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Global Wage Report 2010/11
Wage policies in times of crisis

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International Labour Office · Geneva

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Preface

The global economic crisis has had devastating consequences on labour markets. Unemployment has increased to 210 million, the highest level ever recorded, and many millions more have simply dropped out of the labour force because they are too discouraged to continue looking for work. Paychecks have been affected too.

This second ILO *Global Wage Report* provides some evidence about the impact of the crisis on wages around the world. It shows in particular that the global growth in real average wages was reduced by half in 2008 and 2009, compared to earlier years. This highlights how while the crisis has been dramatic for those who lost their jobs, smaller than expected paychecks have also severely affected the purchasing power and well-being of those who managed to stay in work.

In the future, a jobs- and income-based growth strategy is urgently needed to bring the global economy back on track, to redress past imbalances and to place economic growth on more solid foundations. This has also been the message of other ILO reports, such as the report submitted to the G20 in September 2009, the annual *World of Work Report* by the International Institute for Labour Studies, or the message delivered at the Joint ILO–IMF Conference in Oslo, in September 2010.

Among the most pressing challenges to be dealt with are rising wage inequality, the growing disconnect between wages and productivity, and the 330 million or so employees who are now amongst the low paid in their country.

The present report provides policy-makers with some practical illustrations of how collective bargaining, minimum wages and income policies can help to address the fairness challenge which confronts policy-makers today. We hope these illustrations can assist policy-makers and the social partners in advancing their decent work objectives and contribute to converting into practice the internationally agreed ILO Declaration on Social Justice for a Fair Globalization and the Global Jobs Pact, which received vigorous support from governments and from employers' and workers' organizations from all regions of the world.

Manuela Tomei
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Main contributors

The report was prepared by the Conditions of Work and Employment Programme (TRAVAIL) of the ILO Social Protection Sector, together with the Regional Offices of the ILO and the Department of Statistics. The report is a result of teamwork by Patrick Belser, Rebecca Freeman, Sangheon Lee, Malte Luebker, Andrés Marinakis, Aude Mellet, Jean-Michel Pasteels, Kristen Sobeck, Manuela Tomei and Daniel Vaughan-Whitehead. Patrick Belser was the principal editor. Charlotte Beauchamp coordinated editing and publication. Christian Olsen designed the cover page.

Specific contributions

Methodology for estimating global wage growth: Farhad Mehran (ILO consultant) provided guidance on the methodology for estimating global wage trends, which was subject to a peer review by Professor Yves Tillé (University of Neuchatel), Professor Yujin Jeong (HEC Montreal), Professor Joseph L. Gastwirth (George Washington University) and Dr Joyup Ahn (Korea Labor Institute). Their contributions were generously supported by the ILO/EC project on "Monitoring and Assessing Progress on Decent Work" (MAP) as part of the development of decent work databases. Malte Luebker (ILO, TRAVAIL) formulated the final methodology in collaboration with Rafael Diez de Medina and Monica Castillo (both ILO, Department of Statistics). Kristen Sobeck (ILO, TRAVAIL) compiled the Global Wage Database.

Low pay: The following people provided country-specific background papers on the subject of low pay: A. Damayanti (Indonesia), Q. Deng and S. Li (Urban China), A. Fontes and V. Pero (Brazil), Damien Grimshaw (literature review), B.H. Lee and D. Hwang (Republic of Korea), M. Oosthuizen and S. Goga (South Africa), T. Peralta and E. Guirao (Philippines) and Mario D. Velásquez Pinto (Chile). This research project was coordinated by Sangheon Lee (ILO, TRAVAIL) and was generously supported by the Government of the Republic of Korea.

Wage share analysis: Rebecca Freeman and Jean-Michel Pasteels (ILO, Department of Statistics) computed and analysed changes in sectoral wage shares in OECD countries and Estonia. We are grateful to the OECD for its collaboration and for granting us access to its Database for Structural Analysis (STAN) and National Accounts databases. Monica Castillo (ILO, Department of Statistics) provided overall supervision for this project.

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Carrion-Crespo, Assane Diop, Chris Donnges, Philippe Egger, Lawrence Egulu, Claire Harasty, Nelien Haspels, Susan Hayter, Jane Hodges, Frank Hoffer, Phu Huynh, Steven Kapsos, Chang-Hee Lee, Susan Maybud, Bill Salter, Theodoor Sparreboom, Gyorgy Sziraczki, Raymond Torres and Jacobo Velasco. Our special thanks go to the whole team of the ILO/SIALC (Information System and Labour Analysis) in Panama, in particular Bolívar Pino, for providing wage data on Latin America and the Caribbean, and to Professor Marc Lavoie for his box on "The perverse effects of declining wages". Finally, we wish to thank the six anonymous peer reviewers, who helped us to greatly improve the report, as well as our numerous contacts in national statistical offices and Ministries of Labour around the world who provided us with wage data.

Introduction

The *Global Wage Report 2008/09*[1] reviewed wages during the generally favourable economic period between 1995 and 2007. The present report looks at wages in a very different context. The years 2008–09 were characterized by the deepest economic downturn since the 1930s. Following a housing bubble and a financial crisis, the United States entered into recession in December 2007, after a 73-month long economic expansion that had started in November 2001.[2] Thereafter, the recession spread rapidly from its epicentre to the rest of the world, with global GDP shrinking in 2009 for the first time since the Second World War.[3] Unprecedented global policy efforts contributed to a stronger than expected recovery in 2010, but the outlook remains uncertain.[4]

The crisis had a serious adverse impact on labour markets. Most dramatically, the global unemployment rate has increased from 5.7 per cent of the labour force in 2007 to 6.4 per cent in 2009.[5] This represents an increase of nearly 29 million persons, from an estimated 177.8 million people unemployed in 2007 to 206.7 million in 2009. While unemployment has increased primarily in advanced economies, the impact of the crisis in low- and middle-income developing countries (which generally have weaker social protection systems) can be seen in a deterioration in the quality of employment and a shift towards more vulnerable forms of employment.[6] Evidence from advanced countries also indicates that the crisis has affected the level of wages, the number of hours worked and other dimensions of what the ILO calls "decent work". However, little systematic evidence has been presented to date on the effects of the crisis on these indicators of the conditions of work and employment.

What has been the overall effect of the crisis on average wages in different parts of the world? To what extent has wage growth slowed in the context of falling labour productivity? Furthermore, how has the crisis altered the distribution of national income between labour and capital? These are some of the key questions that Part I of our report seeks to address. Based on available data from as many countries as possible, we provide an overview of global wage trends during the crisis. However, it is still too early to offer a definitive picture: many national statistical offices are still processing and analysing the most recent data, particularly on the structure of earnings.

Wage trends during the crisis should be considered against a backdrop of wage moderation and widespread and increasing wage inequality in the years before the crisis. In the current context, one particular concern is that the economic crisis may lead

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1 ILO (2008a).

2 See NBER (2008).

3 See IMF (2010a).

4 As this report goes to press in November 2010, downside risks remain elevated according to the IMF (2010c).

5 See ILO (2010a).

6 See Khanna et al. (2010).

to an increase in workers earning low wages, either in the short or the medium term. This report therefore provides data on the share of workers on low wages, which are defined as wages below two-thirds of median wages. Low pay is a concern because it increases the risk of poverty, even though not all low-paid workers are poor. Low-wage workers are disproportionately female and are also more likely to be members of disadvantaged groups. And, while low-wage employment can represent a first stepping stone towards better paid employment, especially for young workers, it can also turn into a trap from which workers find it difficult to extricate themselves due to lack of opportunities for skills development and other factors. When the situation arises where a large proportion of people feel left behind, with little prospect of catching up with those in more remunerative work, the risk of increased social and political tensions increases.

Part II of this report discusses wage policies in times of crisis. Deteriorating wage trends have always been a concern for policy-makers who care about social justice and who wish to advance their national decent-work goals. In addition, the crisis seems to have brought back into focus Keynesian insights on the role of wages in sustaining domestic consumption and aggregate demand for goods and services. Our report suggests that instruments such as minimum wage policies and collective bargaining can contribute to reducing the number of low-wage earners, while also redressing some imbalances by strengthening aggregate demand in countries that rely excessively on exports or, alternatively, on household debt to finance consumption. Part III of the report concludes with a summary highlighting some issues that are of key importance for improving wage policies.

PART I Major trends in wages

1 Growth of average wages

Since the publication of the first *Global Wage Report* in 2008, the economic context has changed dramatically. Figure 1 shows that, after some years characterized by strong growth from 2003 to mid-2007, the world economy slowed down in 2008 and contracted by –0.6 per cent in 2009,[7] primarily as a result of the collapse in international trade and foreign investment that followed the financial crisis.[8] However, while growth in advanced economies – and in the world as a whole – turned negative in 2009, this has not generally been the case in emerging and developing economies, where growth has merely decelerated.[9] There have also been considerable differences among countries within regions. Dynamic policy intervention contributed to a stronger than expected recovery in 2010, with anticipated world economic output rising by 4.8 per cent.[10] In emerging and developing economies, growth was anticipated to increase from 2.5 per cent in 2009 to 7.1 per cent in 2010, in contrast to a recovery in advanced economies from –3.2 per cent in 2009 to 2.7 per cent in 2010. However, the recovery remains fragile, with considerable downside risks to future global economic growth.

1.1 Global estimates

To what extent have these economic trends affected wage developments in the global economy? To provide an answer to this question, we have collected and processed wage data from a large and diverse number of countries worldwide.[11] Our primary aim is to capture trends in monthly average wages for all employees. "Wages", as defined by the ILO, refers to "remuneration or earnings which are payable in virtue of a written or unwritten contract of employment by an employer to an employed person".[12] The concept of wages therefore excludes the earnings of self-employed workers and is applicable only to wage earners. Wage earners account for about 86 per cent of the employed population in advanced economies, but this proportion falls to about 35 per cent in Asia

7 According to IMF data (IMF, 2010c).

8 According to short-term trade statistics from the World Trade Organization (WTO), world exports fell by 38 per cent (in nominal terms), from US$4,315 billion in the third quarter of 2008 to a low point of US$2,685 billion in the first quarter of 2009.

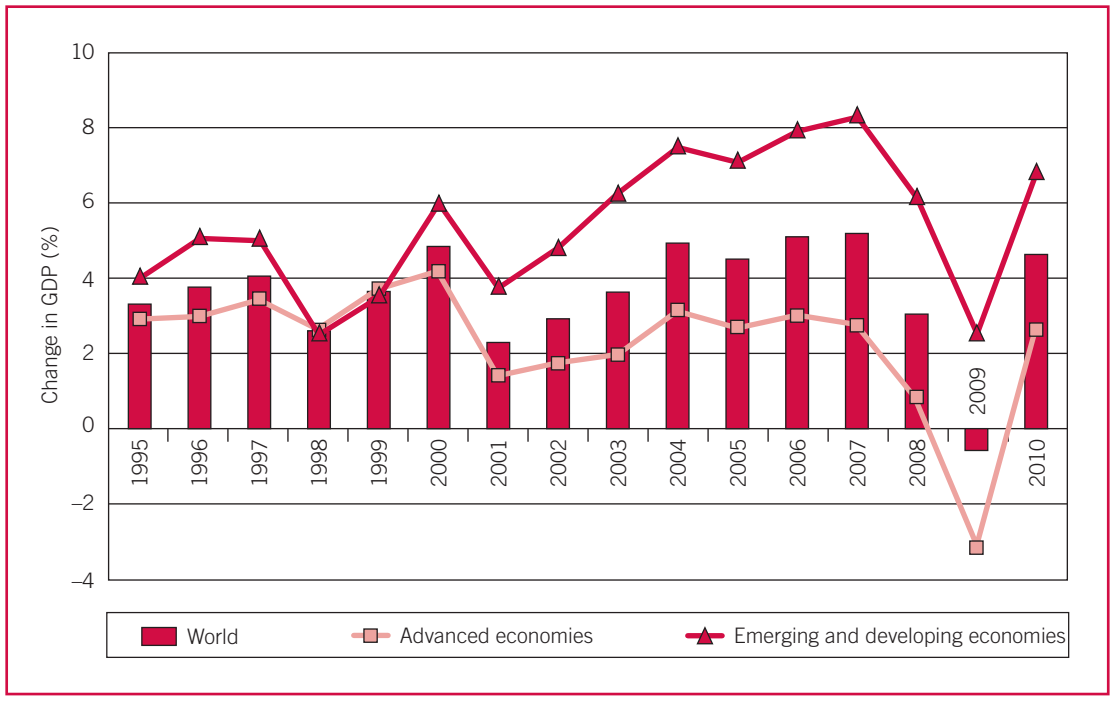
9 This is also emphasized in Majid (2009).

10 See IMF (2010c).

11 The Global Wage Database is available at www.ilo.org/travail

12 See ILO Convention No. 95, Article 1.

Figure 1 The global recession and recovery, 1995–2010 (year-on-year changes in GDP at constant prices, in per cent)



Source: IMF, World Economic Outlook database.

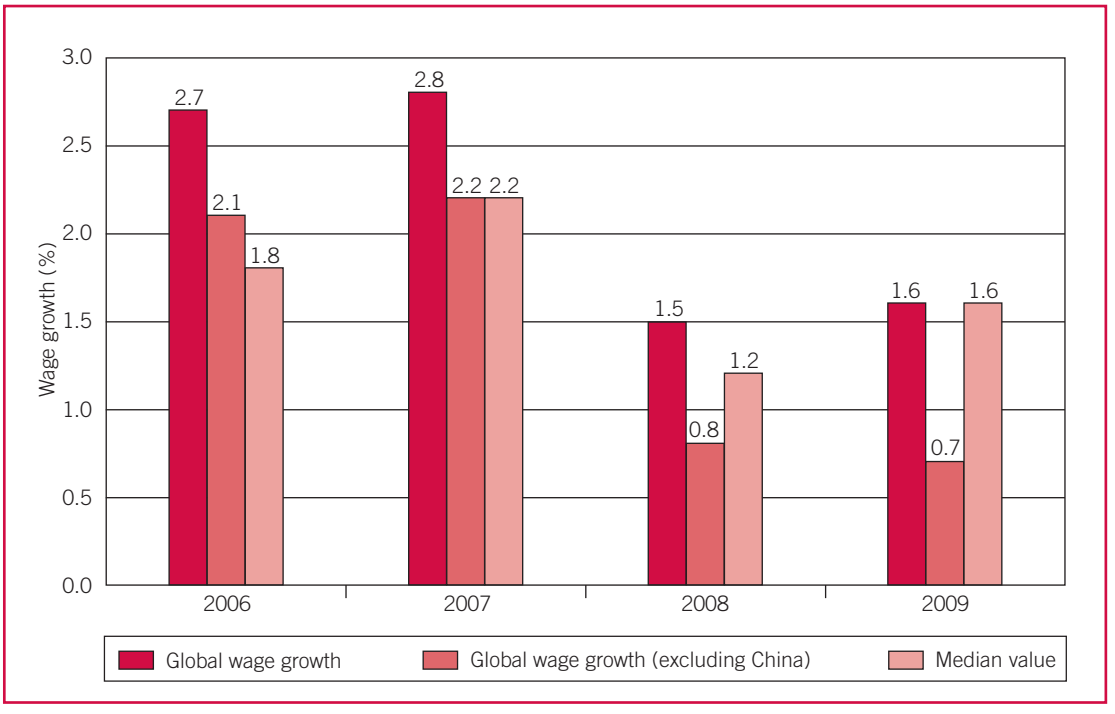
and to less than 30 per cent in Africa.[13] Whereas in advanced countries the fractions of men and women in wage employment are roughly equal, the proportion of women employees in South Asia and sub-Saharan Africa is substantially less than that of men.

Altogether, we found wage data for 115 out of the 177 countries and territories in our database, or 65 per cent of the total.[14] However, since we have data for all the major economies, the wage data cover 94 per cent of the world's wage earners and approximately 98.5 per cent of the global wage bill. As might be expected, there are large variations in data availability between regions. The database has full coverage for the advanced countries, for Central and Eastern Europe and for Eastern Europe and Central Asia. However, the database covers only 29 per cent of all African countries, although they account for 57 per cent of the region's total wage employment and approximately 76 per cent of its wage bill. This highlights the fact that, although a great deal of data is available, significant gaps remain in terms of wage statistics in many developing countries. While the most advanced countries carry out regular establishment surveys and specific surveys on the structure of earnings, other countries collect wage data through labour force surveys that are implemented at irregular and unpredictable intervals. A number of low-income countries, particularly in Africa, do not collect any wage data at all.

[13] Based on ILO, Key Indicators of the Labour Market (KILM) database, January 2010 update. For regional grouping see Technical appendix I.

[14] Our database matches the countries included in the ILO's KILM database. For details see Technical appendix I.

Figure 2 Global wage growth, 2006–09 (year-on-year changes, real terms, in per cent)



Note: The global wage growth is calculated as a weighted average of actual or estimated year-on-year growth in real average monthly wages in 115 countries and territories, covering 94 per cent of all employees in the world (see description of the methodology in Technical appendix I).

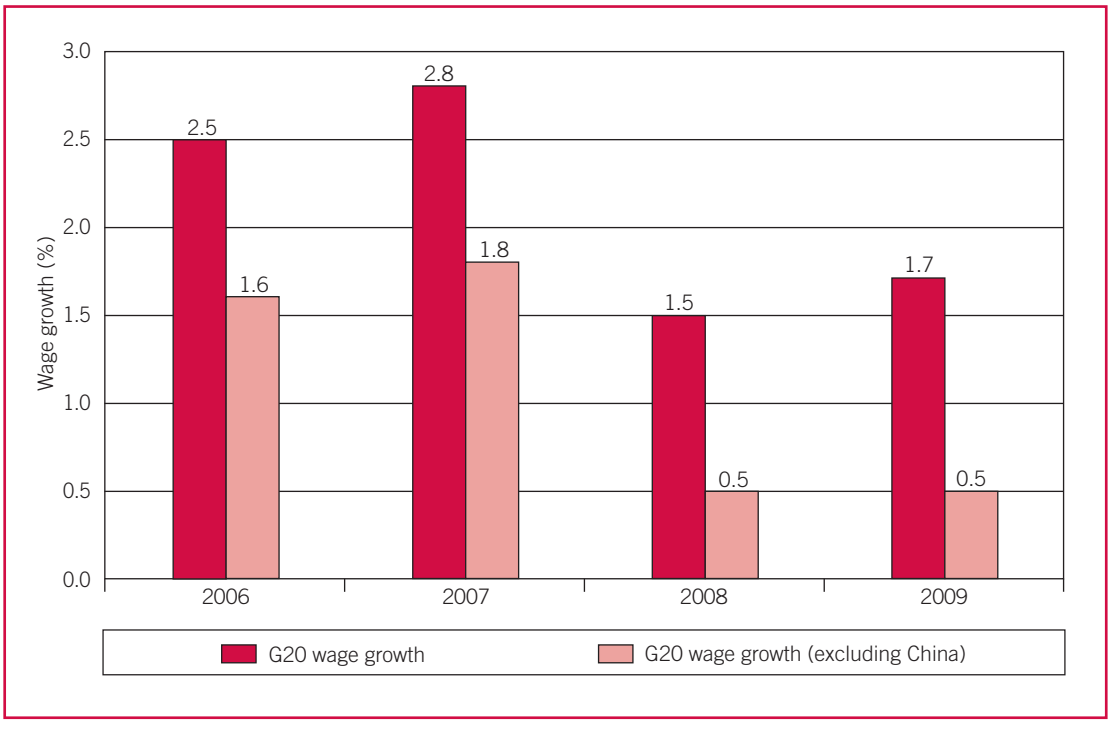
Source: ILO Global Wage Database.

Based on a broader dataset than in the past, our current report provides a global estimate which refers to a weighted average growth rate of monthly wages. To avoid bias in our global and regional estimates, our report uses a methodology to adjust for response bias, which arises when non-responding countries have different characteristics from those of responding countries. This standard methodology is explained in detail in Technical appendix I. It ensures that all regions are represented in the global wage trend in proportion to their size, and that the global wage trend is not distorted by differences in data availability between regions.

Results are shown in figure 2. Globally, we find that real monthly wages grew at 2.8 per cent in 2007, 1.5 per cent in 2008 and 1.6 per cent in 2009. These figures are heavily influenced by official wage statistics from China. China's official figures for wage growth (deflated by the IMF consumer price index (CPI)) are 13.1 per cent in 2007, 11.7 per cent in 2008 and 12.8 per cent in 2009. It should be noted, however, that official statistics on wage growth published in the *China Yearbook of Statistics* refer only to "urban units", which in practice cover mostly State-owned enterprises, collective-owned units and other types of companies linked to the State. An initial pilot survey of all enterprises conducted by China's National Bureau of Statistics shows that average annual salaries in the private sector rose by only 6.6 per cent in 2009,[15] which

[15] "Different disparity", *China Daily*, 24–25 July 2010. The same source highlights the fact that average annual wages in the private sector in 2009 were also lower than in "urban units" (18,199 yuan versus 32,736 yuan).

Figure 3 Wage growth in the G20, 2006–09 (year-on-year changes, real terms, in per cent)



Note: The wage growth is calculated as a weighted average of actual or estimated year-on-year growth in real average monthly wages in the 19 countries that are members of the G20, i.e. Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, the Republic of Korea, Turkey, the United Kingdom and the United States (see description of the methodology in Technical appendix I).

Source: ILO Global Wage Database.

may explain the discrepancy between the general perception of the situation and the official figures and suggests that our global estimate may be an overestimate. Excluding China from the analysis results in much lower rates of global wage growth of 2.2 per cent in 2007, 0.8 per cent in 2008 and 0.7 per cent in 2009 (see figure 2).[16]

Restricting our sample to the G20 countries, which account for about 70 per cent of the world's wage earners, we find very similar results (see figure 3). Including China in the analysis, we estimate that average wages grew by 2.8 per cent in 2007, 1.5 per cent in 2008 and 1.7 per cent in 2009 in G20 countries. Excluding China from the grouping, we would find real wages growing at 1.8 per cent in 2007, 0.5 per cent in 2008 and 0.5 per cent in 2009 in the remaining countries.

[16] For the sake of comparability with our previous publications, we also report an estimation of a global wage trend based on the median of the national wage trends for countries and territories included in our sample. The use of the median rather than the weighted average has the effect of limiting the influence of outliers, such as errors in the underlying national data or extremely high or extremely low growth rates of wages in particular countries. The median value must be interpreted as the value of wage growth which separates countries into two groups: half being countries with higher wage growth and the other half countries with lower wage growth. We can observe that 50 per cent of the countries and territories in our sample grew by less than 2.2 per cent in 2007, 1.2 per cent in 2008 and 1.6 per cent in 2009.

When interpreting these trends in average wages, it is important to note that monthly average wages can alter as a result of changes in either hourly wages or in the number of hours worked, or both. Also, one should bear in mind that the use of aggregate wage data (as opposed to tracking a panel of individuals) gives rise to what is known as a "composition effect". This effect is acknowledged by national statistical offices across the world. So, for example, the Australian Bureau of Statistics explains in its publication of average weekly earnings[17] that changes in averages may be affected not only by changes in the level of earnings of individual employees, but also by changes in the overall composition of the wage-earner segment of the labour force. This can occur because of variations in the occupational distribution within and across industries, variations in the distribution of employment between industries or variations in the relative proportions of male and female employees. Composition effects may also occur as a result of variations in the proportion of full-time and part-time employees. A systematic bias, known as the "countercyclical bias", arises as a result of the tendency for aggregate data to underestimate the downward trend in monthly wages during recessions and to underestimate the upward trend in wages during recoveries.[18] This occurs when a majority of those who lose their jobs during recessions are low paid (a phenomenon that mechanically increases the mean of wages of those workers who remain employed) and when a recovery leads to the rehiring of these low-paid workers (which, by contrast, mechanically decreases the mean of wages).[19]

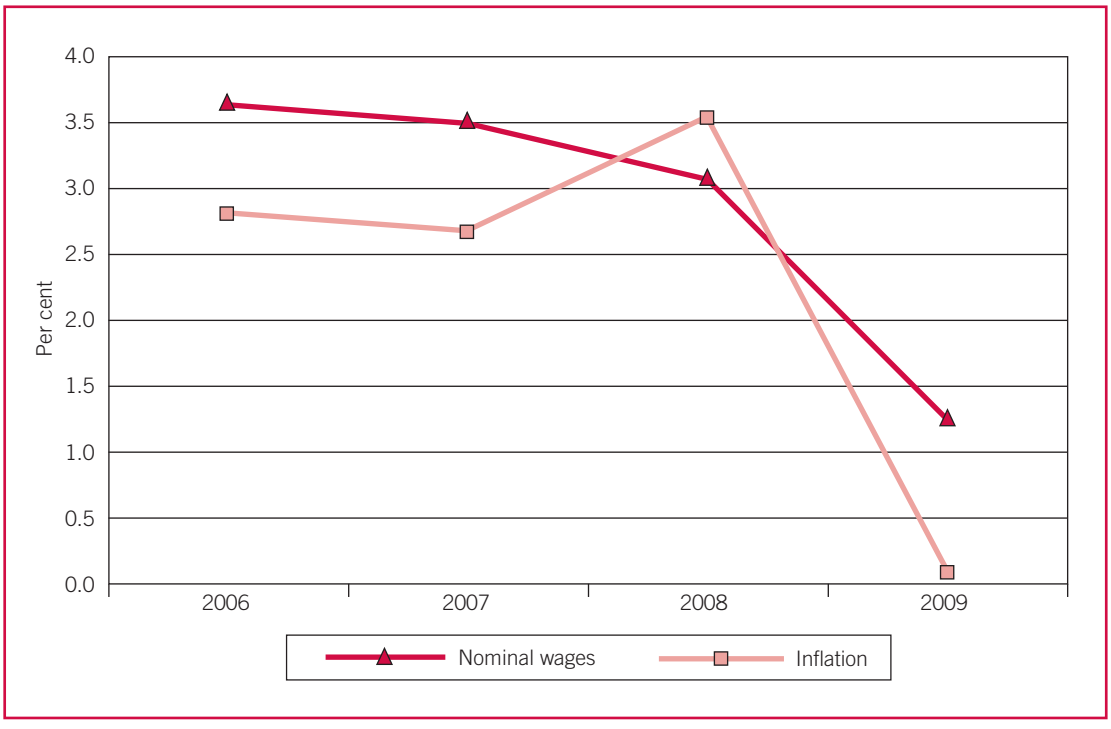
Notwithstanding these caveats, two observations can be made about global wage trends. The first observation is that wage growth has declined considerably during the crisis. However, even though overall wage growth has slowed down during the crisis, we estimate that wage growth has remained positive throughout the crisis in 73 per cent of countries in 2008 and in 80 per cent of countries in 2009. The second observation is that real wage growth seems to have suffered as much in 2008, the first year of the crisis, as in 2009, when the crisis was in full swing. What is the explanation for this paradox? We suggest that the behaviour of inflation during 2008 and 2009 was a significant contributory factor. For the purposes of illustration, figure 4 shows both nominal wage growth and inflation in a sample of four large countries. We see that, in 2008, nominal wages continued to grow almost as fast as in earlier years, but unusually high inflation (due mainly to the spike in oil prices) eroded real wages. In contrast, in 2009, as GDP contracted and the crisis became more apparent to employers and workers, the growth in nominal wages declined, but inflation fell at an even faster rate. These sharp declines in inflation prevented the fall in real wages in 2009.

[17] See, for example, Australian Bureau of Statistics (2009), explanatory notes 28 and 29.

[18] See Solon et al. (1994), Peng and Siebert (2008, p. 571), Devereux and Hart (2006) or Bils (1985).

[19] The opposite is also possible if the crisis affected the employment of median and high-wage earners more than low-paid workers.

Figure 4 Nominal wage growth and inflation in four selected countries, 2006–09 (in per cent)



Note: Inflation and nominal wages are calculated as a population-weighted average (using the number of wage earners as population weight) for a sample of four advanced countries (Canada, Germany, the United States and the United Kingdom).

Source: ILO Global Wage Database.

1.2 Regional estimates

There are considerable regional variations in the rates of wage growth. In advanced countries,[20] we estimate that, after having grown at about 0.8 per cent per year before the crisis, real wages actually fell by –0.5 per cent at the onset of the crisis in 2008, before growing at a rate of 0.6 per cent in 2009 (see figure 5). Altogether, the level of real wages fell in 12 of the 28 advanced countries in 2008 and in seven of the advanced countries in 2009.

Examples of countries which experienced negative wage growth in 2008 and/or 2009 include some major G20 countries. In the United States, for example, the simple annual average of real weekly earnings was 1.1 per cent lower in 2008 than in 2007, before recovering and increasing by 1.5 per cent in 2009 compared with 2008. Figure 6 illustrates the impact of prices on real earnings in the United States. We observe that, in 2008, the consumer price index for all urban consumers (CPI-U) increased relatively quickly during the first part of the year, thereby eroding the purchasing power of wages in that period. The fall in consumer prices during the last part of 2008 then provided a boost to real earnings (even though nominal earnings increased only modestly), which explains why the average level of real earnings was higher in 2009 than in 2008.

[20] Note that our group of advanced countries is not identical to the IMF group of advanced economies and estimates should therefore not be directly compared; see Technical appendix I.

Figure 5 Regional wage growth, 2000–09 (in per cent p.a.)

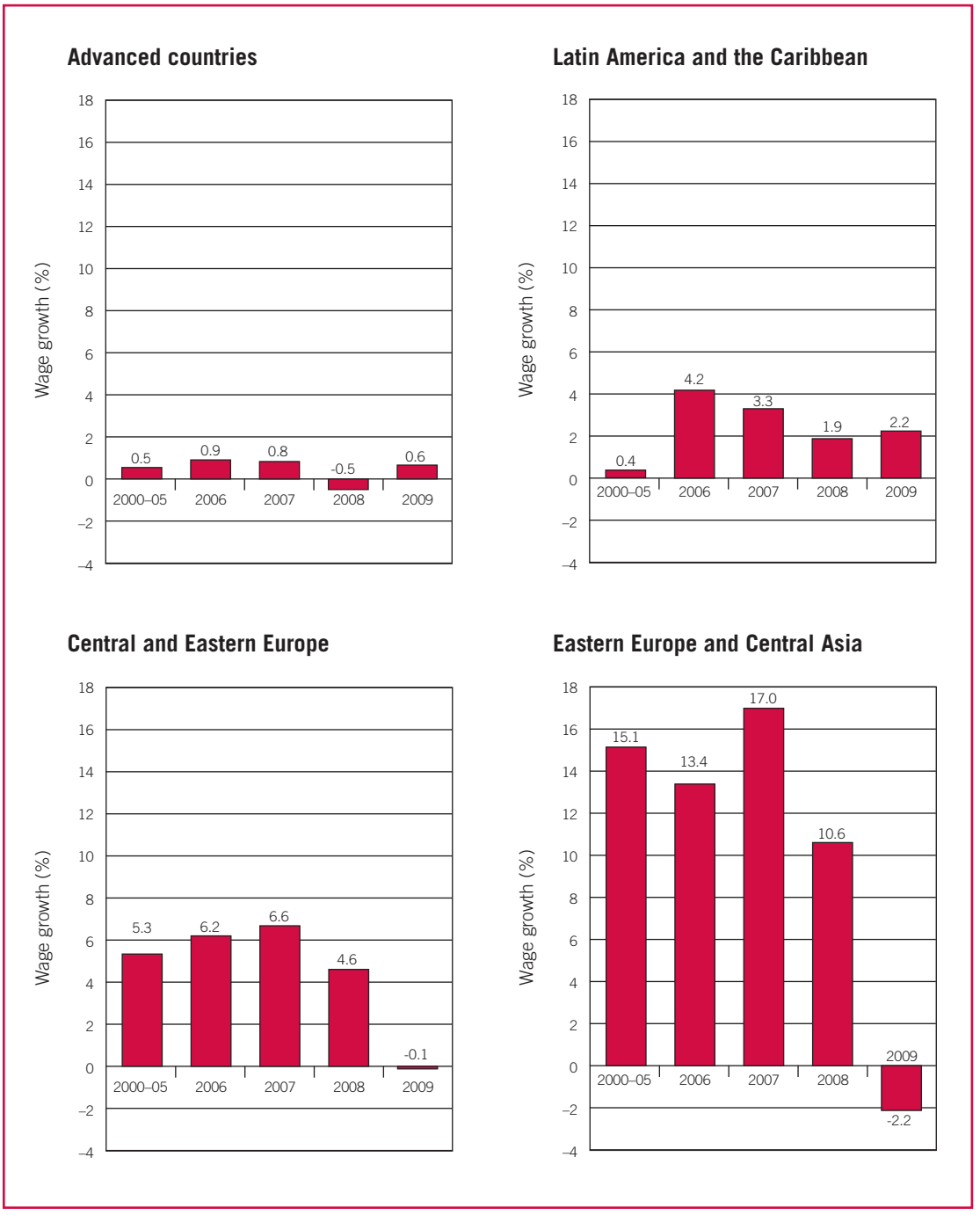
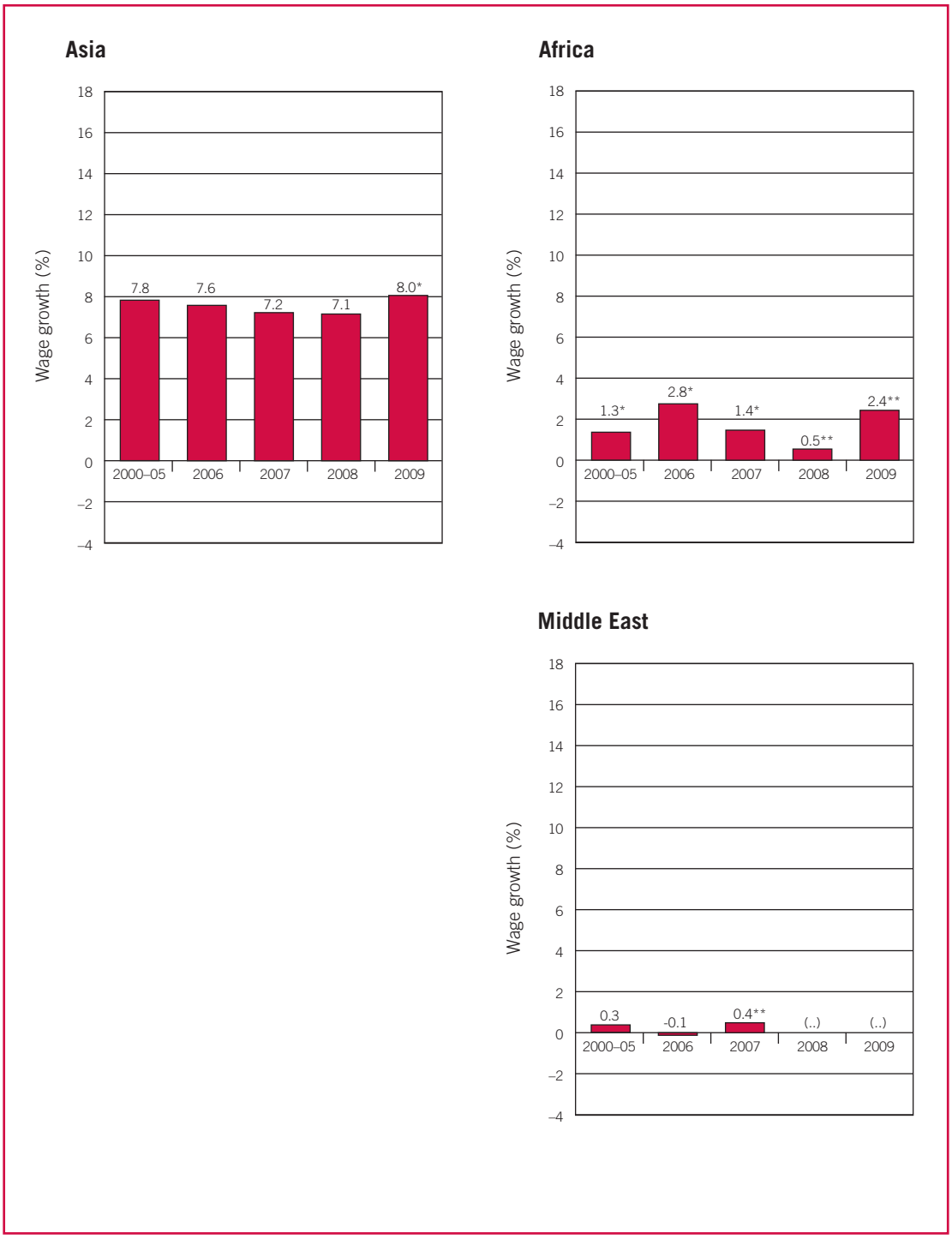


Figure 5 Regional wage growth, 2000–09 (in percentages p.a.) (continued)

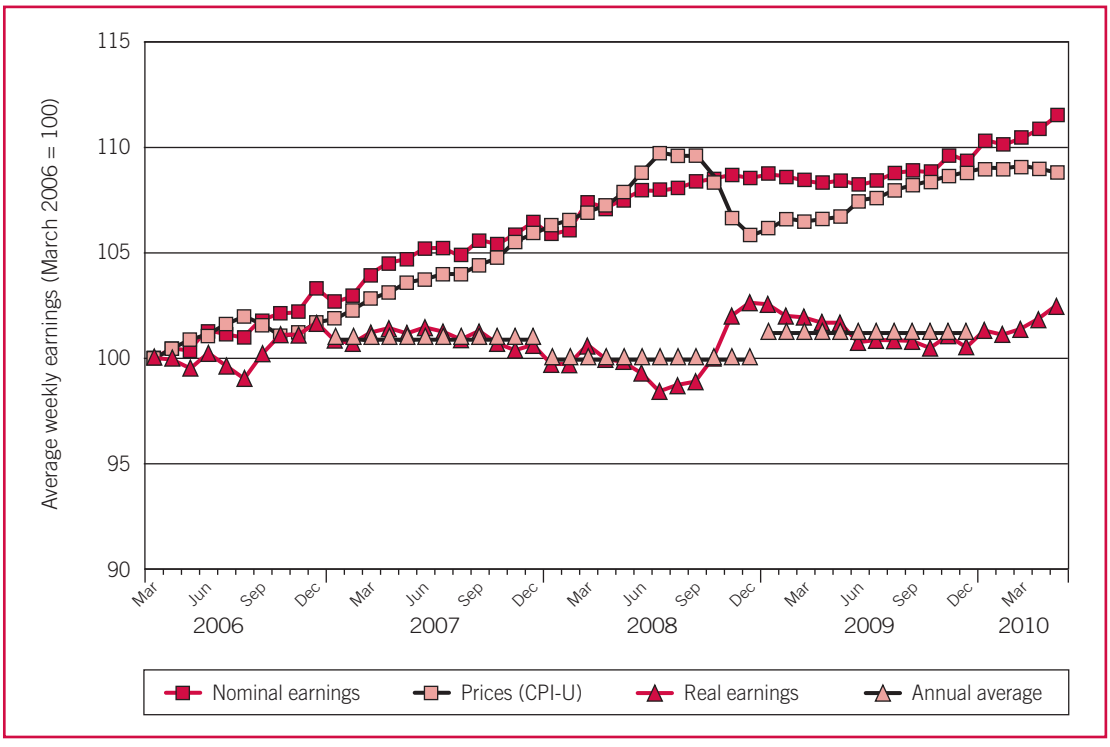


* Provisional estimates (based on coverage of ca. 75 per cent). ** Tentative estimates (based on coverage of ca. 40 per cent to ca. 60 per cent). (..) = No estimate available.

Note: See Technical appendix I for information on regional classifications and methodology.

Source: ILO Global Wage Database.

Figure 6 Index of nominal and real average weekly earnings in the United States (all non-farm employees), March 2006 to March 2010 (March 2006 = 100)



Note: Nominal earnings refer to average weekly earnings for all employees from the Current Employment Statistics survey. Real earnings for all employees is calculated using the 1982–84 based consumer price index for all urban consumers (CPI-U). The annual average is not an official series and was calculated as the simple annual average of real weekly earnings.

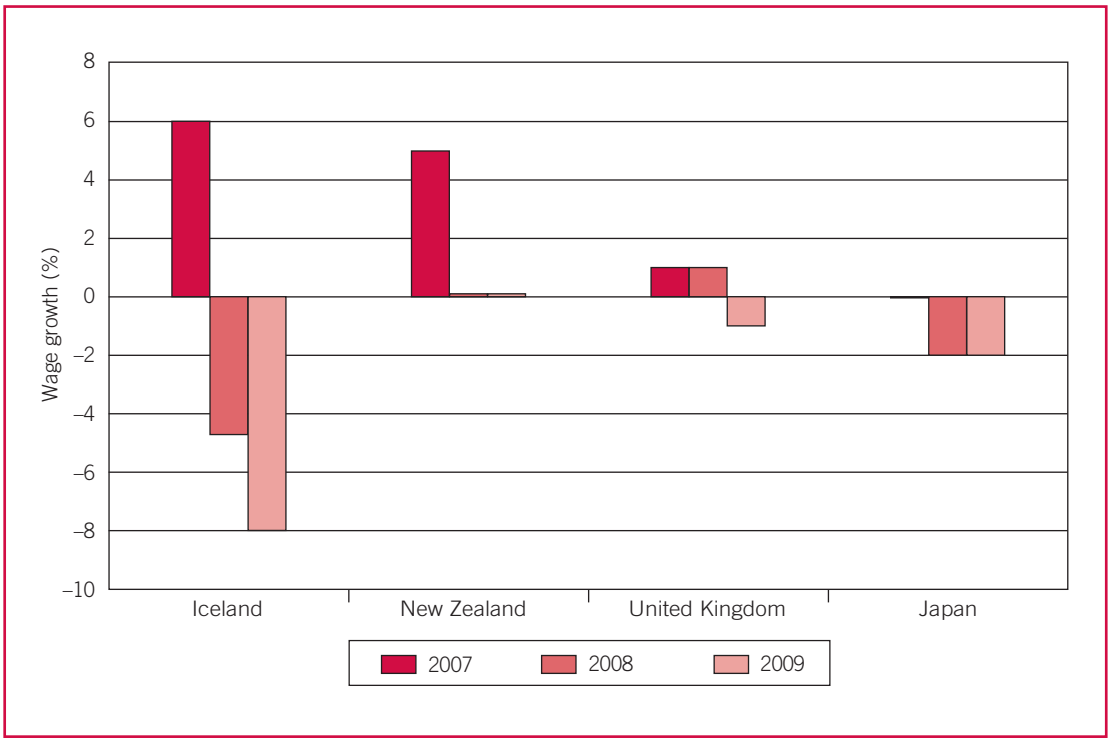
Source: US Bureau of Labor Statistics (BLS) and authors' calculations.

Figure 7 presents information on real wage growth for four selected industrialized countries. We see that New Zealand maintained positive real wage growth throughout the crisis. By contrast, in the United Kingdom, weekly pay rates held their ground in 2008, but nominal pay rose by less than the CPI in 2009, leading to a decline in real terms. In Japan, a fall in real wages of nearly –2.0 per cent in both 2008 and 2009 renewed concerns about wage and price deflation. For the sake of comparison, figure 7 also includes Iceland, which was perhaps most adversely affected by the crisis in 2009, and where it can be seen that real wages collapsed. Information from available countries suggests that, usually, wages suffered more in the private sector than in the public sector (see box 1).

In general, shorter work weeks seem to have played an important role in dampening wage growth in advanced countries. Figure 8 shows that the average number of hours worked, or paid, per week decreased between 2007 and 2009 in almost all countries for which such data were available. This occurred either as a result of company-level arrangements, such as in the United States, where the decline in weekly earnings between February 2009 and February 2010 was the result of both falling hourly wages and shorter working time,[21] or was one measure within broader

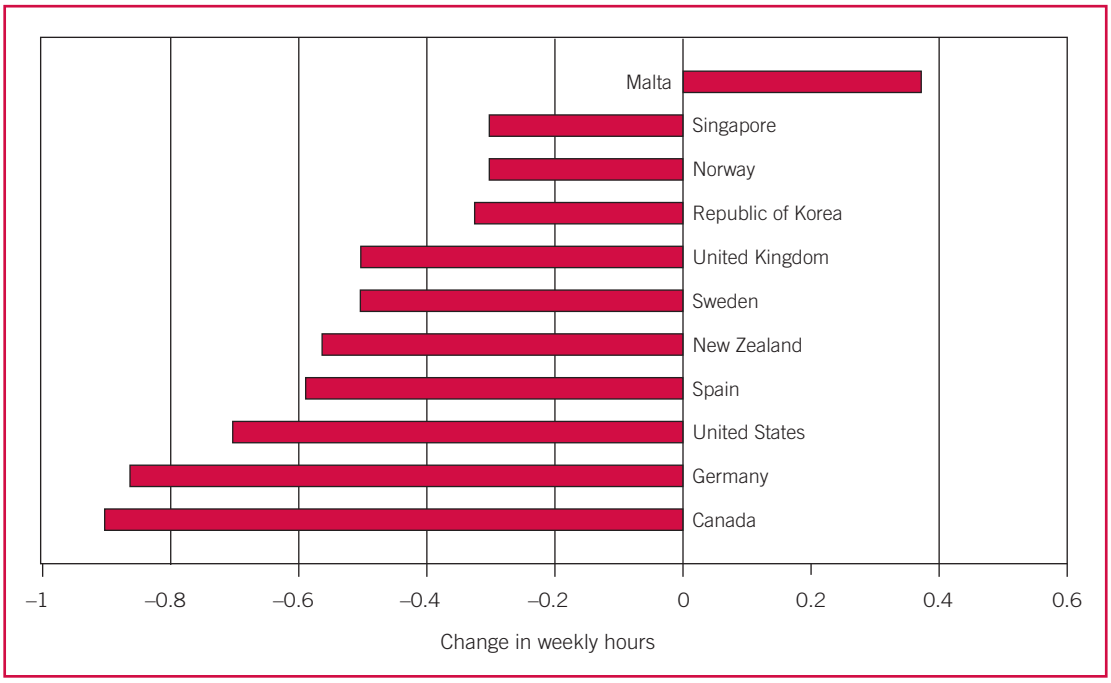
[21] US Department of Labor, BLS (2010).

Figure 7 Wage growth in selected advanced countries, 2007–09 (in per cent)



Note: Wage growth refers to year-on-year growth in real average monthly wages.
Source: ILO Global Wage Database.

Figure 8 Weekly hours worked or paid in selected advanced countries, 2007–09 (changes in weekly hours)



Source: ILO Global Wage Database.

Box 1 Wages in the public and the private sectors

It is still too early to know precisely which sectors and which occupations have been most affected by the crisis, as too few countries have published data on the structure of wages. The principal source of such data at the international level, the ILO's "October Inquiry", is being revised to capture trends in occupational wages: in particular, a wide consultation is seeking to determine the most relevant industries and occupations for which labour market variables are to be collected globally, and the units in which these variables should be reported. The consultation seeks to take into account the significant differences in industry structures and staffing patterns in different economies around the world by consulting with experts from a wide range of developing and developed countries.

In the meantime, country-specific data nevertheless suggest that wages may have been more adversely affected in the private sector than in the public sector. According to calculations by the Public Services International Research Unit, largely based on Eurostat's Labour Cost Index dataset, nominal earnings in the public sector have risen faster – or fallen less – than earnings in the private sector in 11 out of 18 European countries for which data are available. The same is true in the United States, where, in the two-year period from March 2008 to March 2010, private sector workers were found to have experienced a slower rise in earnings than state and municipal workers. Preliminary data for 2010 suggest, however, that this trend may be reversed in some of the countries that have implemented austerity measures to contain public debt and/or which have signed recent agreements with the IMF.

The more robust nature of public sector wages is probably linked to the higher level of unionization in the public sector than in the private sector, and also to a higher degree of coordination among public sector employees. At the same time, the evolution of the public sector to private sector wage ratio also reflects some sector-specific factors. In the United States, for example, during the past two years pay has risen faster than average in the education and health sectors, in both the public and the private sectors. By contrast, wage growth in the financial sector – which had outpaced average wage growth before the crisis – has fallen behind in recent quarters. In Europe, too, wages and salaries in financial services grew more slowly than the general movements in wages. In the United Kingdom, for instance, nominal gross average weekly pay increased by an average of 1.6 per cent in 2009, compared to 1.4 per cent in financial and insurance activities, –0.4 per cent in manufacturing and –3.5 per cent in accommodation and food service activities.[1] Also, UK bonus payments declined sharply by more than 25 per cent during the first year of the crisis to £19 billion at the end of 2008/early 2009, before climbing back to £22 billion one year later.

Note: [1] See http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=15313
Source: Based on Hall et al. (2010).

schemes known as "work sharing", which promote a reduction in working time in order to avoid lay-offs by redistributing a reduced volume of work.[22] In Germany, for example, monthly real wages of all employees fell for three consecutive years, including 2009, when monthly nominal wages fell for the first time in the country's

[22] In such schemes, the reduction in working hours is often coupled with proportional reductions in wages. Depending on the countries involved, the reduction in wages may be compensated (at least partially) through wage subsidies from general government revenues or through partial unemployment compensation. See Messenger (2009).

post-war history.[23] This decline was largely due to a reduction in working hours to preserve jobs (as emphasized in Part II, box 6 of this report). Restricting the sample to full-time workers shows monthly real wage growth in Germany to be 0 per cent in 2008 and 0.8 per cent in 2009.[24]

The sharpest declines in real wage growth appear to be found in Eastern Europe and Central Asia, where – according to official figures – real wage growth fell from an average of about 17.0 per cent in 2007 to 10.6 per cent in 2008 and to –2.2 per cent in 2009.[25] Real wage growth has also fallen in Central and Eastern Europe, from 6.6 per cent in 2007 to 4.6 per cent in 2008 and –0.1 per cent in 2009. Figure 9 shows some country examples from these regions. We see that, in the Russian Federation and the Ukraine, which have large populations, wage trends reflected the severe economic contraction in 2009. While Poland was able to maintain positive wage growth, Hungary illustrates a case where the combination of an inflation rate of 4 per cent and massive nominal wage freezes eroded the purchasing power of wages in 2009.

In contrast, wages have held up better in other regions. In Asia, the crisis is barely noticeable in our weighted average. Real wages in Asia have grown in excess of 7 per cent throughout the period 2006–09, with rates of 7.2 per cent in 2007 to 7.1 per cent in 2008 and 8.0 per cent in 2009. As in the case of our global estimate, this regional trend is heavily influenced by China, which accounts for more than half of total wage employment in the region. These regional figures, however, must be balanced against the experience of other countries, such as Thailand, Malaysia or the Philippines, which were much more adversely affected by the global economic crisis and where real wages actually fell during the crisis (see figure 10).

In Latin America and the Caribbean, it is estimated that real wage growth slowed from 3.3 per cent in 2007 to 1.9 per cent in 2008 and 2.2 per cent in 2009. Figure 11 shows that this regional pattern strongly reflects the pattern of wage growth in Brazil, which accounts for almost 39 per cent of the region's wage earners. Chile and Uruguay also seem to have weathered the crisis relatively unscathed. In contrast, some of the Caribbean countries, such as Jamaica, experienced large wage declines in 2008.

Finally, we also provide some provisional and tentative estimates for Africa and the Middle East, which are based on a weaker data set (see figure 5 and database coverage in Technical appendix I). In Africa, we provisionally estimate that, in 2007, real monthly wages grew at about 1.4 per cent – similar to the average wage growth during 2000–05. During the past two years, we tentatively estimate that wage growth fell to 0.5 per cent in 2008 before rebounding to 2.4 per cent in 2009. Figure 12 illustrates wage trends in two countries with data from establishment surveys (South Africa and Botswana). In general, however, wage data remains a challenge in Africa and technical cooperation work is planned to gradually increase both the quantity and quality of wage data over time (see box 2).

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[23] Federal Statistical Office of Germany (2010).

[24] Quarterly earnings survey.

[25] As highlighted in our previous *Global Wage Report 2008/09* (ILO 2008a, p. 13), fast wage growth prior to the crisis in countries of the Commonwealth of Independent States (CIS) was an intrinsic part of the recovery process that followed the collapse in wages which took place in the early stage of economic transition at the beginning of the 1990s. In addition, employment growth in the CIS countries was relatively weak in the years before the crisis, so that GDP growth was driven mainly by productivity gains, which, in turn, allowed for wage growth (see figure 13).

In the Middle East, it is too early even for a tentative estimate on wage growth in 2008 and 2009, as too few countries have reported their wage data so far. However, available data for earlier years suggest that wages of workers in the Middle East (a large share of whom are migrant workers) did not increase very rapidly before the crisis. The two examples from Bahrain and from the West Bank and Gaza highlighted in figure 12 suggest that the crisis has probably negatively affected wages in 2009 (even though the case of West Bank and Gaza is not very representative).

The analysis of regional wage trends has shown considerable variations between regions. Taking a longer term view, table 1 presents data on how wages have evolved over the full decade of the 2000s (taking 1999 as the base year). The table shows that global average wages increased by almost one-quarter over this period. This increase was driven by developing regions such as Asia, where wages have more than doubled since 1999, or countries in Eastern Europe and Central Asia where wages more than tripled (which partly reflects the depth of the wage decline in the 1990s). By comparison, real wages grew only modestly in Latin America and the Caribbean, in Africa and in the Middle East. In advanced countries, real wages increased by only about 5 per cent in real terms over the whole decade, reflecting a period of wage moderation.

Figure 9 Wage growth in selected countries in Central and Eastern Europe and Central Asia, 2007–09 (in per cent)

Note: Wage growth refers to year-on-year growth in real average monthly wages.
Source: ILO Global Wage Database.

Figure 10 Wage growth in selected countries in Asia, 2007–09 (in per cent)

Note: Wage growth refers to year-on-year growth in real average monthly wages.
Source: ILO Global Wage Database.

Figure 11 Wage growth in selected countries in Latin America and the Caribbean, 2007–09 (in per cent)

Note: Wage growth refers to year-on-year growth in real average monthly wages.
Source: ILO Global Wage Database.

Figure 12 Wage growth in selected countries and territories in Africa and the Middle East, 2007–09 (in per cent)

Note: Wage growth refers to year-on-year growth in real average monthly wages.
Source: ILO Global Wage Database.

Table 1 Cumulative wage growth, by region since 1999 (1999 = 100)

	1999	2006	2007	2008	2009
Advanced countries	100	104.2	105.0	104.5	**105.2**
Central and Eastern Europe	100	144.8	154.4	161.4	**161.3**
Eastern Europe and Central Asia	100	264.1	308.9	341.6	**334.1**
Asia	100	168.8	180.9	193.8	**209.3***
Latin America and the Caribbean	100	106.7	110.3	112.4	**114.8**
Africa	100	111.2*	112.8*	113.4**	**116.1****
Middle East	100	101.9*	102.4*	…	**…**
World	100	115.6	118.9	120.7	**122.6**

* Provisional estimate. ** Tentative estimate. … = No estimate available.
Note: For coverage and methodology, see Technical appendix I.
Source: ILO Global Wage Database.

Box 2 Wage growth in Africa

After two decades of stagnation, and before the outbreak of the global financial crisis in 2008, economic indicators in Africa improved considerably. From about 2004, sub-Saharan Africa constantly outperformed the more advanced economies, achieving annual growth rates of around 6.5 per cent over the period 2004–08 compared with a world average of around 4.5 per cent. Given the fast increase in the population, this has translated into growth in GDP per capita of about 4.3 per cent per year in sub-Saharan Africa. The global economic and financial crisis has slowed growth in this subregion to 2.1 per cent in 2009.[1]

How have these trends affected wage growth? While the *Global Wage Report 2008/09* did not include much data at all from Africa, a substantial effort has been made since then to collect wage statistics from national statistical offices in sub-Saharan Africa and collate them into the ILO Global Wage Database. Two major stocktaking exercises have been carried out in the context of two subregional workshops on the use of labour market indicators in policy-making, hosted by the ILO in Addis Ababa in July 2009 and in Dakar in December 2009,[2] in which a total of 25 African countries participated. Available data sources in these countries are highlighted in table B1.

Table B1 Sources of employment-related income data in Africa

Country	Mid-1990s or before	Mid-1990s/ early 2000	Latest year	Source
Household surveys				
Benin	–	2000/01	2007/08	Enquête ménages [Household survey]
Botswana	1984/85	1995/96	2005/06	Labour force survey
Burkina Faso	–	2003	2007	Enquête emploi [Labour force survey]
Burundi	–	–	2006/07/08	Enquête 1-2-3 [Survey 1-2-3]
Cameroon	–	2001	2007	Enquête ménages [Household survey]
Congo, Dem. Rep. of	–	–	–	
Côte d'Ivoire	1998	2002	2008	Enquête niveau de vie [Standard of living survey]
Ethiopia	–	1999/2000	2005	Labour force survey
Gabon	–	–	–	
Ghana	1992	1998	2006	Household survey
Liberia	–	–	2007	Labour force survey
Madagascar	–	2001	2005	Enquête ménages [Household survey]
Malawi	1998	2004/05	2009	Household survey
Mali	–	2004	2007	Enquête ménages [Household survey]
Namibia	1993/94	–	2003/04	Household survey
Niger	–	–	–	

(continued)

Box 2 (continued)

Country	Mid-1990s or before	Mid-1990s/ early 2000	Latest year	Source
Nigeria	–	2003/04	–	Living standard survey
Rwanda	–	2000/01	2005/06	Household survey
Senegal	1994/95	2001/02	2005/06	Enquête ménages [Household survey]
Sierra Leone	–	–	–	
South Africa	–	2001	2007	Labour force survey
Somalia	–	–	–	
Tanzania, United Rep. of	1990/91	2000/01	2006	Labour force survey
Tanzania (Zanzibar)	–	–	–	
Togo	–	–	–	
Uganda	–	2002/03	2005/06	Labour force survey
Zambia	1986	2005/06	2008	Labour force survey

Establishment surveys

Country	*Frequency*	*Source*
Botswana	Quarterly	Survey of employment and employees
South Africa	Quarterly	Quarterly employment statistics

These efforts now allow for some regional estimates of wage growth, displayed in figure 5. We estimate that, before the crisis (over the years 2000 to 2005), average wages grew at an annual rate of about 1.3 per cent and that wage growth slowed to 0.5 per cent in 2008 before recovering in 2009, probably under the influence of much lower inflation than in previous years.

It is worth emphasizing, however, that these estimates are, at best, provisional and, at worst, tentative. They are based on wage data for 15 mainly large and relatively wealthy African countries, which cover an estimated 57 per cent of all Africa's wage earners and about 75 per cent of the region's total wage bill. Since, even for these 15 countries, data are not available for every single year until 2009, some extrapolation methods were used for the regional estimate (for a description of the methodology, see Technical appendix I). Also, among the countries included in table B1, only South Africa and Botswana appear to collect quarterly data on earnings through establishment surveys. These surveys typically only cover establishments in the formal economy. Most other countries collect information on earnings through their household-based labour force surveys. Such household surveys are usually more representative than establishment surveys, but reliable answers are difficult to obtain, due to the fact that people regard information about earnings as confidential and personal. In spite of these difficulties, both establishment surveys and household surveys can provide vital information on the evolution of wages in Africa.

[1] IMF, World Economic Outlook database and *Regional Economic Outlook for Sub-Saharan Africa*, April 2010. [2] See ILO, Seminar Report and Guidebook on "Strengthening Labour Market Information to Monitor Progress on Decent Work in Africa", 2009; and ILO Rapport de séminaire et aide mémoire: "Renforcer les statistiques et informations sur le marché du travail pour mesurer l'avancement du travail decent en Afrique", 2009.

1.3 Average wages and productivity

The decline in global wage growth documented in the previous section is hardly surprising in light of the decline in labour productivity during the crisis. Figure 13 illustrates the decline in the growth of labour productivity – measured as GDP per person employed[26] – in the different regions of the world. We see that, parallel to the decline in GDP growth, the global economic crisis of 2008 and 2009 also led to a decline in labour productivity in all regions, apart from Asia. This lower level of labour productivity highlights the reduced capacity of companies to pay higher salaries. Indeed, when the demand for goods and services falls, the output per worker can only be maintained if companies reduce employment proportionally to the decline in demand. If companies keep their workers on the payroll, lower labour productivity will have to be reflected in lower profits, lower compensation of workers or a combination of the two. Nonetheless, many companies did lay off workers, resulting in higher unemployment, particularly in advanced economies and in trade-dependent economies. Yet, overall in the countries analysed, declines in GDP outpaced declines in employment during the 2008–09 period, resulting in declining labour productivity.

The link between changes in average wages and changes in labour productivity is illustrated in figure 14. We see that, although there is wide cross-country variation, there is a generally positive relationship between labour productivity growth and real wage growth. Most countries which experienced declines in real wages during 2008 or 2009 also suffered declines in labour productivity (the lower left corner of figure 14), while a majority of countries with increasing labour productivity also had increasing wages (the upper right corner of the figure). It is interesting to note, however, that in a considerable number of countries, real wages increased in spite of falling productivity (the upper left corner), which shows that there is no inevitable short-term link between wages and labour productivity. However, statistical analysis shows that, in advanced countries, changes in productivity and changes in inflation rates, when considered together, account for about half of the cross-country variation in wage growth in 2008 and 2009.[27]

2 The wage share

How have the trends in average wages discussed in the previous section influenced the wage share during the crisis? This section of the report examines the "labour income share" or the "wage share"; its analysis is restricted to the largest consistent dataset available, which covers 30 OECD Member countries and Estonia.[28] Most frequently, the "unadjusted" wage

[26] While there are a number of different ways to measure labour productivity, they all define economic output in relation to labour input (see OECD, 2001). In line with the United Nation's Millennium Development Goals, this report uses GDP per person employed as a simple measure of labour productivity. While more refined approaches that adjust for hours worked are often useful for single-country studies (see, for example, the labour productivity figures published by the United States Bureau of Labor Statistics at www.bls.gov/lpc/), our simple measure is better suited for studies such as the *Global Wage Report* that cover a large number of countries, for many of which no reliable data on hours worked are available.

[27] This conclusion is based on the following regression: real wage growth = a + (b x labour productivity growth) + (c x inflation), which yields a coefficient b of 0.45, a coefficient c of –0.47 and an adjusted R^2 of 0.48.

[28] All data used in this analysis draw upon the OECD Database for STructural ANalysis (www.oecd.org/sti/stan) and the OECD System of National Accounts (www.oecd.org/std/ana). Chile, Israel and Turkey have been excluded from the analysis due to a lack of data.

Figure 13 Regional growth in GDP, employment and labour productivity, 2000–09 (in per cent)

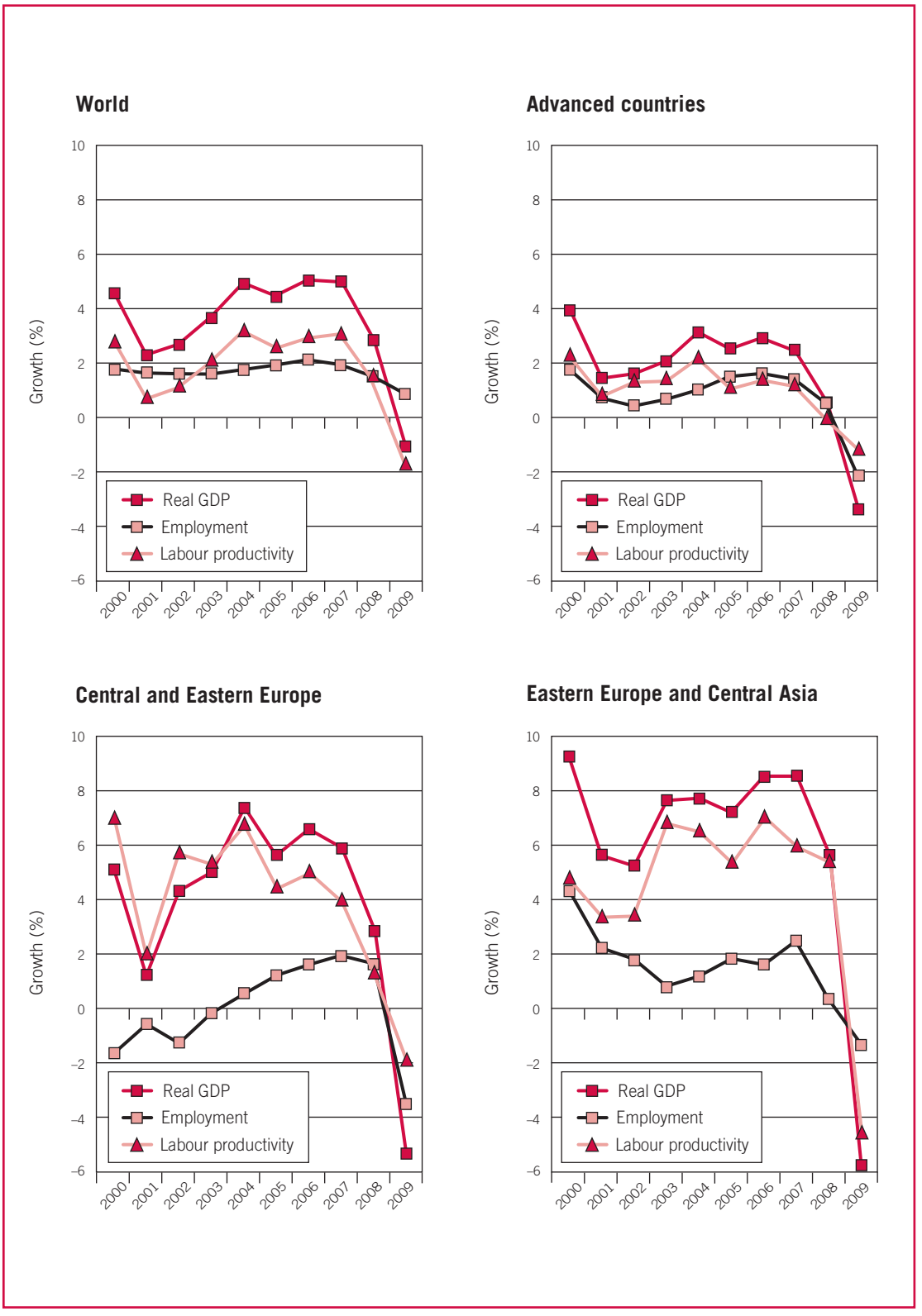
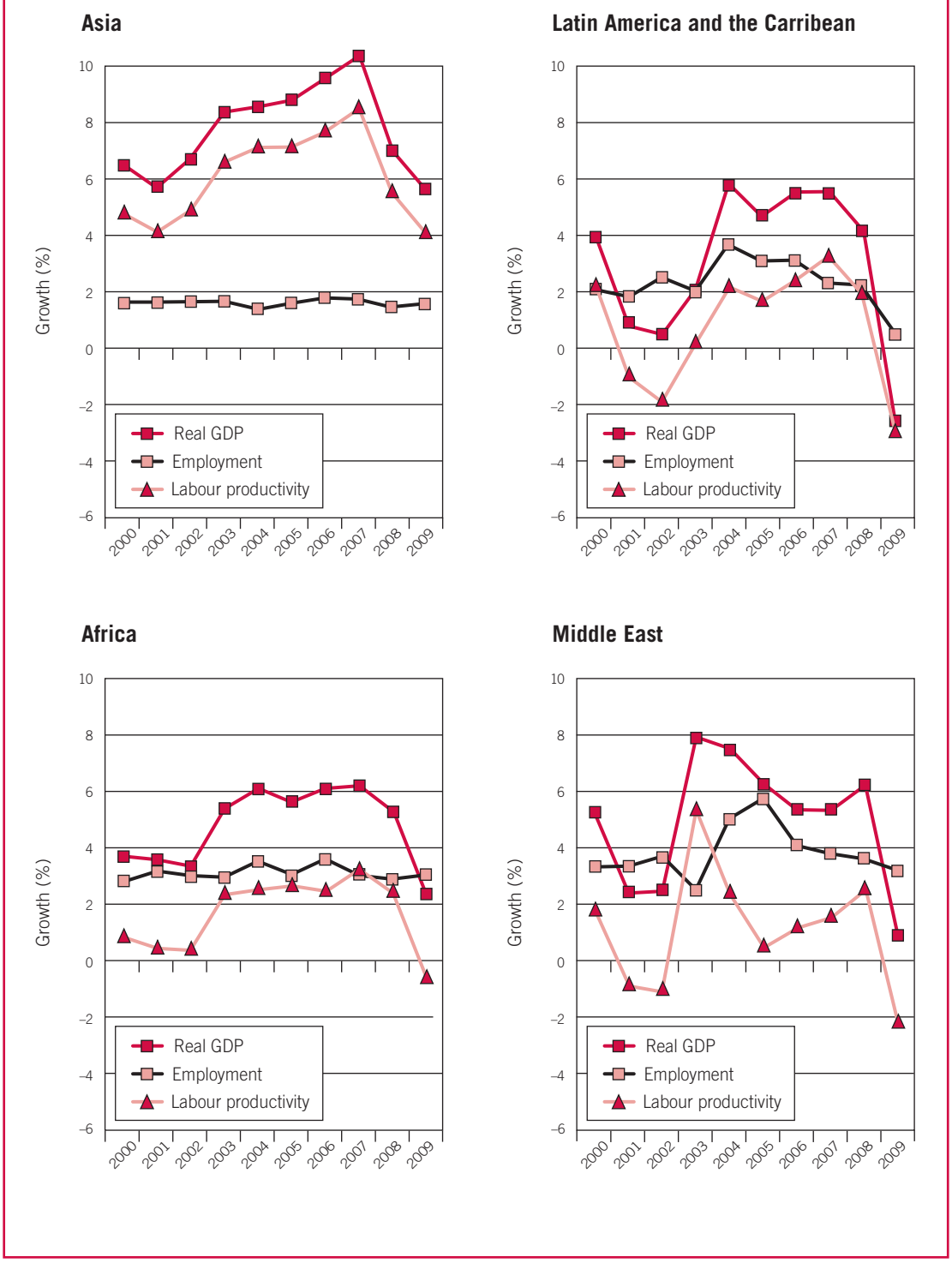
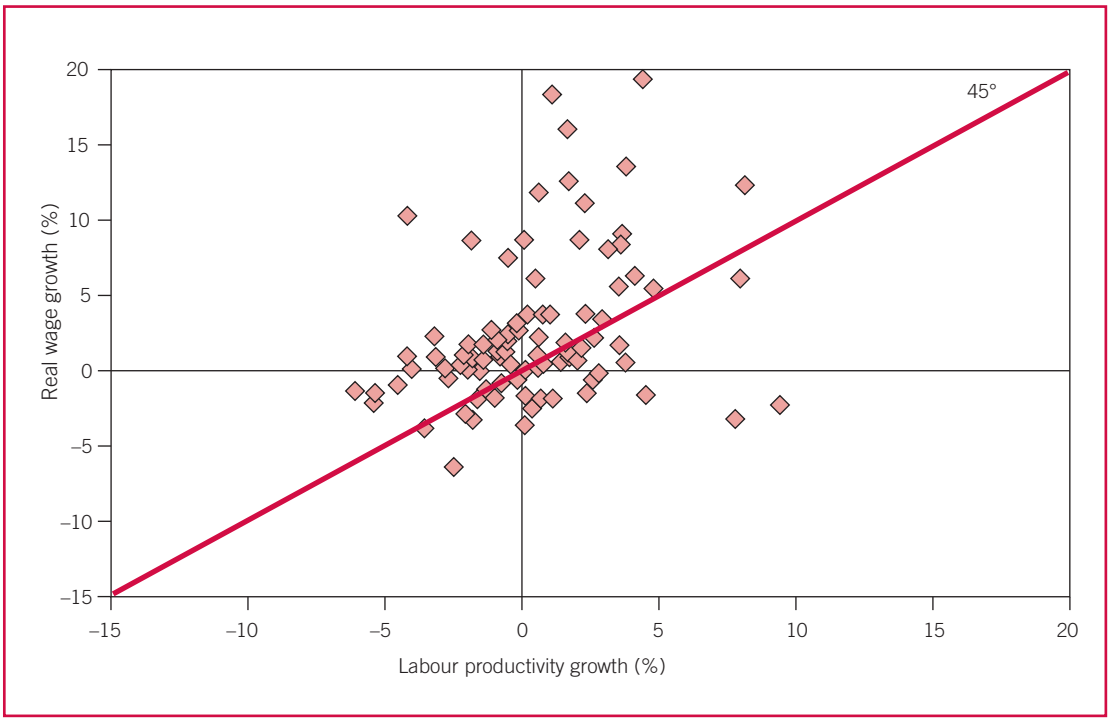


Figure 13 Regional growth in GDP, employment and labour productivity, 2000–09 (in per cent) (continued)



Source: ILO calculations based on GDP data from the World Bank (GDP in constant 2005 purchasing power parity (PPP)$) and employment data from the ILO's KILM database (ILO, 2009a, table 2a).

Figure 14 Wages and productivity during the crisis, 2008–09 (in per cent)



Note: Figure refers to 94 countries and economies for which data are available.
Source: ILO Global Wage Database.

share is measured as the ratio of the total compensation of employees to gross value added (the latter being a measure of total output), both measured in nominal terms, which can be calculated from national accounts. By highlighting the amount of income accruing to paid labour (as opposed to capital), the share of labour compensation in national output can shed light on various issues of interest, including the extent to which economic growth translates into higher incomes for workers. In periods of economic recession, the wage share provides an indication of the extent to which falling output reduces labour incomes relative to profits. If labour incomes fall at a greater rate than profits, the wage share will be expected to fall. By contrast, if there is a sharper decline in profits than in labour incomes, the wage share will rise. For any given level of value added and profits, the wage share can fall as a result of falling wage employment, falling wages or a combination of both.

While the concept of the wage share may appear to be straightforward, there is much debate on the implications of this "crude" measure. In particular, standard measures of employee compensation in national accounts (i.e. wages plus salaries and social contributions paid by the employer) omit the labour income of the self-employed. As such, the "unadjusted" wage share ignores the labour income of proprietors of their own businesses. In countries or sectors where there is a high proportion of self-employment in total employment,[29] the exclusion of self-employed workers can cause a significant

[29] This is often the case in the agriculture, hunting, forestry and fishing and construction sectors of the economy.

underestimation of the actual share of national income which rewards workers. Technical appendix II provides more detail on the measurement of the wage share and possible methods of taking into account the self-employed, highlighting both positive elements and drawbacks and limitations of each method. Technical appendix II also shows that the trends do not change significantly when different adjustments are applied. Consequently, the analysis that follows focuses on the trends rather than on the values of wage shares.

2.1 Recent trends in national wage shares

Table 2 shows the trends in the unadjusted wage share for all the countries included in our analysis.[30] In order to capture changes in the "real economy", the figures displayed in this table concern the whole economy with the exclusion of financial intermediation, real estate, renting and other business services. In addition, the share of wage employment in total employment is provided as complementary information for all countries. A high share of wage employment (e.g. 80 per cent and above, as is the case in most OECD countries) implies that the measurement issues related to the estimation of wage share of own-account workers are not a major concern for the country under analysis. Based on this table, we see that, during the years of the global economic crisis, the wage share has demonstrated a clear upward trend. Table 2 shows that most of the countries reporting data for 2009 experienced an increase in the wage share of output from 2008 to 2009. This finding of an increasing wage share during periods of economic contraction is consistent with findings from previous studies showing that fluctuations of the wage share in the short term are usually countercyclical (i.e. decreasing during expansions and increasing during recessions).[31] These findings point towards the fact that, during the crisis, profits were more volatile than the total wage bill.

Another observation is the contrast between the evolution of the wage share during the years of the global economic crisis and the long-term trends. Table 2 shows that, for the countries included in this analysis, there was a predominantly negative long-term trend in the wage share. Overall, for the period 1980–2007, 17 out of 24 countries registered a falling wage share. The table also shows that, since 1980 and in the years preceding the crisis, the proportion of countries with a stable or decreasing wage share was consistently higher than the proportion of countries that experienced an increasing trend. However, the downward trend was by no means universal. For example, during the period 2000–07, about one-third of the countries in our sample registered an increase in the wage share. This disparity is also observed at the regional level, although there are more common patterns within the EU15 than in the OECD area as a whole. Note also the countries (such as Iceland, Ireland and Mexico) with extremely volatile wage shares, as opposed to the group of economies with relatively stable wage shares (including the Czech Republic, France, Japan, Switzerland and the United States).

What are the explanations for these trends? In the short run, labour hoarding is often considered to be a major factor in the countercyclical pattern of the wage share. Labour hoarding refers to the fact that companies prefer to retain skilled workers

[30] For the remainder of this analysis, the term "wage share" will refer to the unadjusted wage share, unless otherwise specified.

[31] See Krueger (1999) or Russell and Dufour (2007).

Table 2 The wage share in OECD countries for the real economy

Country grouping	Country and last available year		Wage share (WS) in total income			Trends in wage share (WS)[3]					Volatility of WS	Share of wage employees in total employment (average over 2000s)
			Average 1980–85	Average 2004–07	Average 2008–09	1980s	1990s	2000–07	2008	2009	Coefficient of variation[2]	
EU15	Austria	2009	64.4	60.6	61.3	❍	❍	↘	❍	↗	2.8	83.9
	Belgium	2009	66.4	65.2	67.9	↘↘	❍	↘	↗	↗	2.6	87.3
	Denmark	2009	69.0	69.4	74.7	❍	❍	❍	↗	↗	2.8	93.9
	Finland	2009	63.2	61.1	65.3	↗	↘↘	❍	↗	↗	4.8	88.9
	France	2009	68.2	66.2	66.5	↘↘	❍	❍	❍	…	2.0	90.3
	Germany	2009	71.4	65.5	66.2	❍	↘	↘↘	❍	↗	3.4	89.9
	Greece[1]	2009	32.4	38.8	39.8	❍	↗	❍	❍	↗	7.6	…
	Ireland[1]	2009	59.4	45.9	48.5	↘↘	↘↘	↗	↗	❍	10.5	82.4
	Italy	2009	55.4	53.0	55.5	↘	↘	↗	↗	↗	3.4	76.5
	Luxembourg[1]	2009	54.9	50.3	50.5	↘	↘↘	↘↘	❍	↗	5.8	93.5
	Netherlands	2009	61.9	58.4	59.7	↘	❍	↘	❍	↗	2.7	85.2
	Portugal[1]	2006	56.0	57.9	58.0	↘↘	❍	❍	❍	…	3.5	80.6
	Spain	2009	56.4	57.4	57.8	↘↘	❍	❍	❍	❍	3.5	85.4
	Sweden	2009	75.8	69.0	68.7	↘	↘↘	↘	❍	↗	4.2	94.5
	United Kingdom	2008	64.3	66.9	66.6	↘	↘	❍	❍	…	3.0	86.2
Recent EU members	Czech Republic	2008	…	49.9	51.2	…	❍	❍	↗	…	1.8	83.7
	Estonia	2008	…	57.4	64.0	…	↘	↗	↗	…	6.9	…
	Hungary	2008	…	58.2	58.2	…	↘↘	❍	❍	…	6.6	87.6
	Poland	2008	…	43.6	45.8	…	↗	↘↘	↗	…	5.8	73.1
	Slovakia	2009	…	43.6	44.0	…	↗	↘↘	❍	↗	6.1	…
	Slovenia	2008	…	61.9	62.0	…	…	↘	↗	…	4.7	…

(continued)

Table 2 The wage share in OECD countries for the real economy (continued)

Country grouping	Country and last available year		Wage share (WS) in total income			Trends in wage share (WS)[3]					Volatility of WS	Share of wage employees in total employment (average over 2000s)
			Average 1980–85	Average 2004–07	Average 2008–09	1980s	1990s	2000–07	2008	2009	Coefficient of variation[2]	
Other Europe	Iceland	2008	59.8	77.2	70.4	❍	↗	↗	↘↘	…	10.5	84.5
	Norway	2009	56.4	49.1	50.0	↗	❍	↘↘	↘	↗	8.3	92.8
	Switzerland[1]	2009	…	65.0	…	…	❍	↘	…	…	1.9	…
America	Canada	2006	62.2	59.7	…	❍	↘↘	❍	…	…	3.4	91.6
	Mexico[1]	2008	38.5	29.9	…	↘↘	↘	↘	…	…	11.0	…
	United States	2007	65.8	63.7	…	❍	❍	↘	…	…	1.6	93.8
Asia and Oceania	Australia	2007	62.3	56.7	…	↘↘	❍	↘	…	…	3.4	85.9
	Japan	2005	57.3	56.3	…	↘	↗	↘	…	…	2.2	85.3
	Republic of Korea	2008	44.8	55.0	55.0	↗	↗	↗	❍	…	8.2	63.2
	New Zealand	2006	55.7	52.4	…	↘	❍	↗	…	…	4.8	92.7

[1] Covers the total economy (including financial and business services).
[2] Standard deviation of LS divided by mean.
[3] Symbols for trends: ❍ stability (change less than ± 1%); ↗ increase > 1% but < or = 3%; ↗↗ increase > 3%; … data not available; ↘ decrease < –1% but > or = –3%; ↘↘ decrease < –3%

Sources: OECD, STAN database OECD, ANA database.

throughout a downturn because rehiring and retraining new employees once the recovery is underway would be even costlier. This practice causes labour demand to fall by less than output during downturns and to rise by less than output during upswings. It also explains why short-term deviations of the wage share from its long-term trend are usually temporary and not very persistent – pointing to the fact that, in the future, profits are likely to recover faster than employment and wages.[32]

In the long run, the determinants of the wage share are more complex and difficult to disentangle. In general, the trend towards lower wage shares in OECD countries after the mid-1980s is attributed to the introduction of new technology, the effects of globalization, the increased influence of financial institutions and/or the weakening of labour market institutions (see box 3).[33] The *Global Wage Report 2008/09* argued that increased openness to trade may have functioned as a wage-moderation factor, particularly in light of the increased presence of large low-wage exporters in the market for labour-intensive products. Some authors have pointed out that a declining wage share could also simply be a form of statistical quirk, arising from a general shift in economic activity from sectors with high wage shares to sectors with lower wage shares ("shift effects").[34] Our own analysis shows, however, that the structural decline in the wage share was primarily due to declining wage shares within sectors ("share effects"). In figure 15 we see that, in most cases, both the "shift effect" and the "share effect" have had a negative impact on the wage share since the 1980s.[35] In a majority of countries, however, the "share" effect outweighs the "shift" effect. A more detailed explanation of the methodology of our "shift-share" analysis can be found in Technical appendix II.

2.2 Trends at the sectoral level

The contrast between long-term and short-term changes in the wage share can also be seen at the sector level, particularly in the manufacturing sector. Figures 16, 17 and 18 show trends in the wage share for three selected sectors:[36] manufacturing, construction and a broad service sector that covers financial intermediation, real estate, renting and other business services (referred to as the FIRE sector). Manufacturing and construction are two of the sectors which were most adversely affected by the recent crisis in OECD countries, in terms of both employment and output. The changes in the FIRE sector are also interesting to highlight, since the global recession started with a shock of a financial nature. The period used for this analysis is 1990–2009, unless otherwise indicated. The long-term change has been calculated as the difference between the wage share in the first year of analysis and in the year 2007. The recent change during the crisis years is calculated as the difference between 2007 and the last year for which there are available data.

[32] See the study on Canada by Morel (2006).

[33] See ILO (2008a), Harrison (2002), Guscina (2006) or Stockhammer (2009).

[34] De Serres et al. (2002) underline the fact that "changes in the sectoral composition could induce an aggregation bias in the aggregate [labour share] if the shares of wages vary significantly across sectors" (p. 6). Bagnoli (2009) stresses that such a composition effect is more likely for countries that have undergone large structural changes quickly or where large differences are present in the labour share across sectors.

[35] Switzerland has been excluded from this analysis due to a lack of sectoral data.

[36] The results for all sectors are available at www.ilo.org/travail.

Box 3 The determinants of the wage share in total income

In the long run, the determinants of the wage share can be grouped into four main areas: (1) production technology; (2) institutions/policies; (3) globalization; and (4) the sectoral composition of the economy.[1]

1. The production technology is an important determinant of the distribution of income between the owners of different factors of production. Technological progress, such as the introduction of computers in the workplace, may for example reduce the demand for relatively low-skilled workers and lead to a decline in the wage share. While capital-intensive technological progress may hurt the overall wage share, it is also usually seen as increasing the demand for skilled workers who can work with computers.
2. Regarding institutions and policies, the existence of imperfect competition in the product market creates a surplus or "rent", which is distributed between capital and labour depending on workers' relative bargaining power. The existence of stronger and well-coordinated unions is a factor explaining a more stable wage share over time (see OECD, 2009a).
3. Globalization can reduce the wage share through different channels. First, it may lead to increased specialization in the production and export of capital-intensive goods, thereby increasing the returns to capital relative to labour. Second, threats to relocate factories abroad adversely affect the bargaining position of workers. Third, globalization is also frequently accompanied by technological progress and an increased influence of financial institutions, which in turn have put pressure on wages and tended to increase returns on capital.
4. The changes in the sectoral composition of the economy also affect the wage share over time. So, for example, if a country's economic growth is accompanied by a shift from labour-intensive sectors to more capital-intensive sectors, the wage share can be expected to decline.

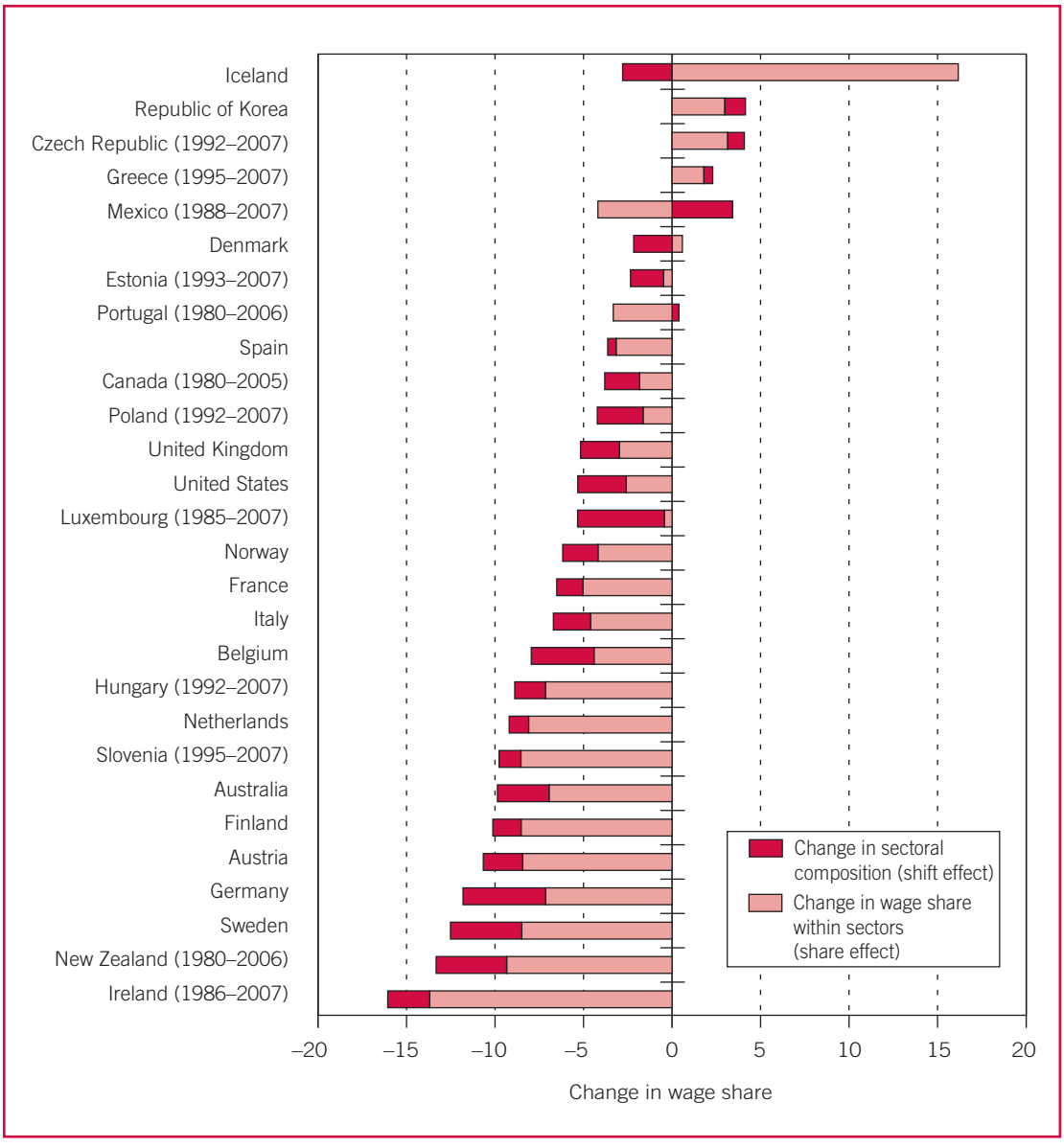
As suggested above, it is plausible that the four factors are correlated with each other. For instance, technological change, globalization and the restructuring of the economy tend to go hand in hand. For this reason, it is often difficult to isolate the net effect of each factor on the wage share.

[1] For more details, see European Commission (2007) and OECD (2009a).

As figure 16 shows, the long-term change in the wage share in the manufacturing sector has been negative for all countries except France, Iceland and the United Kingdom. This shows that, in most countries, sectoral value added in manufacturing increased more rapidly than total employee compensation over the period 1990–2007. Similar to the trend in manufacturing, the long-term change in the wage share is also mostly negative in the construction sector (figure 17), even though the situation in that sector is more varied than for manufacturing. Overall, 17 out of the 30 countries analysed display a negative long-term change in construction, compared to 26 in manufacturing. However, in some countries (such as the Czech Republic, Poland and Slovakia) the negative long-term trend was much larger in the construction sector than in the manufacturing sector.

By contrast, for the bulk of countries with data available post-2007, we notice a countercyclical movement, with increasing wage shares. This indicates an increase in the share of employee compensation in value added in times of crisis. Specifically, we

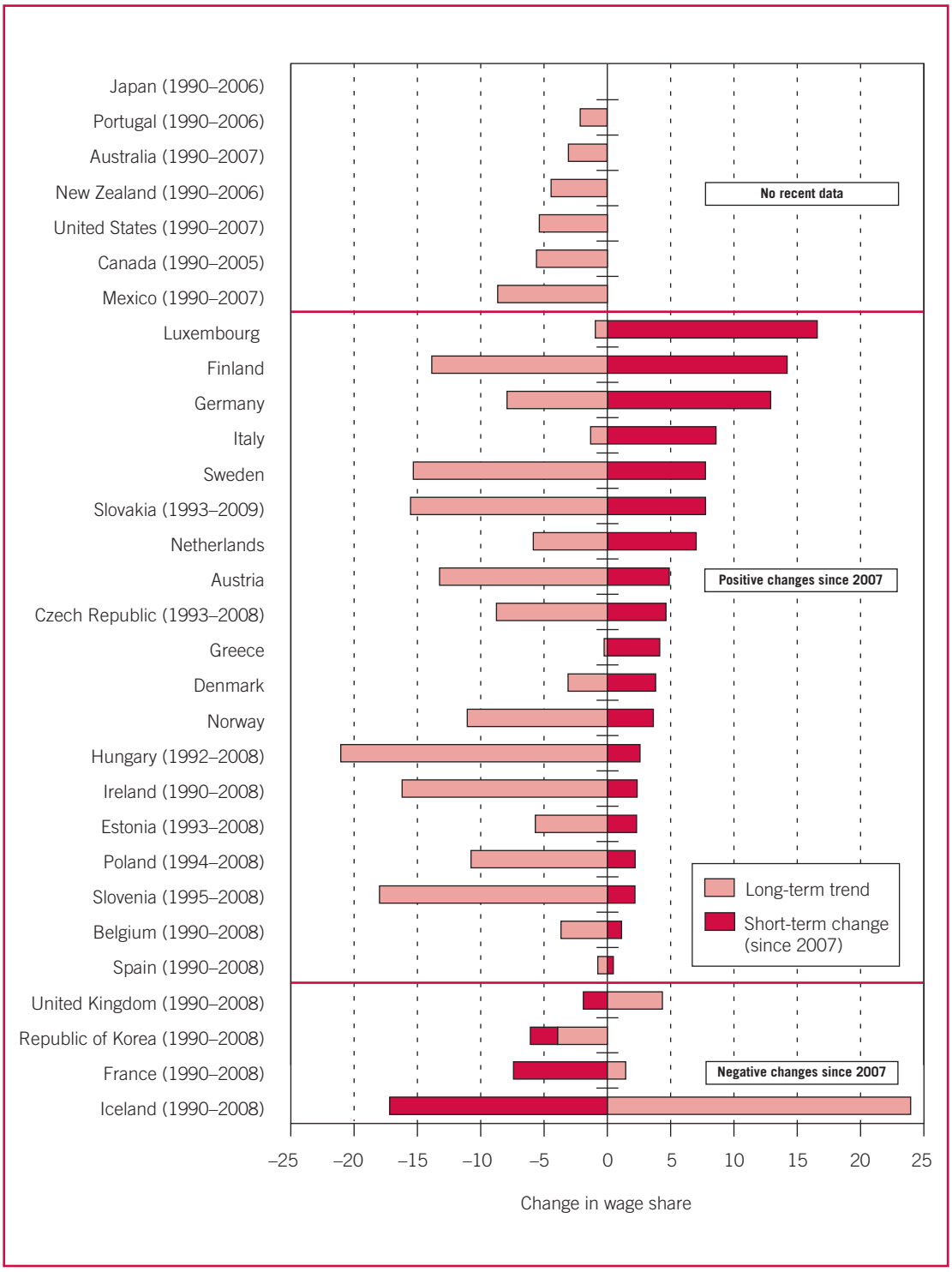
Figure 15 Explaining changes in the wage share: A "shift-share" analysis (in percentage points)



Note: ILO calculations based on sectoral labour share at the broad sectoral level. The broad sector "agriculture, hunting, fishing and forestry" is excluded from the analysis. The residual effect, which has no particular meaning, is not shown here. Sample period 1980–2007 unless otherwise specified.
Sources: OECD, STAN database; OECD, ANA database.

observe a positive recent change in the wage share for the manufacturing sector for 19 of 23 countries. In construction, by contrast, just over half of the countries in the sample show positive changes after 2007. This finding probably reflects the mixed impact of the economic crisis on the construction sector. For certain countries, such as Spain and Ireland, a much faster decline in compensation of employees relative to value added was experienced. This was not the case for other European countries, such as Finland, which experienced more rapid declines in value added relative to labour compensation over the same period.

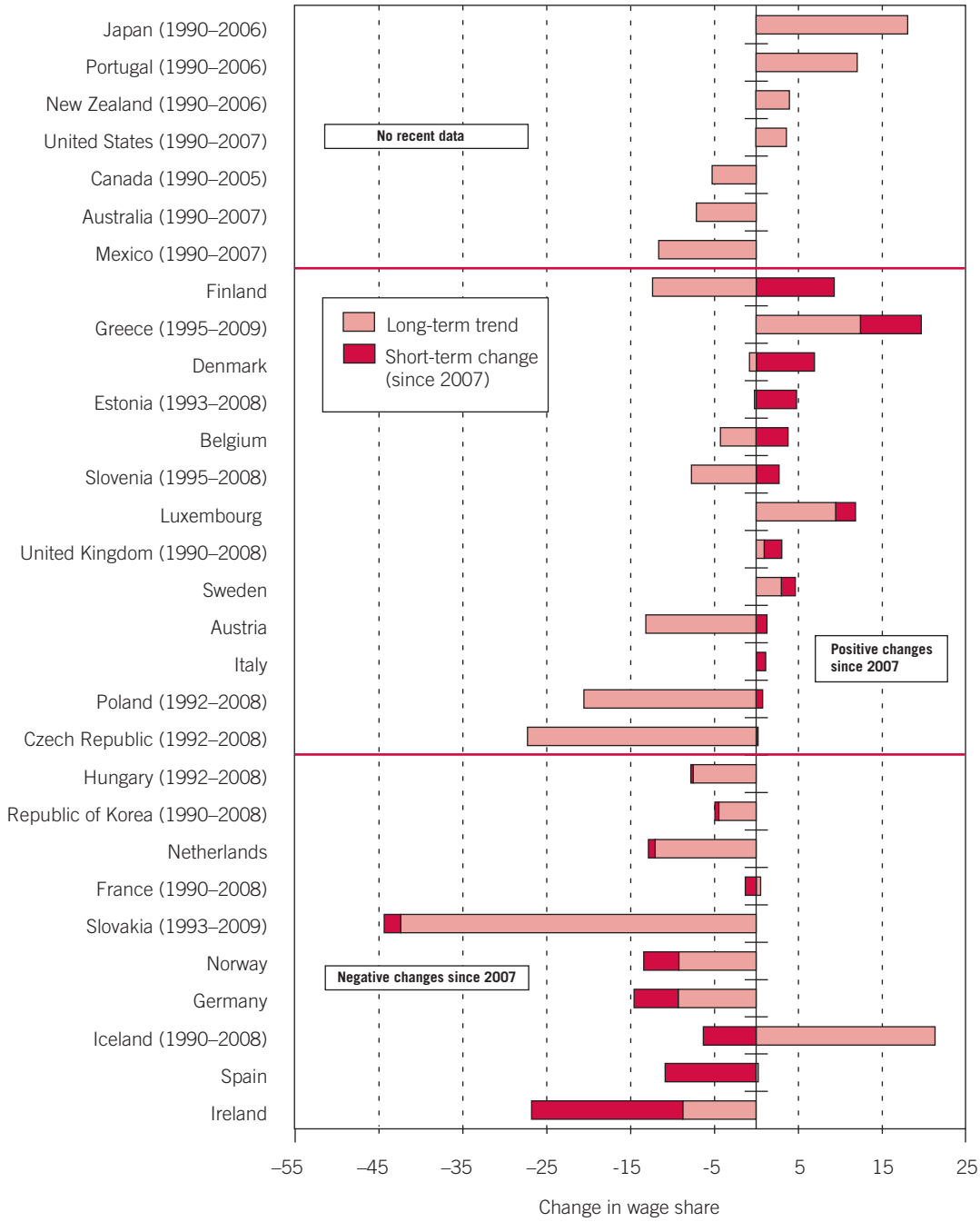
Figure 16 Changes in wage shares in the manufacturing sector (in percentage points)



Notes: Based on unadjusted wage shares. The countries are sorted by descending order of short-term change. For countries for which data are not available for all years from 1990 to 2009, the sample of available data is indicated in brackets. Long-term changes are based on 1990–2007 unless the sample of available data indicates another starting period (e.g. 1993 for Slovakia). Short-term changes are based on 2007–09 unless the sample of available data indicates another end period (e.g. 2008 for France).

Sources: OECD, STAN database; OECD, ANA database.

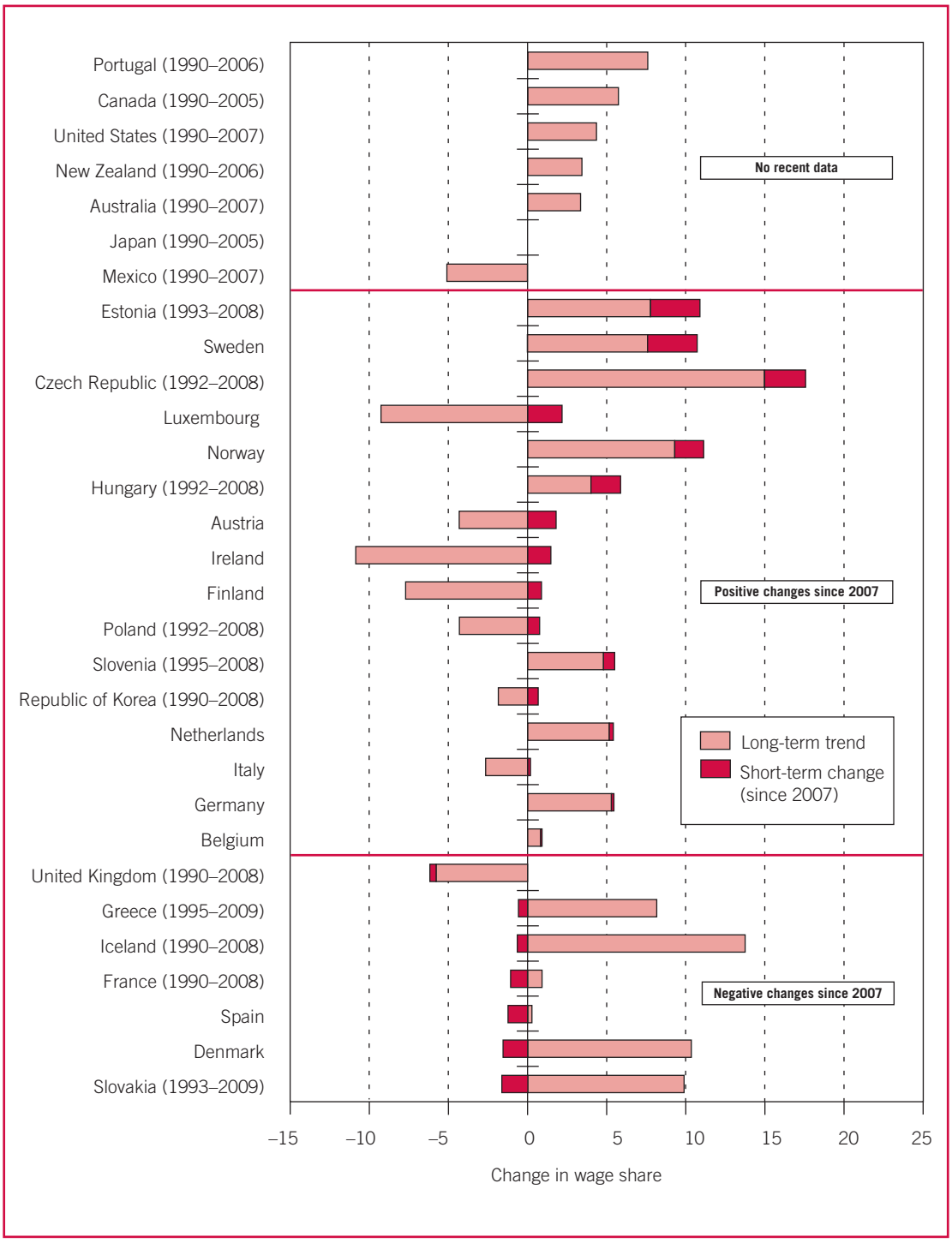
Figure 17 Changes in wage shares in the construction sector (in percentage points)



Notes: Based on unadjusted wage shares. The countries are sorted by descending order of short-term change. For countries for which data are not available for all years from 1990 to 2009, the sample of available data is indicated in brackets. Long-term changes are based on 1990–2007 unless the sample of available data indicates another starting period (e.g. 1993 for Slovakia). Short-term changes are based on 2007–09 unless if the sample of available data indicates another end period (e.g. 2008 for France).

Sources: OECD, STAN database; OECD, ANA database.

Figure 18 Changes in wage shares in financial intermediation, real estate, renting and other business activities (in percentage points)



Notes: Based on unadjusted wage shares. The countries are sorted by descending order of short-term change. For countries for which data are not available for all years from 1990 to 2009, the sample of available data is indicated in brackets. Long-term changes are based on 1990–2007 unless the sample of available data indicates another starting period (e.g. 1993 for Slovakia). Short-term changes are based on 2007–09 unless if the sample of available data indicates another end period (e.g. 2008 for France).

Sources: OECD, STAN database; OECD, ANA database.

Finally, figure 18 provides evidence on the wage share in the FIRE industries. We see that two-thirds of the countries show a positive long-term change, which reflects faster growth in employee compensation compared to value added for this sector. The wage share in the FIRE sector has continued to increase during the crisis in the majority of countries. In interpreting these trends, it should be borne in mind that bonuses are counted as part of the wage share, not as profits.

3 Wage inequality and low pay

The recent global trends in wages and in the wage share should be seen against a backdrop of widespread and rising wage inequality, characterized by rapidly increasing wages at the top and stagnating wages at the median and bottom of the distribution.[37] An analysis of figure 19 shows that the distance between the lowest paid 10 per cent of workers and the best paid 10 per cent has increased in 17 out of 30 selected countries for which at least one data point is available to compare the periods 1995–2000 and 2007–09 (panel A). Although the largest part of this increase in inequality was due to top earners "flying away" from the majority, another part was due to the so-called "collapsing bottom", where the distance between median workers and low-paid workers has increased in 12 out of 28 countries (panel B).[38]

While some of these trends have been documented in our previous *Global Wage Report*, this report examines the issue of wage distribution in greater depth from the perspective of low pay, defined as the proportion of workers whose hourly wages were less than two-thirds of the median wage across all jobs.[39] This indicator captures a sense of the degree of social and economic inclusion among a country's workforce that is sensitive to societal notions of relative deprivation or relative disadvantage. It highlights groups which are particularly vulnerable in times of economic crisis. Although not all low-paid workers are poor, a fall in the purchasing power of wages at the lower end of the distribution definitely increases the risk of poverty.[40] It may also undermine public perception that policies are fair or lead to a better future.[41]

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[37] See also ILO (2010b, p. 14). The ILO 2009 Report VI discusses the gender implications of these wage typologies (ILO, 2009b, paras. 289–294).

[38] See also the decomposition of wage inequality for selected countries in ILO (2008a).

[39] This definition has been adopted for the ILO's decent work indicators (Decent Work Indicator for "low pay rate": http://www.ilo.org/wcmsp5/groups/public/---dgreports/---integration/documents/meetingdocument/wcms_115402.pdf [9 Sep. 2010]). An alternative measure which can be used to measure low pay is the proportion of workers who earn less than an absolute wage level that would be necessary for a household to live above the income poverty threshold (for example, Anker et al. (2003); Anker (2006)). While the first measure is most useful for understanding the link between low wages and household poverty (see, for example, Altman (2006)), it also poses some formidable challenges for cross-country comparisons since the definition of what basket of goods is required to meet subsistence varies from one country to another. For the purpose of inter-country comparison, therefore, a relative measure of low pay is more reliable. For a review of the definitions of low pay, see Grimshaw (2010). Note also that the concept of low-wage employment by definition leaves out the self-employed and unpaid family workers, who are often in even more vulnerable forms of employment.

[40] See also ILO (2010b).

[41] See ILO (2010c).

Figure 19 Changes in wage inequality (selected countries), 1995–2000 and 2007–09

Panel A. Change in D9/D1 ratio

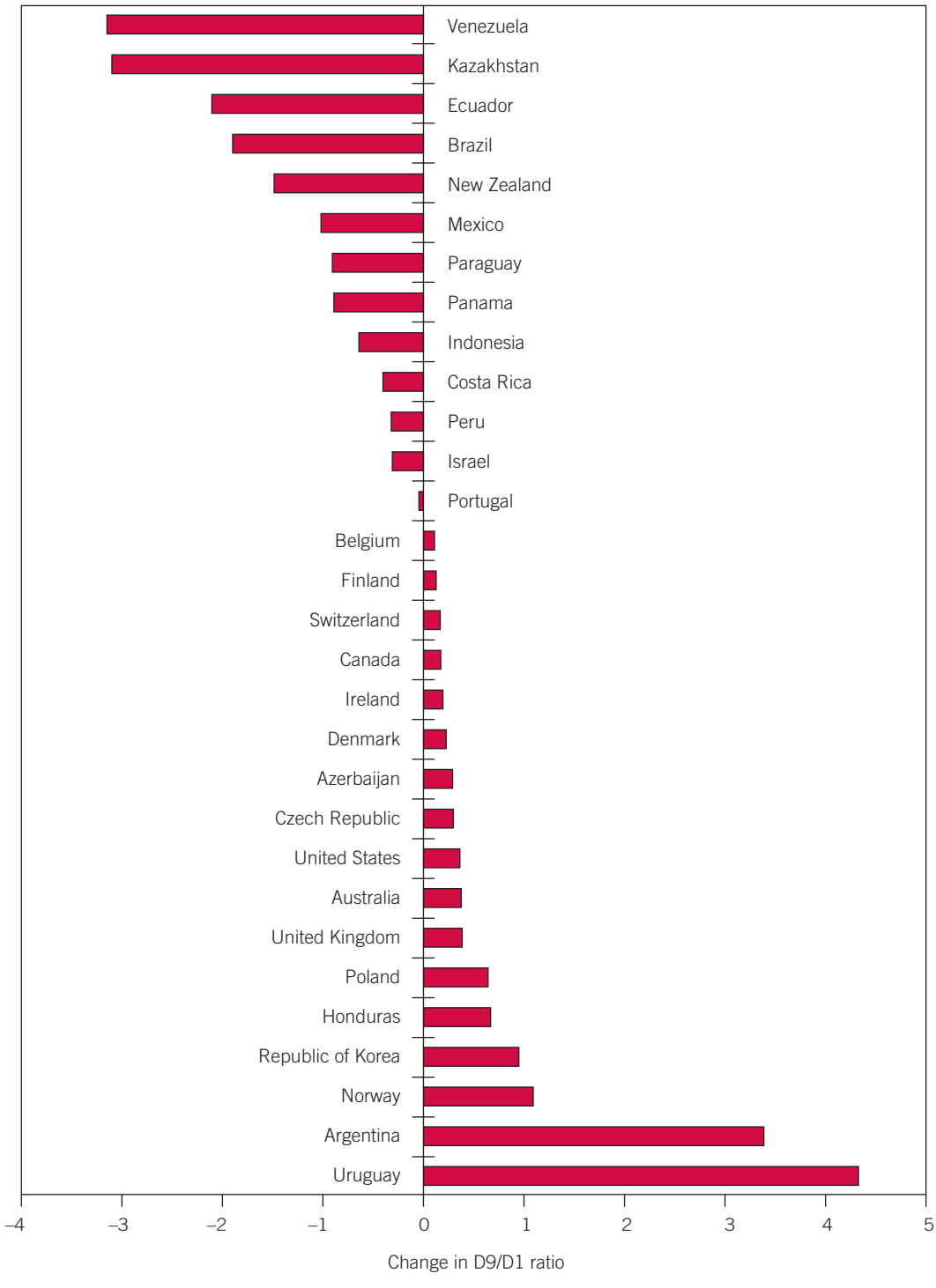
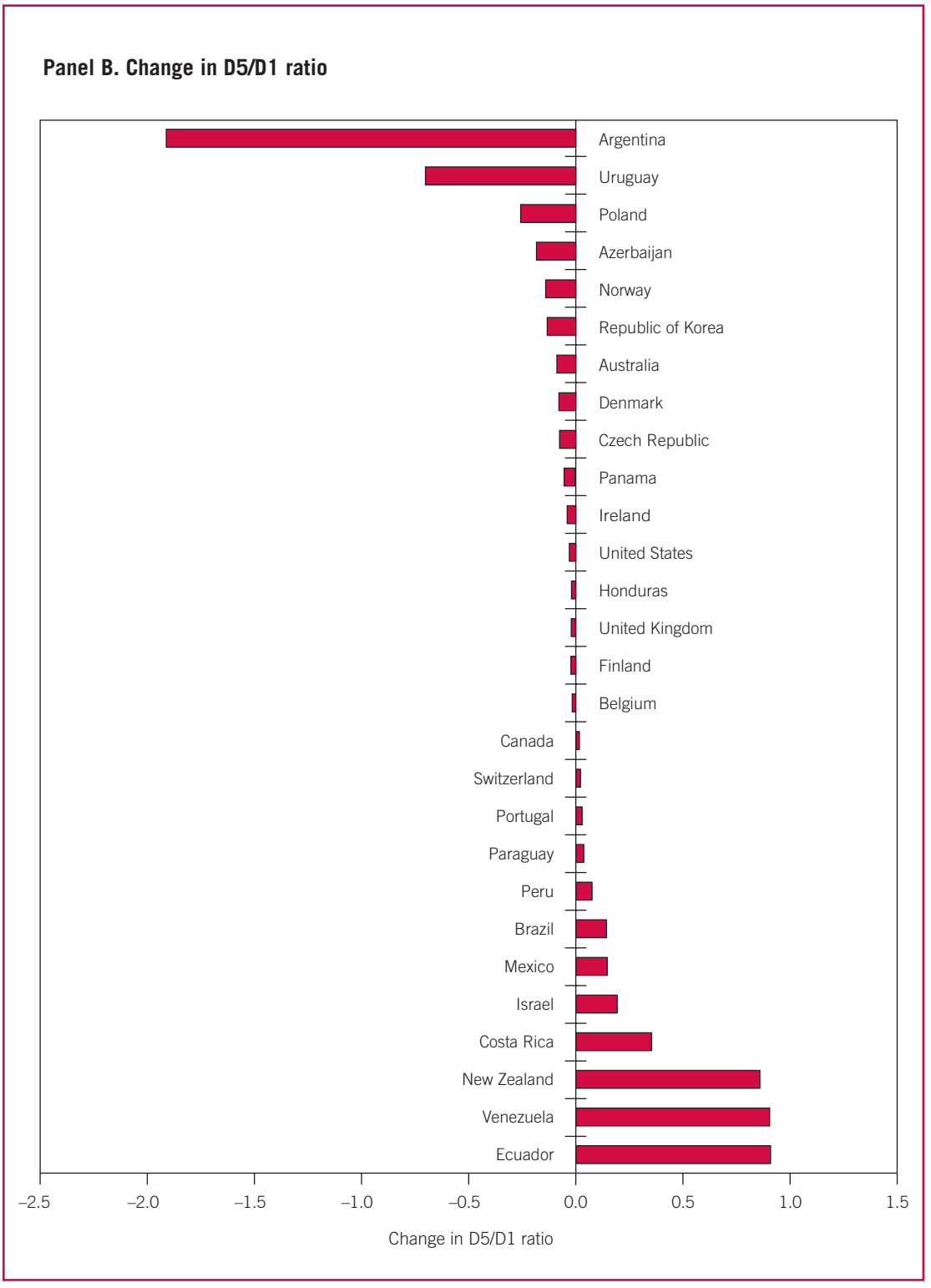


Figure 19 Changes in wage inequality (selected countries), 1995–2000 and 2007–09 (continued)



Note: Changes in inequality (D9/D1 and D5/D1 ratios) are estimated by comparing the simple average of low-pay incidence for the periods of 1995–2000 and 2007–09.

Source: ILO Global Wage Database; see also Statistical appendix.

It should be noted that the concerns about low-wage work are not confined to low levels of wages but also focus on instability of earnings. In the case of advanced countries, such as European Union (EU) Members, the risk of being unemployed or inactive is sometimes two or three times higher among low-wage workers than higher wage workers.[42] Not surprisingly, volatility in earnings is relatively high among low-wage workers. This means that these workers suffer more than others from the effects of sudden economic downturns. Furthermore, there are indications that sources of earning instability documented in some countries, such as the United States, are largely confined to low-income earners.[43] Therefore, one important test for the effectiveness of counter-crisis policy measures is how successfully low-wage workers are able to cope with the recession.

3.1 Recent trends: Increasing incidence of low pay

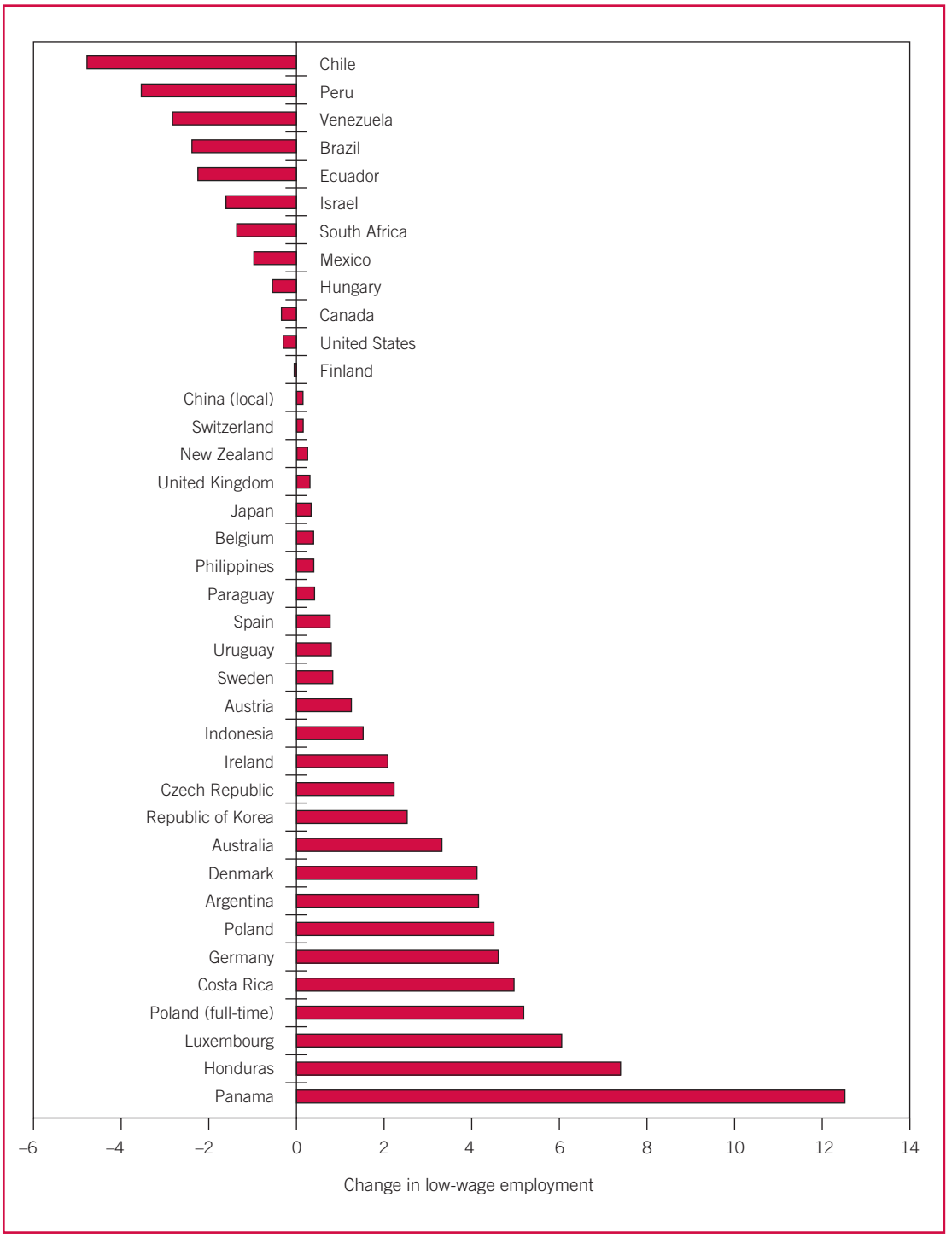
Looking at the changes within countries over time, the overall long-term trend is obvious: the majority of countries have witnessed increases in low-wage employment over the past 15 years. Overall, figure 20 shows that, since the second half of the 1990s, low pay has increased in about two-thirds of countries for which data are available (25 out of 37 countries). While the increase in low pay was relatively small in countries such as the Philippines, the United Kingdom or Switzerland, increases were substantially greater in countries such as Luxembourg, Honduras or Panama, indicating that, in the latter group of countries, low-wage earners lost ground compared to the median-wage earners. By contrast, Chile, Peru and Venezuela succeeded in considerably reducing their share of low-wage employment. While it is too soon for an assessment of the short-term effect of the crisis on low pay (since few countries have published their data on low pay in 2009), there is little reason to believe that a global recession will have brought about any improvement in the overall situation of low-paid workers.

While there is a global trend of increasing low-pay employment, the incidence of low-wage employment shows considerable variation across countries. The latest national estimates of low-wage incidence are provided in figure 21. While some countries provide estimates that refer to all wage earners, others restrict the sample to full-time employees. It is known that the estimates which exclude part-time employment tend to underestimate the scale of low-wage employment, because part-time workers often receive lower hourly earnings in comparison to their full-time counterparts. For this reason, the estimates are grouped separately to allow more meaningful comparisons. When only full-time workers are considered, the incidence of low-wage employment varies from about 6 per cent in Sweden to about 25 per cent in the United States or in the Republic of Korea. The size of variations is even larger in the case of the estimates for all wage employment, which includes a number of developing countries. In some countries, such as Austria, Honduras or Panama, at least one out of three employees is in a low-paid job. In Finland, by contrast, low wages affect only about 5 per cent of employees.

[42] European Commission (2005; data for figure 6).

[43] See, for example, Gottschalk and Moffitt (2009).

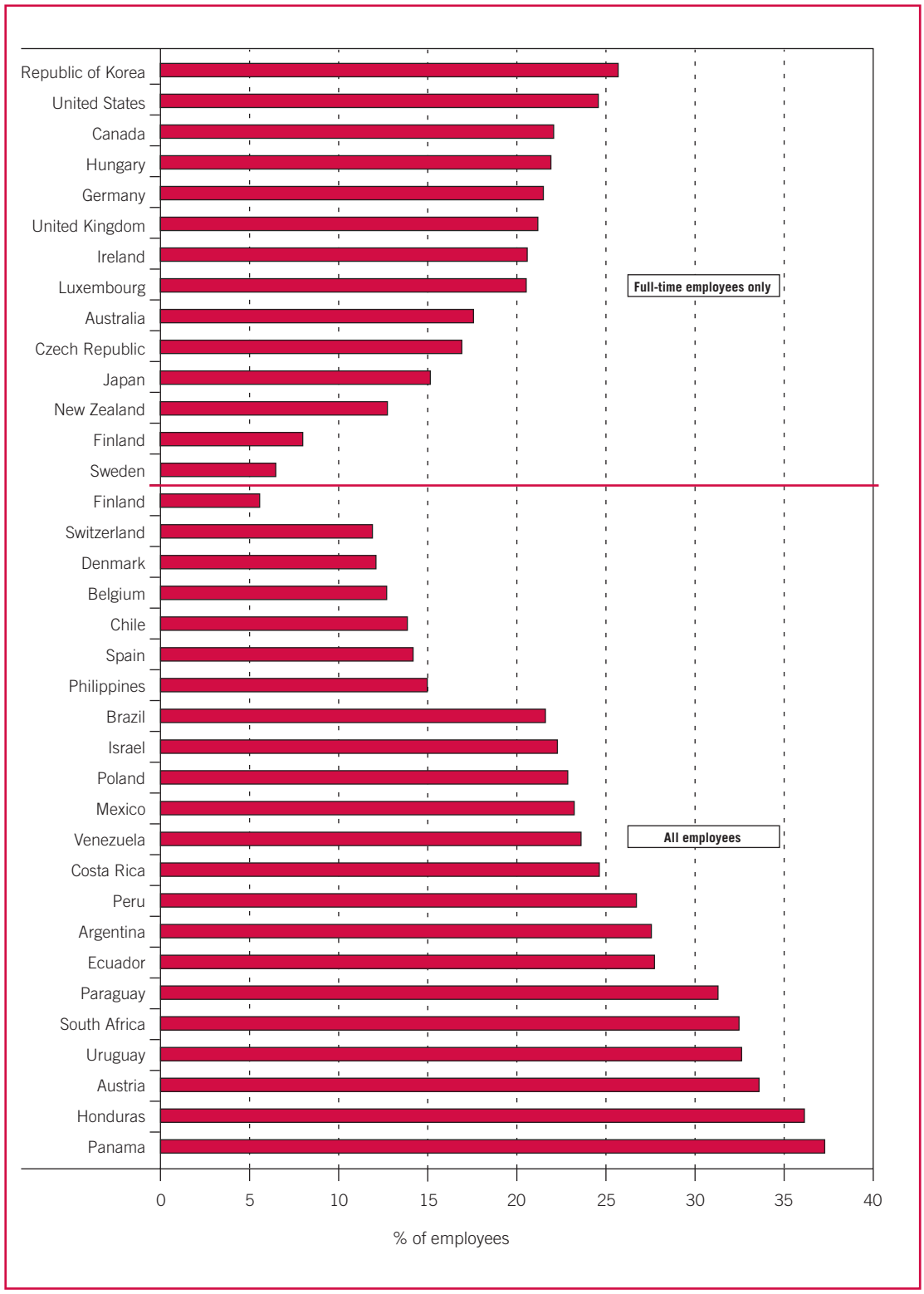
Figure 20 Changes in low-wage employment in selected countries, 1995–2000 and 2007–09 (in percentage points)



Notes: Changes in low pay are estimated by comparing the simple average of low-pay incidence for the periods 1995–2000 and 2007–09. The figures for some countries refer to full-time wage earners only. See Statistical appendix for details. For the Philippines, data from 2001 were used for the period of 1995–2000; for Spain, data from 2004 were used for 1995–2000; for Poland (full-time) and Sweden, data from 2004 were used for 2007–09; for Luxembourg, data from 2006 were used for 2007–09; for Brazil, data from 2002 were used for 1995–2000.

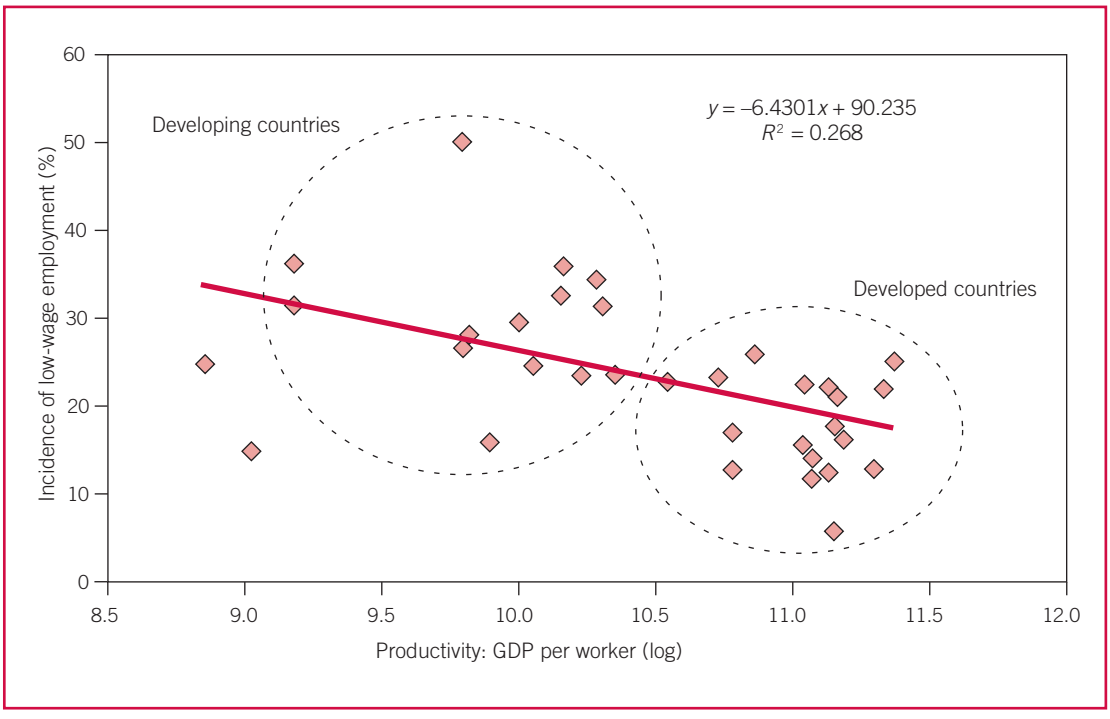
Source: ILO Global Wage Database; see also Statistical appendix.

Figure 21 Low-wage employment: A global comparison, latest available year (in per cent)



Source: ILO Global Wage Database; see also Statistical appendix.

Figure 22 Output per worker (productivity) and low-wage employment in 34 countries, latest available year



Source: ILO Global Wage Database.

While the incidence of low-wage employment tends to be high in developing countries, the relationship between the level of economic development and the relative proportion of workers on low pay is not clear-cut. As can be observed in figure 21, some advanced countries have a relatively high level of low-wage employment. The complex relationship between economic development and low pay is illustrated in figure 22, in which productivity levels (measured by the natural log of GDP per worker) on the horizontal axis are compared to the incidence of low-wage employment on the vertical axis. The two dotted circles represent developed and developing countries. We see that the proportion of low pay is generally higher in less advanced countries, but that the incidence of low-wage employment varies quite considerably within each group of countries. In some regions, such as in Latin America, no discernible pattern is observable with regard to low-wage employment and national income levels. These wide differences between countries with relatively similar levels of economic development have inspired a growing body of research in recent years (see table 3).

3.2 Characteristics of low-paid workers

Studies of the demographics of low-wage employment reveal common key characteristics. Research in advanced countries shows that low pay tends to be concentrated within certain groups of workers, revealing that workers in low-wage jobs have low levels of education, tend to be young, are disproportionately female and are more likely to be members of a disadvantaged ethnic minority, racial or immigrant

Table 3 Selected list of low-wage studies and their methodologies

Study/report	Low-wage threshold	Earnings definition	Country coverage	Workforce coverage	Data source
Altman (2006)	R2500 per month (US$296)	Gross monthly earnings	South Africa	All employed, formal and informal	StatsSA, LFS 2004
Boushey et al. (2007)	2/3 of median of male employees	Gross hourly earnings	United States	–	Current population survey (CPS)
Duryea and Pagés (2002)	U$1 per hour (adjusted for PPP)	Gross hourly earnings	12 Latin American countries	Males aged 30–50 in urban areas	National household surveys
European Commission (2003, ch. 3)	75% of average of all workers	Gross hourly earnings	EU13 (excludes Luxembourg and Sweden)	Not specified	Eurostat ECHP data, 2000
European Commission (2004, ch. 4)	2/3 of median of all employees (15+ hours per week)	Gross hourly earnings	EU13 (excludes Luxembourg and Sweden)	Employees working 15+ hours per week excluding trainees/ apprentices	Eurostat ECHP, 1995–2001
Fernández et al. (2004)	2/3 of median of all employees	Gross hourly earnings	Belgium, Denmark, Ireland, Italy, Spain and the UK	–	ESES
Howell et al. (2008)	2/3 of median of full-time employees	Gross hourly earnings	United States and France	All employees	CPS for the US, 1979–2005 and Enquête Emploi for France, 1993–2005
Inter-American Development Bank (2008)	US$2	Not specified	16 Latin American countries	Workers aged 15–64	Compiled dataset for 1990–2004
Marlier and Ponthieux (2000)	60% of median	Gross monthly wage	13 EU countries	Employees working 15+ hours per week	ECHP, 1996
Muñoz de Bustillo Llorente and Antón Pérez (2007)	60% of median	Gross hourly earnings	Spain	–	ECHP, 1994–2001 and SILC, 2004
OECD Employment Outlook (1996, Ch. 3)	2/3 of median of all full-time workers	Various depending on country data	14 OECD countries	Full-time workers only; country variation in sector coverage	OECD compilation of national data sources
OECD Employment Outlook (2006)	2/3 of median of full-time employees	–	–	Full-time employees only	OECD compilation of national data sources
Pitts (2008)	Twice the 1970 federal/state minimum wage (inflation adjusted)	Gross hourly earnings	United States, plus detail for four metropolitan areas	All employees	2000 census
Robson et al. (1997, 1999)	2/3 of median of male employees	Gross hourly earnings, including overtime hours and earnings	Germany, Luxembourg, Spain, UK, US	Full-time and part-time workers	PACO (harmonized data from household panels from each country) EHPS for Spain
Russell Sage Foundation US-Europe project outputs (e.g. Gautié and Schmitt, 2010)	2/3 of median of all employees	Gross hourly earnings	Denmark, France, Germany, Netherlands, UK, US	All employees	National data source
Salverda et al. (2001)	2/3 of median of all employees (15+ hours per week)	Gross hourly earnings	EU11, plus more details for Denmark, France, Netherlands, UK, US	Employees working 15+ hours per week	Eurostat ECHP and ESES, 1995, National datasets for 4 European countries and US

Source: Grimshaw (2010).

Figure 23 Incidence of low-wage employment by major demographic characteristics, selected countries, various years (in per cent)

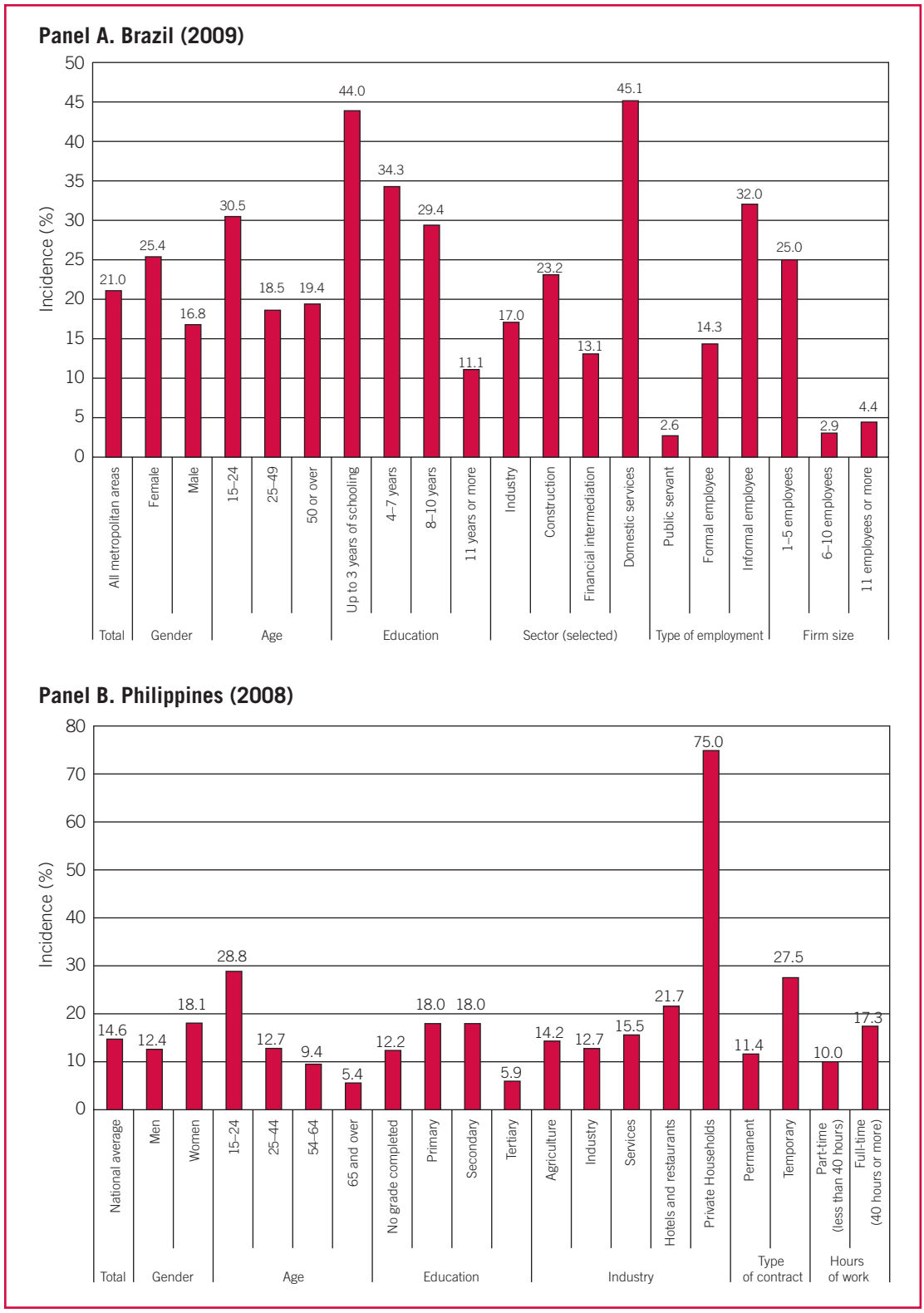
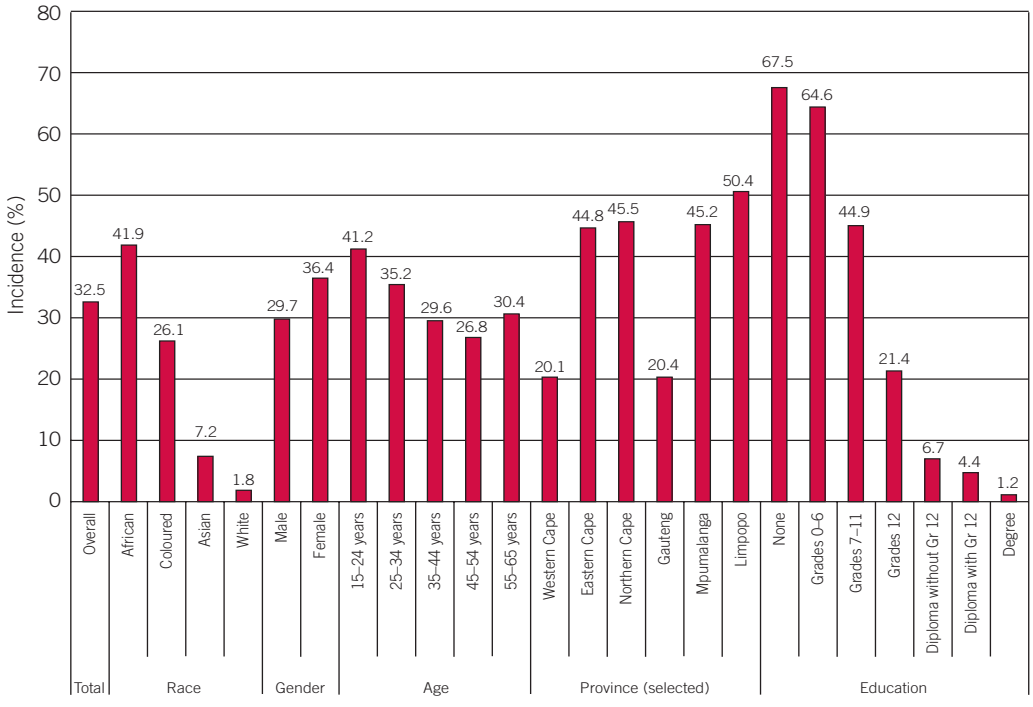


Figure 23 Incidence of low-wage employment by major demographic characteristics, selected countries, various years (in per cent) (continued)

Panel C. South Africa (2007)



Panel D1. China (local workers, 2008)

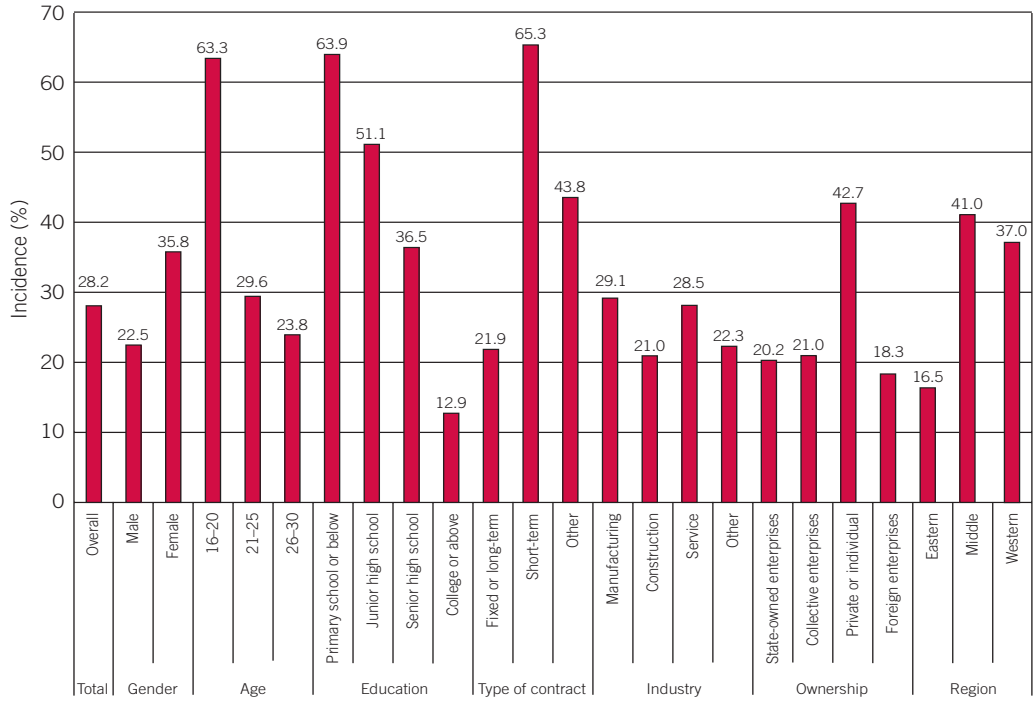


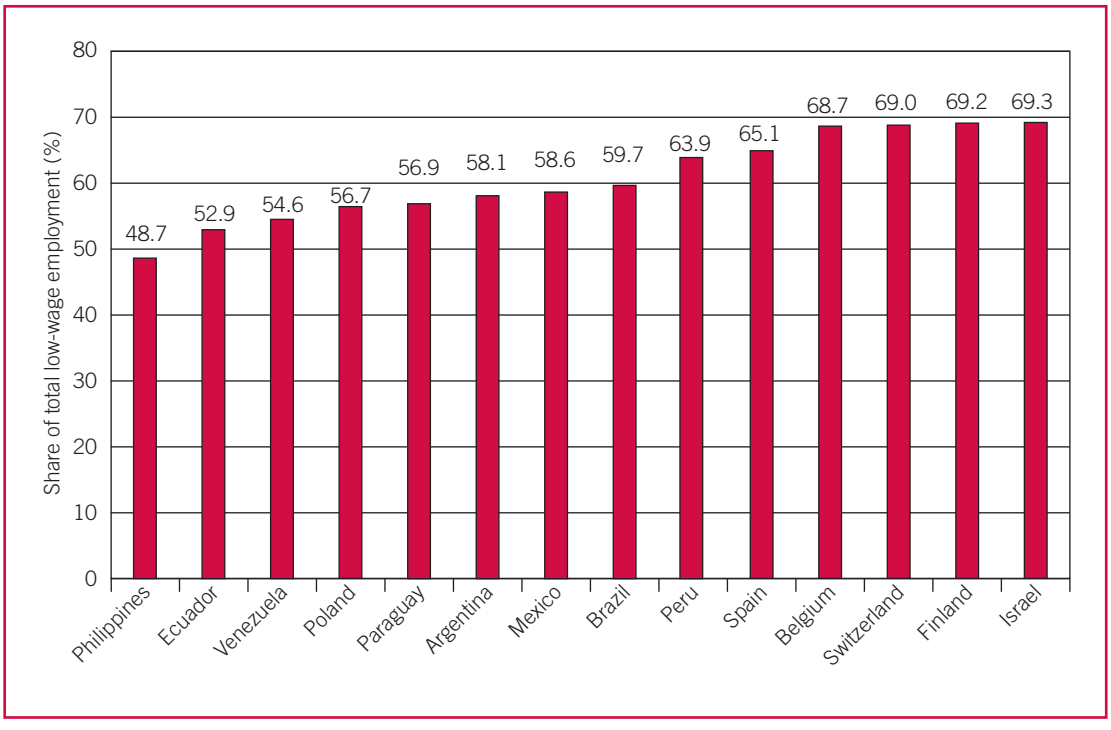
Figure 23 Incidence of low-wage employment by major demographic characteristics, selected countries, various years (in per cent) (continued)

Sources: ILO's country studies on low-wage employment in the developing world (see list of background papers in the bibliography; Damayanti (2010); Fontes and Pero (2010); Grimshaw (2010); Hall et al. (2010); Lee and Hwang (2010); Deng and Li (2010); Oosthuizen and Goga (2010); Peralta and Guirao (2010); Velásquez Pinto (2010)).

group. In order to understand the characteristics of low-paid workers in developing countries, we have undertaken a series of case studies in countries that have seen dynamic changes in the labour market in recent years, including Brazil, Chile, China, Indonesia, the Philippines and South Africa. The case studies show that the patterns observed in high-income countries are, to a large extent, replicated in developing countries. Figure 23 shows how the incidence of low-wage employment varies along with demographic, occupational and enterprise characteristics in four of these developing countries. (The results of a more rigorous analysis based on a logit model are provided in box 4.)

From an analysis of the case studies, we first observe a strong association between a worker's level of education and the risk of low pay. In Brazil, for instance, 44 per cent of employees with only three years of schooling or less are paid low wages, while the incidence of low pay decreases to 29 per cent for those with 8–10 years of schooling. In South Africa, more than 60 per cent of workers with no or little education end up in low-paid employment, compared to a national average of 32.5 per cent. Similarly, in China, about 64 per cent of low-educated local workers (i.e. non-migrants) are in low-paid employment, relative to a national average of 28.2 per cent for all local workers in

Figure 24 Female share of low-wage employment in selected countries, latest year (percentage of total low-wage employment)



Source: ILO Global Wage Database.

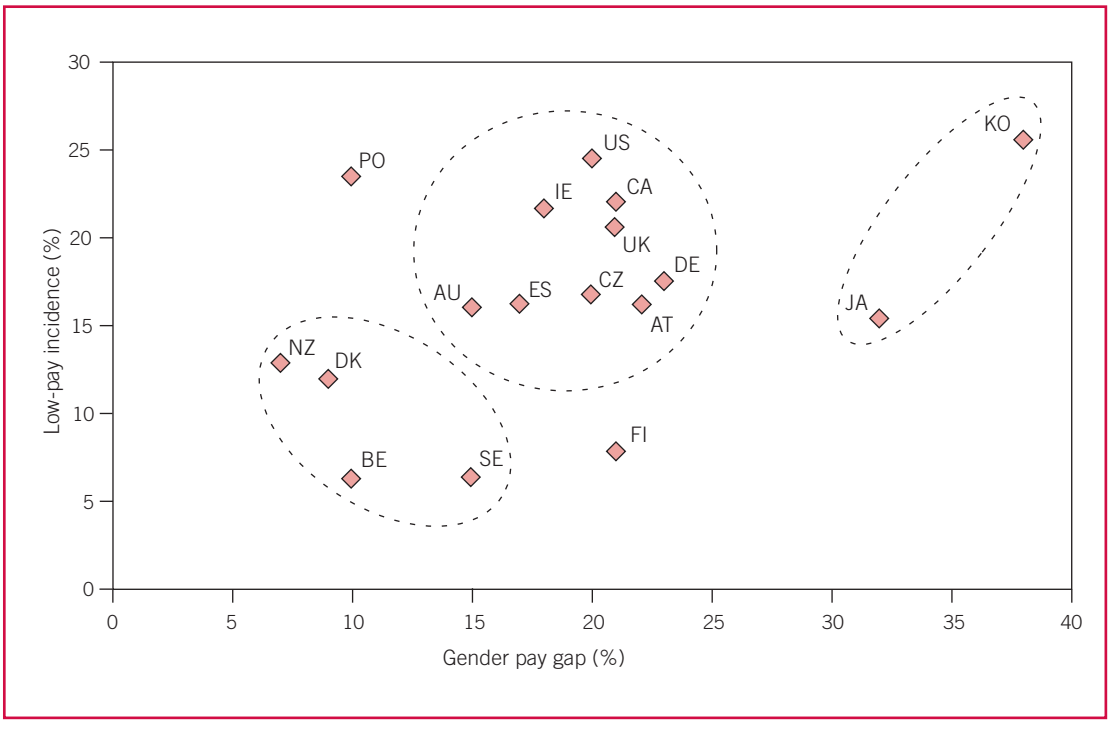
China. Surprisingly, the Philippines seems to represent an interesting exception to this common pattern, registering the highest incidence of low-wage employment among those with a primary and secondary education. Despite this exception, however, these findings conform to the negative correlation between educational levels and the incidence of low-wage employment found in more advanced countries. Across the EU, for example, it was estimated that the incidence of low pay among low-skilled workers was 20.9 per cent compared to 15.0 per cent among workers with medium-level skills and 8.3 per cent among highly skilled workers.[44] Such negative correlation between educational levels and the incidence of low-wage employment confirms that, in developing countries too, educational attainment and skills are critical factors in the determination of low-wage employment.

The second observation is that there is a higher risk of low-wage employment among young workers. In Europe as a whole, it is reported that the risk of low pay among youth is more than twice as high as the risk for prime-age workers, with the proportion of young people in low-paid employment ranging from approximately one in five young workers in Portugal to two-thirds in the Netherlands.[45] Similarly, in China, low-wage employment of local workers (i.e. excluding migrant workers) is concen-

[44] European Commission (2004, p. 168).

[45] OECD (2006, p. 175). One ILO report also found that young workers are more likely to be working poor than their older counterparts (see ILO, 2010a).

Figure 25 Comparison of low-pay incidence and the average gender pay gap, 17 OECD countries, 2007 (in per cent)



Notes: Full-time employees only. 2002 for Spain, 2004 for Poland and Sweden, 2005 for Germany and 2006 for Belgium.
Source: OECD Earnings Database; Grimshaw (2010).

trated heavily among young workers, aged under 20 years, for whom the risk is more than twice the national average. Given the fact that entry-level jobs are more likely to be low-paid, the relatively high incidence of low-wage employment is not particularly surprising. What is more important, as will be discussed in Part II of this report, is how quickly low-paid young workers move on to better paid jobs.

Third, the overrepresentation of women in low-wage jobs seems to be a universal characteristic of labour markets. In all of the countries highlighted in figure 23, the risk of low-wage employment is substantially higher for women than men. As a result, figure 24 shows that, in most countries, women make up the majority of low-wage employees, even though they usually have a lower participation rate. Even in the case of the Philippines, where women's share of low-wage employment is less than 50 per cent, the incidence of low-wage employment is 46 per cent higher among women than men. The fact that women predominate in low-wage employment has a negative effect on the gender pay gap. In spite of significant progress in recent years, the average monthly wages of women still represent only about 75 per cent of men's average wages.[46] In some countries, the gender pay gap can be much bigger. Part of this relatively large gap

[46] See ILO (2008a).

Box 4 Determinants of low-pay incidence: The statistical results of a logit model in selected countries

In order to determine the factors which influence the likelihood of low pay, a series of regressions based on a logit model has been undertaken. The model used is expressed as:

$$\text{Prob}(y=1|x) = \Lambda(x\beta) = \frac{\exp(x\beta)}{1+\exp(x\beta)}, \text{ where}$$

y is the dependent variable ($y = 1$ if low paid, $y = 0$ otherwise)
x are the independent variables, including demographic characteristics
β are the coefficients and
Λ is the cumulative standard logistic distribution function.

Table B2 below presents a list of variables which are found to increase the risk of low pay (includes only those which are statistically significant). Whenever possible, selection bias has been addressed by using conditional probability, based on the methodology proposed by Cuesta (2008). Further details are available from the country reports commissioned for the *Global Wage Report*.

Table B2 Variables increasing the risk of low pay in selected developing countries

	Brazil	China	Indonesia	Rep. of Korea	Philippines	South Africa
Gender	Women	Women	Women	Women	Women	Women
Age	Youth	Youth	Youth	Youth and elderly	Youth	Youth
Ethnicity, race and migrant status	Non-white	Internal migrants	NI	NI	NI	Non-white and non-Asian
Education	Low education	Low education	Low education	Low education	Low education	Low education
Marital status	Not household head	Not married	NI	Not household head	Not married	NI
Region	North-east region	Middle and Western	Rural	NI	Outside Manila	Rural
Employment type (or contract type)	Informal employees	Short-term or other atypical contracts	NI	Non-standard contracts	Temporary contact	Informal employees (without a written contract)
Industry	Services (including private households)	Manufacturing	Service	Service	Service	Wholesale and retail, private households
Types of firms	NI	Private enterprises	NI	Small firms	Private households	Small firms

(continued)

Box 4 (continued)

	Brazil	China	Indonesia	Rep. of Korea	Philippines	South Africa
Occupation	NI	Manual and other service workers	Trade-related and service	NI	Trade-related and service	Domestic workers
Working time	Full-time	NI	Long hours (>60 hours)	Part time	Full time	NI
Union membership status	NI	NI	NI	NI	NI	Workers without union membership
Data set	PME/IBGE	CHIP	LFS *(Sakernas)*	LFS	LFS	LFS
Sources	Fontes and Pero (2010)	Deng and Li (2010)	Damayanti (2010)	Lee and Hwang (2010)	Peralta and Guirao (2010)	Oosthuizen and Goga (2010)

NI = "not included" in regressions.

can be explained by the fact that women work fewer hours, but another part is related to women's overrepresentation in low-paid jobs and to discriminatory wage practices.[47]

This gendered distribution of low-wage employment is, in itself, an important cause of gender pay gaps. Indeed, there is evidence of the strong association between the overall incidence of low pay in a country and its average gender pay gap. In figure 25, which focuses on industrialized countries, a cluster of four countries in the bottom left-hand corner is characterized by a below-average incidence of low pay and a below-average gender pay gap. A second group of nine countries combines a level of low pay and gender pay gap at or above the average for all countries, and a third group is represented by the Republic of Korea and Japan, which have a high level in both variables. Country exceptions to this pattern include Poland, which has a narrower gender pay gap than expected – pointing to a relatively high representation of men among low-wage work – and Finland, where the gender pay gap is surprisingly wide, given its overall low incidence of low-wage work.

The gendered distribution of low-wage employment is also related to the vulnerability of women-dominated occupations to low-pay risk. As our regression analysis (see box 4) shows, domestic workers are exposed to an extremely high risk of low pay, notably in Brazil, South Africa and the Philippines. In the Philippines, three out of four domestic workers were low paid. In many countries, including the Philippines, low pay among domestic workers is partly caused by the lack of proper wage protection, notably the fairly common practice of excluding such workers from the application of minimum wages.[48]

In addition to these personal characteristics, it is important to note that the types of employment and contract are also significant. So, for example, permanent and

[47] See Grimshaw (2010) for a review.

[48] See Peralta and Guirao (2010) for the case of the Philippines.

formal jobs are associated with lower incidences of low wages. Job insecurity, far from being compensated through higher wages, actually tends to go hand in hand with low pay. The striking difference in low-wage risk between stable and short-term contracts among local workers in China – 22 per cent and 65 per cent, respectively – is a case in point. Not surprisingly, low-wage employment is concentrated in small enterprises, such as enterprises with 1–5 employees in the Philippines. Aside from the specific circumstances of agriculture and the informal economy, low-wage employment is also concentrated in key sectors – common in developed and less developed countries – typically including the retail trade, hotels and restaurants, transport, social services (including household activities) and some areas of manufacturing, such as food processing and textiles; again, many of these sectors are female-dominated.

Finally, ethnic and geographical factors are significant as well, particularly in a country such as South Africa. China provides another interesting case, where the urbanization of the labour market makes rural migrant workers vulnerable to low wages. In 2008, the risk of low-wage employment was at least twice as high for rural migrant workers as for local workers. It is estimated that about 60 per cent of this large differential is attributable to the characteristics of workers, such as the level of education, and the remaining 40 per cent is due to the discriminatory treatment of migrant workers.[49] This points towards the general observation that migrant workers tend to be particularly vulnerable to low pay, not only because of their personal characteristics but also because they are more likely to suffer from pay discrimination in the labour market.

[49] Deng and Li (2010).

PART II Wages policies in times of crisis

4 The role of wage policies

4.1 Social justice and equity

Why should policy-makers care about wage policies during the crisis and the recovery process? One reason concerns social justice and the hardship that inequality and low wages impose on households, particularly at the lower end of the wage distribution. Even in 2007, before the economic crisis, 79 million EU citizens were estimated to be "at risk of poverty", and 32 million were "materially deprived".[50] While people in employment are less exposed to the risks of poverty than the unemployed, "in-work" poverty affected no fewer than 17.5 million workers.[51] In the United States, it was estimated that 37.3 million people lived on or below the poverty line in 2007, of which 7.5 million held a job and were therefore counted among the working poor.[52] For all these workers, even small pay cuts during the crisis could trigger large reductions in living standards.

Related to this is the fact that, even though inequality reflects differences in the level of education, ability or motivation between individuals, the increasing return on skills mentioned in Part I of this report can be problematic from a societal point of view. A report by the International Institute for Labour Studies (IILS) highlights the fact that, while the costs of the financial crisis and the rescue packages were borne by all, the benefits of the earlier expansionary period were unevenly shared, with inequalities increasing at a pace that has probably been excessive.[53] The same IILS report points out that social conflicts tend to increase when inequalities are perceived as being too wide.[54] More recent events, including a series of labour disputes over wages in China, highlight the fact that low-paid workers are determined to demand an equitable distribution of the benefits of economic growth.

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[50] Eurostat, *Statistics in Focus* (46/2009).

[51] The total of 17.5 million workers is estimated on the basis of two separate Eurostat reports which document, respectively, that 8 per cent of the employed population in the EU27 had an income below the poverty line in 2007 (Wolff, 2009) and that total employment in 2007 was 218,451,000 (Romans and Preclin, 2008).

[52] US Department of Labor (2009).

[53] IILS (2008).

[54] There is a gender dimension: if young men in particular cannot find work and become marginalized, often the consequences are delinquency and social unrest. See ILO (2009b).

4.2 The macroeconomic effects of wages

Another concern which has recently re-emerged is related to the macroeconomic effect of wages. While much past research on wage policy has focused on the effects of wage institutions and regulations on firm-level or industry-level employment, another important question concerns the link between the level of wages in a country and its aggregate demand for goods and services. The latter is equal to the sum of consumption, investment, net exports and government spending. While a country's low wages relative to its productivity may help to boost its exports, and also encourage investment to a certain extent, it is important to keep in mind the fact that low wages depress household consumption. Hence, whenever a fall in wages reduces domestic consumption more than it increases exports and investment, it has a negative effect on a country's economic growth. This explains why declining wages in periods of crisis may actually lead to a spiral of falling aggregate demand and price deflation, rather than to a quicker economic recovery (see box 5).[55]

In fact, a number of observers have established links between the long-term decline in the wage share, the increase in wage inequality and the global economic crisis. While there are, of course, many factors which have triggered the crisis, a group of 30 distinguished experts led by Jean-Paul Fitoussi and Joseph Stiglitz considered that the crisis had its structural roots in the decline in aggregate demand that preceded the crisis and which was due to changes in income distribution. They argue that the increase in inequality in the years before the crisis depressed aggregate demand by transferring money from low-income households – which have a high propensity to spend – to households with higher incomes, which tend to spend less and save more.[56] In the United States, this fall in aggregate demand was compensated for by increased borrowing, so that growth was maintained at the cost of increased indebtedness. A similar argument is made by others,[57] who contend that the decline in the wage share before the crisis underlies the development of the United States' "debt-led consumption model", which ultimately proved to be unsustainable.

Looking forward, the macroeconomic link between wages and aggregate demand also indicates that the pace of the recovery will depend, at least partly, on the extent to which households are able to use their wages to consume whatever the global economy produces. And, while it may be possible for some countries to rely on export-led growth rather than on their own internal demand, such policies create global imbalances, since the world as a whole cannot rely on exports. Another disadvantage of export-led growth strategies based on low wages is that they may generate economic growth but with a declining wage share (see the cases of China and Germany, for example). This situation calls for the implementation of policies to rebalance global growth in at least two ways. On one side, export-oriented countries, such as China, which now face weaker demand from countries with external deficits, need to strengthen aggregate demand from domestic sources. On the other side, countries such as the United States, which had a large

[55] The fact that wage moderation can lead to deflationary pressures or lower aggregate demand has also been recently highlighted in IMF (2010a) and UNCTAD (2010).

[56] See Fitoussi and Stiglitz (2009).

[57] See for example Onaran (2009), Palley (2009) or Horn et al. (2009).

Box 5 The perverse effects of declining wages

Following the financial crisis that hit the world in mid-August 2007, downward pressures on nominal wages, arising from failing business enterprises and rising unemployment rates, have become more and more apparent since early 2009. According to the textbook view, there is nothing to worry about, since decreasing wages are part of the market forces that should be instrumental in bringing the economy back to full employment. It is often claimed that the more flexible wages are, the faster the economy will adjust to the negative shock and return to full employment. This view, however, is subject to a problem called the "fallacy of composition". It is certainly in the interest of each firm and each country, taken individually, to reduce nominal and real wages when others do not. The firms that have reduced wages will benefit from higher profit margins. However, if all firms and all countries choose the path of wage deflation, overall economic activity is likely to be reduced, and sales and employment will drop. In 1936, Keynes (2007) argued that falling wages result in declining aggregate demand and that, far from rectifying the situation, the downward flexibility of wages and prices compounds the problem, prolonging and worsening the recession.

Two historical examples are worth recalling. Japan during the 1994–2004 period is an illustration of monetary policy impotence under wage and price deflation. The Bank of Japan tried almost anything that was suggested by economic experts to get the Japanese economy back on track, but to no avail. Even the non-conventional monetary policies now suggested to bring Western economies out of the current crisis turned out to be useless in the Japanese case. The Japanese experience has shown that wage and price deflation does not restore full-employment activity, and probably only makes matters worse. Central bankers, despite their preference for low inflation rates, appear to have learned the lesson. They fear wage and price deflation, realizing that expansionary monetary policies become impossible once inflation falls into the negative range, because of the zero-interest lower-bound problem experienced in many advanced countries during the crisis. Expansionary fiscal policy is then the only way out.

Another lesson from history is that of the Great Depression, when prices in the United States fell by nearly 10 per cent in 1932. As pointed out by Lawrence Summers, an Obama adviser and director of the White House National Economic Council, it is doubtful that the Depression would have been less severe had prices dropped even faster. "Rather more plausible is the belief that if the price level had fallen at 20 percent per year, the contraction would have been even more serious as very high real interest rates would have drastically reduced the level of economic activity" (De Long and Summers, 1986, p. 1043). Hence, the experience of the Great Depression of the 1930s gives little comfort and lends little support to the idea that wage and price deflation will quickly put the economy back on track.

Source: Professor Marc Lavoie, Department of Economics, University of Ottawa, Canada.

external deficit before the crisis, need to anchor future aggregate demand more firmly in earned income and broad access to employment, rather than in increasing debts.

While generalized wage cuts across countries could spread competitive deflationary pressures and threaten the global economic recovery, there are, of course, limits in any country on the extent to which wages can be increased without harming the economy. When wages increase too quickly relative to productivity, their adverse impact

on investment and exports outweighs their positive effect on domestic household consumption. This can lead to economic stagnation. Also, excessively high wages relative to productivity discourage firm-level employment and risk increasing unemployment, even under lax monetary and fiscal policies. The challenge for policy-makers is therefore to strike a balance by targeting a level of wage share and income distribution which maximizes aggregate demand but also translates into decent work for all.

4.3 Market imperfections

A third concern relates to the fact that market forces alone will not necessarily deliver the best outcomes in respect of decent work. Indeed, sound or balanced wage policies are the result of institutional settings and practices that are able to strike a balance between wages that are high enough to sustain consumption consistent with overall economic growth and moderate enough to ensure adequate returns on investment. Without effective wage policies there is a risk that the work of some labourers will be undervalued or that employers will capture a disproportionate share of the economic surplus that inevitably arises from any employment relationship in "imperfect" labour markets.[58]

The imperfect nature of labour markets is particularly obvious in the case of gender pay gaps. We have already noted the considerable overrepresentation of women in low-wage employment in the bulk of countries for which we have data. Part of the explanation in some countries surely has to do with women's disadvantageous situation in terms of educational opportunities and, hence, their lower levels of skills and productivity; a situation which calls for policy measures to improve the education and skills (or "employability") of women. At the same time, in many countries the gender pay gap has decreased only slowly in spite of women's educational achievements and the progressive closing of the gap in work experience.[59] This highlights the fact that labour market imperfections are also a key factor. For instance, there is evidence that when women have a lower elasticity in labour supply (due, for example, to lower mobility) than men, employers may choose to pay lower wages to women than men even though both groups have the same level of productivity.[60]

Hence, the literature on imperfect labour markets draws attention to the tendency to undervalue women's work. First, many women are paid less than men for the same productivity within a given job or occupation. This is particularly evident in the case of different starting salaries for men and women. Second, women are still often concentrated in jobs or occupations which are themselves undervalued, such as domestic work. Even when requiring higher qualifications and more complex work, female-dominated occupa-

[58] This economic surplus or "rent" arises as a result of frictions and idiosyncrasies (or "labour market imperfections") , which explain that it takes time and money for a worker to find another employer who is a good substitute, and that it is also costly for employers to find other workers who are good substitutes. In fact, a growing body of economic literature now takes imperfect competition as a starting point for analysis. See for example Manning (2003, 2010); Boeri and van Ours (2008); Kaufman (2007); and see also Ashenfelter et al. (2010) and other contributions to the special issue of *Journal of Labor Economics,* 28(2).

[59] See ILO (2008a).

[60] For instance, see Manning (2010) and Ransom and Oaxaca (2010).

tions are sometimes lower paid than male-dominated occupations (see table 4 for different explanations about the high risk of low-paid employment among women workers).

Undervaluation affects all groups of women in the labour market and hence explains part of the gender pay gap in many countries, but women with relatively low levels of formal education are especially at risk of suffering from a lack of recognition of their skills, experience and responsibilities. Perhaps the archetypal example of undervalued, low-wage women's work is paid care work, which involves the complex interaction between gender relations, family structure, emotional labour and employment relations.[61] Studies show that care work tends to be devalued, despite evidence that emotional work is psychologically stressful, in part because it is associated with discriminatory notions of "women's work", where care work is denigrated even among friends and family of female care workers.[62]

Table 4 Different reasons why women are more vulnerable to low wages: Arguments and implications from a literature review

Argument	Key principles	Implications for low-wage work
1. **Women's work may be undervalued because women's economic lives follow different patterns**	Low valuation of skill and status Low valuation because women assumed to be second earners Low valuation because women concentrated in low-paying firms in the secondary labour market Low valuation because women's lives perceived to follow different patterns to men's, obliging non-commensurate forms of work (e.g. part-time)	Women's skills in caring work regarded as "natural", deriving from women's role as mothers/carers; low pay therefore justified by high job satisfaction of women in caring jobs Women's low pay results from concentration in low value added industries Women's low pay justified as "pin money" since male partner's wage accounts for bulk of household income Women's low pay in part-time jobs reflects a notion that part-time work is non-commensurate with men's work
2. **Women tend to have a lower reservation wage than men**	Gender bias in eligibility rules for unemployment benefits and social protection in general (e.g. hours/earnings thresholds, duration of employment, etc.) Insufficient maternity protection Gender inequality in dependence on family income (especially during periods of child-rearing)	Lower reservation position (through weaker claims to unemployment benefits/assistance and lower social benefits, including maternity protection) weakens women's wage bargaining position compared to men Low wages for women in part-time work especially influenced by their limited eligibility to unemployment benefits/ assistance Presumption of family income pooling (transfer of income from male employed partner) seen to justify discriminatory notions of women's low pay as "pin money" and further penalizing of single female headed households

[61] See, for example, England (2005); Folbre (2001); Wharton (1999); Zelizer (2002).

[62] See Lee-Trewheek (1997); Hochschild (1983).

Table 4 (continued)

Argument	Key principles	Implications for low-wage work
3. Gender-bias in wage-setting institutions may have uneven gender effects	Female-dominated sectors and occupations less likely to be covered Statutory national minimum wage more likely to benefit women's pay than men's Positive impact on gender pay equity in the more centralized public sector wage systems	Women's low pay in female-dominated sectors shaped by lack of collective bargaining coverage Collective agreements in female-dominated sectors may have lower minimum rates than in male-dominated sectors Female part-timers most likely to be excluded from collective bargaining coverage, weakening pay prospects Women's low pay uplifted (and gender pay gap narrowed) by raising the statutory minimum wage
4. Women are often disadvantaged by independent workplace effects (i.e. by workplace-specific practices)	Ability and willingness of employer to pay varying levels of wages according to the gender composition of workplace Monopsonistic employer power Barriers to women's mobility exposes their risk of exploitation Inter-firm contracting and cost minimization in female-dominated private services	Women's low pay may result from concentration in firms with less economic rent Low pay reinforced by strong monopsonist employers (e.g. for care work, unqualified nursing) Risk of low pay may be higher in female-dominated (and part-time dominated) workplaces Cost-minimizing outsourcing of low-skill activities puts downwards pressure on female-dominated, low-wage jobs (e.g. cleaning, catering) despite profitability of large client firms

Source: Adapted from Grimshaw (2010).

Undervaluation of work is not limited to the gender dimension but is fairly common, particularly in combination with certain characteristics of workers. For instance, in China, the risk of low pay is more than three times higher for migrant workers than for local workers. It is not difficult to see that such a discrepancy is partly due to differences in "human capital" (e.g. education and training) or other job-related characteristics between the two groups of workers. Our analysis (based on the Oaxaca–Blinder decomposition technique) shows that, in 2007, 59.6 per cent of the difference between migrant and local workers in the incidence of low pay is attributable to productivity-related factors (such as education, which alone explains 31.0 per cent of the difference), while the sizable remainder of 40.4 per cent can be attributed to differential treatments.[63] This finding is largely in line with the increasing concern about migrant workers in China, especially in relation to the *Hukou* (household registration) system.[64]

[63] The results are robust to different model specifications. See Deng and Li (2010).

[64] See Jiang et al. (2009); Chen and Hou (2008).

4.4 Vulnerable workers: Low-wage jobs

It has been argued that distributional dimensions are crucial for both normative and economic reasons, and that policy interventions are needed in the presence of labour market imperfections. The need for such policies is particularly strong in the case of vulnerable workers who are exposed to low and unstable income and thus suffer greatly during economic downturns. Policy efforts should be made to secure decent incomes for these vulnerable low-paid workers in both the level and stability of income.

Certainly, low pay might be less of a concern if it were only a transitory stage for young people rather than a persistent outcome for adults, whose social well-being would be adversely affected for life. Unfortunately, evidence about the extent to which low-wage jobs are transitory or dead-end is rather mixed and cross-country variations are also significant.[65] Figure 26 shows, for instance, that in European countries 12-month transitions out of low-wage employment and into more highly paid jobs are only experienced by one in three workers. Around half of low-wage workers are still in a low-wage job the following year and close to one in five moves into an unpaid labour market status, such as inactivity or unemployment.[66]

Gender differences are again notable, such that the opportunity to move out of low-wage jobs is relatively limited among women (26.1 per cent compared to 37.6 per cent for men). This gender difference in the risk of being trapped in low-wage employment explains the high concentration of women in low-wage employment. It is also interesting to note that there is a constant flow between non-employment and low-wage employment and that this exit behaviour is particularly strong among female low-wage earners (19.4 per cent compared to 16.5 per cent for men). To summarize, it appears to be relatively easy for women to enter into low-wage employment, but relatively difficult to move into better jobs.

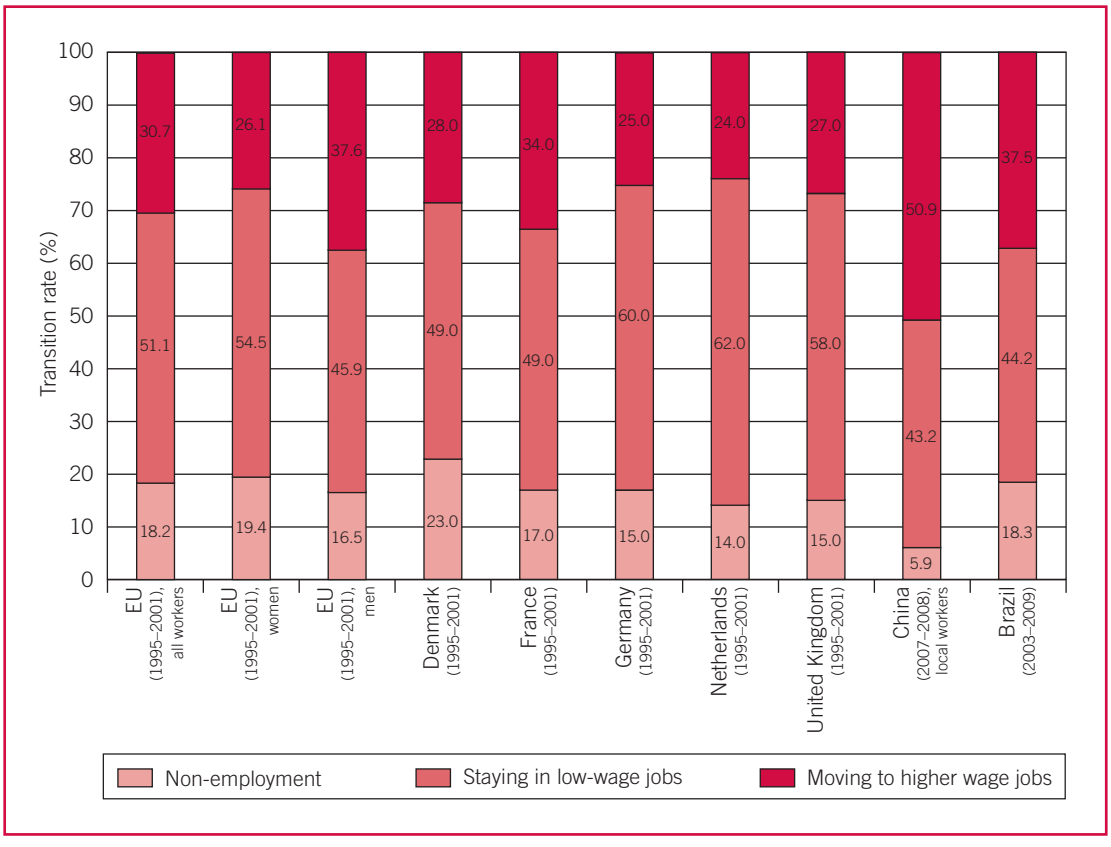
There is considerable intercountry variation in mobility out of low-wage work, both in terms of 12-month transitions and the probability of transition over several years. Similar to the gender difference noted above, one striking finding is that those countries with a relatively high incidence of low-wage work are also more likely to experience smaller shares of low-wage workers progressing into higher paid work; this finding suggests that countries with higher stocks of low-wage workers also face problems of limited flows out of low-wage work, as illustrated in figure 27.

The situation appears to be more dynamic in the fast-growing developing countries. In China, for example, about half of low-wage workers can move into higher paid jobs within a year, while the risk of being caught in a trap between non-employment and low-wage jobs is relatively small. Similarly, in Brazil, 44.2 per cent of low-paid workers were estimated to stay in low-paid jobs, while 37.5 per cent succeeded in moving on to higher paid jobs. One important aspect of low pay in Brazil is the relatively high risk of being unemployed or inactive after working in low-paid jobs. About 18 per cent of low-paid workers were found to be in non-employment one year later. Not surprisingly, the risk of being trapped

[65] See also *International Labour Review* (2009).

[66] European Commission (2005).

Figure 26 Predicted transition rates from low-wage jobs to higher wage jobs and non-employment in selected countries (in per cent)



Note: The figures refer to the estimated probability of changes in earning status (higher wage jobs or non employment) within the period of one year among low-wage workers.

Sources: European Commission (2004); Mason and Salverda (2010); ILO estimates for China and Brazil.

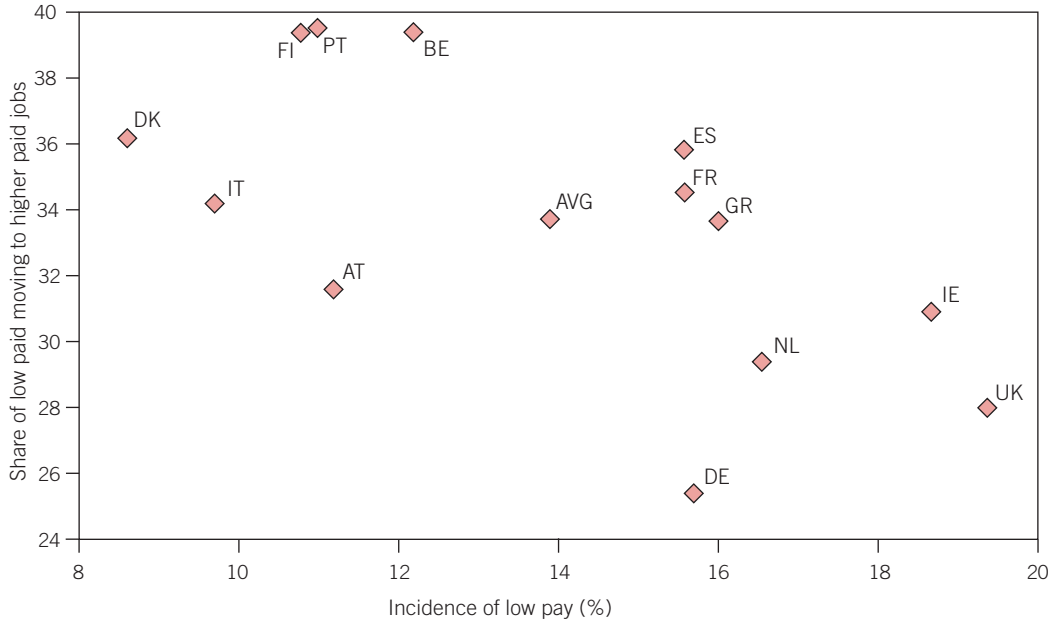
in low-paid jobs or being inactive or unemployed is particularly high for women and for those with low levels of education. The risk is also high for part-time and domestic workers.[67]

5 Wage policies

What can be done to improve labour market outcomes? Evidence shows that productivity growth and education for all would be significant steps in improving both the level and the distribution of wages. This report has shown that productivity, in particular, is a key determinant of the level of wages, and that people with low education are at high risk of ending up in low-paid work. At the same time, productivity growth and educa-

[67] See Fontes and Pero (2010). Mobility patterns among low-wage workers in developing countries have been poorly understood. New evidence and insights on this subject in selected developing countries will be provided in a forthcoming edition of the *International Labour Review*.

Figure 27 Incidence of low-wage employment and mobility in European countries



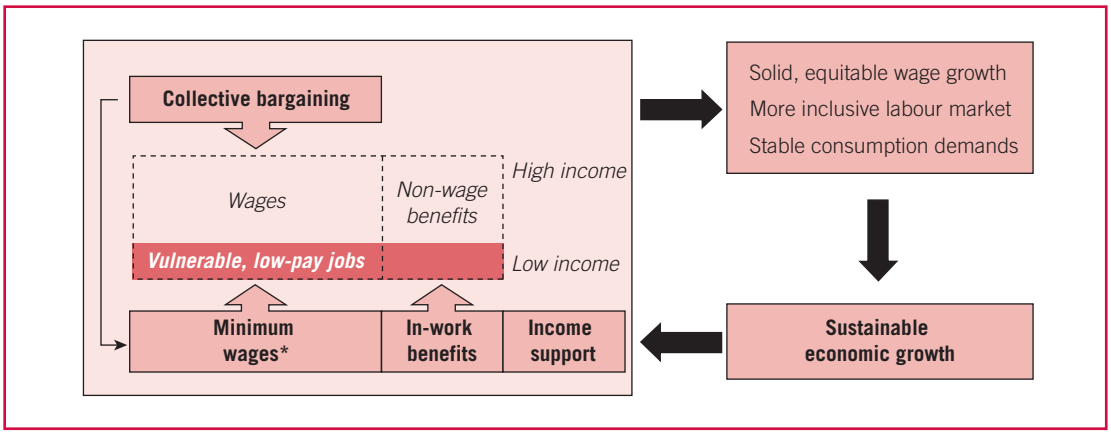
Note: Incidence of low pay refers to 2000 ECHP data; mobility data refer to 12-month transition based on an average for pooled 1994–2001 data.
Source: Compiled using published data from European Commission (2004, tables 51 and 55); Grimshaw (2010).

tion alone are insufficient to explain all the variations across different countries' wage outcomes. This is why the present report argues that a number of key labour and social policy measures are also necessary to improve wage outcomes, labour market performance and overall macroeconomic results.

Some of these policies are highlighted in figure 28.[68] They range from collective bargaining and minimum wages to in-work benefits and other income support policies. Altogether, these policies should be placed within the overarching regulatory framework which aims to address the discriminatory practices which at least partially account for wage inequality and low pay. While collective bargaining benefits all workers who are covered and can contribute to an improved link between wage growth and productivity growth, the minimum wage is a policy tool to provide an effective backstop at the lower end of the wage distribution. In-work benefits can provide incentives for workers to take up low-paid jobs by providing additional income through tax credits or other schemes. And, finally, broader income transfers, which are unrelated to employment status, are necessary to reach the poorest households. Taken together, these measures can promote more inclusive labour markets, stable consumption demand and, ultimately, a more sustainable economic growth. The next sections will discuss these policies in more detail, highlighting the potential, but also the challenges faced, in

[68] Because of space limitation, one important policy measure concerning education and training is not discussed in this report. For details see Grimshaw (2010).

Figure 28 Sound wage policies make a difference: An illustration



* In some countries, minimum wages are fixed by collective bargaining at sectoral or national levels.

implementing these policies. One particular challenge is to structure the system in such a way as to ensure that synergies between these policies are maximized and to avoid the situation where one set of policies undoes the benefits of another.

5.1 Collective bargaining

Collective bargaining and average wages

Collective bargaining has a crucial impact on the link between overall wages and productivity growth, and will therefore play a vital part in the recovery process. The *Global Wage Report 2008/09* calculated that, before the crisis (for the period from 1995 to 2007), the growth in average wages generally lagged behind the growth in GDP per capita. The report found that each 1 per cent increase in the annual GDP per capita was associated, on average, with a 0.75 per cent increase in average wages. This so-called "wage elasticity" of 0.75 was interpreted as an indication that increases in productivity failed to translate fully into higher wages. Another key result was the finding that the connection between wages and productivity was more apparent in countries where collective bargaining covers more than 30 per cent of employees. In particular, we calculated that a 1 per cent increase in the annual GDP per capita translated into average wage growth of 0.87 per cent in countries with superior collective bargaining coverage, compared to wage growth of only 0.65 per cent in countries with weak coverage.[69]

Recent examples show that the role of unions in linking average monthly wages to labour productivity also remains strong in periods of crisis. It is interesting to see, for example, that Germany's response to the crisis seems to have reinforced its core institutions and the willingness of major stakeholders to work together. With the help of state subsidies, employers kept their long-term commitments to core workers and, in return, trade unions and work councils agreed to make concessions in terms of pay and work-

[69] Collective bargaining is also a critical method for addressing the gender pay gap in wage negotiations. See the Joint Working Papers on "Gender equality and social dialogue in selected countries" (ILO, forthcoming).

ing conditions (see box 6).[70] Industry-wide collective bargaining also brought about considerable real wage cuts.[71] The model of close cooperation explains, at least in part, the low number of job losses during the crisis, in spite of a sharp economic contraction. The question is how employment security achieved through wage restraint will affect aggregate demand, and what impact this will have – together with Germany's ability to maintain strong exports – on the pace of the recovery from recession.[72]

The German experience contrasts with that of other countries, including countries in Central and Eastern Europe, where cutting employment shortly after the beginning of the crisis was the typical reaction in enterprises, and where wage and hours adjustment played a marginal role. This can be explained by the fact that institutions encouraging the combination of employment, hours and wage adjustment are underdeveloped in many countries. Experience from Hungary shows, for example, that between May 2008 and May 2009, firms covered by collective agreements shed slightly fewer jobs than other firms of the same size.[73] However, because of the small fraction of workers covered by collective bargaining, the typical adjustment in private sector enterprises was to keep hours and nominal wages constant, while reducing employment levels. Overall, these examples show that collective bargaining can strengthen the link between wages and productivity, even in times of crisis, and hence contribute to more rather than less flexible labour markets. Collective bargaining will also help to ensure that wages recover when economic indicators improve.

Collective bargaining and low pay

Collective bargaining not only strengthens the link between wages and productivity, it also helps to reduce inequality. The *Global Wage Report 2008/09* showed that high-coverage countries have significantly less wage inequality than low-coverage countries, both overall and in the lower half of the wage distribution. By reducing the dispersion of wages and by raising wage floors, collective bargaining can contribute to reducing the risk of low pay (i.e. through wage compression).[74] A review of evidence for 20 OECD countries shows, for example, that there is a strong negative correlation between the incidence of low-wage employment and several variables that measure the regulatory strength of wage-setting institutions.[75] For the countries covered, the simple one-variable regressions show that an increase of 1 per cent in union density (the share of union members as a proportion of employees) is associated with a 1.5 per cent reduction in the incidence of low-wage employment.

While data limitations make it difficult to generalize this finding at the global level, figure 29 shows that higher union membership is correlated with a lower incidence of

[70] See Beck and Scherrer (2010).

[71] The industry-level agreements often included clauses which allowed the actual implementation of the wage agreements at the industry level to be negotiated at an enterprise level, providing additional flexibility to firms and workers in distress ("opening clauses").

[72] See Flassbeck (2010).

[73] See Köllő (forthcoming).

[74] For a literature review, see Hayter and Weinberg (forthcoming).

[75] Lucifora et al. (2005).

Box 6 Germany: Bargaining over short-time work

In Germany, the financial crisis gave rise to sharp declines in orders and to considerable liquidity shortages. Even for healthy companies, it became increasingly difficult to obtain credit, so that immediate cost reductions became the main focus of company policy. The Government and social partners have prevented higher unemployment through a combination of different forms of working-time reduction.

At the beginning of the crisis, companies used the cheapest forms of working-time reductions (i.e. cuts in overtime and the use of working-time accounts). Almost half of German companies had introduced working-time accounts in recent years and, in the economic boom years between 2005 and 2008, these accounts accrued substantial credits. At the beginning of the crisis, these credits were worked off and overtime was reduced.

When these measures were exhausted, policy-makers relaxed the conditions of the short-time work (or "Kurzarbeit") scheme. Under this scheme, companies which temporarily reduce the working hours of their employees can apply for wage subsidies (67 per cent of monthly net income for hours not worked). Policy-makers extended the maximum period for claiming subsidies from six to 24 months until the end of 2010. They also reduced the employers' share of the costs by reimbursing employers' social security contributions from the seventh month onwards (or from the first month if companies provided training). In some instances, the social partners negotiated improvements in the short-time working allowance. In some collective bargaining areas, particularly in the metalworking and chemical industries, an agreement on topping up the allowance to 90 per cent of the previous net wage was concluded.

The use of the scheme reached a peak in May 2009, when 1,516,000 workers (mostly in manufacturing) were on short time, with an estimated average decline in hours worked of 31 per cent. Although short-time working is not without costs for companies (employers have to pay social security contributions for the first six months as well as wages on public holidays and during annual leave), the alternative – namely the costs of redundancies and hiring new employees after the recession – are often even more expensive. With average redundancy payments and hiring costs for skilled workers, 500,000 redundancies during the crisis and re-employing a corresponding number of workers after the crisis would have cost firms a total of €22 billion. Short-time work, by contrast, is estimated to have cost firms €5 billion, while the Federal Labour Agency paid €6 billion (Institut für Arbeitsmarkt und Berufsforschung).

If staff requirements are expected to reach similar levels again in the future, short-term working is attractive to both firms and workers. This is why short-time working has been used as a buffer for short-term fluctuations in Germany ever since 1924. The programme can be used flexibly depending on the economic circumstances. In times of severe economic crisis, conditions can be relaxed, while in boom periods the rules can be tightened to prevent companies from using the scheme simply to postpone employment decisions.

Source: Professor Gerhard Bosch, Institute for Labour and Skills, University Duisburg-Essen, in Vaughan-Whitehead (ed.) (forthcoming).

Figure 29 The average incidence of low pay by trade union density in 33 countries, 2009 or latest year (in per cent)

Notes: The averages refer to the *mean* averages of national average incidences. For low-pay incidences, the latest available figures are used. For country coverage, see figure 21 (concerning global comparison of low pay).

Source: Hayter and Stoevska (2010) for union density data; ILO Global Wage Database.

low pay in the countries for which both sets of data are available. We estimate that in countries with a union density of less than 15 per cent, the incidence of low pay is, on average, close to 25 per cent. This low-pay incidence is reduced by 3 percentage points for the countries with a medium level of union density (between 15 and 50 per cent) and is almost halved to 12.3 per cent in countries with high coverage (higher than 50 per cent). It is striking that the effects of union membership become particularly strong when the majority of workers are affiliated with trade unions, in comparison to the relatively small difference between the countries with low and medium levels.

The challenge of inclusive systems

One particular challenge for policy-makers seeking to maximize the effects of collective bargaining is to design inclusive systems which cover the maximum number of people.[76] Through either active coordination of wage agreements or government use of extension mechanisms, inclusive systems can spread the benefits of collective bargaining agreements to firms across an entire sector. Hence, such systems are able to extend the wage agreements of the relatively powerful groups of workers to those in weaker positions.[77]

[76] See Grimshaw (2010) for a review.

[77] Bosch et al. (2010).

This potentially encompasses firms where union membership is weak or workplace productivity is relatively low, and discourages business strategies such as outsourcing to non-unionized firms in order to save on labour costs. In addition, inclusive systems tend to "take wages out of competition". This encourages domestic competition among firms on the basis of quality rather than price and reduces pressure on firms to restrain wage growth. Evidence also shows that, in general, coordination and centralization can significantly reduce the incidence of low pay.[78] In practice, however, designing inclusive systems has proven challenging for at least three reasons.

First, inclusive systems generally imply wage determination at the sector level, possibly with further coordination among sectors. At this higher level, social partners are able to negotiate wage and job rules that relate to the wider occupational identity of the workforce, limiting employer (and union) influence on pay within the workplace.[79] At the same time, there are limits to how far such a model can protect against low-wage employment. Contemporary globalization and the internationalization of product markets make it difficult to take wages out of competition, unless cross-national wage settlements can be formed. Industry wage agreements also depend upon employer membership of associations, which can be difficult to sustain, especially where leading firms in a sector may be foreign-owned firms with home-country oriented wage bargaining strategies.

Second, it also remains a challenge for trade unions to organize low-paid workers. Low participation rates of women in workers' organizations compound this challenge. The rather moderate effect of a shift from low coverage to medium coverage on the incidence of low pay shown in figure 29 may be related to the fact that, even in countries with medium coverage, few low-paid workers are union members. This may, at least in part, be explained by the fact that many low-paid workers do not have a recognized employment relationship. As an illustration, figure 30 shows the proportion of low-paid workers who are union members in the Republic of Korea, a country with low union density, and in South Africa, a country with medium union density. In both countries, union membership among low-paid workers is low. This is particularly striking in the Republic of Korea, where overall union membership fell to 12.2 per cent in 2009 and where union membership is almost non-existent among low-paid workers (2.2 per cent). But even in South Africa, where about 31.4 per cent of wage earners were estimated to belong to trade unions in 2007, union membership is much lower among low-paid workers. Union density among low-wage workers was only slightly higher than one-third of the national average (13.2 per cent), which itself represents a significant decrease from 17.0 per cent in 1995.[80] Similar trends are observed for Brazil and Indonesia.

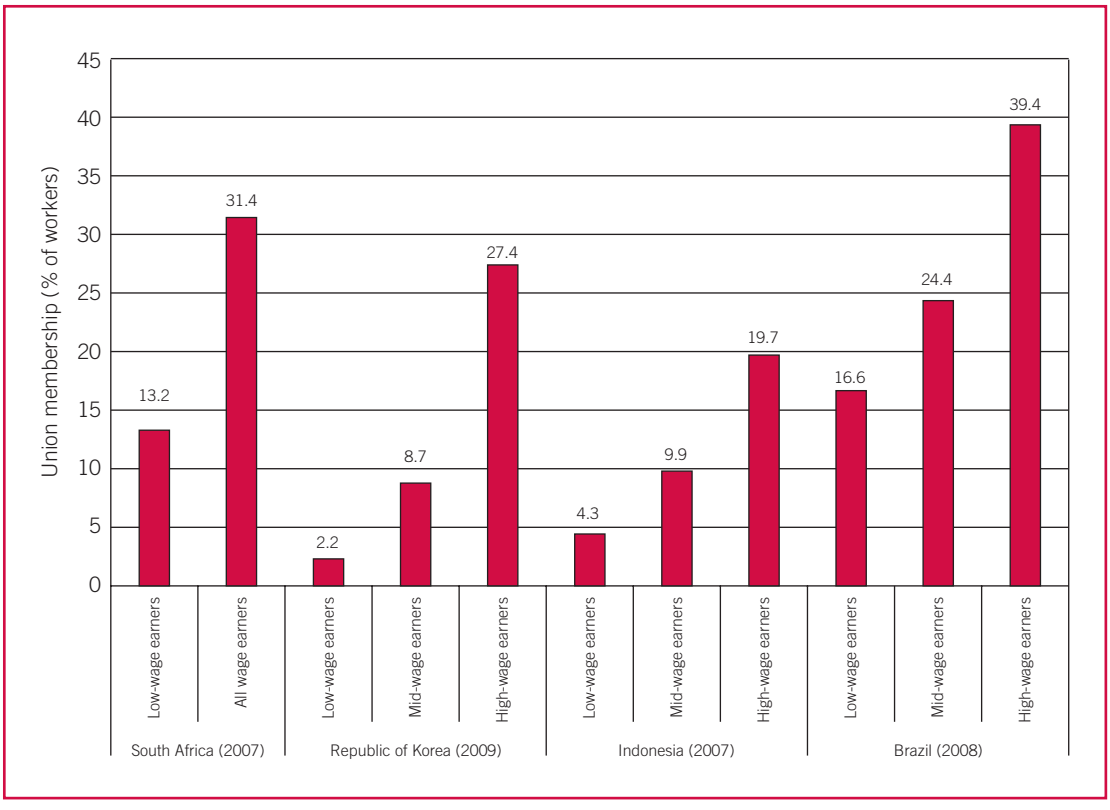
Third, inclusive systems depend not only on the level of union density but also on the existence of mechanisms to extend collective agreements to unorganized workers. This point is particularly important in the light of the fact that low-wage workers often have great difficulty in organizing or joining existing unions (see box 7 on the case of domestic workers). While this remains problematic, a number of promising experiments

[78] See, for example, Lucifora et al. (2005).

[79] See Brown (2010).

[80] Oosthuizen and Goga (2010); see also Altman (2006).

Figure 30 Union membership by pay level in four selected countries (as percentage of workers)



Note: Mid-wage earners refers to workers earning between 2/3 and 4/3 of the median wages. All the figures refer to union members as a percentage of total wage earners, except Brazil where only formal wage earners are considered.

Source: ILO estimates from national labour force surveys ("national technical reports" and estimation by Janine Berg for Brazil).

have been attempted in recent years. In India (state of West Bengal), for example, one important reason for the relatively high collective bargaining coverage is linked to the increasing inclusion of unorganized sector workers into the ambit of industry-wide collective bargaining. So, for example, many small units in the sponge iron industry, cold storage enterprises and hosiery workers have now been covered as a result of the Government facilitating the signing of agreements in industries previously not covered by collective agreements.[81] Similarly in Uruguay, where labour relations have changed significantly since 2005, a wage council for domestic work was created in August 2008 in which workers and employers (represented by the League of Housewives[82]) negotiated their first ever wage agreement. In the same country, the Government also created bargaining institutions for rural workers and employers, where wages have been negotiated for workers in sugar cane plantations, rice plantations, vineyards, forestry and the farming sector (box 8).[83]

81 Sen (2009).

82 *Liga de Amas de Casa.*

83 Mazzuchi (2009).

Box 7 Collective bargaining for domestic workers: Is it possible?

Domestic work is one of the oldest occupations for women in many countries. Recent surveys in ten Latin American countries show that domestic work represents on average more than 6 per cent of total employment, and almost 15 per cent of women's employment. On the assumption that the same averages apply to other countries in the region, we can estimate that there are about 16 million domestic workers in Latin America and the Caribbean. Although in some countries a significant number of men are employed as gardeners, guards or chauffeurs, an overwhelming majority of around 90 per cent of domestic workers are women.

Table B3 Domestic workers as a percentage of total employment by sex

	Total	Men	Women	Year of data
Argentina	7.9	0.3	18.3	2006
Bolivia	6.1	0.4	13.2	2000
Brazil	7.7	0.9	17.1	2005
Chile	6.1	0.9	15.8	2002
Costa Rica	7.2	1.2	17.8	2006
Ecuador	4.2	0.4	9.8	2006
El Salvador	5.0	0.8	10.6	2006
Mexico	4.2	0.5	10.3	2006
Panama	6.2	1.0	15.5	2006
Uruguay	8.7	1.4	18.9	2006
Average	**6.3**	**0.8**	**14.7**	

Data on wages confirm that domestic work is often poorly paid, and this report highlights the high risk of low pay for domestic workers. In rapidly growing countries such as Brazil and South Africa, domestic work has become one of the key sources of low-wage work. One reason is that the work of domestic workers is typically undervalued because it includes activities such as cooking, cleaning or taking care of children, which are seen as gendered family responsibilities. Another reason is the deeply rooted historical tendency to remunerate domestic workers by payments in kind. For live-in domestic workers, food and lodging has always been considered as in-kind remuneration. On average, across a sample of 11 countries from the region, the wages of domestic workers stand at less than half (46 per cent) of average wages.

In recent years, domestic workers have increasingly acted collectively. In Brazil, for example, a National Federation of Domestic Workers (FENATRAD) was created in 1997 and now has 35 union affiliations. In Uruguay, the establishment of a new tripartite wage board to negotiate wages and conditions of work gave further impetus to the consolidation of workers' and employers' organizations representing domestic workers and their employers. Overall, the Latin America and Caribbean Confederation of Household Workers (CONLACTRAHO), which was founded in 1988 on what is now Domestic Workers' Day in much of the region (30 March), has member organizations from 13 countries. In general, however, the isolation of domestic workers in households, their poor working conditions and low pay, as well as the corresponding limited resources of their organizations, make it a real challenge for domestic workers to organize, limiting their ability to negotiate collectively for higher wages.

Source: ILO (2010c) and ILO SIALC.

Box 8 Reintroduction of wage councils in Uruguay

After more than a decade's absence, in March 2005 a new government reintroduced the wage council system to determine minimum wages by sector of activity. Initially, these tripartite councils were organized around 20 economic groups, and 170 subgroups, with the responsibility for setting minimum wages by category for each subsector. Negotiations in all sectors took place simultaneously and took into consideration guidelines issued by the Ministry of Economy. The agreements were extended to the whole sector through presidential decrees.

During the period 2005–09, three rounds of negotiation took place. While the first agreement was of only one year's duration and included two adjustments, the following rounds extended the duration of the agreements and reduced the frequency of wage adjustments, as well as including more alternatives for differentiation. The guidelines proposed a range of increases, based on expected inflation and economic performance. Finally, the last round took place during the second half of 2008, when the financial crisis emerged and there was great uncertainty concerning how it would affect the different economic sectors in Uruguay. To address this concern, the government included a contingency clause in every agreement, establishing that, if economic developments shifted, a revision of the agreements would be possible.

At the time of wage council reintroduction, Uruguay was just coming out of the deepest recession in its recent history, with very high unemployment (18 per cent in 2002 and 2003) and a dramatic reduction of real wages (around –22 per cent between 2001 and 2004). Economic recovery was strong, benefiting from the international context. Including 2009 (the year of international financial crisis), economic growth averaged 6 per cent per annum during 2005–09. The employment rate increased from 51.5 per cent in 2004 to 58.6 per cent in 2009, resulting in a drop in unemployment to 7.6 per cent in that final year. The recovery of wages was also impressive, with a real annual increase of 5 per cent. Last, but not least, all these results were reached while maintaining fiscal and price stability.

During this period, the wage councils operated as a sectoral bargaining system, with strong coordination provided by the guidelines and supervision of the Government. This system managed to achieve economic recovery, as well as an improvement in employment take-up and wages, bringing into question the understanding that there is an inevitable sequence which requires consolidated growth first, followed by employment creation and only finally by wage improvement. In fact, the strong recovery of wages and employment appears to have played a key role in the significant economic growth experienced.

5.2 Minimum wages

In light of the challenges confronting unions trying to reach out to low-paid workers, minimum wages can play an important complementary role. After years of conscious neglect during the 1980s and 1990s, our previous *Global Wage Report 2008/09* provided indications of a more vigorous use of minimum wage policies in both developed and developing countries. Among developed countries, the United Kingdom (1999), Ireland (2000) and Austria (2009) all introduced a national minimum wage during the past ten years or so. In the United Kingdom, this was done in light of the increase in child poverty, as well as part of an attempt to implement policies to attract more adults into the labour force by "making work pay". Developing countries, too, increasingly rely

on minimum wages. Regional players, such as Brazil, China and South Africa, are all among the main drivers of this trend. South Africa, for example, introduced new minimum wage floors in 2002 to support the wages of millions of low-paid workers in a variety of economic sectors, including domestic workers. China issued new regulations on minimum wages in 2004. Overall, minimum wages are applied in about 90 per cent of countries in the world.

Recent trends

The trend towards reconsideration of minimum wages has continued during the past two years. In June 2009, ILO Member States adopted a Global Jobs Pact, which encourages governments to consider options such as minimum wages that can reduce poverty and inequity, increase demand and contribute to economic stability – emphasizing also that minimum wages should be regularly reviewed and updated. Later, the tripartite actors from various Central and Eastern European countries recognized, in November 2009,[84] the insufficient development of wage institutions and agreed on the need to have minimum wages as a wage floor to protect the most vulnerable workers. The same conclusion was reached by the tripartite delegations in the countries of the Caucasus and central Asia.[85] In Western Europe, too, there is a growing public debate on the possibility of using statutory minimum wages in countries which have traditionally relied exclusively on collective agreements.

During the crisis, low aggregate demand and high unemployment in advanced countries have often limited the scope for governments and social partners to negotiate higher minimum wages. To individual employers, an increase in wages which is not offset by a corresponding rise in productivity can be problematic, particularly in times of increased competitive pressures. At the same time, as an ILO report to the G20 points out,[86] the role of statutory minimum wage systems in protecting low-paid workers is well-recognized, including during periods of recession and weak recovery. Indeed, even during periods of economic difficulty, there are strong reasons for governments to want to protect the consumption levels of the lowest paid workers for both economic growth and equity reasons. While in-work benefit schemes act as a complement to income from work, mainly in the higher income countries, maintaining or preventing a fall in the purchasing power of wages at the lower end of the spectrum is important to avoid both a rise in poverty and an added downward twist to the recession.

The extent to which minimum wages were uprated in 2009 differed widely across countries. Overall, table 5 shows that about half of the 108 countries in our sample left the nominal value of their statutory minimum wage unchanged in 2009. This includes countries which have left their policy instrument dormant for several years or adjusted their rates only every two years, as well as countries which have decided to freeze temporarily their minimum wages in 2009. Among advanced countries, this course was followed, for example, in Australia, where the Fair Pay Commission froze the national minimum wage at A$543.78 per week in 2009, and in Ireland, where the rate has

[84] ILO (2009c).

[85] See ILO (2009d).

[86] See ILO (2010b, p. 14).

Table 5 Minimum wages during the crisis

	Number of countries with unchanged minimum wages in 2009	Total number of countries in the sample
Advanced countries	3	17
Central and Eastern Europe	3	15
Eastern Europe and Central Asia	3	8
Asia	10	11
Latin America and Caribbean	4	22
Africa	26	32
Middle East	2	3
Total	**51**	**108**

Source: ILO Global Wage Database.

remained unchanged at €8.65 per hour since July 2007. Among developing countries, examples of frozen minimum wages include China, where minimum wage increases were suspended between the end of 2008 and early 2010. It should be noted, however, that some of these countries reactivated their minimum wages with early signs of the recovery. So, for example, Australia announced an increase in its national minimum wage to A$569.90 in July 2010. In China, where labour unrests have led to some highly publicized strikes, Provincial Governments have raised minimum wages, sometimes considerably. Bangladesh, too, increased minimum wages in the garment sector in 2010, after a spate of worker protests.

By contrast, the other half of the 108 countries in our sample – including the majority of advanced countries – choose to increase minimum wages even in 2009, so as to implement medium-term objectives or to prevent deterioration in the purchasing power of the lowest paid workers during the crisis. So, for example, Brazil, Japan, the Russian Federation, the United Kingdom and the United States all raised the minimum wage in 2009, in the midst of the crisis. In the United Kingdom, the Low Pay Commission recommended a cautious 1.2 per cent increase in the minimum wage, which sought to protect both the real earnings of low-paid workers and their jobs.[87] The United States went ahead with the objective of the 2007 Fair Minimum Wage Act to gradually increase its federal minimum wage from US$5.15 per hour to US$7.25 per hour over three years. And Brazil increased its minimum wage by 12 per cent, compared to an inflation rate of about 5 per cent in 2009. However, Brazil's decision to considerably increase minimum wages remains an exception in Latin America. Table 6 shows that, within a sample of 11 Latin American countries which regularly adjust their minimum wages (usually once a year), the majority has opted for adjustments that closely match past inflation figures – thereby maintaining the purchasing power of minimum wage workers without increasing the burden on enterprises during this difficult period.

The desirability of maintaining or increasing wages at the bottom of the pay scale, in order to protect the purchasing power of low-paid workers and to counteract weakening aggregate demand, depends on the level at which minimum wages are set in the

[87] See Low Pay Commission (2010).

Table 6 Minimum wages and inflation in selected countries in Latin America (in percentages)

	Inflation during past period of minimum wage application (%)	Latest nominal adjustment in minimum wage (%)
Bolivia	11.8	12.0
Brazil	5.4	12.0
Chile	1.8	3.2
Costa Rica	6.9	9.1
Colombia	7.7	7.7
Ecuador	8.8	9.0
Guatemala	9.4	7.2
Honduras	10.8	100
Mexico	6.5	4.6
Uruguay	3.6	7.0
Venezuela	27.7	10.0

Source: *Panorama Laboral 2009*, ILO (2009e).

first place. ILO Convention No. 131, which considers that minimum wage systems are necessary to protect wage earners against unduly low wages, calls for setting levels that take into consideration not only the needs of workers and their families – taking into account the general level of wages in the country, the cost of living, social security benefits and the relative living standards of other social groups – but also economic factors, including the requirements of economic development, levels of productivity and the desirability of attaining and maintaining a high level of employment. The extent to which these factors are balanced can be approximated by some rough indicators, such as the level of the minimum wage relative to the median or mean wage, or the proportion of workers whose wages are affected by the statutory minimum. In the United Kingdom, for example, the minimum wage corresponds to about half the median wage, lower than the 60 per cent of median wages in France, but considerably higher than the 32.4 per cent of median wages in the United States.[88]

While national perceptions about the ideal level for minimum wages can vary from one country to the next, the first rule of good practice is to involve social partners in the determination of the adequate level. Specifically, ILO Convention No. 131 calls for systems that involve representatives of organizations of employers and workers on a basis of equality, as well as independent experts with recognized competence for representing the general interests of the country. A second rule of good practice involves the use of reliable statistical and other empirical information to be used as a basis for negotiation among social partners. In the absence of tripartite institutions and empirically based determinations, countries run the risk of mismanaging minimum wages, setting them either too high or too low. While there is no universal formula for determining the ideal level, the ILO has recently been providing technical assistance at the request of a growing number of governments and social partners around the world (see table 7) who recognize that setting the level of the minimum wage is an act of balance which

[88] See Low Pay Commission (2010).

Table 7 Recent developments in minimum wage policies in selected countries

Country	Issue
Armenia	Improving institutional systems for minimum wage fixing and pay determination system in the public sector
Burundi	Harmonization of public sector pay scales following strikes of medical doctors, and exploration of development of national wage policy
Cape Verde	Possible first-time introduction of a national minimum wage towards the end of 2010
China	Improving wage-fixing institutional set-up in broader context of readjusting wage distribution and reforming collective bargaining practices
Costa Rica	Involving academia to provide data and statistics as inputs to minimum wage setting
Mongolia	New law on minimum wages to come into effect in 2010, and capacity building for evidence-based minimum wage determination
Paraguay	Broadening the number of indicators, in addition to inflation, that are used in minimum wage setting
Philippines	Improving current minimum wage system with the aim of protecting non-standard workers
Tanzania, United Republic of	Change from national minimum wage to sectoral minimum wages. Zanzibar: reform with a view to making minimum wage policy more coherent
Viet Nam	Reforming minimum wage and public sector pay

Source: ILO technical assistance work.

requires the use of reliable economic and statistical indicators and careful monitoring of the labour market and of the impact of minimum wages on employment (see box 9 on the trade-offs between minimum wages and employment).

Can minimum wages reduce low pay?

One way of looking at the effectiveness of minimum wages is to look at how the incidence of low-wage employment responds to changes in minimum wages. Figure 31 shows, for example, how low-pay incidence has evolved in relation to changes in minimum wages in Brazil, Chile, Indonesia and the Republic of Korea. The ratio of minimum wages to median wages (known as the Kaitz index) is used to measure the "bite" of minimum wages. The cases of Brazil and Chile show both steady increases in minimum wages and consistent reductions in low-wage employment. This association suggests that adjustments to increase the relative level of minimum wages have helped to reduce low-wage employment in both countries. In Brazil, a logistic regression analysis presented in a background study to this report shows that active adjustments in minimum wages were one of the critical determining factors which allowed low-wage earners to move up to higher wages.[89] By contrast, the cases of Indonesia and the Republic of Korea show both low minimum wages and a stagnating or increasing low-pay incidence. In Korea, the relative level of minimum wages has gradually increased but still remains low at 25 per cent of median wages, while low-wage employment has grown to exceed 25 per cent.

[89] See Fontes and Pero (2010).

Box 9 Do minimum wages hurt employment?

One concern with minimum wages over the past decades has focused on its unintended employment consequences. Standard textbooks usually explain that minimum wages introduce a "distortion" into labour markets that inevitably translates into lower labour demand and, thus, into higher unemployment or more informal employment. This argument relies on the notion that labour and product markets are perfectly competitive, and that therefore firms take wages and prices as a given (Neumark and Wascher, 2008, p. 39). These assumptions also underpin the views of economists who argue that there should be no minimum wages, since they inadvertently hurt those very workers they are intended to protect. While this negative impact may be unavoidable in cases where the minimum wage is set too high, it does not necessarily apply when it is set at reasonable levels. The standard argument has been increasingly challenged by economists who consider that markets are never perfectly competitive and that firms always have some market power. In such circumstances, higher minimum wages do not necessarily lead to reduced employment (Manning, 2010, p. 54). Under imperfect competition, the costs of higher minimum wages can also be met through some combination of reduced profits, redistribution of labour costs among workers within firms and higher prices passed on to consumers. Also, from a broader macroeconomic perspective, while minimum wages may reduce employment for any unchanged level of aggregate demand, this may not be the case if minimum wages shift aggregate demand upwards (Keynes, 2007, p. 259).

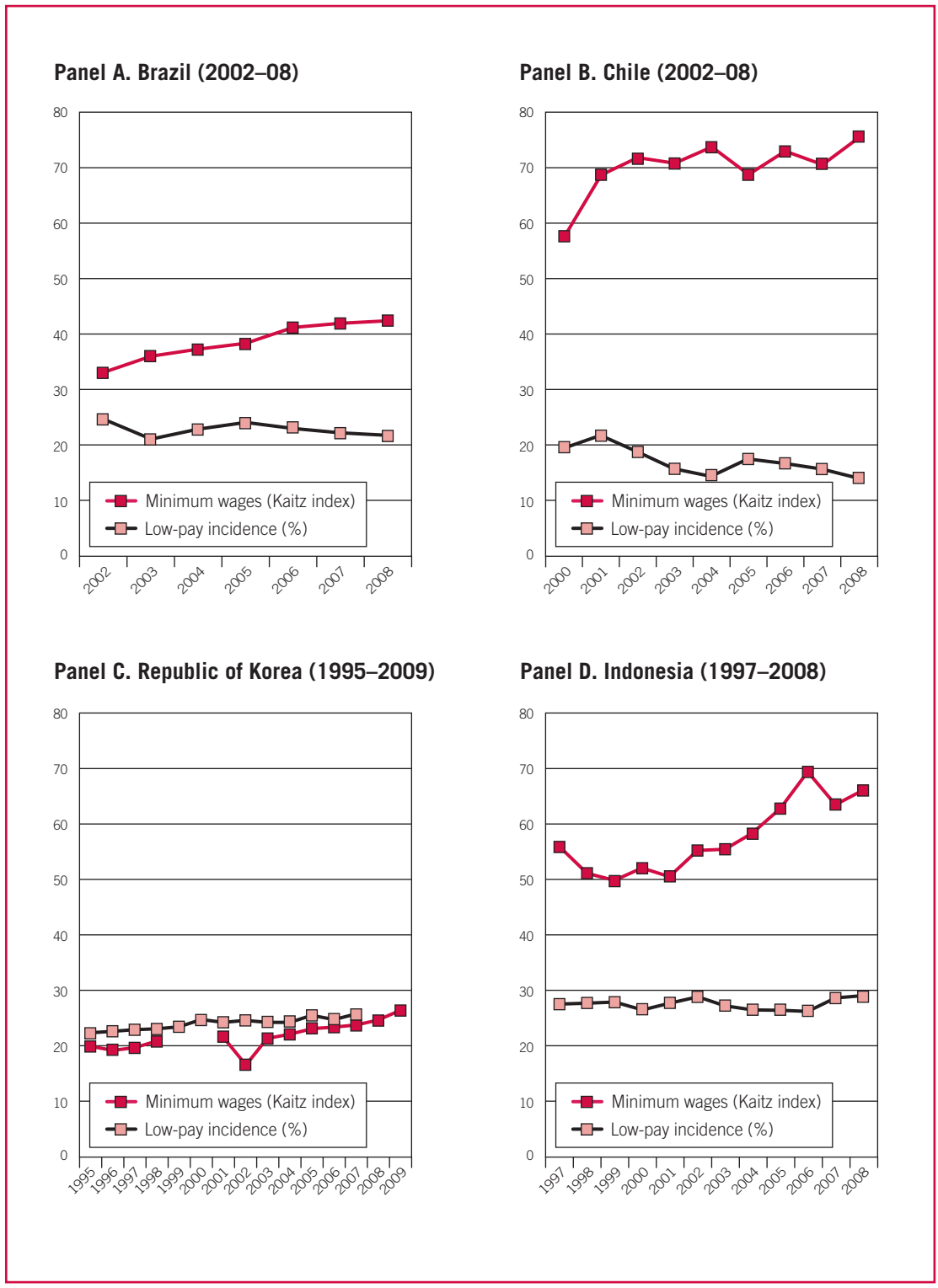
With the theoretical predictions of minimum wages hotly debated among economists, it is empirical studies which ultimately matter. But, here again, the literature is polarized and the findings are sensitive to the methodologies that are used. So, for example, the comprehensive literature review in Neumark and Wascher (2008) shows that the range of estimates of the employment effects of minimum wages is very wide, ranging from very negative effects to positive effects. The authors themselves consider that "the preponderance of evidence supports the view that minimum wages reduce the employment of low wage workers" (p. 104). Others, however, disagree with this interpretation. Doucouliagos and Stanley (2009), who have performed a quantitative analysis on minimum wage research, conclude with an "overall finding of an insignificant employment effect (both practically and statistically) from minimum wage raises" (p. 422).

In recent years, the latter view appears to have become dominant. In 2006, over 650 economists, including five Nobel prize winners and six past presidents of the American Economic Association, issued a statement in which they made the proposition that increasing the minimum wage in the United States "can significantly improve the lives of low-income workers and their families, without the adverse effects that critics have claimed" (EPI, 2006). Similarly, in the United Kingdom, the Low Pay Commission stated that:

> ten years ago, as the minimum wage was about to be introduced, it was just this fear of job losses that dominated discussion. … In fact, since the introduction of the National Minimum Wage, the Low Pay Commission has been at the forefront of the search for evidence of any damage caused by the minimum wage to the economy or to jobs. So far we have not found any significant negative effects, either in the work we have done ourselves or in the work we have commissioned from others. (Low Pay Commission, 2008, pp. vi–vii)

More recently, the OECD (2010) also concluded from a sample of OECD countries that "the ratio of the statutory minimum wage to the median wage is associated with no significant alteration of gross worker flows" and that "taking also into account the micro-economic literature, this suggests that statutory minimum wages have at best second-order impacts on labour reallocation" (p. 197).

Figure 31 Minimum wages and the incidence of low pay in selected countries



Note: Kaitz index refers to the level of minimum wages relative to median wage earnings.
Source: ILO Global Wage Database; see Statistical appendix.

While these examples provide some sense of the effectiveness of minimum wages, the relationship between higher minimum wages and a reduced incidence of low pay should not be taken for granted. Due to the complexity of the channelling mechanism in which changes in minimum wages influence low pay, it is often difficult to determine the exact impact of minimum wages. For instance, in Indonesia (panel D in figure 31), changes in minimum wages are overall negatively correlated with those in low-pay incidence, but the size of the effect is relatively small, especially given the substantial increases in the Kaitz index since 2004. This can be explained by the fact that the increase in the Kaitz index was driven more by stagnating or even falling real average wages (in spite of strong economic growth) than by increasing minimum wages.[90]

The relationship between changes in minimum wages and low pay within a country are not clearly revealed in cross-country comparisons. Figure 32 shows that in a sample of 27 countries there exists no straightforward statistical relationship between the level of minimum wages and the incidence of low pay. Thus, while country experiences in Brazil and Chile show that minimum wages have great potential for improving the situation of low-paid workers, the larger picture shows that this potential is often wasted. In practice, there are several reasons why the effectiveness of minimum wages may be limited.[91] One obvious factor which can limit the impact of minimum wages is weak enforcement. Indeed, "simply legislating a minimum wage will not make it happen".[92] Weak implementation machinery – characterized by few labour inspectors, low probability of detection and/or light sanctions – will often result in large-scale non-compliance. A second factor is the sometimes weak or imperfect coverage, whereby many vulnerable workers are excluded from the social protection of minimum wage laws. Finally, even with broad coverage and genuine enforcement efforts, minimum wages in developing countries will always be more effective in the formal than in the informal economy, where monitoring is difficult and where unregulated casual work is widespread. An additional factor is simply the risk of mismanagement; when minimum wages are set at an unrealistically high level, leading to either non-enforcement or displacement of low-paid workers into unemployment or informal employment.

Taken together, all these factors explain why, particularly in developing countries, a large proportion of the workforce earns less than the statutory minimum wage. Some estimates suggest that, in Latin America, this proportion varies between less than 1 per cent of workers to more than 45 per cent of all workers. This ratio is particularly high in countries which set unrealistically high minimum wages. The same problem is also observed in other regions. In Thailand, for instance, about 25 per cent of workers in the manufacturing sector were estimated to earn less than the minimum wage in 2009. Similar enforcement gaps are also reported for the Philippines. In China, the incidence of remuneration below the minimum wage stands at 29.8 per cent for local workers in

[90] In other words, the changes expressed in the Kaitz index overestimated the actual changes in minimum wages. The average growth in real minimum wages is estimated at 1.2 per cent for the period 2006–08.

[91] See, for example, Appelbaum et al. (2003); Osterman (2008).

[92] Murgai and Ravallion (2005, p. 2).

Figure 32 Cross-country comparison: Minimum wages and the incidence of low-wage employment in 27 countries

Note: The figure uses the ratio of minimum to mean average wages rather than minimum to median wages (as in the Kaitz index) because median wages are available only for a limited number of countries.

Source: ILO Global Wage Database; see Statistical appendix.

2007, and was about twice as high in the case of migrant workers.[93] Finally, in India, a large number of workers earn less than the minimum wage (see box 10).

Another reason why the association between minimum wages and the share of low pay is imperfect has to do with the definition of low pay as the share of wage earners earning below two-thirds of median wages. In practice, few minimum wages are set so high. Hence, the direct effect of minimum wages usually occurs within the group of low-paid workers, reducing the distance between the beneficiaries and median-wage earners. In such circumstances, minimum wages will only reduce the incidence of low pay if they have a so-called "ripple effect" (or wage spillover effects), which refers to wage increases at levels of pay above the statutory minimum wage, provided by employers to restore, at least partially, pay differentials between workers earning the minimum wage and those earning somewhat above the minimum. Such differentials may underpin differences in job status, seniority or skill and may be vital for the collective sense of fairness which feeds into workers' morale and their commitment to good performance.

[93] For data on Latin America, see Cunningham (2007); for Thailand, see Chandoevwit (2010); for the Philippines, see Peralta and Guirao (2010); for China, see Deng and Li (2010).

Box 10 The minimum wage debate in India

In India, the Minimum Wage Act of 1948 is considered to be one of the most important pieces of labour legislation; but India's system of minimum wages is also one of the most complex in the world. The 1948 legislation determines that the "appropriate government" should fix minimum wage rates payable to employees in a number of listed (or "scheduled") employments. This has at least three important implications. First, minimum wages are set by either Central or State-level authorities, depending on the type of company. Second, the minimum wage is set only "in certain employments or occupations" and therefore not all wage earners are covered. And, third, there now exists a large number of rates which sometimes differ widely across States, even for the same occupation. This system has resulted in innumerable minimum wage rates, which are difficult to monitor and enforce and are not applicable to all workers.

India's complex system of minimum wages has generated substantial debate over the years. As early as 1978, a study group known as the Bhoothlingam Committee had already proposed the idea of an absolute national minimum wage, irrespective of sectors, regions or states, below which no employment would be permitted. State Governments would remain free, however, to set their minimum wages above the absolute minimum. More recently, researchers such as Ghose (1997, p. 698) also supported the idea of "a daily minimum wage for unskilled labour, irrespective of the job or the sector in which it is employed and irrespective of the age or the gender of the supplier of unskilled labour". One step in this direction was made when the Central Government requested that States determine minimum wage rates through consultations within five regional committees (for the Eastern, North Eastern, Southern, Northern and Western regions). Another step was made when the Central Government introduced the concept of an indicative national minimum wage floor in 1996, set at 100 rupees or about US$2 per day since 2009. Yet, to this day, the national floor is not binding on the States. In 2007, the Indian Trade Union Congress suggested therefore that a national minimum wage be fixed for all industries. This suggestion was made following the observation that the country still suffers from high poverty and inequality despite achieving fast economic growth in recent years.

Data simulations show that the effects of either making the national minimum wage floor compulsory or extending the coverage of State-level minimum wages would be considerable. The latest employment–unemployment survey undertaken by the National Sample Survey Organisation in 2004–05 indicates that there are approximately 173 million wage earners throughout India, of which 116 million are classified as casual workers. Estimates show that universal and perfectly well-enforced minimum wage coverage could benefit up to 73 million workers, who are currently paid less than the indicative national minimum wage floor. This suggests that extension of minimum wage coverage in India could have a considerable impact. Since 30 to 40 per cent of low-paid wage earners belong to poor families – and because women are paid less than men – the extension of minimum wages could be a useful instrument for reducing both the gender pay gap and the high poverty incidence in India.

Source: Belser and Rani (2010).

Unlike minimum wage rises, ripple effects are not mandated.[94] One of the major uncertainties, therefore, both in designing models that seek to forecast the effects of a minimum wage rise on the wage bill and inflation and in understanding the consequences of minimum wages for low-wage employment, relates to the variation in size of ripple effects. We can expect clear country differences. For example, in countries where workers tend to be covered by collective bargaining, it is likely that ripple effects are significant, since trade unions are in the position to negotiate changes to a formal pay structure and may be particularly interested in building on the advantage presented by a minimum wage rise and arguing for the restoration of wage differentials relating to differences in experience, job responsibility, skill or qualification. In countries without the protection of joint regulation of wages, it is likely that ripple effects will be considerably smaller. Prior to the introduction of a statutory national minimum wage in the United Kingdom, for example, Freeman (1996) pointed to the relatively weak inflationary potential of minimum wage rises in the UK labour market precisely because ripple effects would be small – low union density and weak collective bargaining coverage were "hardly the circumstances in which wage increases for largely part-time women in small shops are likely to set off general inflation" (p. 645).

Ripple effects have been investigated in detail in the recent collection of research studies on minimum wages and living wages in the United States.[95] One analysis of the retail industry, where the minimum wage has a strong bite, finds that the ripple effect extends up to the 40th wage percentile, where the wage is 25 per cent higher than the minimum wage.[96] At this level of wages, a 10 per cent rise in the minimum wage increases wages by 1.4 per cent, pointing to a relatively strong compression effect of a rising minimum wage among the lowest deciles of the wage distribution. One issue for policy consideration is the balance between raising the wage floor relative to the median and the risk of increasing the concentration of workers paid at or only slightly above the minimum wage. In the absence of ripple effects, raising the minimum wage will not contribute much to reducing the share of low-wage workers, unless, of course, the minimum wage exceeds the low-wage threshold. At the same time, however, if all pay differentials are perfectly restored all the way up the wage scale, then the minimum wage rise fails in its redistributive objective.

Finally, while recognizing some empirical uncertainty about the impacts of minimum wages in light of the challenges in enforcement, imperfect coverage and less than fully predictable ripple effects, a growing body of literature nevertheless points to the important role of minimum wage policies in combating gender-based pay discrimination and addressing the vulnerability of women to becoming trapped in low-paid jobs. The contribution of minimum wages to improving women's wages should be recognized as an objective in its own right, since women typically benefit more than male workers from minimum wages increases.[97]

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[94] Discussion on the ripple effect is based on Grimshaw (2010).

[95] See Pollin et al. (2008).

[96] See Wicks-Lim (2008, table 11.1); calculations incorporate both an immediate and a lagged effect.

[97] See Rubery and Grimshaw (forthcoming). This argument is in stark contrast to the claim which describes women as the main "victims" of minimum wages because of their negative impacts on female employment. See Lee and McCann (forthcoming) for further discussion on this debate.

5.3 From minimum wages to minimum income for low-income households

Policies to weaken the linkage between low pay and poverty

One of the key concerns about low pay, especially in terms of its welfare implications, is the risk that low-wage work will lead to poverty, in spite of a person being employed and working. The relationship between poverty and low pay is not straightforward, primarily due to the different definitions and the resulting differences in measurements. As already pointed out, low pay is concerned with an *individual's gross wage earnings*, while poverty is typically related to the net *disposable income of a household*, adjusted for the size and composition of the household.[98] For this reason, low-paid workers (such as young labour market entrants who are living with their parents) may not be poor, particularly when they belong to higher-income households with multiple jobholders. Conversely, high-paid workers (such as heads of household) can be poor if they are the only breadwinner in a big family with many dependants.

Despite these conceptual differences, however, it is clear that low pay increases the probability of poverty. The risk of "in-work poverty" is illustrated in table 8, which provides estimates of poverty rates by pay level and employment status in China, where there has been much debate about the impact of high economic growth on poverty reduction. The table clearly shows that poverty rates are lowest when a person is employed and receives a wage above two-thirds of the median. Low-paid work significantly raises the probability of being in poverty. The difference between local and migrant workers is striking. About 45 per cent of low-paid migrant workers are subject to poverty, while the risk is much smaller for local workers (5 per cent). For these migrant workers, the effect of transition to higher paid jobs is particularly noticeable, as only 13.9 per cent of migrant workers with higher paid jobs live in poverty.

Given the relationship between low pay and poverty, one key policy concern is how to weaken this linkage. Even when low pay is inevitable, policies can be implemented to alleviate the financial difficulties for the families of low-paid workers. Indeed, while measures which directly influence wage outcomes, such as collective bargaining and minimum wages policies, play a useful role, the welfare of low-paid workers can also be improved through policies that increase net disposable income for poor households. In fact, recent studies indicate that, in advanced countries, the relationship between low pay and poverty has been weakened through a wide range of policy initiatives targeting low-paid workers.[99] In developing countries, given the massive extent of informal employment, minimum wage policy needs to be combined with other income policy measures aimed at the very bottom of the labour market, especially its informal segment.[100] In this respect, the real policy challenge is how to develop a coherent system in which both welfare institutions and the labour market measures are developed to secure a minimum level of income for poor households.

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[98] See Grimshaw (2010) for a review.

[99] See, for example, Caroli and Gautié (2008) for France; see also OECD (2009b) and (2010).

[100] See ILO (2008a); Lemos (2009).

Table 8 Poverty rates by pay and employment in China, 2002–07 (in per cent)

	Local workers 2002	Migrant workers 2002	Local workers 2007	Migrant workers 2007
Employed, low pay	2.7	64.1	4.8	45.4
Employed, higher pay	0.6	43.1	1.2	13.9
Unemployed	5.2	71.4	9.4	66.3

Notes: The threshold of US$1.25 per day is used, following the new World Bank poverty line (Ravallion et al., 2008).
Source: ILO estimates; Deng and Li (2010).

What policies? Scope and potential

In-work benefits are good examples of measures to address low-paid employment. In-work benefits are intended to provide financial incentives for workers to take low-paid jobs by offering additional earnings, thereby reducing poverty. They may take the form of tax credits, wage-related transfers or other lump-sum payments.[101] Among these, income tax credit schemes are fairly common. As these schemes tend to include elements of work incentive, the amount of the benefits is typically a function of gross income with phase-in and phase-out elements. In other words, total benefits first tend to increase as income increases, then beyond a certain threshold remain flat, and finally begin to fall. Examples of such polices are provided in table 9.

The potential for these policies to improve the welfare of low-wage workers, without compromising the volume of employment, is indeed well-documented and needs to be fully exploited in policy developments concerning low pay. Yet, some caveats are in order. First, it is important to note that not all these policies are working well and evidence is often mixed.[102] This means that effective design and implementation with clear goals and target groups are critical in ensuring that the intended benefits reach low-paid workers and their families.

Second, the welfare-enhancing potentials of in-work benefits should not be interpreted as implying that they could replace minimum wages. As discussed earlier, the two sets of policies have different goals and channelling mechanisms: while minimum wages are intended to improve wage outcomes by addressing the failure of labour markets to provide decent pay, in-work benefits are expected to weaken the nexus of low pay and poverty. More importantly, if in-work benefits are seen as a kind of "wage subsidy" (for example, if companies feel that they can shift some labour costs to tax credits), there may be incentives for companies to cut wages or not to increase wages, for instance, despite positive productivity increases. In this case, the budgetary burden relating to in-work benefits would be increasing. This possible vicious circle could be prevented by other complementary measures, such as the introduction of a wage floor through minimum wages, as has been illustrated by recent experiences in the United

[101] For a review of policies in industrialized countries, see Immervoll and Pearson (2009).

[102] OECD (2009b).

Table 9 In-work benefits programmes in selected industrialized countries

Country	Programme	Features
Belgium	Bonus de l'emploi	Reduction of social security payments for low-skilled or low-paid workers. In determining the size of rebates, only earned individual income is considered. Family situation is not considered.
Canada	Working income tax benefits	Refundable tax credit for eligible low-income individuals and families. It is typically calculated based on earned income, total income and family situation.
France	Prime pour l'emploi (PPE)	Tax credit scheme for low-income households where at least one person has a paid job and where the taxable income is below the ceiling (which is determined in relation to minimum wages). It was introduced in 2001 with clear goals of redistributing income to low-income families, thereby increasing their work incentives. The exact amount of PPE is calculated on the basis of working time, family status and number of children, as well as taxable income.
Netherlands	Employed persons' tax credit	Tax credit scheme which applies to all types of employment, including self-employment. Only earned income is considered and tax credits are applied individually. The latter aspect is known to provide some financial incentive for part-time employment (and also to contribute to maintaining the net purchasing power of minimum wage earners; see Salverda et al. 2008).
United Kingdom	Working tax credit	Means-tested benefits which top up the earnings of persons on low or moderate incomes. To be eligible, a number of criteria (including family status) should be met. A minimum of 16 working hours per week is also required. Other programmes, such as child tax credit and other lump-sum cash benefits, are also available.
United States	Earned income tax credit	Refundable tax credit scheme for low-income workers, first introduced in 1975. The amount of credit increases with the number of children.

Sources: Compiled from various national sources.

Kingdom.[103] Therefore, the key element of policies for low-paid workers is a well-coordinated policy package where minimum wages and in-work benefits work in a complementary way rather than defeating each other.

Finally, the introduction of in-work benefit schemes may be challenging for developing countries, especially during the crisis, given the massive size of the informal economy and the existing budgetary constraints. Yet, despite the obvious constraints, recent experiences in developing countries show that their implementation is not entirely impossible.[104] In the Philippines, for instance, "non-wage benefits packages" were introduced during the economic crisis to improve income for low-wage earners. One of these packages is an exemption from income tax payment, which was estimated

[103] "In the decade prior to the establishment of the LPC [Low Pay Commission], wage inequality rose, and, simultaneously, expenditure on tax credits (family credits and family income supplements) rose tenfold. It was held that the Exchequer was subsidizing employers through the provision of these in-work benefits, and that such subsidies and the associated Exchequer burden would be constrained by the introduction of a NMW [National Minimum Wage]" (Metcalf, 2009, p. 300).

[104] See ILO (2010d) for a review.

Table 10 Examples of cash transfer policies in selected countries

	Programme	Features
Brazil	*Bolsa Família*	"Family stipend" programme launched in 2003. It is the largest conditional cash transfer programme for helping poor families, especially in the areas of education and health. To be eligible, applicants must meet a set of requirements, including at least 85 per cent school attendance for children aged 6–15 years. It is estimated that about 80 per cent of benefits have been paid to families below the poverty line (which is set at half of the minimum wage per person in an entitled family).
Mexico	*Oportunidades*	Anti-poverty programmes for poor families in rural and urban economies, with the objectives of improving education and health. Benefits are conditional on school attendance of children, regular clinic visits, etc. Eligibility is determined through proxy means-testing and community reviews. Pays higher cash transfers to mothers for daughters' school enrolment.
Bangladesh	Female secondary school stipend programme	The stipend is paid directly to girls on condition that they enrol in secondary school and remain unmarried until the age of 18.
South Africa	Child support grant	A public cash transfer programme for reducing poverty among children. It started in 1998 as a conditional programme, which was transformed into an unconditional one in order to improve the take-up rate of the grant.

Sources: ILO (2010d).

to add about 37–61 pesos per day (slightly more than 10 per cent of the minimum wage) to the disposable income of minimum wage earners.[105]

At the same time, when in-work benefits remain a difficult policy option, broader income-transfer measures, which are not related to employment and earning status, can be used. For instance, family health and the education of children both raise particular concerns for low-paid workers due to their low earnings. Without proper education (and health), the children of low-paid workers may be vulnerable to the risk of being trapped in low-paid employment. Therefore, public schemes which alleviate these financial constraints for low-paid workers will not only increase the welfare of their families but also reduce the risk of a future in low-paid employment for their children. Indeed, an increasing number of countries are implementing such policies, in particular conditional/unconditional cash transfer programmes, which are intended to help low-income families with heath and education matters.[106] Examples of cash transfer programmes are provided in table 10. The Brazilian experience is particularly interesting in its successful combination of wages and income-support policies; while active and systematic adjustments in minimum wages have led to the reduction of low pay (see table 10), *Bolsa Família* has also contributed to preventing "wage poverty" from being translated into "income poverty" by providing additional income support to low-income families.

[105] See Peralta and Guirao (2010).

[106] See ILO (2010d).

PART III Summary and conclusions

6 Main findings and policy implications

The second in a series of ILO reports focusing on wage developments, this volume has reviewed the global wage trends during the years of the global economic and financial crisis of 2008 and 2009. The report has estimated that the growth in average monthly wages in the world slowed from about 2.7–2.8 per cent in the two years before the crisis to 1.5 per cent in 2008 and 1.6 per cent in 2009. While wage growth slowed but remained consistently positive in Asia and Latin America, other regions experienced drops in real wages at certain stages during the crisis. In advanced countries, real wages declined by –0.5 per cent in 2008, but rose 0.6 per cent in 2009, thus reversing the loss of 2008, while in Central and Eastern Europe they declined by an estimated –0.1 per cent in 2009. Perhaps most dramatically, the purchasing power of wages fell by an estimated –2.2 per cent in 2009 in Eastern Europe and Central Asia. It is stressed that caution must be exercised when interpreting these changes in wage growth, since they reflect a number of crisis-related factors (such as unemployment and inflation). Positive growth in real wages during a financial crisis can sometimes be attributed simply to lower inflation and/or the concentration of job losses in low-paid jobs.

In spite of the slowing of wage growth, this change was generally smaller than the respective decline in labour productivity growth or GDP growth during the years of the crisis. This can be observed in the report from the fact that a significant number of countries where labour productivity declined nevertheless displayed positive average wage growth, a finding which is in line with the conclusion that downward wage adjustments tend to be less than GDP adjustments. Also, most countries for which data are available experienced a short-term *increase* in the share of wages in GDP between 2007 and 2009. This trend shows that, despite declines in both the total wage bill and profits during the crisis, profits have been more volatile than the total wage bill, and is consistent with earlier findings that fluctuations in the wage share are usually countercyclical – increasing during downturns and decreasing during recoveries. The short-term trend of a higher wage share is not only observed at the national level, but also at the level of some sectors, particularly in the manufacturing sector. However, it is plausible that, along with persistently high unemployment, there will be continued (or even stronger) pressures on wages in the coming years of economic recovery and, in this case, the full impact of the crisis on wages may yet remain to be seen.

These short-term impacts of the crisis should be looked at within the context of a long-term decline in the share of wages in GDP, a growing disconnection between long-term wage growth and productivity growth, as well as widespread and growing inequality. In particular, our report shows that, since the mid-1990s, the proportion of

people on low pay – defined as less than two-thirds of median wages – has increased in more than two-thirds of the countries for which data are available. This includes countries such as Argentina, China, Germany, Indonesia, Ireland, the Republic of Korea, Poland and Spain. In these and other countries with high or growing rates of low pay, there is a risk that a large number of people will feel left behind. This, in turn, may lead to increased social tensions, particularly if certain groups of people consider that they have paid a high price during the crisis while the benefits of the earlier expansionary period – and perhaps future recovery – have been unevenly shared.

Another emerging concern is the fact that wage stagnation before the crisis may actually have contributed to the crisis and also weakened the ability of economies to recovery quickly. Although there are many other factors involved in triggering the global financial and economic crisis, one view is that the crisis had its structural roots in the decline in aggregate demand that preceded the crisis. Redistribution from wages to profits and from median-wage earners to high wage earners reduced aggregate demand by transferring income from individuals with a high propensity to spend to people who save more. Before the crisis, some countries were able to maintain household consumption through increased indebtedness, while other countries based their economic growth mainly on exports. This model, however, has proved to be unsustainable. In the future, countries may find it in their interests to base their economic growth on stronger household consumption, and on household consumption that is anchored in earned income rather than based on increasing debt.

Our report argues that wage policies can make a positive contribution towards a more sustainable economic and social model. Both collective bargaining and minimum wages can help to achieve a more balanced and equitable recovery by ensuring that working families and households on low wages obtain a fair share of the fruits of every single percentage point of economic growth. Our previous *Global Wage Report 2008/09* showed that the connection between wages and productivity is stronger in countries where collective bargaining covers more than 30 per cent of employees, and that minimum wages can reduce inequality in the bottom half of the wage distribution. Our current report shows that collective bargaining and minimum wages can also contribute to reducing the share of workers on low pay. At the same time, there are considerable challenges still facing unions trying to reach out to vulnerable workers and in the establishment of an effective system of minimum wages.

7 Emerging issues and the way forward

In Chinese, the word for “crisis” has a secondary meaning: “opportunity”. Our report suggests that the economic crisis has indeed provided a unique opportunity to broaden the rationales for wage policies and, based on a systematic evaluation of the constraints which prevent the potential of these policies from being fully realized, develop a more effective policy package which would contribute to an equitable and sustainable economy. In this respect, it is worth mentioning some of the major issues which are critical in improving wage policies, especially in the developing world. Our report argues that there are strong discriminatory elements involved in the persistence of both low pay and wage gaps. Wage and income polices should therefore be developed within a

broader regulatory framework, which would also tackle various forms of discrimination through labour law and other relevant regulations and measures.

First, low and decreasing union membership and the weakening of collective bargaining in many countries remain causes of concern. This is not just because of the difficulties which workers face in trying to organize themselves (often due to increases in numbers of non-standard workers, including many domestic workers, as highlighted earlier in the report) but also because unorganized workers often have access to few alternative mechanisms to secure fair and decent wages. In this context, it is interesting to see that, during the crisis, there has been renewed interest in the role of the state in promoting collective bargaining through various incentive schemes (for example, work-sharing and employment subsidies). There has also been growing recognition of the relevance of collective bargaining in raising wages along with economic growth, including in Asian countries. If feasible and necessary, tripartite wage bargaining – while not collective bargaining per se – could also potentially benefit vulnerable workers, thanks to its comprehensive coverage.

Second, diminishing reliance on collective bargaining for wage determination tends to create incentives for assigning an increasingly important role to minimum wages so that, in some countries, they become almost the only wage policy tool. In this case, minimum wages policy may go through a qualitative transformation, which, in turn, could result in the minimum wage system becoming caught between a number of competing policy demands and goals. Indeed, as a result of such a transformation, minimum wages are set for *median*-wage workers rather than for low-wage workers. It is not difficult to see that, in this event, the fundamental goal of minimum wages – to protect the most vulnerable workers – might be compromised. Therefore, it is important to ensure that the minimum wage policy is more beneficial to *low*-paid workers. However, restoring the original goals of minimum wages must be accompanied by the creation of alternative mechanisms which facilitate meaningful wage negotiations for median-wage workers. In other words, there must be a system of wage policies which benefits all workers, irrespective of wage levels, union membership or employment status.

Third, as this report argues, policies which augment disposable income for low-income households need to be considered, along with the more traditional policy measures of collective bargaining and minimum wages. These policies should be designed and evaluated in terms of preventing low wages from being translated into poverty for the family. In-work benefits, such as tax credits, are certainly helpful in this regard. However, they should be accompanied by (and not replace) wage-floor regulations, either through minimum wages or coordinated collective bargaining; otherwise, in-work benefits may provide incentives for wage depression. In countries where in-work benefits are not a feasible option, due, for instance, to the presence of massive informal employment, more direct income support policies for poor families (such as cash transfer) need to be considered. Again, in order to maximize their impacts, all of these policies should be designed to complement other wage policies.

Finally, it is important to recognize that the system of these broadened wage policies can contribute to both growth and stability of the economy. This system, as a whole, has the potential to create a solid flow of consumption demand for sustained growth and, at the same time, play the role of built-in stabilizer during economic downturns. The current crisis will offer an invaluable opportunity for determining the extent to

which the virtuous circle of wages and aggregate demand is applicable and the conditions that must be met to realize this potential. This is one of the issues which the next *Global Wage Report* plans to address.

Technical appendix I

Global wage trends: Methodological issues

The methodology to estimate global and regional wage trends was developed by the ILO's Conditions of Work and Employment Programme (TRAVAIL) in collaboration with the Department of Statistics, following proposals formulated by an ILO consultant and three peer reviews made by four independent experts.[107] This appendix describes the methodology adopted as a result of this process.

Concepts and definitions

- According to the international classification of status in employment (ICSE-93), "employees" are workers who hold "paid employment jobs", i.e. jobs in which the basic remuneration is not directly dependent on the revenue of the employer. Employees include regular employees, workers in short-term employment, casual workers, outworkers, seasonal workers and other categories of workers holding paid employment jobs.[108]
- The word "wage" refers to total gross remuneration, including regular bonuses, received by employees during a specified period of time for time worked as well as time not worked, such as paid annual leave and paid sick leave. Essentially, it corresponds to the concept of "total cash remuneration", which is the major component of income related to paid employment.[109] It excludes employers' social security contributions.
- Wages, in the present context, refers to real average monthly wages of employees. Wherever possible, we collected data that refer to all employees (rather than to a subset, such as employees in manufacturing or full-time employees).[110] To adjust for the influence of price changes over different time periods, wages are measured in real terms, i.e. the nominal wage data are adjusted for consumer price inflation

[107] ILO-commissioned report by Farhad Mehran, *Estimation of global wage trends: Methodological issues*, International Labour Office, mimeo; peer reviews by Prof. Yves Tillé, *Expertise report on the "Estimation of global wage trends: Methodological issues"*, Institute of Statistics, University of Neuchatel, mimeo; Prof. Yujin Jeong and Prof. Joseph L. Gastwirth, *Comments on the draft ILO report "Estimation of global wage trends: Methodological issues"*, HEC Montreal and George Washington University, Washington, DC, mimeo; Dr Joyup Ahn, *Responses to Draft ILO Report "Estimation of Global Wage Trends: Methodological issues",* Korea Labor Institute, mimeo.

[108] ILO, Resolution concerning the International Classification of Status in Employment (ISCE), adopted by the Fifteenth International Conference of Labour Statisticians (Geneva, January 1993). http://www.ilo.org/global/What_we_do/Statistics/standards/resolutions/lang--en/docName--WCMS_087490/index.htm.

[109] ILO, Resolution concerning the measurement of employment-related income, adopted by the Sixteenth International Conference of Labour Statisticians (Geneva, October 1998). http://www.ilo.org/global/What_we_do/Statistics/standards/resolutions/lang--en/docName--WCMS_087490/index.htm.

[110] Aiming for the broadest possible coverage is in line with the idea that decent work and hence adequate earnings are a concern for all workers, and that statistical indicators should cover all those to whom an indicator is relevant. See ILO (2008b).

in the respective country.[111] Real wage growth refers to the year-on-year change in real average monthly wages of all employees.

Census approach

The methodology used for the global and regional estimates is a census method with non-response. In the census approach, the objective is to find wage data for all countries and to develop an explicit treatment in the case of total non-response (see "Treatment of total non-response", below). We have tried to collect wage data for a total of 177 countries and territories grouped into separate regions as descibed in table A1.[112]

Table A1 Regional groups

Regions	Countries and territories
Advanced countries (selected)	Australia, Austria, Belgium, Canada, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, Republic of Korea, Luxembourg, Malta, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, United Kingdom, United States
Central and Eastern Europe	Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, The former Yugoslav Republic of Macedonia, Republic of Moldova, Poland, Romania, Serbia, Slovakia, Slovenia, Turkey, Ukraine
Eastern Europe and Central Asia	Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Russian Federation, Tajikistan, Turkmenistan, Uzbekistan
Asia	Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Hong Kong (China), Macau (China), Fiji, India, Indonesia, Islamic Republic of Iran, Democratic People's Republic of Korea, Lao PDR, Malaysia, Maldives, Mongolia, Myanmar, Nepal, Pakistan, Papua New Guinea, Philippines, Solomon Islands, Sri Lanka, Thailand, Timor-Leste, Viet Nam
Latin America and the Caribbean	Argentina, The Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guadeloupe, Guatemala, Guyana, Haiti, Honduras, Jamaica, Martinique, Mexico, Netherlands Antilles, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, Suriname, Trinidad and Tobago, Uruguay, Bolivarian Republic of Venezuela

[111] We do so based on the IMF's consumer price index (CPI) for the respective country. In the cases of Brazil and the United States, where our national counterparts recommended the use of an alternative CPI, we relied on national sources from the Instituto Brasiliero de Geografia e Estatistica (IBGE) and the Bureau of Labor Statistics (BLS), respectively.

[112] These regional groupings draw on the regional representation of ILO offices throughout the world. Our universe includes all countries and territories for which data on employment are available from the ILO's Key Indicators of the Labour Market (KILM), and thus excludes some small countries and territories (e.g. the Channel Islands or the Holy See) that have no discernible impact on global or regional trends.

Table A1 (continued)

Regions	Countries and territories
Africa	Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Democratic Republic of the Congo, Côte d'Ivoire, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libyan Arab Jamahiriya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Reunion, Rwanda, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, United Republic of Tanzania, Togo, Tunisia, Uganda, Zambia, Zimbabwe
Middle East	Bahrain, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, West Bank and Gaza, Yemen

Overall, we succeeded in finding wage data from 115 countries and territories, with regional coverage indicated in table A2. Although repeated attempts were made to obtain wage figures from national statistical offices and/or international repositories, in some instances wage data were not available. In addition, in some countries for which we found data, the statistical series were incomplete, in the sense that some years were missing (see "Treatment of item non-response" below).

Table A2 Coverage of the Global Wage Database (in per cent)

Regional group	Country coverage	Employee coverage	Approximate coverage of total wages
Advanced countries (selected)	100.0	100.0	100.0
Central and Eastern Europe	100.0	100.0	100.0
Eastern Europe and Central Asia	100.0	100.0	100.0
Asia	59.3	96.2	98.5
Latin America and the Caribbean	61.3	92.3	94.7
Africa	29.4	56.7	76.2
Middle East	75.0	73.4	90.9
World	**65.0**	**94.0**	**98.5**

Note: Country coverage refers to the number of countries for which we found wage data as a percentage of all the countries in the region, while employee coverage refers to the number of employees in countries with available data as a percentage of all employees in the region (as of 2008). The approximate coverage of total wages is estimated based on the assumption that wage levels vary across countries in line with labour productivity (i.e. GDP per person employed, as of 2008), expressed in 2005 PPP$.

Treatment of item non-response

To address item non-response (when time-series wage data are available for a country, but data for some years are missing) we used a model-based framework to predict missing values.[113] This is necessary in order to hold the set of responding countries constant over time and so avoid the undesired effects associated with an unstable sample.

[113] This is in line with standard survey methodology, where a model-based framework is generally used for item non-response, while a design-based framework is used for questionnaire non-response.

Depending on the nature of the missing data points, we used several complementary approaches, which are described below in order of preference. At the end of this appendix, we present a detailed breakdown for each year from 2006 to 2009 to allow readers insight into the extent to which we could draw on real observations, and how much we had to rely on imputed values (table A3).

(a) Where yearly observations are based on monthly or quarterly figures, we sometimes had partial information from the same time series for a given year. Since the use of these data points unadjusted might have entailed a bias (e.g. in high-inflation countries, nominal wages are generally higher in the final quarter than in the first quarter), we first estimated the missing quarterly or monthly data points on the basis of the nominal values for the existing observations for monthly average wages, $\overline{y}_{jt}$, from country j at time t, by fitting a linear OLS regression. We then took the average of existing and estimated data points. This method was used where the final quarter of 2009 was missing, as in this example:

$$\hat{\overline{y}}_{j2009} = \frac{(\overline{y}_{j1Q2009} + \overline{y}_{j2Q2009} + \overline{y}_{j3Q2009} + \hat{\overline{y}}_{j4Q2009})}{4} \qquad (1)$$

We used this method for one country. A similar approach was used to adjust wage data from a second country where observations from different years referred to different calendar months.

(b) In another case, a time-series has a short gap between existing data points. This allows estimating a missing data point, the average wage $\overline{y}_{jt}$ in country j at time t, by interpolating on the basis of the logarithmic growth function:

$$\hat{\overline{y}}^*_{jt} = e^{\left(\frac{z}{x+z}\ln(\overline{y}^*_{jt-x}) + \frac{x}{x+z}\ln(\overline{y}^*_{jt+z})\right)} \qquad (2)$$

where $t–x$ is the nearest preceding data point, $t+z$ is the nearest subsequent data point, the asterisk denotes real values (i.e. adjusted for inflation) and e is Euler's number. We used this approach to fill gaps of a maximum of three successive years in the time series of 17 countries.

(c) In some cases, we had multiple sources of wage data for a given country (e.g. one based on establishment surveys and another on a household survey). We used this additional information to fill missing data points in our preferred time series, as in this example, where the average wage $\overline{y}_{jt+1}$ is estimated:

$$\hat{\overline{y}}_{jt+1} = \overline{y}'_{jt+1} \times \frac{\overline{y}_{jt}}{\overline{y}'_{jt}} \qquad (3)$$

where $\overline{y}$ are known data points from our preferred series and $\overline{y}'$ known data points from the secondary series. We were able to utilize secondary series in 37 countries.

(d) Where no secondary data source existed and the gap in the series was too long to use the simple interpolation described in equation (2), we drew on standard

economic theory, which suggests that – in the long run – wages respond to changes in labour productivity. However, we also know that this relationship is not perfect and can vary over time. In a given country j, we thus had to take into account the ratio of wages, $\bar{y}^*_j$, over labour productivity, LP^*_j, at two points in time, namely in the year that immediately precedes the data gap and the year that immediately follows it. To estimate the wage level $\bar{y}^*_{jt}$ at point in time t, we thus used the following formula to fit the wage trend between two known data points to changes in labour productivity:

$$\hat{\bar{y}}^*_{jt} = LP^*_{jt} \times \left(\frac{z}{x+z} \times \frac{\bar{y}^*_{jt-x}}{LP^*_{jt-x}} + \frac{x}{x+z} \times \frac{\bar{y}^*_{jt+z}}{LP^*_{jt+z}} \right) \quad (4)$$

where $t–x$ is the nearest preceding data point, $t+z$ the closest subsequent data point, and the asterisk denotes real values. Note that we effectively multiply the level of labour productivity in the year for which we want to estimate wage levels with a weighted average of the two ratios of wages over labour productivity, where the weight depends on the proximity of each data point to the year that is to be estimated. This method was used for two countries.

(e) Finally, where none of the simple methods described above was feasible, we used an econometric model to estimate the remaining missing data points. Again, we drew on standard economic theory that suggests that wages respond to changes in labour productivity. In line with this reasoning, we calculated regional elasticities between productivity growth and real wage growth and used them for extrapolation purposes.

The regional elasticities were calculated using the following process. First, the growth rates of wages and labour productivity were calculated for all responding countries, separating between the pre-crisis period (2000–07) and crisis period (2008–09). The growth rate of real wages and productivity was calculated by regressing the natural logarithm of average wages, $\bar{y}$, and labour productivity, LP, against time:

Real wages: $$\ln(\bar{y}^*_j) = \alpha + \beta_{1j} t + \varepsilon \quad (5)$$

Productivity: $$\ln(LP^*_j) = \alpha + \beta_{2j} t + \varepsilon \quad (6)$$

where the subscript j refers to countries, t is time, the asterisk denotes real values and ε is the error term. We make a separation between the pre-crisis and the crisis period since there are good theoretical reasons to believe that the relationship between wages and productivity differs in the two periods (an assumption that was confirmed by our regressions).

Once these are obtained, we use them to calculate the elasticity, α, of wages to labour productivity for each region h by regressing wage growth on productivity growth:

$$\beta_{1j} = \alpha_h \beta_{2j} + \varepsilon, j \in h \quad (7)$$

where h represents the region in which country j belongs, and β_1 and β_2 refer to the estimates obtained from equations (5) and (6). In order to account for the varying sizes of different countries within a region, each observation is weighted by the share of country j in total paid employment in region h in which country j is located. The robustness of each of the regional estimations was analysed, outliers were excluded and the specifications re-estimated. The final estimation provides the elasticity, α, of real wages to productivity for each region h, and for the two periods. This elasticity can then be used to estimate average real wages $\bar{y}^*$ in country j and the year $t+1$:

$$\hat{\bar{y}}^*_{jt+1} = \bar{y}^*_{jt} \times \left(1 + \alpha_h \times \frac{LP^*_{jt+1} - LP^*_{jt}}{LP^*_{jt}}\right), j \in h \qquad (8)$$

In cases where no robust model could be identified (i.e. the elasticity between real wages and productivity was not significant), we applied the estimates for wage growth β_1 obtained in equation (5) from the median country in region h, during the relevant time period for extrapolation purposes in countries with missing observations. We followed this modelling approach to fill data gaps in a total of 52 countries.

Treatment of total non-response

Response weights

To adjust for total non-response (when no time series wage data are available for a given country), a design-based framework was used in which non-response was considered as a sampling issue. Because non-responding countries may have wage characteristics that differ from those of responding countries, non-response may introduce a bias into the final estimates. A standard approach to reduce the adverse effect of non-response is to calculate the propensity of response of different countries and then weight the data from responding countries by the inverse of their response propensity.[114] This implies that no imputations are made for non-responding countries.

In this framework, each country responds with a probability ϕ_j and it is assumed that countries respond independently of each other (Poisson sampling design). With the probabilities of response, ϕ_j, it is then possible to estimate the total, Y, of any variable y_j:

$$Y = \sum_{j \in U} y_j \qquad (9)$$

by the estimator:

$$\hat{Y} = \sum_{j \in R} \frac{y_j}{\phi_j} \qquad (10)$$

where U is the population and R is the set of respondents. This estimator is unbiased if the assumptions are true (see Tillé, 2001). In our case, U is the universe of all countries

[114] For a discussion of the missing data problem, see also: ILO 2010e, p. 8.

and territories listed in table A1 and R are those "responding" countries for which we could find time-series wage data.

The difficulty is, however, that the response propensity of country j, ϕ_j, is generally not known and must itself be estimated. Many methods of estimation of the response propensity are available from the literature.[115] In our case, the response propensity was estimated by relating the response or non-response of a given country to its number of employees and its labour productivity (or GDP per person employed in 2005 PPP$). This is based on the observation that wage statistics are more readily available for richer and larger countries than for poorer and smaller countries. We choose the number of employees over population and labour productivity over GDP per capita since these variables are also used for calibration and size weighting (see below).

For this purpose, we estimated a logistic regression with fixed effects as follows:

$$\text{Prob}(Response = 1) = \Lambda(\alpha_h + \beta_1 x_{j2008} + \beta_2 n_{j2008}) \quad (11)$$

where x_{j2008} is ln(GDP per person employed in 2005 PPP$) of country j in the year 2008, n_{j2008} is ln(number of employees in 2008), and Λ denotes the logistic cumulative distribution function.[116] The fixed effects, α_h, are dummies for each of the regions with incomplete data (Asia, Latin America and the Caribbean, Africa and the Middle East) and one common dummy for the remaining regions with complete data. The logistic regression had $n = 177$ cases and produced a pseudo $R^2 = 0.462$. The estimated parameters were then used to calculate the propensity of response of country j, ϕ_j.

The response weight for country j, φ_j, is then given by the inverse of a country's response propensity:

$$\varphi_j = \frac{1}{\phi_j} \quad (12)$$

Calibration factors

The final adjustment process, generally called calibration,[117] is to ensure consistency of the estimate with known aggregates. This procedure ensures appropriate representation of the different regions in the final global estimate. In the present context, a single variable, number of employees in 2008, was considered for calibration. In this simple case, the calibration factors, γ_j, are given by

$$\gamma_j = \frac{n_h}{\hat{n}_h}, j \in h \quad (13)$$

where h represents the region to which country j belongs, n_h is the known number of employees in that region, and $\hat{n}_h$ is the estimated total number of employees in the

[115] See, for example, Tillé (2001).

[116] Data for the number of persons employed and the number of employees are from KILM, and data on GDP in 2005 PPP$ from the World Bank's *World Development Indicators*.

[117] Särndal and Deville (1992).

region based on the uncalibrated weights.[118] The resulting calibration factors were 1.00 (Advanced countries, Central and Eastern Europe, Eastern Europe and Central Asia), 0.967 (Asia), 0.967 (Latin America and the Caribbean), 0.958 (Africa) and 1.133 (Middle East). Since all calibration factors are either equal to or very close to one, these results show that estimates $\hat{n}_h$ were already very close to the known number of employees, n_h, in each region.

Calibrated response weights

The calibrated response weights, φ'_j, are then obtained by multiplying the initial response weight by the calibration factor:

$$\varphi'_j = \varphi_j \times \gamma_j \qquad (14)$$

The regional estimate of the number of employees based on the calibrated response weights is equal to the known total number of employees in that region. Thus, the calibrated response weights adjust for differences in non-response between regions. Note that the calibrated response weights are equal to 1 in the regions where wage data were available for all countries (Advanced countries, Central and Eastern Europe, Eastern Europe and Central Asia). They are larger than 1 for small countries and countries with lower labour productivity since these are underrepresented among responding countries.

Estimating global and regional trends

One intuitive way to think of a global (or regional) wage trend is in terms of the evolution of the world's (or a region's) average wage. This would be in line with the concept used for other well-known estimates, such as regional GDP per capita growth (published by the World Bank) or the change in labour productivity (or GDP per person employed; see Part I of this report).

The global average wage, $\bar{y}$, at the point in time t can be obtained by dividing the sum of the national wage bills by the global number of employees:

$$\bar{y}_t = \frac{\sum_j n_{jt} \times \bar{y}_{jt}}{\sum_j n_{jt}} \qquad (15)$$

where n_{jt} is the number of employees in country j and $\bar{y}_{jt}$ is the corresponding average wage of employees in country j, both at time t.

The same can be repeated for the subsequent time period $t+1$ to obtain $\bar{y}^*_{t+1}$, using the deflated wages $\bar{y}^*_{jt+1}$ and the number of employees n_{t+1}. It is then straightforward to calculate the growth rate of the global average wage, r.

[118] The estimate, $\hat{n}_h$, of the number of employees in region h is obtained by multiplying the number of employees in countries from the region for which we have wage data by the uncalibrated weights, and then summing up across the region.

However, while this is a conceptually appealing way to estimate global wage trends, it involves some difficulties that we cannot presently overcome. In particular, aggregating national wages, as is done in equation (15), requires them to be converted into a common currency, such as PPP$, making the estimates sensitive to revisions in PPP conversion factors. It would also require that national wage statistics be harmonized to a single concept of wages in order to make the level strictly comparable.[119]

More importantly, the change in the global average wage would also be influenced by composition effects that occur when the share of employees shifts between countries. For instance, if the number of paid employees falls in a large high-wage country but expands (or stays constant) in a large low-wage country, this would result in a fall of the global average wage (when wage levels stay constant in all countries). This effect makes changes in the global average wage difficult to interpret, as one would have to differentiate which part is due to changes in national average wages and which part is due to composition effects.

We therefore gave preference to an alternative specification to calculate global wage trends that maintains the intuitive appeal of the concept presented above but avoids its practical challenges. To ease interpretation, we also want to exclude effects that are due to changes in the composition of the world's employee population.

When the number of employees in each country is held constant, the global wage growth rate can be expressed as a weighted average of the wage growth rates in the individual countries:

$$r_t = \sum_j w_{jt} \times r_{jt} \qquad (16)$$

where r_{jt} is wage growth in country j at point in time t and the country weight, w_{jt}, is the share of country j in the global wage bill, as given by:

$$w_{jt} = n_{jt} \times \overline{y}_{jt} / \sum_j n_{jt} \times \overline{y}_{jt} \qquad (17)$$

While we have data for the number of employees, n_{jt}, in all countries and relevant points in time from the ILO's Key Indicators of the Labour Market,[120] we cannot estimate equation (17) directly since our wage data are not in a common currency. However, we can again draw on standard economic theory, which suggests that average wages vary roughly in line with labour productivity across countries.[121] We can thus estimate $\overline{y}_j$ as a fixed proportion of labour productivity, *LP*:

$$\hat{\overline{y}}_{jt} = \alpha \times LP_{jt} \qquad (18)$$

[119] See, for example, the work done mainly for industrialized countries by the International Labor Comparisons programme of the US Bureau of Labor Statistics (2009) (http://www.bls.gov/fls/). Since we do not compare levels, but focus on change over time in individual countries, data requirements are less demanding in our context.

[120] We estimate the number of employees in 2009 (which is not yet available from KILM) by calculating the ratio of employees over employment in 2008, and then multiplying total employment in 2009 by this ratio. The main data source for KILM is Laborsta.

[121] See also ILO (2008a, p. 15) for the association between wage levels and GDP per capita. Notwithstanding this, wage developments can diverge from trends in labour productivity in the short and medium terms.

where α is the average ratio of wages over labour productivity. We can therefore estimate the weight as:

$$\hat{w}_{jt} = n_{jt} \times \alpha \times LP_{jt} / \sum_j n_{jt} \times \alpha \times LP_{jt} \qquad (19)$$

which is equal to:

$$\hat{w}_{jt} = n_{jt} \times LP_{jt} / \sum_j n_{jt} \times LP_{jt} \qquad (20)$$

Substituting $\hat{w}_{jt}$ for w_{jt} and introducing the calibrated response weight, φ'_j, into equation (16) gives us the final equation used to estimate global wage growth:

$$r_t = \frac{\sum_j \varphi'_j \times \hat{w}_{jt} \times r_{jt}}{\sum_j \varphi'_j} \qquad (21)$$

and for regional wage growth:

$$r_{ht} = \frac{\sum_j \varphi'_j \times \hat{w}_{jt} \times r_{jt}}{\sum_j \varphi'_j}, j \in h \qquad (21')$$

where h is the region of which country j is part. As can be seen from equations (21) and (21′), global and regional wage growth rates are the weighted averages of the national wage trends, where φ'_j corrects for differences in response propensities between countries (as described in (d) above).

While we believe that we have a robust methodology for the treatment of item non-response and total non-response (see above), our estimates of regional and global wage growth will naturally be less reliable the fewer actual observations we have. As we have described, we have not succeeded in obtaining wage data for all countries, and we have had to estimate missing years for some of the responding countries. This raises the question of how broad the coverage of the Global Wage Database is for a given year. Since data gaps for countries that have a higher weight are more severe, we estimate coverage, η_t, as follows:

$$\hat{\eta}_t = \frac{\sum_{j \in R_t} \hat{w}_{jt}}{\sum_{j \in U} \hat{w}_{jt}} \qquad (22)$$

where $\hat{w}_{jt}$ is the weight obtained from equation (20), U is the full set of countries j listed in table A1, and a country is considered to be among the set of responding countries, R, at time t when a real observation is available for that year, either from the preferred series or from a secondary series.

Table A3 provides coverage information for each year from 2006 to 2009. As expected, the coverage of the database becomes lower for the most recent years (since some statistical offices are still processing these data). Nonetheless, even for 2009 we still have real observations for about 90 per cent of total wages. Coverage exceeds 98 per cent in 2009 in the Advanced countries, Central and Eastern Europe and Eastern

Table A3 Coverage of the Global Wage Database, 2006–09 (in per cent)

Regional groups	Approximate coverage of total wages (%)			
	2006	2007	2008	2009
Advanced countries (selected)	100.0	99.2	100.0	98.7
Central and Eastern Europe	100.0	100.0	100.0	99.4
Eastern Europe and Central Asia	97.7	98.5	98.4	98.2
Asia	98.3	97.2	93.6	73.8*
Latin America and the Caribbean	94.5	94.6	94.2	83.5
Africa	76.6*	75.6*	41.1**	39.2**
Middle East	80.1	60.7**	(12.8)	(13.9)
World	**98.1**	**97.0**	**94.6**	**90.1**

* Regional growth rates published as "Provisional estimates (based on coverage of ca. 75 per cent)".

** Regional growth rates published as "Tentative estimates (based on coverage of ca. 40 per cent to ca. 60 per cent)".

(..) Regional growth rates not published.

Note: See text regarding estimation of coverage. A country is counted as covered only when a real observation is available, either from the preferred series or a secondary series.

Europe and Central Asia. However, we have too few real observations for the Middle East in 2008 and 2009 (where coverage is roughly 13 per cent) to make a reliable estimate and therefore do not publish the most recent wages trends for the Middle East. We also flag regional growth rates as "provisional estimates" when they are based on coverage of ca. 75 per cent and as "tentative estimates" when the underlying coverage of our database is between 40 and 60 per cent to draw attention to the fact that they might be revised once more data become available.

Technical appendix II

Definition and measurement of the wage share and shift-share analysis

How the wage share should be calculated is important to define, since different ways of calculating the wage share will affect the level observed and sometimes the time trends. Some questions to consider[122] include the following: What should be included in the measurement of compensation of employees? Should CEOs and business owners be classified as workers? What is the most appropriate way of measuring output? The sections below show how the level of the wage share is affected when it is measured using multiple definitions.

How is the wage share defined?

In general terms, the simple unadjusted wage share of output (*LS*) is defined as the ratio of compensation of employees (*COE*) to gross value added (*GVA*), both measured in nominal terms.

$$LS = \frac{COE}{GVA} \qquad (1)$$

Yet, there is much debate surrounding the implications of this simplistic measure. In particular, standard measures of *COE* in national accounts (wages plus salaries and social contributions paid by the employer) omit the labour income of the self-employed. As such, the wage share, as defined above, ignores the labour income of business owners. In certain sectors, where there is a high proportion of self-employed in total employment[123] – implying an underestimation of the numerator of the unadjusted wage share expression – the positive contribution of labour income can cause significant changes to the calculated level of the wage share. It is therefore important to calculate a measure of the wage share that is adjusted for the self-employed, the so-called adjusted wage share. In the following paragraphs we describe two different ways of adjusting the wage share to account for the labour income of the self-employed, discussing the positive elements and drawbacks of each.

Standard assumptions about proprietors' incomes may overinflate the value of the wage share …

Because mixed income (a measure of unincorporated business income) is difficult to quantify and thus often not separated from operating surplus in national accounts, a standard assumption among economists is that labour compensation per person is

[122] See, for example, those highlighted by Krueger (1999).

[123] For example, this is often the case in the agriculture, hunting, forestry and fishing sectors of the economy (sectors A and B of the International Standard Industrial Classification of All Economic Activities (ISIC) Revision 3).

equivalent between the self-employed and paid employees.[124] Given this assumption, the adjusted wage share can be expressed as:

$$ALS_t^T = \frac{COE_t}{GVA_t} \times \frac{EMPN_t}{EMPE_t} \qquad (2)$$

where ALS_t^T stands for the adjusted wage share at the total economy level, COE_t represents nominal compensation of employees at time t, GVA_t denotes nominal *GVA* at time t and $EMPN_t$ and $EMPE_t$ represent total employment and employees at time t (both measured in persons), respectively.

It should be noted that the measure for *EMPN* and *EMPE* can also be expressed in hours worked. Indeed, this labour measure is preferable to that of persons because a simple headcount of employed persons can hide changes in average hours worked, caused by the evolution of part-time work or the effect of variations in overtime, absence from work or shifts in normal hours. However, the quality of hours-worked estimates is not always clear. In particular, statistical establishment surveys and household surveys are difficult to use because of the varying quality of hours-worked estimates and degree of international comparability. In contrast, total employment is easier to measure than hours worked and thus, typically, is more widely available. Yet, it does not reflect changes in the average work time per employee, changes in multiple job holdings, nor the role of self-employed persons (or changes in the quality of labour). Despite these apparent drawbacks, this analysis relies on employed persons as the labour measure for reasons of data availability.[125]

At the total economy level, equation (2) is advantageous in that it utilizes already available wage and employment data in the calculation of the adjusted wage share. However, it is problematic for various reasons. First, as Morel (2006) points out, it is possible to end up with a wage share above unity when adjusting the wage share per equation (2) "due to either measurement errors in the variables or to different definitions of self-employed in the national accounts compared to the employment survey" (p. 5). Although this effect is often less noticeable at the aggregate level, it is quite apparent when applied to individual sectors that have a high share of self-employed in total employment. More problematic, however, is the underlying assumption that the self-employed and employees receive the same compensation. Indeed, it is likely that the compensation of the self-employed compared to employees varies by sector. For example, it is generally accepted that non-employee workers in the agricultural sector earn less than paid employees. Thus, the calculation of the wage share in this sector when applying equation (2) could be overestimated, as the agricultural sector commonly has a large share of self-employed in total employment. Conversely, non-employee workers, such as self-employed doctors in the health service sector, tend to earn more than the average employee, which could lead to an underestimated wage share.

[124] See, for example, Gollin (2002) and Bagnoli (2009).

[125] See Freeman (2008).

…making us question appropriate adjustment measures

To address the potential problems that can arise when applying the "simple" adjustment given by equation (2), Arpaia et al. (2009) suggest a variation of this measure of the aggregate wage share. They advocate attributing the compensation of an average employee in a particular economic activity branch to the self-employed working in the same sector. In such a case, this method calculates the adjusted wage share as a weighted average of the adjusted wage share for each sector *i* in the economy and uses sector shares in total value added as weights. The following equation for the adjusted wage share results:

$$ALS_t^S = \sum_{i=1}^{k} \frac{COE_{i,t} \times EMPN_{i,t}}{gva_{i,t} \times EMPE_{i,t}} = \sum_{i=1}^{k} \frac{gva_{i,t}}{GVA_t} \times \frac{COE_{i,t}}{gva_{i,t}} \times \frac{EMPN_{i,t}}{EMPE_{i,t}} = \sum_{i=1}^{k} w_{i,t} \times als_{i,t} \quad (3)$$

Where ALS_t^S represents the wage share at the total economy level, calculated by applying *sectoral* data; *i* represents any particular sector of the economy; $COE_{i,t}$, $gva_{i,t}$, $EMPN_{i,t}$, $EMPE_{i,t}$, $w_{i,t}$ and $als_{i,t}$ denote, for any economic sector *i* at time *t*, nominal compensation of employees, nominal gross value added, total employment (persons), employees (persons), the weight of the sector's value added in the total economy and the adjusted wage share, respectively. Ideally, the most disaggregated data should be used (three or four-digit level of ISIC or national nomenclatures), depending on data availability.

Finally, note that the industrial classification used in our analysis is the United Nations International Standard Industrial Classification (ISIC) of All Economic Activities, Revision 3.

An illustration

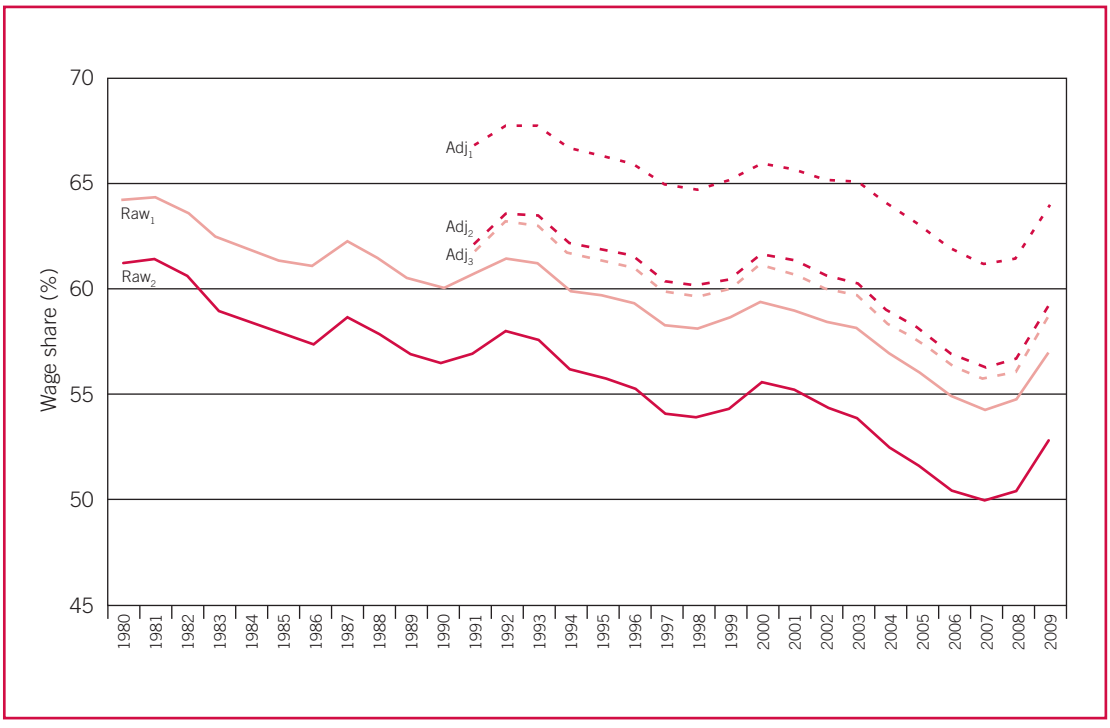
This section explores in further detail the implications of different measures of the wage share. As explained above, the measure of the wage share used has direct implications on the level of the wage share observed.[126] Figure A4 presents five different measures of the wage share for Germany. This country was selected for purely representational purposes as the same general phenomenon can be observed across all countries in this analysis. The bottom line (Raw_2) shows the raw wage share that corresponds to equation (1) but excludes community, social and personal services. The argument for this exclusion is that the value added generated by these sectors is wage and salary income, implying that there is no concept of wage share involved.[127] Directly above this line is the raw wage share, Raw_1, as described by equation (1).

The upper bound of the graph, Adj_1, is the wage share that corresponds to equation (2). We observe, for Germany, a difference of nearly 0.1 percentage point between this measure of the wage share and the unadjusted measure, Raw_1. Although not shown here, the difference is much more marked at the sectoral level, particularly for the

[126] As the principal intention of this analysis is to study the evolutions in *trends* in the labour share of output since the economic crisis, other forms of adjustment prominent in the literature were not explored. For a further and more in-depth discussion on ways of adjusting the labour share for the income of the self-employed, see Gollin (2002), Morel (2006) and Krueger (1999).

[127] See Arpaia et al. (2009).

Figure A4 Germany: Wage share adjustments, 1980–2009 (ratio)



Source: ILO calculations based on data from the following OECD databases: STAN (www.oecd.org/sti/stan) and ANA (www.oecd.org/std/ana).

agriculture, services and construction sectors. Applying the same logic as for Raw_2, Adj_2 excludes the labour income and (minimal) value added by community, social and personal services. Agriculture, hunting, forestry and fishing have also been excluded on the basis that the underlying assumption of the adjusted wage share is not valid for these sectors. Indeed, we notice a difference of between 0.04 and 0.05 percentage points between the two adjustments. Finally, Adj_3 applies equation (3). Community, social and personal services and agriculture, hunting, forestry and fishing sectors have been removed. Adj_3 is quite similar in value to Adj_2

Several authors, such as Krueger (1999), Gollin (2002) and Morel (2006), have explored other forms of adjustment that can be used to estimate the level of the wage share. Some of these include the attribution of all unincorporated business income to labour, assuming the same mix of labour and capital in the unincorporated sector as in the rest of the economy, or applying the capital–labour ratio of non-mixed income to mixed income. In our report, however, we focus on trends in the wage share rather than its level, using the *unadjusted* wage share Raw_1 in figure A4.

Shift-share analysis: A decomposition of the wage share

To gain insight into the dynamics of the wage share, it is important to decompose the variation of the aggregate wage share into the contribution of sectoral changes and into variations of sector-specific effects. Following de Serres et al. (2002), Morel (2006) and Bagnoli (2009), a shift-share analysis is applied to decompose changes in the aggregate wage share into within-sector contributions and structural contributions caused by the

movement of resources between sectors.[128] Sector weights are used to account for the relative size of each sector in gross value added. For the analysis, the method used by Morel (2006) is applied. The changes in the aggregate wage share of output between period *(t–s)* and period *t* are decomposed into three parts as follows:

$$\Delta LS_{i,t} = \sum_{i=1}^{I} (w_{i,t-s} \times \Delta ls_{i,t}) + \sum_{i=1}^{I} (ls_{i,t-s} \times \Delta w_{i,t}) + \sum_{i=1}^{I} (\Delta w_{i,t} \times \Delta ls_{i,t}) \qquad (4)$$

where $LS_{i,t}$ represents the aggregate wage share for industry i (of which there are I industries) at time t, and w_i stands for the weight of each industry in nominal GVA.

In equation (4), the first term on the right-hand side represents the change in the aggregate wage share caused by variations in the wage share within industries (share effect). The second term indicates the variation in the wage share caused by changes in the relative weight of each sector, calculated on the basis of changes in the relative share of nominal GVA. This is indicative of the sectoral composition bias in the aggregate wage share (shift effect). Finally, the last term is considered to be an unexplained residual.

[128] Agriculture, hunting, forestry and fishing sectors have been excluded from this analysis on the basis that it would be more appropriate to include these sectors in an analysis of the adjusted wage share.

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Statistical appendix

Contents

Statistical appendix table SA1: Average wages

Table SA1 comprises the average growth rates of real wages for the period 2000–09. Unless otherwise specified, the level of wages refers, in principle, to gross earnings. In some cases, indices are used when levels are unavailable. Level data are standardized to monthly amounts, depending on the unit in which they are originally available (i.e. weekly data are multiplied by 52 weeks and divided by 12 months). Although attempts are made to gather wage data for all employees, where this is not available, coverage refers to a sub-group of all employees.

Changes in wages rather than levels are reported. This is because cross-country comparisons in the levels of wages are influenced by the use of different data collection methods (i.e. household versus enterprise surveys) and by the coverage of employees to which each country's data refer. To estimate growth in real wages, we first calculate real wages by dividing nominal wages by the consumer price index (CPI).

Data sources

Table SA1 indicates the source of the data and whether a country's national statistical office (NSO) (or, in some cases, another national counterpart) directly provided data or guidance on their preferred data sources.

Most data on wages were obtained directly from, and often in collaboration with, national statistical offices. In some cases, data are obtained from international sources, such as the United Nations Economic Commission for Europe (UNECE). Additionally, for some countries in Latin America and the Caribbean, average wages were estimated directly by the ILO/SIALC (Labour Analysis and Information System) from primary household-level data sets. Data on the CPI are generally obtained from the International Monetary Fund's World Economic Outlook database.[129]

Table SA1 Average wages

Country/Territory	Growth of real average monthly wages, in % p.a.					Source	NSO provided data/assistance
	2000–05[1]	2006	2007	2008	2009		
Advanced countries (selected)							
Australia	1.1	3.2	5.0	–0.9	2.0	Australian Bureau of Statistics	
Austria	–0.2	1.4	1.4	–0.3	2.0*	Statistics Austria	X
Belgium	0.9	–0.1	–1.2	–0.2	3.2*	Belgium Ministry of Economic Affairs	X
Canada	0.0	0.4	2.1	0.5	1.3	Statistics Canada	X
Cyprus	2.5	2.4	1.4	0.5	3.8*	Statistical Service of Cyprus	X
Denmark	1.2	0.7	3.0	–1.2	2.2*	Statistics Denmark	X
Finland	2.3	1.8	2.2	1.2	3.3*	Statistics Finland	X

[129] In the cases of Brazil and the United States, where our national counterparts recommended the use of an alternative CPI, we relied on national sources from the Brazilian IBGE and the US BLS, respectively.

Table SA1 (continued)

Country/Territory	Growth of real average monthly wages, in % p.a. 2000–05[1]	2006	2007	2008	2009	Source	NSO provided data/assistance
France	0.6	0.5	1.5	2.7	–0.8*	France National Institute of Statistics and Economic Studies	X
Germany	–0.4	–0.9	–0.6	–0.4	–0.4	Federal Statistical Office of Germany	X
Greece	3.6	..	2.3*	1.0*	..	National Statistical Service of Greece	X
Iceland	4.5	2.7	6.1	–4.9	–8.0	Statistics Iceland	X
Ireland	..	..	–1.3	–1.5*	1.5*	Central Statistics Office of Ireland	X
Israel	0.3	–0.3	6.2	–1.1	–2.6*	Israel Central Bureau of Statistics	X
Italy	0.3	0.4	0.1	–0.7	2.4*	Italy National Bureau of Statistics	X
Japan	0.7	–0.3	–0.1	–1.9	–1.9	Japan Ministry of Health, Labor and Welfare	X
Korea (Republic of)	4.4	3.4	–1.8	–1.5	–3.3	Ministry of Labour of Korea	X
Luxembourg	0.9	0.8	1.5	0.3	1.5	STATEC Luxembourg	X
Malta	–0.4	1.6	1.8	0.0	0.2	Malta National Statistics Office	X
Netherlands	0.1	1.0*	0.1*	1.2*	2.3*	Statistics Netherlands	X
New Zealand	1.3	–0.3	4.9	0.1	0.1	Statistics New Zealand	X
Norway	2.4	2.3	4.9	1.9	1.0	Statistics Norway	X
Portugal	1.2	–0.1	0.7	2.0	..	Office of Strategy and Planning (GEP) of the Ministry of Labour and Social Solidarity	X
Singapore	2.6	2.2	4.0	–1.0	–2.8	Statistics Singapore	X
Spain	–0.1	1.2	1.1	0.9	3.5	Spain National Statistics Institute	X
Sweden	2.1	1.4	1.5	1.7	0.6*	Statistics Sweden	X
Switzerland	0.8	0.1*	0.9*	–0.4*	2.6*	Swiss Federal Statistical Office	X
United Kingdom	2.3	1.8	0.6	0.8	–0.5	UK National Statistics	X
United States, series A	..	..	..	–1.1	1.5	US Bureau of Labor Statistics	X
United States, series B	..	1.1	1.0	–1.0	2.2	US Bureau of Labor Statistics	X
Africa							
Algeria	–0.1	6.6	4.7	..	..	Algeria National Statistical Office	X
Botswana	2.1	0.1	3.0	–4.8	5.4	Central Statistical Office of Botswana	
Egypt	1.7	6.1	–0.8	..	..	Egypt Central Agency for Public Mobilization and Statistics	X
Kenya	..	–1.8	0.9	..	..	Kenya National Bureau of Statistics	
Malawi	12.5	–6.3	..	..	..	National Statistical Office of Malawi	X
Mauritius	3.2	–3.9	–2.5	–1.8	..	Central Statistics Office of Mauritius	
Morocco	..	–0.3	0.8	1.7	5.2	Morocco National Social Security Fund	X
Reunion	..	0.1	1.4	..	..	France National Institute of Statistics and Economic Studies	

Table SA1 (continued)

Country/Territory	Growth of real average monthly wages, in % p.a. 2000–05[1]	2006	2007	2008	2009	Source	NSO provided data/assistance
Senegal	2.5	2.2	..	..	..	Senegal Les salaires: état des lieux, tendances et evolution recentes, Momar Ballé Sylla, August 2009, mimeo	
South Africa	..	..	1.0	0.0	3.5	Statistics South Africa	X
Swaziland	–0.4	..	..	..	..	Swaziland Central Statistics Office	
Tanzania	7.1	..	..	..	..	Tanzania National Bureau of Statistics	
Tunisia	2.7	1.2	2.2	0.0	2.3	Tunisian National Institute of Statistics	
Uganda	..	4.7	7.9	..	..	Uganda Bureau of Statistics	X
Zimbabwe	–7.4	..	..	..	..	Central Statistical Office of Zimbabwe	
Asia							
China	12.6	12.9	13.1	11.7	12.8	National Bureau of Statistics China	
Hong Kong (China)	..	2.0	1.7	–4.1	–2.9	Census and Statistics Department of Hong Kong	
Macau (China)	1.9	0.2	1.2	–0.8	1.8	Statistics and Census Service Macao SAR Government	
Fiji	0.7	..	..	..	..	Fiji Islands Bureau of Statistics	
India	2.6	0.4	–0.6	8.3	..	Government of India Ministry of Statistics and Programme Implementation	X
Indonesia	10.4	–6.1	–1.1	–2.4	–0.3	Statistics Indonesia of the Republic of Indonesia	X
Iran	..	8.0	0.0	..	..	Statistical Centre of Iran	X
Malaysia	3.5	0.0	3.2	–4.7	1.4	Department of Statistics of Malaysia	X
Mongolia	2.4	20.9	25.1	25.0	3.1	Mongolia National Statistical Office	X
Myanmar	–6.7	142.5	1.5	11.2	..	Myanmar Department of Labour (retrieved from ILO Laborsta)	
Nepal	6.5	–0.5*	3.4*	3.7	3.9*	Government of Nepal Central Bureau of Statistics	
Pakistan	2.5	..	7.2	2.4	..	Government of Pakistan Statistics Division	X
Philippines	–1.1	0.5	–1.0	–4.3	1.0	National Statistical Office of the Philippines	X
Sri Lanka	–0.7	1.1	–4.8	–4.6	1.6*	Sri Lanka Department of Labour (retrieved from ILO Laborsta)	
Thailand	–1.0	1.5	0.7	4.5	–1.6	National Statistical Office of Thailand	
Eastern Europe and Central Asia							
Armenia	14.2	16.3	14.1	8.1	12.6	National Statistics Service of Armenia	X
Azerbaijan	17.5	10.9	24.3	5.0	7.2	State Statistical Committee of the Republic of Azerbaijan	X

Table SA1 (continued)

Country/Territory	Growth of real average monthly wages, in % p.a. 2000–05[1]	2006	2007	2008	2009	Source	NSO provided data/assistance
Belarus	14.8	17.3	9.9	8.9	1.8	Republic of Belarus Official Statistics	X
Georgia	13.8	24.8	21.2	32.2	2.0*	National Statistics Office of Georgia	
Kazakhstan	10.2	10.2	16.1	–1.1	3.2	Agency of Statistics of Kazakhstan	
Kyrgyzstan	9.4	18.6	10.2	8.8	7.2	National Statistical Committee of the Kyrgyz Republic	
Russian Federation	15.1	13.3	17.3	11.5	–3.5	Federal State Statistics Service, Russian Federation	X
Tajikistan	16.7	25.6	24.2	18.2	18.3*	State Committee on Statistics of Tajikistan	
Turkmenistan	29.4	..	..	4.0	7.4	State Committee of Turkmenistan Statistics	
Uzbekistan	22.1	..	..	..	..	UNECE	
Central and Eastern Europe							
Albania	5.9	6.7	21.6	19.7	..	Albania National Institute of Statistics	X
Bosnia and Herzegovina	4.4	1.8*	8.2	8.6	8.6	Agency of Statistics for Bosnia and Herzegovina	X
Bulgaria	1.9	3.4	11.3	13.0	10.4*	Bulgarian National Statistical Institute	
Croatia	2.3	2.9	3.4	1.2	–0.2*	Republic of Croatia Central Bureau of Statistics	X
Czech Republic	4.1	3.1	4.4	0.7	0.2	Czech Statistical Office	X
Estonia	6.6	11.6	13.0	3.2	–4.9	Statistics Estonia	
Hungary	5.8	4.2	0.0	1.3	–3.5	Hungarian Central Statistic Office	
Latvia	5.7	15.2	19.7	4.4	–6.8	Statistics Latvia	X
Lithuania	3.4	13.0	13.9	7.5	–8.5	Statistics Lithuania	
Macedonia (Former Yugoslav Republic)	1.3	4.6	2.4	0.4	15.0	Republic of Macedonia State Statistical Office	
Moldova (Republic of)	12.6	14.2	8.3	8.7	8.6	National Bureau of Statistics Moldova	X
Poland	1.7	3.8	5.3	5.6	2.0	Central Statistical Office of Poland	X
Romania	6.9	11.1	16.2	17.0	1.6	Romanian National Institute of Statistics	X
Serbia	14.7	10.4	14.6	4.9	–10.6	Statistical Office of the Republic of Serbia	X
Slovakia	2.6	2.5	7.5	3.5	2.9	Statistical Office of the Slovak Republic	X
Slovenia	2.8	3.1	2.6	2.5	2.6*	Statistical Office of the Republic of Slovenia	X
Turkey	..	2.6	1.1	0.2	1.7	TurkStat	X
Ukraine	15.7	18.4	15.0	6.8	–8.9	State Committee of Statistics of Ukraine	X

Table SA1 (continued)

Country/Territory	Growth of real average monthly wages, in % p.a. 2000–05[1]	2006	2007	2008	2009	Source	NSO provided data/assistance
Latin American and the Caribbean							
Argentina	–4.0	6.3	10.8	12.7	12.4	Argentinean National Institute of Statistics and Censuses	
Brazil	–1.7	4.0	3.2	3.4	3.2	Brazilian Institute of Geography and Statistics (IBGE)	X
Chile	0.7	0.6	2.8	0.6	4.4	National Statistics Institute of Chile	
Colombia	1.5	3.9	–0.3	–2.0	1.1	Central Bank of Colombia	
Costa Rica	–0.4	2.5	5.3	0.0	..	ILO/SIALC	
Dominican Republic	–5.9	–0.4	4.1	–0.6	2.2	Central Bank of the Dominican Republic	
Ecuador	6.0	8.4	11.3	10.5	7.0	National Institute of Statistics and Census of Ecuador	
Guadeloupe	..	0.4	1.2	..	..	France National Institute of Statistics and Economic Studies	
Guyana	..	–5.2	–9.1	..	..	France National Institute of Statistics and Economic Studies	
Honduras	1.3	1.3	6.1	..	..	ILO/SIALC	
Jamaica	–3.1	3.5	1.4	–6.2	1.0	Statistical Institute of Jamaica	X
Martinique	..	–1.1	0.6	..	..	France National Institute of Statistics and Economic Studies	
Mexico	3.3	3.1	1.3	–2.6	–5.0	Mexico National Employment Service Job Portal	
Panama	–1.3	0.8	–3.4	–2.6	6.2	ILO/SIALC	
Paraguay	–3.8	–2.1	–3.8	2.2	..	ILO/SIALC	
Peru	–0.1	–2.4	–1.5	–3.2	..	ILO/SIALC	
Puerto Rico	0.8	0.4	1.5	–0.6	3.6	US Bureau of Labor Statistics	
Uruguay	–5.0	4.5	4.9	5.2	7.2	National Institute of Statistics of Uruguay	
Venezuela	0.5	18.6	6.3	1.9	..	ILO/SIALC	
Middle East							
Bahrain	–0.6	–2.4	5.1	5.2	–3.7	Kingdom of Bahrain Labour Market Regulatory Authority	
Jordan	0.6	0.6	3.4	–0.1	..	Jordan Department of Statistics	X
Kuwait	1.5	..	..	..	..	Kuwait Central Statistical Office	
Oman	..	..	5.1	–2.2	..	Oman Ministry of the National Economy	
Qatar	..	..	6.7	..	..	Qatar Statistics Authority	
Saudi Arabia	0.2	–0.8	–1.7	..	..	Saudi Arabia Central Department of Statistics	X
Syrian Arab Republic	..	..	–0.9	2.3	2.2	Syria Central Bureau of Statistics	X
United Arab Emirates	–0.2	0.1	..	..	..	UAE Ministry of the Economy	X
West Bank and Gaza	0.6	5.5	–0.6	1.9	–2.7	Palestinian Central Bureau of Statistics	X

.. = Data are unavailable for the period. * Based on secondary data series. [1] ILO estimate

Note: Annual growth rates are generally calculated based on nominal values from the source listed and the CPI published by the International Monetary Fund. See also footnote 129.

Statistical appendix table SA2: Minimum wages

Table SA2 provides information on minimum wages. The first two columns show the ratification as of 1 January 2010 of the Minimum Wage-Fixing Machinery Convention, 1928 (No. 26), and of the Minimum Wage Fixing Convention, 1970 (No. 131). A value of 1 indicates ratification. Next, the table provides the real annual growth rate of minimum wages from 2006 to 2009. Finally, table SA2 also provides the minimum wage, expressed in international dollars, using purchasing power parity (PPP) conversion rates and the latest year for which minimum wage data are available (an international dollar has the same purchasing power as a US dollar has in the United States). Whenever countries have more than one national-level minimum wage, we provide an estimate of the average of the different minimum wage rates.

Data sources

The data on minimum wages are drawn mainly from national sources, with some additional secondary sources. They have been collected over the years by the ILO and made available to the public through the ILO legal database (http://www.ilo.org/public/english/protection/condtravail/). For the purpose of the present report, this database has been complemented and updated.

Table SA2 Minimum wages

Country/Territory	Ratification of Convention		Growth of real minimum monthly wage, in % p.a.				Minimum wage in PPP$ (most recent year)
	No. 26	No. 131	2006	2007	2008	2009	
Advanced countries (selected)							
Australia	1	1	0.1	3.2	1.8	–1.8	1597
Austria	1		..	..	..	..	..
Belgium	1		–0.3	2.1	–0.4	4.1	1492
Canada	1		1.0	1.1	5.3	6.9	1325
Cyprus			..	..	..	6.3	1044
France	1	1	1.1	0.4	0.0	1.2	1443
Germany	1		..	..	..	..	..
Greece			2.9	5.0	–0.8	7.2	1096
Ireland	1		–2.6	9.9	–3.0	1.7	1368
Israel			5.3	2.9	–0.8	–3.2	960
Italy	1		..	..	..	..	..
Japan	1	1	0.4	2.1	0.9	2.8	944
Korea (Republic of)	1	1	6.8	9.5	3.5	3.3	797
Luxembourg	1		–0.2	–0.4	–0.9	3.7	1687
Malta	1	1	0.7	0.1	0.1	1.8	..
Netherlands	1	1	–0.1	0.9	0.8	2.1	1606
New Zealand	1		4.4	7.2	2.6	2.0	1367
Norway	1		..	..	..	..	..
Portugal	1	1	–0.1	2.0	3.0	6.6	618
Singapore			..	..	..	..	..
Spain	1	1	1.8	2.6	1.0	4.3	911

Table SA2 (continued)

Country/Territory	Ratification of Convention		Growth of real minimum monthly wage, in % p.a.				Minimum wage in PPP$ (most recent year)
	No. 26	No. 131	2006	2007	2008	2009	
Switzerland	1		..	..	..	..	..
United Kingdom			3.6	0.8	0.2	–0.9	1507
United States			–3.1	10.4	7.9	11.0	1257
Africa							
Algeria			17.3	–3.4	–4.6	–5.4	308
Angola	1		–15.0	11.4	17.6	–12.3	94
Benin	1		15.6	–1.2	–7.4	–2.1	106
Botswana			–3.1	–1.0	–5.0	–7.5	159
Burkina Faso	1	1	4.1	0.3	–9.6	–2.5	124
Burundi	1		–2.8	–7.7	–19.6	–10.2	6
Cameroon	1	1	–4.7	–1.1	14.0	–3.0	95
Central African Republic	1	1	..	..	..	..	..
Chad	1		–7.2	17.6	–7.7	–9.2	87
Comoros	1		..	..	..	–4.6	..
Congo	1		..	..	..	–4.2	135
Congo (Democratic Republic of)	1		31.8	–14.3	..	..	219
Côte d'Ivoire	1		–2.4	–1.9	–5.9	–1.0	112
Egypt	1	1	–4.0	–9.9	–10.5	–14.0	14
Ethiopia			–10.9	38.1	–20.2	–26.7	67
Gabon	1		84.4	–4.8	–5.0	–2.1	182
Gambia			..	..	..	–4.4	48
Ghana	1		–9.2	–9.7	359.8	–1.0	123
Guinea	1		..	..	..	..	..
Guinea-Bissau	1		..	..	..	..	..
Kenya	1	1	–2.1	–8.9	–11.6	5.6	205
Lesotho	1		–2.4	0.3	–2.9	–7.1	206
Liberia			..	..	..	–6.9	..
Libyan Arab Jamahiriya	1	1	..	..	..	..	273
Madagascar	1		1.2	–0.1	2.6	–8.2	76
Malawi	1		–12.2	–7.4	34.7	–7.8	53
Mali	1		–1.5	–1.4	..	..	97
Mauritania	1		..	..	..	–2.2	152
Mauritius	1		..	..	..	–5.2	173
Morocco	1		–3.2	–2.0	1.0	3.9	371
Mozambique			–2.0	5.4	..	..	..
Niger	1	1	–0.1	39.9	–10.1	–4.1	104
Nigeria	1		–7.6	–5.1	..	..	83
Rwanda	1		..	..	..	..	..
Senegal	1		–2.1	–5.5	–5.4	1.1	117
Sierra Leone	1		..	..	..	..	..
South Africa	1		0.9	–1.1	–2.3	4.7	390
Sudan	1		–6.7	–8.1	–12.5	–10.1	84
Swaziland	1	1	..	..	..	..	..
Tanzania	1	1	–6.8	–6.6	22.8	–10.8	117
Togo	1		–2.2	–0.9	87.3	–1.9	98
Tunisia	1		–1.5	0.3	–0.3	–2.6	315
Uganda	1		–6.2	–6.4	–6.8	–12.4	7
Zambia	1	1	195.5	–9.6	–11.1	–11.8	77
Zimbabwe	1		..	..	..	..	..

Table SA2 (continued)

Country/Territory	Ratification of Convention		Growth of real minimum monthly wage, in % p.a.				Minimum wage in PPP$ (most recent year)
	No. 26	No. 131	2006	2007	2008	2009	
Asia							
Afghanistan			..	..	..	13.7	89
Bangladesh			..	–8.4	–7.2	–5.7	58
Bhutan			–4.8	–4.9	–7.7	–8.0	108
China	1		12.9	4.7	..	..	173
Fiji	1		..	..	..	..	300
India	1		–5.8	–6.0	11.9	..	121
Indonesia			4.7	5.2	1.3	..	148
Iran			5.9	3.0	–4.3	..	541
Lao			100.1	–4.3	34.7	20.0	85
Mongolia			..	..	..	–5.9	159
Myanmar	1		..	..	..	..	..
Nepal		1	27.7	–6.0	29.4	–11.7	151
Pakistan			–7.3	42.3	16.5	–17.2	229
Papua New Guinea	1		..	..	..	151.4	249
Philippines			1.4	0.6	–3.5	–3.1	379
Solomon Islands	1		–10.0	–7.1	127.2	–6.6	156
Sri Lanka	1	1	–7.5	16.3	4.4	..	93
Thailand			–1.2	1.5	0.8	0.9	295
Viet Nam			19.6	27.2	–18.8	–1.8	85
Eastern Europe and Central Asia							
Armenia	1	1	12.1	27.7	14.7	16.0	144
Azerbaijan		1	–7.7	42.9	24.2	–1.5	121
Belarus	1		14.4	5.1	1.8	–7.6	250
Georgia			–8.4	–8.5	–9.1	–1.7	21
Kazakhstan			–8.0	–4.3	5.3	6.3	165
Kyrgyzstan		1	–5.3	208.5	–19.7	–6.4	20
Russian Federation			25.4	91.8	14.3	10.5	223
Tajikistan			51.6	–11.6	149.1	–6.1	48
Uzbekistan			15.7	11.3	43.1	31.9	..
Central and Eastern Europe							
Albania	1	1	15.9	11.7	2.2	3.6	329
Bosnia and Herzegovina		1	..	..	..	..	..
Bulgaria	1		–0.7	4.6	9.2	6.5	292
Croatia			1.0	3.0	12.7	0.1	613
Czech Republic	1		8.0	–2.2	–6.0	–1.0	526
Estonia			6.8	12.6	9.5	0.1	426
Hungary	1		5.6	–2.9	–0.7	–0.6	498
Latvia		1	5.6	21.1	15.7	8.9	421
Lithuania		1	5.1	10.3	2.8	–4.0	428
Macedonia (Former Yugoslav Republic of)		1	..	..	..	..	..
Moldova (Republic of)		1	..	..	..	..	..
Poland			4.8	1.6	15.4	9.5	628
Romania		1	–0.1	12.7	28.4	5.2	320
Serbia		1	–11.2	54.9	–11.1	26.7	376

Table SA2 (continued)

Country/Territory	Ratification of Convention		Growth of real minimum monthly wage, in % p.a.				Minimum wage in PPP$ (most recent year)
	No. 26	No. 131	2006	2007	2008	2009	
Slovakia	1		5.6	4.6	–3.8	8.9	485
Slovenia		1	1.8	–1.6	2.8	3.1	855
Turkey	1		–0.9	1.3	–1.1	2.2	609
Ukraine		1	10.5	1.9	5.0	6.1	311
Latin American and the Caribbean							
Argentina	1		14.5	12.6	16.5	9.3	896
Bahamas	1		–1.8	–2.4	–4.3	–2.0	787
Barbados	1		..	..	..	..	..
Belize	1		..	..	–6.0	–2.0	388
Bolivia	1	1	9.0	–3.4	–3.5	8.3	215
Brazil	1	1	12.0	4.8	3.3	6.8	286
Chile	1	1	2.4	2.2	1.6	2.1	400
Colombia	1		2.5	0.7	–0.5	3.3	390
Costa Rica	1	1	1.1	0.9	2.0	1.2	489
Cuba	1	1	..	..	..	..	..
Dominican Republic	1		–7.0	8.3	–9.6	13.3	221
Ecuador	1	1	3.3	3.9	8.5	3.8	490
El Salvador		1	5.8	0.5	–2.1	7.4	304
Guatemala	1	1	1.6	–2.5	–5.8	4.2	344
Guyana	1	1	..	..	..	0.1	145
Haiti			–12.5	–8.3	–12.6	176.3	209
Honduras			5.1	3.8	–0.4	88.8	432
Jamaica	1		7.5	4.6	–5.2	0.4	310
Mexico	1	1	0.4	–0.1	–1.1	–0.6	170
Nicaragua	1	1	7.6	6.2	–4.0	11.4	198
Panama	1		5.0	0.5	–3.9	–2.4	451
Paraguay	1		2.2	1.7	–9.2	2.3	559
Peru	1		6.6	4.1	–1.9	–2.9	334
Trinidad and Tobago			–7.7	–7.3	–10.8	–6.5	285
Uruguay	1	1	12.8	0.0	18.6	0.0	258
Venezuela	1		11.3	1.1	–0.3	–4.7	481
Middle East							
Iraq	1	1	..	..	..	..	..
Jordan			9.0	–5.1	–13.0	37.3	261
Lebanon	1	1	–5.3	–3.9	50.5	–1.2	..
Oman			..	..	..	–3.4	441
Syrian Arab Republic	1	1	67.0	–4.5	–10.1	..	207
Yemen		1	..	..	..	..	..

.. = Data are unavailable for the period.

Notes: Annual growth rates are generally calculated based on nominal values and the CPI published by the International Monetary Fund.

Purchasing power parity levels represent the amount of goods able to be purchased in the United States in US dollars, with a given country's monthly minimum wage.

Statistical appendix table SA3: Inequality

Table SA3 presents several indicators that are widely used to measure inequality at the national level. The first three columns present a simple average of the low-pay rate across three time periods: 1995–2000, 2001–06 and 2007–09. The next columns compare top, median and bottom wage deciles: D9 is the wage level above which the top 10 per cent of workers are paid, D5 is the median wage (which separates the wage distribution into two equal halves) and D1 is the wage level below which the bottom 10 per cent of workers are paid. Hence, D9/D1 is a measure of overall inequality between top and bottom wage earners, which can be decomposed into inequality in the upper half of the distribution (D9/D5 ratios) and inequality in the lower half of the distribution (D5/D1). Simple averages for the same three periods as used for low pay are given for both the D9/D1 and D5/D1 ratios.

Data sources

The data on inequality were obtained from national statistical offices, international sources (such as the OECD) and individual country studies commissioned by the ILO. For countries in Latin America and the Caribbean, inequality was estimated directly by the ILO/SIALC (Information System and Labour Analysis) from primary household-level data sets.

Table SA3 Inequality

Country/territory	Low pay rates			Decile ratios D9/D1			Decile ratios D5/D1		
	1995–2000	2001–06	2007–09	1995–2000	2001–06	2007–09	1995–2000	2001–06	2007–09
Advanced countries (selected)									
Australia	13.5	14.5	16.8	3.0	3.1	3.3	1.6	1.7	1.7
Austria	..	15.4	16.2	..	3.3	3.4	..	1.7	1.8
Belgium	12.4	12.1	12.7	2.7	2.8	2.8	1.6	1.6	1.6
Canada	22.4	22.1	22.0	3.6	3.7	3.8	2.0	2.0	2.0
Denmark	8.5	11.1	12.0	2.5	2.6	2.7	1.5	1.5	1.6
Finland	5.4	4.6	5.3	2.2	2.3	2.3	1.4	1.4	1.4
France	..	..	..	3.1	3.0	..	1.6	1.5	..
Germany	16.6	19.2	21.2	3.1	3.2	3.3	1.7	1.9	1.9
Ireland	19.1	19.5	21.7	3.6	3.8	3.8	1.8	1.9	1.9
Israel	23.8*	22.6*	22.1*	11.5*	11.4*	11.2*	4.7*	4.6*	4.5*
Japan	15.0	15.0	15.3	..	..	..	..	..	..
Korea (Republic of)	23.2	24.5	25.6	3.8	4.3	4.7	1.9	2.0	2.1
Luxembourg	14.5	20.1	..	3.0	3.4	..	1.6	1.7	..
Netherlands	14.3	..	..	2.8	2.9	..	1.7	1.7	..
New Zealand	14.0*	14.8*	14.2*	8.8*	7.9*	7.3*	4.6*	4.1*	3.8*
Norway	..	..	..	2.0	2.1	3.0	1.4	1.5	1.5
Portugal	12.4	11.9	12.1	3.9	3.9	3.9	1.6	1.5	1.5

Table SA3 (continued)

Country/territory	Low pay rates			Decile ratios D9/D1			D5/D1		
	1995–2000	2001–06	2007–09	1995–2000	2001–06	2007–09	1995–2000	2001–06	2007–09
Spain	..	13.3	14.1	..	4.2	4.1	..	2.0	1.9
Sweden	5.7	6.2	..	2.2	2.3	..	1.4	1.4	..
Switzerland	11.7	11.7	11.8	2.6	2.6	2.7	1.5	1.5	1.5
United Kingdom	20.5	20.6	20.8	6.8	7.0	7.2	3.3	3.2	3.3
United States	24.8	23.8	24.5	4.6	4.7	4.9	2.1	2.1	2.1
Africa									
Senegal	..	..	..	54.1	..	..	8.3	..	..
South Africa	33.8	32.6	32.4	..	..	..	..	..	..
Asia									
China	..	..	..	..	..	..	..	..	..
China (local)	21.6	19.5	21.7	..	..	..	..	..	..
China (migrant)	..	66.5	42.6	..	..	..	..	..	..
Indonesia	27.4	27.2	28.9	16.2	12.1	15.5	..	..	..
Philippines	..	13.9	14.4	9.1*	8.5*	..	3.1*	3.0*	..
Eastern Europe and Central Asia									
Armenia	..	..	28.6*	..	..	5.0*	..	..	2.6*
Azerbaijan	4.6	24.3	43.3	15.1	8.0	15.4	5.3	3.7	5.5
Kazakhstan	..	..	..	9.8*	7.6*	6.7*	..	..	..
Central and Eastern Europe									
Albania	..	..	..	4.1*	..	..	..	..	..
Czech Republic	14.6	16.3	16.8	2.8	3.0	3.1	1.7	1.7	1.7
Estonia	..	..	..	..	4.7	4.6	..	2.2	2.2
Hungary	21.8	22.6	..	4.2	4.4	..	1.9	1.9	..
Latvia	..	..	33.7*	..	..	7.8*	..	..	2.8*
Moldova (Republic of)	..	21.6	23.8	..	5.1	4.7	..	2.3	2.3
Poland	18.3	22.0	22.7	3.5	4.0	4.1	1.8	2.0	2.0
Slovakia	..	..	..	..	3.5	3.7	..	1.8	1.9
Latin American and the Caribbean									
Argentina	25.2	32.3	29.3	8.2	10.6	11.5	3.7	4.7	5.6
Brazil	..	22.9	22.1	10.4	9.7	8.5	3.4	3.5	3.3
Chile	19.5	17.3	14.7	..	..	..	..	..	..

Table SA3 (continued)

Country/territory	Low pay rates			Decile ratios D9/D1			D5/D1		
	1995–2000	2001–06	2007–09	1995–2000	2001–06	2007–09	1995–2000	2001–06	2007–09
Colombia	..	31.5	30.8	..	9.5	9.8	..	4.2	4.2
Costa Rica	19.4	24.8	24.3	8.1	8.4	7.7	3.5	3.5	3.2
Ecuador	29.8	30.1	27.6	9.3	8.8	7.2	4.0	3.9	3.1
Honduras	28.7	36.2	36.1	8.7	9.5	9.4	3.8	3.9	3.8
Mexico	24.6	24.5	23.6	6.8	6.0	5.8	2.9	2.8	2.8
Panama	24.4	12.7	36.8	8.5	8.8	7.6	3.5	3.7	3.5
Paraguay	30.4	31.7	30.7	8.5	8.3	7.5	4.1	4.3	4.1
Peru	29.1	26.6	25.5	7.9	7.4	7.6	3.3	3.1	3.2
Uruguay	31.0	30.8	31.8	8.0	8.8	12.3	4.2	4.9	4.9
Venezuela (Bolivarian Republic of)	26.0	26.6	23.2	7.8	6.8	4.6	3.6	3.3	2.7
Middle East	..	..	..	..	..	..	..	..	..

.. = Data are unavailable for the period. * Figures are based on income.