

5. The diverging trends in wage shares by skill level are consistent with the findings of Jaumotte and Tytell (2007).

6. See also the methodologies developed by Solow (1958) and Young (2010) to test the effect of sectoral shifts on wage shares.

**Figure 3.2 Wage shares, hours worked and wage dispersion by skill level, selected advanced economies (change between 1981 and 2005, percentage points)**



Note: Wage dispersion for high-skilled (or medium-skilled) workers is defined as the ratio of high-skilled (or medium-skilled) wages to low-skilled wages. Data refer to the weighted average for ten countries (Austria, Belgium, Denmark, Finland, France, Italy, Netherlands, Spain, Sweden and United Kingdom).

Source: ILS estimates based on EU-KLEMS.

There has also been an important price effect, i.e. the earnings of high-skilled workers have increased significantly relative to earnings of low-skilled workers. In fact, the ratio high-skilled wages to low-skilled wages increased by 72 percentage points.

### ... as well as in the manufacturing sector.

Some authors have argued that the decline in the wage share reflects sectoral developments, notably a shift of economies towards services. Available evidence, however, does not lend support to these claims. In European Union countries, for examples, the wage share in the manufacturing sector declined by 10 percentage points – from 69 per cent to 59 per cent – between 1970 and 2007. The wage share in the service sector remained relatively unchanged over the same period, at around 49 per cent.

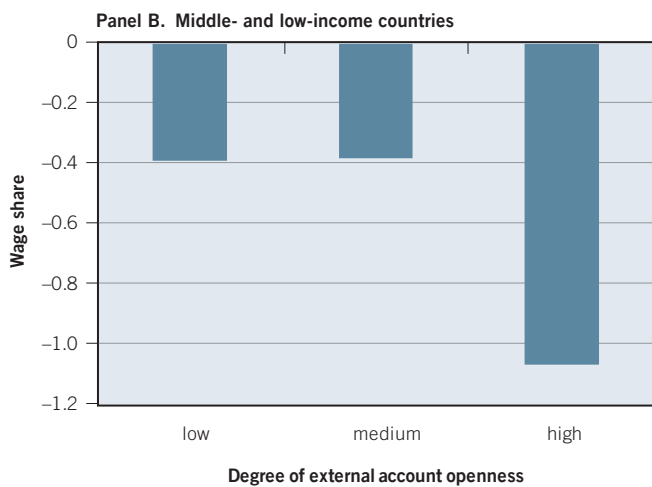
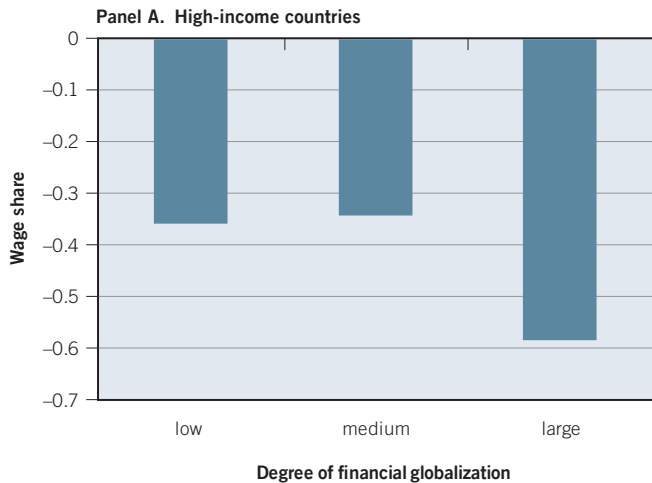
The contribution of sectoral wage share to the total wage share is a long-standing issue, which can be traced back to Kalecki (1938) and Solow (1958). Empirical tests conclude in most cases that when the wage share changes in a particular sector, the relative size of this sector in the total economy smoothes the impact on the aggregate wage share. In the United States, for instance, the drop in the wage share in the manufacturing sector is smoothed out by the relative decline of this sector in total value added (see Young, 2010). Similar results are observed for other countries and regions (ILO, 2010).

### Arresting the trend decline in the wage share would support job recovery, especially in countries that have an external surplus.

Some observers have argued that the declining wage share was necessary – that the boost to profits would lift investment and, ultimately, raise employment.<sup>7</sup>

7. According to a former political leader “the profits of today are the investments of tomorrow and the investments of tomorrow make the employment of the day after tomorrow” (cited in Malinvaud, 1980).

**Figure 3.3 Financialization and changes in the wage share, 1985 to 2005**  
(annual average growth, in per cent)



Note: The figure shows annual growth rate of wage share across three categories measuring the extent to which financialization has taken place. In high-income countries, financial globalization is measured as the sum of foreign assets and liabilities as a share of GDP and is taken from Lane and Milesi-Ferretti (2007). In medium- and low-income countries, financialization is measured as the degree of capital account openness (see Chinn and Ito, 2008).

Source: ILS estimates based upon national sources, OECD, ILO, IMF and UN.

However, looking at unemployment over the past three decades, it is not possible to discern any clear effect due to falling wage shares.

Moreover, there are arguments for arresting the decline in the wage share. There are generally two aggregate-demand typologies: (i) “wage-led”, when a higher wage share leads to an increase in aggregate demand through higher consumption of workers; and (ii) “profit-led”, when a lower wage share improves aggregate demand through higher profits and investment.

As Chapter 2 demonstrated, though, higher profit shares (lower wage shares) did not yield significant gains in investment. In fact, the main lesson from the literature is that the majority of countries are wage-led, including economic zones such as the euro area.<sup>8</sup> In other words, wage restraint does not lead to higher economic growth. Importantly, wages constitute the main source of income underpinning private consumption and therefore the possibility for firms to make their earlier investments profitable. In this context, higher wages can also stimulate domestic demand and balance out sources of growth, especially in surplus countries.

8. See for instance Franke et al. 2006, Naastepad and Storm 2007, Hein and Vögel, 2008, Stockhammer et al 2009

## B. Determinants of declining wage shares

The literature points to a number of factors behind falling wage shares, including global developments, such as financial market integration, as well as domestic factors, including minimum wage policies and changes in labour market institutions. Most of the available studies focus on advanced economies. The purpose of this section is to present the main findings of a novel empirical analysis of the determinants of falling wage shares in both advanced economies and emerging and developing countries. The analysis is presented in some detail in Appendix C.

### **Financialization has reduced the bargaining power of labour ...**

Globalization has increased the possibilities for investment in physical or financial capital and has widened the geographical location of these investments at home or abroad. The result has been an erosion of the bargaining power of workers. In high-income countries, corporate governance has added upward pressure on firms distributing dividends to shareholders — as discussed in Chapter 2. Indeed, the relationship between financial globalization and the wage share is consistently negative across the majority of high-income countries (figure 3.3, panel A). Moreover, in a panel regression controlling for competing factors, the wage share is negatively correlated with financial globalization and is stable and consistent across different specifications (table 3C.2, Appendix C).

Similarly, in middle- and low-income countries, a higher degree of capital account deregulation is associated with a larger decline in the wage share (figure 3.3, panel B).<sup>9</sup> In particular, the regression estimates that capital account openness and currency devaluation are significantly associated with a decline in the wage share in both Eastern Europe and Latin America (table 3C.4, Appendix C). One explanation behind this result is that, in emerging and developing economies, significant swings in capital flows have generated boom–bust cycles, in turn affecting wage shares. Diwan (2001) shows that currency crises are associated with sharp declines in the wage share, pointing that the cost of financial instability has fallen disproportionately on labour.

### **... as have other external factors.**

Trade openness has also improved the mobility of capital relative to labour.<sup>10</sup> According to some authors, this may have placed downward pressure on wages in advanced economies due to the increased competition between high- and low-wage locations.<sup>11</sup> An empirical assessment of the role of trade shows that increased

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9. These results are in line with existing studies, although the financial channel is not always tested explicitly, as in Jaumotte and Tytell (2007) or Bentolila and Saint-Paul (2003). By contrast, Harrison (2002) and Jayadev (2007) test the existence of a financial channel and find a negative impact on the wage share of capital account liberalization in both OECD and non-OECD countries. Stockhammer (2009) finds a negative link between income distribution and financial globalization in high-income countries.

10. The negative link between the wage share and trade integration has been tested numerous times for developed economies (see Jaumotte and Tytell, 2007) and for middle- and low-income countries (see Harrison, 2002).

11. Ebenstein et al. (2009) show, in line with existing studies, that longitudinal wage change due to trade competition is positive. In the United States, wage losses are found to be 2 to 4 per cent amongst workers leaving manufacturing and 4 to 11 per cent among workers also switching occupations.

trade openness has a small but statistically significant impact on the wage share in the 16 high-income countries for which data exist (see table 3C.2, Appendix C). Moreover, the negative link is consistent across various specifications and is more pronounced among low-skilled workers.

Regarding medium- and low-income countries, the evidence is more mixed. In middle-income countries, notably Eastern Europe, trade openness has a clear negative impact on the labour share of income (table 3C.4, Appendix C).<sup>12</sup> This result may be due to the fact that this group of countries has been competing increasingly with emerging economies in the manufacturing sector. Trade openness is also associated with a lower labour share in Asian countries, but only when China is included in the sample.<sup>13</sup> Conversely, in the 12 Latin American countries in our database, the correlation is positive, but is not robust to the inclusion of labour market regulation.<sup>14</sup>

### **There is evidence that collective bargaining supports balanced income developments without affecting jobs ...**

Labour market regulation is an important determinant of the labour share of income since it affects the bargaining power of workers. There is, however, a diverse range of measures for labour market regulation, each one capturing different channels of transmission.<sup>15</sup> With this in mind, four measures of labour market regulation are tested: union density, labour taxes, replacement wages and employment protection legislation.<sup>16</sup> The results indicate that at the aggregate level, union density and labour tax affect positively the labour share of income (table 3C.1, Appendix C). Both coefficients are significant and stable across various estimations.<sup>17</sup> In contrast, the replacement wage has a negative coefficient, while employment protection has no effect on income distribution.

Labour market regulation affects the wage share through two channels: (i) a price effect (wages), and (ii) a quantity effect (employment). The overall impact on the labour share of income differs according to the direction and the sign of these two effects. With respect to the price effect, labour market regulation has a positive impact on the income share of labour, for instance by sustaining the income of low-skilled workers.<sup>18</sup> The quantity effect associated with labour market regulation is less clear, however. In most New-Keynesian macroeconomic models, labour market regulation tends to raise the wage above the equilibrium value, producing steady-state unemployment.<sup>19</sup> Certain labour market institutions are, however, likely to generate positive macroeconomic feedbacks. For instance, Challe and Ragot (2010) show that labour market regulation, in the form of unemployment

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12. This analysis includes Belarus, Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russian Federation and Ukraine.

13. Owing to data limitations, the analysis for the Asian region includes only five countries, namely Hong Kong (China), India, Philippines, Sri Lanka and Thailand.

14. This analysis includes Argentina, Brazil, Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Mexico, Nicaragua, Paraguay, Peru and Venezuela.

15. See Checchi and García-Peñalosa, 2010.

16. Since Bassanini and Duval (2006), there are six types of variable used as a proxy for labour market institutions: employment protection legislation, labour taxation, the presence and size of a minimum wage, unemployment benefits, union density coverage and the degree of centralization and coordination of wage bargaining.

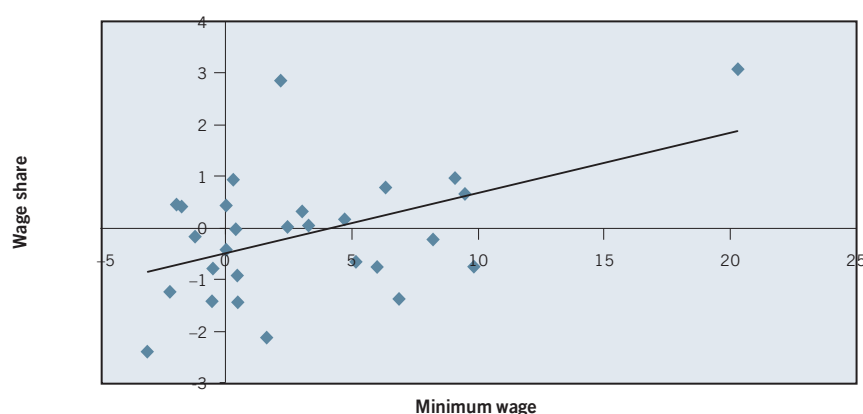
17. The coefficients for union density and labour taxation are 0.029 and 0.123, respectively.

18. Checchi and García-Peñalosa (2008) refer to labour market regulations as a set of inequality minimizing institutions.

19. See Ravenna and Walsh, 2008.



**Figure 3.4** Changes in minimum wages and wage shares in selected middle- and low-income countries, 1993 to 2005 (average annual growth rates in per cent)



Note: This graph shows the average annual growth rate of minimum wage and the average annual growth rate of the unadjusted labour share, over the period 1993 to 2005, for several emerging and developing countries (see Appendix C for the list of countries). The minimum wage is measured as the monthly minimum wage as a ratio of the average wage.

Source: ILS estimates (see Appendix C).

insurance, reduces the precautionary savings of households in recession and sustains aggregate demand.

With respect to skill level, union density still has a positive impact on the wage share of high-skilled and medium-skilled workers. The coefficients are very similar (0.029 and 0.035, respectively), which suggests that the effectiveness of trade unions is similar across these two skill levels. The ability of unions to raise the labour share of low-skilled workers is weaker (the coefficient is positive but not significant; see table 3C.3, Appendix C).

The replacement wage displays a strong negative effect on the labour share of income of high-skilled workers. The coefficient is  $-0.128$  and significant. The effect of replacement wage on the labour share of income of medium-skilled workers is still negative but weaker (with a coefficient of  $-0.093$ ), whereas for low-skilled workers the coefficient is positive and large (0.126).

**... and well-designed minimum wages also have had positive effects in emerging and developing countries.**

The impact of labour market regulation on income distribution is often difficult to assess in middle- and low-income countries due to the lack of available data. However, a new database contains three measures of labour market regulation, namely minimum wages, replacement wages and employment protection legislation between 1980 and 2005. Figure 3.4 presents a scatter plot illustrating the link between minimum wage (x-axis) and the wage share (y-axis). Despite the heterogeneity of countries, there is generally a positive relationship between minimum wages and the labour share (see table 3C.4, Appendix C).<sup>20</sup>

20. Card et al. (2004) for instance find evidence that a minimum wage reduces wage dispersion.

## C. Policy considerations

The chapter has highlighted the fact that the decline in the wage share is widespread, taking place across most regions and income-level groupings. Moreover, the decline in the wage share is a long-term trend which has, in many instances, accelerated in the past decade. Importantly, the decline has not yielded greater employment opportunities.

A number of factors are at play, notably financial globalization, which has been associated with larger capital flows and labour market deregulation. As such, the decline in the labour share of income has been shaped to some extent by institutional reforms and is not solely determined by mechanical forces linked with for instance technological changes and production structure. It follows that this recent trend can be undone if the right policies are put in place. In emerging and developing economies this means better management of short-term capital flows. Early evidence suggests that a number of countries which regulated such flows, such as Chile, were less affected by the effects of the global financial crisis. In high-income countries, the transmission channel between finance and functional income distribution is mainly related to new forms of corporate governance (see also Chapter 2). Firms have adopted restrictive employment and wage policies to maximize the dividends distributed to shareholders. In this perspective, high returns on financial capital constitute a disincentive to invest in productive capacities. Tax reforms might be the most appropriate tool to restore the proper incentives (see Chapter 5).

Policy-makers can also take proactive measures to improve the wage share by encouraging more effective dialogue and enhancing social dialogue in small enterprises. Moreover, effective collective bargaining can lead to improved labour market outcomes (see Chapter 6). Well-designed minimum wages – e.g. with increases at regular, known intervals and guaranteed purchasing power – can rebalance the distribution of income in favour of labour, especially in medium- and low-income countries. Here, too, effective social dialogue is central to policy design. Minimum wages can also help to sustain the incomes of low-skilled workers, whose labour share has been most affected by the trend decline.

Moving forward, what is needed is a comprehensive income-generation strategy to arrest the long-term trend decline in the share of labour income. Such a strategy will ensure that both economic and equity objectives are met.

## Appendix A

# Definition of the wage share

The wage share measures the share of income created that goes to workers. This is in contrast to the profit share, which measures the share of income that goes to capitalists. Income created is measured by value added, which is defined by the value of output less intermediate consumption. The share of income that goes to workers is defined by the compensation of employees. The compensation of employees is the sum of wages and salaries payable in cash or in kind and social contribution paid by employers.

$$\text{wageshare} = \frac{\text{compensationofemployees}}{\text{valueadded}}$$

Although this ratio seems to be straightforward, the definitions of labour income and value added are subject to many measurement difficulties. This has led to various attempts to adjust the definition of labour income and the definition of value added. These adjustments may deeply affect the level and trend in the wage share. Askenazy and Timbeau (2003), for instance, show that adopting different definitions of the wage share in the case of France and the United States modifies the observed trends.

The main measurement issue has to do with the share of labour income of the self-employed. The compensation of employees only captures the labour income of salaried workers. The category of self-employed can be large and is subject to significant changes over time. The income of self-employed raises an issue regarding the primary distribution of income as these agents are neither workers nor capitalists. The common strategy is to add to the compensation of employees a measure of the compensation of self-employed. There are three approaches. The first approach is to assign to the self-employed a wage, which is equal to the average wage of employees. The compensation of employees is now weighted by the size of self-employed in total employment:

$$\text{wageshare} = \frac{\text{compensationofemployees}}{\text{valueadded}} * \text{selfemploymentratio}$$

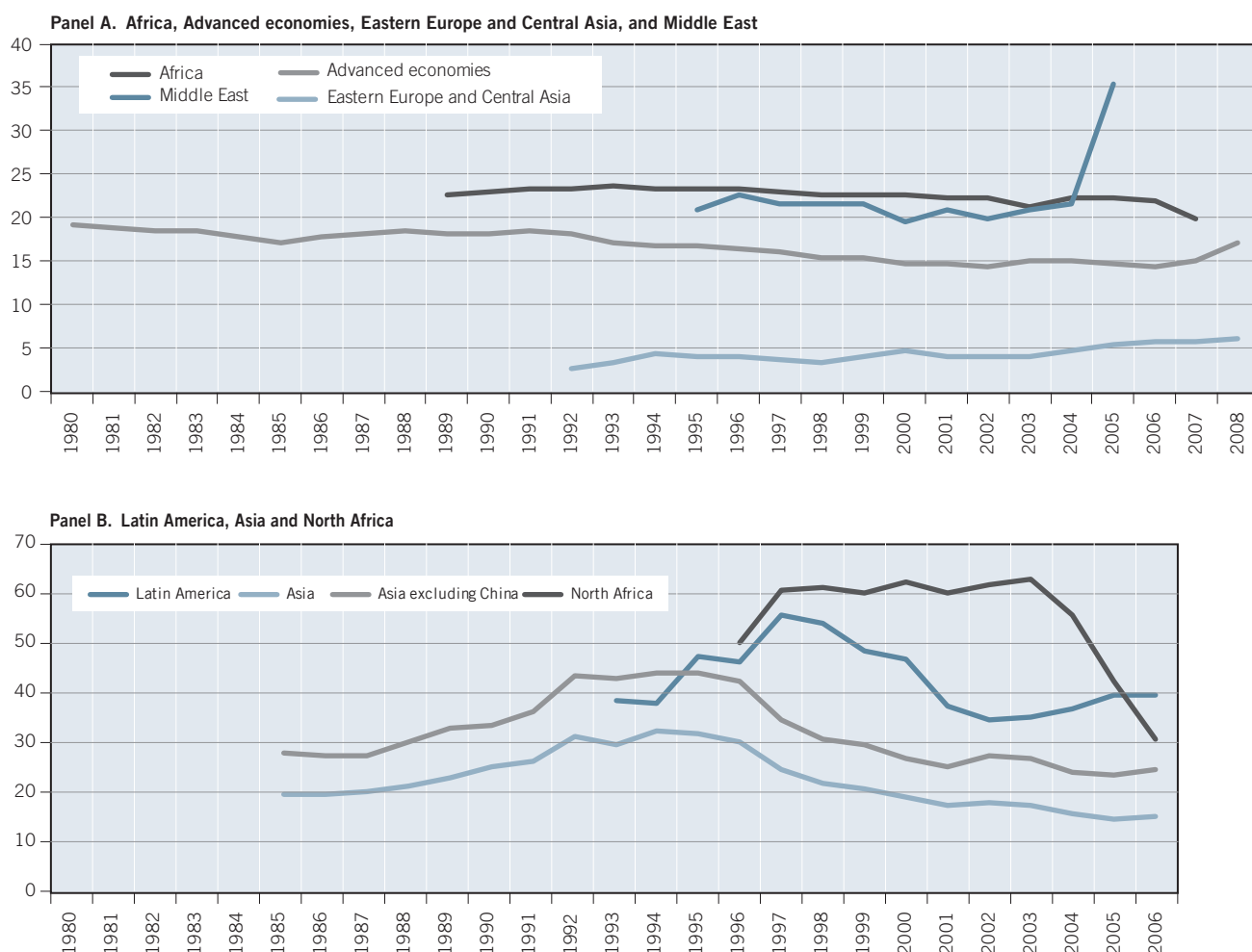
$$\text{With selfemploymentratio} = \frac{\text{totalemployment}}{\text{totalemployees}}$$

In contrast, Bentolila and Saint-Paul (2003) assume that the income of self-employed is usually less than that of employees. They assume that the fictional wage of the self-employed is two-thirds the average wage of employees.

A second approach is to impute the wage of self-employed from the wage of employees at the sectoral level.<sup>21</sup> The main idea is that the income of the self-employed varies greatly at the sectoral level. In addition, the composition of self-employment fluctuates over time. In France in the 1970s, for instance, self-employed were mostly found in the agricultural sector, while self-employed were predominantly found in the service sector in the 2000s.

21. See for instance Askhenazy, 2003; Canry, 2007

**Figure 3A.1 Ratio of total employees to total employment in different regions**



Note: This figure shows a weighted average by regions of the ratio of total employees to total employment. This ratio is the inverse of the self-employment ratio defined above.

Source: ILS estimates.

A third approach is to rely on microeconomic data to impute the wage of the self-employed (for instance see Young, 1994). Similarly, Freeman (2011) uses households survey data for the United States and assigns the wage of employees to self-employed with the same characteristics in terms of age, education, sex and industry. This imputation method translates into an increase in the wage share by 0.03 percentage points at the aggregate level. In certain industries, such as agriculture, the correction is substantially larger.

In OECD countries, the self-employment ratio dropped from 20 per cent in 1980 to almost 14 per cent in 2005 (see figure 3A.1). In Central Asia and Central and Eastern Europe, as well as in Africa, Middle East and North Africa, the ratio differs significantly, at around 5 per cent, 22 per cent and 55 per cent, respectively. The self-employment ratio has, however, been rather stable in these countries, with the exception of recent years. In the 2000s, large fluctuations took place, in particular in North Africa, in which the self-employment ratio halved between 2000 and 2006. In the Middle East, the self-employment ratio increased suddenly from 20 to 35 per cent between 2004 and 2005, while it was previously stable at around 20 per cent. Lastly, Asian countries (corrected and not corrected for China) and

Latin American countries are characterized by an inverted U shape. The rise in the self-employment ratio took place in the first half of the 1990s in Asia and in the second half of the 1990s in Latin America.

## Appendix B

### Data sources

The database on wage share was compiled by M. Charpe in 2008 and was improved and expanded in 2010 by Uma Amara Rani (amara@ilo.org). We made use of three different data sources to build the wage share. For high-income countries, we relied on OECD data to the extent that the OECD had detailed national accounts and a measure of employees in total employment. We gathered individual data from national statistical agencies for Brazil and China, given that existing data series were limited. Eventually, we relied on UN National Account data for the remaining countries.

**High-income countries:** Australia; Austria; Belgium; Bulgaria; Canada; Cyprus; Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Iceland; Ireland; Italy; Japan; Korea; Latvia; Lithuania; Luxembourg; Mexico; Netherlands; New Zealand; Norway; Poland; Portugal; Romania; Slovak Republic; Slovenia; Spain; Sweden; Switzerland; Turkey; United Kingdom; United States.

**Latin America and the Caribbean:** Argentina; Aruba; Bahamas; Bolivia; Brazil; British Virgin Islands; Chile; Colombia; Cook Islands; Costa Rica; Cuba; Dominican Republic; Ecuador; Guatemala; Honduras; Jamaica; Mexico; Netherlands Antilles; Nicaragua; Panama; Paraguay; Peru; Seychelles; Trinidad and Tobago; Uruguay; Venezuela.

**Africa:** Benin; Botswana; Cameroon; Cote d'Ivoire; Djibouti; Gabon; Kenya; Mauritius; Mozambique; Namibia; Niger; Nigeria; Rwanda; Senegal; South Africa; Sudan; Swaziland; Tanzania (Mainland).

**Northern Africa:** Algeria; Egypt; Morocco; Tunisia.

**Central and Eastern Europe and Central Asia:** Armenia; Azerbaijan; Belarus; Croatia; Kyrgyzstan; Republic of Moldova; Russian Federation; Serbia; The former Yugoslav Republic of Macedonia; Ukraine.

**Middle East:** Bahrain; Iran; Iraq; Israel; Jordan; Kuwait; Libyan Arab Jamahiriya; Oman; Qatar; Saudi Arabia; United Arab Emirates; Yemen Arab Republic (former).

**Asia and the Pacific:** China; Fiji; Hong Kong (China); India; Kazakhstan; Mongolia; Papua New Guinea; Philippines; Singapore; Sri Lanka; Thailand.

Labour share is adjusted for high-income countries. The wage share is adjusted for self-employment for medium- and low-income countries except for Bahrain, Benin, British Virgin Islands, China, Cook Islands, Cote d'Ivoire, Fiji, Gabon, India, Iraq, Jamaica, Jordan, Kenya, Kuwait, Libyan Arab Jamahiriya, Mozambique, Niger, Nigeria, Papua New Guinea, Rwanda, Saudi Arabia, Senegal, Sudan, Swaziland, Tanzania (Mainland) and Yemen Arab Republic (former).

## Appendix C

# Regression analysis

Table 3C.1 presents the results of the regression, which tests for the effects of financialization and labour market regulation on the wage share by using relevant estimation techniques and control variables. Panel A gathers the results for high-income countries and is made of both the estimation explaining the aggregate labour share and the estimation of labour share across skill levels. The details of the estimations can be found in tables 3C.2 and 3C.3. Panel B presents the results of the estimation for middle- and low-income countries by focusing on three regional areas: Eastern Europe, Latin America and Asia. Detailed presentations of the regression can be found in table 3C.4.

Table 3C.2 presents the results of the estimations carried out on a panel data of 16 advanced economies using data from 1981 to 2003. The dependant variable is the adjusted wage share as computed by the AMECO database. The explanatory variables can be gathered into three groups. The first group includes the capital labour ratio. This variable is used as a proxy for labour and capital endowment. A positive capital labour ratio implies a low elasticity of substitution between labour and capital.

The second set of variables proxy the bargaining power of capital and labour over income. Openness to trade is measured by the ratio of exports plus imports over GDP (trade open). Financial globalization (fin glob) is given by the sum of foreign assets and liabilities as a share of GDP and is taken from Lane and Milesi-Ferretti (2007). Labour market variables are taken from Bassanini and Duval (2006) and include union density (U dens), replacement wage (rep wage), labour taxation (L tax) and employment protection legislation (emp protect).

The last group of variables gathers control variables. Two control variables are used for the structure of the population: the percentage of young people in the total labour force and the percentage of old people in the total labour force. This set of variables also include: (i) the GDP per capita, to account for the degree of development of a country; (ii) the interest rate, to capture the impact of financial liberalization on the ability of government to control monetary policies; and (iii) the exchange rate, since it affects trade and financial globalization. The exchange rate is defined as U.S. dollars over domestic currency. The data source for these last three variables was Lane and Milesi-Ferretti (2007) .

To estimate our model we use generalized least squares with time dummy variables controlling for possible heteroscedasticity and correlation of the error terms. We also tested for the presence of unit roots in both the explanatory and dependent variables. The tests are performed at the panel level and not on individual countries. Fifty per cent of panel unit root tests (augmented Dickey-Fuller and Philips-Perron) show that the wage share is stationary, although the contrary is not always true when the test is done on a separate country basis (country level). Our strategy differs from that of Stockhammer (2009), who tests for unitroots at the country level. Our tests also show that among the explanatory variables, three of them (employment protection legislation, financial globalization and GDP per capita) are non-stationary. Thus, we use their first differences in our specification.

**Table 3C.1 Output, employment, hours and inflation effects of policy changes under different degrees of social dialogue**

**Panel A. High-income countries**

	Financial globalization	Trade openness	Union density	Labour tax	Replacement wage	
Skill	Aggregate	–	–	+	+	–
	High	n.s.	–	+	+	–
	Medium	n.s.	+	+	–	–
	Low	n.s.	–	n.s.	–	+

Note: This table summarizes the result of the estimations performed in tables C3.2 and C3.3, regarding the impact of different measures of financial globalization and labour market regulation on the labour share of income. The sign indicates the direction of the effect; n.s. = coefficient is statistically non-significant.

**Panel B. Middle- and low-income countries**

	Capital account openness	Trade openness	Replacement wage	Employment protection	Minimum wage	
Medium- and low-income countries	Eastern Europe	–	–	–	+	+
	Latin America	–	n.s.	–	–	+
	Asia	+	n.s.	+	–	–

Note: This table summarizes the result of the estimation performed in table C3.4, regarding the impact of different measures of financial globalization and labour market regulation on the labour share of income. The sign indicates the direction of the effect; n.s. = coefficient is statistically non-significant.

**Table 3C.2 Baseline regression: 16 high-income countries, 1981 to 2005**

	Adjusted wage shares			
KL ratio	0.245***	0.291***	0.259***	0.247***
trade open	–1.523***	–2.365***	–2.278***	–2.340***
fin glob	–0.019***	–0.019***	–0.013***	–0.012***
U dens	0.019***	0.021***	0.027***	0.029***
L tax	0.055***	0.144***	0.123***	0.123***
rep wage	–0.022***	–0.072***	–0.071***	–0.079***
emp protect	0.833***	–0.082	–0.238	–0.29
perc young	–0.989	2.479	0.93	0.125
perc old	54.239***	–72.155***	–66.460***	–65.460***
ex rate		–0.004***	–0.004***	–0.004***
GDP per capita			–0.002***	–0.002***
real interest rate				0.016
_cons	70.530***	72.260***	75.016***	75.263***
* P<0.10;** P<0.05;*** P<0.01				

Note: The estimation uses generalized least squares, time fixed effects. The error terms are corrected for error correlation. Countries are Austria, Belgium, Canada, Denmark, Finland, France, Ireland, Italy, Japan, Netherland, Norway, Portugal, Spain, Sweden, United Kingdom and United States, . Germany cannot be included since the times series for the stock of capital is missing before reunification in 1991.

**Table 3C.3 Estimation across skills: 10 high-income countries, 1981 to 2005**

	Adjusted wage shares			
	Aggregate unadjusted	High-skilled	Medium-skilled	Low-skilled
trade open	-1.628***	-5.966***	11.419***	-5.993***
fin glob	0	-0.002	0.004	0.003
U dens	0.083***	0.029***	0.035***	-0.005
L tax	-0.070***	0.186***	-0.151***	-0.032*
rep wage	-0.039***	-0.128***	-0.093***	0.126***
emp protect	0.224	-0.093	2.266**	-0.962
ex rate	-0.008***	-0.008***	0.006***	-0.007***
GDP per capita	-0.001***	-0.000**	0	-0.001***
real interest rate	-0.036	0.096***	0.208**	-0.203***
constant	61.533***	18.159***	29.119***	13.312***

\* P<0.10, \*\* P<0.05, \*\*\* P<0.01

Note: The estimation uses generalized least squares, time fixed effects. The error terms are corrected for error correlation.

Table 3C.3 columns 2 to 4 reproduce the same experiment for high-skilled, medium-skilled and low-skilled wage shares. Given that the number of countries as well as the source of wage share data (EU-KLEMS) differs from the estimation presented in table 3C.2, column 1 reproduces the estimation for the aggregate wage share. The results are consistent with respect to table 3C.1 with the exception of financial globalization, which is now not significant, and with respect to labour tax, which has a negative sign (previously positive). The main explanation for the different result is the different sample of countries, as the estimations in table 3C.3 were performed on 10 rather than 17 countries. The source of data also differs: AMECO and EU-KLEMS.

Regarding middle- and low-income countries, there is a lack of evidence regarding the impact of labour market regulation on the labour share. As discussed above, the lack of data and the segmentation of labour markets impede such an analysis. This section attempts to fill this gap by making use of a new database called Labour Market Regulations in Low- Middle- and High-Income Countries (Aleksynska and Schindler, 2011).

We grouped countries according to their geographical region. The Eastern Europe region includes 11 countries, the Latin America region includes 12 countries, and the Asia region includes 65 countries and Hong-Kong (China). The panel is unbalanced and covers the period 1980 to 2005. The dependent variable is the unadjusted wage share. As underlined above, the self-employment ratio is large in economies with an informal economy, and the difference between adjusted and unadjusted wage share can be substantial. Since labour market regulation mainly affects formal workers, the unadjusted wage share seems the most appropriate measure.

In line with the specification for high-income countries, we also consider the impact of trade and financial globalization on the wage share. We also add a measure of capital account openness, which was not included in our high-income group our analysis. Capital account liberalization seems central here since deregulation took place over the time period covered. For this we use the index proposed



**Table 3C.4 Estimation across medium- and low-income countries, unbalanced panel**

	Unadjusted wage share			
	Eastern Europe	Latin America	Asia (with China)	Asia (without China)
Trade open	-0.039***	-0.021	-0.093***	-0.008
Fin glob	0.007	0.016	0.027***	0.014
Capital Acc open	-0.014***	-0.011***	0.012***	0.043***
Rep. wage	-0.243***	-0.165**		0.262***
Emp. protection	0.009***	-0.002***		-0.009***
Minimum wage	0.257***	0.073***	-0.582***	-0.131***
Crisis (dummy)	-0.027*	-0.025**	-0.046	-0.008
GDP per capita	0	0	0	0***
Real interest rate	0	0.000**	-0.003	-0.001

\* P<0.10, \*\* P<0.05, \*\*\* P<0.01

Note: The estimation uses generalized least squares, time fixed effects. The error terms are corrected for error correlation.

by Chinn and Ito (2006). Additionally, we also account for the impact of currency crisis. Diwan (2001) showed that a sudden stop in capital flows leads to a large decline in the wage share. Currency collapse is proxied by a dummy variable taking the value of 1 when there is an exchange rate devaluation larger than 25 per cent.

The database related to labour market regulation contains information on minimum wage, replacement income and employment protection legislation (Aleksynska and Schindler, 2011). These three variables show low standard deviation, especially with respect to unemployment benefits and employment protection legislation. This reflects the large informal employment in these economies. Contrastingly, minimum wages exhibit relatively more variability. A shortcoming is the large number of missing values. To overcome this limitation, we use an unbalanced panel. This allows us to have a longer time series, so that changes in labour regulations can be captured, while including all available countries. The estimation procedure differs slightly from the one used for OECD countries. We still apply a generalized least squares estimator controlling only for cross-sectional heteroscedasticity. We also include time fixed effects. Minimum wage is measured by the ratio of minimum wage to mean wage. Unemployment benefits are measured by the average gross replacement rate during two consecutive years of unemployment. Regarding employment protection legislation, we consider two indicators: advance notice requirements and legally mandated severance payments.

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