Are Middle-Paid Jobs in OECD Countries Disappearing? An Overview

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Abstract: This paper provides evidence that from 1985 to 2005, two thirds of OECD countries have seen an increase in earnings inequality. In nearly half of these countries, the widening was driven by an increase in inequality at both the top and the bottom of the distribution. In the other half, rising overall inequality was reflecting a relative increase in high earnings only. This paper also reviews the literature and shows that in several OECD countries, a rise in low-paid employment and a process of polarisation in net employment growth have been observed. The factors behind the increase in earnings inequality and job polarization are multiple and include the influences on labour demand and labour supply incentives, as well as institutional factors (minimum wages, the employment relationship, etc).

JEL Classification: J31.

Résumé: Ce document montre qu’entre 1985 et 2005, les deux tiers des pays de l’OCDE ont vu l’inégalité salariale s’accroître. Dans la moitié des cas, l’augmentation de l’inégalité est observée à la fois dans le haut et dans le bas de la distribution des salaires. Dans l’autre moitié des cas, l’augmentation ne reflète que la hausse des salaires les plus élevés. Ce document établit également une revue de la littérature et montre que dans plusieurs pays de l’OCDE, une augmentation de l’emploi à bas salaire a eu lieu de pair et qu’un processus de polarisation de la croissance nette de l’emploi s’est produit. Les facteurs responsables de l’augmentation des inégalités et de la polarisation des emplois sont multiples et opèrent via les influences de la demande de travail et les incitations à offrir son travail ainsi que via les institutions (salaires minimum, relation de travail, etc).

Classification JEL: J31.

Resumen: El presente documento muestra que entre 1985 y 2005, la desigualdad salarial se acentuó en los dos tercios de los países de la OCDE. En casi la mitad de los casos, esta ampliación fue occasionada por un aumento en la disparidad tanto en los niveles más bajos como en los más altos de la distribución de los salarios, mientras que en la otra mitad, el aumento reflejó un incremento solamente de los salarios más altos. Asimismo, este documento pasa revista a la documentación sobre el tema y señala que en varios países de la OCDE se han registrado un aumento del empleo de bajos salarios, así como un proceso de polarización del crecimiento neto del empleo. El aumento de la desigualdad salarial y la polarización del empleo se deben a múltiples factores, entre los que cabe mencionar las influencias de la demanda de trabajo y los incentivos de la oferta laboral, así como otros factores institucionales (salarios mínimos, la relación del empleo, etc.).

Clasificación JEL: J31.
The Policy Integration Department

The Policy Integration Department pursues the ILO's decent work and fair globalization agenda from an integrated perspective.

The central objective of the Policy Integration Department is to further greater policy coherence and the integration of social and economic policies at both the international and national level. To this end, it works closely with other multilateral agencies and national actors such as Governments, trade unions, employers' federations, NGOs and universities. Through its policy-oriented research agenda, it explores complementarities and interdependencies between employment, working conditions, social protection, social dialogue and labour standards. Current work is organized around four thematic areas that call for greater policy coherence: Fair globalization, the global poor and informality, macro-economic policies for decent work, and emerging issues.

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Contents

1. Introduction ................................................................. 1
2. Measuring trends in low, middle and high-paid jobs in OECD countries ............... 1
3. Trends in overall earnings inequality ........................................ 3
4. Changes at the top and the bottom of the earnings distribution ......................... 4
5. Earnings inequality and changes in the structure of employment by job quality .......... 7
6. The gender dimension of changes in earnings inequality and job quality ............. 10
7. Causes for rising earnings dispersion and mitigation policies .......................... 15

Conclusion ............................................................................. 20

References ................................................................................ 23
1. Introduction

The period 1985-2005 witnessed a large turnaround in the distribution of earnings and in the patterns of employment expansion by job quality in most OECD countries. Although the situation has varied across countries, on average for the OECD as a whole, the share of low-paid jobs has risen since the mid 1980s. At the same time, the level of pay and bonuses received by top managers increased tremendously. The first trend attracted a lot of attention in the literature on inequality and policy responses, while the second trend went almost unnoticed until the financial crisis. Before that, the increase in the top decile relative to the median was not much studied and top wages were not considered an issue by many economists, in contrast to low wages. But what about middle-level jobs? Is the double increase in low-paid jobs and high-paid jobs occurred at the expense of middle-level jobs? And what is behind the observed changes?

The main objective of this paper is to provide a tentative answer to these fundamental questions. Indeed, the lack of opportunities at the middle-level jobs raises issues of its own, in particular the disappearance of pathways to move up the ladder of social mobility. In addition, inequality coming from labour participation, e.g. wage inequality, is key in order to understand the overall increase in income inequality. The paper compares changes over time between countries. It does not discuss the differences in levels between countries, although between-country differences are far bigger than within-country changes. Given our interest in policy options to deal with inequality, which are mainly implemented at the national level, the paper does not venture into that area.

The paper is based on the analysis of primary data on wages in OECD countries as well as on a review of recent studies on industrialised countries looking at the distribution of individual earnings and the patterns of job expansion by job quality. This paper starts in Section 2 by discussing data and indicators that have been used to measure the dynamics of low, middle and high paid jobs in industrialised countries. Trends in overall earnings inequality are then presented in Section 3. The fourth section provides a detailed discussion about the extent to which overall changes in wage inequality can be attributed to changes at the top of the earning distribution, the bottom, or by both. In Section 5, an attempt is made to review the connection between wage inequality and changes in the structure of employment by job quality. Section 6 looks at the patterns of inequality and job expansion from a gender perspective. Section 7 then reviews the arguments put forward in recent studies to explain the recent changes in inequality in earnings. The last section concludes with a summary of the main findings.

2. Measuring trends in low, middle and high-paid jobs in OECD countries

In this section, we start-off by presenting briefly the various data sets that are being used to explore changes in earning inequality and job quality. We further provide a rapid description of key indicators of earnings inequality and job quality that we analyse in this paper.

Data issues

Comparable country-level datasets on the distribution of earnings are available for several industrialised countries. In some cases, however, “short hours” are not adequately reported or sampled, such as the European Community Household Panel. In other cases, there is insufficient coverage of countries, sectors and small firms such as the European Structure of Earnings Survey. To compensate these short-comings, national datasets can be used against the backdrop of international comparability. Most importantly, practically all
countries report earnings only for full-time employees. Since part-time jobs often command lower hourly pay than full-time jobs and women have a higher propensity to work part-time than men, this should be kept in mind in drawing conclusions on gender gaps.

The discussion on changes in earnings inequality in Section 3, 4 and 6 draws on recent studies as well as on the analysis of a new data set compiled by the OECD from national datasets on individual earnings and which covers, although with some missing information, 23 OECD countries. In this paper, a comprehensive analysis was performed for a maximum of 17 countries for which information on earnings deciles was available for more than two points in time for the years 1985, 1995 and 2005. Such countries include continental and eastern European countries, Anglo-Saxon countries, and the Nordic countries. The data refer to gross earnings, except for France where net earnings are reported. While the definition of earnings varies for each country and thus does not allow a strict comparison across countries, the data can be used to study changes over time within countries. Our focus is on the changes in earnings inequality that took place during the period 1985-2005.

In Sections 5 and 6, to review the connection between wage inequality and changes in the structure of employment by job quality, the use of individual earnings data is complemented by the findings of three recent studies that have used employment data to look at the patterns of net job expansion by job quality respectively in the United States (Wright and Dwyer, 2003), in the OECD (OECD, 2003) and in the European Union (ERM, 2008). For both studies, a comprehensive dataset was constructed that relate to jobs as the unit of analysis rather than individual earnings, and use the jobs’ median hourly earnings as an indicator of job quality. Employment data were taken from the Current Population Survey over the period 1963-80 and 1983-2000 for the US study, from the European Union Labour Force Survey over the period 1996-2006 for the EU study, and from the Current Population Survey (Outgoing Rotation Group file) for the period 1993-2001 for the OECD study.

### Indicators and measurement issues

The most commonly used and preferred indicators to measure earning inequality is the Gini coefficient, which is also the one used in the 2008 OECD report on inequality in OECD countries (OECD, 2008). In this paper, the Gini coefficient is considered together with other indicators such as the ratio of the top to bottom decile (D9/D1), which looks at the two extremes of the distribution, as well as the bottom (D5/D1) and the top (D9/D5) deciles, expressed relative to the median, which look respectively at the top and bottom half of the distribution.

To define or measure low-paid jobs, there are several options. The most widely-used approach is to define low-pay as less than two thirds of the median wage and is adopted in this paper. The incidence of low-paid jobs is then derived as the percentage of low-paid individuals. High pay can also be defined in a way that mirrors the definition of low pay with respect to the median wage, as pay above the threshold of 1.5 times the median wage.

Finally, job quality is understood in this paper in terms of earnings. There are of course many other attributes of a job, beyond earnings, that matter. But earnings remain an

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1 The method used to assess the pattern of job expansion by job quality was developed by Wright and Dwyer (2003).

2 The definitions of D1, D5 and D9 are the following. 10 per cent of workers earn less than the upper limit of the first decile D1; 50 per cent earn less than the upper limit of the second quartile D5, or median; and 90 per cent earn less than the upper limit of the ninth decile.
important dimension of working conditions and are used to measure the patterns of employment expansion by job quality in the US, OECD and EU studies.

Having defined the indicators used in this paper, it is important also to be aware of several measurement issues. First, increases in top earnings might be underestimated. Part of the increase in inequality at the top of the earnings distribution probably comes from the increasing use of these elements in pay setting, which are excluded from earnings data. For instance, participation, profit-sharing and contribution to savings plans represented 3.3 per cent of total wage bills in 2004 in France (CERC, 2008). As indicated earlier, another issue is that in any one country, different data sources using slightly different definitions of earnings may point to different conclusions.

3. Trends in overall earnings inequality

It is now widely acknowledged that income inequality in all countries has widened considerably since the mid-1980s. According to the 2007 IMF World Economic Outlook, and based on changes in Gini coefficients, “inequality has risen in all but the low-income country aggregated over the past two decades, although there are significant regional and country differences... The recent experience seems to be a clear change in course from the general decline in inequality in the first half of the twentieth century, and the perception that East Asia’s rapid growth was achieved while maintaining inequality at relatively low levels” (2007, pp. 139 and 141).

One of the key explanatory factors of the rise in income inequality is the increase in earnings inequality. Using another indicator, the ratio of inequality D9/D1, to measure earnings inequality for developed and developing countries, the 2008 ILO Wage report finds a similar pattern: “more than two thirds of the [31] countries in the sample witnessed increases in wage inequality, with some important exceptions primarily in Latin America countries such as Brazil, Mexico and Venezuela” (2008, p. 30). Moreover, as pointed out in the same report, “the countries which recorded the largest increases in this wage inequality are those who were hit by severe economic crisis, such as Argentina, Thailand and the Republic of Korea, as well as former transition countries like Poland, Hungary and Bulgaria” (2008, p. 30).

Evidence of a fairly generalised increase in earnings inequality over the past two decades in industrialised countries is further provided by the 2008 OECD report on “Growing Unequal”. The report, which is based on the analysis of 30 OECD countries, stipulates that “Earnings of full-time workers have become more unequal in most OECD countries. This is due to high earners becoming even more so” (2008, p. 17).

Regarding the more recent period, a study of two countries hit particularly early by the crisis (the United Kingdom and the United States) showed that the current crisis had led to a very small increase in wage inequality in the short term (Fiorio and Saget, 2010). This preliminary evidence, which relied on nonparametric densities of wages in the last three years is consistent with evidence quoted in this paper.

Trends in overall wage inequality in selected OECD countries are summarised in Figure 1, which shows the inequality ratio D9/D1 previously outlined at three points in time: 1985, 1995 and 2005. The ratio is also presented as an average among all 17 OECD countries for which more than one point in time is available.

Two major patterns emerge from this figure: one - and dominant - pattern of widening inequality, and one pattern showing a slight decline or no change in inequality. On average, and for the OECD as a whole, inequality has increased slightly.
The first group of countries is composed of unambiguous cases of widening inequality - Hungary and Poland, but also Germany, New Zealand, and the United States. Australia, Canada, Denmark, Italy, the Netherlands, Sweden and the United Kingdom also conform to these patterns, although more loosely.

The second group of countries is composed of cases of overall decline or stagnation in earnings inequality. France, Korea and Spain follow a pattern of inequality reduction. In Finland and Japan, earnings inequality has remained stable.

Figure 1: Ratio of earnings inequality D9/D1 in selected OECD countries, 1985-2005


4. Changes at the top and the bottom of the earnings distribution

The findings outlined above indicate that most OECD countries (but not all) have experienced an increase in earnings inequality at least since the mid 1980s. At the same time, this raises the question about what has driven the observed widening? A rise in the salary of highly-paid workers relative to middle-paid workers? A relative decline for low paid workers? Or a combination of both?

To answer this question, it is important to examine changes at the top and at the bottom of the distribution separately. The inequality ratios D9/D5 and D5/D1 provide useful information in this respect. The first ratio can be used as an indicator of changes in the earnings distribution of the 10 per cent better paid workers relative to the median earnings. The second ratio looks at the evolution of the earnings levels received by the poorest 10 per cent of workers relative to the median.

In the ILO Wage Report, countries are categorised in three types. The first type, the “collapsing bottom” refers to the case where inequality is growing at the bottom of the distribution (increase in D5/D1). The second type, the “flying top”, illustrates the opposite situation where earnings inequality is growing because earnings of highly-paid workers are increasing faster than other wage groups (increase in D9/D5). Among 15 out of 18 OECD
countries analysed in the report and which have experienced increases in inequality “the more developed countries such as the United Kingdom and the United States mainly fall into the category of “flying top” wages, with the exception of Germany which falls into the category of “collapsing bottom” wages. Australia may be characterized by some polarization” (ILO, 2008).

Such differences across OECD countries, where the top and the bottom of the distribution have been affected differently, are further highlighted in recent studies focusing on industrialised countries. In his study on the distribution of income in OECD countries, Atkinson (2007) notes that in nine out of 12 countries, Australia, Czech Republic, Germany, New Zealand, Poland, Portugal, Sweden, the United Kingdom, and the United States, the top decile rose by more than 10 per cent since 1980. The exceptions are Finland, France, and Italy. At the same time, the bottom decile experienced a sharp decline, being more than 10 per cent, in only four countries, namely, the Czech Republic, Italy, Poland, the United States. The rise in the top decile is thus much clearer for the OECD as a whole, where, as noted in the OECD report, “earnings disparities among full-time workers have indeed increased rapidly since 1990, with most of the widening reflecting developments in the upper part of the distribution” (2008, p. 289).

Such findings are further illustrated in Figures 2a and 2b below. The figures represent the scale of the changes that took place at the top and at the bottom of the earning distribution as captured respectively by the D9/D5 and the D5/D1 inequality ratios and based on the OECD dataset. Different patterns are revealed in these figures. The first pattern is that of polarisation, where the overall inequality increase is the result of a widening gap at both the top and the bottom of the wage distribution. Australia, Denmark, Hungary, the Netherlands, New Zealand and Poland are the clearest cases of polarisation.

A second group of countries is composed of cases where the increase in inequality is driven by changes in high wages relative to the median. Canada, Italy, Sweden, the United Kingdom and the United States conform to this pattern.

![Figure 2a](image1.png)

![Figure 2b](image2.png)


In contrast, Germany stands as an outsider and a clear case where the overall wage inequality has grown as a result of some deterioration in bottom wages but no substantial widening at the top.
A fifth group of countries is composed of France, Japan and Spain where overall inequality has remained stable (Japan) or even declined (France, Spain) as the consequence of two opposite trends: a decline in inequality at the bottom of the wage distribution and an increase at the top.

Other cases are Finland and Korea, where overall inequality has remained stable although the underlying causes have been very different. In Finland, the distribution of earnings has been rather stable at both the top and the bottom of the distribution. In Korea however, earnings inequality has increased at the bottom while it has declined at the top and the two opposite effects seems to have cancelled out so that overall inequality has remained stable.

The previous figures have shown that most – but not all - OECD countries have experienced an increase in wage inequality in the past twenty years. Often, this has been driven by a relative increase in top earnings and a relative decline in bottom earnings, compared to the median. Such cases of polarisation require further investigation as to understand better what have been the underlying factors. One important question is whether the widening gap between top and bottom earnings experienced in many OECD countries is the result of a disproportionate increase in top and median earnings, or a stagnation or low growth of median and bottom earnings.

Figure 3 sheds light on this issue by representing the trends in the nominal values of the top (D9), median (D5) and bottom (D1) wage deciles. What we see is that in nominal values, between 1985 and 2005, the largest increase in earnings was observed among the top deciles, except in Finland, France, and Japan where the increase in bottom wages was as large or larger than that of the increase in top wages.

What is also interesting is to look at the evolution of the median vis-a-vis the growth in top and bottom earnings. A first group of countries is illustrated by Denmark, the Netherlands, New Zealand, Sweden, and the United States, where the highest nominal earnings growth was observed among the top decile, followed by the median, while the bottom decile experienced the lowest growth. Germany and the United Kingdom also conform to this pattern, although much less clearly. In Germany, the median has grown as fast as the top decline, while in the United Kingdom, the growth of the bottom decile was similar to that of the median.

Another group of countries is composed of Australia, France and Japan, where the nominal value of the median earnings has actually increased much less than that of the bottom and top decline.
5. **Earnings inequality and changes in the structure of employment by job quality**

As discussed in the previous section, most – but not all - OECD countries have experienced an increase in overall earnings inequality in the past twenty years. Among the 17 countries that were represented in the sample, 12 had witnessed a rise in overall inequality. For six of them (Australia, Denmark, Hungary, the Netherlands, New Zealand and Poland), the widening reflected rising disparities in both the upper and lower part of the distribution. For another five (Canada, Italy, Sweden, the United Kingdom and the United States), the increase in inequality was driven by changes in high earnings relative to the median, while the bottom of the distribution was little affected. Only in one country (Germany) was the increase in inequality the sole consequence of some deterioration in bottom earnings without substantial widening at the top. Moreover, in the four countries where overall inequality has remained stable or has declined, a widening of the gap was nonetheless observed at the top of the distribution (France, Japan and Spain) and at the bottom (Korea). There was also evidence that in most OECD countries reported in the sample, the fastest earnings growth was observed at the top wage decile.

Such trends certainly require policy attention, especially as they raise concerns about the disappearance of middle-paid jobs. Yet, whether middle-paid jobs are actually disappearing in some OECD countries requires further investigation. Any attempt to answer such a crucial question requires looking, not only at the distribution of earnings but also at the patterns of net employment expansion by job quality.

Using employment data from the US Current Population Survey as described earlier, the pioneering work by Wright and Dwyer (2003) provides a unique evaluation of the quality of the jobs created in the employment expansion that occurred in the United States during the 1960s, 1970s and 1990s. The basic idea is to estimate changes over time in the quality
of employment (defined as wages by types of jobs) with respect to a reference year. The methodology involves several steps. First, classifying employment into a matrix of jobs by sectors and occupations. Second, calculating the median earnings for each job, e.g. each sector/occupation cell. Third, grouping the jobs in quintiles from low to high earnings with each group corresponding to 20 per cent of total employment at a chosen reference year. Fourth displaying the change in net employment growth by quintiles of the reference year. This methodology has been applied subsequently by the OECD (2003) and the Eurofoundation studies (2008), which are also discussed in this paper.

Wright and Dwyer (2003) find that “the employment expansion in the 1990s [in the United States] can be described as a pattern of asymmetrical polarization: very strong growth in the top tier of the employment structure, moderately strong at the bottom, and extremely weak in the middle”. The authors further note that “this is a novel pattern. The employment expansion of the 1960s constituted a non-polarised upgrading of the employment structure, and the expansion of the 1970s and 1980s involved relatively even job growth across the employment structure” (2003, p. 291).

The pattern of increasing polarization in job growth has not been found solely in the United States. A study by the OECD (2003) showed that in industrialised countries, between the mid 1990s to 2001, job growth has been concentrated in industries and occupations that pay relatively well. Out of the 15 OECD countries covered in the analysis, high-paid jobs had the strongest growth of all jobs in all except three countries. However, the growth of low-paid jobs had been strong in the period under analysis, e.g. greater than 10 per cent in six countries. The study concluded that fears that reforms from the 1990s had mainly resulted in the creation of low-paid jobs were not founded but warned that “Nonetheless, it is still possible that policies designed to increase labour market “flexibility” - including flexibility in setting relative wages – may have caused earnings inequality to grow along with employment” (p. 42).

In the case of the European Union, and based on a similar methodology, a study on the quality of the jobs created in the recent employment expansion in Europe by the Eurofoundation (2008) states that “the employment expansion that many European countries experienced after 1995 was, in most cases, concentrated in relatively well-paid jobs. (...) [Yet] it would be simplistic to speak only of a general upgrading of the employment structure. (...) Several countries saw a process of polarisation, with a very significant amount of employment growth going to the bottom and top of the wage distribution, and very little growth of employment in the middle – indeed in some cases, destruction. (...) In all 15 EU countries, the top quintiles grew strongly, and the middle quintile in most cases grew very slowly or even contracted. In the bottom quintile, however, strong employment creation took place in some countries” (2008, p. 16).

The growth of low pay employment in some European countries from the mid 1990s is well-documented (OECD, 2003). Basically, there was a shift in employment policy which raised the employment intensity of growth and created low pay jobs. For example, two million jobs were created in France between end 1996 and end 2001 mostly in the private sector, while unemployment was reduced by one fourth (Pisani-Ferry, 2000). These trends mainly resulted from an increase in labour demand based on social security contribution cuts on unskilled labour.

The stagnation or even decline of middle-paid employment in several countries raises additional questions about the role of skills and occupational definition of jobs. While low-skilled workers have always been concentrated in low-paid jobs, a more recent problem of over-qualification and changes in the occupational definition of middle-paid jobs seems to be a growing phenomenon in industrialised countries.

With strong employment growth in low-paid jobs in some OECD countries, there are also growing concerns that the incidence of low-paid work may have increased substantially
with negative effects on poverty and social cohesion. Of course the impact depends on the level of low wages with respect to the poverty line, but also of household labour supply and composition.

Lucifora et al. (2005) provide a review of the evidence on low-wage employment in Europe and the United States using a range of data sets. One of the key results of the study shows that the incidence of low pay according to different data sources and measures (full-time hourly earnings, full-time equivalent) vary significantly across 14 industrialised countries when using the same definition (less than two-thirds of national median wage) in the mid-1990s. However the group of countries with a high percentage of low-wage workers remains fairly stable across data sources and measures, and include the United States, the United Kingdom, Greece, Spain and Portugal. An additional result shows that low-paying industries, unlike high-paying industries are the same in all countries, and so are the categories of employees affected by low-pay, which includes young workers, manual workers, and low-skilled workers. In the EU context, the Eurofoundation study (ERM, 2008) further highlights the importance of non-standard work in explaining the level of wages.

The actual magnitude of the problem of low-paid work is summarised in Figure 4 which illustrates the scale of the changes that took place in several OECD countries with respect to the incidence of low-paid jobs. Out of the 15 countries represented in the sample, seven countries - Australia, Denmark, Germany, Hungary, Poland, Sweden and the United Kingdom - experienced an increase in low-paid jobs in the period covered here. In 2005, the incidence of low-paid workers in all these countries was above 15 per cent, with the noticeable exception of Sweden.

By contrast, a decrease in the incidence of low paid employment can be seen in five countries – Ireland, Japan, and New Zealand, as well as in Belgium and Italy (in the two latter cases, the changes refer to the period 1985-95). In three countries - Canada, Korea, and the United States - the percentage of low-paid workers has remained almost stable, although at very high levels (above 22 per cent).

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3 Current Population Survey (United States); European Community Household Panel, and European Structure of Earnings Survey for EU countries.
6. The gender dimension of changes in earnings inequality and job quality

From 1985 to 2005, most OECD countries have seen an increase in earnings inequality. In nearly half of these countries, the widening was driven by an increase in inequality at both the top and the bottom of the distribution. In the other half, rising overall inequality was reflecting a relative increase in high wages. Moreover, in several OECD countries, a rise in low-paid work and a process of asymmetrical polarisation in net employment growth by job quality have been observed. But is the rise in inequality similar for men and women? How gendered is the distribution of earnings inequality and the incidence of low-paid work in OECD countries? And is polarisation in net job expansion observed in several OECD countries gendered? Such questions will be addressed in this section.4

Figure 5 shows the ratio of the male to female inequality measure D9/D1. A ratio above one indicates that overall earnings inequality is higher for men than for women. The reverse is true for a ratio below one. The figure clearly indicates that, in most OECD countries, overall inequality was higher among men. In Germany, however, and in Canada after 2005, overall earnings inequality was higher among women.

Moreover, there are large country differences as to the changes in earnings inequality between men and women during the period under review. In seven out of 16 countries represented in the sample (Canada, Denmark, Finland, France, Japan, Korea, and Poland), the trends has been towards a reduction in the male-female difference in earnings inequality. In five out of 16 countries (Germany, the Netherlands, Sweden, the United

4 Our focus is on the distribution of earnings within the two groups; we do not address the gap between men and women.
Kingdom and the United States), the distribution of earnings across gender has remained relatively stable. In three other countries (Australia, Italy, and New Zealand), higher inequality in male wages has been further exacerbated. In one country (Spain), wage inequality which was higher among women in 1995 became more important among men in 2005.

**Figure 5: Male to Female Ratio of earnings inequality D9/D1 in selected OECD countries, 1985-2005**

![Graph showing male to female ratio of earnings inequality D9/D1 in selected OECD countries, 1985-2005.](image)


The pattern of higher earnings inequality among men is also observed at both the top and the bottom of the distribution in most OECD countries, as can be seen in Figures 6a and 6b. There are, however, two remarkable exceptions: Canada and Germany. While in Canada, the distribution of earnings was more unequal among female than among males at the top of the distribution, in Germany, the distribution was more unequal among females at the bottom.

Looking at the changes that occurred at the top and at the bottom of the distribution across gender, one can also see that there were large variations between the 16 OECD countries for which data are available. At the top of the earnings distribution, the difference in the level of male earnings inequality relative to female earnings inequality clearly declined in five countries (Denmark, Finland, France, Korea, and Poland), remained almost unchanged in five countries (Canada, Italy, the Netherlands, Sweden and the United Kingdom), and increased clearly in five countries (Australia, Germany, New Zealand, Spain and the United States). At the bottom of the distribution, the gender gap in wage inequality declined in at least six countries (Canada, Japan, Korea, the Netherlands, Poland and the United States) and increased in at least two countries (Australia and Sweden). There are hybrid cases where the amplitude of the gender gap in earnings inequality did not change much, but the nature of the inequality changed from higher inequality among female wages to more inequality among male wages (the Netherlands and Spain).
The pattern of higher inequality among earnings wages associated with a relative decline in the male to female inequality ratio at the bottom of the distribution is further echoed in Figure 7, which shows the relative incidence of low-paid work by gender for the period 1985-2005 for 15 OECD countries. The data clearly indicate that the increasing majority of countries represented in the sample (14) had a male to female ratio below one, indicating a higher prevalence of low-paid work among women. At the same time, most of the represented countries (14 countries) have witnessed a decline in the male to female ratio. However, the earnings data used in the analysis cover full-time jobs. Given the over representation of women amongst part time employees, this mean that our results underestimate the prevalence of low paid employment among women; and possibly earnings inequality among women.

All in all, the previous discussion has shown that in most OECD countries, wage inequality has been substantially higher among male wages both at the top and at the bottom of the distribution. Second, the difference in the level of inequality between male and female wages has declined in several countries at the bottom of the distribution, while at the top of the distribution the pattern of the male-female inequality ratio was less clear as country differences were much more important. Third, in most OECD countries, the gender gap in the incidence of low-paid employment has narrowed, yet almost everywhere in the OECD, more women than men remained low-paid.
Figure 7. Incidence of low-paid work, Male to Female ratio, 1985-2005 (Per cent)


Such a situation summarised above may be driven by the particular patterns of job expansion by gender, with the position of women in low-paid jobs getting closer to that of men in several countries. Whether this is a positive development remains an open question, however, the optimistic scenario would be to assume that the trend was driven by a relative upgrade of low paid female employment relative to men. A less positive story could be that the position of male workers has actually deteriorated compared to female workers in the lower end of the wage distribution.

One way to try to address this question is to look at the absolute changes in the incidence of low-paid jobs among men and women and assess whether there were net gains or losses in the period under consideration. A partial answer is provided in Figure 8 which shows, in percentage points, how the incidence of low-paid work has changed between 1995 and 2005 separately for men and women. For the OECD as a whole, the data clearly indicate a deterioration of the position of men together with a small improvement for women.

For men, the increase in the absolute incidence of low-paid work was fairly generalised: 11 out of 13 countries represented in the sample experienced an increase (Australia, Canada, Denmark, Germany, Hungary, Japan, Korea, Poland, Sweden, the United Kingdom and the United States), and two countries witnessed a decline (Ireland and New Zealand). For women, the situation has varied quite substantially across countries. There was a decline in the incidence of low paid work in eight countries (Canada, Hungary, Ireland, Japan, Korea, New Zealand, the United Kingdom and the United States) and an increase in five countries (Australia, Denmark, Germany, Poland, and Sweden).

Was then the decline in the gender gap, in terms of the incidence of low-paid work, observed in most OECD countries represented in the sample a positive development? The answer is a clear yes in only one country (Ireland), where the incidence of low-paid work has declined for both men and women. For most countries, however, the answer is more
ambiguous or clearly negative. In six countries (Canada, Hungary, Japan, Korea, the United Kingdom and the United States), the absolute incidence of low-paid work has declined among females but increased among males. In another three countries (Australia, Denmark and Poland), the percentage of low-paid workers increased for both men and women, although at a higher path for men. In two countries (Germany and to a lesser extent Sweden), low-paid work increased among women more than among men. A particular case is the situation of New Zealand, a country where low-paid work has declined for both men and women, but where the gender gap has not declined. Turning to developing countries, a similar over-representation of women in low-paid jobs is observed, despite the fact that OECD countries have in place a battery of measures which could reduce the gender gap in employment and wages. In particular, OECD countries are more likely to have anti-discrimination legislation, and family-friendly policies.

**Figure 8. Changes, in percentage points, in the incidence of low-paid work by gender**

A question that remains to be answered is the extent to which the process of polarization in the employment expansion by job quality observed in the last decades in several OECD countries is gendered. For the United States, it has been noted that “gender differences in jobs expansion were very sharp in the 1960s and quite muted in the 1990s, while the racially polarised character of job expansion has increased, especially at the bottom of the employment structure” (Wright and Dwyer, 2003, p. 289). In the European Union, while the increase in female employment was considerably larger than the increase in male employment, the pattern of job expansion was very similar for both genders (ERM, 2008). Unfortunately the OECD study does not disaggregate the estimates of high wage employment growth over the period 1993-2001 by gender, while the graphs on earnings dispersion between 1979-2001 are not disaggregated either (OECD, 2003). Also the use of full time earnings data leads to an underestimation of the gender gap and the level of inequality amongst women.
7. Causes for rising earnings dispersion and mitigation policies

A popular view on the difference in labour market situations in the United States and Europe in the 1980s and 1990s commonly opposed the experience of the United States with that of Europe. The United States would be characterised by declining unemployment rates and wage flexibility, while Europe would experience rising real wages co-existing with increasing unemployment (Blau and Kahn, 2002). According to this “unified” view of labour market, Europe’s labour market institutions, such as union density and relatively high minimum wages, protected the wages of low paid workers, thereby preventing an increase in wage inequality like that observed in the United States. For many mainstream economists, other policy measures commonly found in Europe such as the level and coverage of unemployment benefits and unemployment assistance would explain the persistence and high levels of unemployment.

There are several competing explanations of wages determination which may apply in different contexts. For example, market-based theory of wages illustrates long-term and structural forces, while efficiency wages are useful to understand wage differences between sectors. Turning to “normative” wages types of explanation, they are able to shed light on the resisting factors to market forces. While recognizing the merits of different explanations of wages, this section tries to look at their arguments through the lenses of labour market institutions.

Rising wage dispersion, as well as the polarization of the wage distribution between low-paid jobs and high paid jobs, have been brought about by a combination of supply-side and demand-side factors. Institutional factors might have played a role as well. In the following literature review, a distinction is made between factors responsible for rising wage dispersion and those for polarization of the wage structure whenever possible.

Starting with general economic conditions, high growth does not make a very strong difference on the proportion of low-paid workers moving to higher earnings positions (Newman, 2006). In a similar fashion, there does not appear to be a trade-off between low-wage employment and unemployment. Low-wage employment has increased during both booms and recessions over the past 25 years in Britain (Lucifora et al., 2005).

On the demand side, the growth of service sector, including personal services, external demand, and technology can be found amongst the explanatory factors of rising earnings dispersion. There has also been a rise in part-time jobs, including involuntary part-time, which are paid less than full-time jobs on an hourly basis. As part time jobs are not captured by the data-set, this means that our results represent lower limits of inequality based on both part time and full time jobs. The impact of changes in sectoral composition from manufacturing to services, retail and whole-trade sectors on wage disparities since 1979 was specifically noted by Blum with regard to the United States, with empirical analysis attributing 60 per cent of the widening earnings dispersion to this factor (Blum, 2008). Similarly, a study by Chanda and Dalgaard recalling that the service sector recorded particularly low productivity growth during the period of US productivity slowdown in 1973-95, found a causality tying the decline in productivity growth to the increase in wage inequality (Chanda and Dalgaard, 2005, p. 5). The later rise in productivity of the service sector in tandem with the stabilization of earnings inequality is cited as evidence of the correlation (Chanda and Dalgaard, 2005, p. 14).

However both the Blum (2008) and the Chanda and Dalgaard (2005) studies ignore other aspects of wage determination. It is not just the sectoral composition which has changed in the United States since the 1970s, and could explain the rising earnings dispersion. It is
also the relative decrease of the US minimum wage after 1979, which affects manufacturing, services, and trade sectors in a different way through skill intensity (Lee, 1999). Therefore, what is interpreted as a demand-side factor could be an institutional change. The role of institutional factors versus demand and supply side factors are examined in more detail at the end of this section.

On the demand side, rising wage dispersion has also been attributed to globalization and international production networks. To support this argument, the increase responsiveness of wages and employment to economic shocks since 1980 is cited as evidence. For example, in manufacturing industries from the period 1980-2002, the elasticity of labour demand increased significantly, implying greater wage volatility for any given distribution of labour demand shocks (OECD, 2007). Off-shoring and other factors of globalization are cited as possible driving forces behind the trend of labour demand elasticity since 1980, given that more firms are able to flexibly respond to shocks with mixed production and intensified product market competition (OECD, 2007). In turn, globalization has reduced the ability for unions to capture rents for the benefit of workers.

Finally, technology and the role of computerization, or skill-based technical change over the past three decades is cited by various studies as having an impact on skill demand and thus, wage distribution. An early study showed that human capital has been increasingly rewarded in recent years, as indicated by the higher returns of college graduates with respect to high school graduates in the United States over the 1980s (Katz and Murphy, 1992). A study by Goos and Manning (2007) describes the “polarization of work” or heightened demand for higher-educated workers (abstract tasks) and depressed skill demands for middle-educated workers (routine tasks) with no effect on lower educated workers (manual tasks) as a possible cause of the hollowed out wage distribution in the United Kingdom from 1975-2000. Dustmann et al. (2009) had similar findings on polarization of employment for (West) Germany in around the same time period. A recent paper by Autor et al. (2008) also attributes the patterns of earnings inequality in the United States to skill bias, arguing that shifts in labour demand have favoured low and high wage workers over middle wage earners in the last fifteen years, in contrast to shifts in labour demand in the 1980s “which appears to be monotonically rising in skill” (Autor et al., 2008, p. 320). In the case of the United States, the main drawback of the skill-biased technological change explanation of earnings inequality is that earnings inequality at the bottom of the distribution stabilized in the 1990s despite continuing advances in computer technology. In addition, technological change is often assimilated to a residual in empirical estimations, which raises the question of its real explanatory power. A review by Card and DiNardo (2002) concluded that the increase in earnings disparity in the United States at the lower end of the distribution was temporary and was caused by the fall in the real value of minimum wage, declining unionization and reallocation of labour due to the 1982 recession rather than by skill-biased technological change (Card and DiNardo, 2002, pp. 775-6). A study on low-wage employment in Europe focusing on institutions as well as market factors actually found no significant role for the distribution of skills in none of the various specifications (Lucifora et al., 2005).

On the supply side, less generous welfare states in OECD countries could explain the polarization of jobs over the past twenty years. Many OECD countries have introduced in-work benefits in order to boost labour market participation of (low skilled) people previously receiving a benefit (“Make work pay”). In addition, many countries have taken steps to encourage students’ part-time employment in order to facilitate the school-to-work transition. Both factors have increased the share of low wage employment in total employment (OECD, 2006).
Other supply-side factors cited for earnings dispersion are the rise in (voluntary) part-time jobs, which are paid less than full-time jobs on an hourly basis and changes in status of employment. Regarding hours, the trends towards longer hours of work in several industrialised countries such as Australia, Germany and the United States could also play a role, as longer hours are better rewarded. Turning to changes in status of employment, in Spain, workers on fixed term contracts receive lower wages than similar workers on permanent contracts (Blázquez, 2006).

Additionally, immigration and the increased labour force participation of women are plausible supply-side factors, though dependent upon whether those entering the wage force are good or poor substitutes for low skilled men. Nonetheless, most evidence regarding immigration on earnings suggests that the impacts are minor (Lalonde and Topel, 1997).

On the supply side, the increase in education attainment in OECD countries is put forward as a major cause of rising earnings dispersion. For instance, a discussion paper by Barth and Lucifora cite the expansion of tertiary education in Europe as having an impact on the earnings dispersion (Barth and Lucifora, 2006, p. 2). In fact, the demand for college-educated labour has proven to be relatively inelastic, implying that high-school students are poor substitutes. Thus, an increased supply of college graduates reduces the rise in wage inequality, but mainly among relatively high-wage workers, as evidenced from analysis of the 1970’s and 1980’s (Lalonde and Topel, 1997).

Therefore, one important factor associated with higher pay is human capital, including investments that people make in schooling, in specialized training and in on-the-job training and other forms of adult training. As a result, investment in human capital could be one remedy to reduce wage dispersion between low-skilled and high-skilled workers.

While differences in the distribution of skills help to explain some aspects of the international differences, higher rewards to given level of labour market skills are an important factor (Blau and Kahn, 1996). In particular, labour market institutions, chiefly the relatively decentralized wage-setting mechanisms in the United States compared to other countries, appear to provide the most persuasive explanation for the pattern of earnings inequality across countries.

Additionally, a deeper longstanding cultural work ethic and/or drive to emulate a particular reference group as a possible factor (Causa, 2008, p. 8). A study by Wallerstein (1999) of 16 OECD countries between 1980 and 1992 using a data set of “industrial relations institutional characteristics” found that collective bargaining was the most important predictor of cross country within time differences in wage inequality, to the extent that all other institutional variables appeared to have minor relevance in comparison (ILO, 2008, p. 76). A similar study controlling for economic conditions (by including the share of public employment and partisan composition of governments) performed by Rueda and Pontusson (2000) examined earnings inequality for 16 OECD countries between 1973 and 1995. Testing union density and collective bargaining centrality, the results suggest that union density was the only predictor within countries that had a reducing effect on wage inequality, regardless of the political economy of the country in question (ILO, 2008, p. 76). Other findings, relying more heavily on the role of the political economy, suggest that collective bargaining power appears to have a greater effect on earnings dispersion in coordinated economies than liberal ones. Though both studies agreed on the effect of institutions in reducing inequality, the Rueda and Pontusson (2000) gave more weight to trade union density than collective bargaining (ILO, 2008, p. 77).

Arguably, the trends towards longer working hours itself could be attributed to rising wage dispersion (Bell and Freeman, 2001).
A study by Zweimüller and Barth (1992) assessing bargaining structures and wage determination in six OECD countries also concluded that unionism and collective bargaining influenced the size of wage differentials, with a strong union emphasis on wage equality in union demands leading to smaller industry pay gaps (Zweimüller and Barth, 1992). Recent econometric analysis on Germany cited in an OECD study (2006) suggested that the higher the union density by sector, the more compressed the wage distribution by qualification (OECD, 2006, p. 107).

On the effect of unions in reducing inequality, Aidt and Tzannatos (2002) found a stronger compression where union membership and bargaining coverage were high, together with high levels of centralization and/or co-ordination of collective bargaining. However trade union density had not increased in almost any country. For example, trade union membership in European countries remained almost stable between 2003 and 2008, with a decline of only 0.4 per cent (Eironline, 2009). Another study reported losses in union density for 24 industrialised countries between 1990 and 2003 with the exception of small increases for Belgium, Finland, and Spain (Visser, 2006).

On the effect of decentralization of collective bargaining on wage dispersion, a study by Dell'Aringa and Pagani (2007) assessed single-employer bargaining versus multi-employer bargaining on wage dispersion. In recent decades, a number of countries have reformed their wage-setting institutions to give firms more ability to adjust to labour market adjustments by decentralizing collective bargaining. In countries, such as the United Kingdom, New Zealand, and to some extent, Australia, where the form of collective bargaining is either multi-employer bargaining or, in many cases, no bargaining at all, wage dispersion has been high and increasing in the last few decades. Conversely, in countries such as Italy, Belgium and Spain, multi-employer bargaining has developed alongside single-employer bargaining and less wage dispersion is shown to have occurred (Dell'Aringa and Pagani, 2007, pp. 30-1).

On the institutional side, an additional factor could explain why a greater dispersion has occurred at the top as against the bottom of the wage distribution in OECD countries. This could be due to the protection of the minimum wage, which varies accordingly to countries but also across time within countries. Minimum wage regulation reduces dispersion by gender and skills (Eyraud and Saget, 2005 for a review of evidence in Brazil, Morocco, and the United States, reports of the Low Pay Commission for the United Kingdom, and OECD, 1998 for a review of OECD countries). Indeed within the five OECD countries from Atkinson’s study (2007) where the bottom decile relative to the median has fallen more than 10 per cent since 1980, two, Poland and Czech Republic had non-binding minimum wages at some point (Standing and Vaughan-Whitehead, 1995) while for the United States, the reference year also corresponds to a peak for the minimum wage.

An article by Koeniger et al. (2004) considers a wider array of labour market variables, including employment protection, replacement rates of unemployment benefits, duration of unemployment benefits and size of tax wedge, with the premise that wage inequality would be reduced if the bargaining position of unskilled workers exceeded that of skilled workers and compressed wages. Their findings concluded that institutions have an apparent effect on wage inequality, at least as much as economic variables (Koeniger et al., 2004, p. 19).

There is a negative correlation between union density (when the extension of collective bargaining is taken into account) and the incidence of low-wage employment (Lucifora et al., 2005). The effect of unions on the incidence of low-wage employment occurs through the following mechanisms. First, pay standardization policies may compress pay

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6 Also see the yearly reports of the UK Low Pay Commission at [http://www.lowpay.gov.uk/lowpay/rep_a_p_index.shtml](http://www.lowpay.gov.uk/lowpay/rep_a_p_index.shtml).
differences within firms by reducing management discretion. Second, as seen above, minimum wage compresses wage differences by gender and skills. Third, sector bargaining and extension of collective agreements reduce wage differentials across firms.

There is also a negative correlation between the level of the minimum wage relative to the average wage and the share of low-wage employment in total employment. In addition, countries where labour markets are regulated with centralised wage setting and safety nets have experienced the smallest increases in inequality (Lucifora et al., 2005).

However, de-unionization, deterioration of workers’ bargaining positions and swings in the level of the minimum wage fail to explain changes in the top distribution of wages. A number of theories have been put forward to explain the rise in executive compensation in the 2000s (see Ebert et al., 2008; Piketty and Saez, 2003; Autor et al., 2006). Some are market-based and consider executive compensation as the result of supply and demand factors for these workers. Others attribute the rise in compensation to emulation of a reference group. A third group of theories views compensation as a consequence of imperfect information for shareholders, and the discretionary power of executives over their own compensation setting. Other institutional elements play a role as well, such as the presence and concentration of institutional investors, the provision of advice on compensation by consultancy firms, and the design of stock options. In the latter case, executives benefit from the increase of stock value irrespective of whether this increase is linked to enhanced performance of the firm or whether it reflects favourable performance of stocks as a whole.

However, as mentioned above, other policies and institutions play a role. For example, it is sometimes argued that generous unemployment benefits are negatively related to the level of low-wage employment as they might have an impact on the propensity of individuals to enter the labour market (OECD, 2006). Other policies and institutions such as taxation and working time regulation have an impact on the number of hours worked, hence, can explain differences in wage dispersion among OECD countries, including gender differences. For example, high marginal tax rates create a disincentive for women to work longer hours, while their impact on men’s hours is almost non significant. Turning to working-time regulations, the impact on hours worked is significant for men, and this impact differs across levels of education. A higher share of public employment also reduces inequality, although more so for women than for men (Rubery and Grimshaw, 2003). Finally, employment protection legislation and product market policies also have a negative impact on hours worked by men (Causa, 2008).

Policies and institutions, as well as market forces outlined above, help to explain earnings dispersion at a fixed time. It is equally important to view earnings inequality in a dynamic context and single out factors associated with higher earnings mobility. A Cardoso (2006) study investigating wage dispersion within a regulated institutional framework, focusing specifically on the difference between the United Kingdom and Portugal, found that, despite more labour market regulation, in the form of employment protection and widespread collective bargaining in Portugal, earnings mobility in Portugal does not appear to be lower as compared to the less-regulated UK.

When looking at low wage employment in the long run, changes in earnings mobility could affect lifetime prospects of low-paid workers. A restricted analysis on Denmark, France, Germany, Italy, Great Britain and the United States shows that earnings mobility over a 6-year period has a small equalizing effect on inequality. Turning to examining changes in mobility over a longer period of time reveals that earnings mobility actually fell in the last quarter of the twentieth century, at least in Great Britain (Lucifora et al., 2005).
Increasing pathways to moving up away from low-paid jobs might reduce earnings dispersion in the long-run. Internal mobility in a growing firm is one strategy. In the United States, moving into unionized employment or into sectors with a high rate of unionization was another way. The third option is for workers to overcome the barriers to get access to adult education. In all cases, mobility through the labour market is dependent on family network available to provide care of the children. On the other hand, Spain has managed to successfully reduce the share of low-paid jobs through the conversion of some fixed-term jobs into permanent jobs (Blázquez, 2006).

Conclusion

The broad conclusion of this paper is that of a mixed picture. From 1985 to 2005, most OECD countries have seen an increase in earnings inequality. In nearly half of these countries, the widening was driven by an increase in inequality at both the top and the bottom of the distribution. In the other half, rising overall inequality was reflecting a relative increase in high earnings only.

Moreover, in several OECD countries, a rise in low-paid employment and a process of polarisation in net employment growth by job quality have been observed. While strong employment growth in high-paid jobs observed in many OECD countries in the last decade has been a very positive development, the recent job expansion was not unequivocally a process of employment upgrade. Several countries experienced intense job creation at the bottom of the job ladder. A particular concern is the deep trough in employment expansion in the middle employment structure observed in many – but not all – OECD countries.

While the factors behind the increase in earnings inequality and job polarization are multiple, the picture that emerges from recent studies is that changes in characteristics of workers and jobs, such as changes in skills, hours of work and employment status, have been at stake. However, changes in the reward of characteristics have been equally important. These mostly reflect institutional changes, first and foremost the decrease in union density and collective bargaining. To some extent, institutional changes were driven by globalisation and by the increased use of global production chains which have undermined the bargaining power of workers.

However, labour market institutional factors alone fail to explain the increase in inequality at the top of the earnings distribution, perhaps with the exception of the reduced power of unions to compress earnings at the top through pay standardization practice. Other institutional factors relate to business practice in big firms, emulation, and the increased diversity of job tasks.

Country experiences have also shown that addressing earnings inequality may require a mix of instruments. Findings on policies to mitigate inequality show a mix of successes and failures. Regarding the low end of the labour market, policies to reduce inequality should act on the labour supply (providing workers with better skills and training), labour demand measures (investment in job creation), and building institutions to ameliorate low-paid workers’ pay such as collective bargaining and minimum wages. Turning to the upper end of the labour market, there has been a general lack of political support to address rising top earnings, which were not perceived as an issue up to the 2007-initiated global financial crisis. Since then, a consensus seems to have emerged on the necessity to adopt pay practices for top managers which are based on the firms’ long term performance and with a view to “smoothen” earnings (and bonuses). However the design of such systems is usually the responsibility of firms and share owners where most governments have provided guidelines. Until today, the rise in inequality attributed to top earnings rising faster than median earnings has not been addressed through regulation by policy makers.
It is difficult to disentangle the influences on labour demand and labour supply incentives, institutional factors and cultural factors such as emulation of a reference group of workers or work ethic. The issue is to identify the policies and institutions that might shape the evolution of labour market trends. In this respect, three case studies include Spain’s reform to restrict the scope of short-term contracts, as well as increased minimum wage in the United Kingdom, the United States, also in middle income countries which did reduce inequality through the lower end of the labour market.
References


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**Working Papers**

<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ILO activities on the social dimension of globalization: Synthesis report</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Measuring decent work with statistical indicators – Richard Anker, Igor Chernyshev, Philippe Egger, Farhad Mehran and Joseph Ritter</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Globalization and decent work: Options for Panama – Philippe Egger</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Globalización y trabajo decente: Opciones para Panamá – Philippe Egger</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Indicators of social dialogue: Concepts and measurements – Lane Kenworthy and Bernhard Kittel</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Assessing the impact of the attacks of 11 September 2001 on women’s employment in the United States – Gertrude Schaffner Goldberg and Helen Lachs Ginsburg</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Decent work and the informal economy in Central America – Juan Diego Trejos Solórzano and Miguel Del Cid</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Poverty initiatives in the ILO: A review of past and present approaches – Pat Holden and Dagmar Walter</td>
<td></td>
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<tr>
<td>9</td>
<td>Whither the International Standard Classification of Occupations (ISCO-88)? – Debbie Budlender</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Improving occupational classifications as tools for describing labour markets: A summary of recent national experiences – Debbie Budlender</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Recent developments in China’s labour economy – Thomas G. Rawski</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>The Impact of economic liberalization on employment and wages in India – Sonia Bhalotra</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>The impact of trade liberalization upon inequality in developing countries – Donald J. Robbins</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>The impact of liberalization and globalization on income inequality in developing and transitional economies – Giovanni Andrea Cornia</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>The impact of technology transfer on employment and income distribution in developing countries: A survey of theoretical models and empirical studies – Mariacristina Piva</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>International finance: Meeting the needs of people in developing countries – José Guilherme Almeida dos Reis</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>The gender dimensions of globalization of production – Stephanie Barrientos, Naila Kabeer and Naomi Hossain</td>
<td></td>
</tr>
<tr>
<td>18</td>
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<td></td>
</tr>
<tr>
<td>19</td>
<td>Gender and globalization: A macroeconomic perspective – Çağatay Nilüfer and Ertük Korkurt</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Globalization, social exclusion, and work: With special reference to informal employment and gender – Marilyn Carr and Martha Chen</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Resources for social development – Antony Clunies Ross</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Does the new international trade regime leave room for industrialization policies in the middle-income countries? – Alisa DiCaprio and Alice Amsden</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Social dimension of globalization in Latin America: Lessons from Bolivia and Chile – Ivaro García Hurtado</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>The social dimension of globalization: A review of the literature – Bernhard Gunter and Rolph van der Hoeven</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>The social dimension of global production systems: A review of the issues – Susan Hayter</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Reforming global economic and social governance: A critical review of recent programmatic thinking – Jeremy Heimans</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Corporate social responsibility: An issues paper – Michael Hopkins</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Upgrading in global value chains – John Humphrey</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>Implications of globalization and economic restructuring for skills development in Sub-Saharan Africa</td>
<td>Richard K. Johanson</td>
</tr>
<tr>
<td>30</td>
<td>The outcome and impact of the main international commissions on development issues</td>
<td>Frédéric Lapeyre</td>
</tr>
<tr>
<td>31</td>
<td>Globalization and structural adjustment as a development tool</td>
<td>Frédéric Lapeyre</td>
</tr>
<tr>
<td>32</td>
<td>Globalization and perceptions of social inequality</td>
<td>Malte Lübker</td>
</tr>
<tr>
<td>33</td>
<td>The changing structure of international trade linked to global production systems: what are the policy implications?</td>
<td>William Milberg</td>
</tr>
<tr>
<td>34</td>
<td>Corporate social responsibility: An overview of principles and practice</td>
<td>Jill Murray</td>
</tr>
<tr>
<td>35</td>
<td>Inclusive development strategy in an era of globalization</td>
<td>Ignacy Sachs</td>
</tr>
<tr>
<td>36</td>
<td>Social consequences of the globalization of the media and communication sector: some strategic considerations</td>
<td>Seán Ó. Siochrú</td>
</tr>
<tr>
<td>37</td>
<td>Globalization, history and international migration: A view from Latin America</td>
<td>Andrés Solimano</td>
</tr>
<tr>
<td>38</td>
<td>Towards a different kind of globalization, or how the anti-globalists view the world</td>
<td>Gisbert van Liemt</td>
</tr>
<tr>
<td>39</td>
<td>How do trade union rights affect trade competitiveness?</td>
<td>David Kucera and Ritash Sarna</td>
</tr>
<tr>
<td>40</td>
<td>Statistics on the employment situation of people with disabilities: A compendium of national methodologies</td>
<td>ILO Bureau of Statistics in collaboration with the In Focus Programme on Skills, Knowledge and Employability</td>
</tr>
<tr>
<td>41</td>
<td>Employment in the informal economy in the Republic of Moldova</td>
<td>ILO Bureau of Statistics in collaboration with the Department for Statistics and Sociology of the Republic of Moldova</td>
</tr>
<tr>
<td>42</td>
<td>Decent work in a least developed country: A critical assessment of the Ethiopia PRSP</td>
<td>Graeme J. Buckley</td>
</tr>
<tr>
<td>43</td>
<td>Unemployment and labour market institutions: The failure of the empirical case for deregulation</td>
<td>Dean Baker, Andrew Glyn, David Howell and John Schmitt</td>
</tr>
<tr>
<td>44</td>
<td>Women’s access to occupations with authority, influence and decision-making power: Women as legislators, senior officials and managers around the world</td>
<td>Richard Anker</td>
</tr>
<tr>
<td>45</td>
<td>The world of work in the context of economic integration and trade liberalization</td>
<td>Daniel Martinez</td>
</tr>
<tr>
<td>46</td>
<td>Poverty reduction in Pakistan: The strategic impact of macro and employment policies</td>
<td>Moazam Mahmood</td>
</tr>
<tr>
<td>47</td>
<td>Trends in work stoppages: A global perspective</td>
<td>L. J. Perry and Patrick J. Wilson</td>
</tr>
<tr>
<td>48</td>
<td>Generating decent work for poverty reduction in Cambodia: The voice of workers, employers and the Government</td>
<td>Moazam Mahmood</td>
</tr>
<tr>
<td>49</td>
<td>The social dimension of regional integration in ECOWAS</td>
<td>René Robert</td>
</tr>
<tr>
<td>50</td>
<td>Measuring trade union rights: A country-level indicator constructed from coding violations recorded in textual sources</td>
<td>David Kucera</td>
</tr>
<tr>
<td>51</td>
<td>Patterns of job quality attributes in European Union</td>
<td>Joseph A. Ritter</td>
</tr>
<tr>
<td>52</td>
<td>Child labour, education and export performance</td>
<td>David Kucera and Ritash Sarna</td>
</tr>
<tr>
<td>53</td>
<td>Measuring the informal economy: From employment in the informal sector to informal employment</td>
<td>Ralf Hussmans</td>
</tr>
<tr>
<td>54</td>
<td>Indicators of labour standards: An overview and comparison</td>
<td>Richard N. Block</td>
</tr>
<tr>
<td>55</td>
<td>The pattern of globalization and some implications for the pursuit of social goals</td>
<td>Gerry Rodgers</td>
</tr>
<tr>
<td>56</td>
<td>Statistical indicators of social dialogue: A compilation of multiple country databases</td>
<td>Anne Chataigner</td>
</tr>
<tr>
<td>57</td>
<td>Trade unions and informal workers’ associations in the urban informal economy of Ecuador</td>
<td>Catherine Vaillancourt-Laflamme</td>
</tr>
<tr>
<td>58</td>
<td>Decent work, standards and indicators</td>
<td>Monique Zarka-Martres and Monique Guichard-Kelly</td>
</tr>
<tr>
<td>59</td>
<td>Social dialogue indicators: Trade union membership and collective bargaining coverage. Statistical concepts, methods and findings</td>
<td>Sophia Lawrence and Junko Ishikawa</td>
</tr>
<tr>
<td>60</td>
<td>Informality and gender in Latin America</td>
<td>María Elena Valenzuela</td>
</tr>
<tr>
<td>61</td>
<td>Labour developments in dynamic Asia: What do the data show?</td>
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</tr>
</tbody>
</table>
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