

# Trends in employment and inequality\*

## Main findings

- The ongoing global economic slowdown is affecting low-income groups disproportionately. This development comes after a long expansionary phase where income inequality was already on the rise in the majority of countries.
- The recent period of economic expansion was accompanied by substantial employment growth across most regions. Between the early 1990s and 2007, world employment grew by around 30 per cent. However, there was considerable variation in labour market performance between countries. In addition, not all individuals shared equally in the employment gains. In a number of regions, women continued to represent a disproportionate share of non-employed persons – reaching nearly 80 per cent in the Middle East, North Africa and Asia and the Pacific.
- Employment growth has also occurred alongside a redistribution of income away from labour. In 51 out of 73 countries for which data are available, the share of wages in total income declined over the past two decades. The largest decline in the share of wages in GDP took place in Latin America and the Caribbean (-13 points), followed by Asia and the Pacific (-10 points) and the Advanced Economies (-9 points).
- Between 1990 and 2005, approximately two thirds of the countries experienced an increase in income inequality (as measured by changes in the Gini index). In other words, the incomes of richer households have increased relative to those of poorer households. Likewise, during the same period, the income gap between the top and bottom 10 per cent of wage earners increased in 70 per cent of the countries for which data are available.
- The gap in income inequality is also widening – at an increasing pace – between the firms' executives and the average employee. For example, in the United States in 2007, the chief executive officers (CEOs) of the 15 largest companies earned 500 times more than the average worker. This is up from 360 times more in 2003. Even in Hong Kong (China) and South Africa where executives are paid much less than their United States' counterparts, CEO pay still represents 160 and 104 times, respectively, the wages of the average worker.

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\* Excellent research assistance by Pascal Annycke is gratefully acknowledged.

- The prospects are for a continuation of a rise in income inequality in the course of the present economic slowdown and the recent developments such as the financial crisis and the sharp rise in food prices. As this report shows, the latter has already disproportionately affected poorer households.
- Rising income inequality can be a good thing to the extent that it is crucial to reward work effort, talent and innovation – key engines of economic growth and wealth creation. However, there are instances where income inequality reaches excessive levels, in that it represents a danger to social stability while also going against economic efficiency considerations. Indeed, higher income inequality is associated with higher crime rates and lower life expectancy. Higher inequality may also deepen macroeconomic instability in the sense that low-income households may adjust more slowly to economic shocks. In addition, there are instances where richer groups may secure economically-inefficient advantages, such as distortive taxes or an allocation of public funds that goes against the economic interests of the country as a whole. More fundamentally, when income inequalities are perceived to reach excessive levels, social support for pro-growth policies may be strongly eroded. Already now, there are widespread perceptions in many countries that globalization does not work to the advantage of the majority of the population.
- The policy challenge is therefore to ensure adequate incentives to work, learn and invest, while also avoiding socially-harmful and economically-inefficient income inequalities. Later chapters of this report examine this issue in detail.

## Introduction

Since 2007, the world of work has been hit by a number of global developments, in particular financial turmoil, rising food prices and a shortage of raw materials. This has brought an end to the rapid growth and strong employment performance exhibited by the world economy almost uninterruptedly since the mid-1990s.

Looking forward, a critical issue is the extent to which the current financial crisis and slowdown in the world economy may affect disproportionately low-income groups. This is all the more relevant given that, as this chapter will show, during the high-growth period, income inequality increased in the majority of countries, which may in turn damage the social fabric.

The purpose of this chapter is to discuss trends in employment and income inequality over the past two decades, and to assess why rising income inequality should be a matter of policy concern.

A number of the underlying factors behind rising income inequalities will be analysed in detail in later chapters. Chapter 2 examines the role of financial globalization, while Chapter 3 offers a comprehensive quantitative analysis of the role of domestic factors, notably tripartite institutions, in shaping income inequalities, taking due account of trade and other dimensions of globalization. Chapter 4 considers trends in job quality and the extent to which these trends may have contributed to rising income inequality. Chapter 5 examines redistributive policies through taxes and social transfers. Lastly, Chapter 6 considers Decent Work as a policy package to address excessive income inequalities and support employment growth.

Section A of this chapter provides an overview of developments in the world of work, especially as regards employment growth and labour's share of income over the past two decades. Section B reviews recent regional and country developments with respect to income inequality. This includes a special focus on the compensation of executives in selected countries. The extent to which income inequality is an issue of concern for policy-makers will be discussed in Section C. Lastly, Section D introduces some of the potential factors underlining the trend increase in income inequality and sets up a more detailed discussion in the chapters that follow.

## A. Overview of recent developments and employment trends

### The world of work is being affected by the economic slowdown

Rapidly rising oil, food and raw material prices, as well as the global financial turmoil, have affected the world economy over the past year.<sup>1</sup> In the light of these developments, the International Monetary Fund (IMF) has revised global economic growth forecasts downwards, especially for a number of the Advanced Economies – the United States, European Union (EU) 15 and Japan.<sup>2</sup> Growth turned negative in a number of countries, including France, Germany, Japan and Italy, in the second quarter of 2008, with growth in emerging and developing economies expected to slow down, although to what degree will partly depend on how severe the situation in the Advanced Economies turns out to be.<sup>3</sup>

The current economic slowdown has already had an immediate impact, bringing to a halt the strong employment growth enjoyed, with little or no interruption, by most Advanced Economies since the early 1990s. The United States, for example, experienced negative employment growth in each of the first nine months of 2008. Moreover, employment growth in most countries of the Organisation for Economic Co-operation and Development (OECD) is expected to slow down over the remainder of 2008 and into early 2009 (OECD, 2008a; OECD, 2008b).

Global employment growth, although still positive, is slowing in 2008, as employment gains diminish in developing economies. In the context of the current financial crisis, it is also quite likely that the impact of these most recent developments has yet to be fully felt. In this respect, it will be important to monitor the extent to which low-income groups may be affected, especially in the developing world, where the recent steep increase in food prices has disproportionately reduced the purchasing power of poorer households (see Section B).

These developments will likely intensify some of the changes that have characterized the world of work over the past two decades or so. First, as the Advanced Economies' share of total employment has been in steady decline over the past decade, falling to just over 15 per cent in 2007, that of the developing economies has continued to rise (fig. 1.1, panel A). In fact, the world of work is evolving in such a manner that the regions of Asia and the Pacific and Latin America and the Caribbean now account for nearly two thirds of world employment, the former alone accounting for more than half. The two regions have also enjoyed similar employment growth since 2000 (fig. 1.1, panel B).

Second, even though the most recent period of economic expansion, from the early 1990s on, has been accompanied by relatively robust employment growth, this overall trend masks a number of important distributional factors: (i) employment growth has varied considerably within each region and large numbers of women remain excluded from the world of work; (ii) labour's share of income has been declining; and, (iii) in the majority of cases, this period of expansion went hand in hand with wider income inequalities – the theme of this year's World of Work Report.

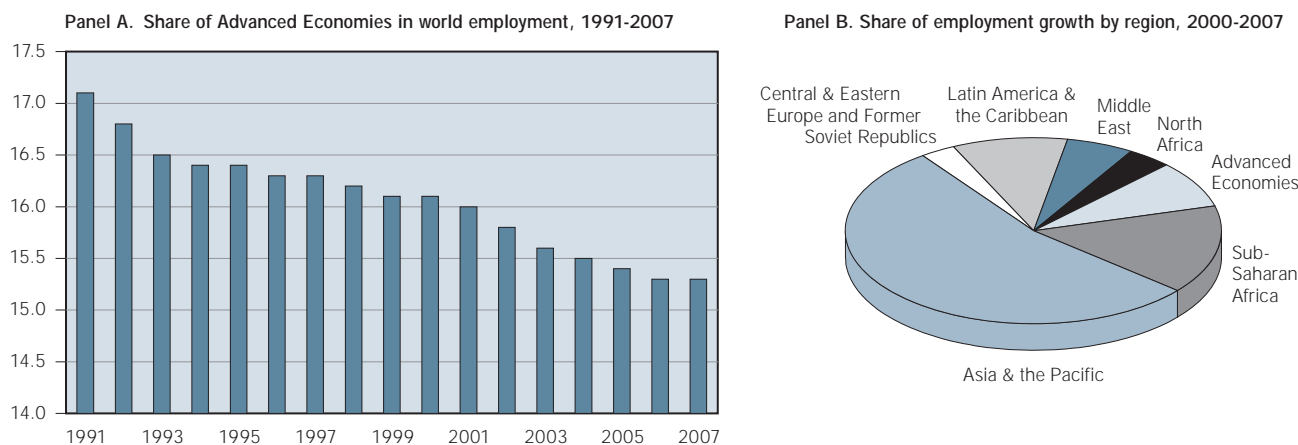
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1. In December 2007, the food price index issued by the Food and Agriculture Organization of the United Nations (FAO) stood at 187, the highest monthly average since its inception in 1990. On 11 July 2008, the price of a barrel of oil reached its highest ever price, at over US\$ 147.

2. See Appendix A for a list of country groupings.

3. The recent slowdown in the United States and other developed nations has not yet become global, which suggests that there may be some decoupling of growth in developing countries from growth in the Advanced Economies. However, there is some considerable debate as to the reality of this supposition, especially when examined over the longer term (see, for example, Kose, Otrok and Prasad, 2008).

Figure 1.1. World employment trends



Source: Estimates by International Institute for Labour Studies (IILS); ILO, 2008a.

### The slowdown follows a long period of rapid employment growth

Between the early 1990s and 2007, almost all regions of the world enjoyed relatively robust employment growth (fig. 1.2, panel A). In particular, since 1991, the Middle East, Sub-Saharan and North Africa and Latin America and the Caribbean have experienced annual growth of nearly 2.8 per cent, and often more, which, over the years, amounts to around a 50 per cent total increase in employment. Jobs gains in the Advanced Economies have been steady, if unspectacular, at 1 per cent per annum, but they have been outpaced by the Asia and the Pacific region – by a factor of two since 2002. At the other end of the spectrum, Central and Eastern Europe and the Former Soviet Republics saw a deterioration in the employment situation that accompanied a series of market reforms beginning in 1989, although that trend began to be reversed around 1999 (ILO, 1999).

Strong regional improvements in employment outcomes, however, tell only part of the story. The reality is that significant variations in employment growth have occurred within all regions since the early 1990s, as shown by Figure 1.2, panel B. Moreover, the coefficient of variation reveals that the dispersion in country growth rates was highest in regions with stronger employment growth (the Middle East and Sub-Saharan Africa) and lowest where growth was more moderate (the Advanced Economies).<sup>4</sup>

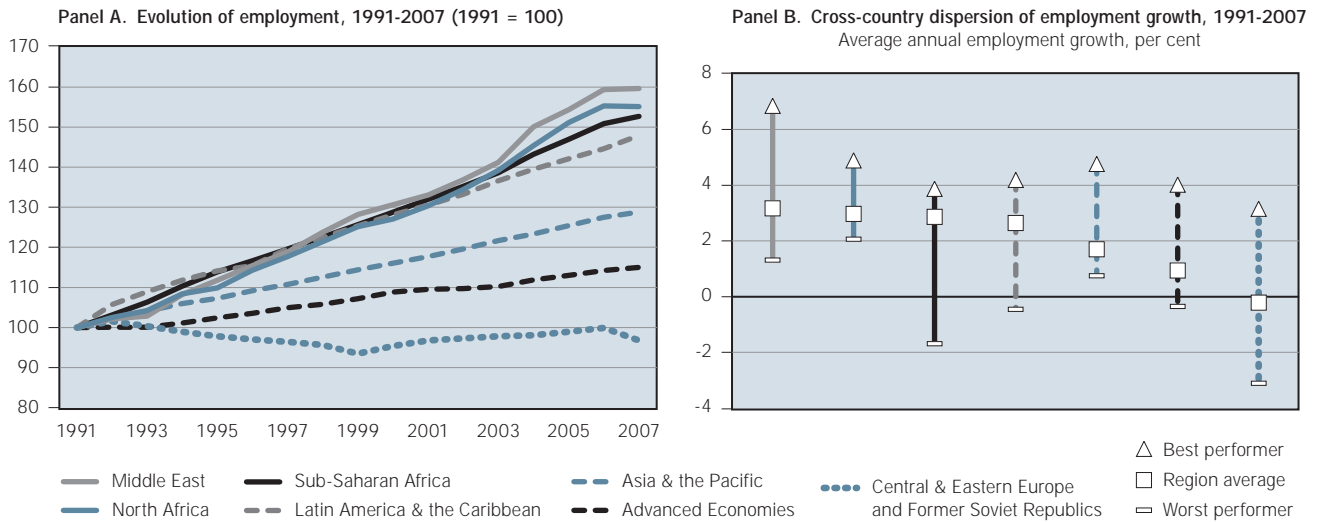
The employment contribution of women to the world of work, since the early 1990s, has varied considerably from region to region. In the Advanced Economies, for example, women have accounted for the bulk of employment growth (over 60 per cent: see fig. 1.3, panel A), but elsewhere for less than a third. There have been considerable improvements in recent years in female labour market outcomes, with many women progressing from precarious jobs to wage and salaried employment. However, these trends have not made a substantial difference to the gender gap in the workplace (ILO, 2008b). The employment rates of women, at 49.1 per cent, continue to trail those of their male counterparts by some 25 percentage points (ILO, 2008a).

Not surprisingly, this has influenced the extent to which lower female employment rates drag down overall employment rates. For example, in the Middle East, North Africa and Asia and the Pacific, women constitute 80 per cent or more of the non-employed (fig. 1.3, panel B).<sup>5</sup> Even in the Advanced Economies and Central and Eastern Europe and

4. The coefficient of variation is measured as the standard deviation divided by the mean.

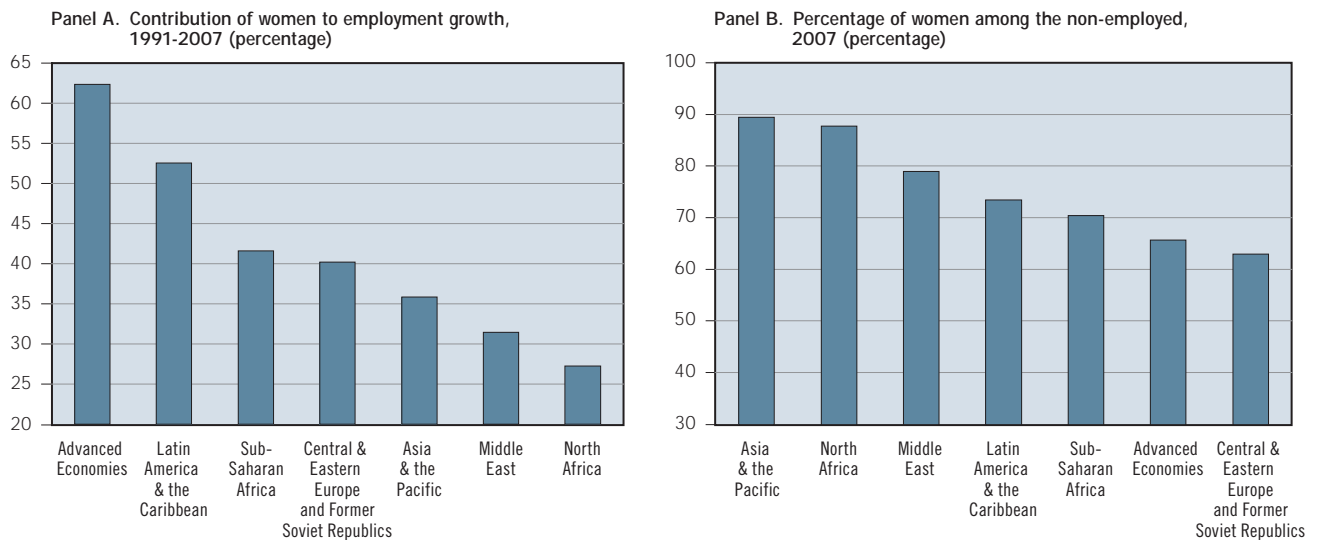
5. “Non-employed” is defined as the sum of the difference, by country and gender, between the maximum and the prevailing employment rate among persons aged 15 and over in the region.

Figure 1.2. Employment growth and dispersion



Source: ILS estimates; ILO, 2008a.

Figure 1.3. Trends in female employment growth



Source: ILS estimates; ILO, 2008a.

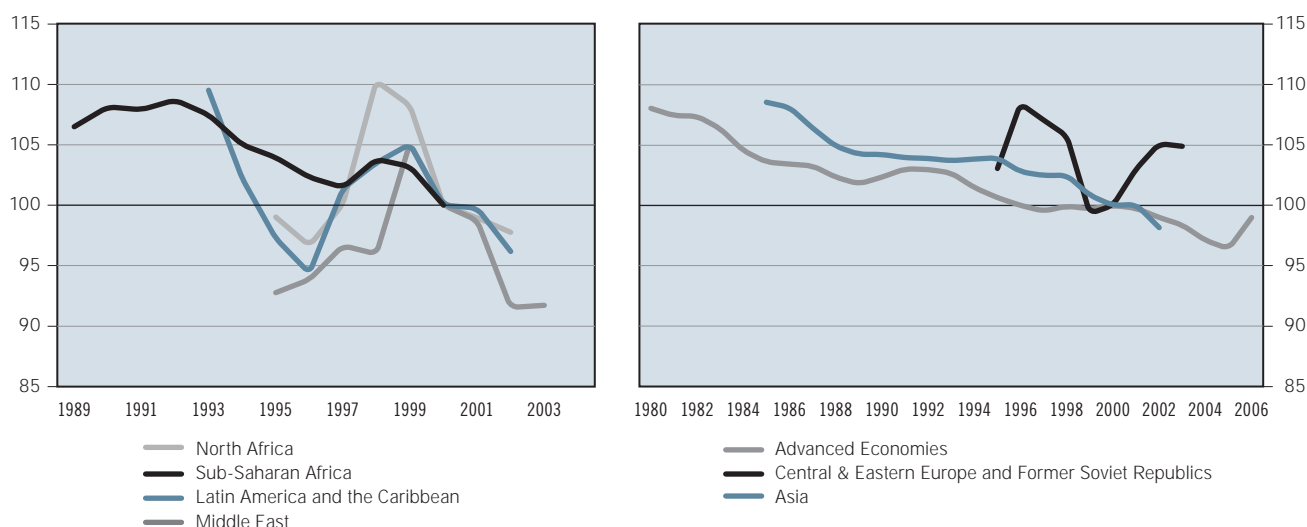
Former Soviet Republics, where women constitute a sizeable proportion of employment, they nonetheless also account for nearly two thirds of the non-employed. The development potential of many of these countries is thus constrained by the limited opportunities for women to benefit from, and take part in, the world of work (ILO, 2008b). It should be noted, in that context, that the nature of employment has also changed dramatically. The evolution of non-standard work arrangements in which women participate to a disproportionate degree, is discussed in Chapter 4.

## Wage shares declined significantly over the expansionary period

The past few decades have witnessed a significant change in the capital-labour income distribution (see Gollin, 2002; Krueger, 1999). An analysis of the data collected – for advanced economies, newly industrialized and developing nations alike – reveals that the wage (or labour) share of total income has declined in nearly three quarters of the countries considered. The decline occurred in most regions (fig. 1.4).<sup>6</sup> The fastest decrease occurred in Latin America (over 13 percentage points) and over a rather short period – 1993 to 2002 – but significant declines were also found in the Advanced Economies and Asia, where wage shares fell over 9 percentage points during the periods 1980-2005 and 1985-2002, respectively. Exceptions to this downward trend are Central and Eastern Europe, the Russian Federation, the Middle East and North Africa where the labour share has fluctuated but remained constant over the period 1995-2003.

Interestingly, the pattern of the decline has been similar in most countries: wage shares have declined steadily over the past three decades, except in the late 1980s/early 1990s and again in the late 1990s. Secondly, the drop in wage shares was particularly fast in the early 1980s and the early 2000s.

Figure 1.4. Development of wage shares, by region, 1985-2006  
(Wage share in 2000 = 100)



Source: ILS estimates (see Appendix B for methods, calculations and data sources).

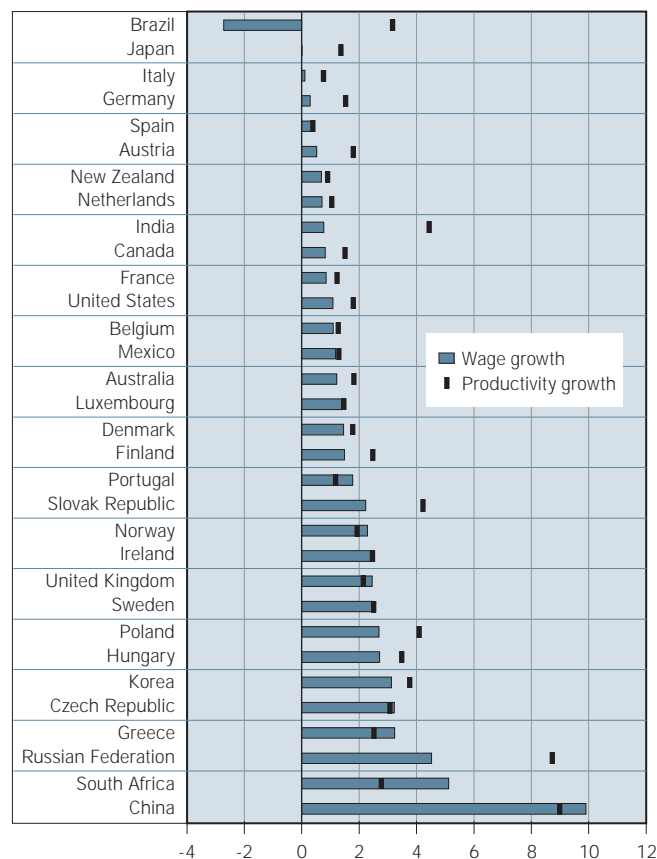
Much of the literature to date confirms the results presented here, namely that labour's share of income has been declining steadily over the past few decades. Several studies have tried to examine the factors that may have contributed to this, with a particular emphasis on the effects of globalization, including trade and technological change, but no particular consensus has emerged.<sup>7</sup> For example, Harrigan and Baladan (1999) found that skill-biased technological change had a greater effect on wage shares than the intensification

6. Although the data on wage shares are widely available for OECD countries, considerable efforts were made to collect data for additional countries in order to obtain a broader view: see Appendix B for a more detailed description of the data sources and calculations. It should be noted that a correction for the self-employed was not possible for all countries involved. Wage shares are, therefore, presented as an index, in order to indicate that the analysis focuses on changes rather than levels.

7. See section C of this chapter for a discussion of the relationship between some of these developments and income inequality.



Figure 1.5. Average annual wage and productivity growth, per cent, 1990-2006



Note: Countries are sorted in ascending order (top to bottom) according to wage growth. Data for 1990 refer to 1995 in the case of Brazil, the Russian Federation and 1996 in the case of the Czech Republic, Greece, Hungary, Ireland, Mexico, Poland, Portugal, Slovak Republic and Sweden. Data for 2006 refer to 2004 in the case of Brazil, China, India, and South Africa and to 2005 in the case of the Russian Federation. Source: ILS estimates (see Appendix B for methods, calculations and data sources).

of trade did. In the view of Guscina (2006), meanwhile, the decline was due to openness and technological progress, while Jaumotte and Tytell (2007) held that globalization was only one of several factors and that others, including labour market reform, had also contributed. Note that these studies do not test for the effects of the development of financial markets on wage share (see Chapter 2).

A more detailed way of examining the distribution of income between labour and capital is to compare the annual growth rates of real wages and productivity. Figure 1.5 compares the growth rates of remuneration with output per employee. If the annual growth rate of real wages is lower than that of productivity, the wage share of income declines.

An analysis of countries for which data are available (Brazil, China, India, the OECD countries, the Russian Federation and South Africa) indicates that, for the period 1990-2006, the findings are broadly consistent with the above; in 24 out of 32 countries, productivity growth exceeded wage growth (fig. 1.5).<sup>8</sup> In other words, labour's share of income fell.<sup>9</sup>

A closer examination of non-OECD countries reveals some interesting, if mixed, results.

8. Given that the time frames presented vary from country to country, direct cross-country comparisons over time cannot be made.

9. Over the period 2000-2006, the Nordic countries, the United Kingdom and the Central and Eastern European economies (all OECD countries) had strong real wage and productivity growth, leading to an increase in the wage share for the period.

- China's performance was among the best in terms of wage and productivity growth for both periods. Moreover, the rate of improvement compared with other countries increased;
- South Africa also experienced a growing wage share and a strong real wage and productivity growth rate, although to a lesser extent than China;
- Productivity growth in both Brazil and India consistently outpaced wage growth, with the former experiencing negative wage growth over the period 1995-2004.

The overall trend over the 1990s and early 2000s is that real wages increased less than productivity, generating a reduction of the wage share in the vast majority of countries considered. Any increase in the wage share that occurred in some OECD countries in the early 2000s did not make up for the decline that took place in the 1990s. In sum, the two different ways of computing changes in the wage share ultimately yield similar results: the wage share declined in nearly three quarters of the countries considered.

## B. Trends in income inequality

The debate regarding the impact of globalization, and its numerous manifestations, is widely documented (see, for example, Lee, 2008; IMF, 2007). Broadly speaking, deeper international economic integration can raise income levels for all participating countries, albeit after a potentially difficult transition phase. On the other hand, it is argued that while overall income levels improve, the benefits of globalization are not shared equally.

There have been three basic approaches to the assessment of how global income distribution has evolved in the latest era of globalization (World Bank, 2007), involving a consideration of:<sup>10</sup>

- Within-country inequality – this approach takes into account the income distribution within countries using measures such as the Gini index to illustrate the entire income distribution of a country. Recent studies, including this report, find that within-country inequalities have increased over the past two decades or so;
- International inequality – measures differences in average incomes across countries. There are no references made to income distribution within each country as it is assumed that people have the mean income of their countries. According to some recent studies, international income inequality has tended to decline. This largely reflects the trend increase in per capita income in emerging economies like China and India;
- Global inequality – an approach that takes into account both within- and between-country income inequalities.<sup>11</sup> According to this approach, income differences among all individuals in the world are considered, irrespective of the country of residence of the individuals.<sup>12</sup>

10. See also, for example, Capéau and Decoster, 2004 and Milanovic, 2005a and 2005b for a discussion of trends in world income inequalities.

11. Household budget surveys are used to measure income shares to calculate a precise image of within country inequality. Then, each income share is weighted by the GDP per capita of the country considered in order to calculate the mean income for each income class.

12. Over the past few decades, conclusions regarding global income distribution have varied according to the approach taken, with no clear consensus emerging on trends or magnitude (see Anand and Segal, 2008; World Bank, 2007; and Chapter 2 of this report).



A distinction also needs to be made between income inequality and wealth inequality. Income refers to flows, while wealth refers to stocks. As wealth depends on the accumulation of income flows, it is therefore determined by savings behaviour, levels of income such as labour income and financial income (arising from interest returns, capital gains and dividends), taxes and inheritance.<sup>13</sup> In this chapter, only the within-country income inequality approach will be considered.<sup>14</sup> Measurement issues are discussed in box 1.1.

## Rising income inequality since the early 1990s

The period 1990-2000 offers the most comprehensive snapshot of income inequality and patterns over time by region and country. Over this period, more than two thirds of the 85 countries for which data are available experienced an increase in income inequality, as measured by changes in the Gini index (fig. 1.6). The few reductions were principally concentrated in Sub-Saharan Africa and the Middle East. However, within these regions, especially the former, the levels of inequality remain high.

Other notable developments in income inequality by region include:

- **Advanced Economies:** only Denmark, France, Germany and Switzerland recorded declines in income inequality, while the largest increases occurred in Belgium, Finland and Sweden. Generally, levels of income inequality remained low compared to other regions, although in the Republic of Korea, the United Kingdom and the United States, which have the highest levels in the region, they are almost as high as the highest levels in other regions;
- **Asia and the Pacific:** modest declines in the Gini index occurred only in Cambodia and the Philippines, where income inequality remains nonetheless among the highest in the region. China and Laos recorded substantial increases over the period 1990-2000;
- **Central and Eastern Europe and Former Soviet Republics:** there were noticeable increases in income inequality everywhere except the Russian Federation, Kazakhstan and Slovenia, where reductions were recorded, although the former continues to have one of the highest levels within the region;
- **Latin America and the Caribbean:** mixture of countries with rising and falling income inequality, with Bolivia and Colombia recording the largest increases and Guyana the largest decline. Guyana now has the lowest level of income inequality in the region and Panama the highest;
- **Middle East and North Africa:** among the few countries for which data were available, there were only moderate changes (in either direction), as income inequality remained close to levels present in the early 1990s. Only Yemen, and to some extent Jordan, experienced noteworthy reductions in income inequality, with the former posting one of the most significant declines found in any of the regions;
- **Sub-Saharan Africa:** nearly two thirds of the countries for which data are available saw reductions in income inequality, but levels remain among the highest worldwide.

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13. While the two are highly correlated – typically, the distribution of wealth within countries is more unequal than the distribution of income – it is asset inequality that has the more profound and more direct consequences for economic growth. Social outcomes, however, are more directly affected by income inequality so public policies usually focus on income rather than on wealth (see section C of this chapter).

14. Wealth inequality, the resulting financial market problems and the consequences for economic growth will be discussed in Chapter 2.

### Box 1.1. Measurements of income inequality

There are different measures of income inequality. All seek to assess the distribution of income among individuals (or households), and thus the level of inequality in a given society, but each has its strengths and limitations. The appropriateness of a given measurement can be assessed against a number of criteria (see Litchfield, 1999; Cowell, 1999 and 2006). These criteria include:

- *The Transfer Principle*: the measurement in question should fall (rise) with the redistribution of income from (to) a richer to (from) a poorer person, or at least should remain unchanged;
- *Income Scale Independence*: when all incomes change proportionally (for example, if each person's income doubles), there is no change in the measurement of inequality;
- *Population Principle*: merging two distributions will not alter the measure of inequality;
- *Anonymity or Symmetry*: only individual incomes are taken into account in the construction of the measure;
- *Decomposability*: the overall measure and changes are consistent with changes at every level, so that increases in inequality within population subgroups will result in overall increases in inequality.

Two inequality measures are considered in this report.

#### Gini index

First, the Gini index varies between 0 (complete equality) and 100 (complete inequality). It measures the extent to which the distribution of income (or consumption expenditure) among individuals or households deviates from a perfectly equal distribution.

The Gini index, like other measures of inequality, suffers from a number of drawbacks. First, it does not identify where in the income distribution the rise (or fall) in income inequality may have occurred and marginal changes over time may be difficult to quantify. Moreover, it cannot be used if values are negative (for example, negative net wealth). And while there are ways of decomposing the Gini index, the component terms of total inequality are not always intuitively or mathematically appealing (see, for example, Fei, Rainis and Kuo, 1978; Yitzhaki and Lerman, 1991).

#### P9/P1

Second, the P9/P1 ratio measures the ratio of the income of a person in the 90th percentile to that of a person in the tenth percentile. The measure is common, especially in developed countries, for a number of reasons. First, such ratios are fairly straightforward and easy to interpret, for example, a ratio of 5 means that the income of the poorest person in the top 10 per cent of income distribution is five times that of the richest person in the bottom 10 per cent. Second, it is easy to calculate, and in developed countries, there is often a longer time-series of data that makes it possible to examine changes in income inequality over time. There are, however, at least two disadvantages to using the P9/P1: first, they do not reflect what happens in other parts of the income distribution and, secondly, sufficient data on developing nations are not available for comparison purposes.

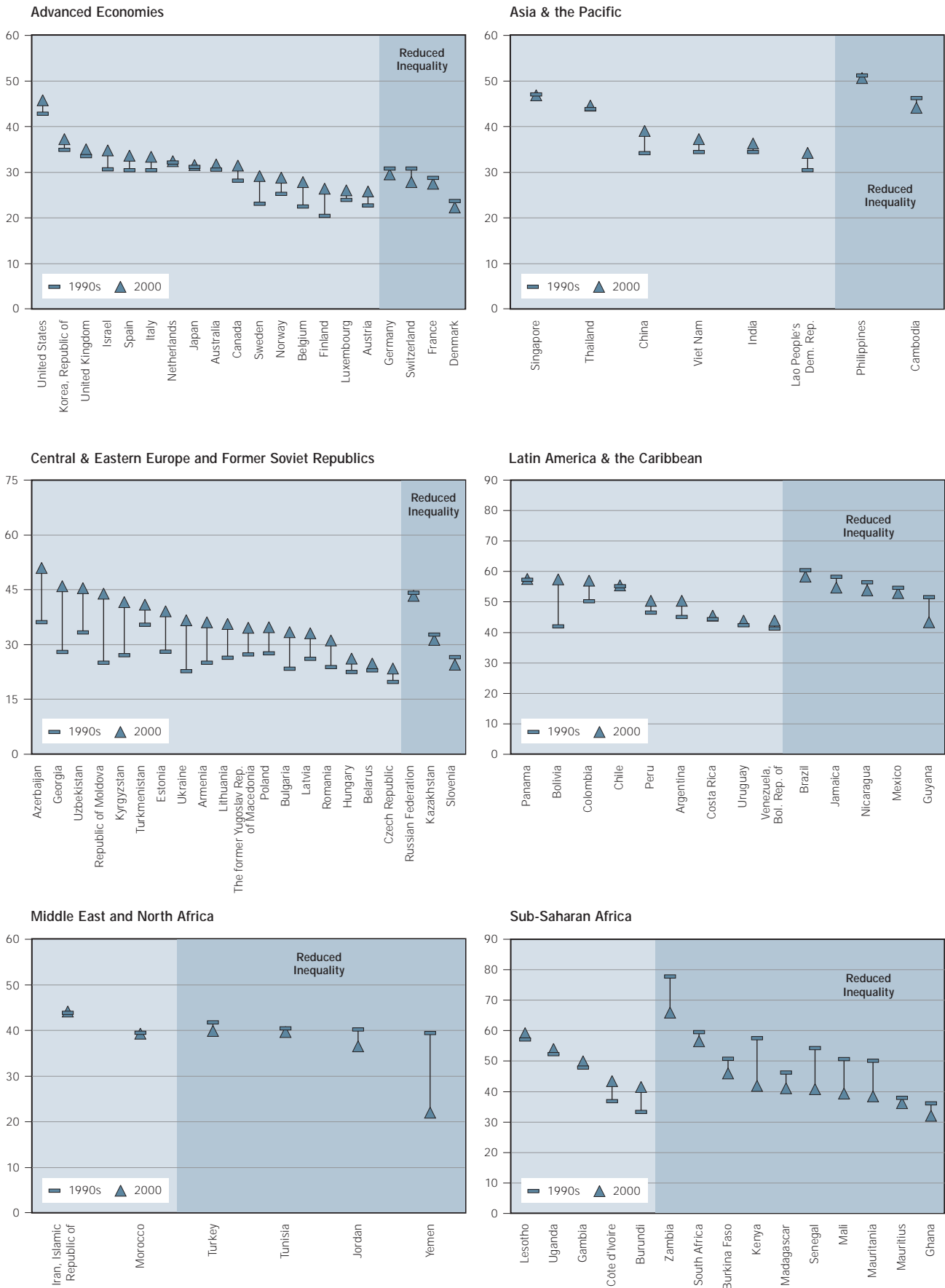
In this report, income inequality is calculated principally using the Gini index for consistency and, given that it is a widely accepted measure of inequality, meeting the requirements of at least the first four criteria above. Moreover, data are readily available for a wide range of countries over time. The P9/P1 ratio is also used for some specific purposes, like the analysis of wage differentials.

Source: World Bank (1999).

During the period 2000 to 2005 – admittedly a shorter period and fewer countries – a slightly different story emerges at first glance as income inequality fell in more than half of the 44 countries for which data are available, and substantially in some, including El Salvador, the Islamic Republic of Iran, Lithuania, Mexico, Sweden and Uzbekistan. On the other hand, income inequality still rose in some 20 countries, the increases being rather substantial in Armenia, China, Latvia, Romania and Turkey.

10 A more comprehensive analysis over the full period (1990-2005) reveals that income inequality rose in more than two thirds of the countries for which data are available. In

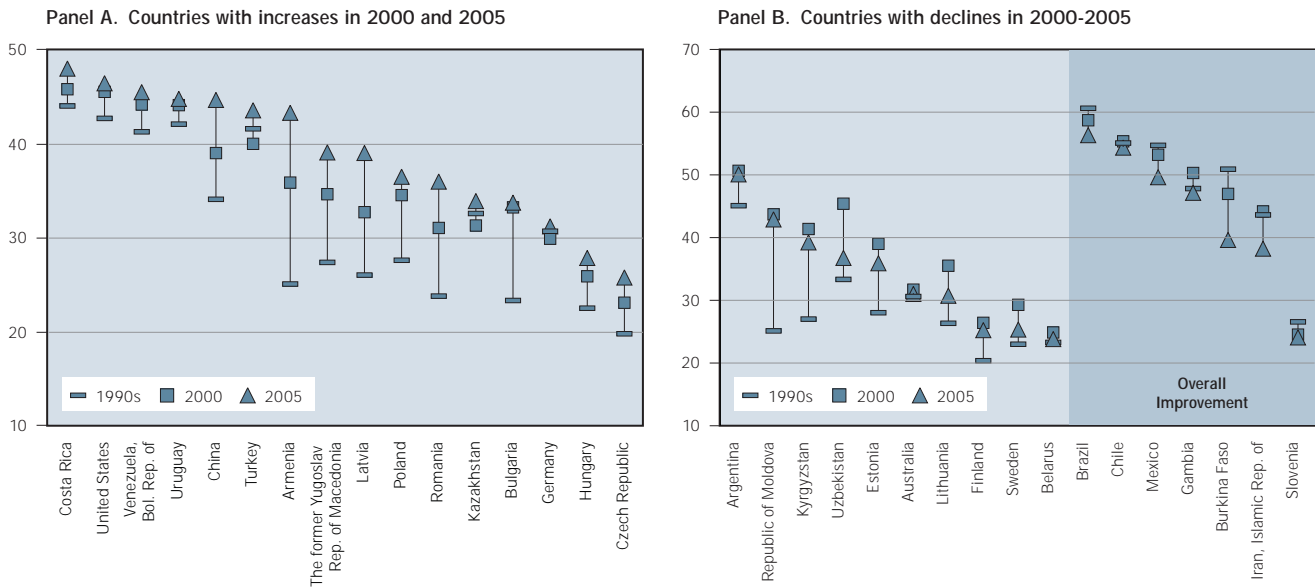
Figure 1.6. Gini index by region for 1990 and 2000



Note: The data presented may refer to a year close to the reference year, e.g. 1991 instead of 1990.

Source: ILS estimates (see Chapter 3).

Figure 1.7. Changes in Gini index between 1990 and 2005



approximately half those countries, income inequality increased in both 2000 and 2005 (fig. 1.7). In approximately another one third, any decline that occurred in the most recent period – albeit over a shorter time – was not enough to offset the increases that occurred over the 1990s. Only in a few countries (fewer than one third of the total), including for example Brazil, Burkina Faso and Mexico, were overall improvements to income inequality recorded.

### Increasing wage gap between high- and low-wage earners

The wage gap between the highest 10 per cent and lowest 10 per cent earners has also tended to increase. An examination of existing data for OECD countries and microdata for Brazil, China and India reveals that inequality has risen in 18 of the 27 countries since the early 1990s for which data are available.<sup>15</sup> The highest wage dispersion occurred in Brazil, China, India and the United States and the lowest in Belgium and the Nordic countries (fig. 1.8).<sup>16</sup>

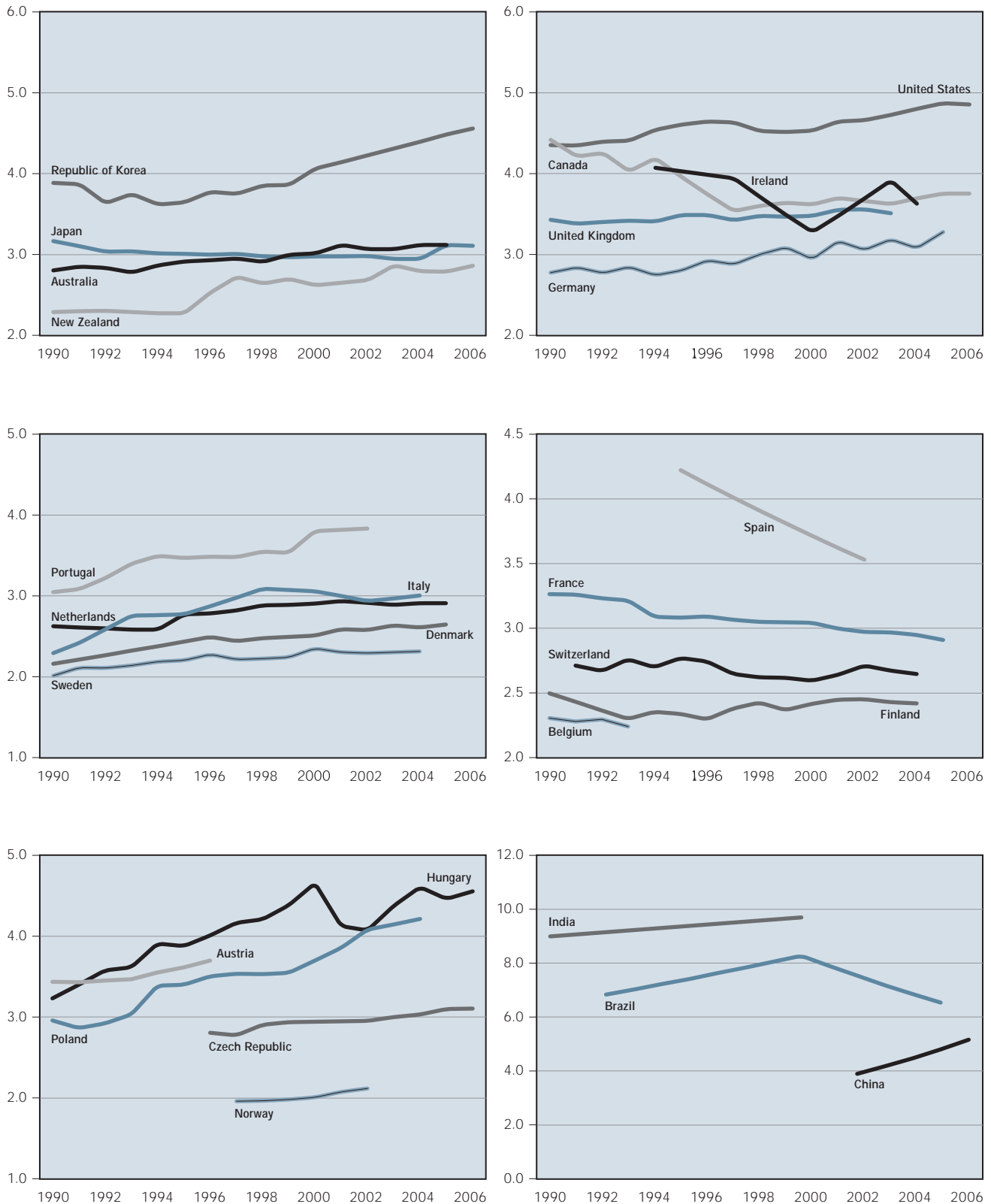
Over the past two decades, large increases have occurred in Hungary, Poland, Portugal and the United States, where the ratio is now near or above 4, but also, interestingly, in developing countries and in countries that have low inequalities overall such as the Nordic countries. Such a development in these countries, where low inequality is seen as a major element of social cohesion, provides an illustration of the trend toward increasing inequalities.

While some countries experienced overall declines, only in Belgium, France, Spain and Switzerland did the ratio fall more or less consistently over time. It is important to note, however, that most decreases took place for countries with short time-series data,

15. See Appendix B for methods and calculations.

16. See Section B of this Chapter for evidence regarding the ratio of executive pay to average wages in a number of countries.

Figure 1.8 Ratio of earnings of top 10 per cent earners vis-à-vis bottom 10 per cent earners, 1990-2006



Note: Data for Brazil (1992, 1999 and 2004), China (2001 and 2005) and India (1990 and 1999) refer to specific years only, not a full time series and refer to salaried employment.

Source: ILS estimates.

such as Belgium, Spain and Switzerland, or with series breaks, such as Canada and Finland.<sup>17</sup> In fact, Canada, Finland, Ireland and the Republic of Korea have seen significant increases in the ratio since the mid- to late-1990s.

More generally, the late 1990s are characterized by a marked increase in the wage gap between the top and bottom wage earners. The section on executive pay (see below), seems to suggest that the income of the top earning deciles grew much faster than that of the medium or bottom earnings deciles.

A comparison of changes over the 1990s and 2000s (using the Gini index) and wage gaps (using the P9/P1 ratio) can provide valuable information on the consistency of within-country income inequality measures. In particular, the P9/P1 ratio may help explain changes in the Gini index, since the former provides information regarding the gap between the extreme two deciles and the latter a summary of overall inequality.

Such a comparison shows that changes in the Gini index and P9/P1 ratio are consistent in most countries: movements in the P9/P1 (gap between the upper and lower wage earners) correspond with movements in the Gini index (overall income inequality). Of course, this does not mean that the P9/P1 ratio explains the dynamic of changes in the Gini, but there is some coherence between the movements (in the same direction) of both measures. For example: in France and Switzerland, there was a drop in both the Gini and the P9/P1 ratio in the 1990s; the large increases in the Gini and the P9/P1 ratio in Finland and Sweden during the 1990s were also consistent with each other. The small increase in inequality in the Republic of Korea, the United Kingdom and the United States in the 1990s was in line with the small increase in the P9/P1 ratio over that period. The same applies to the newly industrialized economies; large increases in overall income inequality in China in the early 2000s and in India in the 1990s are consistent with an increasing gap between the upper and lower wage distribution; and in Brazil, the small drop in the Gini index was accompanied by a reduction in the P9/P1 ratio during the 1990s and 2000s.

## Rising income inequality between executives and average employees

The rise in executive pay, which is sometimes regarded as a driver of income inequality, has attracted considerable attention over the past few years but especially so in the context of the recent financial crisis.<sup>18,19</sup>

This is an issue which needs to be treated in a dispassionate manner, avoiding informed perceptions. Indeed, the job of executives – the top managers of firms – has become more difficult owing to the fact that the market conditions under which firms operate have become more volatile. Enterprises are under increasing pressure to seize the opportunities of globalization and new technology. The gains from seizing those opportunities can be large indeed. The losses from failing to adapt can also be significant, however, while the new technology and new forms of work organization being introduced by firms make the task of managers more complex. These trends explain why firms are increasingly focusing on performance in determining executive pay.

Cross-country studies in this area are, however, difficult for a number of reasons, including variations in accounting and disclosure practices. Moreover, comparisons

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17. In Finland, the P9/P1 decreased over the period 1980-2006 because of a series break between 1990 and 1994. Over the period 1994-2005, it increased from 2.3 to 2.4. In Canada a break came in 1994 and the index dropped from 4 to 3.5. Canada also experienced an increase in P9/P1 over the late 1990s and early 2000s.

18. Throughout this section, the term “executive” refers to both CEOs and lower-level executives.

19. Shields (2005) provides an interesting analysis in this respect. He shows how companies affiliated to the Business Council of Australia constantly criticize the lack of competitiveness of the Australian workforce, while at the same time, their own executive pay is on the rise.



through time are hampered by methodological changes in the way executive pay is calculated and/or disclosed (box 1.2). With these caveats in mind, the purpose of this section is to examine the patterns of executive pay in some of the countries for which such data are available, namely Australia, Germany, Hong Kong (China), the Netherlands, South Africa and the United States.<sup>20</sup>

### *What is executive pay and how is it measured?*

Executive pay includes various components. First, there is a fixed component, which may be regarded as the basis of the compensation package and includes salary and certain benefits and allowances in kind, including the private use of company cars, aircraft, financial counselling and home security.<sup>21</sup>

Second, there is often a variable component that is either accorded on a discretionary basis or based on previously defined performance criteria.<sup>22</sup> These are based on individual, business unit or corporate performance and may include thresholds or ceilings limiting the amount of payment involved (Lynch and Perry, 2003).<sup>23</sup> Long-term variable compensation is typically based on certain performance criteria established in advance and often linked to a company's stock in order to create incentives for greater shareholder value. These can include a combination of stocks, restricted stock, stock options and stock appreciation rights.<sup>24</sup>

Third, companies often have a pension programme in place, either specifically designed for executives or open to a wider range of employees. In the United States, a certain part of the compensation is often deferred until the executive reaches retirement age.

Finally, many companies provide termination benefits for executives, either as a lump sum or in the form of continued payment of compensation after the expiry of a contract. The termination clauses may preclude payment if the termination of the contract is caused by the executive, in the event of unilateral termination of contract, for example, or as the result of a serious fault of the executive.

Reflecting on these methodological issues (box 1.2), it is difficult to compare executive pay across countries. To remedy this, it would be useful to develop a uniform way of calculating the value of the different components of share-based compensation. This, however, goes beyond the scope of this report. Rather, the purpose here is to provide a snapshot of executive compensation and how it has evolved, over time, and in comparison with the average wage.

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20. See Ebert, Papadakis and Torres (2008) for a more detailed analysis of executive pay.

21. Certain companies also provide reimbursement for tax liabilities. The determination of fixed compensation is usually based on "competitive benchmarking", involving a general salary survey and detailed analysis of specific industries or market peers. See Murphy (1999) for criticism and further comments.

22. The term "bonus" is misleading in this respect, as demonstrated by the disclosure practices in the United States. Prior to 2007, "bonus" referred to payments for predetermined targets, but it now means discretionary payment by the board.

23. Criticism in some countries, for instance in the United Kingdom, has focused on the fact that bonus targets frequently remain unpublished. Further, Bruce et al. (2007) draw attention to an increasingly complex structure of bonus targets that is linked to higher bonus pay but not to higher shareholder return.

24. Stocks refer to a specific number of shares, the value of which rises with the value of the stock; restricted stock refers to shares distributed to executives on the basis of performance or seniority; stock options to the right to purchase a certain number of shares at a predetermined price (the "exercise price") for a specified period of time; and stock appreciation rights refer to the right to receive payment in cash determined in line with the appreciation of the stock price.

## Box 1.2. Measurement of executive pay: methodological issues

### Disclosure practices

Disclosure practices differ widely across countries. While some countries, including France, the Netherlands, the United Kingdom and the United States require companies to report detailed compensation data in a remuneration report, others like Greece, have no specific requirements. In some cases, such as France, Germany and the Netherlands, disclosure practices were initially governed by codes of best practice but were transformed into legal provisions, since the compliance by firms was considered unsatisfactory (European Corporate Governance Institute, 2003 and Rang, 2008).

In addition, many regulatory provisions are vague, so companies in such countries as Brazil, Germany, Japan and Mexico frequently report only aggregate data on executive compensation. Even in Germany, where companies have been required to provide detailed individual data on executive compensation since 2006, this "requirement" can be overturned by two thirds of shareholders. In some countries, executives seem to consider the disclosure of the precise amount of remuneration to be a risk to their personal safety (Leal and Carvalho da Silva, 2005).

### Stock options and share-based compensation

One of the principal difficulties associated with measuring executive compensation is to quantify the actual or prospective value of share-based compensation. Even in countries where disclosure of stock options is prescribed by national regulation, a specific methodology for calculating this value is seldom laid down. As a result, in France, South Africa and the United Kingdom, companies often disclose the number of the shares or options granted but without putting a value on them. Even where a value has been calculated, the methodology can vary. For example, companies in many countries calculate the value of share-based compensation at the time that it was granted, whereas in others they calculate the value of stock awards and options that have actually been exercised.

The situation is further complicated by the fact that there are also different methodologies for calculating the value of share-based compensation at the date on which it is granted. The most common method for calculating the cost to a company is the Black-Scholes model, which estimates the value of a stock option upon exercise. Whatever the model used by individual companies, it should be noted that, in the majority of the countries reviewed for the purposes of this study (principally Australia, France, Germany, Hong Kong (China), the Netherlands, South Africa and the United Kingdom), the regulations rarely lay down a specific method of calculation. As a result, calculations of the value of share-based compensation vary not only across countries but also across companies within the same country.

In addition, there are problems inherent in all the existing models used to calculate share-based compensation. For example, among other drawbacks, they do not take into account the fact that stock options may be cancelled if an executive leaves the company, with the result that they overstate the cost of the options for the company. Furthermore, the Black-Scholes model assumes that the stock options will be exercised upon expiration of the options. But in practice, executives may be free to exercise their options at any time between the vesting and the expiry of the options (see Hall and Murphy, 2000; Murphy, 1999). A recent study of stock options in Australia estimates that the average value at grant date ascribed to stock options amounted to only 26 per cent of the value of stock options actually exercised (Institutional Shareholder Services Australia, 2006).

### ***Executive pay, excluding share-based compensation, exceeds average wages by a factor of at least 50 and, in some cases, 180***

An examination of executive pay in 2007 for the 15 largest companies in six selected countries shows that chief executive officers (CEOs) earn, on average, between 71 and 183 times more than the average employee (table 1.1).<sup>25</sup> The highest-paid CEOs are in the United States, where average pay exceeds US\$ 10 million per year, or about 183 times

25. Available at: [http://www.forbes.com/2008/04/02/worlds-largest-companies-biz-2000global08-cx\\_sd\\_0402global\\_land.html](http://www.forbes.com/2008/04/02/worlds-largest-companies-biz-2000global08-cx_sd_0402global_land.html).

**Table 1.1. Executive pay, 2007**

	CEO		Average executive	
	Pay in US\$ (annual average in millions)	Pay as a ratio of average employee wages	Pay in US\$ (annual average in millions)	Pay as a ratio of average employee wages
Australia	6.0	135	2.4	53
Germany	6.8	148	3.8	82
Hong Kong	2.7	160	1.1	63
Netherlands	3.6	71	2.2	43
South Africa	1.4	104	0.9	71
United States	10.3	183	6.3	112

Source: ILS estimates based on the annual reports of 15 of the largest companies in the respective countries.

the wage of the average American worker. And while CEOs in Hong Kong (China) and South Africa, for example, are paid much less than their US counterparts, their compensation still represents between 160 and 104 times the wage of the average worker in these countries. Even average executives earn between 43 and 112 times as much as average employees.

It is also interesting to note that the difference between CEO and average executive compensation varies significantly across countries. For example, in Australia and Hong Kong (China), CEOs earn 100 per cent more than the average executive, while they earn over 60 per cent more in Germany, the Netherlands and the United States and 50 per cent more in South Africa.

These estimates must, however, be considered with some caution. Given that the executive pay tends to rise with firm size, the magnitude of pay differences between executives (of the 15 largest companies) and employees may therefore have been overestimated.<sup>26</sup> On the other hand, data presented in table 1.1 excludes share-based remuneration to enable cross-country comparisons. It is likely that, if share-based remuneration and other variable compensation – which can represent a sizeable percentage of total compensation – is included, the true difference in compensation between executives and employees has been underestimated. For example, in the United States and the Netherlands, the variable component (often linked to firm performance) represents a significant percentage of overall compensation.

### ***The gap between executive and employee pay has grown over time: cases of the United States and the Netherlands***

An attempt has been made to obtain data on changes in executive pay, including share-based compensation, between 2003 and 2007 in the 15 largest companies in two countries, the Netherlands and the United States.<sup>27</sup> The choice of countries was determined mainly by the objective of comparing developments in two countries with different corporate governance traditions and different institutional frameworks. For example, unlike

26. According to theory (Murphy, 1999); and as confirmed by empirical research in various countries, including the United States (Tosi et al., 1998), Australia (Merhebi et al., 2006), Portugal (Fernandes, 2008) France (Dardour, 2008) and Germany (albeit not consistently, according to Haid and Yurtoglu (2006); Rang 2006), executive pay increases with company size.

27. In the event that companies were not listed on the national stock exchange or did not provide comparable data, it was decided to include, instead, the next biggest company on the list.

the United States, the Netherlands is a relatively small country, whose companies employ a two-tier governance system. Elements that have long been inherent in executive compensation in the United States, such as comprehensive disclosure of compensation and the frequent use of share-based compensation, have emerged only relatively recently in the Netherlands (see De Jong et al, 2005; Duffhues and Kabir, 2008).

It was possible to obtain data on share-based compensation in both countries. However, unlike the companies in the United States, various Dutch companies did not provide the information necessary for the share-based calculation according to the Black-Scholes model (see box 1.2). The value of stock awards and stock options was therefore determined by calculating the value of the stock awards vested in the year of the annual report and the stock options actually exercised in that year. Any direct comparison between the two countries, in this respect, should, therefore, be made with some caution.

### United States

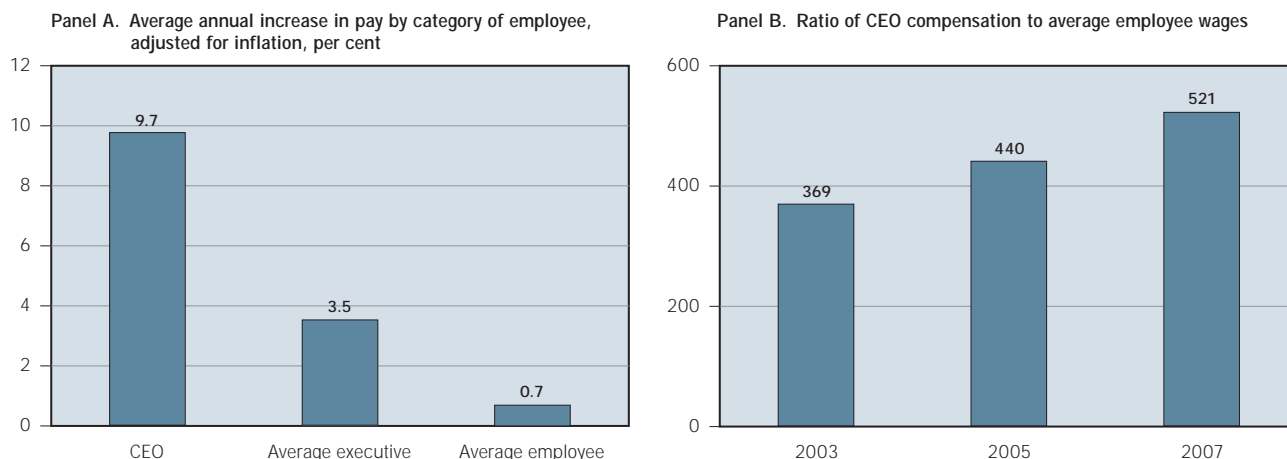
The real average pay of American CEOs, including share-based compensation, rose from over US\$ 16 million per year in 2003 to nearly US\$ 24.5 million in 2007. This increase – nearly 10 per cent per year on average – far exceeded that of 2.5 per cent for other executives and 0.7 per cent for employees (fig. 1.9, panel A).

Including share-based compensation, therefore, accentuates the gap between CEO compensation and average salaries. In 2007, US CEOs earned more than 521 times the average employee, as against 370 times four years earlier (fig. 1.9, panel B). When share-based compensation is included, CEOs also earned nearly twice as much as average executives in 2007, compared to one and a half times as much in 2003.

Clearly, variable compensation represents an important contribution to overall remuneration. In fact, an analysis of the principal components of compensation reveals that, in 2007, variable compensation (share-based and variable in cash) constituted nearly 90 per cent or more of total compensation for CEOs and average executives in the United States. Furthermore, share-based compensation was the dominant component of total compensation, constituting more than 60 per cent for CEOs and 50 per cent for average executives.

A quantitative analysis of the compensation components provides additional interesting insights with respect to the evolution of variable compensation. For example, from 2003 to 2007, the salary component of CEOs and executive managers rose at similar

**Figure 1.9. Evolution of executive pay versus average employee wages in the United States, 2003-2007**



18 Source: ILS estimates based on the annual reports of 15 of the largest companies in the United States.

**Table 1.2. Increase in executive pay components, United States, 2003-2007, per cent**

	Salary and perquisites	Variable compensation in cash	Share-based compensation	Deferred payment
CEO pay	20	45	70	294
Executive pay	18	-0.9	48	227

Source: ILS estimates based on the annual reports of 15 of the largest companies in the United States.

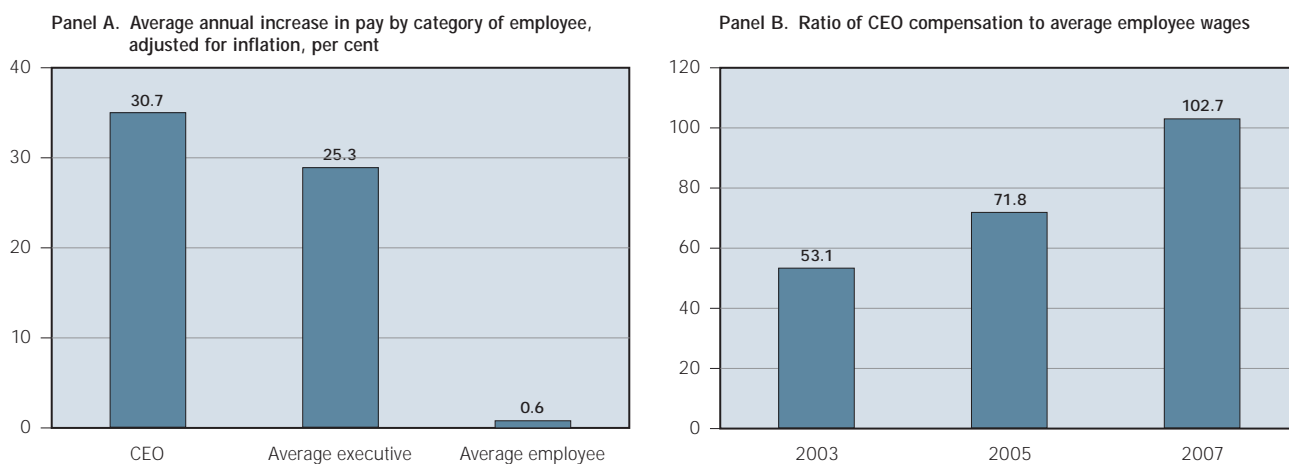
rates of around 20 per cent (table 1.2). For CEOs, however, variable compensation in cash increased roughly 45 per cent and share-based compensation 70 per cent, whereas, for the average executive, variable compensation in cash declined and share-based compensation increased 48 per cent. Deferred payments such as pension rights rose more than 200 per cent between 2003 and 2007 for both CEOs and average executives, but such payments represent only a small share of overall remuneration (less than 4 per cent in both cases).

Thus, not only is there an increasing gap in pay between CEOs and employees (including other executives) in the United States, but variable compensation accounts for a significant, and growing share of this difference.

### Netherlands

The real average pay of Dutch CEOs, including share-based compensation, tripled from over US\$ 2 million per year in 2003 to over US\$ 6 million in 2007. The increase – over 30 per cent per annum on average – marginally exceeded the growth in average executive pay (25 per cent) but clearly dwarfed the growth in average employee remuneration of 0.6 per cent per annum (fig. 1.10, panel A). As a result, in 2007 Dutch CEOs earned over 100 times more than the average Dutch employee, compared to 50 times in 2003 (fig. 1.10, panel B). The gap between CEOs and other executives was far less dramatic: Dutch CEOs earned only 1.9 times more than the average executive in 2007, up from 1.4 in 2003.

**Figure 1.10. Evolution of executive pay versus average employee wages in the Netherlands, 2003-2007**



Source: ILS estimates based on the annual reports of 15 of the largest companies in the Netherlands.

**Table 1.3. Increase in executive pay components, Netherlands, 2003-2007, per cent**

	Salary and perquisites	Bonus	Share-based compensation	Deferred payment
CEO pay	50	174	5391	8
Average executive pay	35	163	3706	-9

Source: ILS estimates based upon on the annual reports of 15 of the largest companies in the Netherlands.

In the Netherlands, executive compensation has also undergone some interesting developments in recent years as regards the composition of compensation. The relation between fixed and variable remuneration in Dutch compensation packages has traditionally been different from the corresponding packages in US and UK companies, in that basic salary constitutes the most important component of compensation. However, the share of variable compensation is increasing in importance.

Fixed compensation, which comprised more than 70 per cent of both CEO and average executive compensation packages in 2003, fell to 61 per cent and 57 per cent, respectively, in 2007. Interestingly, this is mainly due to developments in share-based compensation – a fairly recent phenomenon, in the Netherlands – which increased by more than 5000 per cent for CEOs and more than 3700 per cent for average executives between 2003 and 2007, albeit from relatively low levels (table 1.3). In fact, while share-based compensation played only a marginal role in 2003, it constituted about one third of the compensation package for both CEOs and executives in 2007.<sup>28</sup>

### ***Looking forward: potential impact of food and commodity price hikes***

While some developments in the global economy have clearly benefited those in the highest income brackets, others have made the poorest worse off. This is particularly the case of rising food and commodity prices – particularly fuel prices. These increases are part of a general inflationary trend of prices for raw materials, partly linked to increasing demand for food and fuel from newly industrialized economies such as China. Declining stocks of crude oil and disappointing harvests have also contributed to the inflationary pressure. Other factors, including, speculation in financial markets and changing consumption patterns, are also likely to be contributing to rising food and commodity prices.

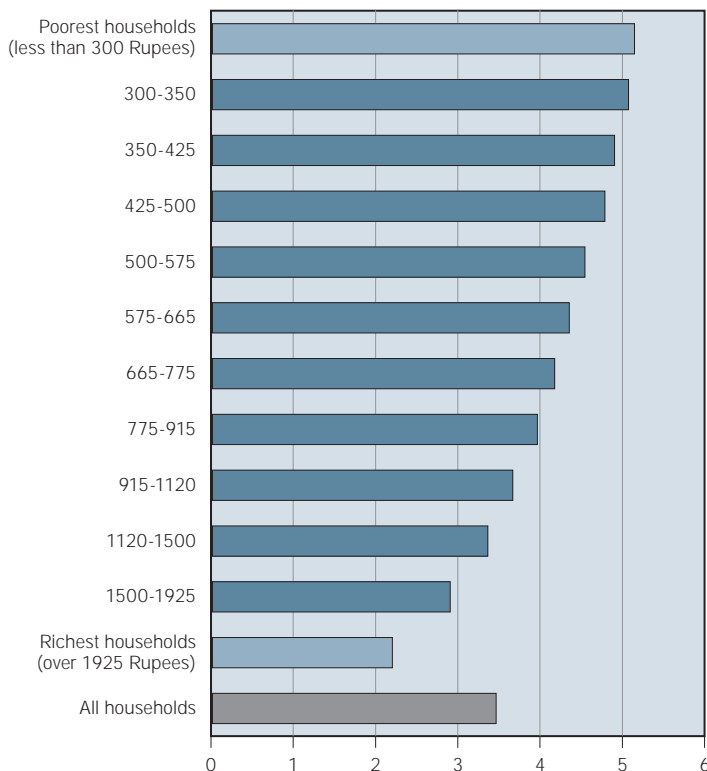
The peculiarity of food and fuel is that they have virtually no substitutes. An increase in their price does not, therefore, generate a large decrease in consumption, so any increase in food prices affects households' purchasing power. Moreover, low-income households are likely to be more adversely affected, in that they spend a large proportion of their income on such goods, as illustrated by the examples of India and the United States.

In India, since 2006, food prices have grown by 9 per cent, compared with 6.3 per cent for non-food prices. This is predicted to have a negative effect on the purchasing power of all urban households (fig. 1.11). The only exception, of course, is those households

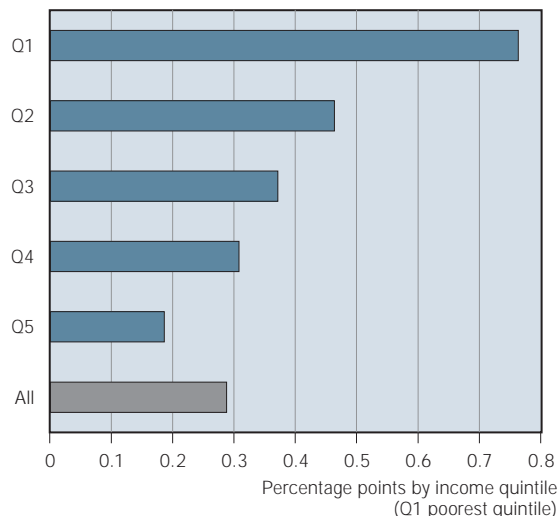
28. It should be noted that even before 2005 many Dutch companies had share-based incentive programmes in place. However, as share-based compensation is a relatively recent phenomenon in the Netherlands, numerous stock awards and options had not, in 2007, yet vested. In addition, various share-based compensation programmes gave only limited value, as stock prices were relatively low at that time.



**Figure 1.11. Estimated decline in purchasing power of Indian urban households resulting from rising food prices, 2007 (percentage points)**



**Figure 1.12. Estimated decline in purchasing power of households in the United States resulting from rising fuel prices, 2007**



Source: ILS estimates based on consumer expenditure survey (US Bureau of Labor Statistics).

Note: Y-axis refers to monthly per capita expenditures (in Rupee).

Source: ILS estimates based on Household Expenditure Survey, India.

that produce food and benefit from the increase in food prices – but this is less likely in urban areas than rural ones.

Food price inflation affects those who spend a larger proportion of their income on food, in particular poorer households. For example, the poorest households in urban India experienced an estimated drop in purchasing power of over five per cent, while the richest in urban areas in 2007 experienced only a drop of 2.2 per cent.<sup>29</sup>

Over the period 1999-2007, fuel price inflation in the United States was, on average, four times the inflation in the general consumer price index. In fact, over the most recent period – 2003 to 2007 – the price of fuel grew six times faster than the consumer price index. The most recent price increase in 2007, amounting to 7 per cent, adversely affects the poorest households (fig. 1.12). In particular, the poorest 20 per cent of households will see an estimated drop in their purchasing power nearly four times greater than that in the richest households, owing to the fact that they spend a larger fraction of their net income on fuel: 11 per cent, as against 2.5 per cent.<sup>30</sup>

29. An analysis of food price elasticities in India confirms that food is considered a necessity. In other words, price elasticities are lower than 1 and close to zero: 0.13 and 0.17 for rural and urban areas respectively.

30. Fuel price elasticities in the United States are also lower than 1 (necessity), being on average equal to 0.27 across households over the period 2003-2007.

## C. Why is income inequality a matter of policy concern?

Rising inequalities, as documented in the previous sections, can be a sign of robust economic growth, as some members of society get ahead, work harder or introduce innovative products and services. Indeed, inequalities may be linked to a number of developments, which, in the long run, may generate unambiguous positive effects. For example, certain structural reforms, such as those that were implemented in transition economies in the early 1990s, may have increased income inequalities, but this was necessary in order to ensure adequate incentives to work and invest.

On the other hand, inequalities may have inefficient social and economic outcomes. In particular, when inequalities become persistent and some groups are systematically barred from the benefits of growth, the economic and social costs are likely to intensify as those at the bottom claim their share of the national income by any means possible, thus creating a more unstable macroeconomic environment. There may also be cases where wealthy groups try to block pro-growth policies, if such groups fear that the opportunities may be too widely redistributed.

The purpose of this section is to review the evidence on changes in income inequality and the impact on social outcomes and macroeconomic stability. It also discusses labour market discrimination and political economy problems that arise from distributional issues.

### Social and economic costs of inequality

#### *Inequality and crime*

There comes a point where income inequality increases black-market activity and property crimes. Illegal activities often provide better returns for less affluent households, even when the risk of punishment is taken into account (Glaeser, 2005): inequality may dilute the deterrent effect of sanctions when low-income households are as badly off outside prison as they are inside (McAdams, 2007). Moreover, segregation arising from the unequal distribution of income reinforces opportunistic behaviour – at both ends of the income spectrum (Bowles, Choi and Hopfensitz, 2003) – as people belonging to different social strata have fewer interactions. Lastly – and more subtly – rising inequality may lower the amount of policing, as richer households attempt to limit public spending on police forces in low-income neighbourhoods.

Reviewing the empirical literature, Soares (2004) confirms the positive relationship between inequality and crime rates. Quantitatively, reducing inequality is far more effective in reducing crime than such alternatives as better education or policies to promote growth. According to the study, if inequality were reduced from the levels observed in Colombia to those found in the United Kingdom (roughly corresponding to 1 standard deviation in the sample), thefts would fall by 50 per cent and contact crimes by 85 per cent. A similarly large increase in education spending or a 1 percentage point increase in average growth would bring crime rates down by only 30 per cent and 6 per cent respectively.

#### *Inequality and health*

Rich people live longer (Deaton, 2003), whereas low-income households often lack the resources to maintain and improve their health status. Access to ambulatory or stationary health-care services is more limited or even non-existent for those on lower incomes. Similarly, lifestyle choices are heavily influenced by individual income: the incidence of obesity,

alcohol or drug abuse typically decreases with increasing income. Inequality also has a strong impact on disease prevention and immunization, in that low-income households are less well informed and less likely to visit a doctor or to get a second opinion in the event of health problems, although preventive measures are recognized to be one of the most efficient ways to provide health-care services.

High income inequality is also reflected in lower average life expectancy rates as noted already by Preston in 1975. Cross-country evidence suggests that such a negative relationship does indeed exist, with the 10 per cent most equal countries enjoying an average life expectancy (at birth) of 77.4 years in 2006, and the 10 per cent least equal countries only 60.

However, there is some debate whether there is an economically or socially meaningful correlation between inequality and aggregate health outcomes or whether it is purely compositional (Deaton, 2001). The spread of disease in richer neighbourhoods arising from lack of hygiene in those with lower average incomes constitutes one such direct link. Nevertheless, little evidence exists to date as to the quantitative impact of this aspect of income inequality on health. Hence, while from a public policy point of view it may be preferable to target spending so that low-income households have access to appropriate health-care services; it is less clear whether redistribution and lower income inequality would in themselves be sufficient to improve the health status of those at the bottom of the income distribution.

### *Labour market discrimination and employment*

Large inequalities in income may result in racial and gender discrimination in the labour market, thereby discouraging participation and reducing labour supply (World Bank, 2006). Historically, reduced inequality has been shown to lie at the heart of the increase in female labour force participation rates in most developed economies over the past 30 years. This is reflected in the fall in the gender wage gap and a decrease in discrimination against women (see Bar and Leukhina, 2006, for recent estimates for the United States). Nevertheless, gender discrimination remains a major issue in most, if not all, ILO countries.

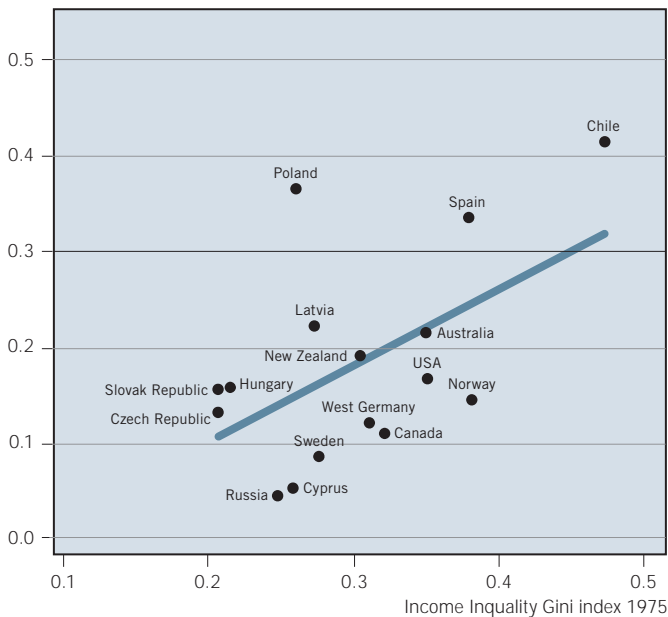
Similarly, urban and job segregation have been shown to weigh against African-Americans in the US labour market (Dickerson, 2007). Comparable patterns hold for developing economies, where the labour market and well-paid jobs continue to be segregated, creating ethnic faultiness that result in social upheaval and civil strife (Chua, 2003).

### *Inequality and social mobility*

The relationship between income inequality and social mobility (as measured, for instance, by the correlation of inter-generational earnings) is inevitably ambiguous. On the one hand, when income inequality is based on merit and equal opportunities, the prospect of a higher income may increase incentives to get an education and work harder. On the other hand, where inequality results in segregation, richer families may find it easier to pay for good quality education for their children than their poorer counterparts. This tends to perpetuate existing income inequalities.

Empirical evidence suggests inequalities can be persistent, as they reduce social mobility. Low-income households are largely confined to their current income strata even across different generations (see fig. 1.13). At the microeconomic level, persistent inequality can cause demotivation and discouragement among low-income groups, depressing their productivity levels (Torgler, Schmidt and Frey, 2006). At the macroeconomic level, segregation resulting from inequality results in adverse peer effects for children from low-income families and a lack of role models that would help them aspire to education and training to improve their future income prospects (Durlauf, 2004).

Figure 1.13. Income inequality and inter-generational mobility



Note: The graph displays the inter-generational income correlation calculated from the International Social Survey Programme (1999) against the Deiningger-Squire Gini coefficient in 1975.

Source: ILS estimates based on Andrews and Leigh, 2008.

## The political economy of inequality

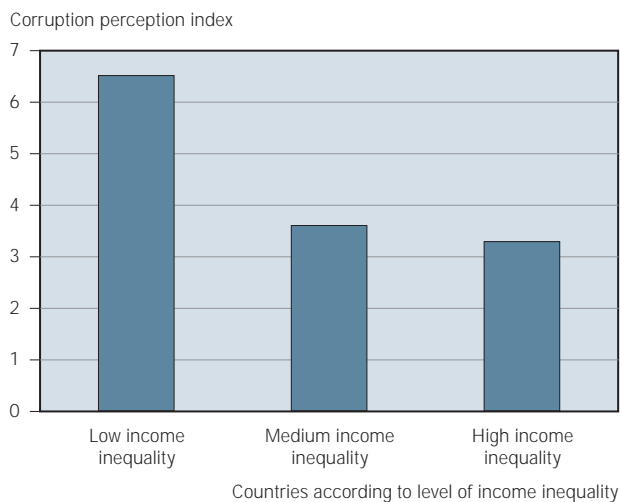
### *Inequality and corruption*

There is an association between inequality and corruption (see fig. 1.14), similar to the link between inequality and crime. The unequal distribution of income and wealth may create incentives for certain high-income groups to interfere with the political process and democratic governance (You and Khagram, 2005). In particular, a heavy concentration of wealth and income will provide richer individuals with sufficient resources to offer bribes even to high-ranking officials and policy-makers.<sup>31</sup>

There is a risk that political power arising from excessively large income and wealth inequalities will enable richer households to maintain the profitability of their economic activities by promoting anti-competitive measures. Thanks to such inequalities, richer households can buy political influence to protect their economic interests and shield themselves from market competition. Indicators on product market regulation collected by the World Bank suggest that the administrative requirements for setting up a new company are more than twice as high in the least equal compared with the most equal countries. Such obstacles may also help the incumbent elite stay in power since there is less political competition prevalent (Acemoglu and Robinson, 2002). In extreme cases, well-connected individuals or family members of the political and economic elite receive licences for monopolies. Less restricting but equally inefficient are licensing and entry restrictions used mainly for sunset industries or the use of trade policy and subsidies to protect labour-intensive and agricultural production (maize in Mexico, steel in the United States, agriculture subsidies in the EU). Such badly designed restrictions on product market competition not only create distortions that result in higher prices and reduced consumer welfare but also lead to dynamic misallocations by hampering the introduction of new technologies and lowering potential economic growth (Scarpetta and Tressel, 2002).

31. Such bribes may not be opposed, by their adversaries, who could be tempted to offer even more in order to avoid adverse effects for themselves from policy distortions. In that context, the cost, for richer individuals of not-bribing is much higher in unequal societies than in those with more equally distributed resources (Glaeser, Scheinkmann and Shleifer, 2003).

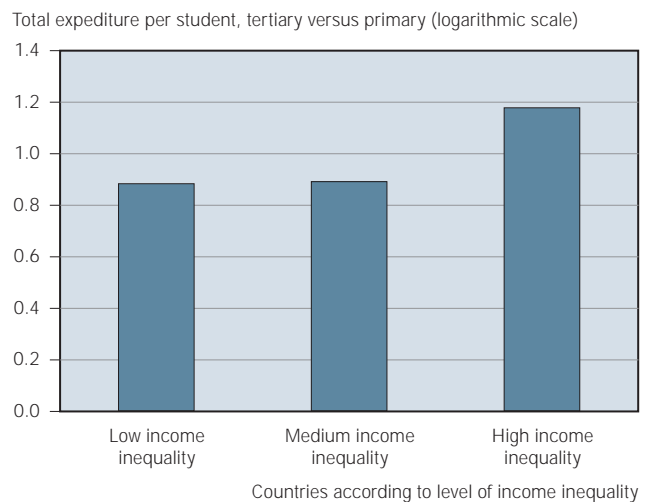
**Figure 1.14. Income inequality and corruption**



Note: High (low) income inequality countries include the 20 per cent of countries with the highest (lowest) income inequality according to the Gini index. Medium income inequality countries include the other countries.

Source: ILS estimates based on Transparency International, 2008 and World Development Indicators, 2008.

**Figure 1.15. Income inequality and spending on tertiary education**



Note: High (low) income inequality countries include the 20 per cent of countries with the highest (lowest) income inequality according to the Gini index. Medium income inequality countries include the other countries.

Source: ILS estimates based on World Development Indicators, 2008.

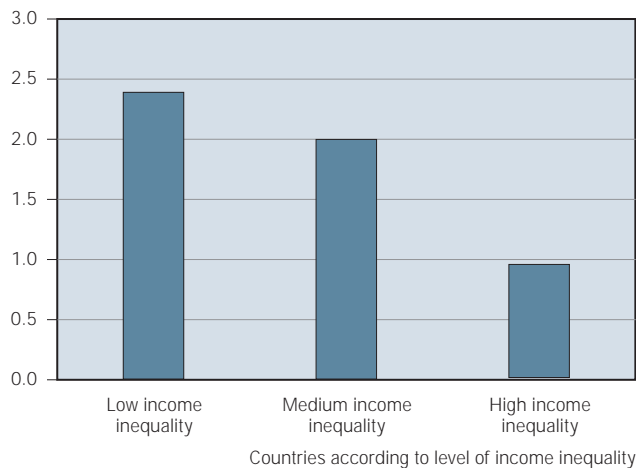
### *Inequality and redistribution*

A specific link between inequality and lobbying lies in the influence wealthy households have on the allocation of public money. Wealth decreases the opportunity cost of lobbying and increases the chance that like-minded people will band together to influence government activity (Zhang, 2008). For instance, one area in which wealthier households lobby to divert public spending into channels beneficial to themselves is education (see fig. 1.15). When spending on primary and secondary education is low in comparison to spending on tertiary education, children from low-income households will have fewer chances to obtain the secondary education that is a prerequisite for attending university. Richer households may also influence public infrastructure expenditure, such as road construction, in order to obtain public contracts for their own companies, or interfere with the political process in order to divert public spending to subsidies for specific industries or goods that they themselves consume. Estimates of the incidence of fuel subsidies in Indonesia show, for instance, that two thirds of such subsidies (representing around 11 per cent of central government expenditure in 2007) will go to the top two income quintiles (OECD, 2008b).

An additional mechanism through which inequality can generate inefficiencies is distortive taxation. In countries where income is spread more unevenly, distributional conflict will become more intense (this is because the median voter will tend to earn much less than average income; see, for example, Persson and Tabellini, 1991; Alesina and Rodrik, 1994). This will modify the agenda of the competing political parties, which may lead to more distortive taxation, with adverse effects on income growth. In practice, such a mechanism leads to two testable hypotheses neither of which has, however, received strong support in the literature. The first is that, when more inequality leads to more redistribution, inequality should become less persistent, which does not seem to be the case, as indicated above. Secondly, there should be a negative correlation between income inequality and GDP per capita growth, a claim that might seem to be supported by cross-country

**Figure 1.16. Income inequality and trend per capita GDP growth**

Average GDP per capita growth, 1980-2006, per cent



Note: Countries are ranked according to their level of income inequality using the Gini index, and then separated into tertiles corresponding to high, medium and low income inequality.

Source: ILS estimates based on IMF, 2008 and World Development Indicators, 2008.

empirical evidence (see fig. 1.16). However, when controlling for country or regional fixed effects, more recent studies do not corroborate this result, as they find either a positive correlation (Forbes, 2000) or a correlation of which the sign depends on the level of development, suggesting that only low-income countries may experience low growth as a result of high inequality (Barro, 2000).

### *Inequality and pro-growth policies*

Large income disparities may result in resistance to policies promoting pro-growth and pro-free trade policies, such as lower tariff barriers or the phasing out of subsidies for specific industries, particularly when the benefits of an open market are expected to reach only a minority (see box 1.3 for a discussion of some recent country experiences). Often, these policies require economic adjustments and reallocation across sectors, as competition and deregulation change relative prices in the economy. Since the cost of such adjustments will be borne by a well-defined group, opposition will grow and have to be appeased by the redistribution of some of the gains from economic deregulation, either to smooth the transition or to finance income-support schemes for those losing out (so-called “compensating reforms”: see Roland, 2002; Delpla and Wyplosz, 2007). However, there may be opposition to the unequal distribution of benefits, even though all groups may win on a net basis. In other words, distributional conflict may result from the post-reform heterogeneity of gains (Alesina and Drazen, 1991; Drazen and Grilli, 1993). In this regard, opposition is particularly strong when benefits go mainly to a (small) minority of the society, such as enterprises or professions benefiting from rents (Chua, 2003). Successful reform, therefore, requires not only a level playing-field, so that all sections of society can benefit from market openness, but also concrete action to spread the benefits, for instance through tax-and-transfer schemes (see Chapter 5) or by supporting access to land and property, especially by those on low incomes (De Soto, 2003; Bardhan et al., 2006).



### Box 1.3. Inequality and reform: Experiences in Bolivia and the Republic of South Korea

#### Bolivia

Among Latin American countries, Bolivia stands out as the one with the most unequal after-tax income inequalities, mainly as a result of unequal market-income distribution and weak redistribution through transfers and taxes. Informal employment is widespread (estimated at around 68 per cent of total employment) and the large gas sector does not contribute to the country's economic development as much as it could, either directly through employment creation (0.04 per cent of total employment is in the gas sector) or indirectly through higher government investment (27 per cent of government revenues came in 2006 from gas exports but were almost fully absorbed in building up a large fiscal surplus: IMF, 2007). The situation is partly due to pension reform: a fully-funded system was introduced in 1998, costing the government around 4.1 per cent of GDP per year, until the system became self operating (Weisbrot and Sandoval, 2006).

During the 1980s and 1990s, a series of reforms was enacted, mainly under the auspices of the World Bank and the IMF, which included: (i) the privatization of the state oil company (YPFB), municipal water suppliers, and public pensions; (ii) financial market liberalization; and (iii) tax reforms. Overall, Bolivia has in Latin America the most active structural reform agenda (Lora, 2001). Despite this, however, trend GDP growth did not show any signs of picking up (IMF, 2005).

Following a series of external and domestic shocks (curtailing of credit lines, the acceleration of the coca eradication programme, the devaluation of the Brazilian Real and the Argentinean crisis), real GDP per capita growth started to slow down and even became negative at the turn of the century. The failure of the reforms to produce sizeable benefits to everyone, in addition to the cyclical turnaround, triggered the emergence of a vigorous Indian movement that came into being with the aim of forcing policy-makers into reverse gear. The political agenda of the Indian movement was dominated by conflict over water, as the privatization had led to rapid price increases and left large parts of the poorer population without access to running water. The benefits from privatization had mainly gone to foreign investors and some richer groups, which gained from the improved water infrastructure.

In 2005, the movement cumulated in the election of the first Indian president of Bolivia, Evo Morales, who was prompt in reversing some of the earlier reforms by renationalizing the incumbent oil company, on the grounds that the contract signed with the new private owner took an unduly large share out of the hands of the government.

The failure of the earlier reform agenda to relieve poverty and lift GDP and employment growth can mainly be attributed to the perverse effects of inequality on economic performance. Corruption and political interference by interest groups remained widespread, adding to the cost of doing business in a landlocked country with poor infrastructure. As a consequence, the investment ratio remained among the lowest in Latin America, limiting the potential for catching up. Moreover, well-organized interest groups continued to benefit from existing regulations, keeping informal employment high and reducing the potential for improvements in productivity growth promised by the structural reform agenda.

#### Republic of South Korea

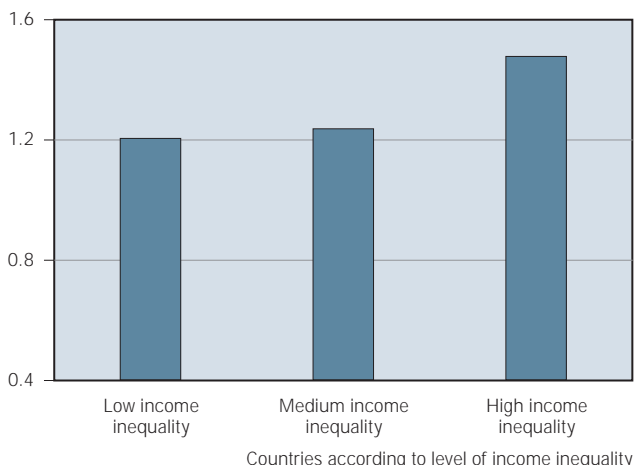
The Republic of Korea has long been characterized by low and stable income inequality, reaching levels comparable to those observed in other – notably European – OECD countries. In the wake of the Asian financial crisis in 1997, however, income inequality started to rise, even though social transfer programmes managed to limit the effect on disposable income and to stabilize inequality, albeit at a slightly higher level (OECD, 2000; OECD, 2007). Moreover, despite the favourable aggregate picture, the socio-economic challenge remains substantial: the degree of informality is high (almost 26 per cent of all employees outside agriculture are not registered for mandatory social security, OECD, 2008b), the participation rate of women is low and jobs are precarious for some groups, like women and older workers (with potentially adverse effects on their productivity and employability: OECD, 2007).

Against the background of Asian crisis, the government enacted a series of labour market reforms, while at the same time complying with ILO international labour standards (on freedom of association principle, for example). Earlier restrictions on trade union pluralism had involved tight regulation of industrial activities and labour contracts. Dismissal law formulated very specifically the circumstances under which an employee could be fired. Trade union representatives were restricted in the type and manner of industrial action that could be undertaken. In the face of increasing resistance, in particular, with the unofficial Korean Confederation of Trade Unions (KCTU), the government decided to change its stance on industrial relations, recognized KCTU in 1999 and eased some of the more restrictive parts of the dismissal law. At the same time, regulations on temporary employment were reformed, in particular with the introduction of the Dispatched Workers Act in 1998, which allows temporary work agencies to organize the market.

In sum, this suggests that reforms are feasible, despite increased income inequality, if the measures ensure that the interests of workers and employers are better balanced.

**Figure 1.17. Income inequality and instability of economic growth**

Degree of instability of economic growth, 1980-2006  
(Kurtosis of GDP per capita growth, logarithmic scale)



Note: Countries are ranked according to their level of income inequality using the Gini index, and then separated into tertiles corresponding to high, medium and low income inequality.

Source: ILS estimates based on IMF, 2008 and World Development Indicators, 2008.

### *Inequality and instability*

Income inequality is also related to macroeconomic instability. Distributive struggles can lead to inflationary pressures, which, in the case of emerging economies, can result in disorderly exchange rate devaluations and sudden stops in economic growth. Moreover, income inequality – even where it is not causally linked to instability – may magnify the costs of adjustment for low-income households in the wake of a macroeconomic crisis. For instance, the Argentine peso crisis in 2001-2002 worsened inequality as richer households managed to protect their assets from devaluation. More generally, there is evidence that the (measured) labour share decreases following a financial crisis as workers, predominantly those in the formal sector, lose their jobs (Diwan, 2001). Not only is the variability of macroeconomic outcomes greater in more unequal economies, but such economies also experience extreme situations – that is, extremely weak or, less commonly, extremely strong economic performance – more often than other countries (so called “fat tails” see fig. 1.17). In other words, stop-and-go growth episodes are more frequent, the more unequal the income distribution in an economy. At least for middle-income countries, such boom-bust episodes may, nevertheless, have resulted in higher trend growth, insofar as they are symptoms of deeper financial development and structural changes in the economy (Tornell and Westermann, 2002; Rancière, Tornell and Westermann, 2008). Whether such a link exists more generally is, however, an open question and may depend also on an economy’s capacity to absorb such a crisis rapidly, which in itself is a function of its degree of inequality and its structural policies.

## D. Bottom line and rationale for the next chapters

This chapter has shown that, over the past two decades, income inequality followed an upward trend in the majority of countries. Recent developments point to a further widening of income inequality, as the ongoing economic slowdown and financial crisis in the world economy combined with food price increases are likely to affect low-income groups disproportionately.

The chapter also highlights the policy relevance of these trends. There are cases where income inequality supports economic growth and social development. But in other cases income inequality can be harmful and may therefore require policy action. Much depends on (i) whether income inequality is perceived to be excessive – and, according to the World Value Survey, this is indeed increasingly the case;<sup>32</sup> and (ii) the root causes of growing income inequalities. The purpose of the next chapters is to address the latter issue.

Globalization has manifested itself in a number of ways, including more liberal trade and direct investment agreements, and freer movement of capital – or financial globalization more generally.<sup>33</sup> While much work has been done on the socio-economic effects of trade and foreign direct investment, the extent to which financial globalization can cause higher income inequality has received less attention. The issue is therefore examined in detail in Chapter 2.

Domestic factors can also contribute to higher income inequalities. These are examined in chapters 3 to 5. Chapter 3 examines how labour market institutions, including collective bargaining and tripartite dialogue, are linked with income inequality, controlling for trade and other globalization factors. Traditionally, these institutions have provided a framework for ensuring that the gains from economic growth are shared in a balanced manner, consistent with market realities. The issue analysed in Chapter 3 is whether the distributive role of labour market institutions has changed.

The links between employment and income inequality are discussed in Chapter 4. This includes an analysis of the possible effects on income inequality of changing employment patterns – characterised by a growing incidence of non-standard employment. The issue of whether employment gains help reduce income inequality, or on the contrary exacerbates it, is also examined in that chapter.

The welfare state is often considered a powerful redistributive instrument. Social benefits and transfers may help alleviate low-income traps. And, progressive taxation will exert a broader income redistribution effect. Chapter 5 looks at whether these instruments continue to play this role.

Finally, Chapter 6 examines how the different policy planks discussed in earlier chapters can be combined so as to limit the trend rise in income inequality, while at the same time supporting employment growth. The chapter considers the role of the Decent Work Agenda in this respect.

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32. The World Value Surveys provides information on the degree of tolerance vis-à-vis income inequality. In the 23 countries where respondents replied to the three waves of the survey (1989-1993, 1994-1999 and 1999-2004), the tolerance index declined from a value of 6.5 in the first wave, to 5.6 in the second wave and 5.4 in the third wave (lower values of the index indicate lower degree of tolerance vis-à-vis income inequality). See [www.worldvaluessurvey.org](http://www.worldvaluessurvey.org) (<http://www.worldvaluessurvey.org>) for more details.

33. See, for example, Heshmati A. (2003) for a discussion of the impact of globalization on inequality. Cornia G. A. (2005) also provides an extensive discussion of the impact technological change, external liberalization or social spending on inequalities.

## Appendix A

# Regional country groupings

### Advanced Economies

#### Western Europe

Austria  
Belgium  
Cyprus  
Denmark  
Finland  
France  
Germany  
Greece  
Iceland  
Ireland  
Italy  
Luxembourg  
Malta  
Netherlands  
Norway  
Portugal  
Spain  
Sweden  
Switzerland  
United Kingdom

#### Other Advanced Economies

Australia  
Canada  
Israel  
Japan  
Korea, Republic of  
New Zealand  
United States

### Sub-Saharan Africa

Angola  
Benin  
Botswana  
Burkina Faso  
Burundi  
Cameroon  
Cape Verde  
Central African Republic  
Chad  
Comoros  
Congo  
Congo, Democratic Republic of  
Côte d'Ivoire  
Djibouti  
Equatorial Guinea  
Eritrea  
Ethiopia  
Gabon  
Gambia  
Ghana  
Guinea  
Guinea-Bissau  
Kenya  
Lesotho  
Liberia

Madagascar  
Malawi  
Mali  
Mauritania  
Mauritius  
Mozambique  
Namibia  
Niger  
Nigeria  
Rwanda  
Sao Tome and Principe  
Senegal  
Seychelles  
Sierra Leone  
Somalia  
South Africa  
Swaziland  
Tanzania, United Republic of  
Togo  
Uganda  
Zambia  
Zimbabwe

### North Africa

Egypt  
Libyan Arab Jamahiriya  
Morocco  
Sudan  
Tunisia

### Middle East

Bahrain  
Iran, Islamic Republic of  
Iraq  
Jordan  
Kuwait  
Lebanon  
Oman  
Qatar  
Saudi Arabia  
Syrian Arab Republic  
Turkey  
United Arab Emirates  
West Bank and Gaza Strip  
Yemen

### Latin America & The Caribbean

Antigua and Barbuda  
Argentina  
Aruba  
Bahamas  
Barbados  
Belize  
Bolivia

Brazil  
Cayman Islands  
Chile  
Colombia  
Costa Rica  
Cuba  
Dominica  
Dominican Republic  
Ecuador  
El Salvador  
Grenada  
Guatemala  
Guyana  
Haiti  
Honduras  
Jamaica  
Mexico  
Netherlands Antilles  
Nicaragua  
Panama  
Paraguay  
Peru  
Puerto Rico  
Saint Kitts and Nevis  
Saint Lucia  
Saint Vincent and the  
Grenadines  
Suriname  
Trinidad and Tobago  
United States Virgin Islands  
Uruguay  
Venezuela, Bolivian Republic of

### Central & Eastern Europe and Former Soviet Republics

#### Central and Eastern Europe

Bosnia and Herzegovina  
Bulgaria  
Croatia  
Czech Republic  
Estonia  
Hungary  
Latvia  
Lithuania  
The former Yugoslav Republic  
of Macedonia  
Montenegro  
Poland  
Romania  
Serbia, Republic of  
Slovakia  
Slovenia

#### Commonwealth of Independent States

Armenia  
Azerbaijan  
Belarus

Georgia  
Kazakhstan  
Kyrgyzstan  
Republic of Moldova  
Russian Federation  
Tajikistan  
Turkmenistan  
Ukraine  
Uzbekistan

### Asia & The Pacific

#### Eastern Asia

China  
Hong Kong, China  
Korea, Democratic People's  
Republic  
Macau, China  
Mongolia  
Taiwan, China  
Pacific Islands

American Samoa  
Cook Islands  
Fiji  
French Polynesia  
Guam  
Kiribati  
Marshall Islands  
Nauru  
New Caledonia  
Niue  
Northern Mariana Islands  
Papua New Guinea  
Samoa  
Solomon Islands  
Tokelau  
Tonga  
Tuvalu  
Vanuatu  
Wallis and Futuna Islands

#### South Asia

Afghanistan

Bangladesh  
Bhutan  
India  
Maldives  
Nepal  
Pakistan  
Sri Lanka

#### South-East Asia

Brunei Darussalam  
Cambodia  
Indonesia  
Lao People's Democratic  
Republic  
Malaysia  
Myanmar  
Philippines  
Singapore  
Thailand  
Timor-Leste  
Viet Nam

## Appendix B

# Calculation methods for wage dispersion, wage shares, productivity and real wage growth

## Wage dispersion

Wage dispersion measures the earnings difference between low-wage earners and top wage earners. Wage earners are classified into 10 deciles. The wage dispersion chosen is  $P9/P1$ , the ratio of the wage earnings of the top decile to those of the bottom decile.

For most OECD countries, earnings distribution per decile for the period 1990 to 2006 is based on various statistical sources provided by national agencies. The definition of earnings changes depending on the type of income considered, gross or net, the period considered annual, monthly, weekly, daily or hourly, and the type of workers considered, full time or part time. Countries covered include Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Hungary, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Poland, Republic of South Korea, Spain, Sweden, Switzerland, the United Kingdom and the United States. In some cases (Austria, Italy, Poland, Portugal and Sweden), OECD data were supplemented using data compiled by Atkinson, 2008.

For China, Brazil and India, calculations are based upon national household surveys that contain information on individual labour earnings and labour status. These include China's Urban Labour Survey (2000 and 2005), Brazil's *Pesquisa Nacional por Amostra de Domicílios* (1992, 2000 and 2004) and India's National Statistical Survey (1990 and 2000).

## Wage shares

The wage share measures the share of total income or gross domestic product (GDP) that goes to labour. Broadly speaking, GDP can be decomposed into three income components: capital, labour and taxes. Labour income (wages) usually comes under the heading of “compensation of employees” in national accounts, with total income measured using “gross value added at factor costs”.

To adjust for the fact that “compensation of employees” only captures the income of salaried workers (not of self-employed persons), for a number of countries, “compensation of employees” was divided by the ratio of employees to total employment. As such, the assumption is that self-employed persons earn, on average, the same as employees.

For OECD countries, wage shares are calculated using OECD detailed national accounts data for Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Republic of South Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The wage share is calculated as:

Total labour cost divided by nominal output, where:

Total labour cost = (compensation per employees \* number of employees \* hours worked employment) / (hours worked employees)<sup>34</sup>, and nominal output refers to annual current price value added compiled according to the System of National Accounts 93.

For Argentina, Brazil, China, Egypt, Nigeria and Thailand, data from national statistics offices and, in some cases, ILO KILM data (ratio of employees in total employment) were used.

- *Argentina*: wage share = (remuneración al trabajo asalariado / valor agregado bruto (VAB) a precios corrientes de productor) \* 1 / (ratio of employees in total employment). All data come from Dirección Nacional de Cuentas Nacionales (INDEC), except for the ratio of employees in total employment (ILO KILM).
- *Brazil*: wage share = (remuneração dos empregados / produto interno bruto) \* 1 / (ratio of employees in total employment). All data come from national accounts (<ftp://ftp.ibge.gov.br>), except for the ratio of employees in total employment (ILO KILM).
- *China*: wage share = total wages of staff and workers / nominal GDP. Statistics are drawn from the Statistical Yearbook (<http://www.stats.gov.cn>).
- *Egypt*: wage share is calculated as compensation of employees divided by net operating surplus from Annual National Account data (<http://www.mop.gov.eg/English/english.html>).
- *Nigeria*: wage share is calculated compensation of employees divided by operating surplus using National Account data (<http://www.nigerianstat.gov.ng/index.php>).
- *Thailand*: wage share = (Compensation of employees / GDP at factor cost) \* 1 / (ratio of employees in total employment). All data come from National Account data (<http://www.nesdb.go.th/Default.aspx?tabid=94>), except for the ratio of employees in total employment (ILO KILM).

For the remainder of countries (*Asia*: Bahrain, Hong Kong (China)<sup>λ</sup>, India, Islamic Republic of Iran, Israel<sup>λ</sup>, Jordan, Kuwait, Oman and Sri Lanka<sup>λ</sup>; *Eastern Europe and Russian Federation*: Armenia<sup>λ</sup>, Azerbaijan, Belarus, Bulgaria<sup>λ</sup>, Estonia<sup>λ</sup>, Kyrgyzstan<sup>λ</sup>, Latvia<sup>λ</sup>,

34. If the variable “hours worked” is not available, the adjustment for the self-employed is made by making using the self-employment ratio (total employment divided by the number of employees).



Lithuania<sup>λ</sup>, Republic of Moldova<sup>λ</sup>, Romania<sup>λ</sup>, Russian Federation<sup>λ</sup>; *Latin America*: Chile<sup>λ</sup>, Colombia<sup>λ</sup>, Costa Rica<sup>λ</sup>, Panama<sup>λ</sup>, Venezuela<sup>λ</sup>, Peru<sup>λ</sup>; *North Africa*: Algeria<sup>λ</sup>, Tunisia; and *sub-Saharan Africa*: Botswana<sup>λ</sup>, Côte d'Ivoire, Kenya, Mauritius<sup>λ</sup>, Namibia<sup>λ</sup>, Nigeria, South Africa<sup>λ</sup>), wage shares were calculated as the ratio of compensation of employees to gross value added at basic prices, using UN National Accounts data and ILO KILM data for the ratio of employees in total employment.<sup>35</sup>

## Real wages and productivity

Real wages are calculated as nominal wages (ratio of total compensation to total employees), discounted for inflation or the consumer price index (CPI). Productivity is measured by dividing real GDP, or an alternative measure of production, by the number of employees.

For OECD countries, real wage growth is calculated as the ratio of compensation per employee to the consumer price index (CPI). Real productivity growth is calculated as the real output at constant prices divided by total employment. For Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Spain, Republic of South Korea, the United Kingdom and the United States, wage and productivity annual growth rates are calculated for the following periods: 1990-2006, 1990-2000, and 2000-2006. For the Czech Republic, Greece, Hungary, Ireland, Poland and Slovakia, annual growth rates are calculated for the following periods: 1996-2006, 1996-2000, and 2000-2006: For Mexico, data begin in 1995 and end in 2004, and for Portugal, begin in 1995 and end in 2005.

For Brazil, India, Russian Federation and South Africa, annual real wage and productivity growth are calculated using data from UNIDO (wages and salaries of employees, number of employees, and value added) and IMF (CPI and GDP deflator).<sup>36</sup>

For China annual real wage growth was calculated as the average wage of staff and workers to CPI and productivity as the ratio of value added to the Number of employed persons at year end times the GDP deflator. Data are taken from Statistical Yearbook (<http://www.stats.gov.cn>) and from the IMF (for CPI and GDP deflator).

35. Countries marked <sup>λ</sup> are those for which the wage share is corrected for the self employed.

36. To obtain time series for the 1990s and 2000s, two UNIDO databases were merged, namely INDSTAT3 2006 ISIC Rev 2 and INDSTAT3 2008 ISIC Rev 34. The baseline series is INDSTAT3 2008 ISIC Rev 34, which is completed by applying growth rate calculated from INDSTAT3 2006 ISIC Rev 2.

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